



# INFORMATION TO COLLECT ON CLOSE CONTACTS\* OF DIPHTHERIA CASES

\*Close Contact = all household members, persons with a history of habitual close contact with the patient, or persons directly exposed to secretions from the suspected infection site of the patient.

CONTACT INFORMATION

Name		Age	Relation to Case				
<u>Vaccinated?</u> Yes No Unknown	<u>If Vaccinated, Number of Lifetime Doses</u> (or U for Unknown)	<u>Nasal Culture Obtained?</u> Yes No Unknown	<u>Date of Specimen Collection</u> (mm/dd/yyyy)	<u>Nasal Culture Results</u> Positive Negative Unknown	<u>Nasal Elek Results</u> Positive Negative Unknown Not Applicable	<u>Antibiotic Prophylaxis Given?</u> Yes No Unknown	<u>If yes, which</u> <i>Enter code from below:</i>
<u>If Vaccinated, Last Dose</u> (mm/dd/yyyy)		<u>Oropharyngeal Culture Obtained?</u> Yes No Unknown	<u>Date of Specimen Collection</u> (mm/dd/yyyy)	<u>Oropharyngeal Culture Results</u> Positive Negative Unknown	<u>Oropharyngeal Elek Results</u> Positive Negative Unknown Not Applicable	<u>Antibiotics Given Prior to Specimen Collection?</u> Yes No Unknown	

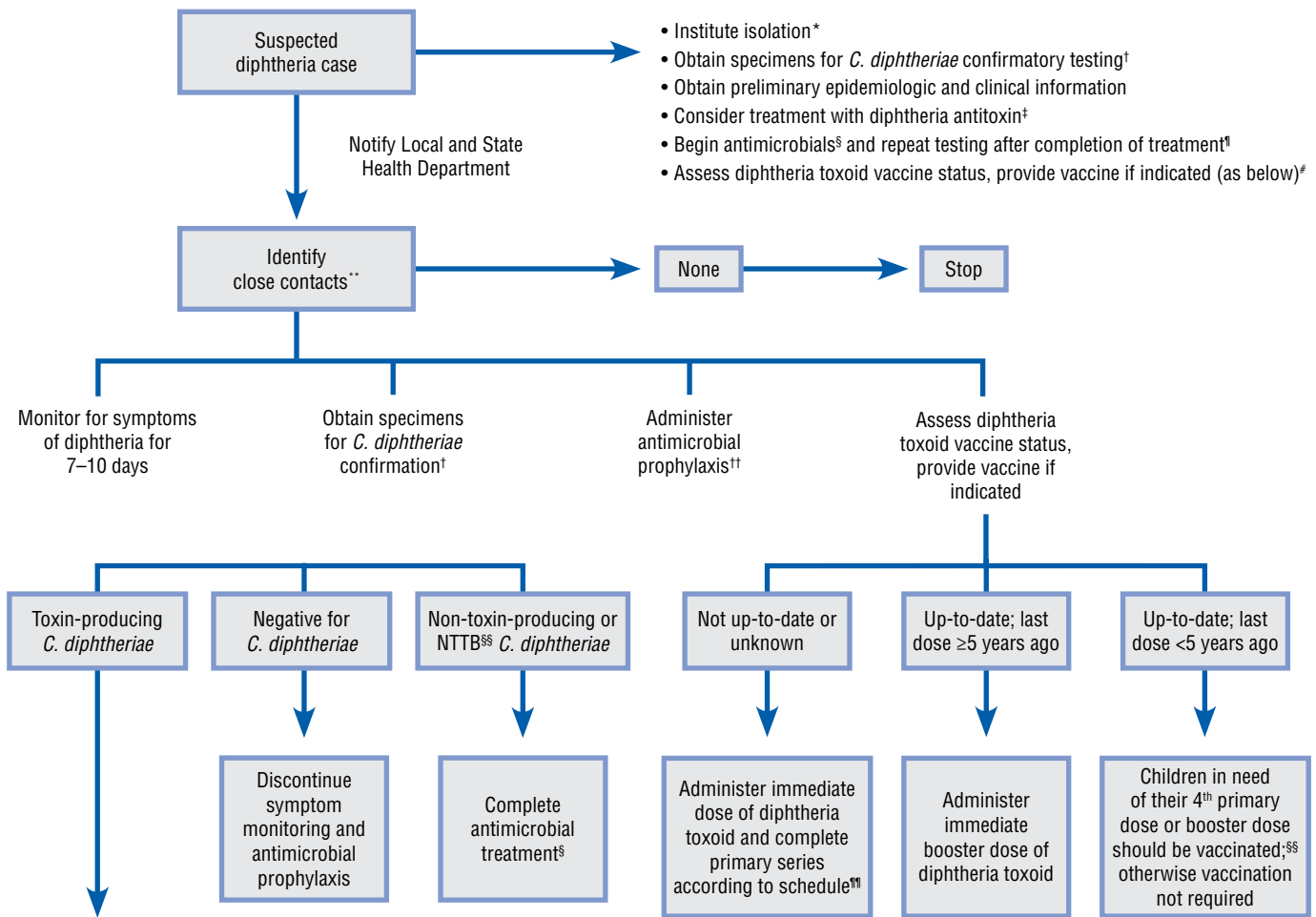
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**Antibiotic Prophylaxis Codes:**

