Diphtheria Investigation Guideline

CONTENTS

Version 3/2009

Diphtheria
Disease Management and Investigative Guidelines

CASE DEFINITION (CDC 1997)

A. Clinical Description for Public Health Surveillance:

- An upper respiratory tract illness characterized by sore throat, low-grade fever, and an adherent membrane of the tonsil(s), pharynx, and/or nose.

B. Laboratory Criteria for Case Classification:

- Isolation of *Corynebacterium diphtheriae* from a clinical specimen, or
- Histopathologic diagnosis of diphtheria.

C. Case Classification:

- Confirmed: A clinically compatible case that is either laboratory confirmed or epidemiologically linked to a laboratory-confirmed case.
- Probable: A clinically compatible case that is not laboratory confirmed and is not epidemiologically linked to a laboratory-confirmed case.

Note: Respiratory disease caused by nontoxigenic *C. diphtheriae* should be reported as diphtheria. Cutaneous diphtheria should not be reported.

D. Laboratory Testing:

- Collection kit: Sterile Dacron swab in bacterial transport medium for culture and dry polyester or Dacron swabs [DO NOT use calcium alginate swab] in a sterile dry container for PCR.
- Specimen(s): Swab of nose, throat, wounds, and/or piece of membrane.
  - To screen contacts and/or to assure eradication of organism after antibiotic treatment, swabs (for culture) are collected from both the nose and throat.
- Timing of specimens: As soon as possible before antibiotic treatment. For collection after treatment to assure eradication of the organism, refer to sections on Case and Contact Management.
- Remarks: The State Public Health Laboratory is equipped to test for *C. diphtheriae* if requested. Diphtheria toxin is the definitive characteristic of pathogenic *C. diphtheriae*, isolates will be sent to CDC for toxin testing.
- The CDC does request that all isolates of *C. diphtheriae* regardless of association with disease be sent to the CDC Diphtheria Laboratory for reference testing, along with any isolates of other diphtheria toxin-producing *Corynebacterium* species (e.g., *C. ulcerans* or *C. pseudotuberculosis*). Contact the state laboratory to arrange for shipping.
- For additional information and/or questions concerning isolate submission, and laboratory kits call (785) 296-1620 or refer to online guidance at http://www.kdheks.gov/labs/lab_ref_guide.htm .

E. Bioterrorism Potential: None.

F. Outbreak Definition:

- Because the disease is uncommon in the U.S. and is communicable, a single case should be treated as a potential outbreak.

INVESTIGATOR RESPONSIBILITIES

A. Investigation Related Tasks and Activities:

1) Confirm diagnosis with appropriate medical provider.
- Before contacting the patient or family, first determine what information has been released about the patient's diagnosis.
- Obtain information that supports clinical findings in the case definition and information on the onset date of the symptoms.
- Obtain information on any laboratory tests performed and results.
- For hospitalization, obtain medical records, including admission notes, progress notes, lab report(s), and discharge summary.

2) Conduct case investigation to identify potential source of infection.

3) Conduct contact investigation to locate additional cases and/or contacts.
- Determine if case is involved in a high-risk occupation or if another special situation is involved. (i.e. daycare, health care)

4) Initiate control and prevention measures to prevent spread of disease.
- Provide and/or assure contact(s) are cultured for *C. diptheriae.*
- Provide and/or assure contact(s) receive appropriate prophylaxis.
- Provide and/or assure contact(s) receive a booster dose of diphtheria toxoid if ≥ 5 years have elapsed since their last dose.
- Assure culture status of case(s) and or carrier(s) is negative prior to discontinuing measures to prevent transmission.
- Keep contact(s) under active surveillance for 7 days.
- Institute active surveillance among contacts and others within their physical settings (e.g., school, daycare, etc.) for a minimum of 2 incubation periods. (i.e., 10 days)

5) Report all confirmed, probable and suspect cases to the KDHE Office of Surveillance and Epidemiology, using established methods.

B. Notifications:

1) Prompt notification of all suspect cases to the KDHE Office of Surveillance and Epidemiology at 1-877-427-7317 will allow for arrangements to be made to obtain diphtheria antitoxin for the patient from CDC.

2) As appropriate, use the notification letter(s) and the disease fact sheet to notify the case, contacts and other individuals or groups.

