

# Enterotoxigenic *Escherichia coli* (ETEC)

## Investigative Guidelines

October 2018

### 1. DISEASE REPORTING

#### 1.1 Purpose of Reporting and Surveillance

1. To assess the burden of this infection.
2. To identify potential outbreaks and potential sources and sites of ongoing transmission.
3. To better characterize the epidemiology of this infection.

#### 1.2 Laboratory and Physician Reporting Requirements

Laboratories, physicians and other clinical providers must report confirmed or suspected cases to the Local Public Health Authority (LPHA) and within one working day of identification or diagnosis.

#### 1.3 Local Health Department Reporting and Follow-Up Responsibilities

1. Report all confirmed and presumptive (but not suspect) cases (see definitions below) to the Oregon Public Health Division (PHD) by the end of the calendar week of initial physician or lab report. See §3 for case definitions.
2. Interviewing confirmed or presumptive cases is optional, but encouraged. Identify other potentially exposed persons and educate them about the signs and symptoms of illness. Offer testing at the Oregon State Public Health Laboratory (OSPHL) as appropriate. Enter all data into Orpheus by the end of the week.
4. For recognized outbreaks, report to PHD within one day, complete investigation in conjunction with the assigned Acute and Communicable Disease Prevention (ACDP) epidemiologist, and complete the outbreak summary report within 30 days of last case onset.

### 2. THE DISEASE AND ITS EPIDEMIOLOGY

#### 2.1 Etiologic Agent

Enterotoxigenic *Escherichia coli* (ETEC) is an important bacterial cause of diarrheal illness in developing countries, especially among children. It is typically transmitted via food or water and is a classic cause of traveler's diarrhea. ETEC generate toxins that induce the intestines to secrete excessive fluid, resulting in watery diarrhea. (These toxins are unrelated to the shiga toxins produced by *E.*

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*coli* O157 and other enterohemorrhagic strains.) ETEC may produce either or both of two types of toxins: a heat-stable toxin (ST) and a heat-labile toxin (LT).. Two serotypes of *E. coli* have been implicated in most North American ETEC outbreaks: O6:H16 and O169:H41.

### 2.2 Description of Illness

Infection generally causes profuse, watery diarrhea and abdominal cramping, but mild infections also occur. Less common symptoms include fever, nausea, vomiting, chills, loss of appetite, headache, myalgia, dehydration and bloating. The incubation period is typically 10–72 hours, and illness resolves in less than 5 days. However, symptoms can persist for up to three weeks. Treatment is supportive—viz., hydration.

### 2.3 Reservoirs

Although animals can harbor ETEC, humans are the main reservoir of human illnesses.

### 2.4 Modes of Transmission

Transmission is fecal-oral. Most recognized outbreaks to date have been through food or water contamination. Transmission directly from person to person is thought to be rare.

### 2.6 Period of Communicability

As long as the bacterium is being shed, which may be prolonged.

### 2.7 Treatment

Most people with healthy immune systems will recover without treatment. Oral rehydration should be encouraged if they are experiencing diarrhea.

Antibiotics can shorten the duration of diarrhea, but are generally not required. Resistance to common antibiotics has been seen. Fluoroquinolones (e.g., ciprofloxacin) have been shown to reduce symptom duration.

## 3. CASE DEFINITIONS, DIAGNOSIS AND LABORATORY SERVICES

### 3.1 Confirmed Case Definition

Anyone with ETEC isolated in culture from a fecal specimen.

### 3.2 Presumptive Case Definitions

Person with diarrheal illness epidemiologically linked to a confirmed case, or detection of ETEC toxin gene by a nucleic acid test.

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### 3.4 Services Available at the Oregon State Public Health Laboratory (OSPHL)

With ACDP approval, OSPHL can test fecal specimens for genes of ETEC and other pathogens using multiplex PCR—but it's expensive. In outbreak settings, ETEC isolates could be sent to CDC for serotyping.

## 4. ROUTINE CASE INVESTIGATION

Resources permitting, interview the case (or parents) and others who may be able to provide pertinent information regarding potential exposures—especially international travel—and regarding others who might be similarly ill.

## REFERENCES

CDC website: [www.cdc.gov/ecoli/etec.html](http://www.cdc.gov/ecoli/etec.html)

Enterotoxigenic *Escherichia coli* in Developing Countries: Epidemiology, Microbiology, Clinical Features, Treatment and Prevention.  
[www.ncbi.nlm.nih.gov/pmc/articles/PMC1195967](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1195967)

## UPDATE LOG

Created October 2018 (June Bancroft)