09-ID-51

Committee: Infectious

Title: National Surveillance for Pertussis

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

Background[1]

Pertussis, a cough illness commonly referred to as whooping cough, is caused by the bacterium *Bordetella pertussis*. Illness is characterized by prolonged paroxysmal cough and is often accompanied by an inspiratory whoop or post-tussive vomiting. Although routine childhood vaccination has led to a reduction in pertussis in the United States, the number of reported cases has been increasing in recent years, especially among adolescents and young adults. Reasons for the increase in reported cases may include better recognition of the disease by physicians, availability of new diagnostic tests, or a true rise in disease incidence. In 2005, a new pertussis vaccine (Tdap) was licensed for use among U.S. adolescents and adults; it should improve the control of pertussis.

Justification

Pertussis meets the definition of a nationally and **standard** notifiable condition—as specified in CSTE position statement 08-EC-02—for the following reasons:

- A majority of state and territorial jurisdictions—or jurisdictions comprising a majority of the US population—have laws or regulations requiring **standard** reporting of pertussis to public health authorities
- CDC requests **standard** notification of pertussis to federal authorities
- CDC has condition-specific policies and practices concerning the agency's response to, and use of, notifications.

[1] Much of the material in the background is directly quoted from the CDC's pertussis website. See the References for further information on this source.

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

CSTE requests that its members adopt this standardized reporting definition for pertussis and that CDC adopt the standardized notification criteria for pertussis to facilitate more timely, complete, and standardized local and national reporting of this condition.

IV. Goals of Surveillance

To provide information on the temporal, geographic, and demographic occurrence of pertussis to facilitate its prevention and control.

V. Methods for Surveillance

Surveillance for pertussis 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 pertussis

	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. Cases of illness may also be ascertained by the secondary analysis of administrative health data or clinical data. The purpose of this section is to provide those criteria that should be used by humans and machines to determine whether a specific illness should be reported.[2]

[2] "Human-based" criteria (described below under "A. Narrative") can be applied by medical care providers and laboratory staff based on clinical judgment and clinical diagnosis. Machine-based criteria (described below under

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:

1. An acute cough illness of any duration with an inspiratory whoop

2. Any person with isolation of *Bordetella pertussis* from a clinical specimen or a positive PCR test for *B. pertussis*

3. Any cough illness greater than 2 weeks' duration in a person who is a contact of a laboratory-confirmed pertussis case.

4. Any cough illness greater than 2 weeks' duration in a person who is a member of a defined risk group during an outbreak.

5. A person whose healthcare record contains a diagnosis of pertussis.

6. A person whose death certificate lists pertussis as a cause of death or a significant condition contributing to death.

Other recommended reporting procedures

- All cases of pertussis should be reported.
- Reporting should be on-going and routine.
- Frequency of reporting should follow the state health department's routine schedule.

"B. Table") can be applied using computerized algorithms that operate in electronic health record systems, including computerized records of laboratory test orders and laboratory test results; other clinical data systems (e.g., hospital discharge data systems serving multiple hospitals); or administrative data (e.g., healthcare provider billing data, vital records, and EMS data).

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

Table VI-B. Proposed Table of criteria to determine whether a case should be reported to public health authorities. Note: The following criteria are proposed for evaluation before general implementation. For purposes of currently implementing reporting the narrative description in VI-A, should be used.

Criterion	Reporting*			
Clinical Presentation				
Cough (any duration)	N			
Cough > 2 weeks duration			N	
Inspiratory whoop	N			
Healthcare record contains a diagnosis of pertussis				S
Death certificate lists pertussis as a cause of death or a significant condition contributing to death				S
Positive Laboratory Results				
Isolation of *Bordetella pertussis* from a clinical specimen		S		
Positive PCR for *B. pertussis*		S		
Epidemiological linkages				
Contact with a laboratory-confirmed pertussis case			O	
Member of a defined risk group during an outbreak			O	

Notes:
S = This criterion alone is sufficient to report a case
N = This criterion in conjunction with all other "N" and any "O" criteria in the same column is required to report a case. A number following an "N" indicates that this criterion is only required for a specific clinical presentation
O = At least one of these "O" criteria in each category (e.g., clinical presentation and laboratory findings)—in conjunction with all other "N" criteria in the same column—is required to report a case. A number following an "O" indicates that this criterion is only required for a specific clinical presentation

C. Disease Specific Data Elements:

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

Clinical Findings
Duration of cough

Epidemiological risk factors
Immunization history
Number of doses of DTaP vaccine received
Date of last DTaP vaccination
Whether a dose of Tdap vaccine was given to the patient at age ≥10 years
Date of Tdap vaccination

Contact with a known or suspected pertussis case(s)

VII. Case Definition for Case Classification

A. Narrative description of criteria to determine whether a case should be classified as confirmed or probable (presumptive).

