

Submission Date: 3/29/2006

Committee: Infectious Diseases

Title: National Reporting for non-cholera *Vibrio* Infections (Vibriosis)

Statement of the Problem:

Toxigenic *Vibrio cholerae* O1 or O139, the agents of cholera, have been nationally notifiable for many years. Infections due to other *Vibrio cholerae* (i.e., non-toxigenic and/or non-O1/O139) and other *Vibrio* species are not currently nationally notifiable, though some states require reporting in their jurisdictions. Infections caused by *Vibrio* species constitute a substantial public health burden, especially those due to *V. parahaemolyticus* and *V. vulnificus*. It is estimated that non-cholera *Vibrio spp.* are responsible for over 8,000 infections each year in the United States, including over 50 deaths (1). National surveillance for infections due to *Vibrio spp.* (vibriosis) would benefit national *Vibrio* control programs such as FDA's Shellfish Sanitation Program, serve as a major source of needed data for regulatory agency risk assessments, and allow for measuring progress toward national goals in *Vibrio* illness control.

Statement of the desired action(s) to be taken:

Add *Vibrio* species infections (vibriosis), excluding toxigenic *V. cholerae* O1 or O139 (cholera), to the list of nationally notifiable infectious diseases reportable to the National Notifiable Diseases Surveillance System (NNDSS). Reporting for vibriosis is distinct from and in addition to reporting for toxigenic *V. cholerae* O1 or O139 (cholera) currently conducted through NNDSS.

Goals of Surveillance:

Determine the burden of illness due to *Vibrio* pathogens transmitted by foodborne and other routes of infection. Assess the effectiveness over time of national *Vibrio* control programs such as the Shellfish Sanitation Program, state interventions such as limiting the market for certain types and origins of shellfish and industry interventions such as post-harvest shellfish treatments to reduce contamination. *Vibrio* surveillance information would be used to assess the progress toward national goals in *Vibrio* control.

Methods for Surveillance:

Sources for case ascertainment include clinical and laboratory reporting sources similar to other nationally notifiable infectious diseases.

Case Definition narrative:

Vibriosis (*Vibrio spp.*)- 2006 Proposed Case Definition

Clinical description

An infection of variable severity characterized by diarrhea and vomiting, or primary septicemia, or wound infections. Asymptomatic infections may occur, and the organism may cause extraintestinal infections.

Laboratory criteria for diagnosis

Isolation of *Vibrio* spp. other than toxigenic *Vibrio cholerae* O1 or O139 from a clinical specimen.*

Case classification

Confirmed:

A case that meets the laboratory criteria for diagnosis. Species identification and, if applicable, serotype designation (i.e., *Vibrio cholerae* non-O1/non-O139) should be reported.

Comment

In addition to reporting through NNDSS, CDC requests that states collect information on the standard surveillance form for Cholera and Other *Vibrio* Illness Surveillance System (COVISS), available at: http://www.cdc.gov/foodborneoutbreaks/reporting_outbreak.htm. CDC intends to integrate the COVISS form into the National Electronic Diseases Surveillance System (NEDSS) in the future. Reporting sites should use the COVISS reporting form until the integration is complete and COVISS data can be transmitted to CDC. CDC requests that *Vibrio cholerae* and *Vibrio parahaemolyticus* isolates be referred to the Foodborne and Diarrheal Diseases Laboratory for characterization.

* Infections due to toxigenic *Vibrio cholerae* O1 or O139 are reportable as cholera (See Cholera case definition at http://www.cdc.gov/epo/dphsi/casedef/cholera_current.htm).

Case Definition tables:

Suggested codes for case ascertainment

(List codes such as ICD-10, ICD-9-CM, LOINC, SNOMED.)

SNOMED (see NCI website at: <http://nciterms.nci.nih.gov/NCIBrowser/Startup.do>)

SNOMED codes are available for many *Vibrio* species. However codes are not complete and subject to change.

<i>Vibrio</i> species	SNOMED Code	<i>Vibrio</i> species	SNOMED Code
Non-cholerae vibrio	398367007	<i>Vibrio</i> orientalis	33896001
<i>Vibrio</i> aestuarianus	10111000	<i>Vibrio</i> parahaemolyticus	115062001
<i>Vibrio</i> alginolyticus	45749000	<i>Vibrio</i> parahaemolyticus	11736008

