



MENINGOCOCCAL DISEASE

CRUDE DATA	
Number of Cases	46
Annual Incidence ^a	
LA County	0.5
California	0.7
United States	0.6
Age at Diagnosis	
Mean	28
Median	21
Range	<1–83 years
Case Fatality	
LA County	7.0%
United States	N/A

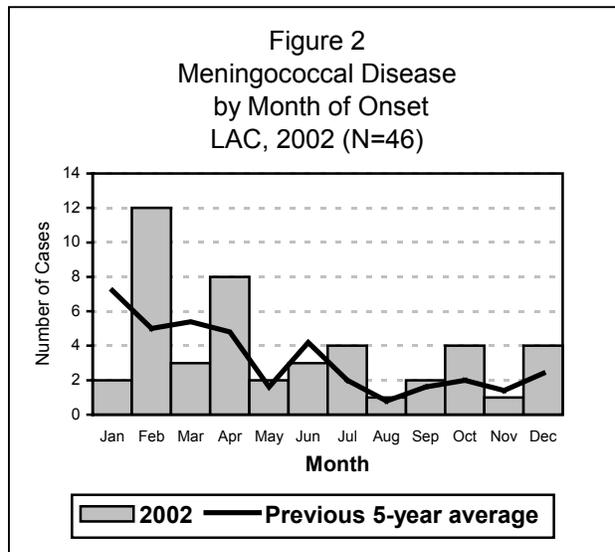
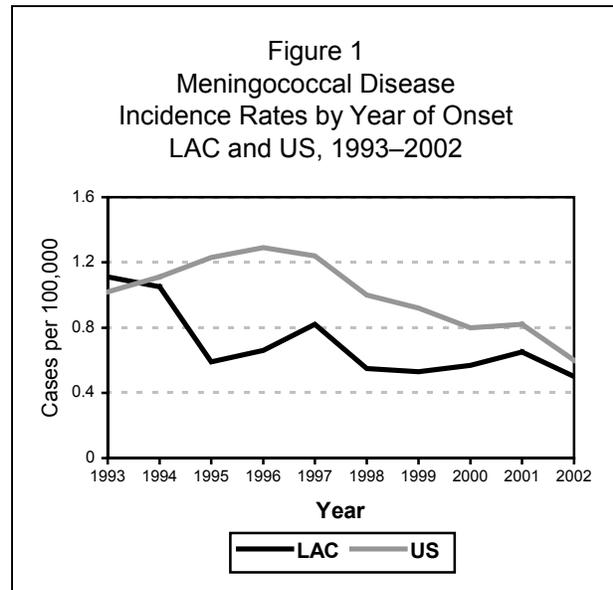
^a Cases per 100,000 population.

DESCRIPTION

Meningococcal disease occurs most often as meningitis or bloodstream infection (meningococcemia) and is transmitted through direct or droplet contact with nose or throat secretions of persons infected with the *Neisseria meningitidis* bacterium. Common symptoms include sudden onset of fever, headache, nausea, vomiting, stiff neck and lethargy which can progress to overwhelming sepsis, shock and death within hours. Long-term sequelae include significant neurologic or orthopedic complications such as deafness or amputation secondary to disseminated intravascular coagulation and thromboses. Meningococcal disease affects all age groups but occurs most often in infants. Of the 12 serogroups, only some (A, C, Y, and W-135) are vaccine-preventable.

DISEASE ABSTRACT

The number of cases in 2002 was the lowest in at least 10 years. With one exception, cases were sporadic. There were very few fatalities.





STRATIFIED DATA

Trends: Cases remained low, with serogroup B and non-typeable strains equally predominant among isolates submitted.

Seasonality: Cases were characteristically highest during winter and early spring, with over half occurring in the first four months of the year (Figure 2).

Age: Rates of meningococcal disease are characteristically highest among infants and children aged 1–4 years. In 2002, rates in these age groups were again highest (5.1 per 100,000 and 0.9 per 100,000, respectively). Combined, these age groups accounted for 26% of all cases. There was a decrease of over 50% in cases among those aged 15–19 years; however, over 50% of all cases occurred in those of college age or younger (<23 years). The rate among all age groups remained stable in comparison to the five-year average and was relatively low in all groups >1 year of age. (Figure 3).

Sex: The male-to-female rate ratio was 1:1.5.

Race/Ethnicity: There was minimal difference in incidence by race/ethnicity. As shown in Figure 4, the incidence rate among Blacks and Latinos (0.6 per 100,000 for each group) was slightly greater than among Asians and Whites (0.4 per 100,000 for each group). However, the actual number of incident cases in each of these groups is too low for the rates to be reliable; Asian 5 cases, Black 5 cases, Latino 24 cases, White 12 cases.