- |  |  |
|--|--|
| 1 = Erythromycin   | 6 = Trimethoprim/sulfamethoxazole                          |
| 2 = Penicillin (penicillin G, penicillin V)                      | 7 = Ciprofloxacin, levofloxacin (or other fluoroquinolone) |
| 3 = Tetracycline, doxycycline (or other tetracycline)            | 8 = Cephalexin, ceftriaxone (or other cephalosporin)       |
| 4 = Amoxicillin/Augmentin, ampicillin (or other aminopenicillin) | 9 = Other  |
| 5 = Azithromycin (or other macrolide)                            | 10 = Unknown   |



- Institute isolation\*
- Confirm if symptoms present (distinguish between new case vs. carrier)
- For both cases and carriers, obtain epidemiologic and clinical information, begin antimicrobials,§ repeat testing after completion of treatment,¶ assess vaccine status and provide vaccine if indicated, and begin contact investigations\*\*
- Consider treatment with diphtheria antitoxin for symptomatic cases only‡

\* Maintain droplet precautions for suspected respiratory cases and contact precautions for suspected cutaneous cases until proven that the suspected case is not infected with toxin-producing *C. diphtheriae*. If infected, maintain isolation until elimination of the organism is demonstrated by negative cultures of 2 consecutive specimens obtained at least 24 hours apart, collected at least 24 hours after completion of antimicrobial therapy.

† Both nasal and oropharyngeal swabs should be obtained. Confirmatory testing for diphtheria includes culture and Elek testing; if a state public health lab does not have capacity for diphtheria culture, CDC can assist. PCR for diphtheria is available at CDC, however it is not a confirmatory test, and can only support a diagnosis of toxin-producing diphtheria.

‡ If DAT is needed, contact your State Health Department and CDC for further consultation.

§ Recommended antimicrobial treatment for toxin-producing, non-toxin-producing or NTTB *C. diphtheriae* infections (regardless of infection site) includes penicillin or erythromycin for 14 days.

¶ Elimination of the organism is demonstrated by negative cultures of 2 consecutive specimens obtained at least 24 hours apart, collected at least 24 hours after completion of antimicrobial therapy. 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 specimens again for follow-up testing.

# Vaccination is required because diphtheria infection does not necessarily confer immunity; provide indicated dose during convalescence.

\*\* Close contacts include all household members, persons with a history of habitual close contact with the patient, or persons directly exposed to secretions from the suspected infection site of the patient.

†† Recommended antimicrobial prophylaxis for close contacts includes a 7–10-day course of erythromycin or a single intramuscular injection of penicillin G benzathine.

‡‡ Preventative measures may be extended to close contacts of carriers but should be considered a lower priority than control measures for contacts of each case.

§§ NTTB = Non-toxigenic, *tox* gene-bearing.

™™ Refer to ACIP published recommendations for the schedule for routine administration of diphtheria-toxoid containing vaccines.

Guidelines adapted from Farizo KM, Strebel PM, Chen RT, et al. Fatal respiratory disease due to *Corynebacterium diphtheriae*: Case report and review of guidelines for management, investigation, and control. Clin Infect Dis 1993;16:59–68.

