

Meningococcal Disease & The Vaccine

Referenced Information Provided by National Vaccine Information Center (NVIC.org)

The National Vaccine Information Center opposes a meningococcal vaccine mandate for all sixth grade students attending school in Virginia for the following reasons:

- **Disease Rare in U.S.** Invasive meningococcal infections are very rare in the U.S. (550 cases in 2013) and affect individuals with certain genetic, biological and environmental risk factors.
- **Disease Rare in Virginia.** Incidence in Virginia is extremely low and almost non-existent among children aged 10 to 19. (2-3 cases per year);
- **Disease Not Easily Transmitted in Public Setting.** The disease is not spread through casual contact or breathing the air where a person has been but requires sustained, close personal contact, such as kissing or sharing a toothbrush.
- **Vaccine Does Not Contain All Strains.** The four strain vaccine (MCV4) does not contain serotype B that causes about 60 percent of invasive infections;
- **Mandate Is Expensive.** Costing \$78-\$115 per shot, the mandate will make attending school more expensive in the commonwealth;
- **Voluntary use of MCV4 is increasing in Virginia.** About 67 percent of teens have voluntarily received MCV4 and in other states without mandates, vaccine coverage rates are above the national average.
- **Vaccine Injuries Occur.** Brain and immune system disorders have been reported following receipt of MCV4, including Guillain Barre Syndrome, and a new study has linked the vaccine with Bell's Palsy when it is given simultaneously with other vaccines.

Meningococcal organisms are naturally present in the nasal passages of humans. The vast majority of children and adults colonize the bacteria without symptoms and then are protected from invasive meningococcal infections. ¹ Between 10 and 20 percent of people at any given time are actively colonizing meningococcal organisms, which boosts innate immunity to invasive infection. ^{2 3}

A tiny percentage of individuals are more vulnerable to invasive meningococcal infections. Individuals with certain genotypes or immune deficiencies are at 5,000 to 7,000 times greater risk for developing invasive infections that lead to sepsis, loss of limbs and death and MCV4 is highly recommended for them. ^{4 5} Other risk factors include active or passive smoking; a recent respiratory infection; crowded living conditions; alcohol use; and an underlying chronic illness, such as HIV infection. ⁶

Invasive meningococcal disease is not easily transmitted in a public setting. You have to be susceptible to invasive meningococcal infection and have regular, close personal contact with a person who is colonizing meningococcal organisms, such as exchange of saliva through kissing or sharing toothbrush. ⁷

Invasive meningococcal infections are very rare in the U.S. and Virginia. There were 550 meningococcal cases reported nationally in 2013. ⁸ There were 20 meningococcal cases reported in Virginia in 2014-2015 – only five of those cases were between 10 and 19 years old. ⁹

In 2005, the Centers for Disease Control (CDC) recommended in 2005 that all 11-year old children get a dose of the four-strain meningococcal vaccine (MCV4). ¹⁰ **About 60 percent of invasive meningococcal infections are caused by serotype B, but MCV4 only contains serotypes A, C, Y and W-135.** ^{11 12}

In 2011, the CDC recommended an MCV4 booster dose at age 16 after discovering that **MCV4 immunity wanes within 2 to 5 years.** ¹³

MCV4 is one of the more expensive pediatric vaccines on the U.S. market, costing an average \$115 per shot in a private pediatrician's office, not including administration fees, and up to \$89 per shot through the federally subsidized Vaccines for Children program. ¹⁴

Based on outstanding questions about duration of immunity and cost effectiveness, **in 2015 the CDC did *not* recommend the newly licensed MenB vaccine for use by all adolescents.** ¹⁵

By 2015, voluntary use of MCV4 among Virginia teens had increased to 66.8 percent. Four states that do not mandate the vaccine for sixth graders - Wisconsin, Colorado, Delaware, and New Hampshire – had voluntary MCV4 vaccine use coverage rates of between 81.6 and 87.7 percent in 2015. ^{16 17}

Vaccine manufacturers describe reported vaccine reactions, and injuries and deaths following MCV4 administration. The list includes irritability, abnormal crying, fever, drowsiness, fatigue, injection site pain and swelling, vomiting, diarrhea, headache, joint pain, sudden loss of consciousness (syncope), brain inflammation, convulsions, Guillain Barre Syndrome (GBS) and death. ¹⁸ A study published in January 2017 linked an increased risk of Bell's Palsy for 11-12 year olds given MCV4 simultaneously with other vaccines. ¹⁹ In 2007, the National Vaccine Information Center reported an increase in serious adverse event reports to VAERS, including GBS, when meningococcal vaccine was given simultaneously with HPV vaccine to young girls. ²⁰

