09-ID-53

Committee: Infectious

Title: National Surveillance for Paralytic Poliomyelitis and Nonparalytic Poliovirus Infection

I. Statement of the Problem

CSTE position statement 07-EC-02 recognized the need to develop an official list of nationally notifiable conditions and a standardized reporting definition for each condition on the official list. The position statement also specified that each definition had to comply with American Health Information Community recommended standards to support "automated case reporting from electronic health records or other clinical care information systems." In July 2008, CSTE identified sixty-eight conditions warranting inclusion on the official list, each of which now requires a standardized reporting definition.

II. Background and Justification

Poliomyelitis is characterized by the acute onset of flaccid paralysis caused by one of the 3 types of poliovirus. The paralysis is typically asymmetric, most often affecting the lower limbs. The great majority of poliovirus infections are asymptomatic or subclinical. Fewer than 1% are paralytic. The onset of paralysis is rapid and does not progress after 3 days. Transmission is primarily by the fecal-oral route. Vaccine-associated paralytic poliomyelitis can occur in both oral poliovirus vaccine recipients and their contacts. Vaccine-derived polioviruses may circulate and cause disease. Starting in 1988, the World Health Organization targeted poliomyelitis for eradication. Polio is currently endemic in only 6 countries in Africa and South Asia. Because of the risks associated with oral poliovirus vaccine, the US and most industrialized countries are now using only inactivated poliovirus vaccine. Non-immune persons traveling outside industrialized countries are at risk of being infected with either wild-type or vaccine-derived polioviruses. Until polio is eradicated and oral poliovirus vaccine use has been stopped worldwide, there is a risk that imported polioviruses may circulate and cause disease in populations with low immunization coverage.

Wild poliovirus transmission has been eliminated from the Americas since 1991. For this reason, two conditions are nationally notifiable: "paralytic poliomyelitis," in which clinical criteria for the disease have been met; and "non-paralytic poliovirus infection," in which the case-patient is asymptomatic or mildly ill without paralysis. Furthermore, because oral polio vaccine has not been recommended in the United States since 2000 and has been unavailable in the United States since about 2002, and because vaccine-derived polioviruses can circulate in unvaccinated communities and revert to wild poliovirus phenotype, suspected cases of paralytic poliomyelitis or non-paralytic poliovirus infection should be reported and notified immediately, regardless of whether the virus is suspected to be wild poliovirus or vaccine-derived poliovirus.

Paralytic poliomyelitis and non-paralytic poliovirus infection meet the definition of a nationally and **immediately** notifiable condition—as specified in CSTE position statement 08-EC-02—for the following reason(s):

- The conditions have special importance for international health regulations (IHR).
- The conditions or diseases have been declared eliminated (absence of endemic disease transmission) in the United States.
- A majority of state and territorial jurisdictions—or jurisdictions comprising a majority of the US population—have laws or regulations requiring **immediate** reporting of the conditions to public health authorities; the Centers for Disease Control and Prevention (CDC) requests **immediate** notification of the conditions; and the CDC has condition-specific policies and practices concerning its response to and use of notifications.

III. Statement of the desired action(s) to be taken

CSTE requests that states adopt this standardized reporting definition and CDC adopt these standard notification criteria for paralytic poliomyelitis and nonparalytic poliovirus infection to facilitate more timely, complete, and standardized local and national reporting of this condition.

IV. Goals of Surveillance

To rapidly identify and contain any importations into the United States of wild or vaccine-derived poliovirus.

V. Methods for Surveillance

Surveillance for paralytic poliomyelitis and nonparalytic poliovirus infection should use the sources of data and the extent of coverage listed in Table V.

Table V. Recommended sources of data and extent of coverage for ascertaining cases of Paralytic Poliomyelitis and Nonparalytic Poliovirus Infection

	Coverage	
Source of data for case ascertainment	Population-wide	Sentinel sites
clinician reporting	x	
laboratory reporting	x	
reporting by other entities (e.g., hospitals, veterinarians, pharmacies)	x	
death certificates	x	
hospital discharge or outpatient records	x	
extracts from electronic medical records	x	
telephone survey		
school-based survey		
other _____		

VI. Criteria for Reporting

Reporting refers to the process of healthcare providers or institutions (e.g., clinicians, clinical laboratories, hospitals) submitting basic information to governmental public health agencies about cases of illness that meet certain reporting requirements or criteria. The purpose of this section is to provide those criteria to determine whether a specific illness should be reported.

A. Narrative description of criteria to determine whether a case should be reported to public health authorities

Report any illness to public health authorities that meets any of the following criteria:

For Paralytic Poliomyelitis

- Acute onset of flaccid paralysis in a person
    - for whom any of the indicated lab tests listed below have been ordered;
        - Culture for poliovirus
        - Acute and convalescent serum anti-polio IgG antibodies

    OR

    - who has any of the epidemiologic risk factors listed below:

        - Resident of or international travel to country using OPV in past 30 days
        - Receipt of oral polio vaccine in last 30 days
        - Contact with person who has received oral polio vaccine in the last 75 days
        - 0 doses of polio vaccine (IPV or OPV)

For Nonparalytic Poliovirus Infections

- Any case in a person
    - from whom culture of a clinical specimen for poliovirus has been ordered; or
    - from whom poliovirus has been isolated.

Other recommended reporting procedures

- All cases of paralytic poliomyelitis and nonparalytic poliovirus infection should be reported.
- Reporting should be immediate.
- All suspected cases of paralytic poliomyelitis should be reviewed by a panel of expert consultants before final classification occurs.

