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Surveillance of Poliovirus-Isolates in Japan, 2002

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In 2002, seven polioviruses were isolated in Japan. Four were from cases that presented various clinical manifestations. Three were from healthy individuals. All of these isolates were sent to the National Institute of Infectious Diseases and subjected to intratypic differentiation (ITD) of polioviruses by the PCR-restriction fragment length polymorphism assay (1,2). As shown in Table 1, all of these poliovirus

isolates were identified as oral poliovirus vaccine (OPV)-like viruses. From one acute flaccid paralysis (AFP) case in Kanagawa Prefecture (case 3), type 3 poliovirus was isolated. This isolate might be derived from the patient's second OPV taken just before the onset of AFP. The paralysis of case 3 was transient, and thus there was no qualified case with vaccine-associated paralytic poliomyelitis (VAPP) in Japan in 2002.

Table 1. Characterization poliovirus isolates in 2002

Case No.	Code	Area	Age	Sex	Date of vaccination	Date of onset	Date of sampling	Clinical diagnosis	Serotype	Intratypic differentiation
1	02-161-1	Toyama	9M	F	None (01-10-29)*		02-01-09	Healthy	Polio 2	Vaccine-like
2	02-161-2	Toyama	9M	F	None (01-10-29)*		02-01-09	Healthy	Polio 2	Vaccine-like
3	02-141-1	Kanagawa	1Y	M	02- 04-16	02-04-22	02-04-24	Transient paralysis	Polio 3	Vaccine-like
4	02-151-1	Niigata	5M	F	None (01-10-18)*	02-02-06	02-02-14	Diarrhea	Polio 1	Vaccine-like
5	02-151-2	Niigata	6Y	M	None (01-11-08)*	02-02-24	02-02-25	Influenza	Polio 1	Vaccine-like
6	02-321-1	Shimane	9M	F	None (01-10)*	02-03-11	02-03-18	Gastroenteritis	Polio 3	Vaccine-like
7	02-211-1	Gifu	5M	M	02-05-15		02-07-21	Healthy	Polio 1	Vaccine-like

*Date of the latest vaccination in the area

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The other six polioviruses were isolated from healthy individuals (cases 1, 2, and 7) or clinical cases that did not receive OPV before the onset (cases 4, 5, and 6). Those polioviruses might be conventional community-acquired OPV-like viruses, which were transmitted from other vaccinees.

The Global Poliomyelitis Eradication Program has nearly achieved the interruption of wild poliovirus transmission in most of the world. The remaining chains of wild poliovirus transmission are now concentrated in just three countries (India, Nigeria, and Pakistan). However, poliomyelitis outbreaks associated with circulating vaccine-derived polioviruses (cVDPVs) have been identified in Egypt (1988-1993), Hispaniola (2000-2001), the Philippines (2001), and Madagascar (2001-2002) (3-6). In order to detect and differentiate highly evolved cVDPVs from OPV-like viruses, the World Health Organization required the Global Polio Laboratory Network to strengthen reliable ITD assays and further sequencing analysis. In this regard, laboratory surveillance for VAPP remains to be an important component in the certification of Japan's polio-free status.

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