EPIDEMIOLOGY

A disease of colder months in temperate zones, involving primarily non-immunized children less than 15 years of age; however, it can occur in immunized, partially immunized and unimmunized persons but is often less severe in those who are partially or fully immunized. In the U.S., from 1980 to 1992, an average of <4 cases were reported annually; two-thirds of the affected people were 20 years of age or older. During the last few years, large epidemics of diphtheria, primarily in adolescents and adults, have occurred in the former Soviet Union, Algeria, and Ecuador. In the states of the former Soviet Union, over 150,000 cases and 5,000 deaths due to diphtheria occurred between 1990 and 1997. The case fatality ratio in these epidemics has ranged from 3 to 23%.

DISEASE OVERVIEW

A. Agent:
Diphtheria is caused by toxin-producing biotypes of *C. diphtheriae*, a gram-positive bacillus. The 4 biotypes, in order of likelihood of producing toxin, are: gravis, mitis, intermedius, and belfanti.

B. Clinical Description:
An acute disease of pharynx, tonsils, larynx or nose, occasionally other mucous membranes or skin characterized by an adherent grayish membrane. Symptoms include sore throat, large tender cervical lymph nodes, and marked swelling and edema of neck ("bull neck"). Upper airway obstructions may be caused by extensive membrane formation. A toxin is responsible for systemic manifestations. Late effects of the toxin include cranial and peripheral motor and sensory nerve palsies, myocarditis, and nephropathy. Cutaneous diphtheria usually appears as a localized ulcer.

C. Reservoirs:
Humans are the only reservoir of *C. diphtheriae*.

D. Mode(s) of Transmission:
Person-to-person transmission by droplets or through direct contact with the nasopharyngeal secretions of an infected person. Fomites (e.g., articles soiled with discharges from infected people) and raw milk may serve as a vehicle of transmission.

E. Incubation Period:
Average, 2-5 days; occasionally longer.

F. Period of Communicability:
Transmission may occur as long as virulent bacilli are present in discharges and lesions. The period of communicability is variable; usually < 2 weeks and rarely > 1 month. Effective antibiotic therapy can reduce communicability to < 4 days. Carriers may shed organisms for ≥ 6 months.

G. Susceptibility and Resistance:
Infants born of immune mothers are relatively immune; protection is passive and usually lost before the 6th month. Lifelong immunity is usually, but not always, acquired after disease or inapparent infection. Prolonged active immunity can be induced by toxoid.

H. Treatment:
Suspect cases of diphtheria should receive diphtheria antitoxin immediately after bacteriologic specimens are taken without waiting for lab results. In addition, appropriate antibiotic therapy with erythromycin or penicillin should be given in conjunction with antitoxin to eradicate the organism and reduce the period of communicability. Antibiotics are not a substitute for the antitoxin which is the primary treatment.

STANDARD CASE INVESTIGATION AND CONTROL METHODS

Note date investigation was started. Standard activities include the following:

1) Confirmation of diagnosis using case definition.
2) Collection of demographic data (birth date, county, sex, race/ethnicity)
   - Length of time in U.S.
3) Collection of clinical and vaccine status data:
   - Hospitalizations: dates and duration of stay.
   - Date of illness onset.
   - Site of infection. (e.g., nose, throat, larynx)
   - Signs and symptoms. (e.g., fever, sore throat, neck edema, stridor)
   - Complications. (e.g., myocarditis, neuritis)
   - Outcome: survived or date of death, with postmortem examination results and death certificate diagnoses.
   - Treatment, including date of administration and number of units of antitoxin.
   - Antibiotics given and dosages, duration of therapy.
   - Laboratory: culture, biotype and toxigenicity test, PCR, molecular typing.
   - Vaccine information: dates and types of diphtheria vaccination, number of doses, manufacturer name, vaccine lot number; if not vaccinated, reason
4) Determination of risk factors and transmission settings:
5) Investigation of epi-links among cases (cluster, household, co-workers, etc).

Standard investigation **includes** completion of the General Investigation Form(s) and Diphtheria Supplemental Form. Further activity should include:

A. Case Investigation - Identify Potential Source of Infection:

Focus within the incubation period prior to symptom onset for:

- Local or international travel history during 6-week period before illness onset or date of presentation to provider; include dates and location
- Contact with immigrants or returning travelers from endemic-disease areas; include dates and locations.
- Source of milk supply.
- Contact with domestic pets, horses, or dairy farm animals.
- Immunization histories (both case and contacts): immunization dates and type. (i.e., Td, DtaP, DT)
- Name, address, telephone and occupation of case and contacts.
- Name of school and grade of case and contacts (if applicable).

