

# PLAGUE

## Case definition

### CONFIRMED CASE

Clinical evidence of illness with laboratory confirmation of infection:

- isolation of *Yersinia pestis* from body fluids

**OR**

- a significant [i.e. fourfold or greater] rise in serum antibody titre to *Y. pestis* fraction 1 (F1) antigen by enzyme immunoassay (EIA) or passive hemagglutination/inhibition titre

### PROBABLE CASE

Clinical evidence of illness with any of the following laboratory evidence:

- demonstration of elevated serum antibody titre[s] to *Y. pestis* F1 antigen (without documented significant [i.e. fourfold or greater] change) in a patient with no history of plague immunization

**OR**

- demonstration of *Y. pestis* F1 antigen by immunofluorescence

**OR**

- detection of *Y. pestis* nucleic acid

**OR**

- >1:10 passive hemagglutination/inhibition titre in a single serum sample in a patient with no history of vaccination or previous infection

**OR**

- detection of *Y. pestis* antibody by EIA

## Causative agent

*Yersinia pestis*, a bacillus.

## Source

Wild rodents, rabbits, hares, wild carnivores and domestic cats may be a source of infection.

## Incubation

From 1 to 7 days.

## Transmission

The most frequent source of infection has been the bite of infected fleas (especially the oriental rat flea). Transmission also can occur via contact with infected tissues or fluids from handling sick or dead animals. Pneumonic plague can be transmitted via respiratory droplets from infected humans and cats.

## Communicability

Bubonic plague is not usually transmitted from person to person unless there is contact with pus from buboes. Pneumonic plague may be highly contagious in certain conditions (i.e. overcrowding).

## Symptoms

Characterized by fever, chills, headache, malaise, prostration, and is manifest in one or more of the following principal forms:

- *Bubonic plague*: Regional lymphadenitis
- *Septicemic plague*: Less common and results in hypotension, acute respiratory distress and disseminated intravascular coagulation; Septicemia with or without an evident bubo
- *Primary pneumonic plague*: inhalation of infectious droplets
- *Secondary pneumonic plague*: Pneumonia, resulting from hematogenous spread in bubonic or septicemic cases
- *Pharyngeal plague*: Less common and involves cough, fever, dyspnea and hemoptysis, pharyngitis and cervical lymphadenitis resulting from exposure to larger infectious droplets or ingestion of infected tissues

## Diagnostic testing

Blood, bone marrow, bubo aspirate, sputum via sterile container for culture

## Treatment

Streptomycin is the drug of choice, and gentamicin can be used when streptomycin is not available. Tetracyclines and chloramphenicol are alternative choices. All are highly effective if used early (within 8 to 18 hours).

# PUBLIC HEALTH MANAGEMENT & RESPONSE

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## Case management

Initiate case follow-up immediately.

Contact client to identify contacts.

## Contact tracing

Close or household contacts with exposure to pneumonic plague should be offered chemoprophylaxis and placed under surveillance for 7 days. Contacts who refuse chemoprophylaxis should be strictly isolated and carefully monitored for 7 days.

## Surveillance forms

[novascotia.ca/dhw/populationhealth/surveillanceguidelines/Other\\_Disease\\_Case\\_Report\\_Form.pdf](http://novascotia.ca/dhw/populationhealth/surveillanceguidelines/Other_Disease_Case_Report_Form.pdf)

## General Information Sheet

### REFERENCES:

Public Health Agency of Canada. [2009]. Case Definitions for Communicable Diseases under National Surveillance. *CCDR 2009; 3552, 1-123*. Retrieved from <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09pdf/35s2-eng.pdf>

*Control of Communicable Diseases Manual, 17th edition*. 2000. James Chin, editor. American Public Health Association.

Plague: [cdc.gov/ncidod/dbmd/diseaseinfo](http://cdc.gov/ncidod/dbmd/diseaseinfo). Report of the Committee on Infectious Diseases, 2000. American Academy of Pediatrics.

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[Provincial Microbiology Users Manual](#)