Kansas
Department of Health and Environment
Division of Health

Plague
Investigation Guideline

Contents

Attachments can be accessed through the Adobe Reader's navigation panel for attachments. Throughout this document attachment links are indicated by this symbol; when the link is activated in Adobe Reader it will open the attachments navigation panel. The link may not work when using PDF readers other than Standard Adobe Reader.

Revision History:

Date	Replaced	Comments
08/2015	07/2012	Added table of contents and included notes on attachments. Updated links included the new CDC form with updates Case Investigation Section in reference to new form. Reformatted Standard Case Investigation section to assist with EpiTrax system data entry. Edits to Laboratory Analysis.
07/2012	07/2009	Changed format. Added notification section. Updated fact sheet.
02/2012	-	Removed references to KS-EDSS.

Plague
Disease Management and Investigative Guidelines

CASE DEFINITION (CDC 1996)

Clinical Description for Public Health Surveillance:

Characterized by fever, chills, headache, malaise, prostration, and leukocytosis that manifests in one or more of the following principal clinical forms:

- Regional lymphadenitis (bubonic plague)
- Septicemia without an evident bubo (septicemic plague)
- Plague pneumonia, resulting from hematogenous spread in bubonic or septicemic cases (secondary pneumonic plague) or inhalation of infectious droplets (primary pneumonic plague)
- Pharyngitis and cervical lymphadenitis resulting from exposure to larger infectious droplets or ingestion of infected tissues (pharyngeal plague).

Laboratory Criteria for Public Health Surveillance:

Confirmatory:

- Isolation of *Y. pestis* from a clinical specimen or
- Fourfold or greater change in serum antibody titer to *Y. pestis* F1 antigen.

Presumptive:

- 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**
- Detection of F1 antigen in a clinical specimen by fluorescent assay.

Case Classification:

Confirmed: A clinically compatible case with confirmatory laboratory results.

Probable: A clinically compatible case with presumptive laboratory results.

Suspect: A clinically compatible case without presumptive or confirmatory laboratory results.

LABORATORY ANALYSIS

***Important*:** Contact KDHE-BEPHI (1-877-427-7317) by phone within 4 hours of a plague case being suspected.

Alert laboratory personnel when plague (*Yersinia pestis*) is suspected; the laboratory needs to follow specific biosafety level (BSL) precautions.

- Cultures in which *Yersinia pestis* is suspected should be examined in a biological safety cabinet using BSL-3 or BSL-2 with BSL-3 precautions.
    - Because this organism may be detected in blood cultures, the same precautions should be used when working up positive blood cultures.
- Manipulation of the cultures and other procedures that might produce aerosols or droplets should also be conducted in a biological safety cabinet.
- Do not use automated or kit-based systems for identification or susceptibility testing.

Services available from Kansas Health and Environmental Laboratories (KHEL):

- Isolates are not required by law to be sent to KHEL.
- KHEL does offers confirmatory testing of suspected *Y. pestis* isolates by standard culture methods. Contact KHEL (785) 296-2600 before sending.
- KHEL can assist with shipping serum samples for serological testing at CDC

for difficult or unusual cases, but CDC must agree to any testing prior to submission of serum to KHEL.

Upon verification of *Y. pestis*:

- Any laboratory handling any specimens or isolates must use appropriate forms to report the identification of the select agent and of the final disposition of that agent and specimens, as well as any seizure of the select agents or toxins by federal law enforcement agencies.
- Refer to: www.selectagents.gov/Forms.html

For additional information and/or questions concerning isolate submission, specimen collection/transport, and laboratory kits call (785) 296-1620 or refer to online guidance at www.kdheks.gov/labs/lab_ref_guide.htm.