B. Contact Investigation – Identify Exposed Individuals / Populations:

Focus on those in contact with case prior to (for identification of asymptomatic carriers and unreported cases) and after onset of symptoms to prevent spread.

- Contacts are defined as those who sleep in the same house or who share food, drink, or eating/drinking utensils with the case, as well as healthcare workers in contact with the case's oral or respiratory secretions.
- Follow-up symptomatic contacts as suspect cases. A contact meeting the clinical case definition is considered a probable case (without laboratory results) or a confirmed case (with laboratory results or with epidemiological linkage to a lab confirmed case).

C. Isolation, Work and Daycare Restrictions

- K.A.R. 28-1-6 for Diphtheria:
  - Each infected person shall remain in isolation for 14 days or until two consecutive negative pairs of nose and throat cultures are obtained at least 24 hours apart and not less than 24 hours after discontinuation of antibiotic therapy.
  - Each household contact and other close contact shall have nose and throat specimens tested and be monitored for seven days from time of last contact for symptoms.
  - Healthy carriers with diphtheria shall be treated.
  - Those contacts who are food handlers or work with children shall be excluded until nose and throat cultures are negative.
- If necessary, reference the Kansas Community Containment Toolbox for templates concerning isolation and quarantine measures.

D. Case Management, Including Follow-up of cases:

- Prompt administration of diphtheria antitoxin is vital.
  - Diphtheria antitoxin is currently available only through the CDC under an FDA-approved Investigational New Drug protocol; important epidemiologic and clinical data are needed prior to its release.
    - The healthcare provider should contact the local and state health departments who will then work with CDC to obtain antitoxin.
    - OSE staff can contact the Division of Immunization, Centers for Disease Control, Atlanta (Telephone 404-639-2888) to obtain antitoxin and make arrangements for transport.
  - Patients should be tested for sensitivity to horse serum and, if necessary, desensitized before administration of the antitoxin.
  - The recommended dosage and route of administration will depend on the extent and duration of disease; detailed recommendations can be obtained from the package insert.
- Antimicrobial therapy (penicillin or erythromycin) is not a substitute for antitoxin treatment but is administered to eradicate the organism, prevent further production of toxin and decrease chance of further transmission.
- Strict isolation for two weeks or until two consecutive sets of nose and throat swabs, collected >24 hours apart, are culture negative for *C. diphtheriae.*
  - With antimicrobial therapy, the first specimens are taken at $\geq$24 hours from the completion of antimicrobial therapy.
  - If illness onset was $\geq$2 weeks prior and symptoms have resolved without antimicrobial therapy, collect the first specimens for culture immediately.
  - If both sets of cultures are negative, the individual is free of infection.
  - If any of the repeat cultures is positive, an additional 10-day course of oral erythromycin should be administered, and follow-up cultures will need to be repeated as described.
- Provide active immunization with diphtheria toxoid during convalescence, as disease does not confer immunity.
- As an additional reference, see Figure 1 on page 9.