Vibrio anguillarum	65748003	Vibrio proteolyticus	56843006
Vibrio campbellii	90557000	Vibrio salmonicida	58124000
Vibrio carchariae	10434000	Vibrio scophthalmi	115063006
Vibrio cincinnatiensis	36764009	Vibrio splendidus	243327005
Vibrio costicola	15870006	Vibrio splendidus	76238007
Vibrio diabolicus	115056006	Vibrio tapetis	115065004
Vibrio diazotrophicus	49525008	Vibrio trachuri	115066003
Vibrio fischeri	25815009	Vibrio tubiashii	71296005
Vibrio fluvialis	43199008	Vibrio vulnificus	55905000
Vibrio furnissii	6387008	Vibrio cholerae, non-O1/non-O139	415819003
Vibrio gazogenes	1566003		
Vibrio harveyi	84003007		
Vibrio hollisae	7064002		
Vibrio logei	42225005		
Vibrio marinus	56647005		
Vibrio mediterranei	243324003		
Vibrio metschnikovii	28382009		
Vibrio mimicus	11776003		
Vibrio mytili	115060009		

Vibrio natriegens	80981004
Vibrio navarrensis	115061008
Vibrio nereis	55697000
Vibrio nigripulchritudo	27095005
Vibrio ordalii	13330009

ICD-10 codes (see <http://www3.who.int/icd/vol1htm2003/fr-icd.htm>)

Code	Description
A05.3	Foodborne Vibrio parahaemolyticus intoxication
A05.9	Bacterial foodborne intoxication, unspecified
A41.5	Septicaemia due to other Gram-negative organisms

LOINC codes*

COMPONENT	LOINC_NUM	Short Common Name
VIBRIO SP IDENTIFIED	6578-9	Vibrio Bld Cult
VIBRIO SP IDENTIFIED	6579-7	Vibrio Stl Cult
VIBRIO SP IDENTIFIED	6581-3	Vibrio XXX Cult
MICROORGANISM IDENTIFIED	600-7	Bld Cult
MICROORGANISM IDENTIFIED	625-4	Stl Cult

* From LOINC Database Version 2.14, December 1, 2004. Other LOINC codes may be applicable. LOINC codes are incomplete and undergoing revisions and additions; these codes may change accordingly.

Period of Surveillance:

January 1, 2007 and extending indefinitely.

Background and Justification:

Vibrio illnesses are either foodborne or associated with wounds exposed to waters containing *Vibrio* species. As of 2001, at least 18 states required notification of non-cholera *Vibrios* (NNDSS Assessment 2001, see CSTE website). The Foodborne and Diarrheal Diseases Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases has been encouraging reports of *Vibrio* illness through the Cholera and Other *Vibrio* Illness Surveillance System (COVISS), starting with the Gulf-coast states, but expanding to all states and territories more recently. With expanded surveillance, the number of reported deaths due to non-cholera vibrios almost doubled from 26 in 1997 to 47 in 2004 (2). COVISS uses a standard surveillance form which is available at: http://www.cdc.gov/foodborneoutbreaks/reporting_outbreak.htm. Forty-eight states and territories have reported cases to CDC using the COVISS report form. Though relatively incomplete and possibly non-representative, information collected in COVISS is used by CDC and other agencies, including FDA's Shellfish Sanitation Program in FDA risk assessment activities for *V. parahaemolyticus*. Information requested on the COVISS report form is more extensive than is included in NEDSS or compatible systems at this time. CDC requests that the COVISS report form be completed for culture-confirmed vibriosis cases until such time as the COVISS reporting form is fully

A number of interventions to control *Vibrio* illness have been implemented. The Shellfish Sanitation Program has standards by which shellfish harvesting beds are closed, depending on the association with cases of human illness or water quality standards. Starting in 2003, California restricted the sale of oysters harvested from the Gulf Coast during April through October to those that have received a post-harvest treatment process. In response to *Vibrio* illness associated with shellfish, the shellfish industry has developed post-harvest treatments for raw shellfish to reduce *Vibrio* contamination, such as pressure pasteurization. Nationally notifiable diseases surveillance would provide important measures for assessing the public health impact of these interventions.

The pathogenic potential and epidemiology of some *Vibrio* species are poorly documented. Enhanced surveillance for all *Vibrio* species would increase our knowledge of the burden and epidemiology of these potential pathogens.

Surveillance for *Vibrio* illnesses in COVISS has proven very helpful in a number of ways. Especially with the advent of new interventions, it is important to enhance this surveillance within the Nationally Notifiable Diseases Surveillance System to better describe the epidemiology of *Vibrio* illnesses and to better assess the effectiveness of interventions over time. The implementation of the National Electronic Diseases Surveillance System (NEDSS), or compatible systems, enables the collection of vibriosis case surveillance characterized by species. Future integration of NEDSS and COVISS will allow efficient surveillance within the National Notifiable Diseases Surveillance System.

References:

1. Mead PS, Slutsker L, Dietz V, et al. Food-related illness and death in the United States. *Emerg Infect Dis* 1999;5:607-25.
2. Cholera and Other Vibrio Illnesses Surveillance System Annual Summaries. Available at: http://www.cdc.gov/foodborneoutbreaks/vibrio_sum.htm.