Case classification

Probable:

- In the absence of a more likely diagnosis, a cough illness lasting ≥2 weeks, with
  - at least one of the following symptoms:
    - paroxysms of coughing;
    - inspiratory "whoop"; or
    - post-tussive vomiting;

    and

  - absence of laboratory confirmation; and
  - no epidemiologic linkage to a laboratory-confirmed case of pertussis.

Confirmed:

- acute cough illness of any duration, with isolation of *B. pertussis* from a clinical specimen;

or

- cough illness lasting ≥2 weeks, with
    - at least one of the following symptoms:
        - paroxysms of coughing;
        - inspiratory "whoop"; or
        - post-tussive vomiting;

      and

    - polymerase chain reaction (PCR) positive for pertussis;

or

- cough illness lasting ≥2 weeks, with
    - at least one of the following symptoms:
        - paroxysms of coughing;
        - inspiratory "whoop"; or
        - post-tussive vomiting;

      and

    - contact with a laboratory-confirmed case of pertussis.

Comment

The clinical case definition above is appropriate for endemic or sporadic cases. In outbreak settings, a case may be defined as a cough illness lasting at least 2 weeks (as reported by a health professional).

B. Classification Tables

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

Table VII-B. Proposed table of criteria to determine whether a case is classified. Note: The following criteria are proposed for evaluation before general implementation. For purposes of current notification, the narrative description in VII-A, should be used.

Criterion	Confirmed			Probable
Clinical Presentation				
Acute cough illness (any duration)	N			
Cough > 2 weeks' duration		N	N	N
Inspiratory whoop		O	O	O
Paroxysms of coughing		O	O	O
Post-tussive vomiting		O	O	O
Positive Laboratory Results				
Isolation of *B. pertussis* from a clinical specimen	N			
Positive PCR for pertussis		N		
Epidemiological linkages				
Contact with a laboratory-confirmed pertussis case			N	

Notes:
N = This criterion in conjunction with all other "N" and any "O" criteria in the same column is required to classify a case. A number following an "N" indicates that this criterion is only required for a specific clinical presentation
O = At least one of these "O" criteria in each category (e.g., clinical presentation and laboratory findings)—in conjunction with all other "N" criteria in the same column—is required to classify a case. A number following an "O" indicates that this criterion is only required for a specific clinical presentation

VIII. Period of Surveillance

Surveillance should be on-going.

IX. Data sharing/release and print criteria

Notification to CDC for confirmed and probable cases and all cases prior to classification is recommended.

- Data on fatal pertussis cases and ongoing outbreaks are summarized monthly for NCIRD staff distributed internally via an NCIRD weekly surveillance report for vaccine preventable diseases. Pertussis cases reported electronically through NNDSS are summarized weekly in the MMWR Notifiable Diseases Tables and yearly in MMWR Surveillance Summaries. Additional epidemiologic summaries may be published in the MMWR or peer-reviewed journals.

- State-specific compiled data will continue to be published in the weekly and annual MMWR. Periodically, reports of state-level case counts, incidence, and fatalities are sent to state and territory partners from the NCIRD program. The frequency of such feedback to the states and territories and of other published reports will be dependent on the current epidemiologic situation in the country and in specific states.

- State-specific compiled data will continue to be published in the weekly reports and annual MMWR Surveillance Summaries. Aggregate data are included in PAHO and WHO annual reports. The frequency of additional publication of this data, in the MMWR and peer-reviewed journals, will be dependent on current epidemiology of disease at the national level.

- We currently report aggregate data on cases of pertussis reported through NNDSS to PAHO on a yearly basis. No personal identifying or state specific information is re-released to PAHO, WHO, or other parties.

X. References

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