U.S. National Inventory for Poliovirus Containment: Minimizing Risk of Poliovirus Release from Laboratories in the United States

The US Poliovirus National Authority for Containment of Poliovirus (NAC), located in the Centers for Disease Control and Prevention, Center for Preparedness and Response, appreciates your participation in this survey. This survey is designed to collect relevant laboratory inventory data to ensure compliance with requirements established in the WHO Global Action Plan (GAPIII), as adapted for the WHO Region of the Americas. Per GAPIII, each country is required to complete a national inventory of poliovirus-containing materials. Unlike previous surveys, the 2018 survey focuses on institutions that may have poliovirus potentially infectious materials (PIM). PIM includes human respiratory secretion and fecal specimens collected for non-polio related work in a time and place where wild poliovirus (WPV) or vaccine-derived poliovirus (cVDPV) was circulating or where oral polio vaccine (OPV) was in use. Historical domestic and international specimens are more likely to fall into these categories. Additionally, PIM cultured in some common cell lines (*see Appendix C: Common Cell Lines and Animals Susceptible to Poliovirus*) in order to isolate other viruses of interest may have unintentionally amplified poliovirus, so respiratory or enteric viral isolates obtained from PIM specimens using any of these cell lines are also considered PIM.

Historical and international specimen collections are more likely to contain poliovirus than other collections

See "Guidance for non-poliovirus facilities to minimize risk of sample collections potentially infectious for poliovirus" (WHO, 2018)

The survey should be completed by laboratories, storage sites, or other facility types that test, extract, handle, or store biological samples from humans, experimentally infected animals, sewage, or environmental waters. The survey questions are intended to identify facilities that possess any materials that may contain poliovirus. The questions seek to distinguish between PIM containing wild poliovirus (WPV), circulating vaccine derived poliovirus (cVDPV), and oral poliovirus vaccine (OPV). With the release of the WHO PIM guidance in April 2018, extracted nucleic acid and specimens that **may contain only OPV** are no longer subject to containment under WHO GAP III. However, they are still considered to be part of the US inventory and should be reported.

For the purpose of this survey, PIM should be identified on the basis of where and when the specimens were collected, not on the basis of any test results (*see Appendix E: WHO Country and Territory-Specific Poliovirus Data*). If your facility intends to destroy all of the potentially infectious poliovirus material or infectious material it possesses, you will then be asked to complete an attestation of destruction of the material. This attestation form will be sent to you once the completed survey is received.

Survey Instructions

Throughout the survey, questions requiring a single answer are indicated by a circle (○) and check boxes (□) are used if multiple answers are permitted. Instructions are provided with some questions. Definitions of key words used here and in the online survey can be found in **Appendix A**. Please contact poliocontainment@cdc.gov immediately if you have any questions about the survey or the questions it contains and someone will provide assistance.

This document has been provided to help you prepare your survey responses. It is not intended to be used as a substitute for completing the online version of the survey. Please do not submit this paper version, as the survey must be completed online. If you begin the survey and then terminate it early, you will be provided with a return code via email. Click the survey link and enter the code when prompted by the system.

This survey is divided into six modules:

A. Facility Information
B. Material Types
C. Inventory Information
D. Disposition of Materials
E. Key Facility Personnel
F. Attestation

Please pay close attention to the instructions at the end of Modules A and B, as these will determine whether modules C and D need to be completed. Modules E and F will be completed by all survey recipients. The time needed to complete the online survey will vary depending on the complexity of your facility and the availability of needed information.

Survey Appendices:

A. **Definitions**
B. **Country Information on Last Use of Trivalent Oral Poliovirus**
C. **Common Cell Lines and Animals Susceptible to Poliovirus**
D. **Preferred Methods for Destroying Poliovirus**
E. **Summary of Country Information on Last Polio Cases**

Module A – Facility Information

Module A: Section 1: Information about the Parent Institution

The questions in Module A: Sections 1 and 2 inquire about the parent institution, facility, or company to which your specific laboratory belongs. Starting with Section 3, questions are laboratory specific.

1.1 Name of Parent Institution _____

1.2 Name of Department, School, Center, etc. (*if applicable*) _____

1.3 Physical address of parent institution (no mailing or P.O. Box addresses) _____

1.4 City _____ 1.5 State/Territory _____ 1.6 Zip Code _____

1.7 Please tell us how you learned about the nation poliovirus survey (*select all that apply*)

- ☐ American Academy of Pediatrics
- ☐ American Association for Advancement of Science
- ☐ American Association for Laboratory Animal Science
- ☐ American Biological Safety Association
- ☐ American Institute of Biological Sciences
- ☐ American Public Health Association
- ☐ American Society for Clinical Laboratory Science
- ☐ American Society for Clinical Pathologists
- ☐ American Society for Laboratory Animal Practitioners
- ☐ American Society for Microbiology
- ☐ American Society for Tropical Medicine and Hygiene
- ☐ American Society for Virology
- ☐ American Water Works Association
- ☐ Association of Clinical Research Professionals
- ☐ Association of Independent Research Institutes
- ☐ Association of Public Health Laboratories
- ☐ Clinical Laboratory Management Association
- ☐ College of American Pathologists
- ☐ Federation of American Societies for Experimental Biology
- ☐ Foundation for Biomedical Research
- ☐ Infectious Diseases Society of America
- ☐ National Association of Biomedical Research
- ☐ National Science Foundation William J. Cooper
- ☐ Pharmaceutical Research and Manufacturers of America
- ☐ Water Research Foundation
- ☐ Contacted by CDC
- ☐ Other _____

Module A: Section 2: Classification of the Institution

2.1. Which of the following best describes the primary funding source for your institution? (select one)

- ○ Public (functions with public resources)
- ○ Private (functions with resources from partners)
- ○ Mixed (functions with both public and private resources)
- ○ Foundation (funded by a foundation or other not-for-profit entity)

2.2. What is the area of influence for this institution's activities? (select all that apply)

- ☐ Education
- ☐ Health care and other areas of health aimed at the civilian population
- ☐ Defense sector (military): clinical and/or research area
- ☐ Environmental laboratory
- ☐ Other _____

2.3 - 2.4 What are the primary and secondary objectives of the institution? Primary (check only one response) Secondary (check all that apply)

Work Objectives	**2.3 Primary** (*select one*)	**2.4 Secondary** (*select all that apply*)
Biomedical research	○	☐
Government public health laboratory	○	☐
Clinical diagnostic laboratory	○	☐
Industrial/Production laboratory (vaccines/biologicals, medicines, etc.)	○	☐
Control or research of wastewater, drinking water, or other natural or artificial water sources	○	☐
Control or research of sewage and/or wastewater management	○	☐
Environmental laboratory	○	☐
Storage of biological samples or biobank	○	☐
Other*_____	○	☐

**If 'other' is selected, please provide a brief description of the work objectives.*

Module A: Section 3: Laboratory or Storage Site Information

Please note that question on this page and throughout the remainder of the survey inquire about the specific laboratory or storage site for which you are reporting.

3.1 Name of the laboratory or storage site _____

If your laboratory address is different than the parent facility, please provide the address below.

3.2 Physical street address _____

3.3 City _____ 3.4 State/Territory _____ 3.5 Zip Code _____

Module A: Section 4: Survey Point of Contact

As the person completing this survey, you will be the point of contact for your facility should the U.S. NAC have any follow up questions. Please provide your contact information below.

4.1 Name of the individual completing the survey (First and Last) _____

4.2 Title of the individual completing the survey _____

4.3 Work Email of the individual completing the survey _____

4.4 Work phone number of the individual completing the survey _____

Module A: Section 5: Specialization of the Laboratory

5.1 Which of the following best describe the area(s) of interest for this laboratory? (Check all that apply)

- ☐ Molecular Biology
- ☐ Virology-poliovirus/enterovirus
- ☐ Virology-gastroenteritis (e.g., rotavirus, norovirus, astrovirus)
- ☐ Virology-respiratory (e.g., influenza, rhinovirus, RSV)
- ☐ Virology-other
- ☐ Bacteriology
- ☐ Mycology
- ☐ Parasitology
- ☐ Pathology
- ☐ Environmental
- ☐ Biology
- ☐ Immunology
- ☐ Public health laboratory
- ☐ Diagnostic/Clinical laboratory
- ☐ Vaccine development
- ☐ Industrial-vaccine production
- ☐ Industrial-vaccine Q/C testing
- ☐ Industrial-general microbiological filter and disinfectant manufacturers
- ☐ Nutrition
- ☐ Bioinformatics/Biotechnology
- ☐ Other _____

5.2 Does the laboratory have the capacity for storing biological samples at temperatures of -20ºC or below? (Yes / No)

5.3 Does the laboratory perform cell or tissue culture? (Yes / No)

If you answered NO to question 5.2, you have COMPLETED the survey for your laboratory. Please skip to Module E: Key Facility Personnel. Otherwise, proceed to MODULE B.

MODULE B – TYPES OF STORED MATERIALS

The questions in Module B ask about the general type(s) of sample(s) that are worked with or stored in your specific laboratory or storage site. Definitions for terms used in this module can be found in Appendix A and https://www.cdc.gov/cpr/polioviruscontainment/NIPC.htm.

Module B: Section 1: General Inventory

Below is a list of specimen/sample types common to many laboratories. The questions in this section help us to determine if you have materials that may be relevant to this this survey. If you are unsure whether your facility works with or stores any of the listed materials, please find out from facility staff or the facility Director before continuing with the survey.

1. Does your laboratory work with or store any of the types of specimens or samples listed below?

MATERIAL TYPE	YES	NO	UNSURE*
CLINICAL SAMPLES OR SPECIMENS			
Samples or Specimens of Human Origin:			
a. Respiratory secretion specimens, collected for any purpose	○	○	○
b. Fecal specimens, collected for any purpose	○	○	○
c. Unfixed tissue samples (including autopsy), for any purpose	○	○	○
Samples or Specimens of Animal Origin:			
e. Experimental animals infected with poliovirus	○	○	○
f. Unfixed tissues/samples from experimental animals	○	○	○
Samples or Specimens of Environmental Origin:			
h. Concentrated sewage	○	○	○
k. Bodies of water (other sources, untreated, natural and artificial)	○	○	○
m. Untreated surface water	○	○	○
ISOLATES			
o. Virus isolate(s) of human, animal, or environmental origin	○	○	○

2. Were all of the specimens or samples selected above collected in the United States? (Yes / No / I don't know)

3. Were all of the specimens or samples which were collected within the United States, collected in the year 2000 or LATER? (Yes / No / I don't know)

NOTE: Samples and specimens collected within the United States after the year 2000 are not subject to containment under GAPIII. International samples and specimens will be addressed in Module C of the survey.

4. Does your laboratory work with or store any of the material types listed below?

MATERIAL TYPE	YES	NO	UNSURE
VIRUSES			
r. Known poliovirus	○	○	○
s. Novel poliovirus strains* (e.g., novel live attenuated oral poliovirus)	○	○	○
NUCLEIC ACID			
t. Extracted nucleic acid of a human, animal, or environmental origin	○	○	○
u. Nucleic acid extracted from poliovirus*	○	○	○
MATERIALS DERIVED FROM RECOMBINANT NUCLEIC ACIDS OR SYNTHETIC BIOLOGY*			
w. Recombinant or synthetic materials containing poliovirus capsid sequences*	○	○	○
p. Replication competent derivatives produced in the laboratory with capsid sequences from wild polioviruses, unless demonstrably proven to be safer than Sabin strains.	○	○	○
q. Replication competent derivatives produced in the laboratory with capsid sequences from OPV/Sabin strains.	○	○	○

Additional information and definitions can be found in the appendices and at the NAC survey website at https://www.cdc.gov/cpr/polioviruscontainment/NIPC.htm.

*Please note that **novel poliovirus strains**, **nucleic acid extracted from poliovirus**, or **recombinant or synthetic derivatives containing poliovirus capsid sequences** are considered infectious poliovirus material (WHO, 2014).

World Health Organization. (2014). Global action plan III: WHO global action plan to minimize poliovirus facility-associated risk. Geneva, Switzerland: World Health Organization; available at http://polioeradication.org/wp-content/uploads/2016/12/GAPII_2014.pdf

If you responded ***YES*** to questions 2 and 3, and ***NO*** to all material types in question 4, you have COMPLETED the survey for your laboratory. Please skip to Module E: Key Facility Personnel.

If you responded ***NO*** to questions 2 or 3, or if you responded ***YES*** to any question from the table above, proceed to Module C: Inventory of Materials.

MODULE C. INVENTORY OF MATERIALS

The questions in this module ask about the type(s) of sample(s) that are stored in your laboratory or storage site and whether they are known to contain poliovirus (Section 1) or are potentially infectious materials (Section 2).

Definitions for terms used in Module C and a summary of last polio cases by country can be found at https://www.cdc.gov/cpr/polioviruscontainment/NIPC.htm.

Module C: Section 1: Type of Poliovirus Infectious Materials

If you indicated having materials belonging to one of more of the following categories, please complete this section.