EPIDEMIOLOGY

Plague was introduced into the United States by rat-infested ships in 1900. Epidemics occurred in port cities with the last urban epidemic and person-to-person transmission recorded in 1924. Plague then spread from urban rats to rural rodent species, and is now in many areas of the western United States. Most human cases in the United States occur in two regions: 1) northern New Mexico, northern Arizona, and southern Colorado and 2) California, southern Oregon, and far western Nevada. In the United States, an average of seven human plague cases are reported each year (range 1-17 cases per year) with 80% of the cases as the bubonic form. In wildlife, plague occurs primarily in ground squirrels, prairie dogs and other rodents. Sporadic human cases usually occur after exposure to the wild rodents or their fleas. Domestic cats have also been a source of five instances of primary plague pneumonia through cat-to-human transmission. Worldwide epidemics have occurred in Africa, Asia, and South America with the most human cases since the 1990s occurring in Africa.

DISEASE OVERVIEW

A. Agent:
A zoonotic disease caused by the gram-negative bacillus *Yersinia pestis.*

B. Clinical Description:
Three distinct types of plague: bubonic, pneumonic and septicemic. The initial symptoms are nonspecific and include: fever, chills, malaise, myalgia, nausea, sore throat, headaches, and weakness. Untreated bubonic plague has a case fatality rate of 50-60%; untreated pneumonic and septicemic are always fatal.

- Bubonic plague: An acute lymphadenitis in the lymph nodes that drain the fleabite site. Nodes become swollen, tender and may produce pus. Dissemination of the infection may result in septicemia and/or pneumonic plague presentations.
- Pneumonic plague: Inhalation of respiratory droplets or artificially generated aerosols (i.e., bioterrorism) causing pneumonia with pleural effusion. It is a highly contagious disease that may lead to localized outbreaks.
- Septicemic plague: Dissemination of the infection into the bloodstream.

C. Reservoirs:
Wild rodents and their fleas carry *Y. pestis.* Lagomorphs (i.e., rabbits and hares), wild carnivores and domestic cats may also be a source of infection.

D. Mode(s) of Transmission:
Bubonic plague is transmitted through the bite of an infected flea or by handling the tissue of an infected animal. Pneumonic plague is transmitted by direct contact with respiratory droplets or sputum of an infected person and/or animal or through the intentional release of *Y. pestis* by terrorists.

E. Incubation Period: (Source: CCDM, 2015)
Ranges between 1-7 days but may be a few days longer in immunized persons. For primary pneumonic plague, it is shorter lasting 1-4 days.

F. Period of Communicability:
Pneumonic plague cases considered infectious throughout their symptomatic illness until 48 hours following initiation of appropriate antibiotic therapy. Any discharge from bubonic plague lesions should be considered infectious.

G. Susceptibility and Resistance:
Natural infection provides temporary immunity. Immunization provides immunity that is believed to be of short benefit (i.e., approx. 6 months).

H. Treatment
It is important to begin appropriate therapy as soon as plague is suspected. The drugs of choice are streptomycin or gentamicin, but tetracyclines, fluoroquinolones and chloramphenicol are also effective.
Levofloxacin has been FDA approved for treatment of plague.

NOTIFICATION TO PUBLIC HEALTH AUTHORITIES

As infectious or contagious in their nature, all confirmed or ***suspected*** plague cases shall be reported within **4 hours by phone**:

1. Health care providers and hospitals: report to the local public health jurisdiction or KDHE-BEPHI (see below)
2. Local public health jurisdiction: report to KDHE-BEPHI (see below)
3. Laboratories: report to KDHE-BEPHI (see below)
4. KDHE-BEPHI will contact the local public health jurisdiction by phone within one hour of receiving a report.

Kansas Department of Health and Environment (KDHE)
Bureau of Epidemiology and Public Health Informatics (BEPHI)
Phone: 1-877-427-7317

- *The local public health jurisdiction will report information requested in the Kansas electronic surveillance system, as soon as possible, ensuring that the electronic form is completed within 7 days of receiving a notification of a report.*

Further responsibilities of state and local health departments to the CDC:

As a nationally notifiable condition, plague cases require an IMMEDIATE, EXTREMELY URGENT or IMMEDIATE, URGENT report to the Center of Disease Control and Prevention (CDC), depending on the case's clinical presentation.

