Traveler Information

MENINGOCOCCAL MENINGITIS

GENERAL INFORMATION

Introduction

Meningococcal infections are potentially fatal bacterial infections caused by different types (serogroups) of *Neisseria meningitidis* bacteria.

Transmission

Meningococcal bacteria are transmitted in airborne droplets from an infected person (e.g., by sneezing or coughing) or through contact with objects that are freshly soiled by an infected carrier's nasal secretions. The closer the contact, the greater is the risk of transmission. Military barracks, college dormitories, and other types of close living quarters facilitate transmission. Smoke-filled bars and clubs have been associated with outbreaks.

Epidemiology

Meningococcal disease occurs worldwide. In industrialized countries, the disease occurs in single cases or small clusters. In developing countries, large epidemics occur sporadically. In the meningococcal belt of sub-Saharan Africa, large epidemics occur during the hot dry season (December through June).

- Serogroups A and W-135 are the main cause of concern for travelers to the African meningitis belt. The W-135 strain has also been identified in Hajj-related outbreaks in Saudi Arabia.
- Since 2001, other serogroups have emerged, such as serogroup X, which has been associated with small-scale outbreaks in Niger, Uganda, and Burkina Faso.
- Serogroups B and C account for approximately 70% of cases in the United States.
- Serogroup B is the most important cause of meningococcal disease (especially in infants) in industrialized countries, accounting for 80% of meningococcal disease in some European countries and 30-40% in North America.
- Serogroup C is associated with outbreaks in schools and communities.
- Serogroup Y is infrequent worldwide but has accounted for about one-third of cases in the U.S.

Risk

Risk to travelers is generally low and cases are rare. However, risk increases as the length of stay and the level of contact with the local population increase. At-risk situations include:

- Travel to the African meningitis belt during the epidemic season
- Travel to any country where there is an ongoing epidemic
- Travel to work in a crowded community in a developing country
- Travel on international pilgrimages (e.g., Hajj or Umra); see "Special Considerations"
- Expatriates and long-stay travelers to countries (outside the U.S.) where meningococcal serogroup C is associated with outbreaks in schools and communities; see "Special Considerations" for information on a conjugate C vaccine that is given routinely to infants/children in these countries
- Close contacts with persons with meningitis
- Persons with complement component deficiency or asplenia, and those who have recently had influenza

Symptoms

The disease progresses rapidly. The most common signs and symptoms are fever and rash, followed hours or days later by severe headache, vomiting, and neck and back pain with rigidity, altered consciousness, and coma. In severe infections, a brief flu-like illness with a high fever leads directly to prostration and shock within hours. For those who recover, deafness and difficulty concentrating and sleeping are common. If not treated, more than

70% of infected persons will die from the disease.

Need for Medical Assistance

Sudden onset of fever while in a risk situation described above, especially if accompanied by rash or altered consciousness, requires immediate medical attention.

PREVENTION

Non-Vaccine: Travelers should employ good respiratory etiquette and frequent, thorough handwashing.

Vaccines: Vaccines are available that protect against serogroups A, C, Y, W-135; because they protect against 4 serotypes, they are called quadrivalent vaccines.

- Quadrivalent meningococcal conjugate vaccines (Menactra or Menveo) provide a high level of protection; however, immunity wanes over time.
- Quadrivalent meningococcal polysaccharide vaccine (Menomune) is 85-100% effective in older children and adults, but much less so in young children.

A vaccine combining Hib and meningococcal serogroups C and Y (Hib-MenCY; MenHibrix) is available for use in some children.

A vaccine against serotype C is available in some countries outside the U.S. See "Special Considerations."

A vaccine against serogroup B is not licensed in the United States.

Who Should Receive the Vaccine

Travel: Required – Quadrivalent Vaccine

Vaccination using quadrivalent vaccine is required for: All pilgrims entering Saudi Arabia for Hajj or Umra (see "Special Considerations")

Travel: Recommended – Quadrivalent Vaccine

Vaccination using quadrivalent vaccine (conjugate preferred) is recommended for:

- Travelers to or residing in certain countries where meningococcal disease is hyperendemic, endemic, or epidemic prone at times of the year, as specified in Travax country reports, especially if prolonged close contact with local populations is anticipated
- Travelers to any other country experiencing a current epidemic
- Health care workers traveling to any of the above countries at any time of year for health care work or research
- Some expatriates and long-stay travelers in countries where a meningococcal C vaccine is given routinely to children and infants:
    - University students who will be living in dormitories who have not previously received quadrivalent conjugate vaccine
    - Persons age 11-18 years who have not previously received quadrivalent conjugate vaccine

Note: For travelers to Africa or to any country experiencing a meningococcal epidemic, quadrivalent *conjugate* vaccine (MCV4) should be used preferentially over MPSV4. Prior receipt of Hib-MenCY is not sufficient for children traveling to the meningitis belt or the Hajj.

