EpiSouth

Thematic Note

Wild Polio Virus re-emergence in the Mediterranean

The EpiSouth-Plus Project is cofunded by the European Union DG-SANCO/EAHC and DG DEVCO/EuropeAid together with the participating national partner Institutions. The financial support of the Italian Ministry of Health and ECDC is also acknowledged. Yet, *the contents of this bulletin can in no way be taken to reflect the views of the European Union.*

KEY POINTS

- Since February 2013, Wild Poliovirus (WPV) has been isolated from sewage waters in Israel and Palestine.
- In October 2013, 22 cases of AFP have been reported in Syria. Ten cases were confirmed as caused by WPV.
- This thematic note is aimed at raising awareness of this evolving situation from EpiSouth's peculiar regional perspective.

1. Background

The 27 countries of the EpiSouth Network are part of three WHO Regions (EMRO, AFRO and EURO) with a peculiar geographical grouping that, for the purposes of this report, will be referred to as "the EpiSouth Region".

Fig. 1. Countries part of the EpiSouth Network

The WHO European Region has been polio-free since 2002, while in the Eastern Mediterranean Region, Pakistan and Afghanistan are the remaining endemic countries, where polio circulation has never been interrupted. Recent outbreaks of cases due to Wild Polio Virus (WPV) type 1 have been reported in Somalia and Yemen [1]. In the WHO African Region, Nigeria is the only polio endemic country [2].

Until recently, autochthonous poliomyelitis cases and WPV environmental isolates had not been reported by the countries of the EpiSouth Region. This however has changed since late 2012 when a non Sabin-like poliovirus type 1 was isolated from sewage in two sites in greater Cairo (Egypt). Since then, other countries in the region have reported the circulation of the virus, albeit in different contexts and with different consequences.

The aim of this thematic note is to raise awareness of the re-emergence of WPV circulation in several countries of the EpiSouth network and provide an update on the epidemiology of the disease and on the recognized regional weaknesses in its surveillance.

2. 2013 Wild Polio Virus spread in the EpiSouth Region

2a. Israel an Palestine

Since February 2013, Wild Poliovirus (WPV) has been isolated from sewage waters in **Israel and Palestine**.

No case of paralytic polio has been reported, however environmental surveillance suggests that WPV1 transmission is taking place in southern and parts of central Israel while WPV1 -positive samples were detected in West Bank (2 sites) and the Gaza Strip (1 site) [3].

The related WHO risk assessment reflects evidence of an increasing geographic extension of WPV1 circulation in Israel over a prolonged period of time [4].

The isolated strains were linked to strains circulating in Pakistan and to a strain detected in a sewage in Cairo in December 2012 [5].

In response to the threat posed by WPV1 circulation, Health authorities of Israel and the Palestinian Authority have taken steps to strengthen surveillance for acute flaccid paralysis and increase the frequency of environmental sample collection [4].

Since 2005, only inactivated polio vaccine (IPV) has been used for routine childhood immunization in Israel with a high coverage rate. With the aim of rapidly interrupting WPV circulation, a supplementary immunization activity (SIA) with bivalent oral polio vaccine (bOPV) is being conducted in Israel since early

August, targeting children < 10 years of age.

Health authorities of the Palestinian Authority are preparing to conduct two supplementary immunization activities with trivalent OPV in the Gaza Strip and in West Bank [4].

2b. Syria

In October 2013, 22 cases of Acute Flaccid Paralysis (AFP) have been identified in the Deir Al Zour province of eastern **Syria,** located 250 km from Damascus along the Iraqi border [6]. WPV1 has been isolated from ten of the cases under investigation [7].

The last indigenous case of wild poliovirus was reported in Syria in 1995 [6] and the last imported case was reported in 1999 [3].

An already-planned large-scale SIA was launched on the 24th of October 2013 to vaccinate 1.6 million children against several diseases, including polio, in both government-controlled and contested areas. Following the reports of the first cases of AFP, also the implementation of a SIA in Deir Al Zour province was started. A larger-scale outbreak response across Syria is currently being planned based on the evolving epidemiology [7].

3. Detection weaknesses in the EpiSouth Region: Report of the European Regional Certification Commission for Poliomyelitis Eradication

Concerns over the quality of AFP surveillance, and, where established, environmental and enterovirus surveillance have been reported by the Polio Regional eradication Committee of WHO-EURO in May 2013. The WHO EURO region includes many countries also part of the EpiSouth Network.

The risk of transmission following importations of wild poliovirus is considered by WHO to be low in South Europe and to range from low to high in South East Europe.

In Southern Europe, reporting timeliness for AFP was described as generally poor with evidence of many 'missed' non-polio AFP cases at subnational level in Croatia, Italy, Portugal and Spain [8]. Southern European countries appear to be shifting from AFP surveillance towards supplementary surveillance, however this process appears to be slow with the quality of enterovirus and environmental surveillance systems being very variable [8].

Among Eastern European countries, The WHO Regional Committee indicated suboptimal AFP surveillance quality to be an issue, with all countries struggling to meet minimum criteria for completeness and timeliness of reporting. Underreporting of AFP cases at subnational level was found to be of particular concern in Bosnia and Herzegovina, Romania and Serbia. Among the countries of the EpiSouth Network, Albania, Romania, and Serbia have moved towards supplementary surveillance, particularly enterovirus surveillance. However the systems need to be standardized.

