Subject: **MENINGOCOCCAL MENINGITIS EXPOSURE PLAN**	Original Issue Date: 06/2001 Supersedes: 02/2002	**Effective Date:** Sept 2022
Departments Consulted: Facilities Management Safety Office Surgery Department Public Health	**Reviewed & Approved By:** Paul Holtom MD, Hospital Epidemiologist Noah Wald-Dickler MD, Associate Hospital Epidemiologist Chair and Vice-Chair, Infection Control Committee	**Approved By**: Brad Spellberg, MD Chief Medical Officer

PURPOSE

To provide guidelines for the management of exposure to *Neisseria meningitidis* in cases, contacts, patients, healthcare workers, and household contacts. These guidelines are in concordance with public health guidelines and OSHA regulations pertaining to the prevention of infectious disease transmission in healthcare settings.

POLICY

The following procedures are to be followed whenever there is an exposure to suspected or confirmed case of invasive disease due to *Neisseria meningitidis*.

BACKGROUND

The control of the spread of *Neisseria meningitidis* infection to healthcare workers and contacts is required by Public Health policy. Outbreaks of this potentially fatal bacterial disease have been reported in communal settings including in military recruits, college dormitories, and prisons. Invasive meningococcal disease is a reportable infectious disease which can be contained by early treatment of household contacts and exposed healthcare workers by adherence to public health guidelines. The procedures set forth detail the LAC+USC Medical Center's plan for managing exposures to *Neisseria meningitidis*.

PROCEDURE:

DEFINITIONS:

Neisseria meningitidis is a gram-negative diplococcus that can cause pyogenic bacterial meningitis and adrenal failure in humans. CNS infection due to *N. meningitidis* is referred to as meningococcal meningitis. The bacterium has an incubation period of 2-10 days; commonly 3-4 days. It is found in the nose and throat secretions of infected persons and asymptomatic carriers and is spread mostly by respiratory droplets. In severe infections. *N. meningitidis* may be transmitted by exposure to infected hazardous bodily fluids such as blood and cerebrospinal fluid.

Healthcare workers (HCW): persons who provide health care to patients or work in institutions that provide patient care: physicians, nurses, emergency medical personnel, dental professionals, students, medical and nursing students, laboratory technicians, hospital volunteers and administrative and support staff in health-care institutions. The workers may be compensated or uncompensated, and work in the facilities in the LAC+USC Medical Center.

Source is a person who is infected with *N. meningitidis*, and whose body fluids have, directly or indirectly, exposed a HCW. A source may also include research animals involving animal models of *N. meningitidis* and whose bodily fluids directly or indirectly expose a HCW.

Healthcare Service Site (HCSS): the following are sites a HCW may utilize for care after a *N. meningitidis* or meningococcal meningitis exposure. All HCWs will be assigned to a HCSS at the time they become an employee of Los Angeles County, University of Southern California, Health Research Associates, USC Norris Cancer Hospital, USC Healthcare Consultation Center, and Keck Medical Center of USC.

a. For Los Angeles County DHS Employees

- Monday through Friday 7:00am to 4:30pm: report to LAC+USC Medical Center Employee Health Services, 2020 Zonal Ave IRD Building, Ground Floor, Room 22
- After hours: report to the LAC+USC Medical Center Emergency Department (ED).
- After an initial after hours ED evaluation, DHS employees will be directed for next business day follow-up with LAC+USC Employee Health Services at the above address.
- LAC+USC Employee Health Contact: lacusc-ehs@dhs.lacounty.gov or 323-409-5236

b. For University of Southern California (USC)-employed physicians and USC students:

- Monday through Friday 8:00 am to 4:00 pm: report to the USC Internal Medicine Clinic located at the USC Keck Healthcare Consultation Center II (HCC II):1520 San Pablo Street, Los Angeles, CA 90033.
- After hours: report to the Keck Hospital Evaluation and Treatment Clinic (ETC), 1520 San Pablo Street Los Angeles, CA 90033; Phone 323-442-9922. Follow-up after initial evaluation will be done with USC Internal Medicine at HCC II.

c. For U.S. Navy Personnel

- Initial visit may be provided through LAC+USC Employee Health Services or after hours in the LAC+USC Medical Center Emergency Room. Seek follow-up care at the treatment center designated by the employing facility/agency.

d. For Visiting/Rotating Residents & Fellows (non-USC or LA County employees)

- Seek care at the initial treatment center designated by the employing facility/agency.

e. For other Contractor Employees:

- Depending on contract language, initial visit may be provided through LAC+USC Employee Health Services or the LAC+USC ED.

