

### Current Health Event

#### Circulating Vaccine Derived Poliovirus (cVDPV)

Poliomyelitis is a highly infectious viral disease, which mainly affects young children. The available oral polio vaccine (OPV) is very safe and interrupts person-to-person spread of polio. However, on rare occasions, in under-immunized populations, the live attenuated virus originally contained in OPV can mutate into circulating vaccine-derived poliovirus (cVDPV).

#### Editorial note:

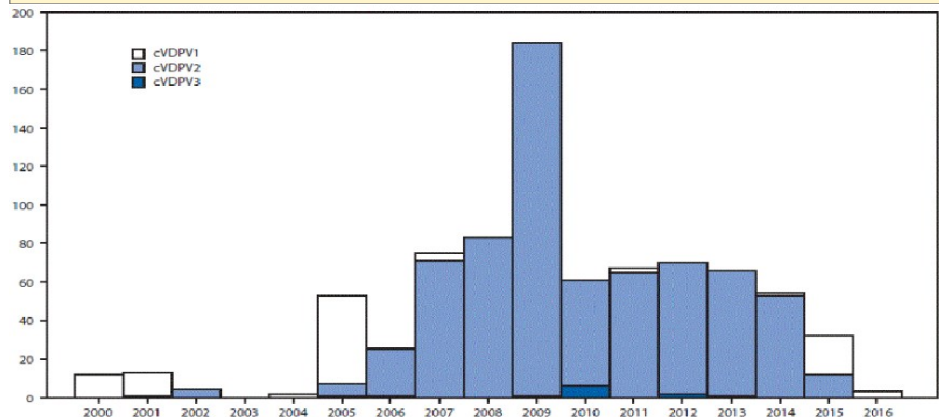
With an estimated 350 000 polio cases in more than 125 endemic countries in 1988, polio cases have decreased by over 99%. In 2016, 37 polio cases were reported in 3 endemic countries, namely Afghanistan, Pakistan, and Nigeria. Wild poliovirus type 1 caused 100% of 2016 cases reported globally; type 2 was eradicated in 1999, and type 3 was last seen in 2012.

There are 2 types of polio vaccine: The oral polio vaccine (OPV) and the inactivated polio vaccine (IPV).

OPV, developed in the early 1950s by Albert Sabin, is the predominant vaccine used in the fight to eradicate polio. OPV stimulates good mucosal immunity, which is why it is so effective at interrupting transmission of the virus. OPV is safe and effective; however, in approximately 1 in 2.7 million vaccines given as first doses, it can lead to vaccine-associated paralytic polio (VAPP), most commonly triggered by an immunodeficiency. There are no outbreaks associated with VAPP; the very small risk is to the individual susceptible vaccine recipient or a close contact.

In cases of low population immunity, OPV may be able to circulate, mutate and reacquire neurovirulence over the course of 12 to 18 months. This is known as a circulating VDPV (cVDPV). cVDPVs are extremely rare. Up to February 2015, only 24 cVDPV outbreaks have occurred in 21 coun-

Fig. 1: Number of cVDPV cases by type from 2000 till 2016.



tries, resulting in more than 750 cases of paralytic polio during the last ten years. cVDPV type one causes 13% of cVDPV, type two causes 86%, and type three 1%.

The Polio Eradication and Endgame Strategic Plan 2013-2018 requires the global removal of all OPVs in the long term. OPV type 2 was removed from the immunization programs in April 2016 in a global switch from trivalent OPV (tOPV; Sabin types 1, 2, and 3), to bivalent OPV (bOPV; types 1 and 3). This will eliminate the type 2 associated risks of cVDPV and VAPP. The type 2 component of tOPV also interferes with the immune response to poliovirus types 1 and 3.

As of 27 June 2017, twenty-two (22) cases of cVDPV type-2 (cVDPV2) have been confirmed in Syria—21 cases from Mayadeen district, and 1 case from Raqqa district. The most recent case had onset of paralysis on 25 May 2017.

Lebanon has been declared polio free since 2002, and introduced IPV as a first dose in the routine immunization schedule in the public sector in 2011. However, with the continuous influx of Syrians to Lebanon, vigilance is required to maintain high community immunity to polio.

In Lebanon, the MoPH response to the cVDPV outbreak in Syria is supported by WHO and UNICEF and includes: intensive national surveillance of acute flaccid paralysis (AFP) cases, environmental surveillance of polio, as well as acceleration of routine immunization,

intensified follow-up in the informal settlements and high-risk areas, and continuous vaccination at land crossings at all borders between Lebanon and Syria.

The Polio Eradication and Endgame Strategic Plan calls for poliovirus outbreaks to be stopped within 120 days of detection. Since the switch from tOPV to bOPV, the detection of any type 2 poliovirus (wild, vaccine-derived, or Sabin) in any sample from any source is generally considered to be a global public health emergency.

#### Notifiable Diseases in Lebanon [cumulative n° of cases among all residents (among Syrians)] as of 28 June 2017

Disease	2016	2017	May	June
<b>Vaccine Preventable Diseases</b>				
Polio	0 (0)	0 (0)	0 (0)	0 (0)
AFP	123 (17)	44 (7)	8 (2)	2 (0)
Measles	44 (18)	88 (33)	22 (15)	15 (9)
Mumps	486 (86)	176 (22)	43 (6)	15 (4)
Pertussis	97 (18)	42 (12)	5 (0)	2 (1)
Rabies	0 (0)	0 (0)	0 (0)	0 (0)
Rubella	12 (6)	2 (1)	1 (0)	0 (0)
Tetanus	2 (0)	0 (0)	0 (0)	0 (0)
Viral Hep. B	367 (48)	164 (31)	26 (4)	7 (0)
<b>Water/Food Borne Diseases</b>				
Brucellosis	402 (165)	127 (42)	27 (2)	2 (0)
Cholera	0 (0)	0 (0)	0 (0)	0 (0)
Hydatid cyst	11 (2)	7 (1)	2 (0)	0 (0)
Typhoid fever	598 (11)	253 (10)	55 (3)	24 (1)
Viral Hep. A	519 (78)	250 (31)	65 (2)	16 (0)
<b>Other Diseases</b>				
Leishmaniasis	58 (52)	15 (15)	0 (0)	0 (0)
Meningitis	458 (63)	153 (35)	45 (11)	19 (4)
Viral Hep. C	116 (8)	54 (1)	9 (0)	3 (0)