In the so called MECACAR zone, the WHO report mentions a decline in the quality of national AFP surveillance in Turkey where subnational reporting was found to be extremely varied [8].

4. Risk Assessment

The re-emergence of WPV in the EpiSouth region with evidence of an outbreak in Syria and environmental circulation in Israel and Palestine is raising concern.

In the first case, the re-emergence of the disease has been ascribed to the decline in the vaccination coverage for all vaccine-preventable diseases, including polio, since 2010 as a consequence of the prevailing conflict in Syria and health system collapse [6, 7].

The potential risk of Polio re-emergence in Syria was known and had been reported by WHO EMRO [1] and by the Global Polio Eradication Initiative [9]. This helped to set up a prompt response. However, the risk of further international spread of WPV1 from Syria across the region was assessed by WHO to be high [7].

Conversely the re-establishment of WPV transmission in Israel and Palestine was unexpected and, for many aspects, is still unexplained.

One area of investigation concerns the Polio Vaccine. Oral Polio Vaccine (OPV) vaccinated are known not to be at risk of getting infected and shedding the virus, or of developing the disease. Recent findings in Israel [5] suggest that inactivated poliovirus vaccine (IPV) recipients might carry and sustain the circulation of polio virus while being as protected from developing disease as those vaccinated with OPV.

Israel, as most EU countries of the EpiSouth Region, has adopted IPV for Polio vaccination to eliminate the risk of vaccine derived infections.

In light of the facts mentioned above, of the variable implementation and performance of environmental surveillance [8] and of the security and economic factors that are currently driving major population movements across the Mediterranean, WPV circulation in the EpiSouth Region might be more extended than currently thought.

As advised by WHO [4,7], reinforcement of surveillance should be considered. From the EpiSouth peculiar standpoint this is particularly relevant considering the existing detection weaknesses identified both in AFP surveillance and in supplementary surveillance (human and environmental) at least in part of the EpiSouth Region.

5. References

[1] World Health Organization Regional Office for the Eastern Mediterranean. Progress report on eradication of poliomyelitis: regional implications of the endgame strategy. WHO EMRO; 2013 [cited 24 October 2013] . Available from: http://applications.emro.who.int/docs/RC_Techn_paper_2013_inf_doc_1_14974_EN.pdf

[2] World Health Organization Regional Office for Africa. Polio eradication. WHO AFRO; 2013 [cited 24 October 2013] . Available from: http://www.afro.who.int/en/clusters-a-programmes/pei.html

[3] Global Polio Eradication Initiative Weekly Update [cited 24 October 2013]. Available from: http://www.polioeradication.org/Dataandmonitoring/Poliothisweek.aspx

[4] World Health Organization: Global Alert and Response (GAR). Poliovirus detected from environmental samples in Israel and West Bank and Gaza Strip. [cited 24 October 2013]. Available from: http://www.who.int/csr/don/2013_09_20_polio/en/index.html

[5] European Centre for Disease Prevention and Control. Wild-type poliovirus 1 transmission in Israel – what is the risk for EU/EEA? Stockholm: ECDC; 2013 [cited 24 October 2013]. Available from: http://ecdc.europa.eu/en/publications/Publications/polio-risk-assessment-transmission-in-Israel.pdf

[6] European Centre for Disease Prevention and Control. Suspected outbreak of poliomyelitis in Syria: Risk of importation and spread of poliovirus in the EU. Stockholm: ECDC; 2013 [cited 24 October 2013]. Available from: http://ecdc.europa.eu/en/publications/_layouts/forms/Publication_DispForm.aspx?List=4f55ad51-4aed-4d32-b960-af70113dbb90&ID=943&RootFolder=%2Fen%2Fpublications%2FPublications&Web=270275b7-419a-4352-a8fb-f0c757d92e66

[7] World Health Organization: Global Alert and Response (GAR). Polio in the Syrian Arab Republic. [cited 29 October 2013]. Available from: http://www.who.int/csr/don/2013_10_29/en/index.html

[8] World Health Organization Regional Office for Europe. Report of the 27th Meeting of the European Regional Certification Commission for Poliomyelitis Eradication, Copenhagen: WHO EURO; 2013 [cited 24 October 2013]. Available from: http://www.euro.who.int/en/health-topics/communicable-diseases/poliomyelitis/publications/2013/report-of-the-27th-meeting-of-the-european-regional-certification-commission-for-poliomyelitis-eradication

[9] Global Polio Eradication Initiative. Annual report 2012. Geneva: WHO; 2013 [cited 24 October 2013]. Available from: http://www.polioeradication.org/Portals/0/Document/AnnualReport/AR2012/GPEI_AR2012_A4_EN.pdf

6. Acknowledgements

This thematic note was compiled by the EpiSouth Plus Coordination Team (Flavia Riccardo, Massimo Fabiani, Maria Grazia Dente and Silvia Declich). Special thanks go to Dr Donato Greco for his expert advice.