

Assessing health workers knowledge about Acute Flaccid Paralysis (AFP) surveillance system in Diyala province, Iraq, 2020

Arkan Hashim Ibrahim¹, Assistant prof Khadija S. AL-mizury², PHD Assistant prof Hanaa Adel Omar

^{1,2}Middle Technical University College of Health & Medical Technology, Baghdad, Iraq

³Middle Technical University Technical Medical Institute, Baghdad, Iraq

Corresponding author; Arkan Hashim Ibrahim (aaljourane@gmail.com)

Abstract

Background: Surveillance is critical for improving population health. Public health surveillance systems generate information that drives action, and the data must be of sufficient quality and with a resolution and timeliness that matches objectives. **Materials and Methods:** descriptive, A cross-sectional study A total of 50 health workers from all 48 health institutions were interviewed in Main primary health care centers in Diyala province that apply the AFP surveillance. Data were collected from January 14, 2021 to March 28, 2021. **Results:** This current study showed highest percentage (92.0%), for health worker must be sending weekly report (routine) if including zero reports about AFP cases, while (20.0%) lowest percentage from health worker regarding the person responsible for AFP surveillance activities adequately trained. **Conclusion:** All most health workers knowledge about AFP surveillance system was good score.

Keyword: acute flaccid paralysis (AFP)

Introduction

Surveillance is critical for improving population health. Public health surveillance systems generate information that drives action, and the data must be of sufficient quality and with a resolution and timeliness that matches objectives (Groseclose, *et al.*, 2017). Surveillance, a core function of public health practice, is defined as “the ongoing, systematic collection, analysis, and interpretation of health data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of this information to those who need to know” and act upon that information (Thacker, *et al.*, 1988).

stakeholders may contribute data or resources to a surveillance effort, act upon the information generated, or use surveillance information to advocate for prevention and control efforts to improve population health (Groseclose, *et al.*, 2017). Researchers can find important stakeholders to engage across all levels of a health system, from policy-makers and healthcare professionals, to community members (Arwal, *et al.*, 2017).

Prior to the initiation of surveillance, the stakeholders input, such as the information sought for decision making, may inform the definition of system objectives. When the surveillance system is active, stakeholders can help interpret the reported data based on their knowledge of the health outcome or the environment in which the data are collected. They may also respond to the information generated by the surveillance system and recommend and influence surveillance system evaluation to ensure the system is meeting its objectives (Althouse, *et al.*, 2015).

Aims:

Assessing health workers knowledge about Acute Flaccid Paralysis (AFP) surveillance system in Diyala province, Iraq, 2020

Material and methods:

This is a cross-sectional study, a total of 50 health workers from all 48 health institutions were interviewed in 7 hospitals, and Department of Public Health including 7 sectors, and 33 centers (50% of the total) were randomly chosen by multistage sampling technique from all sectors. Then randomized samples for primary health care centers from each sector according to the sector aggregation

Data collection:

A questionnaire was built based on indicators performance of the World Health Organization (WHO) and acute flaccid paralysis field manual republic of Iraq, Ministry of health and adapted from previous similar studies for this study, with modifications by the researcher and the supervisor.

Scoring Criteria:**Assessing score of health workers knowledge (16 question)**

The score assessment for knowledge of health workers was determined according to the quartile status where those below second quartile ($<$ median i.e. <32 score consider as poor. while those on third quartile (32-39) consider as acceptable and those about fourth quartile (≥ 40) consider as good.

Statistical Analysis:

Analysis of data was carried out using the available statistical package of SPSS-27 (Statistical Packages for Social Sciences- version 27). Data were presented in simple measures of frequency, percentage.

Results:**Assessing health workers knowledge about AFP surveillance system**

Table (1) A total of 50 health workers from all 48 health institutions were interviewed. This table showed the highest percentage (92.0%), for health worker must be sending weekly report (routine) if including zero reports about AFP cases, while (20.0%) lowest percentage from health worker regarding the person responsible for AFP surveillance activities adequately trained.