- Collected outside of the United States
- Collected within the United States prior to the year 2000
- Collected at an unknown time and/or location
- CONFIRMED to be infected with poliovirus or that produce infectious virus

1. Do you have any of the following material types? (Select Yes or No for each material type)

Infectious Materials				
Material Type			**YES**	**NO**
1.1	Clinical materials confirmed to contain poliovirus		○	○
	1.1.A	Respiratory secretion specimens known to contain WPV or cVDPV	○	○
	1.1.B	Respiratory secretion specimens known to contain Sabin/OPV	○	○
	1.1.C	Fecal specimens known to contain WPV or cVDPV	○	○
	1.1.D	Fecal specimens known to contain Sabin/OPV	○	○
	1.1.E	Other clinical specimens (not fecal or respiratory) known to contain WPV	○	○
	1.1.F	Other clinical specimens (not fecal or respiratory) known to contain Sabin/OPV	○	○
1.2	Environmental samples of water or sewage that have tested positive for the presence of poliovirus		○	○
1.3	Isolates from cell cultures and reference strains of poliovirus		○	○
1.4	Seed stocks and infectious materials used in the production of IPV vaccines		○	○
1.5	Seed stocks and infectious materials used in the production of OPV/Sabin vaccines		○	○
1.6	Attenuated poliovirus strains not licensed for use as live vaccines		○	○
1.7	Infected animals or samples of these animals, including transgenic mice containing human poliovirus receptors		○	○
1.8	Genetically modified materials (including materials produced by synthetic biology) that have complete poliovirus capsid sequences		○	○
1.9	Full length enterovirus cDNA or RNA that include sequences of capsid derived from poliovirus		○	○
1.10	Cells persistently infected with virus whose capsid sequences are derived from poliovirus		○	○

If you responded YES to any question from the table above, please indicate in the following table approximately how many vials and/or containers of samples confirmed to be infected with poliovirus or that produce infectious poliovirus are currently stored in your laboratory, storage site, or other facility type. If you responded NO to all questions from the table above, please proceed to the next module.

Module C: Section 2: Inventory of Infectious Materials

Type and Amount of Known Infectious Materials

Thinking about the materials listed in Module C: Section 1, please provide an approximate number of vials/containers containing infectious poliovirus material for each sample type below using the amount ranges provided (e.g., None, 1-99, 100-999).

Please note that if WPV and OPV were both circulating at the time and geographic location where the samples or specimens were collected, enter those materials as WPV.

If samples contain a combination of virus types, please indicate each type separately.

Estimated number of vials/containers containing infectious poliovirus material *(select one per row)*

	None	1-99	100-999	1,000-4,999	5,000-9,999	10,000-50,000	>50,000
WPV or cVDPV Type 1	○	○	○	○	○	○	○
WPV or cVDPV Type 2	○	○	○	○	○	○	○
WPV or cVDPV Type 3	○	○	○	○	○	○	○
WPV or cVDPV Untyped/Unknown	○	○	○	○	○	○	○
Sabin/OPV Type 1	○	○	○	○	○	○	○
Sabin/OPV Type 2	○	○	○	○	○	○	○
Sabin/OPV Type 3	○	○	○	○	○	○	○
Sabin/OPV Untyped/Unknown	○	○	○	○	○	○	○

Module C: Section 3: Type of Potentially Infectious Materials

In the previous questions, you may have indicated having materials collected in a time and place where poliovirus was circulating. It is therefore possible that your materials may contain poliovirus even if not collected for purposes specifically related to polio. For the purpose of this survey, those materials will be considered potentially infectious for poliovirus or as having the potential to produce infectious poliovirus. For questions 1-10, refer to Appendix E: WHO Country and Territory-Specific Poliovirus Data for dates and geographic locations of last known poliovirus cases by country and to Appendix B for information about last use of trivalent oral polio vaccine (tOPV) by country.

1. Do you have any of the following materials types? (*Select YES or NO for each material type*)

Potentially Infectious Materials				
	Material Type	**YES**	**NO**	**UNSURE**
1.1	**Respiratory** secretion samples collected for any purpose at a time and in a geographic area when **wild poliovirus (WPV)** or **vaccine-derived poliovirus (cVDPV)** was circulating[a]	○	○	○
1.2	**Respiratory** secretion samples collected for any purpose at a time and in a geographic area where **Sabin/OPV** was being used in routine or supplemental immunization programs[b]	○	○	○
1.3	**Fecal** specimens collected for any purpose at a time and in a geographic area when **wild poliovirus (WPV)** or **vaccine-derived poliovirus (cVDPV)** was circulating[a]	○	○	○
1.4	**Fecal** specimens collected for any purpose at a time and in a geographic area where **Sabin/OPV** was being used in routine or supplemental immunization programs[b]	○	○	○
1.5	Environmental samples of water or sewage that have not been tested for the presence of poliovirus	○	○	
1.6	Uncharacterized viral isolates from poliovirus susceptible/sensitive cells[c,d]	○	○	○
1.8	Stocks of **respiratory virus*** isolated from specimens collected in a time and geographic location where WPV, Sabin/OPV, or cVDPV was circulating and handled under conditions conducive to maintaining the viability or enabling the replication of incidental poliovirus [b,d]	○	○	○
1.9	Stocks of **enteric virus*** isolated from specimens collected in a time and geographic location where WPV, Sabin/OPV, or cVDPV was circulating and handled under conditions conducive to maintaining the viability or enabling the replication of incidental poliovirus [b,d]	○	○	○
1.10	Nucleic acid extracted from fecal or respiratory secretion specimens, or environmental samples collected for any purpose at a time and in a geographic area with circulating wild poliovirus including cVDPV or OPV/Sabin	○	○	○

2. Were any of the materials above inoculated into cells or animals susceptible to poliovirus? [c] ……. Yes No

[a] *Refer to Appendix E: WHO Country and Territory-Specific Poliovirus Data*

[b] *Refer to Appendix B for information about the last use of trivalent OPV by country*

[c] *Refer to Appendix C for information about poliovirus susceptible/sensitive cell lines and animals*

[d] ***Virus (characterized or uncharacterized) derived from respiratory or enteric specimens which were collected in a time and geographic location where WPV/cVDPV was circulating or where OPV was in in use is considered potentially infectious material.***

If you responded YES to any question from the table above, please indicate in the following table approximately how many vials and/or containers of potentially infectious poliovirus materials are currently stored in your laboratory, storage site, or other facility type. Note that the table cells below are not mutually exclusive.

Module C: Section 4: Inventory of Potentially Infectious Materials

Type and Amount of Potentially Infectious Materials

Thinking about the materials from the table in Module C: Section 1, please provide an approximate number of vials/containers containing **potentially infectious** material for each sample type below.

Please note that if WPV and OPV were both circulating at the time and geographic location where the samples or specimens were collected, enter those materials as WPV.

Also note that any specimens collected in countries using monovalent OPV2 after 2016 may contain OPV2 (refer to Appendix B) and should be indicated in the table below as Sabin/OPV Type 2.

Estimated number of vials/containers containing potentially infectious material *(select one per row)*

	None	1-99	100-999	1,000-4,999	5,000-9,999	10,000-50,000	>50,000
WPV or cVDPV Type 1 PIM	○	○	○	○	○	○	○
WPV or cVDPV Type 2 PIM	○	○	○	○	○	○	○
WPV or cVDPV Type 3 PIM	○	○	○	○	○	○	○
WPV or cVDPV Untyped/Unknown PIM	○	○	○	○	○	○	○
Sabin/OPV Type 1 PIM	○	○	○	○	○	○	○
Sabin/OPV Type 2 PIM	○	○	○	○	○	○	○
Sabin/OPV Type 3 PIM	○	○	○	○	○	○	○
Sabin/OPV Untyped/Unknown PIM	○	○	○	○	○	○	○

MODULE D: DISPOSITION OF MATERIALS

The questions in Module D ask about what your facility intends to do with the infectious or potentially infectious materials that are currently worked with or stored at your laboratory.

Module D: Section 1: Proposed Disposition of Infectious and Potentially Infectious Poliovirus Materials

In this section, tell us what you intend to do with the PV or PIM materials that are currently held at your facility. Check all that apply, but please note that laboratories are strongly encouraged to destroy all unneeded materials.

1. What do you intend to do with the infectious and potentially infectious materials that are currently held at your laboratory? (*Check all that apply*)

☐ Destroy Materials ☐ Inactivate Materials ☐ Transfer Materials ☐ Retain Materials

If you selected the 'DESTROY' option above, complete Section 2; if you selected 'INACTIVATE, complete Section 3; if you intend to TRANSFER materials, complete Section 4; and if you intend to RETAIN materials, complete Section 5.

Module D: Section 2: Destroying Material

Tell us about the materials that you plan to destroy. Please note that if you opt to destroy material, you will be contacted by a representative of the U.S NAC and asked to complete an attestation of destruction questionnaire. Refer to Appendix D for information about preferred destruction methods.

If materials contain a combination of virus types, please indicate each type separately. *(check all that apply)*

Material to be Destroyed					
	None	**Type 1**	**Type 2**	**Type 3**	**Unknown/ Untyped**
Infectious Materials					
2.1. WPV or cVDPV	☐	☐	☐	☐	☐
2.2. Sabin/OPV	☐	☐	☐	☐	☐
Potentially Infectious Materials					
2.3 WPV or cVDPV	☐	☐	☐	☐	☐
2.4 Sabin/OPV	☐	☐	☐	☐	☐

2.5 Please provide an explanation of the type of material to be destroyed and the destruction method(s) that will be used.

(Refer to the Appendix D for information regarding preferred destruction methods)

Module D: Section 3: Inactivating Material

Tell us about the materials that you plan to inactivate. Please note that you will be contacted by a representative of the NAC and asked to complete a form to document the inactivation of this material. If materials contain a combination of virus types, please indicate each type separately. *(check all that apply)*

Material to be Inactivated					
	None	**Type 1**	**Type 2**	**Type 3**	**Unknown/ Untyped**
Infectious Materials					
3.1 WPV or cVDPV	☐	☐	☐	☐	☐
3.2 Sabin/OPV	☐	☐	☐	☐	☐
Potentially Infectious Materials					
3.3 WPV or cVDPV	☐	☐	☐	☐	☐
3.4 Sabin/OPV	☐	☐	☐	☐	☐

3.5 You indicated that you plan to inactivate infectious materials (e.g., extraction, gamma irradiation). Please provide a brief statement to explain.

Module D: Section 4: Transferring Poliovirus Material

Tell us about the materials that you plan to transfer but please note that poliovirus materials can only be transferred to a registered poliovirus essential facility (PEF). It is the responsibility of your facility to coordinate with the receiving PEF for the transfer of materials. Please contact the NAC at 404-718-5160 or poliocontainment@cdc.gov to discuss the transfer of any infectious poliovirus or potentially infectious materials.

Materials to be Transferred

4.1. If you intend to transfer samples to another facility, please provide a brief statement including the type and amount of material(s) to be transferred, the anticipated date of transfer (if known), the name and contact information for the intended recipient, and any other information that may seem relevant to the transfer.

Module D: Section 5: Retaining Poliovirus Material

Tell us about the materials that you plan to retain. If materials contain a combination of virus types, please indicate each type separately. .

Material to be Retained					
	None	**Type 1**	**Type 2**	**Type 3**	**Unknown/ Untyped**
Infectious Materials					
5.1 WPV or cVDPV	☐	☐	☐	☐	☐
5.2 Sabin/OPV	☐	☐	☐	☐	☐
5.3 Nucleic acid	☐	☐	☐	☐	☐
Potentially Infectious Materials					
5.4 WPV or cVDPV	☐	☐	☐	☐	☐
5.5 Sabin/OPV	☐	☐	☐	☐	☐
5.6 Nucleic acid	☐	☐	☐	☐	☐

5.7 If you plan to retain stored samples, please tell us what types of samples (e.g., fecal specimens, respiratory specimens, nucleic acid) you plan to retain.

NOTICE!

Poliovirus nucleic acid is RNA, cDNA, and total nucleic acid extracted from poliovirus infectious materials (e.g., a virus isolate) or potentially infectious materials (e.g., stool, respiratory specimen, sewage) using methods demonstrated to inactivate poliovirus, or synthesized RNA or cDNA (e.g., cDNA clone, synthetic transcript).

Poliovirus nucleic acid can be handled outside of poliovirus containment under the condition that these materials will not be introduced into poliovirus-permissive cells or animals (as defined in GAPIII and in the "Guidance for non-poliovirus facilities to minimize risk of sample collections potentially infectious for polioviruses") with or without a transfection reagent, except under appropriate containment conditions as described in GAPIII Annex 2 or Annex 3.

While nucleic acid containment is not required under GAPIII, reporting of poliovirus nucleic acid is required as part of the national inventory.

World Health Organization. (2017). Containment Advisory Group: CAG 2 November 2017 Meeting Report; available at http://polioeradication.org/wp-content/uploads/2018/02/poliovirus-containment-advisory-group-meeting-20171130.pdf

MODULE E: KEY FACILITY PERSONNEL

Module E: Section 1: Key Facility Personnel

It is important for us to know who is responsible for the responses provided in the survey. Please include the name and contact information for the individual completing the survey as well as the facility Lab Director and Biosafety Officer. If the facility does not have a named Biosafety Officer, please indicate this below.

1. Lab Director Name _____
2. Lab Director Work Email _____
3. Biosafety Officer Name _____
4. Biosafety Officer Work Email _____

☐ Click here if the facility or institution does not have a named Biosafety Officer

MODULE F: ATTESTATION

I have completed this survey on behalf of my:

- ○ Laboratory
- ○ Department
- ○ Campus
- ○ Institution

Please apply a digital signature to confirm the statement below.

☐ I, [*full name of the person completing the survey*], acknowledge that the information provided in this survey is correct to the best of my knowledge and that it reflects the reality of the laboratory, storage site, or other facility type at [*name of parent facility*].

Thank you for completing the survey for the U.S. National Inventory for Poliovirus Containment! Your participation is crucial to the ongoing efforts to contain poliovirus. For more information on the national poliovirus containment initiative, please visit our website at https://www.cdc.gov/phpr/whatwedo/polio.htm or email us at poliocontainment@cdc.gov and a member of our staff will follow up with you.

