

Evaluation of Acute Flaccid Paralysis Surveillance System's Structure at Al-Russafa Health Directorate in Baghdad City

تقويم الهيكل التنظيمي لبرنامج الرصد الوبائي لحالات الشلل الرخوي الحاد في دائرة صحة الرصافة في مدينة بغداد

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المستخلص:

الهدف: تقويم الهيكل التنظيمي لبرنامج الرصد الوبائي لحالات الشلل الرخوي الحاد في دائرة صحة الرصافة في مدينة بغداد

المنهجية: دراسة وصفية باستخدام نهج تقويمي أجريت لقياس كفاءة الهيكل التنظيمي لبرنامج الرصد الوبائي لحالات الشلل الرخوي الحاد للفترة من 27 تشرين الثاني 2014 ولغاية 30 حزيران 2015. اعتمدت الدراسة نهج العينة الغير احتمالية متعددة المراحل. حيث تم اختيار تسعة عشر مؤسسة صحية خاضعة للرصد واجراء مقابلات مع العاملين في البرنامج والبالغ مجموعهم 50 شخص. جمعت البيانات من العينات باستخدام استمارة استبثانيته اعدت خصيصا لكل مرحلة من مراحل العينة.

النتائج: أظهرت نتائج الدراسة ان بعض مكونات الهيكل التنظيمي للبرنامج كفؤة ومتوفرة كامتلاك البرنامج للتحويل القانوني ووجود دليل حقلي يستخدم في رصد حالات الشلل الرخوي الحاد. من جهة أخرى اثبتت الدراسة ان بعض من عناصر الهيكل التنظيمي للبرنامج تحتاج الى تقوية وتعزيز لعدم امتلاك النظام ميزانية خاصة ونقص المواد اللازمة للعمل ونقص التدريب للعاملين في البرنامج.

التوصيات: توصي الدراسة الحالية بضرورة توزيع الدليل الحقلي للبرنامج على كافة المؤسسات الصحية ومراقبة استخدام الدليل من قبل العاملين في البرنامج. كما وتوصي الدراسة بضرورة توفير مستلزمات العمل وإيجاد مناهج تدريبية للعاملين في مجال رصد حالات الشلل الرخوي الحاد من اجل الحصول على الفائدة القصوى من هذا البرنامج.

Abstract:

Objective: evaluation of Acute Flaccid Paralysis Surveillance (AFP) System's Structure at Al-Russafa Health directorate in Baghdad City.

Methodology: descriptive study using evaluation approach conducted to measure the efficiency of AFP Surveillance System structure for period from November 27th 2014 to June 30th 2015. The study adopted the non-probability multi-stage sampling approach. As nineteen health facilities under surveillance are chosen and interview is conducted with a total of 50 health worker how are involved in the AFP Surveillance System. The data are gathered from sample by using questionnaire specifically developed for each of sample stage.

Results: the study results indicates that the certain of system's structure component are efficient and available such as the system owns a legal authorization and availability of field's guide that is used in AFP surveillance. On the other hand, the study proved that some of system's structure elements need to strengthen and enhance such as unavailability of special budget line, lack of necessary materials to work and lack of training for workers in the system.

Recommendations: The present study recommends that there is a necessity for the distribution of AFP manual for all health institutions under surveillance as well as monitor the uses of the manual by those who are working in the system. The study also recommends the need to provide resources and material needed in the system works and the creation of a training curriculum for those who are working in fields of AFP Surveillance in order to get the maximum benefit from this system.

Key words: Evaluation, Acute Flaccid Paralysis (AFP), Surveillance System, Structure

Introduction

Poliomyelitis effects on humans since ancient times and it is one of major cause of disability around the world. In 1988, an estimated 350,000 cases of polio occurred; worldwide in 125 countries⁽¹⁾. At this time, the global polio eradication initiative began to put an end to this big problem⁽²⁾.

