09-ID-32

Committee: Infectious

Title: Public Health Reporting and National Notification for Cryptosporidiosis

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]

Cryptosporidiosis is a diarrheal disease caused by microscopic parasites of the genus *Cryptosporidium*. Many species of *Cryptosporidium* exist that infect humans and a wide range of animals. An estimated 800,000 cases of cryptosporidiosis occur each year in the U.S. *Cryptosporidium* is one of the most frequent causes of waterborne disease (drinking water and recreational water) among humans in the United States. International travelers and backpackers are at risk of contracting cryptosporidiosis. Outbreaks have occurred among children attending day care centers. Surveillance for cryptosporidiosis is necessary to identify and control outbreaks and to expand the scientific understanding of the role that each of the species play in human disease.

Justification

Cryptosporidiosis 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 cryptosporidiosis to public health authorities
- CDC requests **standard** notification of cryptosporidiosis to federal authorities.
- CDC has condition-specific policies and practices concerning the agency's response to, and use of, notifications. Reports of both sporadic cases and outbreaks of cryptosporidiosis are used to evaluate national trends in the incidence and source of infections. Investigations into outbreaks are undertaken to understand the transmission of this parasite and make recommendations to prevent its spread.

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

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

CSTE requests that CDC adopt this standardized reporting definition for cryptosporidiosis 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 cryptosporidiosis to facilitate its prevention and control.

V. Methods for Surveillance

Surveillance for cryptosporidiosis should use the sources of data and the extent of coverage listed in Table V below.

Table V. Recommended sources of data and extent of coverage for ascertaining cases of cryptosporidiosis.

	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		
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]

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. Any person who has a positive laboratory test for any *Cryptosporidium* species regardless of whether they are symptomatic or asymptomatic. These tests may include any of the following

   a. detection of *Cryptosporidium* organisms in stool, intestinal fluid, tissue samples or biopsy specimens

   b. detection of *Cryptosporidium* antigen by immunodiagnostic methods, e.g., ELISA

   c. detection of *Cryptosporidium*-specific nucleic acid in stool, intestinal fluid, tissue samples or biopsy specimens by PCR

2. Any person with any of the following symptoms diarrhea, abdominal cramping, fever, nausea, vomiting or anorexia and who is either a contact of a confirmed cases of cryptosporidiosis or a member of a risk group as defined by the public health authorities during an outbreak.

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

Other recommended reporting procedures

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

[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 "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 s; 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			
Diarrhea		O	
Abdominal cramps		O	
Fever		O	
Nausea		O	
Vomiting		O	
Anorexia		O	
Healthcare record contains a diagnosis of cryptosporidiosis			S
Laboratory findings			
Cryptosporidium organisms in stool, intestinal fluid, tissue samples or biopsy specimens	O		
Cryptosporidium antigens in stool or intestinal fluid	O		
PCR positive for cryptosporidium specific nucleic acid in stool, intestinal fluid, tissue samples or biopsy specimens	O		
Epidemiological risk factors			
Contact of a confirmed case of cryptosporidiosis		O	
Member of a risk group as defined by the public health authorities during an outbreak		O	

Notes:
S = This criterion alone is sufficient to report a case
O = At least one of these "O" criteria in each category in the same column (e.g., clinical presentation and laboratory findings) is required to report a case.

C. Disease Specific Data Elements:

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

Clinical Information
HIV infection
Cancer chemotherapy
On treatment with immunosuppressive drugs

Epidemiological Risk Factors
Daycare center attendee
Child care worker
International travel
Contact with recreational water
Contact with a confirmed case of cryptosporidiosis

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 characterized by watery diarrhea, abdominal cramps, loss of appetite, low-grade fever, nausea and vomiting. The disease can be prolonged and life-threatening in immunocompromised persons.

Laboratory Evidence
Laboratory-confirmed cryptosporidiosis is defined as the detection of a member of the genus Cryptosporidium by one of the following methods:
1) Organisms in stool, intestinal fluid, or tissue samples of biopsy specimens
2) Antigens in stool or intestinal fluid, or
3) Nucleic acid by PCR in stool, intestinal fluid, or tissue samples or biopsy specimens

Case Classification
Confirmed: a case that meets the clinical description and at least one of the criteria for laboratory-confirmation as described above. When available, species designation and molecular characterization should be reported.

Probable: a case that meets the clinical description and that is epidemiologically linked to a confirmed case.

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.

	Case Definitions		
Criterion	Confirmed		Probable
Clinical Presentation	Symptomatic	Asymptomatic	
Diarrhea	O	A	O
Abdominal cramps	O	A	O
Fever	O	A	O
Nausea	O	A	O
Vomiting	O	A	O
Anorexia	O	A	O
Healthcare record contains a diagnosis of cryptosporidiosis			
Laboratory findings			
Cryptosporidium organisms in stool, intestinal fluid, tissue samples or biopsy specimens	O	O	
Cryptosporidium antigens in stool or intestinal fluid	O	O	
PCR positive for cryptosporidium specific nucleic acid in stool, intestinal fluid, tissue samples or biopsy specimens	O	O	
Epidemiological risk factors			
Contact of a confirmed case of cryptosporidiosis			O
Member of a risk group as defined by the public health authorities during an outbreak			O

Notes:
O = At least one of these "O" criteria in each category in the same column (e.g., clinical presentation and laboratory findings) is required to classify a case.
A = This criterion must be absent (i.e., NOT present) for the case to meet the case classification.

VIII. Period of Surveillance

Surveillance should be on-going.

IX. Data sharing/release and print criteria

Notification to CDC of confirmed and probable cases is recommended.

- Data are reported to NNDSS and summarized weekly in the MMWR. Case counts of cryptosporidiosis are also published annually in the MMWR Summary of Notifiable Diseases and biennially in the MMWR Surveillance Summaries for cryptosporidiosis and giardiasis.

- State-specific data are published weekly in the MMWR and annually in the MMWR Summary of Notifiable Diseases. Data on cryptosporidiosis are also published biennially in the MMWR Surveillance Summaries for cryptosporidiosis and giardiasis.

- Summary data on cases of cryptosporidiosis are published biennially in the MMWR Surveillance Summaries and may be included in MMWR or journal articles.

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). Revision of cryptosporidiosis case definition. CSTE position statement 08-ID-08. Atlanta: CSTE; June 2008. Available from: http://www.cste.org/PS/2008/2008psfinal/08-ID-08.pdf

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). Continuation of Cryptosporidiosis Under National Surveillance. 1998-ID-05. Atlanta: CSTE; June 1998. 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.

White AC. Cryptosporidiosis (Cryptosporidium hominis, Cryptosporidium parvum, and Other Species). In: Mandell GL, Bennett JE, Dolin R, editors. Principles and Practice of Infectious Diseases, 6th edition. Philadelphia: Churchill Livingstone; 2005.

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