Toledo-Lucas County Health Department Standard Operating Procedure

Infectious Disease SOP— Meningococcal Disease, Meningococcal Meningitis, Meningococcemia

Original Effective Date:	Review / Revision Date:	Environmental Health Procedure:
8/2008	7/20/17	2017.07.009

Maintenance Steward: Epidemiology Supervisor History: ☐ New ☒ Revised ☐ Archived

Organizational Scope:

☐ Full Agency ☒ Administration ☒ Community Services ☒ Environmental Health ☐ Health Services

Frequency of Review:

☐ Annually ☒ Biennially ☐ 5 Years ☒ As Needed ☐ Other:

Location:

S-Drive: S: → Users → Common → Policies & Procedures

Website: www.lucascountyhealth.com/employee-login/

Hardcopy: Environmental Health and Community Services Director's Office

Archived Version(s): S:\CSRP\SOGs\Archives

Requisite Signatures

☒	*Medical Director*	7-21-17 *Date*
☒	*Health Commissioner*	07-20-17 *Date*
☒	*Director of Environmental Health & Community Services*	7/20/2017 *Date*

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Infectious Disease SOP— Meningococcal Disease, Meningococcal Meningitis, Meningococcemia

I. Policy

It is the policy of the Toledo-Lucas County Health Department (TLCHD) to adhere to all state, federal, and local statutes governing the management and case investigation of individual communicable disease cases and outbreaks within Lucas County.

II. Scope

This standard procedure applies to the Infectious Disease Program when investigating one case of meningococcal disease, meningococcal meningitis, or meningococcemia. When an outbreak occurs, call ODH ORBIT. In an outbreak, refer to the "Epi and Surveillance OB Procedure."

III. Purpose

This procedure/process establishes guidelines for meningococcal disease investigations. Per the Ohio Administrative Code (OAC) 3701-3, meningococcal disease is a Class A disease and must be reported immediately via telephone according to 3701-3-02, 3701-3-03, 3701-3-04, and 3701-3-05 of the Administrative Code.

IV. Background

Neisseria meningitidis is a Gram-negative diplococcus bacterium with at least 13 serogroups known to cause invasive disease. Serogroups B, C, and Y are the most prevalent in Ohio whereas Serotype A is frequently associated with epidemics in other parts of the world. Meningococcal infection usually results in meningococcemia and/or meningitis. Meningococcemia has an abrupt onset and rapid disease progression, with symptoms such as fever, chills, malaise, myalgia, limb pain, prostration, and a rash which can be macular, maculopapular, petechial, or purpuric. In fulminant cases, purpura, limb ischemia, coagulopathy, pulmonary edema, shock, coma, and death can ensue within several hours despite appropriate therapy. Meningococcal meningitis is indistinguishable from acute meningitis caused by other bacterial pathogens and presents with altered mental status, seizures in some patients, and meningeal irritation. Individual symptoms vary widely from patient to patient.

The bacterium responsible for the disease is found in the upper respiratory tract of humans. Asymptomatic colonization is frequent and provides the focus from which the organism is spread. Incidence of meningococcal disease peaks among persons in three different age groups: infants and children <5 years old, adolescents and young adults aged 16-21 years and adults ≥65 years. The majority of outbreaks are located in child care centers, preschools, and military camps. In the US, the incidence is higher during the winter and spring. Meningococcal disease is transmitted from person-to-person through droplets of infected respiratory secretions. The exact period of communicability is unknown but is assumed to be throughout the duration of the presence of the

organism in the upper respiratory tract of those with invasive disease and in contacts who have become asymptomatically colonized with meningococci. The incubation period is estimated to be 2-10 days, most commonly 3-4 days.

A Gram-stained smear from a normally sterile body site showing Gram-negative diplococci raises suspicion of invasive meningococcal disease. Diagnosis is confirmed by a culture of the blood and/or spinal fluid. Clinical laboratories should send all *N. meningitidis* isolates from normally sterile sites to the ODH Laboratory for serotype analysis.