1. INTENTIONAL Plague requires **IMMEDIATE, EXTREMELY URGENT** reporting.
    - KDHE epidemiologist must call the CDC EOC at 770-488-7100 within 4 hours of a being notified of the confirmed case.

- KDHE-BEPHI will notify the **Local public health jurisdiction** immediately to coordinate on follow-up for the report information needed to complete the electronic form(s) before the next business day.
- KDHE-BEPHI will file an electronic case report the next business day.

2. NON-INTENTIONAL Plague cases require **IMMEDIATE, URGENT** reporting.
   - KDHE epidemiologist will call the CDC EOC at 770-488-7100 within 24 hours of a case meeting the confirmed criteria.
   - **Local public health jurisdiction** will report information requested on the disease reporting forms as soon as possible, completing the forms within 7 days of receiving a notification of a plague report.
   - KDHE-BEPHI will file an electronic case report the next regularly scheduled electronic transmission.
     (KDHE-BEPHI files electronic reports weekly with CDC.)

INVESTIGATOR RESPONSIBILITIES

1) Report all confirmed, probable and suspect cases to the KDHE-BEPHI.
2) Contact medical provider to collect additional information and confirm diagnosis using current case definition.
   - Collect all information requested in Step 1) of case investigation.
     - Plague CDC Case Reporting Form can help with data collection.
   - Establish whether symptoms and localized signs are present.
   - Ensure that case/proxy is aware of the diagnosis.
3) Conduct a case investigation to identify potential source of infection.
   - Review the Epidemiologic Investigation section of the CDC Case Reporting Form prior to interviews.
4) Conduct contact investigation to identify additional cases.
5) Identify whether the source of infection is major public health concern.
   - *Source is unknown, or bioterrorism or mass exposure is indicated?*
6) Initiate control and prevention measures to prevent spread of disease.
   - Conduct Case or Contact Management as needed.
   - Under Kansas regulations, close contacts of a pneumonic plague patient refusing prophylaxis must be placed under quarantine for 7 days following exposure.
7) Record data, collected during the investigation, in the KS EpiTrax system under the data's associated [tab] in the case morbidity report (CMR).
8) As appropriate, use the disease fact sheet for notification and education.

* Please note the red [tab] names listed in this investigation guideline are notations on the location in EpiTrax where the collected data should be recorded.

STANDARD CASE INVESTIGATION AND CONTROL METHODS

Case Investigation

1) Contact the medical provider who ordered testing of the case and obtain the following information. (This includes medical records for hospitalized patients.)
   - Initial symptom onset date (approximate if exact date is unknown) [Clinical]
   - Diagnosis date [Clinical]
   - Date first seen by medical provider (specify provider/facility) [Clinical]
   - Hospitalizations: location and duration of stay [Clinical]
   - Treatment: antibiotics received and start date [Clinical]
   - Pregnancy [Clinical]
   - Illness outcomes: Recovered or date of death [Clinical]
   - Immunocompromised, specify [Notes]
   - Symptoms, including fever/sweats/chills, confusion/delirium, vomiting/diarrhea/abdominal pain, sore throat, cough, chest pain, shortness of breath, or others [Notes].
   - Localized signs: bubo, insect bites/skin ulcer, infiltrates/nodules or pleural effusion on chest x-ray [Notes]
   - Primary clinical syndrome: Bubonic, Septicemic, Pneumonic, Pharyngeal, Meningitic, Gastrointestinal [Notes]
   - Secondary pneumonic plague: note if present [Notes]
   - Examine the laboratory testing that was reported. [Laboratory]
     - If needed, obtain copies of laboratory reports and/or medical records needed to confirm the case and attach copies to the EpiTrax record. [Add Attachment]
   - Collect case's demographics and contacting information (address, birth date, gender, race/ethnicity, primary language, and phone number(s)) [Demographic]
2) Interview the case or proxy to determine source and risk factors; focus on incubation period 2 weeks prior to illness onset.
   - Occupation; specific job duties, industry type and location. [Epidemiologic]
     - At risk occupations include outdoor occupations, camping, contact with animals, or laboratory worker.
   - Travel history 2 weeks prior to onset. [Notes]
     - Travel out of county or Kansas; list city/county/state and dates visited
     - Travel out of United States; list city/country and dates visited
   - Fleas or insect bites [Notes]
   - Wild animal contact; specify type of animal and nature of contact [Notes]
   - Domestic animal contact; specify type and nature of contact [Notes]
   - Exposure to known plague patient [Notes]
3) Examining the epidemiological information, record where the infection was most likely imported from. (Indigenous or out-of-county, out-of-state, or out-of-U.S.) [Epidemiologic]
4) Collect information from case for the Contact Investigation. (See below).
5) Investigate epi-links among cases (clusters, household, co-workers, etc).
   - For suspected outbreaks to Managing Special Situations section.