Please encourage others who work with or store the types of materials addressed in this survey to contact the NAC.

Thank you for your commitment to the eradication of polio.

NAC
U.S. National Authority
for Containment of Poliovirus

Appendix A. Definitions

The definitions given below apply to the terms as used in the Global Action Plan III (GAPIII) standard, and may have different meanings in other contexts.

Circulating VDPV (cVDPV): VDPV isolates for which there is evidence of person-to-person transmission in the community.

Global Action Plan III (GAPIII): The WHO global action plan to minimize poliovirus facility-associated risk after type-specific eradication of wild polioviruses and sequential cessation of OPV use (GAPIII). The 3rd edition of the Global Action Plan (GAPIII) aligns the safe handling and containment of poliovirus infectious and potentially infectious materials with the WHO Endgame Strategy and replaces both the 2009 draft version of the 3rd edition and the 2nd edition of the WHO global action plan for laboratory containment of wild polioviruses

Inactivated Poliovirus Vaccine (IPV): The inactivated poliovirus vaccine was developed in 1955 by Salk and Youngner. IPV is a killed-virus vaccine and is administered by injection.

Inactivation: Rendering an organism inert by the application of heat or other means.

Nucleic Acid, Poliovirus: Poliovirus RNA, cDNA, and total nucleic acid extracted from poliovirus infectious materials (e.g., a virus isolate) or potentially infectious materials (e.g., stool, respiratory specimen, sewage) using methods demonstrated to inactivate poliovirus, or synthesized RNA or cDNA (e.g., cDNA clone, synthetic transcript). Poliovirus nucleic acid can be handled outside of poliovirus containment under the condition that these materials will not be introduced into poliovirus-permissive cells or animals (as defined in GAPIII and in the "Guidance for non-poliovirus facilities to minimize risk of sample collections potentially infectious for polioviruses") with or without a transfection reagent, except under appropriate containment conditions as described in GAPIII Annex 2 or Annex 3.

Oral Poliovirus Vaccine (OPV): The oral polio vaccine (OPV) was developed in 1961 by Albert Sabin. Also called "Sabin vaccine", OPV contains live, attenuated (weakened) poliovirus strains. A Sabin OPV strain has been developed for each of the three poliovirus types. OPV formulations include:

- Trivalent OPV (tOPV), contains all three serotypes of Sabin strains (1 + 2 + 3); use of tOPV ended in April 2016
- Bivalent OPV (bOPV), contains Sabin strains 1 + 3; as of April 2016, only bOPV is used routinely
- Monovalent OPV (mOPV) contains only one serotype of Sabin strain

Poliovirus: A picornavirus consisting of three serotypes: 1, 2 and 3; protective immunity is type-specific. Poliovirus serotypes are further subdivided into wild (circulating in nature) and Sabin strains (attenuated strains used for oral polio vaccines). Polioviruses use CD155 as the primary cellular receptor. Type 2 poliovirus has been eliminated in the wild; the last wild type 2 poliovirus was detected in India in 1999. In this current stage of polio eradication, only type 1 wild poliovirus continues to circulate in endemic areas. It is highly infectious and causes paralytic polio.

Poliovirus, Wild:

- Wild polioviruses are naturally occurring isolates known or believed to have circulated persistently in the community.
- Vaccine-derived polioviruses (VDPV) are classified with wild polioviruses and usually demonstrate 1–15% sequence differences from the parental oral polio vaccine (OPV) strain; they may have circulated in the community (cVDPV) or have replicated for prolonged periods in immunodeficient subjects (iVDPV) or be ambiguous and of unknown origin (aVDPV).
- Attenuated strains not licensed for use as live vaccines (Cox/Lederle and Koprowski/Wistar series) are classified with wild polioviruses as their clinical properties are unproven.

Wild poliovirus materials may be (a) infectious or (b) potentially infectious.

(a) Poliovirus infectious materials, wild: These include:

- Clinical materials from confirmed wild poliovirus (including cVDPV) infections;
- Environmental sewage or water samples that have tested positive for the presence of wild polioviruses;
- Cell culture isolates and reference strains of wild poliovirus;
- Seed stocks and infectious materials from IPV production;

- Infected animals or samples from such animals, including human poliovirus receptor transgenic mice;
- Derivatives produced in the laboratory that have capsid sequences from wild polioviruses, unless demonstrably proven to be safer than Sabin strains. The safety of new derivatives containing wild poliovirus capsid sequences will be assessed by an expert panel, on the basis of comparison to reference Sabin strains for (i) degree and stability of attenuation; (ii) potential for person-to-person transmission; and (iii) neurovirulence in animal models;
- Full-length RNA or cDNA of viruses proven to be safer than Sabin strains, but that includes wild poliovirus capsid sequences. The safety of these full-length RNA or cDNA and their containment requirements will be assessed by an expert panel convened by WHO, on the basis of comparison to reference Sabin strains for (i) degree and stability of attenuation; (ii) potential for person-to-person transmission; and (iii) neurovirulence in animal models;
- Cells persistently infected with poliovirus strains whose capsid sequences are derived from wild poliovirus.

(**b) Poliovirus potentially infectious materials, wild:** These include:

- Fecal or respiratory secretion samples collected for any purpose in a time and geographic area of wild poliovirus (including cVDPV) circulation;
- Products of such materials from poliovirus permissive cells or animals;
- Uncharacterized enterovirus-like cell culture isolates from countries known or suspected to have circulating wild poliovirus or cVDPV at the time of collection;
- Respiratory and enteric virus stocks handled under conditions where poliovirus contamination or replication is possible;
- Environmental samples (i.e. concentrated sewage, waste water) collected from areas known or suspected to have circulating WPV/VDPV or use of OPV at the time of collection.

Poliovirus, Sabin (OPV/Sabin strains): Attenuated poliovirus strains (approved for use in oral polio vaccines by national regulatory authorities, principally Sabin strains).

Poliovirus, OPV-like: For the laboratory network not involved in manufacture, isolates consistent with a limited period of virus excretion or person-to-person transmission, demonstrating less than 1% difference from parent OPV strains for poliovirus types 1 and 3, and less than 0.6% difference from the type 2 parent OPV strain by full Viral Protein 1 sequence homology. The phenotype of clinical and environmental OPV-like isolates need not be determined as the great majority are assumed to be of low virulence.

Sabin materials may be (a) infectious or (b) potentially infectious. The attenuated phenotype of viruses resulting from manufacture based on the OPV/Sabin seeds must be assured and cannot rely on the lack of sequence drift alone.

(a) Poliovirus infectious materials, OPV/Sabin: These include:

- Cell culture isolates and reference OPV/Sabin strains
- Seed stocks and live virus materials from OPV production
- Environmental sewage or water samples that have tested positive for the presence of OPV/Sabin strains
- Fecal or respiratory secretion samples from recent OPV recipients
- Infected animals or samples from such animals, including poliovirus receptor transgenic mice
- Derivatives produced in the laboratory that have capsid sequences from OPV/Sabin strains
- Full-length RNA or cDNA that includes capsid sequences of viruses proven to be safer than Sabin strains, but that includes OPV/Sabin poliovirus capsid sequences. The safety of these full-length RNA or cDNA and their containment requirements will be assessed by an expert panel convened by WHO, on the basis of comparison to reference Sabin strains for (i) degree and stability of attenuation; (ii) potential for person-to-person transmission; and (iii) neurovirulence in animal models;
- Cells persistently infected with poliovirus strains whose capsid sequences are derived from OPV/Sabin strains.

(b) Poliovirus potentially infectious materials, OPV/Sabin: These include:

- Fecal or respiratory secretion samples collected for any purpose in a time and geographic area of OPV use
- Products of such materials from poliovirus permissive cells or animals
- Respiratory and enteric virus stocks handled under conditions where OPV/Sabin strain contamination or replication is possible

Sample: 1) any material--biological, clinical or environmental sample -- taken as a representation of a whole, used for analysis or medical diagnosis. 2) an unknown for which an assay is testing for an outcome.

Specimen: See definition for 'Sample'

Vaccine derived poliovirus (VDPV): Classified with wild polioviruses and usually demonstrate 1–15% sequence differences from the parental oral polio vaccine (OPV) strain; they may have circulated in the community (cVDPV) or have replicated for prolonged periods in immunodeficient subjects (iVDPV) or be ambiguous and of unknown origin (aVDPV).

WHO Regions: WHO Member States are grouped into 6 WHO regions: African Region, Region of the Americas, South-East Asia Region, European Region, Eastern Mediterranean Region, and Western Pacific Region. See more at: www.who.int/about/regions/en

Appendix B. Country Information on Last Use of Trivalent Oral Poliovirus*

The table below provides the information about last year that trivalent oral poliovirus vaccine (tOPV) was used in each respective country. The purpose of the table is to provide you with information that will help you determine whether oral poliovirus (OPV) was circulating at a time and geographic location which your specimens/samples were collected.

In accordance with the WHO Polio Endgame Plan, the last routine doses of trivalent oral poliovirus vaccine (tOPV) were given in April 2016. If samples were collected during a time when vaccine derived poliovirus (cVDPV) was circulating or at or last date that tOPV was administered, the material is considered potentially infectious.

The information in this table was modified from the 2015 U.S. National Poliovirus Containment Survey: Appendix B: Summary of Country Information on Last Known Polio Cases.

WHO Member State	Last Year of tOPV
United States of America	2000
Afghanistan (endemic)	2016
Albania	2016
Algeria	2016
American Samoa	2016
Andorra	2004
Angola	2016
Anguilla	2016
Antigua and Barbuda	2016
Argentina	2016
Armenia	2016
Aruba	2016
Australia	2005
Austria	2002
Azerbaijan	2016*
Bahamas, The	2016
Bahrain	2016
Bangladesh	2016
Barbados	2016
Belarus	2016
Belgium	2001
Belize	2016
Benin	2016
Bermuda	2016

WHO Member State	Last Year of tOPV
Bhutan	2016
Bolivia	2016
Bosnia and Herzegovina	2016
Botswana	2016
Brazil	2016
Brunei Darussalam	2012
Bulgaria	2007
Burkina Faso	2016
Burundi	2016
Cambodia	2016
Cameroon	2016*
Canada	1996
Cape Verde	2016
Cayman Islands	2016
Central Africa Republic (CAR)	2016
Chad	2016*
Chile	2016
China (People's Republic of)	2016
Colombia	2016
Comoros	2016
Congo	2016
Cook Islands	2016
Costa Rica	2011
Cote d'Ivoire	2016

WHO Member State	Last Year of tOPV
Croatia	2008
Cuba	2016
Curaçao	2016
Cyprus	2002
Czech Republic	2007
Denmark	1968
Djibouti	2016
Dominica	2016
Dominican Republic	2016
DPR Korea	2016
Democratic Republic Congo (DRC)	2016*
Ecuador	2016
Egypt	2016
El Salvador	2016
Equatorial Guinea	2016
Eritrea	2016
Estonia	2008
Ethiopia	2016*
Federated States of Micronesia	2016
Fiji	2016
Finland	1960
France	1983
French Guyana	2016

WHO Member State	Last Year of tOPV
French Polynesia	2016
Gabon	2016
Gambia	2016
Georgia	2015
Germany	1999
Ghana	2016
Greece	2003
Grenada	2016
Guam	2016
Guatemala	2016
Guinea	2016
Guinee Bissau	2016
Guyana	2016
Haiti	2016
Honduras	2016
Hong Kong	2016
Hungary	2006
Iceland	never used
India	2016
Indonesia	2016
Iran (Islamic Republic of)	2016
Iraq	2016
Ireland	2001
Israel	1998
Italy	2002
Jamaica	2016
Japan	2012
Jordan	2016
Kazakhstan	2016
Kenya	2016*
Kiribati	2016
Kuwait	2016
Kyrgyzstan	2016

WHO Member State	Last Year of tOPV
Lao People's Democratic Republic (LPDR)/Laos	2016
Latvia	2001
Lebanon	2016
Lesotho	2016
Liberia	2016
Libya	2016
Lithuania	2004
Luxembourg	2003
Macao	2016
Madagascar	2016
Malawi	2016
Malaysia	2016
Maldives	2016
Mali	2016
Malta	2016
Marshall Islands	2016
Mauritania	2016
Mauritius	2016
Mexico	2016
Monaco	1999
Mongolia	2016
Montenegro	2011
Montserrat	2016
Morocco	2016
Mozambique*	2016
Myanmar	2016
Namibia	2016
Nauru	2016
Nepal	2016
Netherlands	never used
New Caledonia	2016
New Zealand	2002
Nicaragua	2016

WHO Member State	Last Year of tOPV
Niger	2016*
Nigeria	2016*
Niue	2016
Northern Mariana	2016
Norway	1979
Oman	2016
Pakistan (endemic)	2016*
Palau (Republic of)	2012
Palestine	2016
Panama	2016
Papua New Guinea	2016*
Paraguay	2016
Peru	2016
Philippines	2016
Poland	2016
Portugal	2016
Puerto Rico	2016
Qatar	2016
Republic of Korea	2004
Republic of Moldova	2016
Romania	2008
Russian Federation	2016
Rwanda	2016
Saint Kitts & Nevis	2016
Saint Lucia	2016
Saint Vincent and the Grenadines	2016
Samoa	2016
San Marino	2002
Sao-Tome et Principe	2016
Saudi Arabia	2016
Senegal	2016
Serbia	2016
Seychelles	2016

WHO Member State	Last Year of tOPV
Sierra Leone	2016
Singapore	2016
Slovakia	2005
Slovenia	2003
Solomon Islands	2016
Somalia	2016*
South Africa	2006
South Sudan	2016
Spain	2004
Sri Lanka	2016
St Maarten	2016
Sudan	2016
Suriname	2016
Swaziland	2016
Sweden	never used
Switzerland	2004

WHO Member State	Last Year of tOPV
Syrian Arab Republic	2016*
Taiwan	2016
Tajikistan	2016
Tanzania	2016
TFY Republic of Macedonia	2016
Thailand	2016
Timor-Leste	2016
Togo	2016
Tokelau	2016
Tonga	2016
Trinidad and Tobago	2016
Tunisia	2016
Turkey	2016
Turkmenistan	2016
Turks and Caicos Islands	2016

WHO Member State	Last Year of tOPV
Tuvalu	2016
Uganda	2016
UK of Great Britain and Northern Ireland	2004
Ukraine	2016
United Arab Emirates	2016
Uruguay	2012
Uzbekistan	2016
Vanuatu	2016
Venezuela	2016
Viet Nam	2016
Virgin Islands (UK)	2016
Wallis and Futuna	2016
Yemen	2016
Zambia	2016
Zimbabwe	2016

*Monovalent OPV2 was used in this country after 2016 and therefore these specimens may contain OPV2. Please indicate Sabin/OPV2 in Module C: Section 4: Inventory of PIM.