V. Case Definition

A. Clinical Description

Clinical purpura fulminans in the absence of a positive blood culture

B. Laboratory Criteria for Diagnosis

1. Gram-negative diplococci, not yet identified, isolated from a normally sterile body site (e.g. blood, cerebrospinal fluid)
2. Detection of *N. meningitidis* antigen in formalin-fixed tissue by immunohistochemistry (ICH) or in CSF by latex agglutination.
3. Detection of *N. meningitidis*-specific nucleic acid in a specimen obtained from a normally sterile body site (e.g. blood, CSF), using a validated polymerase chain reaction (PCR) assay.
4. Isolation of *N. meningitidis* from a normally sterile body site (e.g. blood, CSF, or less commonly, synovial, pleural or pericardial fluid) or from purpuric lesions.

Please fill out the WI VPD Submission form found in S:\CSRP\SOGs\Meningococcal disease and contact the VPD Epidemiology Program at 614-995-5599 to arrange for testing.

VI. Case Classification

A. Suspect:

1. A case that meets the clinical criteria OR
2. Gram-negative diplococci, not yet identified, isolated from a normally sterile body site (e.g. blood, CSF)

B. Probable:

1. Detection of *N. meningitidis* antigen in formalin-fixed tissue by immunohistochemistry or in CSF by latex agglutination

C. Confirmed:

1. A case that is laboratory confirmed by either culture or PCR

D. Not a case:

1. This status is not generally used when reporting a case, but may be used to reclassify a report if investigation revealed it was not a case.

Positive antigen test results from urine or serum samples are unreliable for diagnosis of meningococcal disease. These results should not be reported. Further testing from a normally sterile

site is necessary for diagnosis of invasive N. meningitidis.

VII. Procedure

The procedure/process of the Infectious Disease Program is to ensure that all cases are investigated in the same format.

When a report is received, a member of the ID team will complete an interview of the contact using the CDC National Bacterial Meningitis and Bacteremia Case Report, which can be found in S:\CSRP\SOGs\Meningococcal disease. Information collected from the form should be entered into ODRS and NOT sent to ODH, unless otherwise requested.

A. Outbreak Response

1. Call ODH ORBIT at 614-995-5599 for guidance

B. Public Health Investigation Process

1. ODRS:
    a. Check to see if the patient is entered into ODRS. If not, enter the patient into ODRS
    b. Key fields for ODRS reporting include:
        i. Import status
        ii. Date of illness onset
        iii. Types of infection (meningitis, primary bacteremia, etc.)
        iv. Reason not vaccinated or the vaccine information if previously vaccinated
2. Investigation
    a. Case investigation should start as soon as possible following notification.
    b. Contact the patient's provider and/or hospital to obtain demographic information, symptoms, date of onset of symptoms, pertinent test results and travel history for the three weeks prior to onset.
    c. Once the provider and/or hospital ICP has been contacted call the patient/parent and complete the interview.
        i. Provide education from the fact sheet on the IDCM website at http://www.odh.ohio.gov/pdf/IDCM/meningococcal disease.pdf. This information is also located in S:\CSRP\SOGs\Meningococcal Disease.
            1) If no one answers, leave a message requesting a call back.
            2) Mail an informational letter requesting a callback.
            3) Continue to attempt phone contact with the patient for three more times in the span of 48 hours after the informational letter was sent.
            4) Toledo Lucas County HD progress notes will be utilized to record the necessary information and travel activity, as well as contact with wildlife (possible squirrel contact), fleas, lice, and other biting arthropods.
            5) After interview is completed, ask the patient/parent whether they would like more information. If they express an interest, ask what the best method to deliver the information would be (e.g. e-mail, mail, etc.)
3. Treatment

a. Hospitalization is usually required for parenteral antibiotic treatment and vigorous supportive care.
b. It is imperative that carriage of the organism be eradicated before the patient is discharged from the hospital by administering rifampin in the same dosages mention in the "Prophylaxis" section below.

4. Prophylaxis
   a. All household and child care or preschool contacts should receive prophylaxis, preferably within 24 hours of diagnosis of the index case.
   b. Prophylaxis of high-risk contacts should not be delayed for confirmation of *N. meningitidis* in the index case.
   c. Rifampin, ceftriaxone, and ciprofloxacin are equally effective for prophylaxis. For children, the drug of choice is rifampin. Another appropriate drug is azithromycin.

