INVESTIGATION OF SUSPECTED CASES OF POLIOMYELITIS

The Epidemiology and Surveillance Division, National Immunization Program, Centers for Disease Control and Prevention (CDC), is responsible for poliomyelitis surveillance at the national level in the United States. We are interested in working closely with state and local health departments to provide support and assistance in investigating suspect cases of paralytic poliomyelitis. We are prepared to assist in determining whether a case is compatible with poliomyelitis, whether wild or vaccine poliovirus should be considered a cause, and what, if any, control measures in the community or hospital are indicated.

CDC is interested in obtaining clinical information, laboratory results, and original specimens on all potential cases of paralytic poliomyelitis in order to confirm the diagnosis, assess vaccine safety and efficacy, determine the potential for spread of disease, and ultimately to be able to confirm the eradication of indigenous wild poliovirus from the United States.

Please contact the Epidemiology and Surveillance Division, 404-639-8255, when any case of suspected poliomyelitis comes to your attention. We would like to begin working with you immediately once a case is suspected.

The following case definition of paralytic poliomyelitis has been approved by the Council of State and Territorial Epidemiologists (CSTE), and was published in 1997. (CDC. Case definitions for public health surveillance. MMWR, 1997; 46:26-27).

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.

Case classification

***Probable*:** A case that meets the clinical case definition.

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

All suspected cases of paralytic poliomyelitis are reviewed by a panel of expert consultants before final classification occurs. Confirmed cases are then further classified based on epidemiologic and laboratory criteria. Only confirmed cases are included in Table I in the *MMWR*. Suspected cases are enumerated in a footnote to the *MMWR* table.

Indigenous case: Any case which cannot be proved to be imported.

Imported case: A case which has its source outside the United States. A person with poliomyelitis, United States resident or not, who has entered the United States and had onset of illness within 30 days before or after entry.

The following information is recommended to be collected as part of the evaluation:

1. Demographic information: The name, age, sex, race, occupation, and address (county, city and zip code) of the patient.

2. Immunization history: The number, dates, and lot numbers of previous doses of inactivated polio vaccine (IPV) and the number, dates, type (monovalent versus trivalent), and lot numbers of previous doses of oral polio vaccine (OPV). Information on the number, site, and types of injections given at either the time of vaccination or within 30 days after vaccination should be collected.

3. Clinical information: A brief description of the patient's illness including the date of onset of paralysis. Information should include the course of the illness and the sites of paralysis or other complications.

4. Immunologic status: Since persons with some immune deficiency diseases are at increased risk of paralytic poliomyelitis, known immune deficiency either in the patient or patient's family should be documented. If any doubt exists, an immunologic evaluation (quantitative immunoglobulins, T and B cell quantitation, lymphocyte transformation, etc.) should be considered.

5. Exposure history:

    a. History of recent travel of the patient or a close contact outside of the United States to an endemic or epidemic area for poliomyelitis.

    b. History of contact with any known cases of poliomyelitis and the date of contact, if applicable.

    c. History of receipt of OPV by the patient within 30 days prior to onset, including the date of receipt and the lot number of the vaccine.

    d. History of contact within 30 days prior to onset of symptoms with any person who received OPV within the last 60 days prior to onset, including the date of contact, the nature of contact, the date the contact received OPV, the lot number of the vaccine, the age of the contact, and the relationship to the patient. Information regarding the contacts' prior history of immunization with IPV should also be collected.

6. Laboratory data: For the diagnosis of suspected cases, original specimens are most desirable because special methods are used to determine if viruses other than polio viruses are present. Since OPV virus might be expected in recipient stool or throat swabs, by using blocking antibodies or PCR it is possible to detect other viruses present at the same time that might cause polio-like syndromes. The following specimens and information are desirable:

a. Throat swab. A throat swab in transport media (cell culture, Hanks solution, etc.) preferably frozen at -15 to -20° C and transported on dry ice.

b. Stool specimen. A 5 gram specimen of frozen stool. Transport media is not needed for stool. Stool swabs are less preferable than a stool specimen, and rectal swabs are the least preferred specimens. Swabs, if used, should be place in transport media and frozen at -15 to -20° C, as above for throat swabs.

c. Cerebrospinal Fluid (CSF). 1 ml of CSF should be obtained; however, any amount can be used. The specimen should not be added to any transport media and should be frozen at -15 to -20° C. The specimen should be shipped in dry ice.

   Miscellaneous. Results of any CSF analyses are highly desirable. This should include the date of lumbar puncture, the number of white blood cells, the percent lymphocytes, and the protein and glucose content of the CSF. If more then one lumbar puncture is performed the results of each are important.

d. Tissue culture. If the hospital or health department has isolated a virus on cell culture, it is important to send a sample of the cell culture isolate as well. The virus isolate should be sent frozen on dry ice.

e. Serology. An acute serum specimen should be obtained as soon as possible. Convalescent serum should be obtained 3–4 weeks later and, if possible, a third specimen should be obtained 3–4 weeks after the second specimen.

   2–3 ml of serum is preferred. Since neutralizing antibody is measured in cell culture, serum should be collected and separated in a sterile manner and sent frozen on dry ice in a tightly sealed screw-cap tube. If whole blood is transported, it should not be frozen. Paired acute and convalescent sera should be sent together.

Additional information necessary for each suspected case includes a discharge summary and a 60-day follow up to ascertain if there is any residual paralysis. If the patient died, an autopsy report or death summary should be reviewed.

Results of the CDC laboratory analyses will be provided as soon as the information becomes available.