Poliomyelitis is consider as one of only a few diseases that can be eradicated. This is because humans are only affected by polio (no animal or insect reservoir), availability of an effective vaccine, and immunity is lifelong. There are no long-term carriers of the disease, and very shortness of time that the virus can survive in the environment⁽³⁾.

Poliomyelitis is targeted for eradication. Surveillance is the third part of polio eradication strategy, surveillance in polio is the intelligence network that underpins the entire eradication initiative. Without this investigative framework, it would be impossible to pinpoint where and how wild poliovirus is still circulating or to verify when it has been eradicated⁽³⁾.

Acute Flaccid Paralysis (AFP) is a complex clinical syndrome with broad array of potential etiology. However, it is the most common sign of acute polio, in the early stages of disease; polio may be difficult to differentiate from other forms of acute flaccid paralysis. Due to confusing and ambiguous clinical signs and variable clinical knowledge and skills of health workers. To ensure that no cases of polio are missed, all cases of AFP are reported and investigated^(3, 4, 5).

AFP surveillance helps to detect reliably areas where poliovirus transmission is occurring. Thus, AFP surveillance data will guide targeted immunization activities in areas with continued wild poliovirus circulation. Additionally, surveillance data is accepted as the most reliable way to monitor how

effectively routine and supplementary OPV immunization has succeeded in decreasing poliovirus transmission. Ultimately, surveillance data will be the basis for certification of polio eradication⁽⁶⁾.

Any surveillance systems should meet their objectives as efficiently as possible. Meeting each of these objectives involves evaluating surveillance from different perspectives. The overall purpose of evaluating public health surveillance is to promote the most effective use of health resources. Evaluation is critical to strengthen surveillance and response systems, and should be an integral part of these systems. Its fosters accountability while ensuring that the surveillance and response systems meet the objectives for which they were developed^(7, 8).

WHO framework for monitoring and evaluating surveillance and response systems for communicable diseases commonly used for purpose of guiding the evaluation process of public health surveillance systems. This framework can identify the major element of evaluation process⁽⁸⁾.

For purpose of this study, the elements that are identified by WHO conceptual framework of surveillance and response systems for communicable diseases⁽⁸⁾ are used in evaluation of acute flaccid paralysis surveillance system structure.

The structure of acute flaccid paralysis surveillance system refers to settings in which the surveillance activities occur. It includes legal mechanism to enforce surveillance, national surveillance manual, standardized case definitions, materials, equipment, qualification of the staff (personnel), training, budget for surveillance, surveillance co-ordination and organizational structure^(8, 9).

Methodology:

Descriptive evaluation study carried out to measure the efficiency of the Acute Flaccid Paralysis Surveillance System Structure at Al-Russafa Health Directorate in Baghdad City for period from November 27th 2014 to June 30th 2015.

The study conducted at Al-Rusafa Baghdad, specifically the study carried through out the Al-Russafa health directorate as well as the primary health care sectors, primary health care centers and pediatrics hospitals affiliated to Al-Russafa Health Directorate.

The necessary approvals for conducting the study are obtained from Ministry of Planning Central Statistical System and Ministry of Health Center of Training and Staff Development. In addition, written official permissions are obtained from each of Al-Russafa Health Directorate, Al-Russafa Health District, Al-Sader City Health District, New-Baghdad Health District, Al-Baladyat Health District and Al-Shaab Health District.

A multistage sample of (19) health facilities, under surveillance are visited, which are selected throughout the use of non-probability sampling approach. A total of (50) health workers who are involved in the AFP surveillance system are conveniently sampled (those on duty at the selected centers) and interviewed. (Figure 1)

The sample of study is selected through three stages that include (figure 1):