Drug	Adult Dosage	Children Dosage
Rifampin	Twice daily for 2 days 600mg/dose (not recommended for pregnant women)	Twice daily for 2 days >1 month of age = 10mg/kg (max of 600 mg) <1month of age= 5mg/kg
Ceftriaxone	IM in a single dose 250mg	IM in a single dose Children <15 yrs old 125 mg
Ciprofloxacin (can also eradicate meningococcal carriage)	Single oral dose 500mg Not recommended for pregnant women	Not recommended for persons younger than 18 yrs of age
Azithromycin (not routinely recommended)	10mg/kg (max 500 mg)	

   d. Prophylaxis is not completely effective and exposed contacts should remain under medical supervision for one month.

5. Isolation/Follow Up Specimens
   a. Ohio Administrative Code (OAC) 3701-3-13 (O) states: "a person with meningococcal disease shall be isolated until 24 hours after the initiation of effective antimicrobial therapy." This includes droplet precautions for 24 hours in hospitalization.

6. Contacts (Exclusion)
   a. Identification of contacts is important to determine those requiring chemoprophylaxis.
   b. HIGH RISK contacts for whom chemoprophylaxis is recommended include:
      i. Household contacts, especially young children less than 2 yrs. Old
      ii. Child care, nursery school, preschool, and babysitting contacts in the 7 days before illness onset

iii. Anyone who had direct contact with the case's oral secretions through kissing or sharing toothbrushes or eating utensils any time during 7 days before illness onset
iv. Anyone who performed mouth-to-mouth resuscitation or was unprotected during oral intubation of the case any time during 7 days before illness onset
v. Anyone who frequently sleeps or eats in the same dwelling as the case7 days before illness onset
vi. Passengers seated directly next to the case during airline flights lasting more than 8 hours

c. LOW RISK contacts for whom prophylaxis is not recommended include:
i. Persons having only casual contact with the case and no direct contact with oral secretions (e.g. school or work mates)
ii. Persons who had contact only with a high-risk contact (i.e. no direct contact with the case)
iii. Healthcare personnel who did not have contact with the case's oral secretions.

7. Notification
a. Notify TLCHD contacts immediately after investigation with patient (in sequential order)
i. Supervisor of Epidemiology
ii. Director of Community Services and Environmental Health
iii. Medical Director
iv. Health Commissioner
b. Public health recommendations and interventions will be shared with the public by the PIO or to specific individuals within 6 hours of identification of the agent as determined by ODH and supervisory staff at the local health department. An OPHCS alert will be distributed within 12 hours of a positive test result as determined by supervisory local health department staff and ODH.

8. Documentation
a. Enter information into ODRS as it is obtained.
b. Include a note documenting investigation, education, and intervention.
Sample: Spoke with mother by phone on [date]. EDUCATION: Reviewed disease facts, transmission, and symptoms. DISEASE COURSE: Client has history of [medical conditions] and started [symptoms] on [date]. Started [treatment] on [date]. HOUSEHOLD: HH contacts include [relationships]. All are [asymptomatic/symptomatic] [Include information about sensitive settings for HH contacts]. OCCUPATION: [job] TRAVEL HISTORY: [Include information about travel history within the past 2-3 weeks]. MAILING: Mailed fact sheet and cover letter to home address.
c. Include a note for each occupation, activity, or other notification and any actions taken.

9. Closing a case
a. Ensure that all available information is entered into ODRS before closing. Close case and print record. Staple with investigation sheet and any related documents and file in the appropriate file drawer for the current year located in the CSRP office.

VIII. Appendices

None

IX. Reference/Investigation Forms

A. Measles Disease Factsheet is located in S:\CSRP\SOGs\Meningococcal Disease

B. For additional information please refer to the ODH IDCM at http://www.odh.ohio.gov/pdf/IDCM/meningococcal disease.pdf

X. Maintenance

A. Review

1. The Infectious Disease standard operating procedures are to be reviewed every other year or as needed to ensure compliance with both agency and accreditation standards.

2. If guidance/recommendations from the Centers for Disease Control, Ohio Department of Health or law changes regarding this infectious disease, TLCHD will follow the most up-to-date guidance and adjust the SOP(s) as needed.

B. Revision

1. All changes made to this SOP are to be noted on the **Record of Change.** Substantial changes will require renewed signatures from all applicable parties. This includes changes to the intent, scope, procedures, or policy statement.

2. Changes in style, format, grammar or minor error correction will not require renewed signatures but must be indicated on the Record of Change.

Record of Change

(Required for all procedures)

Date of Change	Changes Made By	Changes Made/Notes	Approved By