E. Contact Management, Including Protection of Contacts:

- Maintain a listing of all contacts logging information on the signs and symptoms screen, immunization histories, cultures and results, prophylaxis recommendations and compliance (antibiotics and booster doses), and the disposition of the contact after 7 days of active surveillance, including any missing or gone explanations (MOGE).
- Contacts should have cultures taken from the nose and throat and be under active surveillance for 7 days after last contact with an infectious case.
  - Contacts that are food handlers or work with children shall be excluded until nose and throat cultures are negative.
- Prophylaxis of contacts is initiated after specimens are collected for culture:
  - Regardless of the contact's immunization status, recommend a single dose of benzathine penicillin or a 7-10 day course of erythromycin.
    - The single dose of penicillin is to be used when the contact's compliance with therapy is in doubt.
  - Previously immunized contacts should receive a booster dose of diphtheria toxoid if >5 years have elapsed since their last dose.
  - Non-immunized contacts (those with <3 doses or unknown histories) should begin and/or continue with a primary series according to published recommendations for routine immunizations.
- Screen contacts for signs and symptoms of diphtheria.
  - Symptomatic contacts are treated as suspect cases.
  - Asymptomatic contacts that are culture-positive are carriers, not cases.
- Management of culture-positive secondary cases (symptomatic contacts):
  - Treat and manage as described in Case Management, including the strict isolation for two weeks or until two consecutive sets of nose and throat swabs, collected >24 hours apart, are culture negative for *C. diphtheriae.*
- Management of carriers:
  - Assure antimicrobial treatment is received to eradicate the organism.
  - Instruct carriers to isolate themselves from situations that could result in close contact with inadequately vaccinated persons until after successful treatment is received eradicating the organism.
  - To assure eradication: ≥ 24 hours after the completion of antimicrobial prophylaxis, repeat cultures with two consecutive sets of nose and throat swabs, collected >24 hours apart with the second set collected at a minimum of two weeks after the antibiotic treatment.
    - If any culture is positive, an additional 10-day course of oral erythromycin should be administered with the cultures then repeated.
  - Close contacts of carriers should proceed with the preventive measures described for the close contacts of cases but:
    - Close contacts of persons with clinical diphtheria must be assigned the highest priority for preventive measures.
    - Contacts of carriers should be given secondary priority.

Note: The risk of developing diphtheria is sevenfold higher after household exposure to clinical diphtheria case than after household exposure to a carrier.

- Active surveillance for suspect cases in the affected settings should take place for at least 2 incubation periods (10 days).
- As an additional reference, see Figure 1 on page 9.

F. Environmental Measures:
- Disinfect fomites and discharges from lesions.
- Use pasteurized milk.

G. Education:
- Cases, carriers and contacts should be instructed to pay strict attention to personal hygiene by:
  - Covering nose and mouth with tissue when coughing.
  - Placing all contaminated tissues directly into garbage containers.
  - Washing hands with soap and water every time there is contact with respiratory secretions or infected wounds.

MANAGING SPECIAL SITUATIONS

A. Outbreak Investigation:
- Notify KDHE immediately, 1-877-427-7317.
- Active case finding will be an important part of any investigation.

DATA MANAGEMENT AND REPORTING TO THE KDHE

A. Organize, collect and report data with the General Investigation Form(s) and Diphtheria Supplemental Form.

B. Report data electronically via KS-EDSS or by fax, include:
- At a minimum, all essential data that was collected during the investigation that helps to confirm or classify a case. (For epi-linked cases, please include the KS-EDSS investigation ID of the related case.).
- All information collected on the General Investigation and supplemental forms.
- Cases will be reported under the disease name “Diphtheria (Corynebacterium diptheriae)”.

ADDITIONAL INFORMATION / REFERENCES

A. **Treatment / Differential Diagnosis:** American Academy of Pediatrics. 2006 Red Book: Report of the Committee on Infectious Disease, 27th Edition. Illinois, Academy of Pediatrics, 2006.

B. **Epidemiology, Investigation and Control:** Heymann. D., ed., Control of Communicable Diseases Manual, 18th Edition. Washington, DC, American Public Health Association, 2004.

C. **Case Definitions:** CDC Division of Public Health Surveillance and Informatics, Available at: http://www.cdc.gov/ncphi/disss/nndss/casedef/case_definitions.htm

D. **Quarantine and Isolation:** Kansas Community Containment Isolation/ Quarantine Toolbox Section III, Guidelines and Sample Legal Orders http://www.waldcenter.org/Quarantine%20and%20Isolation%20Information%20for%20Health%20Officers.pdf