Appendix C. Common Cell Lines and Animals Susceptible to Poliovirus

Poliovirus grows in nearly all human and monkey cell lines, in addition to mouse L cells (L20B, Lα) that express the human poliovirus receptor (CD155). The below lists highlights some, but not all, cell lines susceptible to poliovirus.

Poliovirus Sensitive Cell Lines	
Cell Line	**Origin**
A-549	Human
CaCo-2	Human
HEK	Human
HeLa	Human
HEp-2	Human
MRC-5	Human
PERC-6	Human
RD	Human
WI-38	Human
Various neuroblastoma (e.g. IMR-32, SK-N-MC)	Human
BGMK (sometimes referred to as BGM or GMK)	African green monkey
LLC-MK2	Rhesus macaque
MA-104 (Vero derivative)	African green monkey
Primary monkey kidney cells	Old world monkeys
Vero	African green monkey
L20B	Transgenic mouse cell line
Lα	Transgenic mouse cell line
E-MX	Hybrid; mixture of cell lines
R-MX	Hybrid; mixture of cell lines
Animals Susceptible to Poliovirus	
Old World Monkeys and higher primates	
Human poliovirus receptor (PVR; CD155) transgenic mice	

Appendix D: Preferred Methods for destroying poliovirus infectious or potentially infectious materials*

Autoclave	The use of moist steam under pressure is the most effective method for sterilizing laboratory materials. • All cultures and contaminated materials should be autoclaved in leak-proof containers (*e.g.*, autoclave bags placed in a leak-proof tray) before disposal. • Packaging should allow the penetration of steam. • After being autoclaved the materials may be placed in transfer containers for transportation to the disposal point. • Autoclaves should be validated in order to ensure that sterilizing conditions are fulfilled under all loading patterns.
Incineration	Incineration is the method of choice for final disposal of contaminated waste, including carcasses of laboratory animals, preferably after autoclaving. **Incineration of materials is an alternative to autoclaving only if:** • the incinerator and transport to the incinerator is under laboratory control; • the incinerator is provided with an efficient means of temperature control and a secondary burning chamber.

Source: World Health Organization. WHO/CDS/CSR/LYO/LAB/2003. Geneva, 2003.

If other means of destruction are to be used, contact the National Authority for Containment of Poliovirus (poliocontainment@cdc.gov) prior to destruction.

Please note that the disposal of laboratory and medical waste is subject to various national regulations. In general, ash from incinerators may be treated in the same way as normal domestic waste and removed by local authorities. Autoclaved waste may be disposed of by off-site incineration or in licensed landfill sites.

Appendix E – World Health Organization Guidance to minimize risks for facilities collecting, handling or storing materials potentially infectious for polioviruses: Annex 2: Country and Territory-Specific Poliovirus Data

ANNEX 2: COUNTRY OR AREA-SPECIFIC POLIOVIRUS DATA

Facilities are encouraged to use Table 1 of Annex 2, in conjunction with the *Guidance to minimize risks for facilities collecting, handling or storing materials potentially infectious for polioviruses,* to assess the risk of sample collections potentially infectious for poliovirus.

Identifying all laboratory samples at risk for containing poliovirus is essential for securing a polio-free world. Presence of poliovirus in a given country can only be ruled out with active AFP surveillance. The data and information shown in Table 1 was collected from multiple sources using the following algorithm for each country:

- Data was derived from national poliovirus reports and a systematic literature search in consultation with WHO regional offices. Resulting dates of reported WPV indigenous, WPV outbreak, and cVDPV outbreak circulation were recorded in the table.
- If no dates were reported for a specific type of poliovirus in a given country, the date of the last reported clinically confirmed poliomyelitis case was used. Clinically confirmed cases were poliomyelitis cases diagnosed by medical doctors without virological confirmation, so the case may have been caused by any of the three types of WPV and no type can be excluded.
- If no dates were reported for a specific type of WPV in a given country AND no clinically confirmed cases were reported, the date of last reported case of that WPV type in the country's WHO Region was used OR the date national AFP surveillance began, whichever date was earliest.

Table 1 is regularly revised and updated.

WHO makes no warranties regarding the content, completeness or accuracy of the data and information, and shall not be held liable for any damages whatsoever resulting from their use or application.[1]

How to use this table

1. For a given stool, respiratory, or concentrated sewage sample, determine the country of origin and date of collection. If this information is unknown, the sample should be destroyed or inactivated using a method known to inactivate poliovirus.
2. For each sample of known origin and date of collection, refer to the country of origin in the table. According to the date of collection, determine under which column the sample falls. If the sample falls under the column:
    a. **WPV/VDPV PIM Dates**[2], this sample must be destroyed, inactivated, or handled under full GAPIII containment. Please note that until WPV1 and 3 are declared eradicated, WPV2/cVDPV2 PIM is the only type of WPV PIM that requires immediate action.
    b. **OPV2/Sabin2 PIM Dates**, this sample is considered OPV2/Sabin2 PIM and may only be handled outside of GAPIII containment under the specific conditions outlined in this guidance.

Table 1: important notes

All dates: Table dates include month and year of circulation for a given virus type. If the specific month of a date was unknown, December is the default month.

WPV PIM Dates: The dates for circulation of all three WPV types in each country are listed in this table. Often the dates of two or more types of WPV will overlap. The breakdown of WPV circulation dates by type is provided so that type-specific WPV PIM inventories may be performed and that actions related to identification of WPV2 PIM, currently requiring containment, may be prioritized.

[1] For any comments or questions, please contact containment@who.int.
[2] These columns include the dates of indigenous WPV circulation, WPV outbreaks, and cVDPV outbreaks.

The columns included under this heading list the last known dates of 1) indigenous WPV 2) outbreak WPV, and 3) cVDPV for each type. Indigenous circulation dates are listed as "until" a specified date, and samples collected on preceding dates are considered to be WPV PIM. WPV and cVDPV outbreaks include a start and end date and all dates and any samples collected during this time are considered WPV PIM. cVDPV outbreak dates are indicated with italics and a footnote. Bold countries and dates indicate ongoing WPV or cVDPV outbreaks at time of publication. Dates of single cases of WPV importation, aVDPV cases, and iVDPV cases are not included in this table. All WPV/cVDPV dates include a reference and/or a footnote denoting the information source.

- **WPV1/cVDPV1 column**: WPV1 is still endemic in three countries: Afghanistan, Pakistan, and Nigeria. As of October 2018, WPV1 outbreaks in Afghanistan and Pakistan are ongoing and WPV1 has not been detected in Nigeria since August 2016. As of October 2018, a cVDPV1 outbreak is ongoing in Papua New Guinea.
- **WPV2/cVDPV2 column**: The red highlighting of this column indicates that samples collected during these dates require immediate action. WPV2/cVDPV2 PIM is required to be destroyed, inactivated, or handled under full GAPIII containment requirements. As of October 2018, cVDPV2 outbreaks are ongoing in Democratic Republic of Congo, Niger, Nigeria, and Somalia.
- **WPV3/cVDPV3 column**: As of October 2018, a cVDPV3 outbreak is ongoing in Somalia.

OPV2/Sabin2 PIM Dates column: The red highlighting of this column indicates that samples collected during these dates require immediate action. OPV2/Sabin2 PIM may be handled outside GAPIII containment only under the specific conditions outlined in this guidance.

WHO vaccination databases and national reports were consulted to determine the dates of OPV2/Sabin2 circulation. The OPV2/Sabin2 PIM dates for a country or territory generally start immediately following the last known dates of circulation of WPV2/cVDPV2. The year of tOPV introduction[1] and month and year of last tOPV use[2] are indicated for each country in the footnotes. To define the end dates of OPV2/Sabin2 circulation, 3 months were added to the last known use of tOPV or mOPV2 in each country or territory. In countries showing evidence of continued use of tOPV post-switch, the last date of OPV2/Sabin2 circulation was adjusted to the latest detection. In absence of evidence showing otherwise, samples collected after the dates listed in this table are not considered OPV2/Sabin2 PIM.

It must be emphasized that a sample collected during dates of WPV/cVDPV circulation are considered WPV PIM, which presents a higher risk than OPV/Sabin PIM. However, only samples that are WPV2/cVDPV2 PIM or OPV2/Sabin2 PIM immediately require special actions. Due to the process used for defining the OPV2/Sabin2 PIM dates defined above, the type 1 and 3 WPV/cVDPV PIM dates frequently overlap with the OPV2/Sabin2 PIM dates for a given country or territory. In these cases, these samples are considered first and foremost to be high-risk WPV PIM but are only immediately required to be handled as OPV2/Sabin2 as WPV1 and 3 are not yet subject to GAPIII containment. Upon declaration of eradication of all poliovirus types, ALL samples collected during the WPV PIM dates identified in this table will be required to be destroyed, inactivated, or handled under full GAPIII containment.

This Annex 2 must be read in conjunction with the document *Guidance to minimize risks for facilities collecting, handling or storing materials potentially infectious for polioviruses*, available here.

[1] The year of tOPV introduction is generally not known. For this reason, the table assumes that materials collected between the listed last WPV2 case and three months after the last use of tOPV, excluding periods with VDPVs, would fall under the category of OPV2/Sabin2 PIMs.

[2] In countries and territories where only the year is known, the month of last tOPV use was arbitrarily set as December.

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
1.	**Afghanistan**[1]	**Endemic** (1)	• Until Nov 1997 (2, 3) • *Jun 2010 – Mar 2013*[2] (1)	Until Apr 2010 (1)	• Dec 1997 – May 2010 • Apr 2013 – Jul 2016
2.	Albania[1]	Until Nov 1996 (4)	Until Dec 1985 (5)	Until Dec 1978 (5)	Jan 1986 – Jul 2016
3.	Algeria[1]	Until Dec 1996[3] (6)	Until Dec 1985 (7)	Until Dec 1996[3] (6)	Jan 1986 – Jul 2016
American Samoa: see under the United States of America					
4.	Andorra[4]	Until Dec 1959[3] (8)	Until Dec 1959[3] (8)	Until Dec 1959[3] (8)	• Jan 1960 – Dec 1960[5] • Jan 1961 – Mar 2005
5.	Angola[1]	• Until Sep 2001 (1) • Apr 2005 – Jul 2011 (1)	Until Dec 1982 (9)	• Until May 1999 (10) • Mar 2008 – Nov 2008 (1)	Jan 1983 – Jul 2016
Anguilla: see under the United Kingdom of Great Britain and Northern Ireland					
6.	Antigua and Barbuda[1]	Until Dec 1965 (11)	Until Dec 1964 (11)	Until Dec 1965 (11)	Jan 1965 – Jul 2016
7.	Argentina[1]	Until Dec 1984 (11)	Until Dec 1982 (11)	Until Dec 1973 (11)	Jan 1983 – Jul 2016
8.	Armenia[1]	Until Jun 1995 (5, 8)	Until Jun 1995 (5, 8)	Until Jul 1991 (5)	Jul 1995 – Jul 2016
9.	Australia[6]	Until Dec 1972 (12)	Until Dec 1972 (12)	Until Dec 1972 (12)	Jan 1973 – Jun 2006
10.	Austria[7]	Until Dec 1980[3] (8)	Until Dec 1980[3] (8)	Until Dec 1980[3] (8)	Jan 1981 – Dec 2001
11.	Azerbaijan[8]	Until Oct 1995 (5, 8)	Until Dec 1995[3] (8)	Until Dec 1995[3] (8)	Jan 1996 – Aug 2017
12.	Bahamas[1]	Until Dec 1978 (11)	Until Dec 1977 (11)	Until Dec 1978 (11)	Jan 1978 – Jul 2016
13.	Bahrain[1]	Until Dec 1993 (13)	Until Dec 1980[3] (14)	Until Dec 1977 (3)	Jan 1981 – Jul 2016
14.	Bangladesh[1]	• Until Dec 2000 (15) • Jan 2006 – Dec 2006 (1, 16)	Until Dec 1999[9] (17)	Until Oct 2010[10] (17)	Jan 2000 – Jul 2016
15.	Barbados[1]	Until Dec 1966 (11)	Until Dec 1967 (11)	Until Dec 1966 (11)	Jan 1968 – Jul 2016
16.	Belarus[1]	Until Dec 1964[3] (8)	Until Dec 1964[3] (8)	Until Dec 1964[3] (8)	Jan 1965 – Jul 2016
17.	Belgium[11]	Until Dec 1979[3] (8)	Until Dec 1979[3] (8)	Until Dec 1979[3] (8)	Jan 1980 – Mar 2004
18.	Belize[1]	Until Dec 1981 (11)	Until Dec 1980 (11)	Until Dec 1981 (11)	Jan 1981 – Jul 2016