Contact Investigation

1) Contacts are defined as those with exposure to a known or suspected plague source, such as infected fleas or infectious tissues, blood, or exudate, in the previous 7 days.
   - Bubonic contact: Exposure to the fleas, blood or wound exudate, of a case or animal that has or is suspected of having bubonic plague.
   - Pneumonic contact: Within 2 meters (6 to 7 feet) of an infectious, coughing pneumonic plague patient or the patient's respiratory secretions in the past 7 days; this includes household or face-to-face contact.
2) Examine all potential exposures based on the possible source and potential modes of transmission to define who may be at-risk.
3) Identify at-risk contacts to identify if they are experiencing any symptoms. Refer to Contact Management.
4) If a risk of transmission exists a listing of contacts at-risk of developing disease should be entered into EpiTrax. [Contact]
   - Enter high risk contact on the [Contact] tab, indicate the disposition of contact (treatment, testing, or infection status), and contact type.
   - After the CMR is saved and updated successfully, click 'Edit' beside the contact on the listing to enter any further details on the contact.

Isolation, Work and Daycare Restrictions

K.A.R 28-1-6 for Plague (pneumonic):

- Each infected person shall remain in respiratory isolation until completion of 48 hours of antibiotic therapy.
- Each close contact who does not receive chemoprophylaxis shall remain in quarantine for seven days.

1) Pneumonic plague patients: strict respiratory droplet precautions until they have been on appropriate antimicrobial therapy for at least 48 hours.
   - Strict isolation includes: reverse air exchange, gown, gloves and mask. If the original hospital does not have these resources, arrangements to transfer the case to a facility with adequate resources should be made.
2) Pneumonic plague contacts that refuse chemoprophylaxis must be quarantined with careful surveillance for 7 days.
3) Bubonic plague patients with drainage: Managed with standard universal precautions up to 48 hours after the start of appropriate antibiotic treatment.
4) Bubonic plague contacts: No restrictions.

Case Management

1) Report on any changes in patient status (i.e., discharge, death). [Clinical]
2) For pneumonic case: Follow up to verify that the case has completed treatment and is no longer symptomatic
3) Rid patients living in rat- and flea-infested dwellings of fleas and treat their clothing and baggage with an appropriate insecticide.

Contact Management

Contact management strategies will depend on the type of contact: bubonic or pneumonic plague.

