

## 2013 Update

# Invasive Meningococcal Disease

### Background

Invasive meningococcal disease (IMD) is a sporadic and uncommon infection of the blood or the lining of the brain and spinal cord which can affect the entire body. The disease can cause brain damage, hearing loss, and even death. The bacteria can be spread by very close exposure to sneezing and coughing or direct contact with saliva (spit) or nose mucus (snot). Disease symptoms may include: high fever, stiff neck, altered mental status, skin rash, severe headache, low blood pressure, aversion to bright lights, and generalized muscle pains. Many people can carry meningococcal bacteria in their nose and throat and not be sick.

The risk for IMD is very low for the general population. The bacteria are not spread by casual contact like being in the same room that a sick person has been in or handling items that a sick person has touched. The bacteria that cause meningococcal disease are less infectious than the viruses that cause the flu. Although anyone can get meningococcal disease, certain medical conditions and high-risk behaviors have been associated with transmission of IMD.

High-risk behaviors include:

- Smoking (marijuana, cigarettes, and hookah)
- Close contact with an infected person (sharing beverages or cigarettes, kissing, coughing)
- Staying in group settings (such as dorms, jails or shelters) for a prolonged period of time.

### Disease Investigation

The Los Angeles County Department of Public Health (DPH) investigates every reported case of IMD. In 2013, Los Angeles County (LAC) had its second lowest annual case count of IMD on record with 17 cases, resulting in 4 deaths (see Table 1).

All IMD cases are investigated by DPH staff. Interviews are conducted with the individual case and all identified close contacts, observing for commonalities in exposures to people, time, and place. In LAC, from December 1, 2012 through December 31, 2013, 7 cases of IMD were identified among men who have sex with men (MSM). Based on the interviews of those seven individual cases and/or their close contacts, DPH found no linkages between the LAC MSM cases or with the 2012-2013 New York City (NYC) MSM outbreak cases, as it relates to people, time and place.

### Laboratory Testing

In addition to face to face interviews, Public Health practitioners also rely on a laboratory test, called pulsed field gel electrophoresis (PFGE), to produce a bacterial “fingerprint” for the IMD cases, and to determine possible association of bacterial strains. Recent PFGE lab tests performed by the federal Centers for Disease Control and Prevention (CDC) determined that two IMD cases in LAC (December 2012 and January 2013) had a common PFGE result with each other and with several cases identified in the NYC MSM outbreak. However, despite the similar “fingerprint” PFGE laboratory results can vary based on laboratory interpretation and should not be used independent of epidemiologic information to confirm linkages between cases. After evaluating all currently available epidemiologic evidence (including laboratory tests and personal interviews) DPH believes that there is no linkage between LAC and NYC IMD cases.

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### Disease Prevention

DPH understands that even a single case of this serious disease evokes a high level of concern and recommends that concerned individuals, including persons with continuing exposure to the saliva of multiple people, consult their healthcare provider to discuss prevention options, including vaccination.

The meningococcal vaccines licensed in the United States offer protection against several strains of the meningococcal bacteria that cause about 73% of IMD nationwide. The CDC currently only recommends two doses of meningococcal conjugate vaccine (Menactra or Menveo) for all adolescents at ages 11-12 and 16 years. It also recommends that first-year college students living in residence halls receive at least one dose of vaccine prior to college entry. If only one dose of vaccine was given before age 16 years, an additional dose should be given before college enrollment. Other persons who are recommended to receive the vaccine include those with persistent complement deficiencies; have a non-functional spleen; or who travel to, or are residents of, countries where there is high risk of meningococcal disease.

**Table 1**  
**Demographics of Invasive Meningococcal Disease Cases, LA County 2013 (n = 17)**

Quarter	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Totals
Total Number – n	6	2	6	3	17
Male Gender* – n (%)	6 (100)	2 (100)	3 (50)	3 (100)	14
Median Age (Range) – Years	40.5 (14-60)	52.5 (33-72)	35.5 (24-94)	27 (21-49)	
Deaths – Case Fatality Rate – %	2 (33)	1 (50)	1 (17)	0 (0)	4
Serogroup C – n (%)	4 (67)	1 (50)	5 (83)	2 (67)	
Serogroup B – n (%)	1 (17)	0 (0)	0 (0)	1 (33)**	
Annual Rate (Cases per 100,000 people)	0.18				

\* Since December 2012 when LAC DPH began inquiring about MSM status to February 2014, there have been 8 cases of self-reported MSM status. These cases are associated with 5 different PFGE patterns, with 2 of them matching each other as well as to 1 of the 8 NYC MSM isolates from 2012-2013.

\*\* This case was a 49-year-old HIV-positive MSM.

### For More Information

Further information and resources on IMD and vaccination can be found at [www.cdc.gov/meningococcal/](http://www.cdc.gov/meningococcal/) and <http://publichealth.lacounty.gov/acd/Mening.htm>.