



epiConnections

A BIMONTHLY NEWSLETTER OF THE COMMUNICABLE DISEASE AND
EMERGENCY MANAGEMENT DIVISION OF BOULDER COUNTY PUBLIC HEALTH

Serogroup B Meningococcal Disease: Fast-Moving and Lethal

Neisseria meningitidis is a gram negative diplococcus bacteria with 12–13 different serotypes. The six serotypes that can cause epidemics are A, B, C, W-135, and Y. In the United States, the most prevalent serogroups are B, C, and Y. Serotype B *Neisseria meningitidis* is the cause of 30–40% of meningococcal disease in the United States. In 2012, 160 of the 500 total cases of invasive meningococcal disease nationwide were caused by serogroup B. Between 2013 to 2015, outbreaks of serogroup B occurred on four college campuses (University of Oregon, Providence College, Princeton University, and the University of California, Santa Barbara). As a result of the outbreaks, two students died; some continue to have memory loss, difficulty concentrating, and retaining information; one student lost both legs.

Transmission: For 5–15% of adults, the bacteria are a normal non-pathogenic human flora of the nasopharynx. It is spread from a serogroup B-positive person by saliva and respiratory secretions from coughing, sneezing, kissing, and sharing eating utensils/drinking glasses. The incubation period is 2–10 days, with the average being 4 days. The highest incidence occurs in children under one year of age with another peak occurring in adolescents. Individuals attending college appear to have increased potential due to enhanced person-to-person exposure from crowded living situations (e.g. dorms); increased social interactions; increased number of kissing partners; and sharing smoking materials/equipment.

Mortality: Meningococcal disease can have a sudden onset that mimics other viral and bacterial diseases and can progress at a rapid pace. Even with rapid, aggressive treatment, mortality is 10–15%. Of the surviving individuals, 11–19% can have long-term disabilities, such as brain damage, hearing loss, learning disabilities, or limb amputations. Suspicion of meningitis is a medical emergency with a narrow window of opportunity to decrease mortality and morbidity.

Vaccine: Vaccine development has been crucial to the decrease in incidence of invasive meningococcal disease, particularly against serotypes A, C, W-135, and Y; approximately 70% of adolescents ages 11–18 in the U.S. have been vaccinated with the A, C, W-135, Y vaccine. The vaccine (MenB) is based on using a fragment of the polysaccharide capsule on the A, C, W-135, and Y bacteria to trigger an immune response. Because the polysaccharide capsule on serogroup B resembles other human cells, researchers had to employ a different approach for vaccine development. Isolated protein fragments (factor H protein) on serogroup B surface has been used to develop two FDA-approved vaccines: Trumenba (Pfizer) and Bexsero (Novartis).

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Meningococcal B Vaccination for Adolescents and Young Adults is Covered by Insurance

At its June 2015 meeting, the Advisory Committee on Immunization Practices (ACIP) continued to recommend MenB vaccination for those with persistent complement component deficiencies, those with anatomical or functional asplenia, microbiologists exposed to *Neisseria meningitidis*, and those at risk during meningitis B outbreaks. There was not a recommendation for all persons in an age- or risk factor-based group.

The Centers for Disease Control and Prevention (CDC) recommendations are developed using an evidence-based method called the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach, which includes assessing and evaluating the balance of benefits and harms, type or quality of evidence, values and preference of the people affected, and health economic analysis. The MenB recommendation falls under Category B, termed “individual clinical decision-making,” which leaves the decision on whether or not to vaccinate to doctors and their patients. The Category B classification requires coverage of the vaccine by private and public health insurance policies, including Vaccines for Children (VFC).

The ACIP recommendation is for individuals 16–23 years of age to be vaccinated, with emphasis on individuals aged 16–18 years.

Under the Affordable Care Act, insurance companies must cover all ACIP category A and B recommendations without cost-sharing (when delivered by an in-network provider). This clause is mandated to be implemented within one year after the recommendation is made and published in the MMWR (June 12, 2015).