I. Methods of Preventing Transmission of *Neisseria meningitidis*:

A. **Universal Practice of Standard Precautions**:

1. Hands and other skin surfaces must be thoroughly washed with soap and water immediately following exposures to all blood and body fluids.
2. Fluid resistant gloves shall be worn when handling all blood and hazardous body fluids and while performing procedures where there is a potential for exposure, such as venipuncture, intubation, and lumbar puncture.
3. Gloves shall be removed, and hands washed following direct patient care with each individual patient.
4. A barrier gown or disposable plastic apron shall be worn to protect clothing whenever there is likelihood of clothing becoming soiled with blood or body fluids.
5. Protective eye wear and surgical mask or a full-face shield shall be worn whenever there is the likelihood of either splashing body fluids into the eyes, mouth, or nose.
6. HCW will don respirators, which have been properly fitted for their face for the bedside care of all suspect cases of meningococcal meningitis who are potentially infectious.
7. Ambu bags, airways, dental equipment, and other ventilation devices used to resuscitate potential *N. meningitidis* sources shall be disinfected per sterilization and decontamination procedures or discarded in proper receptacles after use.

8. Extreme caution shall be taken to prevent percutaneous injuries from needles and other sharp instruments- please refer to policy entitled "Bloodborne Pathogen Exposure Control Plan."

B. Use of Droplet Precautions for Suspected or Confirmed Invasive Meningococcal Disease

1. All patients with suspected bacterial meningitis -which includes possible meningococcal meningitis- will be placed in droplet isolation precautions.
2. Droplet precautions will remain in place until a) meningococcal meningitis is excluded by CSF analysis or b) at least 24 hours of effective antimicrobial therapy has been administered.

C. Personal Protective Equipment (PPE)

1. Personal protective equipment shall be readily accessible at the work site, to include, but not be limited to: gowns, gloves, masks, protective glasses, face shields, and needles with engineered sharps injury protection devices.
2. Personal protective equipment required for respiratory protections shall be evaluated and issued according to the **RESPIRATORY PROTECTION PLAN POLICY**.
3. HCWs shall be instructed in the use and proper maintenance of all issued personal protective equipment. The views of HCW shall be solicited annually with regard to the type and efficacy of the issued personal protective equipment.
4. These procedures and issued personal protective equipment shall be reviewed annually and modified whenever worker safety devices or technology warrant review and revision.
5. Personal protective equipment that is not approved by the Infection Control Committee shall not be purchased for use in the facility. HCWs may not use unapproved personal protective equipment and may only use employer-issued supplies or equipment.

D. Care of Environment

1. Disinfect fomites contaminated with nose and throat secretions, e.g., intubation materials, airway instruments, bag valve masks, dental instruments, and etc.
2. Maintain adequate ventilation of living and sleeping quarters for patients and house staff
3. Place case in respiratory isolation where air changes is documented to be adequate by indicator test.
4. Cases must remain in respiratory isolation on appropriate antibiotics for a minimum of 24 hours.
5. Consult with epidemiology or infectious disease staff before removing the case from respiratory isolation.
6. The environment shall be maintained in a clean and sanitary condition. Procedures for cleaning hazardous body fluid spills or overtly contaminated work areas are contained in the Environmental Services Procedure Manual, Laboratories and Pathology Department Procedures, and the facility **MEDICAL WASTE MANAGEMENT PLAN**. These procedures safeguard the safety of the worksite by identification and evaluation of current workplace hazards and implement a plant for their correction in a timely manner.

E. Training and Information

1. HCWs shall be instructed annually in the identification of meningococcal meningitis:
   a. ***Symptoms***: sudden onset of fever, headache, nausea, vomiting, stiff neck, lethargy, rash, photosensitivity rigors and irritability
   b. ***Signs***: Petechial rash over trunk and arms, confusion, delirium, coma, ecchymosis, and shock
   c. ***Differential Diagnosis***: Other bacterial or viral agents, rickettsia, and anaphylactoid purpura
   d. ***Diagnosis***: Diagnosis confirmed by positive blood or CSF culture or by CSF PCR
   e. ***Transmission***: by direct contact with an infected person, often an asymptomatic carrier or droplet spread from the airway or respiratory secretions of an infected individual. Transmission is usually limited to those who are in direct communication with the patient's airway, mouth, and nose. Unusual transmission routes include blood or cerebrospinal fluid percutaneous exposure.
2. HCWs shall also be instructed annually in the treatment, management, post-exposure management for cases and contacts, and reporting procedures for cases of *N. meningitidis* by the Department of Infection Control and Prevention (IPC).

