DIPHTHERIA

Last revised July, 2011

I. IDENTIFICATION

A. CLINICAL DESCRIPTION: An upper respiratory tract illness characterized by sore throat, low-grade fever, and an adherent membrane of the tonsils, pharynx, and/or nose.

B. REPORTING CRITERIA: Clinical diagnosis.

C. LABORATORY CRITERIA FOR CONFIRMATION:
- Isolation of *Corynebacterium diphtheriae* from clinical specimen taken from the nose, throat or any mucosal or cutaneous lesion.
- Histopathologic diagnosis of diphtheria.
- Polymerase chain reaction (PCR) testing done at CDC is only recommended when nonviable *C. diphtheriae* organisms are present in clinical specimens after antibiotic therapy has been initiated. A positive PCR without isolation of the organism or a histopathologic diagnosis and without linkage to a laboratory-confirmed case should be classified as a probable case.

D. WISCONSIN CASE DEFINITION: A clinically compatible illness that is either laboratory confirmed or epidemiology linked to a laboratory-confirmed case.

I. ACTIONS REQUIRED / PREVENTION MEASURES

A. WISCONSIN DISEASE SURVEILLANCE CATEGORY I: Report **IMMEDIATELY BY TELEPHONE** to the patient's local health department upon identification of a confirmed or suspected case. The local health department shall then notify the state epidemiologist **immediately** of any confirmed or suspected cases. Within 24, hours submit a case report electronically through the Wisconsin Electronic Disease Surveillance System (WEDSS), by mail or fax using an Acute and Communicable Disease Case Report (F-44151), or by other means.

B. EPIDEMIOLOGY REPORTS REQUIRED:
- *Electronically* – Report through WEDSS, including appropriate disease-specific tabs
  OR
- *Paper Copy* – Acute and Communicable Diseases Case Report (F-44151).

C. PUBLIC HEALTH INTERVENTIONS:
In accordance with Wisconsin Administrative rule DHS 145.05, local public health should follow the methods of control recommended in the current edition of *Control of Communicable Diseases Manual*, edited by David L. Heymann, published by the American Public Health Association. For further detailed information regarding control measures, please see the additional references cited at the end of this document. The Wisconsin Division of Public Health, Immunization Program should also be consulted regarding state-specific guidelines.
- In accordance with Wisconsin Administrative rule DHS 145.05, local public health should follow the methods of control as set forth by the current edition of Control of Communicable Diseases Manual, edited by David L. Heymann.

- Isolate case until two cultures taken not less than 24 hours apart and not less than 24 hours after cessation of antimicrobial therapy are negative. If cultures cannot be obtained, isolation may end after 14 days of appropriate treatment.
- Diphtheria antitoxin for cases is only available through the CDC. If diphtheria antitoxin is needed, please call the WI Immunization Program so we can contact the CDC to obtain antitoxin and make arrangements for transport.
- Culture all close contacts regardless of immunization status and keep under surveillance for 7 days.
- Identify contacts that handle food or milk or have contacts with unimmunized children. Exclude these contacts from high-risk occupations (i.e. daycare, food handlers) until negative cultures are obtained.
- Treat all contacts (a single dose of penicillin IM or a 7-10 day course of erythromycin PO) regardless of their immunization status. Persons who continue to harbor organism after treatment with either penicillin or erythromycin should receive an additional 10 day course of erythromycin and should submit samples for follow-up culture.
- Give a booster dose of a Td containing vaccine to previously immunized contacts and a primary series to unimmunized contacts. If the most recent dose was within
- Treat any confirmed carrier with an adequate course of antibiotic and repeat cultures at a minimum of 2 weeks to ensure eradication of the organism.
- Treat any contact with antitoxin at the first sign of illness.
- For further detailed information regarding control measures, please see the additional references cited at the end of this document. The Wisconsin Division of Public Health, Immunization Program should also be consulted regarding state-specific guidelines.

D. PREVENTION MEASURES

Vaccination with diphtheria toxoid vaccine

- **Children** aged 6 weeks through 6 years should routinely receive a diphtheria toxoid vaccine as DTaP (diphtheria toxoid, tetanus toxoid, and acellular pertussis vaccine). The primary series of 3 doses should be received at ages 2, 4 and 6 months. Booster doses should be received at age 15-18 months and at school entry (age 4-6 years). DT (diphtheria toxoid, tetanus toxoid) can be used as a substitute for DTap for children who cannot tolerate pertussis vaccine.
- **Individuals age 7 years and older** should routinely receive a diphtheria toxoid booster as Td (tetanus toxoid, diphtheria toxoid) every 10 years. A one-time dose of Tdap vaccine (tetanus toxoid, diphtheria toxoid, acellular pertussis vaccine) should be substituted for Td if the individual has not previously received a dose of Tdap and is one of the following: (1) less than age 10 years and is not fully vaccinated* for pertussis, (2) age 11-64 years, or (3) age 65 years or older and especially those anticipating having close contact with an infant aged less than 12 months.
- Ensure that those at higher risk of patient exposure, such as health care workers, are fully immunized and receive a booster dose of a Td containing vaccine every 10 years.
- **Unvaccinated persons 7 years and older** (including persons that cannot document prior vaccination) should receive a series of three Td doses, with the first two doses separated by at least 4 weeks and the third dose given 6 to 12 months after the second. For added protection against pertussis, Tdap can be substituted for any of the three doses.

*Fully vaccinated is defined as 5 doses of DTaP or 4 doses of DTaP if the fourth dose was administered on or after the fourth birthday.

III. CONTACTS FOR CONSULTATION

A. LOCAL HEALTH DEPARTMENT – REGIONAL OFFICES – TRIBAL AGENCIES:
http://www.dhs.wisconsin.gov/localhealth/index.htm

B. REGIONAL IMMUNIZATION PROGRAM REPRESENTATIVES:
http://www.dhs.wisconsin.gov/immunization/regiondepts.htm

C. BCDER/ IMMUNIZATION PROGRAM: (608) 267-9959

D. WISCONSIN STATE LABORATORY OF HYGIENE
Communicable Disease Division
Customer Service: (800) 862-1013 or (608) 262-6386
Clinical Supplies: (800) 862-1088 or (608) 265-2966

IV. RELATED REFERENCES

- Heymann DL, ed. DIPHTHERIA. In: *Control of Communicable Diseases Manual*. 19th ed. Washington, DC : American Public Health Association, 2008:195-200.

- Pickering LK, ed. Diphtheria In: *Red Book*: 2009 *Report of the Committee on Infectious Diseases*. 28 th ed. Elk Grove Village , IL : American Academy of Pediatrics, 2003:280-283.

- Centers for Disease Control and Prevention. Manual for the surveillance of vaccine-preventable disease. Centers for Disease Control and Prevention, Atlanta, GA, 2008. Available at: http://www.cdc.gov/vaccines/pubs/surv-manual/

- Atkinson W, ed. Diphtheria. In: *Epidemiology and Prevention of Vaccine-Preventable Diseases.* 12th edition. Washington DC: Public Health Foundation, 2011:75-85. Available at: http://www.cdc.gov/vaccines/pubs/pinkbook/pink-chapters.htm