09-ID-67

Committee: Infectious

Title: Public Health Reporting and National Notification for Typhoid Fever

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]

Typhoid fever is a life-threatening illness caused by the bacterium *Salmonella* typhi. In the United States about 400 cases occur each year, and 75% of these are acquired while traveling internationally. Typhoid fever is still common in the developing world, where it affects about 21.5 million persons each year. The symptoms of typhoid fever are variable, with high fever and abdominal symptoms common. Typhoid fever surveillance is required to detect and control outbreaks.

Justification

Typhoid Fever 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 typhoid fever to public health authorities
- CDC requests **standard** notification of typhoid fever 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 CDC adopt this standardized reporting definition for typhoid fever to facilitate more timely, complete, and standardized local and national reporting of this condition.

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

IV. Goals of Surveillance

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

V. Methods for Surveillance

Surveillance for typhoid fever 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 typhoid fever.

	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 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. A person with *Salmonella typhi* isolated from a clinical specimen.

2. A person with fever, diarrhea or abdominal symptoms (e.g., abdominal pain, constipation, anorexia, relative bradycardia, etc???? – what the table currently shows) who is a contact of a confirmed case of typhoid fever or a member of a high risk group during an outbreak as defined by the public health authorities.
3. A person whose healthcare record contains a recent diagnosis of typhoid fever.
4. A person whose death certificate lists typhoid fever as a cause of death or a significant condition contributing to death.

Other recommended reporting procedures

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

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		
Fever		O
Diarrhea		O
Abdominal pain		O
Constipation		O
Anorexia		O
Relative bradycardia		O
Healthcare record contains a diagnosis of disease due to typhoid fever	S	
Death certificate lists disease due to typhoid fever as a cause of death or a significant condition contributing to death	S	
Laboratory Evidence		
Culture positive for S. typhi from a clinical specimen	S	
Epidemiologic Evidence		
Contact of a confirmed case of typhoid fever		O
Member of a high risk groups as defined by the public health authorities during an outbreak		O

Notes:
S = This criterion alone is Sufficient 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 is required 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

Day care attendee
International travel in 2 months prior to onset
    Countries visited
Immunization history
    Date of typhoid vaccination

Transmission Risk Factors

Food handler
Health care worker
Day care worker

VII. Case Definition

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

Clinical description

An illness caused by *Salmonella typhi* that is often characterized by insidious onset of sustained fever, headache, malaise, anorexia, relative bradycardia, constipation or diarrhea, and nonproductive cough. However, many mild and atypical infections occur. Carriage of *S. typhi* may be prolonged.

Laboratory criteria for diagnosis

- Isolation of *S. typhi* from blood, stool, or other clinical specimen

Case classification

Probable: a clinically compatible case that is epidemiologically linked to a confirmed case in an outbreak

Confirmed: a clinically compatible case that is laboratory confirmed

Comment

Isolation of the organism is required for confirmation. Serologic evidence alone is not sufficient for diagnosis. Asymptomatic carriage should not be reported as typhoid fever. Isolates of *S. typhi* are reported to the Foodborne and Diarrheal Diseases Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, CDC, through the Public Health Laboratory Information System.

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		
Fever	O	O
Diarrhea	O	O
Abdominal pain	O	O
Constipation	O	O
Anorexia	O	O
Relative bradycardia	O	O
Laboratory Evidence		
Culture positive for S. typhi from a clinical specimen	N	
Epidemiologic Evidence		
Contact of a confirmed case of typhoid fever		O
Member of a high risk groups as defined by the public health authorities during an outbreak		O

Notes:
N = All "N" criteria in the same column are Necessary to classify a case.
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 and probable cases of typhoid fever is recommended.

- Data will be used to determine the burden of illness due to typhoid fever, assess the effectiveness over time of control programs, and assess the progress toward typhoid fever control. Data may also be used to look for vaccine failures, and compare case numbers with information from other disease surveillance systems.
- Electronic reports of typhoid fever cases in NNDSS are also summarized weekly in the MMWR Tables. Annual case data on typhoid fever is summarized in the yearly Summary of Notifiable Diseases.

- State-specific compiled data will continue to be published in the weekly and annual MMWR.

- State-specific compiled data will continue to be published in the weekly reports and annual MMWR Surveillance Summaries. All cases are verified with the states before 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) Bela Matyas
California Department of Public Health
850 Marina Bay Parkway Bldg P, 2nd Floor
Richmond, VA 94804
Bela.matyas@cdph.ca.gov

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