1. Stage I: health directorates.
2. Stage II: health sectors.
3. Stage III: primary health care centers and hospitals.

A pre tested interviewer-administered questionnaire is used to elicit information from people who are involved in the study. The early stated questionnaire is developed specifically for each stage of

sample by using WHO framework for monitoring and evaluating surveillance and response systems for communicable diseases⁽⁸⁾. This framework can identify the component that requested for evaluation the structure of any public health surveillance system. Questions, which are included in questionnaire, are based on Protocol for the Assessment of National Communicable Disease Surveillance and Response Systems (GENERIC QUESTIONNAIRES)⁽¹⁰⁾. The simple development is employed to the original questionnaire with some modifications to be adopted to make perfect fit with our situation. In order to test the validity of the questionnaire, the instrument is presented to (12) experts in different fields for this purpose. A purposive sample of (2) primary health care centers which are involved in the surveillance system are interviewed on individual basis. Interrator reliability technique is employed for the determination of the instrument reliability. Reliability coefficient for the interview questionnaire: $r = 0.866$

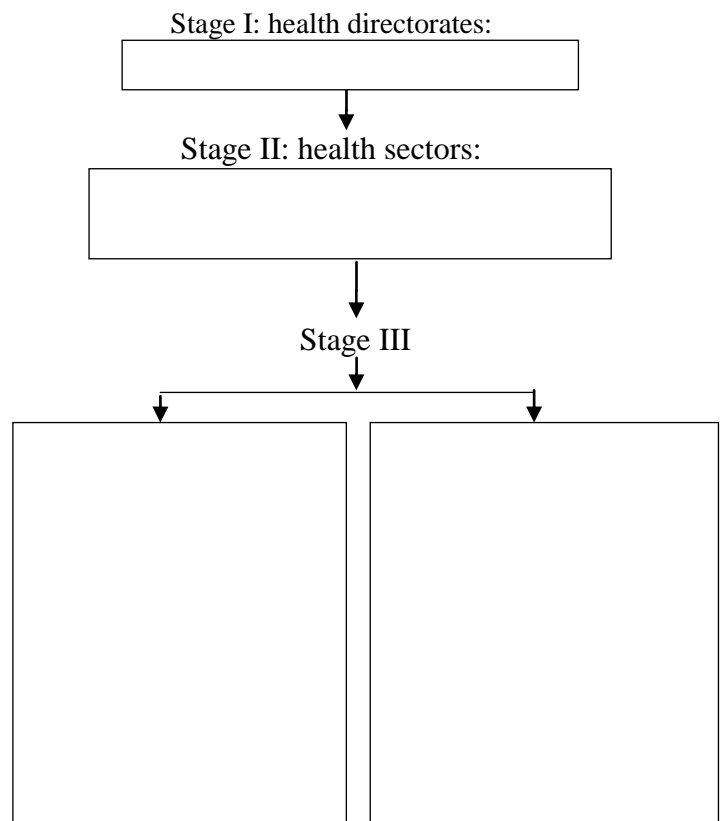


Figure 1. Multistage Sample of the study

This figure presents the process of sample selection. Such process starts with an interview with the focal point personnel who is one physician. Then health sectors are selected which include (5) physician and (5) personnel. Ultimately total of (10) physician, (10) personnel and (10) laboratory technicians is selected for primary health care centers another total of (3) physicians, (3) personnel and (3) laboratory technicians are selected from hospitals.

Results:

Table (1): Percentage of the Performance of Acute Flaccid Paralysis Surveillance System Structure at Different Levels