1) Monitor asymptomatic contacts for symptoms until 7 days after presumed exposure. (Also, use chemoprophylaxis in pneumonic plague situations.)
2) Symptomatic contacts are managed as follows:
   - Pneumonic plague: Contacts developing a fever or a new cough within 7 days of exposure.
     - Treat as a suspect case with proper isolation and restrictions.
     - Refer for medical care to promptly begin parenteral antibiotic treatment.
     - Notify the physician of the possible exposure to facilitate proper diagnosis and therapy.
   - Bubonic plague: Contacts with symptoms of plague including fever, flu like illness, or acute lymphadenitis developing within 7 days of exposure.
     - Strongly urged to contact their physician for a medical evaluation and are followed-up as suspect cases.
     - Ensure that the physician is made aware of possible exposure to facilitate proper therapy.
   - All symptomatic contacts should be upgraded to suspect cases in EpiTrax.
     - To upgrade the symptomatic contact to a case: click 'Show' beside the contact on the listing. With the View Contact open in show mode, select 'Promote to CMR'; update, as needed.
3) Chemoprophylaxis for asymptomatic pneumonic plague.
   - Chemoprophylaxis consists of a 7 day regimen of an appropriate antibiotic using tetracycline (2 g/day in 2 or 4 equal doses for adults; 25–50 mg/kg/day in 2 or 4 equal doses for children >8 years), doxycyline (100 mg twice daily for persons >45 kg; 2.2 mg/kg for those >8 years <45 kg), or chloramphenicol (30 mg/kg daily in 4 divided doses).
   - If the pneumonic plague contact refuses prophylaxis or is unable to take antibiotics because of contraindications, they must be maintained under quarantine for 7 days and placed on fever watch.
   - Follow-up to on determining if the contact has completed chemoprophylaxis and is asymptomatic for 7 days after last exposure.
4) Contacts should be made aware of appropriate measures that can be taken to protect themselves and family members.

Environmental Measures

1) Disinfect articles contaminated with blood, sputum or purulent discharges from confirmed, probable and suspected cases.
2) Use an effective insecticide to eliminate all fleas from the patient, clothing, and living quarters, as well as from any domestic animals.
3) Discourage rodents from developing residence in or close by human dwellings and reduce rodent populations.
4) If rodent destruction is necessary, implement only after satisfactory flea control measures have been accomplished.
5) Apply insect repellents to skin and clothing.
6) Handle dead animals with gloves.
7) Alert laboratory personnel when plague is suspected. Use appropriate biosafety precautions in laboratories dealing with plague specimens.

Education

1) Use fact sheet to educate individuals and groups.
2) The public in enzootic areas or travelers to such areas should be educated on the modes of human and domestic animal exposure.
3) As opportunities allow, the following general messages should be distributed:
   - Importance of rat proofing buildings and appropriately storing and disposing of food, garbage, and refuse.
   - Avoid flea bites by use of insecticide.
   - For rural plague areas, warnings should be issued not to camp near rodent burrow and to avoid handling rodents.
   - Dogs and cats in enzootic areas or transported to such areas should be treated with appropriate insecticides.
   - Wear gloves when handling animal carcasses.

MANAGING SPECIAL SITUATIONS

A. Outbreak Investigation:

- Outbreak definition: No formal outbreak definitions; however, the investigator may consider the possibility of an outbreak when there is an unusual clustering of cases in time and/or space.
- Notify KDHE immediately, 1-877-427-7317.
- Active case finding will be an important part of any investigation.

B. Intentional Contamination

Plague is a potential bioterrorism weapon. Because of the rarity of naturally occurring primary pneumonic plague, a single case should cause one to consider the possibility of bioterrorism or other criminal intentional act.

- If the natural etiology cannot be readily established by a prompt and vigorous investigation, the situation should be considered to be a bioterrorist act until proven otherwise.
- If you unable to establish the natural etiology, contact the local Health Officer, the on-call epidemiologist (local) and KDHE (1-877-427-7317) immediately.

If suspected that you are dealing with a bioterrorism situation:

- Notify local law enforcement and state public health officials.
- Implement "Chain of Custody" procedures for all samples collected, as they will be considered evidence in a criminal investigation.
- Work to define population at risk which is essential to guide response activities. Public health authorities will play the lead role in this effort, but must consult with law enforcement, emergency response and other professionals in the process. The definition may have to be re-evaluated and redefined at various steps in the investigation and response.
- Once the mechanism and scope of delivery has been defined, identify symptomatic and asymptomatic individuals among the exposed and recommend treatment and/or chemoprophylaxis.
- Establish and maintain a detailed line listing of cases, suspect cases, exposed, and potentially exposed individuals with accurate identifying and locating information as well as appropriate epidemiological information.