II. Post Exposure Management:

A. Risk Assessment and Certification of Exposure

1. Responsibilities of Treating Physician
   a. The treating physician shall conduct a proper clinical evaluation and laboratory investigation to confirm a suspect case of *N. meningitidis* infection. Blood and CSF specimen for culture and CSF for PCR (BioFire Meningoencephalitis Panel).
   b. The suspect case shall be immediately hospitalized.
   c. If the suspect case refuses hospitalization, respiratory (droplet) precautions shall be instituted until the end of the febrile period and until all acute symptoms subside.
   d. Suspect cases shall be promptly treated with specific treatment for *N. meningitidis* (parenteral penicillin, chloramphenicol, cefotaxime, or ceftriaxone). Treat all cases with an antibiotic effective for prophylaxis prior to discharge to eradicate nasal carrier state.
   e. If treatment is refused, the patient is to remain under respiratory (droplet) precautions until released by the public health district health officer.
   f. Place suspect cases in respiratory (droplet) isolation, pending laboratory confirmation.
   g. Use appropriate personal protective equipment for yourself and notify all others who are involved in direct patient care to use proper personal protective equipment and standard precautions.
   h. Notify the IPC Department as soon as possible.
   i. Complete all forms required by IPC for this reportable disease.
   j. If the case is a Jail patient, complete the supplemental jail questionnaire if requested.
   k. Request the charge nurse initiate a HCW contact list for EHS, the Safety Office, and IPC.
   l. If household contacts are present, initiate chemoprophylaxis for these close household contacts and request they get all other household contact treated immediately (see below).
   m. Refer all HCW contacts to the IPC listed above in definitions who will coordinate with EHS.
   n. If the patient has been referred from another healthcare facility, dormitory setting, residential or jail facility, notify IPC and/or public health immediately.

2. Responsibilities of Infection Control & Prevention Staff
   a. Upon notification of confirmed *N. meningitidis* infection notify Public Health authorities, the treating physician, and Employee Health.
   b. Review the patient's treatment plan for adequacy, isolation status, and disposition of all contacts.
   c. If a HCW contact list was not generated request the charge nurse(s) associated with the patient's care initiate and return this list.
   d. Recommend appropriate treatment plans and timely discharge from isolation facilities.
   e. Notify Public Health and referral sources of the need to trace and treat all contacts.

3. Responsibilities of Laboratory and Pathology staff
   a. Notify the treating physician and IPC staff of preliminary results consistent with *N. meningitidis*.
   b. Upon confirmation of *N. meningitidis* identification, notify the treating physician and IPC staff.
   c. Public Health reporting mandates for laboratory services must be observed.
   d. Isolates are to be referred to Public Health Laboratories, as per protocol.

4. Responsibilities of Employee Health Services (EHS)
   a. Upon receipt of contact list, confirm the case status of the case with IPC staff.
   b. Schedule appointments immediately with all HCW contacts.
   c. Document in the medical records of each HCW after interview, what level of contact the exposed HCW had to the SOURCE or suspect SOURCE.
   d. If the HCW's contact with the SOURCE was close, i.e., the exposed HCW had prolonged, unprotected, direct contact with nose and throat secretions, while doing investigation, examination, or procedures involving the airway of the SOURCE; or if the HCW had percutaneous or mucosal membrane exposure to blood or body secretions from the suspect or confirmed SOURCE, offer chemoprophylaxis (see below).
   e. If the HCW 's contact with the SOURCE or suspect SOURCE was not close, educate the HCW that chemoprophylaxis is not recommended.

f. If an epidemic or outbreak of a particularly meningococcal serogroups is present in the community (as per Public Health analysis of attack rates within Los Angeles County), the need for HCW meningococcal vaccination of HCWs in high-risk departments including Emergency Medicine, Pre-hospital Care, Dental, Otolaryngology, and Anesthesiology Departments will be considered. The decision to offer vaccine must be approved by the Infection Control Committee.

