

## YERSINIOSIS

### REPORTING INFORMATION

- **Class B:** Report by the end of the next business day in which the case or suspected case presents and/or a positive laboratory result to the local public health department where the patient resides. If patient residence is unknown, report to the local public health department in which the reporting health care provider or laboratory is located.
- Reporting Form(s) and/or Mechanism:
  - The Ohio Disease Reporting System (ODRS) should be used to report lab findings to the Ohio Department of Health (ODH). For healthcare providers without access to ODRS, you may use the [Ohio Confidential Reportable Disease form](#) (HEA 3334).
  - The [Enteric Case Report](#) may be useful in local health department follow-up of cases. Do not send this report to the Ohio Department of Health (ODH); it is for local health department use only.
- Key fields for ODRS reporting include: sensitive occupation (e.g. direct patient care, child care provider, food handler), sensitive setting (e.g. day care or preschool attendee, long term care facility resident), fields included under the Symptoms section, Food History module and Travel and Other Exposures module.

### AGENT

*Yersinia enterocolitica* and *Yersinia pseudotuberculosis*, Gram-negative bacilli.

#### Infectious Dose

Generally believed to be large, approximately 10<sup>9</sup> organisms.

### CASE DEFINITION

#### Clinical Case Definition

The Centers for Disease Control and Prevention (CDC) has not established a case definition for yersiniosis. Reports should be based upon the clinical signs and symptoms and the laboratory criteria described below. Infection may result in acute watery diarrhea, fever, headache and vomiting. The abdominal pain may mimic that of appendicitis.

#### Laboratory Criteria for Diagnosis

Isolation of *Yersinia sp.* from a clinical specimen.

#### Case Classification

**Suspected\*:** A clinically compatible case that is not yet laboratory confirmed and is not epidemiologically linked to a confirmed case.

**Probable:** A clinically compatible case that is epidemiologically linked to a laboratory confirmed case.

**Confirmed:** A case that is laboratory confirmed.

**Not a Case:** This status will not generally be used when reporting a case, but may be used to reclassify a report if investigation revealed that it was not a case.

#### Comment

Both asymptomatic infections and infections at sites other than the gastrointestinal tract, if laboratory confirmed, are considered confirmed cases that should be reported.

\*This case classification can be used for initial reporting purposes to ODH as CDC has

not developed a classification.

## **SIGNS AND SYMPTOMS**

An acute gastrointestinal illness characterized by headache, watery diarrhea, fever and vomiting. Infection can progress from gastroenteritis to septicemia or a focal infection (e.g. arthritis, cutaneous ulceration, osteomyelitis).

## **DIAGNOSIS**

Yersiniosis is diagnosed by isolating the organism from stool, blood or other body fluid. Serology tests are not useful for diagnosis. Most hospital laboratories have the ability to identify *Yersinia*. ODH Laboratory performs testing for yersiniosis. In some circumstances testing can be done at the ODH Laboratory without charge. To obtain a fee exemption and arrange for receipt of the stool transport kit, contact the ODH Bureau of Infectious Diseases Outbreak Response and Bioterrorism Investigation Team (ORBIT) at 614-995-5599.

## **EPIDEMIOLOGY**

### **Source**

Wild and domesticated birds and mammals (often asymptomatic) are the reservoir of *Yersinia*. Pigs are the principal reservoir for *Y. enterocolitica*, harboring it in the pharynx. Sick puppies and kittens have been found in association with human cases. Food and water can be contaminated with *Yersinia* from animals or their waste.

### **Occurrence**

Yersiniosis occurs worldwide. In Ohio, there are <60 cases reported annually. All ages are at risk, but most cases are <5 years of age. The highest isolation rates have been reported during the cold season in temperate climates, including northern Europe, North America, and temperate regions of South America.

### **Mode of Transmission**

Humans can acquire *Yersinia* directly (via the fecal-oral route) from infected humans or animals (e.g. pets, livestock) or from ingestion of contaminated food or water. A wide variety of foods have been found contaminated with *Yersinia*. Pork chitterlings have been implicated. Transmission via transfused blood from asymptomatic or recently ill donors has also been reported. *Y. enterocolitica* can multiply under refrigeration and there is an increased risk of infection if uncured meat that was stored in plastic bags is undercooked.

### **Period of Communicability**

*Yersinia* is shed in the feces while the patient is acutely ill and perhaps for a week or two after symptoms end. Untreated patients may shed the organism for 2-3 months.

### **Incubation Period**

The incubation period is 3-10 days, usually 3-7 days.

## **PUBLIC HEALTH MANAGEMENT**

### **Case**

#### Investigation

All cases reported to the local health department should initially be followed up with a telephone call to obtain demographic and epidemiologic data. No further work-up is recommended if neither the case nor any household member is employed in a sensitive occupation (direct food handling, direct patient care, employee in child care center who handles food or directly cares for children) or attends a child care center, unless there is evidence that the case is part of an outbreak.