Table (1): Assessing health worker knowledge about AFP surveillance system

Knowledge items		Yes		No		Not sure	
		No	%	No	%	No	%
1.	Is the person responsible for AFP surveillance activities adequately trained	10	20.0	9	18.0	31	62.0
2.	AFP surveillance system one of the strategies use for polio eradication	16	32.0	7	14.0	27	54.0
3.	Is definition of AFP case clearly understood?	14	28.0	14	28.0	22	44.0
4.	The target rate of acute flaccid paralysis non-polio in children <15 years of age: ≥ 2 AFP cases/100,000	13	26.0	21	42.0	16	32.0

5.	When a case of acute flaccid paralysis is suspected, two samples are collected 24-48 hours and 14 days apart from the onset of paralysis	19	38.0	7	14.0	24	48.0
6.	After collection, the specimens must be placed immediately in a refrigerator for shipment, or in a cold box between frozen ice packs at 4-8 °C	32	64.0	-	-	18	36.0
7.	The specimens must reach laboratory within 72 hours of collection. If this is not possible, the specimens have to be frozen (at -20 °C)	23	46.0	7	14.0	20	40.0
8.	The specimens shipped frozen, preferably with dry ice or cold frozen cubes at a temperature of - 20 °C	31	62.0	6	12.0	13	26.0
9.	It is characteristic of a “good condition “for specimen in transportation means There is ice or a temperature indicator (showing <8°C) in The cold box.	32	64.0	5	10.0	13	26.0
10.	The specimen volume is adequate (8-10 grams) Or as much as the size of your thumb	27	54.0	11	22.0	12	24.0
11.	It is characteristic for specimen there is no evidence of leakage or desiccation in specimens	25	50.0	11	22.0	14	28.0
12.	Weekly report (routine) must be send if including zero reports about AFP cases	46	92.0	2	4.0	2	4.0
13.	Active AFP surveillance meaning trained person visits hospitals including physiotherapy centers, outpatient and intensive care frequently and also goes door to door to find cases	46	92.0	2	4.0	2	4.0
14.	The differential diagnosis of acute flaccid paralysis includes paralytic poliomyelitis, Guillain-Barre syndrome and transverse myelitis. Less common etiologies are traumatic neuritis, encephalitis, meningitis and tumors	22	44.0	15	30.0	13	26.0
15.	when a case of acute flaccid paralysis is suspected, Collecting a stool sample from (3-5 contacts) in the event that the routine vaccination situation for the case is not complete or if the patient dies or does not take any vaccine dose	38	76.0	10	20.0	2	4.0
16.	The acute flaccid paralysis surveillance system remains in operation until the polio is completely eradicated from country	34	68.0	-	-	16	32.0

Figure (1): showed that high percentage had good score (44.0%) while low percentage (20.0%) had poor score knowledge about AFP surveillance system.