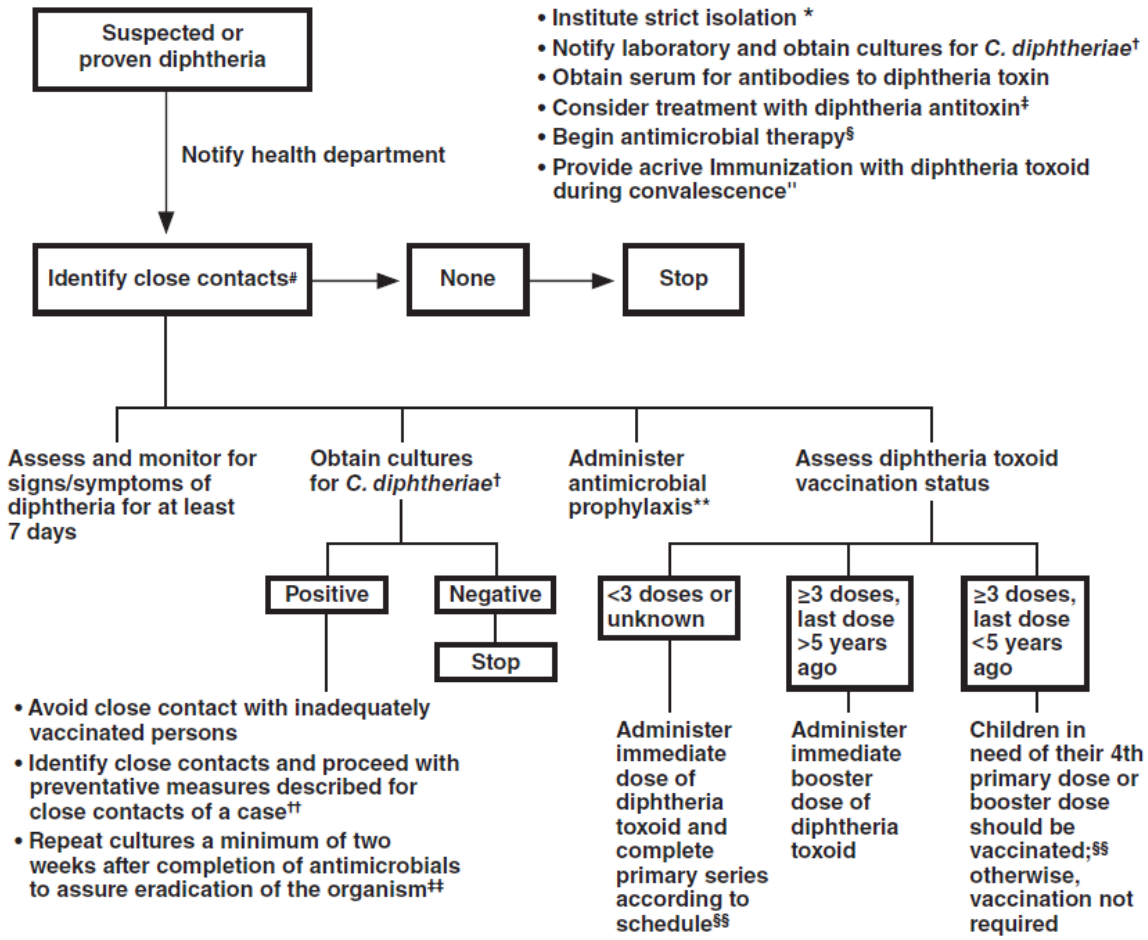
E. **Kansas Regulations/Statutes Related to Infectious Disease:** http://www.kdheks.gov/epi/regulations.htm

F. **Pink Book:** Epidemiology and Prevention of Vaccine-Preventable Diseases. Available at: http://www.cdc.gov/vaccines/pubs/pinkbook/default.htm

G. **Manual for the Surveillance of Vaccine-Preventable Diseases:** Available at: http://www.cdc.gov/vaccines/pubs/surv-manual/default.htm .

H. **Additional Information (CDC):** http://www.cdc.gov/health/default.htm

Figure 1: Respiratory Diphtheria: Recommendations for Case Management and Investigation of Close Contacts



* Maintain isolation until elimination of the organism is demonstrated by negative cultures of two samples obtained at least 24 hours apart after the completion of antimicrobial therapy.

† Both nasal and pharyngeal swabs should be obtained for culture.

‡ Contact the state health department to make arrangements for antitoxin from the CDC.

§ Antimicrobial therapy is not a substitute for antitoxin treatment in clinical diphtheria but may eliminate the organism. Procaine penicillin G or parenteral erythromycin is used until patient can swallow comfortably, and then oral erythromycin or oral penicillin V is used.

" Vaccination is required because clinical diphtheria does not necessarily confer immunity.

Close contacts include household members and other persons with a history of direct contact with a case-patient (e.g. caretakers, relatives, or regular visitors to home) and medical staff exposed to oral or respiratory secretions of the case-patient.