B. Table of criteria to determine whether a case should be reported to public health authorities

Table VI-B. Table of criteria to determine whether a case should be reported to public health authorities. Requirements for reporting are established under State and Territorial laws and/or regulations and may differ from jurisdiction to jurisdiction. These criteria are suggested as a standard approach to identifying cases of this condition for purposes of reporting, but reporting should follow State and Territorial law/regulation if any conflicts occur between these criteria and those laws/regulations.

Criterion	**Reporting**		
Clinical Evidence			
Acute onset, flaccid paralysis	N	N	
Laboratory Evidence			
Isolation of poliovirus from a clinical specimen			S
Order of a culture for poliovirus	O		S
Order for acute and convalescent serum anti-polio IgG antibodies	O		
Epidemiologic Evidence			
Resident of or international travel to country using OPV in past 30 days		O	
Receipt of oral polio vaccine in last 30 days		O	
Contact with person who has received oral polio vaccine in the last 75 days		O	
0 doses of polio vaccine (IPV or OPV)		O	

Notes:
S = This criterion alone is Sufficient to identify a case for reporting.
N = All "N" criteria in the same column are Necessary to identify a case for reporting.
O = At least one of these "O" (Optional) criteria in each category (i.e., clinical evidence and laboratory evidence) in the same column—in conjunction with all "N" criteria in the same column—is required to identify a case for reporting. (These optional criteria are alternatives, which means that a single column will have either no O criteria or multiple O criteria; no column should have only one O.)

C. Disease Specific Data Elements:

Disease-specific data elements to be included in the initial report are listed below.

Clinical Criteria
Paralysis, date of onset
Asymmetric paralysis
Ascending paralysis

Immune deficiency, any
EMG test result
Nerve conduction velocity test results

Epidemiological Risk Factors
Countries visited in last 30 days
Number of OPV doses received
Date of last OPV dose
Number of IPV doses received
Contact with a person who has received OPV in last 75 days
Contact with a person diagnosed with polio or poliovirus infection

VII. Case Definition for Case Classification

A. Narrative description of criteria to determine whether a case should be classified as confirmed or probable paralytic poliomyelitis or non-paralytic poliovirus infection:

1. *Paralytic poliomyelitis*

Probable: 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.

Confirmed: 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; AND in which the patient

- has a neurologic deficit 60 days after onset of initial symptoms; or
- has died; or
- has unknown follow-up status.

2. *Nonparalytic poliovirus infection*

Confirmed: Any person without symptoms of paralytic poliomyelitis in whom a poliovirus isolate identified in an appropriate clinical specimen (e.g., stool, cerebrospinal fluid, oropharyngeal secretions), with confirmatory typing and sequencing performed by the CDC Poliovirus Laboratory, as needed.

Comment

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 (11). Only confirmed cases are included in Table I in the *MMWR*. Suspected cases are enumerated in a footnote to the *MMWR* table.

B. Classification Tables

Table VII-B lists the criteria that must be met for a case to be classified as confirmed or probable (presumptive) poliomyelitis or a non-paralytic poliovirus infection.

Table VII-B. Table of criteria to determine whether a case is classified.

Criterion	**Case Definition**			
	Paralytic Poliomyelitis			**Non-paralytic Poliovirus Infection**
	Confirmed		**Probable**	**Confirmed**
Clinical Evidence				
Acute onset, flaccid paralysis in one or more limbs	N	N	N	
Decreased or absent tendon reflexes in the affected limbs	N	N	N	
No sensory deficit	N	N	N	
No cognitive deficit	N	N	N	
Paralysis present 60 days after onset of initial symptoms		O		
Death		O		
Follow-up status unknown		O		
Other apparent cause of paralysis (e.g., trauma to affected limb, spinal cord injury)	A	A	A	
Laboratory Evidence				
Isolation of poliovirus from a clinical specimen				S

Notes:
S = This criterion alone is Sufficient to classify a case.
N = All "N" criteria in the same column are Necessary to classify a case.
A = This criterion must be absent (i.e., NOT present) for the case to meet the classification criteria.
O = At least one of these "O" (Optional) criteria in each category (i.e., clinical evidence and laboratory evidence) in the same column—in conjunction with all "N" criteria in the same column—is required to classify a case.

VIII. Period of Surveillance

Surveillance should be on-going.

IX. Data sharing/release and print criteria

Notification to CDC for confirmed cases of polio is recommended.

- Data reported to NCIRD staff is summarized weekly internally via an NCIRD weekly surveillance report for vaccine preventable diseases. Electronic reports of cases of paralytic poliomyelitis and nonparalytic poliovirus Infection in NNDSS are also summarized weekly in the MMWR Tables. However, because of delays in data entry and data transmission via NNDSS, these two data sources may not correspond. Annual case data on polio is also summarized in the yearly Summary of Notifiable Diseases.

- State-specific compiled data will continue to be published in the weekly and annual MMWR. In addition to those reports, the frequency of reports/feedback to the states and territories will be dependent on the current epidemiologic situation in the country. Frequency of cases, epidemiologic distribution, importation status, transmission risk, and other factors will influence frequency and method of communication and information feedback.

- State-specific compiled data will continue to be published in the weekly reports and annual MMWR Surveillance Summaries. All cases are verified with the state (s) before publication. Data are also included in PAHO and WHO annual reports The frequency of release of additional publication of this data will be dependent on the current epidemiologic situation in the country. These publications might include annual epidemiologic summaries in the MMWR or manuscripts in peer-reviewed journals.

- As part of an effort to document polio elimination in the Americas, we currently report data on all suspect cases of polio known to NCIRD to PAHO on a weekly basis. Information on sex, age, rash onset, vaccination status, genotype and source (import, import-associated etc.) is provided. No personal identifying or state specific information is re-released to PAHO or WHO.

X. References

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