

Committee: Infectious

Title: Public Health Reporting and National Notification for Tetanus

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

Tetanus is rare in the United States as the result of high levels of immunization with tetanus toxoid. The disease occurs primarily among unvaccinated or inadequately immunized persons. The disease is caused by a Gram-positive bacillus *Clostridium tetani*, which produces powerful toxins, tetanospasmin and tetanolysin. The hallmark feature of tetanus is muscle rigidity and spasms. The disease is may be classified as generalized, cephalic, local, or neonatal.

Generalized tetanus is characterized by hypertonia and painful muscle spasms. Initial symptoms may include irritability, painful muscle spasms, [sore](#) muscles, muscle weakness, or difficulty swallowing. Facial muscles are frequently affected, and spasms of the jaw muscles that are responsible for chewing ([trismus](#) or lockjaw) is most common. A sardonic smile—medically termed **risus sardonicus**—is a characteristic feature that results from [facial muscle](#) spasms. Muscle spasms are [progressive](#) and may include a characteristic arching of the back known as **opisthotonus**. Muscle spasms may be intense enough to cause bones fractures and joint dislocation. In severe cases, spasms of the vocal cords and/or airway musculature, muscles involved in [breathing](#), or autonomic instability may result in death.

In *cephalic tetanus*, lockjaw (trismus) and spasm of at least one other facial muscle group occur and most likely progresses to generalized tetanus.

In *localized tetanus*, muscle spasms occur at or near the site of injury and rarely progresses to generalized tetanus.

Neonatal tetanus is identical to generalized tetanus except that it affects neonates ([infant](#) ≤28 days of age). The neonate may be irritable, have poor sucking ability or have difficulty swallowing.

Justification

Tetanus meets the following criteria for a nationally and **standard** notifiable condition, as specified in CSTE position statement 08-EC-02:

- A majority of state and territorial jurisdictions—or jurisdictions comprising a majority of the US population—have laws or regulations requiring **standard** reporting of tetanus to public health authorities
- CDC requests **standard** notification of tetanus to federal authorities
- CDC has condition-specific policies and practices concerning the agency’s 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 tetanus to facilitate more timely, complete, and standardized local reporting and national notification of this condition.

IV. Goals of Surveillance

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

V. Methods for Surveillance

Surveillance for tetanus 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 tetanus.

Source of data for case ascertainment	Coverage	
	Population-wide	Sentinel sites
clinician reporting	X	
laboratory reporting		
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.¹

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 illness with generalized or local muscle spasms or hypertonia in a person diagnosed by a medical professional to have tetanus
2. An illness in a person whose death certificate lists tetanus as a cause of death or a significant condition contributing to death

Other recommended reporting procedures

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

¹ "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 "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	
<i>Clinical Presentation</i>		
Muscle spasms	O	
Hypertonia	O	
Diagnosis of tetanus by a healthcare professional	N	
Death certificate lists disease due to tetanus as a cause of death or a significant condition contributing to death		S

Notes:

S = This criterion alone is sufficient to report or confirm a case

N = This criterion in conjunction with all other “N” and any “O” criteria in the same column is required to report or confirm a case.

O = At least one of these “O” criteria in each category in the same column (e.g., clinical presentation and laboratory findings)—in conjunction with all other “N” criteria in the same column—is required to report or confirm a case.

C. Disease Specific Data Elements:

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

Epidemiological Risk Factors

Immunization history

Doses of tetanus toxoid-containing vaccine received

Date of last dose of tetanus toxoid-containing vaccine

Country of birth

Wound history

Date

Location

Cause

Dirty/Clean

Risk factors

Diabetes

Injection drug user

VII. Case Definition for Case Classification

A. Narrative description of criteria to determine whether a case should be classified as probable.

Case classification

- Probable:
 - In the absence of a more likely diagnosis, an acute illness with
 - muscle spasms or hypertonia; and
 - diagnosis of tetanus by a health care provider;
- or
- death, with tetanus listed on the death certificate as the cause of death or a significant condition contributing to death.