** Prophylaxis includes a single dose of benzathine penicillin G or a 7- to 10- day course of oral erythromycin.

†† Preventive measures may extend to close contacts of carriers but should be a lower priority than control measures for contacts of a case.

‡‡ Persons who continue to harbor the organism after treatment with either penicillin or erythromycin should receive an additional 10-day course of oral erythromycin and should submit samples for follow-up cultures.

§§ Refer to published recommendations for the schedule for routine administration of DTP.

(Source: Appendix 2-6 of the CDC Manual for the Surveillance of Vaccine-Preventable Diseases)

Kansas Disease Investigation Guidelines

General Investigation Form

Investigation Information

Case Type: ☐Human Case ☐Non-human Case ***Disease Name:*** _____

Classification: ☐Suspect ☐Probable ☐Confirmed ***KS-EDSS Investigation ID:*** _____

Outbreak: ☐Yes ☐No ***Outbreak Name:*** _____ ***Outbreak #:*** _____

Onset Date: _____ ***Diagnosis Date:*** _____ ***Report Date:*** _____

Assigned to (Investigator): _____ ***Patient Died:*** ☐Yes ☐No ☐Unknown

Patient Information

Name Type: ☐Default/Common ☐Legal ☐Maiden ☐Nickname

Last: _____ ***First:*** _____ ***Middle:*** _____

Street: _____ ***City/State:*** _____ ***Zip:*** _____

Evening Phone #: _____ ***Daytime Phone #:*** _____

Sex: ☐Failure to Report ☐Female ☐Male ☐Other ☐Transexual ☐Unknown

Race: ☐American Indian or Alaska Native ☐Asian ☐Black or African American ☐Native Hawaiian or Other Pacific Islander ☐White ☐Unknown

Hispanic / Latino Ethnicity: ☐Yes ☐No

Date of Birth: _____ ***Age:*** _____ ***Age Unit:*** ☐Days ☐Weeks ☐Months ☐Years

Parent Information (if under 18)

Last: _____ ***First:*** _____ ***Middle:*** _____

Street: _____ ***City/State:*** _____ ***Zip:*** _____

Evening Phone #: _____ ***Daytime Phone #:*** _____

Work / Occupation or School / Grade

Worksites / School: _____

Occupations / Grade: _____

Travel History

1st Destination: _____ ***Depart Date:*** _____ ***Return Date:*** _____

2nd ***Destination:*** _____ ***Depart Date:*** _____ ***Return Date:*** _____

3rd ***Destination:*** _____ ***Depart Date:*** _____ ***Return Date:*** _____

4th ***Destination:*** _____ ***Depart Date:*** _____ ***Return Date:*** _____

Reporting Source

Title: _____ *Last Name:* _____ *First Name:* _____

Facility: _____ *County:* _____

Street: _____ *City/State:* _____ *Zip:* _____

Phone #: _____ *E-mail:* _____

Primary or Attending Physician

Title: _____ *Last Name:* _____ *First Name:* _____

Facility: _____ *County:* _____

Street: _____ *City/State:* _____ *Zip:* _____

Phone #: _____ *E-mail:* _____

Hospital Information

Hospitalized: ☐Yes ☐No *Patient Status Date:* _____

Hospital Name: _____ *Hospital City:* _____

Date Hospitalized: _____ *Number of Days Hospitalized:* _____

Notes

Supplemental Laboratory Report Form

Lab Reports

Laboratory Name: _____ ***Lab Report Date:*** _____

Ordering Provider Name: _____ ***Phone:*** _____ ***Facility:*** _____

Specimen Accession Number: _____ ***Specimen Collection Date:*** _____

Organism Name: _____ ***Organism Species:*** _____

Organism Serogroup: _____ ***Organism Serotype:*** _____

PFGE Results

Pattern 1 ***KS:*** _____ ***Other State:*** _____ ***CDC:*** _____

Pattern 2 ***KS:*** _____ ***Other State:*** _____ ***CDC:*** _____

Pattern 3 ***KS:*** _____ ***Other State:*** _____ ***CDC:*** _____

Additional Results Information

Reported Test Name:	*Coded Result:*	*Text Result:*	*Numeric Result:*	*Comments:*

Supplemental Contact Form

Contacts

Last: _____ ***First:*** _____ ***Middle:*** _____

Street: _____ ***City/State:*** _____ ***Zip:*** _____

Evening Phone #: _____ ***Daytime Phone #:*** _____ ***E-mail:*** _____

Sex: ☐Failure to Report ☐Female ☐Male ☐Other ☐Transexual ☐Unknown

Race: ☐American Indian or Alaska Native ☐Asian ☐Black or African American ☐Native Hawaiian or Other Pacific Islander ☐White ☐Unknown