[1] Last use of tOPV: Apr 2016
[2] Circulating vaccine-derived poliovirus outbreak
[3] Last clinically confirmed polio case, poliovirus type unknown
[4] Estimated last use of tOPV: Dec 2004
[5] These dates predate OPV2 use but enhanced mitigations are recommended to minimize poliovirus risk
[6] Estimated last use of tOPV: Mar 2006
[7] Estimated last use of tOPV: Dec 2001
[8] Use of tOPV continued post-switch until May 2017
[9] Year of last WPV2 case in South-East Asia Region
[10] Year of last WPV3 case in South-East Asia Region
[11] Estimated last use of tOPV: Dec 2003

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
19.	Benin[1]	• Until Dec 2000[2] (15) • Nov 2003 – Jun 2004 (1) • Apr 2008 – Apr 2009 (1)	Until Dec 1997 (7)	• Until Dec 2000[2] (15) • Jun 2008 – Dec 2008 (1)	Jan 1998 – Jul 2016
Bermuda: see under the United Kingdom of Great Britain and Northern Ireland					
20.	Bhutan[1]	Until Dec 1986[2] (18)	Until Dec 1986[2] (18)	Until Dec 1986[2] (18)	Jan 1987 – Jul 2016
21.	Bolivia (Plurinational State of)[1]	Until Dec 1989 (11)	Until Dec 1985 (11)	Until Dec 1988 (11)	Jan 1986 – Jul 2016
22.	Bosnia and Herzegovina[1]	Until Dec 1974[2] (8)	Until Dec 1974[2] (8)	Until Dec 1974[2] (8)	Jan 1975 – Jul 2016
23.	Botswana[1]	Until Dec 1989[2] (19)	Until Dec 1989[2] (19)	Until Dec 1989[2] (19)	Jan 1990 – Jul 2016
24.	Brazil[1]	• Until Dec 1989 (11) • Mar 2014[3]	• Until Dec 1985 (11) • *Jan 2014*[4] (20)	Until Dec 1988 (11)	• Jan 1986 – Dec 2013 • Feb 2014 – Jul 2016
British Virgin Islands: see under the United Kingdom of Great Britain and Northern Ireland					
25.	Brunei Darussalam[5]	Until Dec 1978[2] (21)	Until Dec 1978[2] (21)	Until Dec 1978[2] (21)	Jan 1979 – Dec 2012
26.	Bulgaria[6]	• Until May 1991 (5, 8) • Mar 2001 – May 2001 (22)	Until Mar 1991[2] (5, 8)	Until Mar 1991[2] (5, 8)	Apr 1991 – Sep 2007
27.	Burkina Faso[1]	• Until Dec 1984[2] (9) • Sep 2002 – Sep 2004 (1) • Jun 2008 – Oct 2009 (1)	Until Dec 1984[2] (9)	Until Dec 1984[2] (9)	Jan 1985 – Jul 2016
Burma: see Myanmar					
28.	Burundi[1]	• Until Dec 1984[2] (9) • Sep2009 (1)	Until Dec 1984[2] (9)	Until Dec 1984[2] (9)	Jan 1985 – Jul 2016
29.	Cabo Verde[1]	• Until Dec 1984[2] (9) • Aug 2000 – Oct 2000 (23)	Until Dec 1984[2] (9)	Until Dec 1984[2] (9)	Jan 1985 – Jul 2016
30.	Cambodia[1]	Until Mar 1997 (24)	Until Dec 1989 (12)	Until Dec 1993[7]	Jan 1990 – Jul 2016
31.	Cameroon[8]	• Until Dec 1999 (25) • Oct 2013 – Jul 2014 (1)	• Until Dec 1984[2] (9) • *May 2013 – Aug 2013*[4] (1)	• Until Dec 1984[2] (9) • Jul 2009 – Oct 2009 (1)	• Jan 1985 – Apr 2013 • Sep 2013 – Jul 2016 • Aug 2016 – Nov 2016[9] • Dec 2016 – Apr 2017

[1] Last use of tOPV: Apr 2016
[2] Last clinically confirmed polio case, poliovirus type unknown
[3] https://centerforvaccineethicsandpolicy.net/2014/06/
[4] Circulating vaccine-derived poliovirus outbreak
[5] Estimated last use of tOPV: Dec 2014
[6] Estimated last use of tOPV: Jun 2007
[7] Last WPV3 case in Western Pacific Region
[8] Estimated last use of tOPV: Apr 2016; mOPV2 use Dec 2016 – Jan 2017
[9] These dates predate mOPV2 use but enhanced mitigations are recommended to minimize poliovirus risk

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
		• Oct 2003 – Dec 2006 (1)			
32.	Canada[1]	• Until Dec 1977 (11) • Jul 1978 – Aug 1978 (26)	Until Dec 1964 (11)	• Until Dec 1964 (11) • Jan 1993 – Jun 1993 (27)	Jan 1965 – Mar 1997
Cayman Islands: see under the United Kingdom of Great Britain and Northern Ireland					
33.	Central African Republic[2]	• Until Jul 2000 (15) • Dec 2003 – Nov 2004 (1) • Apr 2008 – Dec 2008 (1) • Sep 2011 – Dec 2011 (1)	Until Dec 1996 (7)	• Until Dec 1984[3] (9) • Apr – Aug 2009 (1)	Jan 1997 – Jul 2016
34.	Chad[4]	• Until Dec 2000 (15) • Aug 2003 – Dec 2005 (1) • May 2007 – Nov 2008 (1) • Sep 2010 – Jun 2012 (1)	• Until Dec 1983[3] (9) • *Jul 2012 – May 2013*[5] (1)	• Until Dec 1999 (25) • Oct 2004 – Nov 2004 (1) • Nov 2006 – Mar 2011 (1)	• Jan 1984 – Jun 2012 • Jun 2013 – Jul 2016 • Aug 2016 – Nov 2016[6] • Dec 2016 – Apr 2017
35.	Chile[1]	Until Dec 1975 (11)	Until Dec 1970 (11)	Until Dec 1974 (11)	Jan 1971 – Jul 2016
36.	China[1]	• Until Sep 1994 (12, 28) • Jul 2011 – Oct 2011 (29)	• Until Dec 1985 (30) • *Jan 2012 – Feb 2012*[5] (1)	Until Dec 1993[7]	• Jan 1986 – Dec 2011 • Mar 2012 – Jul 2016
37.	China, Hong Kong SAR[8]	Until Dec 1981[3] (12)	Until Dec 1983 (12)	Until Dec 1981[3] (12)	Jan 1984 – Nov 2008
38.	China, Macao SAR[9]	Until Dec 1975[3] (12)	Until Dec 1975[3] (12)	Until Dec 1975[3] (12)	Jan 1976 – Dec 2009
39.	Taiwan, China[1]	Until Dec 1982[3] (31)	Until Dec 1982[3] (31)	Until Dec 1982[3] (31)	Jan 1983 – Jul 2016
40.	Colombia[1]	Until Jul 1991 (11)	Until Dec 1982 (11)	Until Dec 1989 (11)	Jan 1983 – Jul 2016
41.	Comoros[1]	Until Dec 1980[3] (9)	Until Dec 1980[3] (9)	Until Dec 1980[3] (9)	Jan 1981 – Jul 2016
42.	Congo[1]	• Until Dec 2000 (15) • Sep 2010 – Jan 2011 (1)	Until Dec 1984[3] (9)	Until Dec 1984[3] (9)	Jan 1985 – Jul 2016
43.	Cook Islands[1]	Until Dec 1959[3] (12)	Until Dec 1959[3] (12)	Until Dec 1959[3] (12)	• Jan 1960 – Dec 1960[6] • Jan 1961– Jul 2016

[1] Estimated last use of tOPV: Dec 1996
[2] Last use of tOPV: Apr 2016
[3] Last clinically confirmed polio case, poliovirus type unknown
[4] Estimated last use of tOPV: Apr 2016; mOPV2 use Dec 2016 – Jan 2017
[5] Circulating vaccine-derived poliovirus outbreak
[6] These dates predate mOPV2 use but enhanced mitigations are recommended to minimize poliovirus risk
[7] Last WPV3 case in Western Pacific Region
[8] Estimated last use of tOPV: Aug 2008
[9] Estimated last use of tOPV: Sep 2009

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
44.	Costa Rica[1]	Until Dec 1973 (11)	Until Dec 1985 (11)	Until Dec 1985 (11)	Jan 1986 – Nov 2011
45.	Côte d'Ivoire[2]	• Until Dec 2000 (15) • Dec 2003 – Oct 2004 (1) • Dec 2008 –Aug 2009 (1)	Until Dec 1997 (7)	• Until Dec 1999 (25) • Jan 2011 –Jul 2011 (1)	Jan 1998 – Jul 2016
46.	Croatia[3]	Until Jun 1990 (5)	Until Jun 1989 (5)	Until Dec 1981 (5)	Jul 1989 – Mar 2008
47.	Cuba[2]	Until May 1962 (11)	Until Dec 1961 (11)	Until Dec 1961 (11)	Jan 1962 – Jul 2016
48.	Cyprus[3]	Until Jul 1995 (5)	Until Dec 1995 (5)	Until Dec 1995 (5)	Jan 1996 – Mar 2008
49.	Czechia[4]	Until Dec 1960[5] (8)	Until Dec 1960[5] (8)	Until Dec 1964[5] (8)	Jan 1961 – Apr 2007
50.	Democratic People's Republic of Korea[2]	Until Dec 1996[5] (17)	Until Dec 1996[5] (17)	Until Dec 1996[5] (17)	Jan 1997 – Jul 2016
51.	**Democratic Republic of the Congo**[6, 7]	• Until December 2000[5] (32) • Jan 2005 – Aug 2008 (1, 33) • May 2010 – Dec 2011 (1)	• Until Dec 2000[5] (32) • *Feb 2010 – Sep 2010*[8] (1) • *Oct 2011 – Apr 2012*[8] (1) • ***Feb 2017 – ongoing***[8] (1)	• Until Dec 2000[5] (32) • Oct 2008 – Jun 2009 (1)	• Jan 2001 – Jan 2010 • Oct 2010 – Sep 2011 • May 2012 – Jan 2017
52.	Denmark[9]	Until Dec 1976 (8)	Until Dec 1967 (5)	Until Dec 1967 (5)	Jan 1968 – Oct 2003
53.	Djibouti[2]	Until Dec 1995 (3)	Until Dec 1979[5] (14)	Until Dec 1979[5] (14)	Jan 1980 – Jul 2016
54.	Dominica[2]	Until Dec 1980 (11)	Until Dec 1980 (11)	Until Dec 1980 (11)	Jan 1981 – Jul 2016
55.	Dominican Republic[2]	• Until Dec 1985 (11) • *Jul 2000 – Jan 2001*[8] (34)	Until Dec 1985 (11)	Until Dec 1985 (11)	Jan 1986 – Jul 2016
56.	Ecuador[2]	Until Dec 1990 (11)	Until Dec 1987 (11)	Until Dec 1990 (11)	Jan 1988 – Jul 2016
57.	Egypt[10]	Until May 2004 (3)	Until Dec 1994 (3)	Until Dec 2000 (3)	Jan 1995 – Aug 2016
58.	El Salvador[2]	Until Dec 1989 (11)	Until Dec 1987 (11)	Until Dec 1989 (11)	Jan 1988 – Jul 2016

[1] Estimated last use of tOPV: Aug 2011
[2] Last use of tOPV: Apr 2016
[3] Estimated last use of tOPV: Dec 2007
[4] Estimated last use of tOPV: Jan 2007
[5] Last clinically confirmed polio case, poliovirus type unknown
[6] tOPV use continued post-switch until Jun 2017; mOPV2 use began Jun 2017 and is ongoing
[7] The inventory of remaining infectious and poliovirus potentially infectious materials (cVDPV, mOPV2/Sabin2) for destruction or containment will have to be repeated after the present outbreak is declared closed.
[8] Circulating vaccine-derived poliovirus outbreak
[9] Estimated last use of tOPV: Jul 2003
[10] Estimated last use of tOPV: May 2016

