Toledo-Lucas County Health Department Standard Operating Procedure

Infectious Disease SOP— Plague

Original Effective Date:	Review / Revision Date:	Environmental Health Procedure:
8/2008	7/20/17	2017.07.011

Maintenance Steward: Epidemiology Supervisor History: ☐ New ☐ Revised ☐ Archived

Organizational Scope:

☐ Full Agency ☒ Administration ☒ Community Services ☒ Environmental Health ☐ Health Services

Frequency of Review:

☐ Annually ☒ Biennially ☐ 5 Years ☒ As Needed ☐ Other:

Location:

S-Drive: S: → Users → Common → Policies & Procedures

Website: www.lucascountyhealth.com/employee-login/

Hardcopy: Environmental Health and Community Services Director's Office

Archived Version(s): S:\CSRP\SOGs\Archives

Requisite Signatures

☒	Medical Director	Date: 7-20-17
☒	Health Commissioner	Date: 07-20-17
☒	Director of Environmental Health & Community Services	Date: 7/20/2017

Infectious Disease SOP— Plague

I. Policy

It is the policy of the Toledo-Lucas County Health Department (TLCHD) to adhere to all state, federal, and local statutes governing the management and case investigation of individual communicable disease cases and outbreaks within Lucas County.

II. Scope

This standard procedure applies to the Infectious Disease Program when investigating one case of plague. When an outbreak occurs, call ODH ORBIT. In an outbreak, refer to the "Epi and Surveillance OB Procedure."

III. Purpose

This procedure/process establishes guidelines for plague investigations. Per the Ohio Administrative Code (OAC) 3701-3, plague is a Class A disease and must be reported immediately via telephone according to 3701-3-02, 3701-3-03, 3701-3-04, and 3701-3-05 of the Administrative Code.

IV. Background

Plague is caused by *Yersinia pestis*, the plague bacillus, gram-negative coccobacillus, enterobacteriaceae. A single bite from an infectious flea can be enough to deliver an infectious dose. Inhalation of a droplet of infectious mucous from a pneumonic plague patient can also cause infection. Bubonic plague accounts for 90%-95% of cases and is characterized by lymphadenopathy and fever with malaise, nausea, vomiting, and diarrhea. Involvement of the lung is very rare but can result in a highly contagious pneumonic form. Untreated bubonic plague has a case fatality rate of 50%-60% whereas untreated pneumonic plague has a nearly 100% case fatality rate.

Plague is a worldwide zoonosis with an endemic foci in Africa, Asia, South America, and the western US. Approximately 90% of cases reported in the US are from New Mexico, Arizona, California, and Colorado. The pneumonic form of plague is spread through airborne droplets whereas the bubonic form is transmitted through the bite of an infected flea and by handling infected tissues. There is no carrier state for the disease and the bubonic form is not transmitted from person-to-person. Only the pneumonic form is highly contagious. The incubation period ranges from less than one day to seven days.

Specimens should be obtained for evidence of plague if a person resides in or has recently traveled to plague-infested areas, has been bitten by fleas, and presents with symptoms suggestive of plague. The preferred specimen for microscopic examination and isolation from a bubonic case is material from the affected bubo, which should contain numerous organisms. Blood cultures should

be taken whenever possible and specimens intended for culture should be taken BEFORE initiation of antibiotic therapy.

V. Case Definition

A. Clinical Description

1. The disease is characterized by fever, chills, malaise, prostration, and leukocytosis that manifest in one or more of the following principal forms:
    a. Regional lymphadenitis (bubonic plague)
    b. Septicemia without an evident bubo (septicemic plague)
    c. Plague pneumonia due to hematogenous spread in bubonic septicemic cases (secondary pneumonic plague) or inhalation of infectious droplets (primary pneumonic plague)
    d. Pharnygitis and cervical lymphadenitis resulting from exposure to larger infectious droplets or ingestion of infected tissues (pharyngeal plague)

B. Laboratory Criteria for Diagnosis

1. Presumptive
    a. Elevated serum antibody titer(s) to *Yersinia pestis* fraction 1 (F1) antigen (without documented fourfold or greater change) in a patient with no history of plague vaccination, OR
    b. Detection of F1 antigen in a clinical specimen by fluorescent assay
2. Confirmatory
    a. Isolation of *Yersinia pestis* from a clinical specimen, OR
    b. A fourfold or greater change in serum antibody to *Y. pestis* F1 antigen.

VI. Case Classification

A. Suspect:

1. A clinically compatible case without presumptive or confirmatory laboratory results

B. Probable:

1. A clinically compatible case with presumptive laboratory results.

C. Confirmed:

1. A clinically compatible case with confirmatory laboratory results.

D. Not a case:

1. This status is not generally used when reporting a case, but may be used to reclassify a report if investigation revealed it was not a case.

VII. Procedure

The procedure/process of the Infectious Disease Program is to ensure that all cases are investigated in the same format.

When a report is received, a member of the ID team will complete an interview of the contact using the CDC Plague Case Investigation Report, which can be found in S:\CSRP\SOGs\Plague.

Information collected from the form should be entered into ODRS AND faxed to ODH, Outbreak Response & Bioterrorism Investigation team at 614-564-2456. The mailing address for this form is: ODH, Outbreak Response & Bioterrorism Investigation team, ODH, 246 N. High St, Columbus, OH 43215.