Hispanic / Latino Ethnicity: ☐Yes ☐No

Date of Birth: _____ ***Age:*** _____ ***Age Unit:*** ☐Days ☐Weeks ☐Months ☐Years

Worksites / School: _____

Occupations / Grade: _____

Exposure Information

Contact Type: ☐Household ☐Sexual ☐Other: _____ ***Partner / Cluster Code:*** _____

Date of First Exposure: _____ ***Date of Last Exposure:*** _____ ***Frequency:*** _____

Nature of Exposure: _____ ***Comments:*** _____

Testing and Treatment Information

Clinic Code: _____ ***Examination Date:*** _____

Examination Test: _____ ***Examination Result:*** _____

Prophylaxis/empiric treatment date: _____ ***Drug / Dosage:*** _____

Provider (Name / Facility): _____

Disposition and Diagnosis Information

Initiation Date: _____ ***Disposition Date:*** _____ ***Disposition:*** _____

Diagnosis: _____ ***Referral Type:*** ☐Patient ☐Provider ***Post-test Counseled :*** ☐Yes ☐No

Currently Assigned To: _____ ***Follow-up Date:*** _____

Risk Factors

Pregnant: ☐Yes ☐No ***If Yes, # of Weeks:*** _____

Risk factors for complications in contact: ☐None ☐Pregnant Woman ☐HIV Seropositive ☐Unimmunized ☐Index case is a super-spreader

☐Child younger than 5 ☐Age > 65 ☐Otherwise immunosuppressed (s/p transplant, high dose steroids, etc)

Cancel Form

Diphtheria Supplemental Form
Kansas Department of Health and Environment

Epidemiologic Case History

* indicates required fields

Case Type*
○ *Human Case* ○ *Non Human Case*

Classification*
○ *Confirmed* ○ *Not a Case* ○ *Probable* ○ *Suspect* ○ *Deleted* ○ *Unknown*

Supplemental Form Status
○ *Not Done* ○ *Form Complete* ○ *Form in Progress* ○ *Form Approved* ○ *Form Sent to CDC*

Report Date*
mm/dd/yyyy

Date Investigation Started
mm/dd/yyyy

Patient Demographic Information

* indicates required fields

Last Name*	**First Name***	**Middle Name**	**Name Type***	**Age**

Age Unit
○ *Days* ○ *Weeks* ○ *Unknown* ○ *Months* ○ *Years*

Date of Birth
mm/dd/yyyy

Race*
(Check all that apply)
☐ *American Indian or Alaska Native* ☐ *Asian* ☐ *Black or African American*
☐ *Native Hawaiian or Other Pacific Islander* ☐ *White* ☐ *Unknown*

Ethnicity*
○ *Hispanic or Latino* ○ *Not Hispanic or Latino* ○ *Unknown*

Sex*
○ *Failure to Report* ○ *Female* ○ *Male* ○ *Other* ○ *Transexual* ○ *Unknown*

Street Address

City	**County**	**State**	**Zip**

Evening Phone
###-###-####

Daytime Phone
###-###-####

Occupation

Person Providing Report

Name of Reporting Facility*

Diphtheria Worksheet

Pregnant
○ *Yes* ○ *No* ○ *Unknown*

Date Symptom Onset
mm/dd/yyyy

Date First Diagnosis
mm/dd/yyyy

Diphtheria Worksheet cont.