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
59.	Equatorial Guinea[1]	• Until Dec 1979[2] (9) • Jan 2014 – May 2014 (1)	Until Dec 1979[2] (9)	Until Dec 1979[2] (9)	Jan 1980 – Jul 2016
60.	Eritrea[1]	Until Dec 1995[2] (35)	Until Dec 1995[2] (35)	Until Dec 1995[2] (35)	Jan 1996 – Jul 2016
61.	Estonia[3]	Until Dec 1961[2] (8)	Until Dec 1961[2] (8)	Until Dec 1961[2] (8)	Jan 1962 – Mar 2008
62.	Eswatini[1]	Until Dec 1989[2] (36)	Until Dec 1989[2] (36)	Until Dec 1989[2] (36)	Jan 1990 – Jul 2016
63.	Ethiopia[4]	• Until Jan 2001 (15) • Dec 2004 – Nov 2006 (1) • Mar 2008 – Apr 2008 (1) • Jul 2013 – Jan 2014 (1)	Until Dec 1984[2] (9)	• Until Dec 1984[2] (9) • *Jan 2010 – May 2010*[5] (1)	• Jan 1985 – Jul 2016 • **Jul 2018 – ongoing**
64.	Fiji[1]	Until Dec 1958[2] (12)	Until Dec 1958[2] (12)	Until Dec 1958[2] (12)	Jan 1959 – Dec 1960[6] Jan 1961 – Jul 2016
65.	Finland[7]	Until Dec 1964 (37)	Until Dec 1960 (5)	• Until Dec 1964 (37) • Aug 1984 – Jan 1985 (37)	Jan 1961 – Mar 1986
66.	France[8]	Until Jun 1989 (5, 8)	Until Dec 1984 (5)	Until Jan 1989 (5, 8)	Jan 1985 – Aug 1999
67.	French Guiana[9]	Until Dec 1983[2] (9)	Until Dec 1983[2] (9)	Until Dec 1983[2] (9)	Jan 1984 – Mar 1991
68.	French Polynesia[10]	Until Dec 1982[2] (12)	Until Dec 1982[2] (12)	Until Dec 1982[2] (12)	Jan 1983 – Dec 2005
69.	Guadeloupe[1]	Until Dec 1970[2] (14)	Until Dec 1970[2] (14)	Until Dec 1970[2] (14)	Jan 1971 – Jul 2016
70.	Martinique[9]	Until Dec 1975[2] (38)	Until Dec 1975[2] (38)	Until Dec 1975[2] (38)	Jan 1976 – Mar 1991
71.	New Caledonia[11]	Until Dec 1982[2] (12)	Until Dec 1982[2] (12)	Until Dec 1982[2] (12)	Jan 1983 – Dec 1994
72.	La Réunion[9]	Until Dec 1979[2] (14)	Until Dec 1979[2] (14)	Until Dec 1979[2] (14)	Jan 1980 – Mar 1991
73.	Wallis and Futuna[12]	Until Dec 1972[2] (12)	Until Dec 1972[2] (12)	Until Dec 1972[2] (12)	Jan 1973 – Dec 2005
French Guiana and French Polynesia: see under France					
74.	Gabon[1]	Until Dec 1984[2] (9)	Until Dec 1984[2] (9)	Until Dec 1984[2] (9)	Jan 1985 – Jul 2016

[1] Last use of tOPV: Apr 2016
[2] Last clinically confirmed polio case, poliovirus type unknown
[3] Estimated last use of tOPV: Dec 2007
[4] Last use of tOPV: Apr 2016; mOPV2 use began Jul 2018 and is ongoing
[5] Circulating vaccine-derived poliovirus outbreak
[6] These dates predate OPV2 use but enhanced mitigations are recommended to minimize poliovirus risk
[7] Estimated last use of tOPV: Dec 1985
[8] Estimated last use of tOPV: Jun 1999
[9] Estimated last use of tOPV: Dec 1990
[10] Estimated last use of tOPV: Sep 2005
[11] Estimated last use of tOPV: Oct 1994
[12] Estimated last use of tOPV: Sep 2005

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
75.	Gambia[1]	Until Dec 1997 (39)	Until Dec 1980[2] (9)	Until Dec 1980[2] (9)	Jan 1981 – Jul 2016
76.	Georgia[1]	Until Sep 1991 (5, 40)	Until Jan 1987 (5)	Until Nov 1990 (5)	Feb 1987 – Jul 2016
77.	Germany[3]	Until May 1990 (5)	Until Dec 1989 (5)	Until Dec 1989 (5)	Jan 1990 – Mar 1998
78.	Ghana[1]	• Until Dec 2000 (25) • Feb 2003 – Sep 2003 (1) • Sep 2008 –Nov 2008 (1)	Until Dec 1984[2] (9)	Until Dec 1984[2] (9)	Jan 1985 – Jul 2016
79.	Greece[4]	Until Sep 1996[2] (41)	Until Dec 1996[2] (8)	Until Dec 1996[2] (8)	Jan 1997 – Mar 2005
80.	Grenada[1]	Until Dec 1955[2] (11)	Until Dec 1955[2] (11)	Until Dec 1955[2] (11)	• Jan 1956 – Dec 1960[5] • Jan 1961 – Jul 2016
Guadeloupe: see under France *Guam: see under the United States of America*					
81.	Guatemala[1]	Until Dec 1987[2] (11)	Until Dec 1987[2] (11)	Until Dec 1990 (11)	Jan 1988 – Jul 2016
82.	Guinea[1]	• Until Dec 1999 (25) • Jun 2004 – Dec 2004 (1) • Apr 2009 – Nov 2009 (1)	• Until Dec 1984[2] (9) • *Aug 2014 – Dec 2015*[6] (1)	• Until Dec 1984[2] (9) • May 2011 – Aug 2011 (1)	• Jan 1985 – Jul 2014 • Jan 2016 – Jul 2016
83.	Guinea-Bissau[1]	Until Dec 1999 (42)	Until Dec 1982[2] (9)	Until Dec 1982[2] (9)	Jan 1983 – Jul 2016
84.	Guyana[1]	Until Dec 1975[2] (14)	Until Dec 1975[2] (14)	Until Dec 1975[2] (14)	Jan 1976 – Jul 2016
85.	Haiti[1]	• Until Dec 1989 (11) • *Aug 2000 – Jul 2001*[6] (34)	Until Dec 1989 (11)	Until Dec 1989 (11)	Jan 1990 – Jul 2016
86.	Honduras[1]	Until Dec 1990 (11)	Until Dec 1988 (11)	Until Dec 1989 (11)	Jan 1989 – Jul 2016
Hong Kong, SAR China: see under China					
87.	Hungary[7]	Until Mar 1969 (5, 8)	Until Dec 1959[2] (5)	Until Dec 1959[2] (5)	• Jan 1960 – Dec 1960[5] • Jan 1961 – Mar 2007
88.	Iceland	Until Dec 1960[2] (8)	Until Dec 1960[2] (8)	Until Dec 1960[2] (8)	Never used
89.	India[8]	• Until Jan 2011 (1)	• Until Dec 1999 (16) • *Jun 2009 – Jan 2010*[6] (1)	Until Oct 2010 (1)	• Jan 2000 – May 2008 • Feb 2010 – **ongoing**

[1] Last use of tOPV: Apr 2016
[2] Last clinically confirmed polio case, poliovirus type unknown
[3] Estimated last use of tOPV: Dec 1997
[4] Estimated last use of tOPV: Dec 2004
[5] These dates predate OPV2 use but enhanced mitigations are recommended to minimize poliovirus risk
[6] Circulating vaccine-derived poliovirus outbreak
[7] Estimated last use of tOPV Dec 2006
[8] Use of tOPV continued post-switch until Dec 2016; OPV2 contamination of bOPV discovered October 2018

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
90.	Indonesia[1]	• Until Dec 1995[2] (17) • Jan 2004 – Dec 2006 (1, 16, 33)	Until Dec 1995[2] (17)	Until Dec 1995[2] (17)	Jan 1996 – Jul 2016
91.	Iran[1] (Islamic Republic of)	• Until Dec 1997 (3) • Jan 2000 – Dec 2000 (43)	Until Jun 1994 (3)	Until May 1998 (3)	Jul 1994 – Jul 2016
92.	Iraq[1]	• Until Jan 2000 (44) • Feb 2014 – Apr 2014 (1)	Until Dec 1995 (3)	Until Dec 1995 (3)	Jan 1996 – Jul 2016
93.	Ireland[3]	Until Dec 1982[2] (8)	Until Dec 1982[2] (8)	Until Dec 1982[2] (8)	Jan 1983 – Sep 2001
94.	Israel[4]	• Until Oct 1988 (5) • May 2013 – Apr 2014 (5)	Until Dec 1978 (5)	Until Aug 1986 (5)	Jan 1979 – Mar 2004
95.	Italy[5]	Until Mar 1982 (5, 8)	Until Mar 1980 (5)	Until May 1976 (5)	Jan 1981 – Mar 2003
Ivory Coast: see Côte d'Ivoire					
96.	Jamaica[1]	Until Dec 1982 (11)	Until Dec 1982 (11)	Until Dec 1982 (11)	Jan 1984 – Jul 2016
97.	Japan[6]	Until Dec 1980 (12)	Until Dec 1962 (12)	Until Dec 1993 (12)	Jan 1963 – Dec 2012
98.	Jordan[1]	Until Dec 1992 (3)	Until Dec 1990 (3)	Until Dec 1990 (3)	Jan 1991 – Jul 2016
99.	Kazakhstan[1]	Until Dec 1995[2] (45)	Until Dec 1995[2] (45)	Until Dec 1995[2] (45)	Jan 1996 – Jul 2016
100.	**Kenya**[7,8]	• Until Dec 1995[2] (35) • Aug 2006 – Nov 2006 (1) • Feb 2009 – Jul 2009 (1) • Apr 2013 – Jul 2013 (1)	• Until Dec 1995[2] (35) • *May 2012 – Aug 2012*[9] (1) • ***Mar 2018 – ongoing***[9] (1)	Until Dec 1995[2] (35)	• Jan 1996 – Apr 2012 • Sep 2012 – July 2016
101.	Kiribati[1]	Until Dec 1997[10]	Until Dec 1991[11]	Until Dec 1993[12]	Jan 1992 – Jul 2016
Korea: see Democratic People's Republic of Korea, and Republic of Korea					
102.	Kuwait[1]	Until Dec 1983 (46)	Until Dec 1983 (46)	Until Dec 1983 (46)	Jan 1984 – Jul 2016
103.	Kyrgyzstan[1]	Until Jun 1992 (5, 8)	Until Jun 1992 (5, 8)	Until Dec 1993 (5, 8)	Jul 1992 – Jul 2016

[1] Last use of tOPV: Apr 2016
[2] Last clinically confirmed polio case, poliovirus type unknown
[3] Estimated last use of tOPV: Jun 2001
[4] Estimated last use of tOPV: Dec 2003
[5] Estimated last use of tOPV: Dec 2002
[6] Estimated last use of tOPV: Sep 2012
[7] Last use of tOPV: Apr 2016; preventive mOPV2 use began May 2018 and is ongoing
[8] The inventory of remaining infectious and poliovirus potentially infectious materials (cVDPV, mOPV2/Sabin2) for destruction or containment will have to be repeated after the present outbreak is declared closed.
[9] Circulating vaccine-derived poliovirus outbreak
[10] Last WPV1 case in Western Pacific Region
[11] Last WPV2 case in Western Pacific Region
[12] Last WPV3 case in Western Pacific Region

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
104.	Lao People's Democratic Republic[1]	• Until Dec 1996 (12) • *Sep 2015 – Jan 2016*[2] (1)	Until Dec 1993 (12)	Until Dec 1992 (12)	Jan 1994 – Jul 2016
105.	Latvia[3]	Until Dec 1962[4] (8)	Until Dec 1962[4] (8)	Until Dec 1962[4] (8)	Jan 1963 – Mar 2007
106.	Lebanon[1]	Until Jun 1994[4] (3, 47)	Until Dec 1994[4] (47)	Until Jun 1994[4] (47)	Jan 1995 – Jul 2016
107.	Lesotho[1]	Until Dec 1998[4] (48)	Until Dec 1998[4] (48)	Until Dec 1998[4] (48)	Jan 1999 – Jul 2016
108.	Liberia[1]	• Until Dec 1999[4] (25) • Apr 2009 – Sep 2010 (1)	Until Dec 1999[4] (25)	Until Dec 1999[4] (25)	Jan 2000 – Jul 2016
109.	Libya[1]	Until Dec 1983[4] (49)	Until Dec 1983[4] (49)	Until Dec 1983[4] (49)	Jan 1984 – Jul 2016
110.	Lithuania[5]	Until Dec 1972[4] (8)	Until Dec 1972[4] (8)	Until Dec 1972[4] (8)	Jan 1973 – Feb 2007
111.	Luxembourg[6]	Until Dec 1963[4] (8)	Until Dec 1963[4] (8)	Until Dec 1963[4] (8)	Jan 1964 – Mar 1999
Macao, SAR China: see under China *Macedonia: see the former Yugoslav Republic of Macedonia*					
112.	Madagascar[1]	• Until Dec 1997 (50) • *Sep 2014*[2] (1) • *Apr 2015 – Aug 2015*[2] (1)	• Until Dec 1995 (19) • *Oct 2001 – Apr 2002*[2] (51) • *Jun 2005 – Sep 2005*[2] (52)	• Until Dec 1995 (19) • *Apr 2005 – May 2005*[2] (52)	Jan 1996 – Jul 2016
113.	Malawi[1]	Until Dec 1991[4] (19)	Until Dec 1991[4] (19)	Until Dec 1991[4] (19)	Jan 1992 – Jul 2016
114.	Malaysia[7]	• Until Dec 1986 (53) • Apr 1992 (54)	Until Dec 1986[4] (53)	Until Dec 1986[4] (53)	Jan 1987 – Mar 2016
115.	Maldives[1]	Until Dec 1981 (9, 16)	Until Dec 1981 (9, 16)	Until Dec 1981 (9, 16)	Jan 1982 – Jul 2016
116.	Mali[1]	• Until Jan 1999 (55) • Apr 2004 – May 2005 (1) • Aug 2008 – May 2010 (1)	Until Jan 1998[8]	• Until Jan 1999 (55) • Sep 2010 – Jun 2011 (1)	Feb 1998 – Jul 2016
117.	Malta[9]	Until Dec 1964[4] (8, 56)	Until Dec 1964[4] (8, 56)	Until Dec 1964[4] (8, 56)	Jan 1965 – Dec 2010
118.	Marshall Islands[9]	Until Dec 1976[4] (12)	Until Dec 1976[4] (12)	Until Dec 1976[4] (12)	Jan 1977 – Dec 2010
Martinique: see under France					
119.	Mauritania[1]	• Until Dec 1999[4] (57)	Until Dec 1999[4] (57)	Until Dec 1999[4] (57)	Jan 2000 – Jul 2016