| Structure | Primary health care centers (n=10) | | Hospitals (n=3) | | Primary health care sectors (n=5) | | Health directorate (n=1) | |
|---|------------------------------------|------|-----------------|-------|-----------------------------------|------|--------------------------|------|
| | F. | % | F. | % | F. | % | F. | % |
| Legal mechanism* | | | | | | | | |
| There is mandatory surveillance for AFP cases. | n/a | n/a | n/a | n/a | n/a | n/a | 1 | 100% |
| Time of which AFP surveillance is established | n/a | n/a | n/a | n/a | n/a | n/a | 1996 | n/a |
| The accountable organization for implementation of AFP surveillance program | n/a | n/a | n/a | n/a | n/a | n/a | 1 | 100% |
| AFP manual** | | | | | | | | |
| Presence of AFP manual | 7 | 70% | 3 | 100% | 3 | 60% | 1 | 100% |
| AFP manual is up-to-date | 7 | 70% | 3 | 100% | 3 | 60% | 1 | 100% |
| Presence of standard case definition | 8 | 80% | 3 | 100% | 5 | 100% | 1 | 100% |
| Completeness of case definition | 8 | 80% | 3 | 100% | 5 | 100% | 1 | 100% |
| Personnel*** | | | | | | | | |
| Surveillance officer | 13 | 100% | 6 | 100% | 6 | 100% | 1 | 100% |
| Data Manager | 12 | 100% | 3 | 100% | 4 | 100% | 0 | 0% |
| Supervisors | 10 | 100% | 3 | 100% | 5 | 100% | 0 | 0% |
| Laboratory staff | 19 | 100% | 4 | 100% | 6 | 100% | 0 | 0% |
| Material and resource**** | | | | | | | | |
| Presence of especial room for AFP surveillance | 7 | 70% | 3 | 100% | 4 | 80% | 1 | 100% |
| AFP surveillance material | | | | | | | | |
| electricity | 10 | 100% | 3 | 100% | 5 | 100% | 1 | 100% |
| Transporting vehicle | 5 | 50% | 2 | 66.7% | 4 | 80% | 0 | 0% |
| telephone | 2 | 20% | 1 | 33.3% | 1 | 20% | 0 | 0% |
| Calculator | 5 | 50% | 3 | 100% | 4 | 80% | 1 | 100% |
| computer | 4 | 40% | 2 | 66.7% | 5 | 100% | 1 | 100% |
| printer | 4 | 40% | 2 | 66.7% | 5 | 100% | 1 | 100% |
| posters | 8 | 80% | 3 | 100% | 5 | 100% | 1 | 100% |
| Internet line | 4 | 40% | 1 | 33.3% | 5 | 100% | 1 | 100% |
| % of site owns AFP surveillance forms | 7 | 70% | 3 | 100% | 5 | 100% | 1 | 100% |

Continues...

Table (1): To be Continues...

| Structure | Primary health care centers (n=10) | | Hospitals (n=3) | | Primary health care sectors (n=5) | | Health directorate (n=1) | |
|--|------------------------------------|-------|-----------------|------|-----------------------------------|-------|--------------------------|------|
| | F. | % | F. | % | F. | % | F. | % |
| Budget line***** | | | | | | | | |
| Existence of a budget-line dedicated to AFP surveillance | n/a | n/a | n/a | n/a | n/a | n/a | 0 | 0% |
| Surveillance Coordination***** | | | | | | | | |
| Existence of a surveillance co-ordination focal unit | n/a | n/a | n/a | n/a | 3 | 60% | 1 | 100% |
| Existence of a person responsible for co-ordination | n/a | n/a | n/a | n/a | 5 | 100% | 1 | 100% |
| Training ***** | | | | | | | | |
| Health facilities with basic surveillance training | 4 | 40% | 3 | 100% | 3 | 60% | 1 | 100% |
| Health facilities with post-basic surveillance training | 1 | 10% | 0 | 0% | 1 | 20% | 1 | 100% |
| Total No. of AFP surveillance personnel | 44 | 100% | 14 | 100% | 16 | 100% | 1 | 100% |
| No. and % of personnel with basic surveillance training | 8 | 18.1% | 14 | 100% | 6 | 37.5% | 1 | 100% |
| No. and % of personnel with post-basic surveillance training | 2 | 4.5% | 0 | 0% | 3 | 18.7% | 1 | 100% |

n= Number of sample. n/a= Not applicable. F= Frequency. % = percentage. No= Number.

The table (1) indicates the structure of acute flaccid paralysis surveillance system at different level. Depending on a number of variables... and as follows:

Legal mechanism*

The table demonstrates that there is mandatory surveillance for AFP cases. By the Ministry of Health / AL-Rusafa Health Directorate since 1996.