Note: there is no definition for “confirmed” tetanus.

B. Classification Tables

Table VII-B lists the criteria that must be met for a case to be classified as probable.

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	Probable	
<i>Clinical Presentation</i>		
Muscle spasms	O	
Hypertonia	O	
Diagnosis of tetanus by a health care provider	N	
Death, with tetanus listed on the death certificate as the cause of death or a significant condition contributing to death		S

Notes:

S = This criterion alone is sufficient to report or confirm a case

N = This criterion in conjunction with all other “N” and any “O” criteria in the same column is required to report or confirm a case.

O = At least one of these “O” criteria in each category in the same column (e.g., clinical presentation and laboratory findings)—in conjunction with all other “N” criteria in the same column—is required to report or confirm 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 tetanus and all cases prior to classification is recommended.

- Data on reported tetanus cases are summarized monthly for NCIRD staff distributed internally via an NCIRD monthly surveillance report for vaccine preventable diseases. Cases reported electronically through NNDSS are summarized weekly in the MMWR Notifiable Diseases Tables. As the need arises, aggregate data may also be published to raise awareness of the importance of immunization and to characterize persons or geographic areas in which additional efforts are required to raise vaccination levels and reduce disease incidence.
- Compiled data will continue to be published in the weekly and annual MMWR. The frequency of additional reports/feedback to the states and territories 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 in the annual MMWR Surveillance Summaries. The frequency of additional publication, in the MMWR and in peer-reviewed journals, will depend on the epidemiology of disease and on evolving public health needs.
- We currently report aggregate data on cases of tetanus reported through NNDSS to PAHO on a yearly basis. No personal identifying or state-specific information is released to PAHO, WHO, or other parties.

X. References

Centers for Disease Control and Prevention (CDC). Case definitions for infectious conditions under public health surveillance. MMWR 1997; 46(No. RR-10):1–57. Available from: <http://www.cdc.gov/mmwr/>

Centers for Disease Control and Prevention (CDC). National notifiable diseases surveillance system: case definitions. Atlanta: CDC. Available from: <http://www.cdc.gov/ncphi/disss/nndss/casedef/index.htm> Last updated: 2008 Jan 9. Accessed:

Council of State and Territorial Epidemiologists (CSTE). CSTE official list of nationally notifiable conditions. CSTE position statement 07-EC-02. Atlanta: CSTE; June 2007. Available from: <http://www.cste.org>.

Council of State and Territorial Epidemiologists (CSTE). Criteria for inclusion of conditions on CSTE nationally notifiable condition list and for categorization as immediately or routinely notifiable. CSTE position statement. 08-EC-02. Atlanta: CSTE; June 2008. Available from: <http://www.cste.org>.

Council of State and Territorial Epidemiologists (CSTE). Revised Case Definitions for Public Health Surveillance: Infectious Disease CSTE position statement 1996-18. Atlanta: CSTE; June 1996. Available from: <http://www.cste.org>.

Council of State and Territorial Epidemiologists (CSTE). Data Release Guidelines of the Council of State & Territorial Epidemiologists for the National Public Health System. Atlanta: CSTE; June 1996.

Council of State and Territorial Epidemiologists, Centers for Disease Control and Prevention. CDC-CSTE Intergovernmental Data Release Guidelines Working Group (DRGWG) Report: CDC-ATSDR Data Release Guidelines and Procedures for Re-release of State-Provided Data. Atlanta: CSTE; 2005. Available from: <http://www.cste.org/pdffiles/2005/drgwgreport.pdf> or <http://www.cdc.gov/od/foia/policies/drgwg.pdf>.

Heymann DL, editor. Control of communicable diseases manual. 18th edition. Washington: American Public Health Association; 2004.

Bleck TP. Clostridium tetani (Tetanus). In: Mandell GL, Bennett JE, Dolin R, editors. Principles and Practice of Infectious Diseases, 6th edition. Philadelphia: Churchill Livingstone; 2005.

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