09-ID-05

Committee: Infectious

Title: National Surveillance for Diphtheria

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

Diphtheria was among the most common causes of death among children at the beginning of the 20th century. The disease primarily involves the mucous membrane of the upper respiratory tract (nose, tonsils, pharynx, larynx), skin, or rarely, other mucous membranes, e.g., conjunctivae, vagina, or ear. Only respiratory diphtheria is reportable. Respiratory diphtheria is characterized by an acute pharyngitis, a low-grade fever, and the presence of a pseudomembrane in the nose or throat. A serosanguineous nasal discharge should increase suspicion of nasal diphtheria. Vaccination programs have effectively eliminated the disease from the U.S., and two or fewer cases were reported each year during 1999–2008. However, diphtheria remains endemic in countries having low childhood vaccination coverage. Unvaccinated and inadequately immunized persons are at risk of developing disease when exposed to *Corynebacterium diphtheriae.* Exposure may occur during travel to areas where diphtheria is endemic or epidemic; or as a result of contact with persons returning from areas where diphtheria remains endemic. Rapid investigation and control efforts are necessary to limit spread of disease to susceptible persons.

Diphtheria meets the definition of a nationally and **immediate (urgent)** notifiable condition—as specified in CSTE position statement 08-EC-02—for the following reason(s):

- A majority of state and territorial jurisdictions—or jurisdictions comprising a majority of the US population—have laws or regulations requiring **immediate (urgent)**reporting of diphtheria to public health authorities
- The Centers for Disease Control and Prevention (CDC) requests **immediate (urgent)** notification of diphtheria
- 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 its members adopt this standardized reporting definition and that CDC adopt the standardized notification criteria for diphtheria to facilitate more timely, complete, and standardized local reporting and national notification of this condition.

IV. Goals of Surveillance

To rapidly identify any case of diphtheria and to prevent transmission in the United States.

V. Methods for Surveillance

Surveillance for diphtheria 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 Diphtheria

	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 that should be used 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:

1. Acute upper respiratory illness in a person with a membranous lesion of the pharynx, larynx, tonsil or nose from which *C. diphtheriae* was isolated.

2. Acute upper respiratory illness in a person with a membranous lesion of the pharynx, larynx, tonsil or nose, which is diagnosed by a health care provider as possible diphtheria, and for which there is not a more likely diagnosis.

3. Acute upper respiratory illness in a person who has a membranous lesion of the pharynx, larynx, tonsil or nose, and who is a contact of a confirmed diphtheria case.

Note: Only respiratory diphtheria is reportable. A person with suspected or culture-confirmed cutaneous diphtheria should not be reported as diphtheria.

Other recommended reporting procedures

- All cases of respiratory tract diphtheria should be reported.
- Reporting should be on-going and routine.
- Reporting should be immediate.

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 respiratory illness	N	N	N	
Membrane on the tonsil(s) or in the pharynx, larynx or nose	N	N	N	
Diagnosis of possible diphtheria by a healthcare provider	N			
Death certificate lists the condition as a cause of death or significant condition contributing to death				S
Laboratory Evidence				
Culture of *C. diphtheriae* from nares, pharynx, tonsil or larynx		N		
Epidemiologic Evidence				
Contact with a laboratory-confirmed diphtheria case			N	

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.

C. Disease Specific Data Elements:

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

Epidemiological Risk Factors
Doses of diphtheria toxoid-containing vaccine received
Year of last known tetanus-diphtheria booster vaccine received
History of international travel to a country with endemic diphtheria in past month
    Dates
    Countries visited
Contact with person(s) who recently returned from a country with endemic or epidemic diphtheria
    Dates
    Countries
Country of birth

VII. Case Definition for Case Classification

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

Case Classification

- *Probable*:
  In the absence of a more likely diagnosis, an upper respiratory tract illness with
  - an adherent membrane of the nose, pharynx, tonsils, or larynx; and
  - absence of laboratory confirmation; and
  - lack of epidemiologic linkage to a laboratory-confirmed case of diphtheria.

- *Confirmed*:
  An upper respiratory tract illness with an adherent membrane of the nose, pharynx, tonsils, or larynx; and any of the following:
    - isolation of *Corynebacterium diphtheriae* from the nose or throat; or
    - histopathologic diagnosis of diphtheria; or
    - epidemiologic linkage to a laboratory-confirmed case of diphtheria.

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. Table of criteria to determine whether a case is classified.

Criterion	**Confirmed**		**Probable**
Clinical Evidence			
Adherent membrane of the nose, pharynx, tonsil(s), or larynx	N	N	N
Acute respiratory illness	N	N	N
A more likely diagnosis other than diphtheria			A
Laboratory Evidence			
Culture of *C. diphtheriae* from nares, pharynx, tonsil or larynx	O		A
Histopathologic diagnosis of diphtheria	O		A
Epidemiologic Evidence			
Epidemiologic link to a laboratory-confirmed diphtheria case		N	A

Notes:
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 of all cases prior to classification is recommended for diphtheria.
- Data on diphtheria cases reported electronically through NNDSS are summarized weekly and annually in the MMWR Notifiable Diseases Tables. Data on diphtheria cases are also summarized monthly for internal NCIRD distribution via a monthly surveillance report for vaccine preventable diseases.

- Compiled data will continue to be published in the weekly and annual MMWR. Additional publications will be dependent on the current epidemiologic situation.

- Data from case notification are 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 a case series in the MMWR or manuscripts in peer-reviewed journals. All cases are verified with the state prior to report or publication.

X. References

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XI. Coordination:

Agencies for Response:

(1) Thomas R. Frieden, MD, MPH
Director
Centers for Disease Control and Prevention
1600 Clifton Road, NE
Atlanta GA 30333
(404) 639-7000
txf2@cdc.gov

XII. Submitting Author:

(1) Paul Cieslak, MD
Manager, Acute and Communicable Disease Prevention
Oregon Department of Human Services
800 NE Oregon St./Suite 772
Portland, OR 97232
(971) 673-1111
paul.r.cieslak@state.or.us

Co-Authors:

(1) Associate Member
Harry F. Hull, Medical Epidemiologist
HF Hull & Associates, LLC
1140 St. Dennis Court
Saint Paul, MN 55116
(651) 695-8114
hullhf@msn.com

(2) Associate Member
Cecil Lynch, Medical Informaticist
OntoReason
7292 Shady Woods Circle
Midvale, UT 84047
(916) 412.5504
clynch@ontoreason.com

(3) Associate Member
R. Gibson Parrish, Medical Epidemiologist
P.O. Box 197
480 Bayley Hazen Road
Peacham, VT 05862
(802) 592-3357
gib.parrish@gmail.com