Diphtheria

REPORTABLE DISEASES TOOLKIT

Information for Health Care Professionals

Reporting Obligations

Confirmed and suspected cases shall be **reported immediately by telephone** to the local Health Unit.

REPORTING FORM

Epidemiology

Aetiologic Agent:

Diphtheria is caused by *Corynebacterium diphtheria*, an aerobic Gram-positive bacillus with four biotypes: gravis, mitis, belfanti and intermedius. Strains may be toxigenic or nontoxigenic. Only the toxigenic strains produce exotoxin and can cause serious diseases. The nontoxigenic strains produce a milder symptomatic clinical illness and have been associated with infective endocarditis.

Clinical Presentation:

Acute bacterial disease primarily involving the pharynx, tonsils, larynx, nose, occasionally other mucous membranes or skin and sometimes conjunctivae or vagina.

The most common site for Diphtheria is the pharyngeal/ tonsillar region. Cases present with malaise, sore throat, anorexia, and low grade fever. The characteristic membrane occurs in the area two to three days later, which can obstruct breathing. The membrane is asymmetrical, adherent and grayish white.

Absorption of the toxin can produce effects such as cranical and peripheral motor and sensory nerve palsies, myocarditis, and neuritis.

Modes of transmission:

Transmission is most often person-to-person spread from the respiratory tract. Both cases and carriers can be a source of infection. Rarely, transmission may occur from skin lesions or articles soiled with discharges from lesions of infected persons (fomites).

Incubation Period:

Usually 2-5 days but can range from 1-10 days.

Period of Communicability:

Variable; until virulent bacilli have disappeared from discharges and lesions, usually two weeks or less and seldom more than four weeks for respiratory diphtheria. Chronic carriers may shed organisms for six months or more. Effective antibiotic therapy promptly terminates shedding.

Additional Resources

1. MOHLTC. "Publicly Funded Immunization Schedule for Ontario", October 2016.
2. Heymann, D.L. Control of Communicable Disease Manual (20th Ed.). Washington, American Public Health Association, 2015.

References

1. Ministry of Health and Long Term Care, Infectious Diseases Protocol, 2017

Risk Factors/Susceptibility

- Under-immunized
- Recent travel to an area with endemic diphtheria
- Crowded environments
- Poor hygiene

Diagnosis & Laboratory Testing

Notify your local public health laboratory prior to submitting a specimen for testing. Specify "diphtheria culture" on the requisition.

Diphtheria is diagnosed based on the isolation of toxigenic *Corynebacterium diphtheria.* Lab sample for culture and toxin determination is a swab of throat, nose, or skin lesion. Swabs should be taken for culture before antibiotic therapy is initiated. If a membrane is present, obtain swabs from the edge or underneath. Charcoal transport medium should be used and specimens should be transported as soon as possible. A comprehensive case history should be obtained to support the diagnosis, including onset, symptoms, immunization status, and travel history within the last two weeks.

Two or more specimens can be submitted. After the C. diphtheria organism is isolated, the Elek test will be done to identify if it is a toxigenic strain.

TESTING INFORMATION & REQUISITION

Treatment & Case Management

Treatment of clinical cases involves administration of diphtheria antitoxin and antibiotic therapy. Treatment should be started as soon as possible and should not be withheld pending lab confirmation. Antitoxin can be obtained only from the Public Health Division by calling 416-327-7392 during business hours Monday to Friday and 1-800-268-6060 at all other times (request PHD staff on call).

Antibiotic therapy is also needed to eliminate organism and prevent spread and is not a substitute for antitoxin. Erythromycin and penicillin are effective and can be initiated after cultures have been obtained for a total of 14 days.

Cases should be under respiratory isolation until antibiotic treatment is finished and 2 cultures have been taken 24 hours apart and are negative for *C. diphtheriae.*

Contact management will need to be discussed with your local public health unit.

Patient Information

PATIENT FACT SHEET