More than 3,200 MCV4 reactions have been reported to the government. As of Dec. 14, 2016, there have been 3,263 reports of MCV4 adverse events made to the federal Vaccine Adverse Events Reporting System (VAERS), including 60 deaths. ²¹ It is widely recognized that only between one and 10 percent of vaccine adverse events are ever reported to VAERS. ^{22 23}

References:

- ¹ CDC. [Epidemiology and Prevention of Infectious Diseases, 13th Edition](#). April 2015.
- ² Bille E, Ure R et al. [Association of Bacteriophage with Meningococcal Disease in Young Adults](#). *PLOS One* 2008.
- ³ Manchanda V, Gupta S., Bhalla P. [Meningococcal Disease: History, Epidemiology, Pathogenesis, Clinical Manifestations, Diagnosis, Antimicrobial Susceptibility and Prevention](#). *Indian Journal of Medical Microbiology* 2006.
- ⁴ Brouwer MC, van der Beek D. [Genetics in Meningococcal Disease: One Step Beyond](#). *Clin Infect Dis* 2009.
- ⁵ FDA. Vaccines & Related Biological Products Advisory Committee. FDA Briefing Document: [Use of Serum Bactericidal Antibody As an Immunological Correlate for Demonstration of Effectiveness of Meningococcal Conjugate Vaccines \(Serogroup A, C, Y, W-135\) Administered to Children Less than 2 Years of Age](#). April 6, 2011. Pages 3-4.
- ⁶ Harrison LH. [Epidemiological Profile of Meningococcal Disease in the U.S.](#) *Clin Infect Dis* 2010.
- ⁷ CDC. [Meningitis Questions & Answers: Causes and Transmission](#). June 11, 2015.
- ⁸ CDC. [Meningococcal Disease: Technical and Clinical Information](#). June 14, 2016.
- ⁹ VA Dept. of Health. [Reportable Disease Surveillance in VA: 2014-2015. Tables 2a, 2b, 3: Meningococcal Disease](#).
- ¹⁰ CDC. [Revised Recommendations of the ACIP to Vaccinate All Persons Aged 11 to 18 Years with Meningococcal Conjugate Vaccine](#). *MMWR* Aug. 10, 2007.
- ¹¹ Granoff DM. [Review of Meningococcal Group B Vaccines](#). *Clin Infect Dis* 2010.
- ¹² CDC. [Meningococcal Disease: Surveillance](#). Aug. 5, 2015.
- ¹³ AAP. [Meningococcal Conjugate Vaccine Policy Update: Booster Dose Recommendations](#). *Pediatrics* 2011; 128(6).
- ¹⁴ CDC. [Current CDC Vaccine Price List](#). Jan. 3, 2017.
- ¹⁵ CDC. [Use of Serogroup B Meningococcal Vaccines in Adolescents and Young Adults: Recommendations of ACIP, 2015](#). Table 2. *MMWR* Oct. 23, 2015.
- ¹⁶ CDC. [National, Regional, State, and Selected Local Area Vaccination Coverage Among Adolescents Aged 13–17 Years — United States, 2015](#). MENACWY: 1 dose coverage in Virginia. *MMWR* Aug. 26, 2016.
- ¹⁷ IAC. [Meningococcal State Mandates for Elementary and Secondary Schools](#). May 12, 2016.
- ¹⁸ Sanofi Pasteur, Inc. [Menactra Vaccine Prescribing Information](#). Sept. 16, 2016.
- ¹⁹ Tseng HF, Sy LS et al. [Safety of Quadrivalent Meningococcal Conjugate Vaccine in 11 to 21 Year Olds](#). *Pediatrics* January 2017.
- ²⁰ Debold V, Downey C, Fisher BL. [Human Papillomavirus Vaccine Safety: Analysis of VAERS Reports \(Part III\)](#). *NVIC* Aug. 15, 2007.
- ²¹ MedAlerts. [Search the VAERS Database. Vaccine Product: MEN\(Meningococcal Polysaccharide \(Groups A, C, Y and W-135 Combined\)\)](#). Data through Dec. 14, 2016.
- ²² Braun M. [Vaccine adverse event reporting system \(VAERS\): usefulness and limitations](#). Johns Hopkins Bloomberg School of Public Health.
- ²³ Rosenthal S, Chen R. [The reporting sensitivities of two passive surveillance systems for vaccine adverse events](#). *Am J Public Health* 1995.