Safety Considerations:

- By the time the first cases resulting from a bioterrorist act are identified, there should be no residual exposure risk at the physical site of the attack.
- All members of the at-risk population (as defined by public health) with respiratory symptoms should be maintained on strict respiratory isolation, whether hospitalized or not, until determined non-infectious.
- Isolation: Cases of pneumonic plague shall be on strict respiratory isolation until 48 hours of appropriate antibiotic therapy have been completed with a favorable clinical response.
- Quarantine: Household and face-to-face contacts of patients with pneumonic plague should receive chemoprophylaxis and be under surveillance for 7 days. Contacts that refuse chemoprophylaxis must be maintained under strict isolation and close surveillance for 7 days.
  - Refer to Community Containment Standard Operating Guide, as needed.
- All public health, health care or other response personnel who have been determined to be contacts of cases as the result of their response activity or otherwise, should receive appropriate chemoprophylaxis.

Risk Communication Materials:

- Fact sheet for pneumonic plague: **Public Information and Communication SOG, Annex F – Public Information, Health Education Materials: Biological Hazards** at: www.kdheks.gov/cphp/operating_guides.htm

Diagnosis:

- The first indication of terrorist attack with plague would most likely be a sudden outbreak of illness presenting as severe pneumonia and sepsis. Sudden appearance of many persons with fever, cough, shortness of breath, hemoptysis, and chest pain with gastrointestinal symptoms common (eg, nausea, vomiting, abdominal pain, and diarrhea) and patients have fulminant course and high mortality.
- Clinical signs: Tachypnea, dyspnea, and cyanosis. Sepsis, shock, and organ failure. Infrequent presence of cervical bubo. (Purpuric skin lesions and necrotic digits in advanced disease). Pulmonary infiltrates or consolidation on chest radiograph.
- Laboratory studies: Specimens of sputum, blood, or lymph node aspirate. Gram-negative bacilli with bipolar (safety pin) staining on Wright, Giemsa, or Wayson stain. Cultures should demonstrate growth approximately 24 to 48 hours after inoculation. The laboratory should be notified to arrange for special testing and assistance from state laboratories.
- Rapid testing is not widely available. Some health departments, the Centers for Disease Control and Prevention, and military laboratories may perform rapid testing techniques
- Pathology: Lobular exudation, bacillary aggregation, and areas of necrosis in pulmonary parenchyma.

Vaccination:

- The US-licensed vaccine was discontinued in 1999 and is no longer available. It demonstrated efficacy in preventing bubonic disease but not primary pneumonic plague.

Postexposure prophylaxis (PEP):

- Duration of post-exposure prophylaxis to prevent plague is 7 days. The recommended antibiotic regimens for PEP are as follows:

	Preferred agents	Dose	Route of administration
Adults	Doxycycline	100 mg twice daily	PO
	Ciprofloxacin	500 mg twice daily	PO
Children	Doxycycline (for children ≥ 8 years)	Weight < 45 kg: 2.2 mg/kg twice daily (maximum daily dose, 200 mg) Weight ≥ 45 kg: same as adult dose	PO
	Ciprofloxacin	20 mg/kg twice daily (maximum daily dose, 1 g)	PO
Pregnant women	Doxycycline[1]	100 mg twice daily	PO
	Ciprofloxacin[1]	500 mg twice daily	PO

Adapted from: Inglesby TV, Dennis DT, Henderson DA, et al. Plague as a biological weapon: medical and public health management Working Group on Civilian Biodefense. JAMA. 2000 May 3;283(17):2281-90.

[1]Doxycycline and ciprofloxacin are pregnancy categories D and C, respectively. PEP should be given only when the benefits outweigh the risks.

