10-ID-15

Committee: Infectious Disease

Title: Update to Cryptosporidiosis Case Definition

I. Statement of the Problem:
The case definition of cryptosporidiosis, a disease under public health surveillance, would benefit from a revision primarily to update laboratory criteria using verbiage that would create standardization and avoid the need for frequent case revision as laboratory methods advance.

II. Background and Justification:
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. When the cryptosporidiosis position statement was revised in 2008, wording was inadvertently added in the laboratory criteria about laboratory methods when that section did not describe methods. This change caused the case definition to be inaccurate.

I**II. Statement of the desired action(s) to be taken:**
The national surveillance case definition for cryptosporidiosis should be revised. We propose to: 1) remove the wording "by one of the following methods" from the laboratory criteria; 2) broaden the language to include the possibility of additional gastrointestinal symptoms.

IV. Goals of Surveillance:
To provide information on the temporal, geographic, and demographic occurrence of cryptosporidiosis to facilitate its prevention and control. The goal of this change to the case definition would be to remove confusion about the criteria for laboratory confirmation of *Cryptosporidium* infection.

V. Methods for Surveillance:

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

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

Source of data for case identification	Coverage	
	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 Case Identification

A. Narrative: A description of suggested criteria for case ascertainment:

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

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

3. A person whose healthcare record contains a diagnosis of cryptosporidiosis.
Other recommended reporting procedures:
- All cases of cryptosporidiosis should be reported.
- Reporting should be ongoing 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	Disease or condition subtype	
Clinical Evidence		
Diarrhea	O	
Abdominal cramps	O	
Vomiting	O	

Fever	O	
Nausea	O	
Anorexia	O	
Healthcare record contains a diagnosis of cryptosporidiosis		S
Laboratory evidence		
Cryptosporidium organisms in stool, intestinal fluid, tissue samples or biopsy specimens		S
Cryptosporidium antigens in stool or intestinal fluid		S
Cryptosporidium-specific nucleic acid in stool, intestinal fluid, tissue samples or biopsy specimens		S
Epidemiologic evidence		
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 identify a case for reporting.
O = At least one of these "O" (Optional) criteria in each category (e.g., clinical evidence and laboratory evidence) in the same column—is required to identify a case for reporting.

C. Disease-specific data elements:

Clinical Information
HIV infection
Cancer chemotherapy
On treatment with immunosuppressive drugs

Laboratory Information
Molecular characterization, e.g., species, genotype, or subtype designation, when available

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 for Case Classification

A. Narrative:

Clinical description
A gastrointestinal illness characterized by diarrhea, abdominal cramping, fever, nausea, vomiting and/or anorexia.

Laboratory criteria for diagnosis
Confirmed: The detection of *Cryptosporidium* organisms or DNA in stool, intestinal fluid, tissue samples, biopsy specimens, or other biological sample.[*]

Probable: The detection of *Cryptosporidium* antigen by immunodiagnostic methods[†].

Case classification
Confirmed: a case that meets the clinical description and the respective criteria for laboratory-confirmation as described above.

Probable: a case that meets the clinical description and has probable criteria for laboratory diagnosis or that is epidemiologically linked to a confirmed case.

B. Classification Tables:

Table VII-B. Criteria for case classification for a case of cryptosporidiosis

Criterion	Confirmed	Probable (Presumptive)
Clinical Evidence		
Diarrhea	O	O
Abdominal cramps	O	O
Vomiting	O	O
Fever	O	O
Nausea	O	O
Anorexia	O	O
Healthcare record contains a diagnosis of cryptosporidiosis	O	O
Laboratory evidence		
Cryptosporidium organisms in stool, intestinal fluid, tissue samples or biopsy specimens	O	
Cryptosporidium antigens in stool or intestinal fluid		O
Cryptosporidium-specific nucleic acid in stool, intestinal fluid, tissue samples or biopsy specimens	O	
Epidemiologic evidence		
Contact of a confirmed case of cryptosporidiosis		O
Member of a risk group as defined by the public health authorities during an outbreak		O

[*] The confirmed laboratory criteria include detection of *Cryptosporidium* by established laboratory methods (e.g., direct fluorescent antibody [DFA] test or polymerase chain reaction [PCR]).

[†] Test results known to be obtained with commercially-available immunochromatographic card tests are limited to meeting "probable" case criteria due to a recent report of unacceptably high rates of false-positive results (Clin Infect Dis. 2010 Apr 15;50(8):e53-55).

Notes:
S = This criterion alone is Sufficient to classify a case.
O = At least one of these "O" (Optional) criteria in each category (e.g., clinical evidence and laboratory evidence) in the same column—is required to classify a case.

VIII. Period of Surveillance:
Ongoing. This revision of the surveillance case definition will be effective January 1, 2011.

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:

1. Council of State and Territorial Epidemiologists (CSTE). National Surveillance for Cryptosporidiosis. CSTE Position Statement 08-ID-08. Atlanta: CSTE. June 2008. Available from http://www.cste.org.
2. Council of State and Territorial Epidemiologists (CSTE). Continuation of Cryptosporidiosis Under National Surveillance. CSTE Position Statement 1998-ID-5. Atlanta: CSTE. June 1998. Available from http://www.cste.org.
3. Council of State and Territorial Epidemiologists (CSTE). National Surveillance for Cryptosporidiosis. CSTE Position Statement 1994-ID. Atlanta: CSTE. June 1994. Available from http://www.cste.org.

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) Kristy Bradley, DVM, MPH

State Epidemiologist & State Public Health Veterinarian Oklahoma State Department of Health
1000 NE 10th St
Oklahoma City, OK 73117-1299
(405) 271-4060
kristyb@health.ok.gov

(2) Michael Beach
Centers for Disease Control and Prevention
4770 Buford Highway, NE
Atlanta, GA 30341
770-488-7763
mbeach@cdc.gov