A. Outbreak Response

1. Call ODH ORBIT at 614-995-5599 for guidance

B. Public Health Investigation Process

1. ODRS:
    a. Check to see if the patient is entered into ODRS. If not, enter the patient into ODRS
    b. Key fields for ODRS reporting include:
        i. Import status
        ii. Date of illness onset
        iii. All fields in the Epidemiology module
2. Investigation
    a. Case investigation should start as soon as possible following notification.
    b. Contact the patient's provider and/or hospital to obtain demographic information, symptoms, date of onset of symptoms, pertinent test results, and travel history.
        i. If there are multiple cases, consider terrorist activity.
            1) Call JTTF/FBI Immediately if terrorist activity is suspected
                a) Local FBI Contact: Louie Espinosa—419-779-6600 or lespinosa@fbi.gov
    c. Once the provider and/or hospital ICP has been contacted call the patient/parent and complete the interview.
        i. Provide education from the fact sheet on the IDCM website at http://www.odh.ohio.gov/pdf/IDCM/plague.pdf. This information is also located in S:\CSRP\SOGs\Plague.
            1) If no one answers, leave a message requesting a call back.
            2) Mail an informational letter requesting a callback.
            3) Continue to attempt phone contact with the patient for three more times in the span of 48 hours after the informational letter was sent.
            4) A travel history for 2 weeks prior to the illness should be reviewed.
            5) After interview is completed, ask the patient/parent whether they would like more information. If they express an interest, ask what the best method to deliver the information would be (e.g. e-mail, mail, etc.)
    d. Once information is obtained about case, inform the following agencies, as plague is a select agent reportable under 7CFR Part 331, 9 CFR Part 121, and 42 CFR Part 73:
        i. Local FBI Contact: Louie Espinosa—419-779-6600 or lespinosa@fbi.gov
3. Treatment
    a. Parenteral forms of the antimicrobials streptomycin or gentamicin are recommended, but a number of other antimicrobials are also effective.
4. Isolation/Follow Up Specimens

a. Ohio Administrative Code (OAC) 3701-3-13 (S) states: “a person with plague shall be placed in droplet precaution until completion of 48 hours of effective antimicrobial therapy.”
b. Cases of pneumonic plague should be held in strict respiratory isolation.
c. Bubonic cases with no cough and a negative chest X-ray need only mask and gown isolation precautions.
d. One serum specimen should be taken as early in the illness as possible to be followed by a second sample 1-4 months after antibiotic therapy has ceased.

5. Prophylaxis
    a. Post-exposure prophylaxis may be recommended for persons who may have been exposed to the *Y. pestis* bacteria.
    b. Plague vaccine is no longer commercially available due to the short period of effectiveness and its many side effects.
6. Contacts (Exclusion)
    a. Persons exposed to plague patients who have pneumonia or *Y. pestis* aerosols in the laboratory should be given 7-10 days course of antimicrobial therapy regardless of vaccination history.
7. Notification
    a. Notify TLCHD contacts immediately after investigation with patient (in sequential order)
        i. Supervisor of Epidemiology
        ii. Director of Community Services and Environmental Health
        iii. Medical Director
        iv. Health Commissioner
    b. Public health recommendations and interventions will be shared with the public by the PIO or to specific individuals within 6 hours of identification of the agent as determined by ODH and supervisory staff at the local health department. An OPHCS alert will be distributed within 12 hours of a positive test result as determined by supervisory local health department staff and ODH.
8. Documentation
    a. Enter information into ODRS as it is obtained.
    b. Include a note documenting investigation, education, and intervention.

        Sample: Spoke with mother by phone on [date]. EDUCATION: Reviewed disease facts, transmission, and symptoms. DISEASE COURSE: Client has history of [medical conditions] and started [symptoms] on [date]. Started [treatment] on [date]. HOUSEHOLD: HH contacts include [relationships]. All are [asymptomatic/symptomatic] [Include information about sensitive settings for HH contacts]. OCCUPATION: [job] TRAVEL HISTORY: [Include information about travel history within the past 2-3 weeks]. MAILING: Mailed fact sheet and cover letter to home address.

    c. Include a note for each occupation, activity, or other notification and any actions taken.
9. Closing a case

a. Ensure that all available information is entered into ODRS before closing. Close case and print record. Staple with investigation sheet and any related documents and file in the appropriate file drawer for the current year located in the CSRP office.

VIII. Appendices

None

IX. Reference/Investigation Forms

A. Plague Disease Factsheet is located in S:\CSRP\SOGs\Plague.

B. For additional information please refer to the ODH IDCM at http://www.odh.ohio.gov/pdf/IDCM/plague.pdf

X. Maintenance

A. Review

1. The Infectious Disease standard operating procedures are to be reviewed every other year or as needed to ensure compliance with both agency and accreditation standards.

2. If guidance/recommendations from the Centers for Disease Control, Ohio Department of Health or law changes regarding this infectious disease, TLCHD will follow the most up-to-date guidance and adjust the SOP(s) as needed.

B. Revision

1. All changes made to this SOP are to be noted on the **Record of Change.** Substantial changes will require renewed signatures from all applicable parties. This includes changes to the intent, scope, procedures, or policy statement.

2. Changes in style, format, grammar or minor error correction will not require renewed signatures but must be indicated on the Record of Change.

Record of Change

(Required for all procedures)

Date of Change	Changes Made By	Changes Made/Notes	Approved By