• **Section Ia: Policy for Laboratory Personnel Who Are Working with *Neisseria Meningitidis***

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**Policy Statement**

This policy addresses the procedures required by the University to reduce the risk of exposure to *Neisseria Meningitidis* for laboratory personnel who work with this infectious agent. This policy also reinforces the University requirements of strict adherence to Standard Precautions for all personnel in laboratories, as adherence to Standard Precautions is the most effective way to prevent exposure and transmission.

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**Definitions**

*Standard Precautions* are the minimum prevention measures that apply to all laboratory work. These evidence-based practices are designed to protect laboratory personnel from exposure to infectious agents. Standard Precautions include: 1) hand hygiene, 2) use of personal protective equipment (e.g., gloves, gowns, eye protection), depending on the anticipated exposure, 3) safe sharps procedures, and 4) safe handling of potentially contaminated equipment or surfaces in the laboratory environment.

*Neisseria meningitidis* is a bacterium that causes meningococcal disease. About 10% of people have this type of bacteria in the back of their nose and throat with no signs or symptoms of disease. However, sometimes the bacteria can invade the body causing certain illnesses, known as meningococcal disease. *N. meningitidis* is the major cause of infectious morbidity and mortality globally, and is responsible for epidemics in Africa and in Asia. In the United States, 1000 to 2600 cases of *N. meningitidis* infection occur annually; most cases are sporadic.

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**Audience**

Laboratory personnel who manipulate *N. meningitidis* or work in labs that manipulate *N. meningitidis* are covered by this Policy.

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**Reason for Policy**

Recent laboratory-acquired infections as reported by the Centers for Disease Control (CDC) and the Occupational Safety and Health Administration (OSHA) reflect the need for the University to address the potential risks associated in working with *N. meningitidis* and preventative measures used to mitigate those risks.

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**Roles and Responsibilities**

UNC’s Environmental, Health, and Safety’s Biological Safety section and the University Employee Occupational Health Clinic are responsible for the administration of this Policy as it pertains to employees of the University. Final responsibility for compliance with this Policy, including the authorization of temporary or permanent work restrictions for faculty and/or staff, lies with the Dean of the appropriate professional school.
Prevention

**Vaccine** – Three meningococcal vaccines are licensed in the United States, one polysaccharide vaccine (MPSV4) and two conjugate vaccines. One of the conjugate vaccines uses diphtheria toxoid as the protein carrier (MCV4-DT) and the other uses CRM197 (MCV4-CRM) as the protein carrier. All three vaccines cover meningococcal serogroup A, C, W-135, and Y strains but not serogroup B strains, which are a common cause of meningococcal disease in the United States. In general, conjugate vaccines are preferred over polysaccharide vaccine. However, MCV4-DT is licensed only for persons 2 through 55 years old and MCV4-CRM for persons 11-55 years old. Vaccine effectiveness for the included serogroups is generally considered to be about 75%-90%. For adults, a single dose of vaccine is required with a second dose 5 years later among persons who remain at high risk. For information on the most commonly reported adverse events for MCV4-DT, MCV4-CRM, and MPSV4 and the medical contraindications, which include, depending on the vaccine, and allergic reaction to previous vaccine administration or vaccine components, see the Vaccine Information Sheet (http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-mening.pdf.)

Vaccination will not be offered to those individuals over the age of 55. However post-exposure prophylaxis will be offered to anyone potentially exposed to *N. meningitidis* with consent.

**Chemoprophylaxis** – Antibiotic chemoprophylaxis with rifampin, ciprofloxacin, or ceftriaxone is available for the prevention of meningococcal disease following known high-risk exposures. Laboratory personnel with high-risk exposure, regardless of immunization status, should contact University Employee Occupational Health Clinic (UEOHC) at 919-966-9119 immediately for evaluation for the need for chemoprophylaxis.
Laboratory Hazards and Communicability

Use of *N. meningitidis* is restricted to Biosafety Level 2 or Animal Biosafety Level 2 (BSL-2/ABSL-2) facilities with strict adherence to BSL-2/ABSL-2 engineering practices and personal protective equipment. All work with live *N. meningitidis* organisms must be done in a biosafety cabinet.

*N. meningitidis* can be transmitted in a laboratory setting through needlesticks, droplet exposure to the mucous membranes and poor adherence to biosafety precautions. Many of the cases of laboratory transmission have occurred while working with live *N. meningitidis* on an open bench. Use of a certified biological safety cabinet is required for manipulation of *N. meningitidis*.

Employees at Risk- Handling of the *N. meningitidis* agent and/or research animals experimentally infected with *N. meningitidis* creates the highest risk of exposure and potential infection. Due to the presence of engineering controls, personal protective equipment and work practices, employees entering areas where *N. meningitidis* is utilized are at less risk of infection.

Guidelines

**Principal Investigators (PIs)**

A. Registration/Notification

1. All Principal Investigators (PI’s) using *N. meningitidis* must register the agent in the Schedule F section of their laboratory safety plan (https://itsapps.unc.edu/LabSafetyPlan/).

2. Biosafety Level 2 practices, containment equipment and EHS-approved BSL2/ABSL2 facilities are required for all activities involving the use or manipulation of *N. meningitidis* and infected animals. **Handling of *N. meningitidis* must be conducted in a biosafety cabinet.**

3. Laboratories shall be inspected by EHS at least annually to verify appropriate BSL-2 containment and practices.

4. All individuals who directly handle a) cultures or b) animals contaminated or infected with non-attenuated *N. meningitidis* strains that infect humans must be medically screened by UEOHC for contraindications to *N. meningitidis* exposure and/or *N. meningitidis* vaccine. Vaccination is offered to individuals seeking to handle *N. meningitidis* or infected animals at the University of North Carolina. **Proof of vaccination or written declination is required prior to working with *N. meningitidis*.** Vaccination is provided at no cost to the employee.

5. Visitors are not permitted to handle *N. meningitidis* or infected animals at the University of North Carolina unless they have demonstrated proficiency at BSL-2 practices and have documented evidence of vaccination.
6. It shall be the responsibility of the Principal Investigator and/or individuals responsible for control of access to a *N. meningitides* facility to assure that individuals with potential *N. meningitides* exposure are enrolled in the occupational health requirements of this SOP, and are vaccinated before initial handling of *N. meningitidis*.

7. Laboratory personnel must wear personal protective equipment (lab coat, gloves, eye protection, and N95) when handling *N.meningitidis* and all manipulations of *N. meningitidis* must be performed in a biosafety cabinet. Personnel entering BSL2 containment facilities must abide by the PPE requirements for the specific facility as established by EHS. Refer to the University of North Carolina Biosafety Manual Chapter 4, Section 1 for more details on Biosafety level 2 requirements.

8. Anyone experiencing signs or symptoms of *N. meningitidis* (severe headache, stiff neck, fever) should contact University Employee Occupational Health Clinic (M-F 8:30am-4:30pm, 919.966.9119). The PI must notify EHS. Notification should be made to the local health department within 24 hours of positive test results.