[1] Last use of tOPV: Apr 2016
[2] Circulating vaccine-derived poliovirus outbreak
[3] Estimated last use of tOPV Dec 2006
[4] Last clinically confirmed polio case, poliovirus type unknown
[5] Estimated last use of tOPV: Nov 2006
[6] Estimated last use of tOPV: Dec 1998
[7] Estimated last use of tOPV: Dec 2015
[8] Last WPV2 case in Africa Region
[9] Estimated last use of tOPV: Sep 2010

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
		• Oct 2009 – Apr 2010 (1)			
120.	Mauritius[1]	Until Dec 1970[2] (14)	Until Dec 1970[2] (14)	Until Dec 1970[2] (14)	Jan 1971 – Jul 2016
121.	Mexico[3]	• Until Dec 1987 (11)	• Until Dec 1987 (11) • May 2010 (11)	Until Dec 1990 (58)	• Jan 1988 – Mar 2007 • Feb 2016 – May 2016
122.	Micronesia[4] (Federated States of)	Until Dec 1979[2] (12)	Until Dec 1979[2] (12)	Until Dec 1979[2] (12)	Jan 1980 – Dec 2013
Moldova: See Republic of Moldova					
123.	Monaco[5]	Until Dec 1964[2] (8)	Until Dec 1964[2] (8)	Until Dec 1964[2] (8)	Jan 1965 – Aug 1999
124.	Mongolia[1]	Until Dec 1993[2] (12)	Until Dec 1993[2] (12)	Until Dec 1993[2] (12)	Jan 1994 – Jul 2016
125.	Montenegro[6]	Until Oct 1996[2] (5, 8)	Until Oct 1996[2] (5, 8)	Until Oct 1996[2] (5, 8)	Nov 1996 – Mar 2016
Montserrat: see under the United Kingdom of Great Britain and Northern Ireland					
126.	Morocco[1]	Until Nov 1989 (3)	Until Dec 1979[2] (14)	Until Dec 1979[2] (14)	Jan 1980 – Jul 2016
127.	Mozambique[7]	• Until Dec 1993[2] (19) • *Feb 2011 – Jun 2011*[8] (1)	Until Dec 1993[2] (19)	Until Dec 1993[2] (19)	Jan 1994 – Aug 2017
128.	Myanmar[1]	• Until Dec 2000[2] (59) • Jan 2007 – Dec 2007 (1, 16)	• Until Dec 1999[9](17) • *Jan 2015 – Dec 2015*[8] (1, 16)	Until Dec 2000[2] (59)	• Jan 2000 – Dec 2014 • Jan 2016 – Jul 2016
129.	Namibia[1]	• Until Dec 1995[2] (19) • May 2006 – Jun 2006 (1)	Until Dec 1995[2] (19)	Until Dec 1995[2] (19)	Jan 1996 – Jul 2016
130.	Nauru[1]	Until Dec 1939[2] (12)	Until Dec 1939[2] (12)	Until Dec 1939[2] (12)	• Jan 1940 – Dec 1960[10] • Jan 1961 – Jul 2016
131.	Nepal[1]	• Until Dec 2000[2] (59) • Jan 2005 –Dec 2006 (1, 16) • Jan 2010 – Dec 2010 (1, 16)	Until Dec 1999[9]	• Until Dec 2000[2] (59) • Jan 2007 – Dec 2008 (1, 16)	Jan 2000 – Jul 2016
132.	Netherlands[11]	Until Nov 1992 (5)	Until Dec 1983 (5, 60)	Until Aug 1993 (5, 8)	Sep 1992 – May 1993

[1] Last use of tOPV: Apr 2016
[2] Last clinically confirmed polio case, poliovirus type unknown
[3] Estimated last use of tOPV: Dec 2006; SIA with tOPV in Feb 2016
[4] Estimated last use of tOPV: Sep 2013
[5] Estimated last use of tOPV: Jun 1999
[6] Estimated last use of tOPV: Dec 2015
[7] Use of tOPV continued post-switch until Jan 2017; mOPV2 used Feb 2017 – May 2017
[8] Circulating vaccine-derived poliovirus outbreak
[9] Year of last WPV2 case in South-East Asia Region
[10] These dates predate OPV2 use but enhanced mitigations are recommended to minimize poliovirus risk
[11] tOPV only used in SIA Sep 1992 – Feb 1993

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
133.	Aruba[1]	Until Dec 1981[2] (11)	Until Dec 1981[2] (11)	Until Dec 1981[2] (11)	Jan 1982 – Jul 2016
134.	Curaçao[1]	Until Dec 1981[2] (11)	Until Dec 1981[2] (11)	Until Dec 1981[2] (11)	Jan 1982 – Jul 2016
135.	Sint Maarten[1]	Until Dec 1968[2] (11)	Until Dec 1968[2] (11)	Until Dec 1968[2] (11)	Jan 1969 – Jul 2016
New Caledonia: see under France					
136.	New Zealand[3]	Until Dec 1962[2] (61)	Until Dec 1962[2] (61)	Until Dec 1962[2] (61)	Jan 1963 – May 2002
137.	Nicaragua[1]	Until Dec 1981[2] (11)	Until Dec 1981[2] (11)	Until Dec 1981[2] (11)	Jan 1982 – Jul 2016
138.	**Niger**[4, 5]	Until Nov 2012 (1)	• Until Dec 1984 (9) • ***Jul 2018 – ongoing***[6] (1)	Until Jan 2011 (1)	• Jan 1985 – Jul 2016 • Aug 2016 – Nov 2016[7] • Dec 2016 – Jun 2018
139.	**Nigeria**[5, 8]	Until Aug 2016 (1)	• Until Dec 1998 (7) • *Feb 2010 – May 2015*[6] (1) • ***Jan 2018 – ongoing***[6] (1)	Until Nov 2012 (1)	• Jan 1999 – Jan 2010 • Jun 2015 – Dec 2017
140.	Niue[9]	Until Dec 1959 (12)	Until Dec 1959 (12)	Until Dec 1959 (12)	• Jan 1960 – Dec 1960[7] • Jan 1961 – Mar 2005
Northern Mariana Islands: see under the United States of America					
141.	Norway[10]	Until Dec 1969 (8, 62)	Until Dec 1960 (5)	Until Dec 1962 (5)	Jan 1961 – Mar 1981
142.	Occupied Palestinian territory, including east Jerusalem[1]	Until Dec 1988 (3)	Until Dec 1997[11]	Until Dec 2010[12]	Jan 1998 – Jul 2016
143.	Oman[1]	Until Dec 1993 (3)	Until Dec 1997[11]	Until Oct 1991 (3)	Jan 1998 – Jul 2016
144.	**Pakistan[13]**	**Endemic** (1)	• Until Apr 1997 (3) • *Aug 2012 – Dec 2016*[6] (1)	Until Apr 2012 (3)	• Jan 1998 – Jul 2012 • Jan 2017 – Jun 2017
145.	Palau[14]	Until Dec 1949[2] (12)	Until Dec 1949[2] (12)	Until Dec 1949[2] (12)	• Jan 1950 – Dec 1960[7] • Jan 1961 – Mar 2012
146.	Panama[1]	Until Dec 1972 (11)	Until Dec 1972 (11)	Until Dec 1972 (11)	Jan 1973 – Jul 2016

[1] Last use of tOPV: Apr 2016
[2] Last clinically confirmed polio case, poliovirus type unknown
[3] Estimated last use of tOPV: Feb 2002
[4] Estimated last use of tOPV: Apr 2016; mOPV2 use began Dec 2016 and is ongoing
[5] The inventory of remaining infectious and poliovirus potentially infectious materials (cVDPV, mOPV2/Sabin2) for destruction or containment will have to be repeated after the present outbreak is declared closed.
[6] Circulating vaccine-derived poliovirus outbreak
[7] These dates predate mOPV2 use but enhanced mitigations are recommended to minimize poliovirus risk
[8] Estimated last use of tOPV: Apr 2016; mOPV2 use began May 2016 and is ongoing
[9] Last use of tOPV: Mar 2005
[10] Estimated last use of tOPV: Dec 1980
[11] Year of last WPV2 case in Eastern Mediterranean Region
[12] Year of last WPV3 case in Eastern Mediterranean Region
[13] tOPV use continued post-switch until Jan 2017; mOPV2 use Jan 2017 – Mar 2017
[14] Estimated last use of tOPV: Dec 2011

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
147.	**Papua New Guinea**[1]	• Until Dec 1994[2] (12) • ***Apr 2018 – ongoing***[3] (1)	Until Dec 1994[2] (12)	Until Dec 1994[2] (12)	Jan 1995 – Jul 2016
148.	Paraguay[1]	Until Dec 1985 (11)	Until Dec 1985 (11)	Until Dec 1985 (11)	Jan 1987 – Jul 2016
149.	Peru[1]	Until Aug 1991 (11)	Until Dec 1989 (11)	Until Dec 1990 (11)	Jan 1990 – Jul 2016
150.	Philippines[1]	• Until May 1993 (12) • *Mar 2001 – Sep 2001*[3] (63)	Until Dec 1991[4]	Until Mar 1993 (12)	Jan 1992 – Jul 2016
Pitcairn Islands: see under the United Kingdom of Great Britain and Northern Ireland					
151.	Poland[1]	Until Aug 1984 (5, 8)	Until Dec 1982 (5)	Until Dec 1980 (5)	Jan 1983 – Jul 2016
152.	Portugal[5]	Until Dec 1986 (8)	Until Dec 1961 (5)	Until Dec 1972 (5)	Jan 1962 – Mar 2006
153.	Puerto Rico[1]	Until Dec 1974 (11)	Until Dec 1974 (11)	Until Dec 1974 (11)	Jan 1975 – Jul 2016
154.	Qatar[1]	Until Sep 1990 (3)	Until Dec 1997[6]	Until Dec 1980[7] (14)	Jan 1998 – Jul 2016
155.	Republic of Korea[5]	Until Dec 1983[2] (12)	Until Dec 1983[2] (12)	Until Dec 1983[2] (12)	Jan 1984 – Mar 2006
156.	Republic of Moldova[1]	Until Jun 1991 (8, 64)	Until Dec 1991 (8, 64)	Until Dec 1983 (5)	Jan 1992 – Jul 2016
Réunion Island: see under France					
157.	Romania[8]	Until Jul 1992 (5, 40)	Until Apr 1980 (5)	Until Apr 1980 (5)	May 1980 – Jul 2009
158.	Russian Federation[9]	• Until Dec 1995 (65) • Apr 2010 – Oct 2010 (5)	Until Dec 1960 (5)	Until Dec 1982 (5)	Jan 1961 – Dec 2016
159.	Rwanda[1]	Until Dec 1995[2] (35)	Until Dec 1995[2] (35)	Until Dec 1995[2] (35)	Jan 1996 – Jul 2016
Saint Helena: see under the United Kingdom of Great Britain and Northern Ireland					
160.	Saint Kitts and Nevis[1]	Until Dec 1969 (11)	Until Dec 1968 (11)	Until Dec 1968 (11)	Jan 1969 – Jul 2016
161.	Saint Lucia[1]	Until Dec 1970 (11)	Until Dec 1970 (11)	Until Dec 1970 (11)	Jan 1971 – Jul 2016
162.	Saint Vincent and the Grenadines[1]	Until Dec 1971 (11)	Until Dec 1977 (11)	Until Dec 1971 (11)	Jan 1978 – Jul 2016

[1] Last use of tOPV: Apr 2016
[2] Last clinically confirmed polio case, poliovirus type unknown
[3] Circulating vaccine-derived poliovirus outbreak
[4] Last WPV2 case in Western Pacific Region
[5] Estimated last use of tOPV: Dec 2005
[6] Year of lastWPV2 case in Eastern Mediterranean Region
[7] Last clinically confirmed polio case, poliovirus type unknown
[8] Estimated last use of tOPV: Apr 2009
[9] Use of tOPV continued post-switch until Sep 2016