AFP manual**

The table shows the existence of a field's guide that is used to surveillance of AFP cases. The AFP manual is available at (70%) of primary health care centers, (100%) at hospitals, and (60%) of primary health care sectors also it is available at health directorate. The available manual is up-to-date; include standard case definition for AFP cases. The standard case definition is complete.

Personnel***

The table makes it clear that the system lack of administrators and supervisors at directorate level, which is accounted for (0%). On the other hand, there is a numerical increase for workers in the system in the rest of the stages.

Material and resource****

The table shows the availability of the necessary material and resource for AFP cases surveillance at different level. (Such as availability of especial room for AFP surveillance personnel, availability of surveillance forms).

The table indicates that the biggest shortage of work materials at primary health care centers is lack of telephone, computer, printer and internet line devices. (20%) of primary

health care centers has a telephone device and (40%) of them have computer, printer and internet line.

At hospitals, the majority of material shortage is lack of telephone device and internet line, only (1) out of (3) hospitals has the mentioned devices.

The shortage of telephone device also appear at primary health care sectors. Only (20%) of primary health sectors has telephone device. The directorate of health lack to transporting vehicle and telephone device so. In addition, the table make it clear that the all health facilities under the study owns AFP surveillance forms except (30%) of primary health care centers

Budget line*****

The table shows the absence of a special budget for acute flaccid paralysis surveillance process.

Surveillance Coordination*****

The table demonstrates the existence of a surveillance co-ordination focal unit at health directorate and in (60%) of health districts. Further, the table explain the existence of a person responsible for co-ordination unit at all health districts and health directorate under the study.

Training *****

Finally; the table showing the proportion of health institutions with basic and post-basic surveillance training at different level.

At primary health care centers, only (40%) of them has basic surveillance training and (10%) of them has post-basic surveillance training. The number and percentage of personnel with basic surveillance training was {8 out of 44 (18.1%)}. In addition, the post-basic surveillance training was {2 out of 44 (2.4%)}. The table indicates that all hospitals has basic surveillance training, On the other hand none of them have post-basic surveillance training. The AFP surveillance personnel at hospitals all of them {14 out of 14(100%)} owns basic surveillance training and {0 out of 14(0%)} null of them has post-basic surveillance training. The lack of post basic training also appears at districts level, {1 out of 5 (20%)} of health district has post basic surveillance training. The number and percentage of personnel trained with basic surveillance training at districts level are {6 out of 16 (37.5%)} and with post basic surveillance training are {3 out of 16 (18.7%)}. Ultimately, the table made it clear that training is excellent at directorate level.

Discussion

Analysis of the structure evaluation of AFP Surveillance System depicts that some elements need to be strengthen and others at adequate performance (Table 1). Such evaluation is presented as follows:

Legal Mechanism:

The analysis presents that in Al-Russafa, Bagdad, Iraq Surveillance for AFP cases is mandatory since 1996. Al-Russafa Health Directorate is the

accountable organization for the implementation of AFP surveillance program (Table 1). This result is consistent with the result of the study of James and others⁽¹¹⁾. Which, indicates that there is mandatory surveillance for AFP cases at all Iraqi governorates.

A study for Evaluation of Acute Flaccid Paralysis Surveillance System in Khyber Pakhtunkhwa, Pakistan by Saleem,⁽¹²⁾ indicates that the system is implemented at Pakistan Country in 1996.

In addition, a study in Italy by D'Errico and others ⁽¹³⁾ has revealed that the AFP surveillance system is applicable since 1997. This may depict that the AFP Surveillance System is implemented at Al-Russfa Health Directorate with the beginning of the implementation of the system worldwide.

AFP Manual:

On the light of this study, the results indicate that there is an AFP manual for personnel who are working in AFP Surveillance System. The last update for existing guide (AFP manual) is issued in the year of the study 2014. The existing manual is used in more than half of all primary health care centers and at all hospitals, and more than half of the health sectors. In addition, the health directorate uses it. Such manual contains the standard case definition of the disease under surveillance. The study presents that there is a necessity to distribute the manual to remaining health facilities that lacked it in order to improve the surveillance activities.

