

## Meningococcal Invasive Disease

2010 Case Total	18	2010 Incidence Rate	0.49 per 100,000
2009 Case Total	17	2009 Incidence Rate	0.47 per 100,000

In 2010, a total of 18 cases of invasive meningococcal disease were reported to the OSDH. Age-specific incidence rates indicate the highest rates occurred among persons under 10 years, followed by those 80 years and older (see figure). In 2010, 17 (94%) cases were hospitalized, and three deaths occurred in persons with invasive meningococcal disease, resulting in a case fatality rate of 17%.

Laboratory specimens are required to be forwarded to the OSDH Public Health Lab for confirmation of the causative organism, *Neisseria meningitidis*, and for serogroup identification. In 2010, serogroup C accounted for 41.2% of the isolates for which serogroup testing was performed.

The state health department immediately investigates reported cases of invasive meningococcal disease to identify close contacts and recommend prophylaxis. Case investigations conducted by public health nurses identified 157 close contacts (median = 5, range: 1 – 28 contacts) who were recommended to receive prophylaxis. Two cases were associated with a high-risk setting such as a childcare center or long term care center.

In March 2010, the OSDH rapidly responded to an outbreak of meningococcal invasive disease in a rural school district in Northeastern Oklahoma. Five cases of invasive meningococcal disease were identified during this investigation, including two deaths. Exposed contacts were rapidly identified and recommended to receive antibiotic prophylaxis. During standard investigations of sporadic cases, individuals recommended to receive antibiotic prophylaxis are referred to their private health provider for medication. Because of the magnitude of this outbreak, epidemiologists in the Acute Disease Service and the local county health department (Rogers CHD) immediately conducted clinics at the school to administer chemoprophylaxis to exposed individuals to prevent subsequent cases. A total of 941 individuals were prophylaxed during these clinics. Laboratory testing subsequently identified serogroup C as the causative serogroup and molecular subtyping of isolates revealed all outbreak-associated cases had an indistinguishable pulsed-field gel electrophoresis pattern, which suggested a common exposure among all cases. Based upon meningococcal outbreak control guidance and the recommendation to provide meningococcal vaccine in which cases are due to serogroups included in the vaccine, a mass immunization clinic was held at the school to administer meningococcal vaccine for future protection. The tetravalent (serotypes A,C,Y,W-135) meningococcal conjugate vaccine (MCV4) is available to protect against serogroup C and is licensed for persons aged 2 to 55 years, however, is currently not recommended for routine use until ages 11 to 12 years.<sup>i, ii</sup> Vaccination clinics that targeted students pre-K through seniors, as well as faculty and employees, were conducted by Immunization Service and the Rogers CHD; 1,486 persons received the vaccine.

---

<sup>i</sup> CDC. Prevention and Control of Meningococcal Disease Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2005;54(No. RR-7).

<sup>ii</sup> CDC. Notice to Readers: Revised recommendations of the Advisory Committee on Immunization Practices to vaccinate all persons aged 11-18 years with meningococcal conjugate vaccine. MMWR 2007;56:794-5.

**Demographic and Clinical Summary of Reported Meningococcal Invasive Disease Cases, Oklahoma 2010  
(N = 18)**

	Number (%)	Incidence Rate per 100,000
Gender		
Male	9 (50%)	0.49
Female	9 (50%)	0.48
Ages	Median = 8 years (range: 1 month - 83 years)	
Race		
White	11 (61%)	0.38
Black or African American	1 (5.6%)	0.34
American Indian or Alaska Native	3 (16.7%)	1.01
Asian	1 (5.6%)	1.59
Native Hawaiian or Pacific Islander	1 (5.6%)	25.34
Two or more races	1 (5.6%)	0.66
Hispanic or Latino Ethnicity		
Hispanic or Latino	1 (5.6%)	0.33
Not Hispanic or Latino	16 (88.9%)	-
Unknown	1 (5.6%)	-
Hospitalized	17 (94%)	-
Deaths	3 (17%)	-
Infection Types (not mutually exclusive)		
Bacteremia/Sepsis	17 (94%)	-
Meningitis	7 (39%)	-
Pneumonia	2 (11%)	-
Otitis Media	1 (5%)	-
Serogroup (n=17)		
Group B	3 (17.6%)	-
Group C	7 (41.2%)	-
Group Y	5 (29.4%)	-
Not groupable	2 (11.8%)	-

**Incidence Rate of Reported Invasive Meningococcal Disease Cases by Age Group, Oklahoma, 2010 (N = 18)**

