GUIDANCE FOR CLINICIANS CARING FOR PATIENTS IN THE CONTEXT OF THE MENINGOCOCCAL DISEASE OUTBREAK AT RUTGERS UNIVERSITY–NEW BRUNSWICK

July 1, 2016

PURPOSE OF THIS DOCUMENT: Provide guidance for clinicians caring for patients who may be impacted by the meningococcal disease outbreak at Rutgers University–New Brunswick (RU-NB).

BACKGROUND: In March and April of 2016, 2 cases of invasive serogroup B meningococcal disease were diagnosed in undergraduate students at RU-NB. Both patients had meningitis, and one had bacteremia. Both students have since recovered, and neither has any sequelae. A public health investigation did not identify a common epidemiologic link between the 2 patients aside from their affiliation with RU-NB.

Molecular testing performed at the Centers for Disease Control and Prevention (CDC) determined that the 2 isolates from these cases were genetically indistinguishable even though no common link was found between the two students. This suggests that this particular strain is present among the Rutgers University-New Brunswick undergraduate student population and that there is an outbreak.

Meningococcal bacteria are spread from person to person through exchange of respiratory secretions during close or lengthy contact. The bacteria are commonly carried in the nasopharynx, and most persons remain asymptomatic while carrying the bacteria. Asymptomatic nasopharyngeal carriage can last for several months.

The standard meningococcal conjugate vaccine routinely given to adolescents prior to college entry protects against 4 serogroups of meningococcal bacteria, A, C, W, and Y (MenACWY), but not against serogroup B. Vaccination with MenACWY is recommended as per Advisory Committee on Immunization Practices (ACIP) guidelines.

ACIP recommends serogroup B meningococcal (MenB) vaccination for persons aged 10 years and older at elevated risk for meningococcal disease [*1*]. Those at elevated risk include:

- **Persons with certain medical conditions and occupations***
- ****Persons identified to be at increased risk because of a serogroup B meningococcal disease outbreak****

Two MenB vaccines, Trumenba® and Bexsero®, are licensed for use in the United States. **Based upon laboratory testing of the specific outbreak strain at RU-NB, the best protection is expected with the full 3-dose series of Trumenba®.** Therefore, the NJDOH and Rutgers University recommend, with support from the CDC, that Trumenba® be administered to certain persons (outlined below) to help protect against the particular strain present on the RU-NB campus. While one or two doses of Bexsero® or Trumenba® will provide some short-term protection against the specific outbreak strain at RU-NB, the best protection is expected to require completion of the **full three-dose series of Trumenba® with the second dose given 1–2 months after the first and the third dose 6 months after the first**.

Unrelated to this outbreak, ACIP also states that clinicians may administer either MenB vaccine to persons aged 16–23 years to provide short-term protection against most strains of serogroup B meningococcal disease (Category B recommendation) [*2*]. The preferred age for MenB vaccination is 16–18 years.

*Persistent complement component deficiencies (C3, C%-C9, properdin, factor H, factor D); receipt of the medication eculizumab (Soliris®) for treatment of atypical hemolytic uremic syndrome (aHUS) or paroxysmal nocturnal hemoglobinuria (PNH); anatomic or functional asplenia (including sickle cell disease); or microbiologists routinely exposed to *Neisseria meningitidis*

GUIDANCE FOR ASYMPTOMATIC PERSONS:

Vaccination is the most important clinical intervention for preventing disease in increased-risk populations.

The campus populations at increased risk for developing invasive meningococcal disease and who are recommended to receive Trumenba® in response to this outbreak include:

a. **Undergraduate students at RU-NB**
b. **Graduate students at RU-NB living in undergraduate dormitories**
c. **Persons at RU-NB with certain medical conditions or occupations***

1. **Trumenba® is recommended for the populations listed above to be administered as follows:**
   a. Dose 1: 0 months
   b. Dose 2: 1–2 months after Dose 1
   c. Dose 3: 6 months after Dose 1
2. **Important points about vaccination:**
   a. Trumenba® can be given at the same time as the MenACWY vaccine or any other vaccine.
   b. **The two-dose Trumenba® vaccine schedule is not recommended in response to this outbreak.**
   c. Bexsero® is also a licensed MenB vaccine. **However, based upon the molecular profile and additional testing of the particular strain currently circulating at RU-NB, the best protection is expected with the full 3-dose series of Trumenba®.**
3. **Persons for whom MenB vaccination is not recommended in response to this outbreak:**
   a. Graduate students not living in undergraduate dormitories, faculty, and staff at RU-NB who do not have high-risk medical conditions or occupations*
   b. Persons not affiliated with the RU-NB campus. Students at other Rutgers campuses are not recommended for MenB vaccination in response to this outbreak.
4. **Mass antimicrobial chemoprophylaxis of asymptomatic persons is not usually recommended for meningococcal outbreak control. However, asymptomatic close contacts of suspected or confirmed meningococcal disease cases should receive antimicrobial chemoprophylaxis.**
5. Unrelated to this outbreak, for any person aged 16–23 years, vaccination against serogroup B meningococcal disease can be considered, as per the Category B recommendation by ACIP [*2*].
6. Screening for nasopharyngeal carriage of meningococcal bacteria in asymptomatic persons is not recommended.

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GUIDANCE FOR SYMPTOMATIC PERSONS:

The populations at increased risk for developing invasive meningococcal disease in this outbreak are:

a. **Undergraduate students at RU-NB**
b. **Graduate students at RU-NB living in undergraduate dormitories**
c. **Persons at RU-NB with certain medical conditions and occupations***

1. **The most common clinical manifestations of invasive meningococcal disease are meningitis and bacteremia (which can occur without meningitis).** Other forms of invasive disease are possible but less common.
2. A high index of suspicion is required to detect meningococcal disease.
3. Signs and symptoms of invasive meningococcal disease can include: fever, chills, malaise, headache, nuchal rigidity, nausea, and vomiting.
    a. **However, in the early stages of clinical disease, particularly when meningitis is absent, symptoms might be nonspecific.**
4. **If meningococcal disease is suspected, prompt administration of antibiotics is recommended. Immediate notification (including outside of normal business hours) to public health authorities is required as per N.J.A.C. 8:57.** Reporting information is available through the NJDOH website at http://www.nj.gov/health/cd/reporting.shtml.
5. **If a patient has early signs or symptoms of meningococcal disease but the clinical diagnosis is unclear, consideration of ongoing monitoring is recommended.** Patients with invasive meningococcal disease can deteriorate rapidly if untreated. The disease has a 10–15% case-fatality ratio, and among survivors, 11–19% have permanent sequelae.

References

1. Folaranmi T, Rubin L, Martin SW, Patel M, MacNeil JR. Use of serogroup B meningococcal vaccines in persons aged ≥10 years at increased risk for serogroup B meningococcal disease: Recommendations of the Advisory Committee on Immunization Practices, 2015. *MMWR Morb Mortal Wkly Rep*. 2015; 64(22): 608–612.
2. MacNeil JR, Rubin L, Folaranmi T, Ortega-Sanchez IR, Patel M, Martin SW. Use of serogroup B meningococcal vaccines in adolescents and young adults: Recommendations of the Advisory Committee on Immunization Practices, 2015. *MMWR Morb Mortal Wkly Rep*. 2015; 64(41): 1171–1176.

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