## Accessible text description for the figure on the previous page:

For a suspect diphtheria case:

1. Institute isolation. Note, maintain droplet precautions for suspect respiratory cases and contact precautions for suspect cutaneous cases until proven that the suspect case is not infected with toxin-producing *C. diphtheriae*. If infected, maintain isolation until elimination of the organism is demonstrated by negative cultures of 2 consecutive specimens obtained at least 24 hours apart, collected at least 24 hours after completion of antimicrobial therapy.
2. Obtain specimens for *C. diphtheriae* confirmatory testing. Note, both nasal and oropharyngeal swabs should be obtained. Confirmatory testing for diphtheria includes culture and Elek testing; If a state public health lab does not have the capacity for diphtheria culture, CDC can assist. PCR for diphtheria is available at CDC, however, it is not a confirmatory test, and can only support a diagnosis of toxin-producing diphtheria.
3. Obtain preliminary epidemiologic and clinical information.
4. Consider treatment with diphtheria antitoxin. Note, if diphtheria antitoxin is needed, contact your State Health Department and CDC for further consultation.
5. Begin antimicrobials and repeat testing after completion. Note, recommended antimicrobial treatment for toxin-producing diphtheria, respiratory or cutaneous, includes penicillin or erythromycin for 14 days. Elimination of the organism is demonstrated by negative cultures of 2 consecutive specimens obtained at least 24 hours apart, collected at least 24 hours after completion of antimicrobial therapy. 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 specimens again for follow-up testing; lastly,
6. Assess diphtheria toxoid vaccine status and provide vaccine if indicated. Note, vaccination is required because diphtheria infection does not necessarily confer immunity. Provide indicated dose during convalescence.

Next step: Identify close contacts, if none, stop.

If there are close contacts:

1. Monitor for symptoms of diphtheria for 7–10 days.
2. Obtain specimens for *C. diphtheriae* confirmation. Note, both nasal and oropharyngeal swabs should be obtained. Confirmatory testing for diphtheria includes culture and Elek testing; If a state public health lab does not have the capacity for diphtheria culture, CDC can assist. PCR for diphtheria is available at CDC, however, it is not a confirmatory test, and can only support a diagnosis of toxin-producing diphtheria.
3. Administer antimicrobial prophylaxis. Note, recommended antimicrobial prophylaxis for close contacts includes a 7–10-day course of erythromycin or a single intramuscular injection of penicillin G benzathine.
4. Assess diphtheria toxoid vaccine status, provide vaccine if indicated—
  - a. If vaccine status is not up to date or unknown, administer immediate dose of diphtheria toxoid and complete primary series according to schedule. Refer to the ACIP published recommendations for the schedule for routine administration of diphtheria-toxoid-containing vaccines.
  - b. If vaccine status is up to date but last dose was 5 or more years ago, administer immediate booster dose of diphtheria toxoid.
  - c. If vaccine status up to date and last dose was less than 5 years ago, vaccination is not required except among children in need of their 4th primary or booster dose. Refer to the ACIP published recommendations for the schedule for routine administration of diphtheria-toxoid-containing vaccines.

Specimens:

1. If specimen is positive for toxin-producing *C. diphtheriae*:
  - a. Institute isolation. Note, maintain droplet precautions for suspect respiratory cases and contact precautions for suspect cutaneous cases until proven that the suspect case is not infected with toxin-producing *C. diphtheriae*. If infected, maintain isolation until elimination of the organism is demonstrated by negative cultures of 2 consecutive specimens obtained at least 24 hours apart, collected at least 24 hours after completion of antimicrobial therapy.
  - b. Confirm if symptoms present and distinguish between new case vs. carrier.
  - c. For both cases and carriers, obtain epidemiologic and clinical begin antimicrobials. Note, recommended antimicrobial *treatment* for toxin-producing diphtheria whether respiratory or cutaneous, includes penicillin or erythromycin for 14 days, and recommended antimicrobial *prophylaxis* for close contacts includes a 7–10-day course of erythromycin or a single intramuscular injection of penicillin G benzathine; repeat testing after completion of treatment. Note, elimination of the organism is demonstrated by negative cultures of 2 consecutive specimens obtained at least 24 hours apart, collected at least 24 hours after completion of antimicrobial therapy. 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 specimens again for follow-up testing; assess vaccine status and provide vaccine if indicated and begin contact investigations. Note, preventative measures may be extended to close contacts of carriers but should be considered a lower priority than control measures contacts of each case.
  - d. Consider treatment with diphtheria antitoxin for symptomatic cases only. Note, if diphtheria antitoxin is needed, contact your State Health Department and CDC for further consultation.
2. If specimen is negative for *C. diphtheriae*: discontinue symptom monitoring and antimicrobial prophylaxis.
3. If specimen is non-toxin producing, or non-toxigenic, *tox* gene-bearing (NTTB) *C. diphtheriae*: complete antimicrobial treatment. Note, recommended *treatment* for toxin-producing diphtheria, whether respiratory or cutaneous, includes penicillin or erythromycin for 14 days.