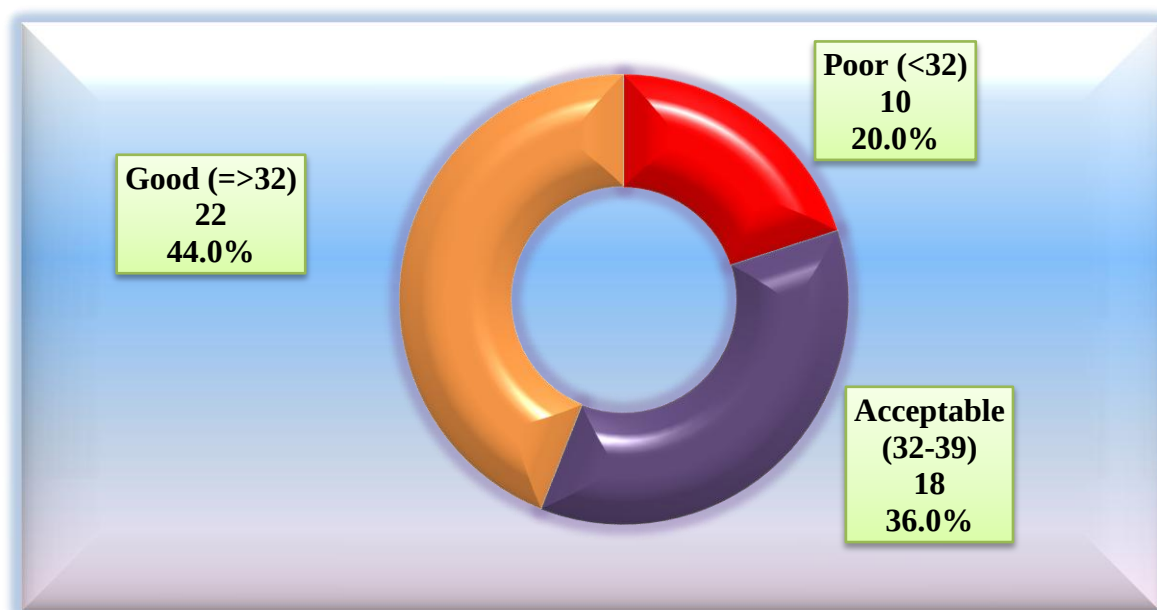


Figure (1): Health workers knowledge score about AFP surveillance system.

Discussion:

Assessing health workers knowledge about AFP surveillance system:

There is no similar previous study in Iraq on knowledge about Acute Flaccid Paralysis (AFP) surveillance system. The comparison was carried out with other studies about Acute Flaccid Paralysis (AFP) surveillance system. Health workers are supposed to be knowledgeable about the surveillance system so that they are able to pick up and investigate suspected cases during active surveillance. A small percentage 10/50 (20.0%) of health workers are adequately trained in acute flaccid paralysis surveillance, which has a negative impact on system performance. This study results agree with other study done in Gokwe North district, Zimbabwe (Makoni, *et al.*, 2017) which found 41/49 (83.7%) respondents were not trained on AFP surveillance.

The global eradication polio program is based on four strategies: routine infant immunization, supplementary immunization activities (SIAs) in at-risk middle- and low-income countries, surveillance for acute flaccid paralysis (AFP), and mop-up campaigns (Wright, *et al.*, 1991). Regarding AFP surveillance system as one of the strategies used for polio eradication, this results percentage showed 16/50 (32.0%) don't know this strategy. This study result indicates from interviews health workers and knowledge were acceptable slightly not enough. With the necessary training and feedback it can lead to enhance knowledge that AFP is one of the strategies for preventing polio.

While percentage about definition of AFP case clearly understood percent 14/50 (28.0%). This result disagrees with other study in Gokwe North district, Zimbabwe (Bala, *et al.*, 2020) which found 47/49 (97.6%) responded that the AFP case definition is easy to understand. The possible explanation about the insufficient training of health workers was due to the spread of the (Covid -19) pandemic, and most of the trained personnel were transferred to isolation.

wards due to the need for their services.

The health worker were not aware the target rate of AFP non- polio children <15 years were accounted 21/50 (42%) while health workers 13/50 (26%) were aware the target rate .This result similar with other study done in Zvimba District, Mashonaland West Province (Saravoye, *et al.*, 2015) which found (32%) of the respondents were not aware that the targeted age group for AFP surveillance. The health worker does not aware the target rate of AFP non- polio, because most of them are new to the surveillance system.

When a case of acute flaccid paralysis is suspected, two stool samples are collected 24-48 hours and 14 days apart from the onset of paralysis percentage was 19/50 (38.0%).This study result disagree with other study done in Mwenezi district, Masvingo (Muzondo, *et al.*, 2018) which found where most of the health workers interviewed did not know the specimen used for diagnosis and they thought it was blood is used for diagnosis.