Travel: Recommended – Conjugate C Vaccine

Conjugated C meningococcal vaccines are widely available in many countries outside the U.S., where they are

part of the routine childhood immunization schedules. Conjugate C vaccine is recommended for expatriates and long-stay travelers aged 10 years or younger in countries (outside the U.S.) where meningococcal conjugate C vaccine is given routinely to infants/children:

- Children aged 2 months to 1 year: upon arrival
- Unimmunized children aged 1-10 years: upon arrival
- See "Special Considerations."

Note: Children who have received only the conjugate C vaccine still need the quadrivalent A, C, Y, W-135 vaccine if subsequent travel is planned to Africa or to Saudi Arabia for the Hajj.

Routine Vaccination

Quadrivalent meningococcal vaccine (conjugate vaccine preferred) is routinely recommended for:

- Adolescents aged 11-12 years (catch-up age 13-18 years)
- First-year college students (through age 21 years) living in residence halls if no dose was given on or after age 16 years
- Certain laboratory personnel
- Military recruits
- Children during a community outbreak caused by a vaccine serotype
- Persons with asplenia or persistent complement component deficiency

The combination vaccine Hib-MenCY is routinely recommended for:

- Children aged 2-18 months with asplenia (including sickle cell disease)
- Children aged 2-18 months with persistent complement pathway deficiency
- Children at increased risk due to community outbreaks of serogroup C or Y disease

Note: Children who have received only Hib/MenCY vaccine still need the quadrivalent A, C, Y, W-135 vaccine if subsequent travel is planned to Africa or to Saudi Arabia for the Hajj.

Who Should Not Receive the Vaccine

Persons who are moderately or severely ill usually should wait until they recover before receiving this vaccine.

Persons who have had a serious reaction to a previous dose of vaccine or to a vaccine component should not receive that vaccine.

Persons with bleeding disorders should discuss with their health care provider options for receiving quadrivalent conjugate vaccines or Hib-MenCY vaccines, because they are given intramuscularly (IM).

Risks and Side Effects

The most common side effects are mild and can include pain at the injection site, headache, and fatigue.

Some persons receiving quadrivalent conjugate vaccine experience a painful swelling of the arm.

There is a rare chance that serious problems or even death could occur after receiving any medicine or vaccine. If a significant or unusual problem occurs after receiving the vaccine, the patient should call or visit the health care provider.

Timing

Meningococcal Quadrivalent Conjugate Vaccines

Primary series: 1 or 2 doses

- If 2 doses are given, the interval between doses should be at least 8 weeks for most persons.
- Healthy persons, including travelers, receive 1 or 2 doses depending on age.
- Persons with underlying medical conditions receive 2 doses given at least 8 weeks apart.
    - Immune compromised persons, including those with HIV
    - Persons with persistent complement component deficiency
    - Persons with asplenia

Revaccination:

- Persons at new or continued risk:
    - 1 booster dose is usually given 3-5 years after last quadrivalent vaccine dose; however, travelers should consider a booster dose after 3 years, due to waning immunity to serogroup A.
- Adolescents:
    - If vaccinated at age 11-12 years: 1 booster dose is given at age 16 years.
    - If first vaccinated at age 13-15 years: 1 booster dose is given at age 16-18 years (within 5 years) up to age 21 years.
    - If first vaccinated at age 16 years or older: A booster is not needed.
- College students previously vaccinated:
    - First-year college students up through age 21 years living in residence halls: One booster dose should be given if the most recent dose was given when less than 16 years of age.

Meningococcal Polysaccharide Vaccine

Primary series: 1 or 2 doses

- Infants aged 3-23 months: 2 doses given 3 months apart
- Children aged 2 years and older: 1 dose
- Adults: 1 dose

Revaccination: Give 1 booster dose of MCV4 3-5 years later.

HibMenCY

- 4 doses are given, 1 each at ages 2, 4, 6 and 12-15 months.

SPECIAL CONSIDERATIONS

Entry Requirements

Meningococcal vaccine is not usually required for entry into any country except Saudi Arabia.

- Saudi Arabia requires visitors aged 2 years and older who are arriving for the purpose of pilgrimage (Hajj or Umra) to Makkah (Mecca) or for seasonal work to provide proof of vaccination against meningococcal disease (using quadrivalent A, C, Y, W-135 vaccine), given not more than 3 years and not less than 10 days before arrival in Saudi Arabia.
- In addition, travelers arriving from countries in the African meningitis belt will be given antibiotic chemoprophylaxis at points of entry.

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