Yersiniosis

1. DISEASE REPORTING

1.1. Purpose of Reporting and Surveillance

1. To identify sources of infection and to prevent further disease transmission from such sources.
2. To assess the risk of the case transmitting infection to others, and to prevent such transmission.
3. To identify other cases.

1.2. Laboratory and Physician Reporting Requirements

Laboratories and physicians are required to report yersiniosis within one working day of identification/diagnosis to the local health departments. Reports should not be delayed for serotyping or final laboratory confirmation. Laboratories must forward isolates to the OSPHL.

1.3. Local Health Department Reporting and Follow-up Responsibilities

1. Report all confirmed and presumptive (but not suspect) cases to OPHD (see definitions below) by the end of the calendar week of initial physician/lab report.
2. Begin follow-up investigation within one working day. Use the Yersiniosis Case Investigation Report.

2. THE DISEASE AND ITS EPIDEMIOLOGY

2.1. Etiologic Agent

*Yersinia* is a gram-negative bacillus. In this country, intestinal infection in humans is caused by *Y. enterocolitica* and less commonly by *Y. pseudotuberculosis*. For both species, serotypes causing disease may vary in different geographic areas; *Y. enterocolitica* type O3 is responsible for most outbreaks in the United States.

2.2. Description of Illness

Yersiniosis is an acute intestinal infection typically occurring as acute febrile diarrhea (especially in young children) which may be bloody. Involvement of abdominal lymph nodes causing right-sided abdominal symptoms may be mistaken for appendicitis (especially in older children and adults). Complications include erythema nodosum (in about 10% of adults, particularly women), postinfectious arthritis (with a predilection for HLA-B27 genetic type), and bloodstream infection. These complications tend to resolve within a few months. Septicemia occurs most often among people with iron overload (e.g., hemochromatosis) or those with underlying immunosuppressive illness or therapy.
2.3. Reservoirs

Animals are the principal reservoir for Yersinia. The pig is the principal reservoir for pathogenic Y. enterocolitica; asymptomatic pharyngeal carriage is common in swine, especially in the winter. Y. pseudotuberculosis is widespread among many species of avian and mammalian hosts, particularly among rodents and other small mammals.

2.4. Modes of transmission

Transmission takes place by eating and drinking contaminated food or water, or by contact with infected animals or less commonly infected people. Y. enterocolitica has been isolated from a variety of foods; however, pathogenic strains are most commonly isolated from raw pork or pork products. In the United States, preparation of chitterlings (pork intestines) in the household may result in infection. In contrast to most foodborne pathogens, Y. enterocolitica is able to multiply under refrigeration and low oxygen conditions. Y. enterocolitica has been recovered from natural bodies of water. Sick animals have been implicated including farm animals and pets such as kittens and puppies. Nosocomial infection has been reported, as well as rare reports of transmission by blood transfusion from donors who had no symptoms or mild gastrointestinal illness.

2.5. Incubation period

Probably 3–7 days, generally under 10 days.

2.6. Period of communicability

Although bacterial shedding occurs with diarrhea and may persist for a prolonged period after symptoms resolve, secondary transmission is rare.

2.7. Treatment

Uncomplicated cases of diarrhea due to Y. enterocolitica typically resolve without antibiotic treatment. However, in more severe or complicated infections, antibiotics such as aminoglycosides, doxycycline, trimethoprim-sulfamethoxazole, or fluoroquinolones may be useful. The organism is usually resistant to penicillin and first generation cephalosporins.

3. CASE DEFINITIONS, DIAGNOSIS, AND LABORATORY SERVICES

3.1. Confirmed Case Definition

Anyone with Yersinia cultured.

3.2. Presumptive Case Definition

Compatible illness (diarrhea and fever) in someone epidemiologically linked to a confirmed case.

3.3. Suspect Case (not reportable to OPHD)

Anyone with an undiagnosed febrile diarrheal illness.
3.4. Services Available at OSPHL

The OSPHL provides isolate identification, serotyping, and stool culturing for Yersinia species (test must specifically be requested). For isolate identification, submit a pure isolate of the organism growing on an agar slant that will support growth (e.g., nutrient or blood agar). A swab with stool on it, completely submerged in a Cary-Blair tube, is required for stool culturing. Both specimens may be sent without a cold pack. All specimens must be properly packaged in double containers with absorbent material around them. Use the Bacteriology/Parasitology form (#60). The OSPHL began using bar-coded labels with assigned numbers on test requisition forms starting early May 2009. The new bar-coded forms are available only by ordering using the Stockroom Order Request form (#71-54) (http://oregon.gov/DHS/ph/phl/docs/stock3.pdf) or call 503-693-4100 to order by phone.

4. ROUTINE CASE INVESTIGATION

4.1. Case Interview

1. Identify Possible Source of Infection

Ask about the following exposures in the 2–10 days prior to onset:

- Consumption of raw pork
- Consumption of chitterlings
- Consumption of tofu
- Consumption of unpasteurized milk or unpasteurized dairy products (e.g., soft cheeses made with raw milk)
- Handling or preparation of raw pork in the household, including chitterlings (pig intestines)
- Contact with pigs
- Contact with other animals including pet dogs, cats, rodents and birds
- Blood transfusion
- Name, date, and location of meals eaten at restaurant or public gatherings

4.2. Identify Potentially Exposed Persons

Collect name, age, onset date, and contact information of people with similar illness.

4.3. Environmental Evaluation

An environmental evaluation is usually not needed since the source of the infection is rarely determined with certainty.
5. CONTROLLING FURTHER SPREAD

5.1 Patient/Household Education

1. Basic instruction about hand washing after defecation or diaper changing and before food preparation should be provided to cases and potentially exposed contacts.
2. As indicated, provide other pointers about minimizing fecal exposure in daily life.

5.2 Isolation of Case

Standard precautions are adequate to prevent transmission of yersiniosis.

5.3. Occupational Restrictions

Work or child care restrictions: Food handlers, child care attendees and providers, and health care personnel with diarrhea should be excluded from work while symptomatic; however, no specific measures are needed to prevent or control transmission from asymptomatic carriers.

5.4. Restrictions on Household Contacts

None

5.5. Follow Up Stool Cultures

Routine follow-up cultures are not indicated.

5.6. Environmental Measures

In outbreak situations, implicated food products will be recalled.

6. MANAGING SPECIAL SITUATIONS

6.1 Outbreaks

Although rare, yersiniosis outbreaks are important to identify and investigate, particularly if young children are affected. However, such investigations are difficult, require special questionnaires and active surveillance, and may involve complex environmental evaluations. Consultation with OPHD is essential before beginning any special investigation.