

Section 10: Paralytic Poliomyelitis (including Nonparalytic Poliovirus infection)

BASIC EPIDEMIOLOGY

Infectious Agent

Poliovirus (genus *Enterovirus*) types, 1, 2, and 3.

Transmission

Poliovirus is transmitted by person-to-person contact, primarily via the fecal-oral route. Virus proliferates in both the pharynx (throat) and intestines. Infection may occur following inhalation of contaminated salivary droplets or ingestion of contaminated food products. It should be made clear that poliovirus is disseminated via droplet spread and is not airborne. Virus may persist in the feces of those with and without symptoms for 3-6 weeks post-infection.

Incubation Period

Commonly 7-14 days for paralytic cases; reported range of up to 35 days.

Communicability

Not precisely defined, but transmission is possible as long as the virus is excreted.

Clinical Illness

The virus infects the throat and intestine, with invasion of local lymph nodes. Up to 95% of polio infections are asymptomatic or unapparent. Some persons have nonspecific mild illnesses including fever, sore throat, or gastrointestinal symptoms. In rare cases poliovirus infects the spinal cord or brain stem resulting in aseptic meningitis or acute asymmetric flaccid paralysis.

DEFINITIONS

Clinical Case Definition

Acute onset of a flaccid paralysis of one or more limbs with decreased or absent tendon reflexes in the affected limbs, without other apparent cause, and without sensory or cognitive loss.

Laboratory Confirmation

- Isolation of wild-type poliovirus type 1, 2, or 3 from a clinical specimen (stool or CSF).

Case Classifications

- **Confirmed:** A case that meets the clinical case definition, is laboratory confirmed, and in which the patient has a neurologic deficit 60 days after onset of initial symptoms, has died, or has unknown follow-up status.
- **Probable:** A case that meets the clinical case definition.

Note: All suspected cases of paralytic poliomyelitis are reviewed by a panel of expert consultants at the Centers for Disease Control and Prevention (CDC) before final case classification occurs. Final case classification could take 6 to 12 months.

CASE INVESTIGATION & TREATMENT

DSHS IDCU should be notified IMMEDIATELY of any suspected cases of polio.

Control Measures

- Educate the public on the advantages of immunization in early childhood.

Case Investigation

- Gather demographic data (name, age, sex, race, complete address, and occupation of patient).
- Assess immunization history of the patient (the number, dates, and lot numbers of all previous doses of polio vaccine).
- Examine clinical information (include the course of illness and sites of paralysis and any complications).
- Immunologic status (If any doubt exists about the patient's status, an immunologic evaluation of quantitative immunoglobulin, T and B cell quantification, lymphocyte transformation, etc. should be considered.).
- Exposure history:
 - Recent travel of patient or a close contact outside of the US.
 - Contact with any known case of poliomyelitis.
 - Please note that polio only occurs in very limited locations throughout the world.
 - Contact within previous 30 days with any person who received oral poliovirus vaccine (OPV) within the last 60 days (include date of contact, nature of contact, date contact received OPV, lot number of vaccine, age of contact, and relationship to patient). Please note that OPV is no longer used in the United States, but is routinely used in other countries.
- Obtain copy of hospital discharge summary.
- Obtain copy of 60-day follow-up report to ascertain if there is any residual paralysis.
- If patient died, obtain copy of autopsy report or death summary.

Polio Reports among a Recently Vaccinated Child

It is not uncommon for a poliovirus to be identified in a clinical specimen from an infant or young child who has recently received a dose of OPV. If you receive a laboratory report indicating that a poliovirus has been identified, obtain the following information on the patient:

- Complete immunization history (the number, dates, and lot numbers of all previous doses of OPV and inactivated poliovirus vaccine (IPV) vaccine);
- Clinical history (were there any clinical signs of paralysis?); and
- Diagnosis.

If there was no suspicion of paralytic poliomyelitis, no further action is needed. If the patient is suspected of having paralytic poliomyelitis, investigate case according to paralytic poliomyelitis guidelines.

REPORTING AND DATA ENTRY REQUIREMENTS

Provider, School & Child-Care Facilities, and General Public Reporting Requirements

Providers and any individuals knowledgeable of suspected cases of polio are required to immediately report to the local or regional health department or the Texas Department of State Health Services (DSHS), Infectious Disease Control Unit (IDCU) at **(800) 252-8239** or **(512) 776-7676**.

Local and Regional Reporting and Follow-up Responsibilities

Immediately investigate any reported suspect cases of polio. Identify and evaluate close contacts. Implement control measures and provide education to prevent further spread of disease. Report all cases of suspected polio immediately to DSHS IDCU. There is no specific case investigation form for polio; however, the DSHS IDCU will require a detailed written report if a case is confirmed. In the event of a death, please provide copies of the hospital discharge summary, death certificate, and autopsy report to DSHS. Records must be faxed within 30 days of initial report to **(512) 776-7616** or mailed to the following address:

Infectious Disease Control Unit,
Texas Department of State Health Services
Mail Code: 1960
PO Box 149347
Austin, TX 78714-9347

Data Entry

The principle investigator (Local or Regional health department) is required to enter all polio investigations with a confirmed or probable case status and submit notification in the NEDSS Based System (NBS) within 30 days of initial report. Please refer to the *NBS Data Entry Guidelines* for disease specific entry rules.

LABORATORY PROCEDURES

SPECIFIC LABORATORY PROCEDURES

To obtain testing kits, contact the DSHS Laboratory at **(512) 776-7661**. Before shipping specimens, be sure to notify DSHS IDCU VPD staff at **(512) 776-7676**.

Specimen Collection

Enterovirus Culture - Isolation

- Preferred specimen and quantity:
 - CSF- 2-5 mL.
 - Stool- 2-4g. Place specimen in viral transport media.
 - NP Swab – in 2-4 mL of viral transport media.
 - Tissue in enough viral transport media to prevent drying.

Submission Form

- Use a G-2A Specimen Submission Form.
- Make sure the patient's name and date of birth or social security number match exactly what is written on the transport tubes.
- Fill in the date of collection, date of onset, and diagnosis/symptoms.

Specimen Shipping

- Transport temperature: Keep at 2-8°C (refrigerated).
- If specimen will arrive at lab > 48 hours from collection, store at -70° C and send on dry ice.
- DO NOT mail on a Friday unless special arrangements have been pre-arranged with DSHS Laboratory.
- Ship specimens to:

Laboratory Services Section, MC-1947
Texas Department of State Health Services
Attn. Walter Douglass (512) 776-7569
1100 West 49th Street
Austin, TX 78756-3199

Causes for Rejection:

- Specimen submitted on a preservative, such as formalin.
- Discrepancy between name on tube and name on form.