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
163.	Samoa[1]	Until Dec 1989[2] (12)	Until Dec 1989[2] (12)	Until Dec 1989[2] (12)	Jan 1990 – Jul 2016
164.	San Marino[3]	Until Dec 1963[2] (8)	Until Dec 1963[2] (8)	Until Dec 1963[2] (8)	Jan 1964 – Mar 2003
165.	Sao Tome and Principe[1]	Until Dec 1983[2] (9)	Until Dec 1983[2] (9)	Until Dec 1983[2] (9)	Jan 1984 – Jul 2016
166.	Saudi Arabia[1]	Until Oct 1995 (3)	Until Apr 1993 (3)	Until Dec 1989 (66)	May 1993 – Jul 2016
167.	Senegal[1]	• Until Dec 1999[2] (42) • Jan 2010 – Apr 2010 (1)	Until Dec 1999[2] (42)	Until Dec 1999[2] (42)	Jan 2000 – Jul 2016
168.	Serbia[1]	Until Oct 1996 (5, 45)	Until Oct 1996 (5, 45)	Until Oct 1996 (5, 45)	Nov 1996 – Jul 2016
169.	Seychelles[1]	Until Dec 1965[2] (14)	Until Dec 1965[2] (14)	Until Dec 1965[2] (14)	Jan 1966 – Jul 2016
170.	Sierra Leone[1]	• Until Dec 2000[2] (15) • Jul 2009 – Feb 2010 (1)	Until Dec 2000[2] (15)	Until Dec 2000[2] (15)	Jan 2001 – Jul 2016
171.	Singapore[1]	Until May 1978 (12, 67)	Until Dec 1971 (12)	Until Dec 1973 (68)	Jan 1972 – Jul 2016
172.	Slovakia[4]	Until Feb 1960[2] (5, 8)	Until Jan 1960[2] (5, 8)	Until Mar 1960[2] (5, 8)	Jan 1961 – May 2005
173.	Slovenia[5]	Until Dec 1978[2] (8)	Until Dec 1978[2] (8)	Until Dec 1978[2] (8)	Jan 1979 – Mar 2006
174.	Solomon Islands[1]	Until Dec 1971[2] (12)	Until Dec 1971[2] (12)	Until Dec 1971[2] (12)	Jan 1972 – Jul 2016
175.	**Somalia**[6, 7]	• Until Nov 2000 (3) • Jul 2005 – Aug 2014 (1)	• Until Dec 1997[8] • *Jul 2010 – Jan 2013*[9] (1) • ***Oct 2017 – ongoing***[9] (1)	• Until Dec 1999[2] (42) • Mar 20– Oct 2002 (1) • ***May 2018 – ongoing***[9] (1)	• Jan 1999 – Jun 2010 • Feb 2013 – Jul 2016 • Aug 2016 – Sep 2017[10]
176.	South Africa[1]	Until Dec 1991[2] (69)	Until Dec 1991[2] (69)	Until Dec 1991[2] (69)	Jan 1992 – Jul 2016
177.	South Sudan[1]	• Until Apr 2001 (70) • May 2004 – Dec 2009 (71)	• Until Dec 1979[2] (14) • *Sep 2014*[9] (1)	• Until Dec 2001 (70) • May 2004 – Dec 2004 (70)	• Jan 1980 – Aug 2014 • Oct 2014 – Jul 2016
178.	Spain[11]	Until Mar 1988 (5) (8)	Until Dec 1987 (5)	Until Jul 1985 (5)	Jan 1988 – Jun 2004
179.	Sri Lanka[1]	Until Dec 1993 (72)	Until Dec 1993 (16)	Until Dec 1985 (9, 16)	Jan 1994 – Jul 2016

[1] Last use of tOPV: Apr 2016
[2] Last clinically confirmed polio case, poliovirus type unknown
[3] Estimated last use of tOPV: Dec 2002
4 Estimated last use of tOPV: Feb 2005
5 Estimated last use of tOPV: Dec 2005
6 Last use of tOPV: Apr 2016; mOPV2 use began Dec 2017 and is ongoing
7 The inventory of remaining infectious and poliovirus potentially infectious materials (cVDPV, mOPV2/Sabin2) for destruction or containment will have to be repeated after the present outbreak is declared closed.
[8] Year of last WPV2 case in Eastern Mediterranean Region
[9] Circulating vaccine-derived poliovirus outbreak
[10] These dates predate mOPV2 use but enhanced mitigations are recommended to minimize poliovirus risk
[11] Estimated last use of tOPV: Mar 2004

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
180.	Sudan[1]	• Until Apr 2001 (70, 3) • May 2004 – Mar 2009 (71, 3)	Until Dec 2001[2] (15)	Until Dec 2008 (3, 71)	Jan 2002 – Nov 2016
181.	Suriname[1]	Until Dec 1982[2] (9)	Until Dec 1982[2] (9)	Until Dec 1982[2] (9)	Jan 1983 – Jul 2016
182.	Sweden	Until Dec 1962 (5)	Until Mar 1977 (5, 8)	Until Dec 1962 (5)	Never used
183.	Switzerland[3]	Until Oct 1982 (5, 8)	Until Dec 1982 (5, 8)	Until Oct 1980 (5)	Jan 1983 – Dec 2001
184.	Syrian Arab Republic[1]	• Until Dec 1998 (3) • Jul 2013 – Jan 2014 (1)	• Until Dec 1980[2] (14) • *Mar 2017 – Aug 2017*[4] (1)	Until Dec 1980[2] (14)	• Jan 1981 – Jul 2016 • Sep 2017 – Apr 2018
185.	Tajikistan[1]	• Until Dec 1997[2] (8, 64) • Feb 2010 – Jul 2010 (1)	Until Dec 1997[2] (8, 64)	Until Dec 1997[2] (8, 64)	Jan 1998 – Jul 2016
Tanzania: see United Republic of Tanzania					
186.	Thailand[1]	Until Dec 1997 (39)	Until Dec 1993 (16)	Until Dec 1995 (72)	Jan 1994 – Jul 2016
187.	The former Yugoslav Republic of Macedonia[1]	Until Dec 1987[2] (5, 8)	Until Dec 1987[2] (5, 8)	Until Dec 1987[2] (5, 8)	Jan 1988 – Jul 2016
188.	Timor-Leste[1]	Until Dec 1995[2] (17)	Until Dec 1995[2] (17)	Until Dec 1995[2] (17)	Jan 1996 – Jul 2016
189.	Togo[1]	• Until Dec 1999 (55) • Oct 2008 – Mar 2009 (1)	Until Dec 1998[2] (42)	Until Dec 1998[2] (42)	Jan 1999 – Jul 2016
190.	Tokelau[5]	Until Dec 1959[2] (12)	Until Dec 1959[2] (12)	Until Dec 1959[2] (12)	• Jan 1960 – Dec 1960[6] • Jan 1961 – Feb 2016
191.	Tonga[1]	Until Dec 1982[2] (12)	Until Dec 1982[2] (12)	Until Dec 1982[2] (12)	Jan 1983 – Jul 2016
192.	Trinidad and Tobago[1]	Until Dec 1972 (11)	Until Dec 1972 (11)	Until Dec 1972 (11)	Jan 1973 – Jul 2016
193.	Tunisia[1]	Until Apr 1994 (3)	Until Dec 1980[2] (14)	Until Dec 1994 (3)	Jan 1981 – Jul 2016
194.	Turkey[1]	Until Nov 1998 (5)	Until Dec 1996[2] (6)	Until Aug 1998 (5, 8)	Jan 1997 – Jul 2016
195.	Turkmenistan[1]	• Until Jul 1996 (8) • Jun 2010 (1)	Until Dec 1996 (5, 8)	Until Dec 1996 (5, 8)	Jan 1997 – Jul 2016
Turks and Caicos Islands: see under the United Kingdom of Great Britain and Northern Ireland					
196.	Tuvalu[5]	Until Dec 1936[2] (12)	Until Dec 1936[2] (12)	Until Dec 1936[2] (12)	• Jan 1937 - Dec 1960[6] • Jan 1961 – Feb 2016

[1] Last use of tOPV: Apr 2016
[2] Last clinically confirmed polio case, poliovirus type unknown
[3] Estimated last use of tOPV: Sep 2001
[4] Circulating vaccine-derived poliovirus outbreak
[5] Estimated last use of tOPV: Nov 2015
[6] These dates predate OPV2 use but enhanced mitigations are recommended to minimize poliovirus risk

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
197.	Uganda[1]	• Until Dec 1996 (48) • Jan 2009 – Nov 2010 (1)	Until Dec 1971[2] (73)	Until Dec 1971[2] (73)	Jan 1972 – Jul 2016
198.	Ukraine[1]	• Until Dec 1996[2] (8) • *Jun 2015 – Jul 2015*[3] (1)	Until Dec 1996[2] (8)	Until Dec 1996[2] (8)	Jan 1997 – Jul 2016
199.	United Arab Emirates[1]	Until Apr 1992 (3)	Until Dec 1980[2] (14)	Until Dec 1980[2] (14)	Jan 1981 – Jul 2016
200.	United Kingdom of Great Britain and Northern Ireland[4]	Until Dec 1988 (5)	Until Dec 1977 (5)	Until Dec 1976 (5)	Jan 1978 – Dec 2004
201.	Anguilla[1]	Until Dec 1961 (11)	Until Dec 1961 (11)	Until Dec 1961 (11)	Jan 1962 – Jul 2016
202.	Bermuda[1]	Until Dec 1973 (11)	Until Dec 1973 (11)	Until Dec 1973 (11)	Jan 1974 – Jul 2016
203.	British Virgin Islands[1]	Until Dec 1973[2] (9)	Until Dec 1973[2] (9)	Until Dec 1973[2] (9)	Jan 1974 – Jul 2016
204.	Cayman Islands[1]	Until Dec 1957 (11)	Until Dec 1964 (11)	Until Dec 1965 (11)	Jan 1965 – Jul 2016
205.	Montserrat[1]	Until Dec 1976 (11)	Until Dec 1976 (11)	Until Dec 1976 (11)	Jan 1977 – Jul 2016
206.	Pitcairn Islands[1]	Until Dec 1997[5]	Until Dec 1991[6]	Until Dec 1993[7]	Jan 1992 – Jul 2016
207.	Saint Helena[1]	Until Dec 1945[2] (74)	Until Dec 1945[2] (74)	Until Dec 1945[2] (74)	• Jan 1946 – Dec 1960[8] • Jan 1961 – Jul 2016
208.	Turks and Caicos Islands[1]	Until Dec 1978 (11)	Until Dec 1978 (11)	Until Dec 1978 (11)	Jan 1979 – Jul 2016
209.	United Republic of Tanzania[1]	Until Dec 1996 (6)	Until Dec 1981[2] (14)	Until Dec 1981[2] (14)	Jan 1982 – Jul 2016
210.	United States of America[9]	• Until Dec 1971 (11) • Jan 1979 – Dec 1979 (40)	Until Dec 1965 (11)	Until Dec 1968 (11)	Jan 1966 – Mar 2000
211.	American Samoa[10]	Until Dec 1959[2] (12)	Until Dec 1959[2] (12)	Until Dec 1959[2] (12)	• Jan 1960 – Dec 1960[8] • Jan 1961 – Mar 2005
212.	Guam[11]	Until Dec 1964[2] (12)	Until Dec 1964[2] (12)	Until Dec 1964[2] (12)	Jan 1965 – Jan 2002
213.	Northern Mariana Islands[12]	Until Dec 1969[2] (12)	Until Dec 1969[2] (12)	Until Dec 1969[2] (12)	Jan 1970 – Mar 1999
214.	US Virgin Islands[1]	Until Dec 1981 (11)	Until Dec 1981 (11)	Until Dec 1981 (11)	Jan 1982 – Jul 2016

[1] Last use of tOPV: Apr 2016
[2] Last clinically confirmed polio case, poliovirus type unknown
[3] Circulating vaccine-derived poliovirus outbreak
[4] Estimated last use of tOPV: Sep 2004
[5] Last WPV1 case in Western Pacific Region
[6] Last WPV2 case in Western Pacific Region
[7] Last WPV3 case in Western Pacific Region
[8] These dates predate OPV2 use but enhanced mitigations are recommended to minimize poliovirus risk
[9] Estimated last use of tOPV: Dec 1999
[10] Estimated last use of tOPV: Dec 2004
[11] Estimated last use of tOPV: Oct 2001
[12] Estimated last use of tOPV: Dec 1998

No.	Country or area	1. WPV PIM dates			2. OPV2/Sabin2 PIM dates (Must mitigate now)
		WPV1/cVDPV1	WPV2/cVDPV2 (Must contain now)	WPV3/cVDPV3	
215.	Uruguay[1]	Until Dec 1978 (11)	Until Dec 1978 (11)	Until Dec 1978 (11)	Jan 1979 – Mar 2012
US Virgin Islands: see under the United States of America					
216.	Uzbekistan[2]	• Until Dec 1995 (8) • Apr 2010 – May 2010 (75)	Until Dec 1991 (5)	Until Dec 1993 (5)	Jan 1992 – Jul 2016
217.	Vanuatu[2]	Until Dec 1989[3] (12)	Until Dec 1989[3] (12)	Until Dec 1989[3] (12)	Jan 1990 – Jul 2016
218.	Venezuela (Bolivarian Republic of)[2]	Until Dec 1989 (11)	Until Dec 1972 (76)	Until Dec 1988 (11)	Jan 1973 – Jul 2016
219.	Viet Nam[2]	Until Jan 1997 (12)	Until Dec 1991 (12)	Until Dec 1993 (77)	Jan 1992 – Jul 2016
Virgin Islands, British: see under the United Kingdom of Great Britain and Northern Ireland; *Virgin Islands, US: see under the United States of America;* *Wallis and Futuna: see under France*					
220.	Yemen[2]	• Until Dec 1999[3] (42) • Feb 2005 – Feb 2006 (1)	• Until Dec 1997[4] • *Apr 2011 – Oct 2011*[5] (1)	• Until Dec 1999[3] (42) • *Apr 2012 – Aug 2012*[5] (1)	Jan 1998 – Jul 2016
Zaire: see Democratic Republic of the Congo					
221.	Zambia[2]	• Until Dec 1995 (35) • Dec 2001– Feb 2002 (1)	Until Dec 1983[3] (9)	Until Dec 1983[3] (9)	Jan 1983 – Jul 2016
222.	Zimbabwe[2]	Until Dec 1999 (25)	Until Dec 1989[3] (19)	Until Dec 1989[3] (19)	Jan 1990 – Jul 2016

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[1] Estimated last use of tOPV: Dec 2011
[2] Last use of tOPV: Apr 2016
[3] Last clinically confirmed polio case, poliovirus type unknown
[4] Year of last WPV2 case in Eastern Mediterranean Region
[5] Circulating vaccine-derived poliovirus outbreak

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