Standards, norms and guidelines are necessary for implementing, monitoring and evaluating surveillance and response systems. A comprehensive surveillance guideline should define the priority diseases for surveillance, standard and updated case definitions, and action thresholds, and include reporting and data management tools, a description of roles and responsibilities and the expected actions by level ⁽¹⁴⁾.

Personnel:

According to the Acute Flaccid Paralysis Field Manual, It must provide four types of surveillance personnel to ensure the continuity of the AFP surveillance system activities. These personnel includes surveillance officer, data manager, supervisors and the laboratory staffs ⁽¹⁵⁾.

The study produced that all types of surveillance personnel are adequately available at all surveillance levels, except at directorate level and one health district, which shows that the system has lacked to data managers and supervisors (Table 1).

Material and Resources:

Results of the study indicate that the existence of barriers related to surveillance activities due to lack of some necessary materials and resources needed to the performance of surveillance system. The results present that most of health facilities at local level have experienced shortage of the devices such as telephone, computers, printers and internet line, and approximately half of local level facilities experiencing lack of calculator and sometimes means for transportation (Table 1). Surveillance requirements at district level is somehow better than the local level. Most of these districts have available material and resources, despite shortage of telephones and internet devices (Table 1). At directorate level, the study indicates availability of essential material and resources needed for surveillance process with the exception of the transporting vehicle and telephone device (Table 1), as well as the study demonstrates that the AFP surveillance forms are available at majority of health facilities under surveillance (Table 1).

Surveillance and response activities can only be performed if the required and appropriate resources, such as financial, human and logistic once are in place. This means that identification of the resource which are required to implementation of the various surveillance activities at each level of surveillance during the planning phase. These resources should be mobilized from potential sources, well managed and used efficiently ⁽¹⁴⁾.

Budget:

Throughout the study, the findings indicate that AFP surveillance system at

Al-Russafa Health Directorate does not have especial budget-line for its mission (Table 1).

Each surveillance system should have a budget line for surveillance activities, such as reporting forms, feedback bulletins, communication, supervision, training, etc. ⁽¹⁴⁾.

Surveillance Coordination:

The study finds that there is appropriate coordination between the various levels of surveillance system in order to achieve an efficient surveillance process. The study depicts that despite the presence of responsible person for surveillance coordination at all health districts, there is requirement to establish a focal surveillance coordination unit at some districts, which have experienced lack for it (Table 1).

It is necessary to ensure effective coordination between implementers and stakeholders for effective and efficient implementation of surveillance and response systems. **Coordination** refers to *working or acting together effectively* at different surveillance levels ^(14,16).

Training:

In light of the study, the results reveal that one of the factors in the organizational structure of the system that need to strengthen is training (Table 1). Where the study is able to diagnose that the majority of primary health care centers and their surveillance staffs have lacked to basic and post-basic surveillance training. While the study shows that, the training is slightly better for the hospitals that owns a basic training and lacked to training for refreshment (Table 1). The study depicts that more health sectors also have basic training and lacks to post-basic training. Finally, the study indicates that the directorate level is the best in training where its surveillance personnel have earned basic and stimulatory (post-basic) training (Table 1).

Training refers to the needs for capacity building of staff involved with surveillance and response systems through knowledge transfer. Surveillance staff at different levels have varying training needs ⁽¹⁴⁾.

Recommendations:

According to the results of the study the Recommendations are:

1. Allocation of AFP Field Manual to all health institutions under surveillance.
2. Monitor the use of AFP manual and standard case definition by health institutions under surveillance.
3. Typesetting uniform and a special record to AFP cases registration and distribute it to all institutions under surveillance.
4. Compensate for the shortfall in the number of personnel in the institutions that experience lack of employees.
5. Provision of materials and resources needed to surveillance at all levels.
6. The development of continuous training curricula for surveillance personnel. Especially at local level to develop their skills of detection, registration, diagnosis and classification of AFP cases. In addition, improvement of their ability in preparing the epidemiological reports.

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