

Introduction

The key surveillance system recommended to detect transmission of poliovirus has been and will remain surveillance for cases of AFP. In other words, the gold standard for spotting circulation is AFP surveillance, which continues to be a cornerstone of polio eradication. Active surveillance system not only rapidly detects polio in almost real-time, but in fact helps detect many other vaccine-preventable and communicable diseases.

Certification of polio-free status requires the absence of wild polio virus transmission from any source for at least three successive years together with timely and sensitive AFP surveillance that meets Global Certification Commission standards. Furthermore, AFP surveillance is part of global post-certification strategy.

The four steps of AFP surveillance include finding and reporting cases with AFP among children less than fifteen years of age, rapidly collecting and transporting/shipping stool samples for analysis at WHO accredited laboratory, isolating and identifying poliovirus in the laboratory and mapping the virus to determine the origin of the virus strain. If poliovirus presence is detected, it allows outbreak response activities to be initiated rapidly.

Aim of the work

The present study was conducted to assess AFP surveillance chain in Alexandria during the period from 2016-2022.

Subjects and Methods

I-Research strategy:

A cross sectional study was conducted in order to achieve the proposed research objective.

II- Research setting:

Health Authorities of all 8 districts in Alexandria Governorate (El Montazah, Sharq, Wasat, Gharb, El Gomrok, El Amerya, El Agamy, and Borg El Arab).

III- Data collection:

To assess integrity of the AFP surveillance chain data required to calculate performance indicators were collected by reviewing:

- Registers, certification documents and reports at the study districts' health authorities.
- Hospital registers and zero weekly reports at studied hospitals two university and four ministry of health hospitals .

The following data were obtained:

- The number of AFP cases that were detected during the period of the study, obtained from hospitals registries.
- The number of cases of AFP captured by the surveillance system during the period of the study and how many were missed.

The following AFP surveillance indicators were calculated after obtaining the required data from the study districts:

- Sensitivity of AFP surveillance system: its ability to detect at least 2 cases of non-polio AFP per 100000 children under 15 years per year.
- Weekly zero reports as regard completeness and timeliness.
- The percentage of AFP cases with adequate stool samples.
- The percentage AFP cases reported within 7 days of the date of onset of the paralysis.
- The percentage AFP cases that were epidemiologically investigated within 48 hours of the date of reporting .
- The percentage of AFP cases that were followed up at least 60 days after the onset of paralysis .
- The percentage of stool samples in which other intestinal viruses (other than poliovirus) were isolated .
- The percentage of stool samples sent to the laboratory within three days from the date of collection of the first sample
- The percentage of laboratory results reported within 28 days from the date of arrival of samples to the laboratory.
- The GBS incidence rate/100000 children < 15 years .

Results

- The AFP reporting rate/100000 children <15 years in the six studied districts in years 2016 to 2022 mostly reached or exceeded the target except for Wassat health district as it was less than the target in 4 out of 6 years of study. Moreover, several districts didn't reach the target during the year 2021 that could be attributed to COVID 19 pandemic.
- The Weekly zero reports completeness (percentage) and Weekly zero reports timeliness (percentage) are 100% in all studied districts.
- The percentage AFP cases reported within 7 days of onset of paralysis, the percentage AFP cases epidemiologically investigated within 48 hours of reporting, and the percentage AFP cases followed up ≥ 60 days after onset of paralysis is 100% in all studied districts.
- The percentage of AFP cases with adequate stool meet the target 80% in all six districts except in 2019 in Wasat district. The % Stool samples arriving at laboratory within 3 days of collection of the first sample is 100% in all six studied districts. The percentage of stool samples with results within 28 days from arrival to the laboratory is 100 % in all districts except in 2021 in Wasat district was 75%.

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- The percentage AFP cases with non-polio enteroviruses in their stool samples is generally low in the studied districts (zero in more than 50% of studied period and 50% of studied districts).
- The GBS incidence rate/100000 children <15 years was less than the target (1 cases/100,000 children <15 years) in many years and more than one health district.

Table: AFP reporting rate (reported cases /100, 000 <15 years) in 6 Districts, 2016-2022

Year	Wassat	Gharb	Gomro k	Borg El Arab	Amrey a	Agamy
2016	2.6	1.7	2.6	2.0	2.6	2.8
2017	2.2	1.6	2.5	9.8	3.0	2.8
2018	2.5	1.6	4.9	13.5	3.9	3.4
2019	2.9	2.0	7.2	5.7	7.7	4.1
2020	2.8	2.4	4.7	7.5	2.9	6.1
2021	1.4	4.8	0.0	3.7	4.8	5.4
2022	3.1	1.9	2.3	7.4	3.3	6.0

Conclusion

The surveillance system in the studied districts is sensitive enough to detect cases of AFP as it mostly achieved the target with no difference between university and ministry of health hospitals. Other indicators showed low reported incidence of Guillain-Barre syndrome compared to the target. Similarly, the rate of detection of enteroviruses other than polio in the stool samples occasionally reached the target during the study period in all districts. The study recommends Field review of reverse cold chain of stool samples especially in Gomrok and Agamay Districts as well as AFP surveillance at some hospitals to identify reasons of non-reporting AFP case along 7 years.