After collection, the specimens must be placed immediately in a refrigerator for shipment, or in a cold box between frozen ice packs at 4-8 °C. This result percentage was 32/50 (64.0%) lower than other study done in Sokoto State, Nigeria (Adegoke, *et al.*, 2018) which found 80/91 (87.9%).The results are somewhat acceptable, but it is a low indication of the health worker's knowledge about preserving samples due to the lack of supervision and feedback to the reverse cold chain.

Regarding collecting samples, transporting and shipping them during the reverse cold chain the specimens must reach laboratory within 72 hours of collection .if this is not possible, the specimens have to be frozen (at -20 °c) the percentage was 23/50 (46.0%). This study result percentage high than other study done in mwenezi district, masvingo (muzondo, *et al.*, 2018) which found that about a quarter (24%) of the health workers did not know how dealing with specimen used for diagnosis in AFP surveillance. Failure to collect two stool specimens within 24-48 h apart leads to stool inadequacy and failure to submit the specimen to the reference laboratory within 72 hours leads to reduced chances of isolating the virus.

Regarding the specimens shipped frozen, preferably with dry ice or cold frozen cubes at a temperature of - 20 °c, the percentage was 31/50 (62.0%).This study result percentage lower than other study done in south-south zone, Nigeria (Bassey, *et al.*, 2016) which found 45/56 (80.4%)specimens shipped and transport via the reverse cold-chain system. The characteristic of a good condition for specimen in transportation means there is ice or a temperature indicator (showing <8°C) in the cold box the percentage was 32/50 (64.0%). This study result percentage lower than other study done in Bikita district Masvingo province (Pomerai, *et al.*, 2014) which found 27/31 (87.1%) health workers know temperature at which specimen transported. The reason for this results a lack of supervision and feedback about the reverse cold chain process.

Weekly report must be send if including zero reports about AFP cases percentage was 46/50 (92.0%) also active AFP surveillance is a core function of AFP surveillance staff (Isibor, *et al.*, 2014) meaning trained person visits hospitals including physiotherapy centers, outpatient and intensive care frequently and also goes door to door to find cases was higher percentage 46/50(92.0%).this result indicate high complains health workers sending active and weekly reports. The possible explanation for this result is evidence of the health worker's about knowledge of active and passive surveillance and as important duty, as well as the health worker fully aware of the commitment.

The differential diagnosis of acute flaccid paralysis includes paralytic poliomyelitis, Guillain-Barre syndrome percentage was 22/50 (44.0%). This study results agree with study done in Edo state, Nigeria (Bassey, E., *et al.*, 2019) which found (50%) of surveillance officers

respectively could mention all seven AFP differential diagnosis stated in the AFP surveillance guidelines. The explanation for these results is a lack of adequate feedback and training for the health worker, as well as a lack of experience in AFP surveillance system. Some of them assign the differential diagnosis the duties of the clinicians.

When a case of acute flaccid paralysis is suspected, collecting a stool sample from (3-5 contacts) in the event that the routine vaccination situation for the case is not complete or if the patient dies or does not take any vaccine dose the percentage was 38/50 (76.0%). This result reflects the good knowledge of the health worker about collecting samples from the contacts in that there is confirmation from the Public Health Department and the health officer about the importance and seriousness of the issue.

Conclusions

Knowledge of health worker about AFP surveillance system were poor score about adequately trained, definition of AFP case clearly understood, but regarding active and passive reporting was good score.

Recommendations

Feedback and update information for AFP surveillance system as well as regular training and retraining for health workers

References:

1. Groseclose, S. L., & Buckeridge, D. L. (2017). Public health surveillance systems: recent advances in their use and evaluation. *Annual review of public health*, 38, 57-79.
2. Thacker, S. B., & Berkelman, R. L. (1988). Public health surveillance in the United States. *Epidemiologic reviews*, 10(1), 164-190.
3. Althouse, B. M., Scarpino, S. V., Meyers, L. A., Ayers, J. W., Bargsten, M., Baumbach, J., ... & Wesolowski, A. (2015). Enhancing disease surveillance with novel data streams: challenges and opportunities. *EPJ Data Science*, 4(1), 1-8.
4. Arwal, S. H., Aulakh, B. K., Bumba, A., & Siddula, A. (2017). Learning by doing in practice: a roundtable discussion about stakeholder engagement in implementation research. *Health research policy and systems*, 15(2), 69-73.
5. Makoni, A., Chemhuru, M., Gombe, N., Shambira, G., Juru, T., Bangure, D., & Tshimanga, M. (2017). Evaluation of the acute flaccid paralysis (AFP) surveillance system, Gokwe North district, Zimbabwe, 2015: a descriptive cross sectional study. *The Pan African Medical Journal*, 27.
6. Wright, P. F., Kim-Farley, R. J., de Quadros, C. A., Robertson, S. E., Scott, R. M., Ward, N. A., & Henderson, R. H. (1991). Strategies for the global eradication of poliomyelitis by the year 2000. *The New England journal of medicine*, 325(25), 1774-1779. <https://doi.org/10.1056/NEJM199112193252504>
7. Bala, H. A., Mohammed, Y., Barau, N., Surajudeen, L., & Ori, P. U. (2020). Evaluation of Acute Flaccid Paralysis (AFP) surveillance system, Kebbi State, Nigeria, 2013-2018.
8. Saravoye, T., Nyandoro, M., Bangure, D., Gombe, N. T., & Tshimanga, M. (2015). An Evaluation of the Acute Flaccid Paralysis (AFP) Surveillance System in Zvimba District, Mashonaland West Province; a Descriptive Cross Sectional Study. *Austin J Public Health Epidemiol*, 2(1), 1017.
9. Mohammed Tahir, R., & Hussein, M. (2020). Knowledge, Attitude, and Practice of Community Pharmacists towards Pharmacovigilance and Adverse Drug Reactions: A Study from Sudan. *Journal of Scientific Research in Medical and Biological Sciences*, 1(2), 123-132. <https://doi.org/10.47631/jsrmb.v1i2.118>

10. Muzondo, M., Shamu, A., Shambira, G., Gombe, N. T., Juru, T. P., & Tshimanga, M. (2018). Evaluation of the acute flaccid paralysis (AFP) surveillance system in Mwenezi district, Masvingo, 2018: a descriptive study. *BMC research notes*, 11(1), 1-5.
11. Adegoke, O. J., Takane, M., Biya, O., Ota, M., Murele, B., Mahoney, F., ... & Okayasu, H. (2018). Strengthening the Acute Flaccid Paralysis (AFP) Surveillance Component of the Polio Eradication Initiative through Short Message Service (SMS) Reminders; Experience from Sokoto State, Nigeria 2014. *Journal of immunological sciences*, (10), 68.
12. Bassey, E., Braka, F., Ticha, J. M., KOMAKECH, W., MALEGHEMI, S. T., KOKO, I. R., ... & OKOCHA-EJEKO, A. (2016). Assessment of the quality of the reverse cold chain management in the acute flaccid paralysis (AFP) surveillance system for polio eradication; south-south zone, Nigeria 2015. *Am J Epidemiol Infect Dis*, 4(5), 100-104.
13. Pomerai, K. W., Mudyiradima, R. F., Tshimanga, M., & Muchekeza, M. (2014). Evaluation of the acute flacid paralysis (AFP) surveillance system in Bikita District Masvingo Province 2010. *BMC research notes*, 7(1), 1-6.
14. Isibor, I., Gasasira, A., Mkanda, P., Weldegriebriel, G., Bassey, B. E., Toritseju, M. S., & Fatiregun, A. A. (2014). Rapid assessments of acute flaccid paralysis surveillance in seven key polio high risk states in Northern Nigeria. *Peak J Med Med Sci*, 2(3), 33-40.
15. Bassey, Bassey, Enya & Okocha-Ejeko, Angela & Onyibe, R & Braka, & Ho, Ejiyere. (2019). Assessing the quality of the Acute Flaccid Paralysis surveillance system in Edo state, Nigeria 2017.