B. Initial Exposure Management

1. ***For a percutaneous or mucous membrane exposure***, follow guidelines for Bloodborne Pathogen exposure in outlined in BLOODBORNE PATHOGEN EXPOSURE CONTROL PLAN.
2. ***Supervisor Notification***- HCWs must notify area supervisor immediately. The HCW and supervisor should complete Industrial Accident ("IA") paperwork and refer the HCW to the appropriate EHS for care. The supervisor must conduct an investigation of the exposure to determine if and why the HCW was not using proper personal protective equipment.
3. ***Management of exposure in affiliating/contract worker-*** HCW must notify the area contract manager/affiliation monitor and should either be referred to the facility HCSS for immediate care or to the appropriate IA provider provided by the contractor/affiliating agency. An incident report should be filed by the contract manager who must also investigate why the contract HCW was not using the proper personal protective equipment.
4. ***Management of exposure in student worker***- the student HCW must notify the supervising instructor and should either be referred to the facility for immediate care or to the appropriate student health service site provided by the affiliating school. An incident report should be filed by the facility affiliation monitor who must also investigate if and why the student HCW was not wearing the proper personal protective equipment. An analysis should also be performed of the duties the affiliated student was assigned, and the level of supervision provided by the supervising instructor.
5. ***Management of exposure in a visitor or family member***- the visitor or family member should be referred to the Department of Emergency Medicine for chemoprophylaxis and interviewed for signs and symptoms of active disease.

C. Chemoprophylaxis & Surveillance of Contacts of Invasive Meningococcal Source Cases

1. Control of contacts: First Line Chemoprophylaxis

a. Infants of one month or less age: Rifampin 5 mg/kg by mouth every 12 hours for 2 days
b. All others except those who are pregnant: Rifampin 10 mg/kg to a maximum of 600 mg every 12 hours for two days or 20 mg/kg to a maximum of 600 mg by mouth daily for 4 days.

2. Control of Contacts- Alternative Chemoprophylaxis Medications:

a. Ceftriaxone (pregnancy approved)
   1) At least 12 years of age 125 mg once IM
   2) Older than 12 years of age 250 mg once IM
b. Ciprofloxacin (not recommended with pregnancy). Nonpregnant adults older than 18 years may receive ciprofloxacin 500 mg orally as a single dose.

3. Surveillance of Contacts:

a. Follow contacts for 10 days after last exposure to the SOURCE
b. Chemoprophylaxis does not ensure infection will not occur
c. If signs and symptoms listed above occur, immediately referral for hospital care is recommended.
d. Chemoprophylaxis is not recommended if the contact is not a household contact or, for HCW, the type of case contact was not as described above.
e. Discontinue surveillance after 10 days, and do not initiate therapy in contacts after 10 days post-exposure to the source.

4. Management of Carriers:

a. Carriers are treated with the same regimen as Contacts

b. Evaluate each carrier individually, Routine cultures of the nasopharynx are not indicated. Special consideration should be given to HCW carriers who are in routine contact with asplenic or immunocompromised patients.

5. Invasive Meningococcal Epidemic Control

a. Meningococcal polysaccharide vaccine (tetravalent A, C, W135 and Y) and/or serotype B vaccines may be offered, although they are not routinely indicated for nonpregnant HCWs in the United States.
b. Vaccine Dosage: volume, boosters and route specified by the manufacturer.

III. Medical and Occupational Injury Record Disposition:

A. Disposition of HCW Medical Record

1. Medical Record Components
   a. All documents pertaining to treatment rendered at HCSS
   b. All Progress notes
   c. Consultation with Infectious Disease Specialists
   d. All signed consents for Immunizations, vaccinations or other medications
   e. All counseling documents
   f. All declination documents
   g. All Public Health Reporting documents if *N. meningitidis* infection is documented

2. Retention Period

a. Medical records shall be maintained in a secure area of each HCSS in accordance with Title VIII requirements of the California Code of Regulations. The current retention period is 30 years from the date of separation from service with Los Angeles County.
b. Such records are subject to review as per OSHA guidelines.

B. **Occupational Injury Reporting Documents**

These documents are specific to the HCW's corresponding Employee Health Service, but may include:

a. Employer's Report of Occupational Injury or Illness (to be filed by HCW's Supervisor)
b. A notice of injured Employee Claiming Industrial Accident (to be filed by HCW Supervisor & EHS)
c. Doctor's First Report (a coded report to be sent to Worker's Compensation Provider, unless the HCW elects to use anonymous identifiers).
d. A Supervisor's Investigation of the exposure.

REFERENCES:

LA County Department of Public Health Acute Communicable Disease Control (ACDC). *Meningitis and Meningococcal Disease*. Available at: http://publichealth.lacounty.gov/acd/mening.htm

Centers for Disease Control and Prevention. Meningococcal Disease.
Available at: https://www.cdc.gov/meningococcal/index.html