For insurance to cover the cost of the MenB vaccine for patients aged 16–23 years of age, health care providers must discuss and recommend it to the individual or their parents (for those younger than 18 years).

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Emergency Management Program
HIV/STI Outreach Program
Immunization Program
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 epiEye

A Look Outside Our Community
and Around the World

First Human Case of Plague in Boulder County Since 1993

On July 28, 2015, Boulder County Public Health confirmed the first case of human plague (*Yersinia pestis*) in Boulder County since 1993. The individual received a misdiagnosis of *Pseudomonas luteola* at an emergency room in another state after experiencing fever, chills, muscle pain, weakness, loss of appetite, and confusion. A physician team in Boulder County recognized the possible misdiagnosis and retested the blood. After confirmation of *Yersinia pestis* diagnosis, the individual received antibiotic treatment and is now recovering at home. A chipmunk found on the individual's property subsequently tested positive for plague.

The Boulder County case is classified as septicemic plague. There have been three additional cases of *Yersinia pestis* in Colorado in 2015. Unfortunately, two of the individuals did not survive.

Automated systems used in clinical laboratories can rapidly and accurately identify common bacterial species but are known to misidentify slow-growing, fastidious, or rare pathogens, such as *Yersinia pestis*, *Francisella tularensis*, *Burkholderia pseudomallei*, and *Brucella* species. In published reports, *Yersinia pestis* (the causative agent for plague) has been misidentified by automated systems as *Acinetobacter lwoffii*, *Pseudomonas luteola*, and *Yersinia pseudotuberculosis*. This misidentification leads to delays in diagnosis of what could be a fatal zoonotic pathogen.

Symptoms of plague generally include sudden onset of high fever, muscle pain, malaise, nausea, and vomiting, or a general feeling of being ill. Individuals with bubonic plague develop a large, swollen, painful lymph node (a bubo) in the area of the flea bite. If the patient is not promptly treated with antibiotics, the plague bacterium can enter the bloodstream (septicemic plague) or lungs (pneumonic plague) causing severe, life-threatening complications.

If you suspect plague, contact the Boulder County Public Health Disease Control Program at 303-413-7500, or after hours at 303-413-7517 to facilitate testing. Guidance for plague was faxed through the Health Alert Network (HAN) on July 28, 2015. If you need to be added to the HAN list, please email Linda Rae at lrae@bouldercounty.org.

Source: CDPHE HEALTH ADVISORY July 28, 2015: *Plague (Yersinia pestis) active in Colorado*

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Flu Vaccination is Also Important for Health Care Personnel

The Advisory Committee on Immunization Practices (ACIP) recommends annual influenza vaccination for all health care personnel; however, during last year's flu season, only 75.2% of health care providers received the vaccination.

Vaccination coverage was highest among pharmacists, physicians, nurse practitioners, physician assistants, and nurses. Coverage was lowest among assistants/aides and non-clinical workers. Staff who refused the vaccination stated they did so because they didn't think the vaccine worked, they didn't believe they needed the vaccine, and/or they believed the vaccine would make them sick.

To increase rates of influenza vaccination in your office, consider these three proven approaches:

- Promote flu vaccinations for staff at your workplace.
- Provide the vaccination at your workplace over several days at no cost.
- Require annual flu immunizations (this is the most effective strategy).

Reference: Black CL, Yue X, Ball SW, et al. Influenza vaccination coverage among health care personnel—United States, 2013–14 influenza season. MMWR Morb Mortal Wkly Rep September 18, 2015 /64(36); 993-999

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MEDICAL RESERVE CORPS OF BOULDER COUNTY

*Interested in joining and assisting
fellow Boulder County residents?*

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Meningococcal and Insurance, continued from page 1

In February 2015, the Advisory Committee on Immunization Practices (ACIP) recommended the vaccine series for:

- Laboratory personnel working with *Neisseria meningitidis*.
- Individuals exposed during an outbreak.
- Individuals with persistent complement component deficiency and anatomic or functional asplenia.

In June 2015, ACIP revisited the recommendations and decided to continue with the above criteria and included the vaccine as an option for college-aged students.

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