History of immunization against diphtheria

Childhood primary series? ○ *Yes* ○ *No* ○ *Unknown*

If < 18 years old, number of doses:

Boosters as adult? ○ *Yes* ○ *No* ○ *Unknown*

Date of last immunization mm/dd/yyyy

Description of Clinical Picture

Outcome ○ *Recovered, No Residual* ○ *Recovered, Residual* ○ *Died* ○ *Unknown*

Clinical Information

Signs and Symptoms

Symptoms (Check all that apply)

☐ *Fever* ☐ *Sore Throat* ☐ *Difficulty swallowing* ☐ *Change in voice* ☐ *Shortness of breath*
☐ *Weakness* ☐ *Fatigue* ☐ *Stridor* ☐ *Wheezing* ☐ *Palatal weakness*
☐ *Tachycardia* ☐ *EKG abnormalities* ☐ *Other (specify)*_____

Fever? ○ *Yes* ○ *No* ○ *Unknown*

If Yes, specify highest temperature:

Membrane present? ○ *Yes* ○ *No* ○ *Unknown*

If yes, Sites: (Check all that apply)

☐ *Tonsils* ☐ *Soft Palate* ☐ *Hard Palate* ☐ *Larynx* ☐ *Nares* ☐ *Nasopharynx* ☐ *Conjunctiva* ☐ *Skin*

Soft tissue swelling? (Around membrane) ○ *Yes* ○ *No* ○ *Unknown*

Neck edema? ○ *Yes* ○ *No* ○ *Unknown*

If yes ○ *Bilateral* ○ *Left side only* ○ *Right side only*

If yes, Extent: ○ *Submandibular only* ○ *Midway to clavicle* ○ *To clavicle* ○ *Below clavicle*

Complications

Complications? ○ *Yes* ○ *No* ○ *Unknown*

Airway obstruction? ○ *Yes* ○ *No* ○ *Unknown*

If yes, date of onset: mm/dd/yyyy

Intubation required? ○ *Yes* ○ *No* ○ *Unknown*

Myocarditis? ○ *Yes* ○ *No* ○ *Unknown*

If yes, date of onset: mm/dd/yyyy

(Poly)neuritis? ○ *Yes* ○ *No* ○ *Unknown*

If yes, date of onset: mm/dd/yyyy

Other complications? ○ *Yes* ○ *No* ○ *Unknown*

If Yes, describe

Antibiotics

Treated with Antibiotics as an Outpatient? ○ *Yes* ○ *No* ○ *Unknown*

If yes, date initiated: mm/dd/yyyy

Duration of therapy in days

Antibiotic

○ *Erythromycin (incl. pediazole, ilosone)* ○ *Penicillin (Bicillin, Pfizerpen-AS, Wycillin)* ○ *Amoxicillin*
○ *Ampicillin* ○ *Augmentin* ○ *Ceclor*
○ *Cefixime* ○ *Clarithromycin/azithromycin* ○ *Cotrimoxazole (bactrim/septra)*
○ *Tetracycline/Doxycycline* ○ *Unknown* ○ *Other (specify)*_____

Treated with Antibiotics in the Hospital? ○ *Yes* ○ *No* ○ *Unknown*

If yes, date initiated: mm/dd/yyyy

Duration of therapy in days

Antibiotic

○ *Erythromycin (incl. pediazole, ilosone)* ○ *Penicillin (Bicillin, Pfizerpen-AS, Wycillin)* ○ *Amoxicillin*
○ *Ampicillin* ○ *Augmentin* ○ *Ceclor*
○ *Cefixime* ○ *Clarithromycin/azithromycin* ○ *Cotrimoxazole (bactrim/septra)*
○ *Tetracycline/Doxycycline* ○ *Unknown* ○ *Other (specify)*_____

Were Antibiotics given in the 24 hours before culture? ○ *Yes* ○ *No* ○ *Unknown*

Exposure

Country of Residence	If other, date of U.S. arrival	If other, country name:
○ *US* ○ *Other*_____	mm/dd/yyyy	

Known Exposure to Diphtheria Case or Carrier?	Known Exposure to International Travelers?	Known Exposure to Immigrants?
○ *Yes* ○ *No* ○ *Unknown*	○ *Yes* ○ *No* ○ *Unknown*	○ *Yes* ○ *No* ○ *Unknown*

Dose

Amount of DAT administered

Dispos.

Final Diagnosis:	How was the final diagnosis confirmed?	Final Case Disposition
		○ *Confirmed* ○ *Not a Case* ○ *Probable*

Cancel Form

Fact Sheet

Fact Sheet is available under attachments:

CLICK HERE TO VIEW ATTACHMENTS

Then double click on the document to open.

Other Options to view attachments:

Go to <View>; <Navigation Pane>; <Attachments>

– OR –

Click on the "Paper Clip" icon.