Source: http://www.cdc.gov/plague/healthcare/clinicians.html

Treatment:

- Antibiotics for treating patients infected with plague in a bioterrorist event are included in the national pharmaceutical stockpile maintained by CDC, as are ventilators and other emergency equipment.
- Drug-resistant organisms might be used as a weapon, conduct antimicrobial susceptibility testing quickly and alter treatments as needed.
- In a mass casualty setting, doxycycline and ciprofloxacin, administered orally, are the preferred choices for treatment of both adults and children.
- Duration of treatment in mass casualty setting is 10 days.

Environmental decontamination:

- Following an urban release, the risk to humans of acquiring plague from infected animals or arthropods is likely small and can be reduced by educating the public to avoid sick or dead animals and to take precautions to protect against biting arthropods.

DATA MANAGEMENT AND REPORTING TO THE KDHE

A. Accept the case assigned to the LHD and record the date the LHD investigation was started on the [Administrative] tab.

B. Organize and collect data, using appropriate data collection tools including:
- Plague CDC Case Reporting Form (A paper-based form that allows the collection of all required information without being logged into EpiTrax.)
- Alternatively, investigators can collect and enter all required information directly into EpiTrax [Investigation], [Clinical], [Demographics], [Epidemiological] and [Notes] tabs.
- During outbreak investigations, refer to guidance from a KDHE epidemiologist for appropriate collection tools.

C. Report data collected during the course of the investigation via EpiTrax**.**
- Verify that all data requested has been recorded on an appropriate EpiTrax [tab], or that actions are completed for a case lost to follow-up as outlined below.
- Some data that cannot be reported on an EpiTrax [tab] may need to be recorded in [Notes] or scanned and attached to the record.
- Paper report forms do not need to be sent to KDHE after the information is recorded and/or attached in EpiTrax. The forms should be handled as directed by local administrative practices.

D. If a case is lost to follow-up, after the appropriate attempts to contact the case have been made:
- Indicate 'lost to follow-up' on the [Investigation] tab with the number of attempts to contact the case recorded.
- Record at least the information that was collected from the initial reporter.
- Record a reason for 'lost to follow-up' in [Notes].

E. Once the investigation is completed, the LHD investigator will record the date the investigation was completed on the [Administrative] tab and click the "Complete" button. This will trigger an alert to the LHD Administrator so they can review the case before sending to the state.
- The LHD Administrator will then "Approve" or "Reject" the CMR.
- Once a case is "Approved" by the LHD Administrator, BEPHI staff will review and close the case after ensuring it is complete and that the case is assigned to the correct event, based on the reported symptoms reported. (Review the EpiTrax User Guide, Case Routing for further guidance.)

ADDITIONAL INFORMATION / REFERENCES

A. Treatment / Differential Diagnosis: Red Book: 2015 Report of the Committee on Infectious Diseases. 30th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2015:624-626.

B. Epidemiology, Investigation and Control: Heymann. D., ed., Control of Communicable Diseases Manual (CCDM), 20th Edition. Washington, DC, American Public Health Association, 2015.

C. Case Definitions: CDC Division of Public Health Surveillance and Informatics, Available at: wwwn.cdc.gov/nndss/

D. Chain of Custody: KDHE Chain of Custody Standard Operating Guide, www.kdheks.gov/cphp/operating_guides.htm#coc

E. Working Group on Civilian Biodefense. Plague as a Biological Weapon: Medical and Public Health Management. JAMA. May 2000; 283: 2281-229. Access online at: http://jama.ama-assn.org/cgi/content/short/283/17/2281

F. CDC Plague Case Investigation Report. Access online at: http://www.cdc.gov/plague/resources/PlagueCaseReportForm.pdf

G. Additional Information (CDC):

- http://www.cdc.gov/plague/

ATTACHMENTS

To view attachments in the electronic version:

1. Go to <View>; <Navigation Pane>; <Attachments> – OR – Click on the "Paper Clip" icon in the Navigation Pane..
2. Double click on the document to open.