### Treatment

Antimicrobial treatment is indicated for cases of septicemia or other invasive infections. Antibiotics may be helpful with gastrointestinal disease and should shorten the duration of shedding.

### Isolation and Follow-up Specimens

Ohio Administrative Code (OAC) 3701-3-13 (FF) states:

“Yersiniosis: a person with yersiniosis who attends a child care center or works in a sensitive occupation shall be excluded from the child center or work in the sensitive occupation and may return when the following conditions are met:

- 1) A child may return to the child care center after diarrhea has ceased.
- 2) A person may return to work in a sensitive occupation after diarrhea has ceased, provided that his or her duties do not include food handling.
- 3) A food handler may return to work after diarrhea has ceased and two consecutive follow-up stool specimens are negative for *Yersinia*.”

Obtain the first specimen no sooner than 48 hours after cessation of diarrhea or, if being treated, at least 48 hours after completion of antibiotic therapy. Obtain the remaining specimen(s) at least 24 hours apart.

### **Contacts**

Any household member who has diarrhea and is employed in a sensitive occupation or attends a child care center should be tested for *Yersinia*.

### **Prevention and Control**

Hand washing prior to eating and food handling, after animal contact and after handling raw pork can prevent yersiniosis. All meat dishes should be thoroughly cooked. Avoid cross-contamination of food (especially raw fruits and vegetables) with raw meat juices.

After slaughter of a pig, the head and neck should be removed to avoid contamination from the pig’s pharynx.

### Food Handlers

Symptomatic persons should be excluded from work. As detailed in Isolation, above, food handlers may only return to work after diarrhea has ceased and two consecutive follow-up stool specimens are negative for *Yersinia*.

Food Service Operation rules also pertain. Yersiniosis is a disease which can be transmitted through food. Persons infected with a disease that is communicable by food are not permitted to work as a food handler. For additional information, refer to Ohio Administrative Code (OAC) Chapter 3717-1 (Ohio Uniform Food Safety Code) Section 02.1, Management and Personnel: Employee Health.

### Healthcare Workers, Child Care Workers, and Children Who Attend Child Care Centers

Symptomatic persons shall be excluded from work. As detailed in Isolation above, children who attend child care centers and persons who work in sensitive occupations may return when diarrhea has ceased, provided their duties do not include food handling.

### Child Care Center Outbreak Control

Whenever a case of yersiniosis has been identified in a child care center attendee or worker, staff and children who are symptomatic and in the same classroom as the case should be cultured for *Yersinia*. Arrangements to have this testing done at ODH Laboratory can be made by contacting ODH ORBIT at 614-995-5599.

**Special Information**

Persons with diarrhea of infectious or unknown cause (e.g. confirmed or suspected cases of yersiniosis) are not permitted to work in sensitive occupations, according to OAC 3701-3-13 (H), which states: "Diarrhea, infectious or of unknown cause: a person with diarrhea, of infectious or unknown cause, who attends a child care center or works in a sensitive occupation shall be excluded from the child care center or work in the sensitive occupation and may return only after diarrhea has ceased. A person with infectious diarrhea of known cause shall be isolated in accordance with the provisions of the rule set forth for the specific disease." " 'Sensitive occupation' means direct food handling, direct patient care, the handling of food or provision of direct care to children in a child care center or any other occupation which provides significant opportunity for an infected individual to transmit infectious disease agents" per OAC 3701-3-01 (Y).

**Dishes Containing Pork**

It is especially hazardous for infants and small children to be around the preparation of dishes containing pork (e.g. pork chitterlings). Adults should be especially careful not to contaminate a baby's bottle, food or immediate environment with raw pork when preparing these dishes.

**What is yersiniosis?**

Yersiniosis is a bacterial disease that may cause diarrhea, fever and vomiting. The illness may last several days to a week and might require hospitalization.

**Who gets yersiniosis?**

Persons of any age can get yersiniosis. The disease is more common in children under 5 and adults over 60 years of age.

**How is yersiniosis spread?**

People can get yersiniosis from contact with the feces of infected birds or mammals, such as kittens, puppies or other animals, wild or domesticated. Pigs are considered primary hosts of the most common strain of *Yersinia*. People may also acquire *Yersinia* from raw pork or food contaminated by raw pork juices.

**How is *Yersinia* diagnosed?**

Generally through a stool sample, but sometimes it is found by blood culture.

**How is *Yersinia* treated?**

A doctor may treat *Yersinia* with antibiotics, depending upon the patient's medical condition.

**How can I avoid getting *Yersinia*?**

Wash hands well after handling animals or raw meat (especially pork), before handling food and before eating. Cook all meat dishes thoroughly and take care to avoid contaminating other food with raw meat juices.

NOTE: Adults preparing dishes containing pork (for example, chitterlings) should be especially careful not to contaminate the food, drink or immediate environment of small children, especially infants, with raw pork.