Location: Rates were highest in SPA 4 (0.7 per 100,000), 3 (0.6 per 100,000), and 2 (0.4 per 100,000). Cases were highest in SPA 3 (n=10), 2 and 4 (n=8, for both locations).

PREVENTION

In 2002, there were three deaths among the 46 cases of meningococcal disease. At least 11 (24%) cases, including one death, were caused by a serogroup covered by the currently licensed polysaccharide vaccine for meningococcal disease (Menomune) and were potentially preventable (Figure 5). Serogroup B accounted for 15% of cases and is not vaccine preventable. Development of an effective vaccine has proved challenging; however, research is ongoing.

Meningococcal vaccine is routinely given to military recruits, and is recommended for those with terminal complement deficiencies or asplenia, travelers to endemic or epidemic areas, and certain lab personnel. The Advisory Committee on Immunization Practices (ACIP) recommends that college students, especially freshmen and those living in dormitories, be informed about meningococcal disease and the benefits of the vaccine. Several states have recently passed legislation requiring documentation that students

Figure 3
Meningococcal Disease
Incidence Rates by Age Group
LAC, 2002

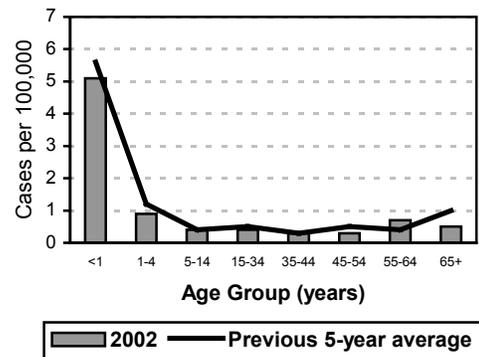
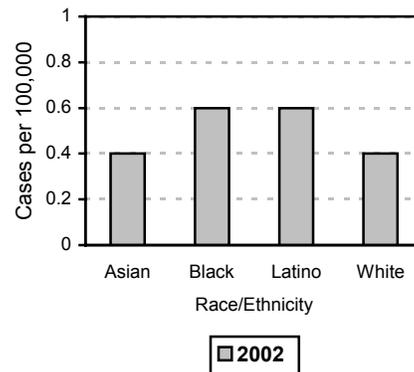


Figure 4
Meningococcal Disease
Incidence Rates by Race/Ethnicity
LAC, 2002





entering college have received information about meningococcal disease and have either received or declined immunization.

COMMENTS

In 2002, *N. meningitidis* was confirmed by culture in 37 (80%) of 46 cases: 24 (65%) from blood, 9 (24%) from cerebrospinal fluid (CSF), 3 (8%) from both blood and CSF, and 1 (3%) from synovial fluid (Figure 6). The Public Health Laboratory received 25 case isolates (54% of all cases) and performed serogroup identification. Of these, 28% (n=7) were serogroup B; 16% (n=4) were serogroup C; 24% (n=6) were serogroup Y; 3% (n=1) were serogroup W-135, and 28% (n=7) was non-typeable (Figure 5).

Although most cases in 2002 were sporadic and unassociated, there was a cluster of two cases in cousins, aged 13 months and 5 years, who were both hospitalized with serogroup B disease within hours of each other. Because they were household contacts to each other and their onset of symptoms could not be determined with certainty, they were considered to be co-infected primary cases, rather than a primary case with secondary transmission.

Fortunately, fewer cases than the previous year were seen in college students or those of college age. However two cases, one fatal, among college students on the same campus, were investigated. The surviving case had a history of immunization. Although gram-negative diplococci were identified in the case fatality, recovery of the organism needed for confirmation was not possible in either case and serogroup identification was not possible.

ADDITIONAL RESOURCES

Prevention and control of meningococcal disease among college students: recommendations of the Advisory Committee on Immunization Practices (ACIP).

MMWR 2000; 49 (RR-7):1-20. Available at: www.cdc.gov/mmwr/PDF/rr/rr4907.pdf

Control and Prevention of Meningococcal Disease: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1997; 46(RR-5):1-51. Available at:

www.cdc.gov/epo/mmwr/preview/mmwrhtml/00046263.htm

Riedo FX, Plikaytis BD, Broome CV. Epidemiology and prevention of meningococcal disease. *Pediatr Infect Dis J* 1995; 14:643-57.

Rosenstein NE, Perkins BA, Stephens DS, Popovic T, Hughes JM. Meningococcal disease. *N Engl J Med* 2001; 344:1378-88.

Figure 5
Meningococcal Disease
by Serogroup
LAC, 1998-2002

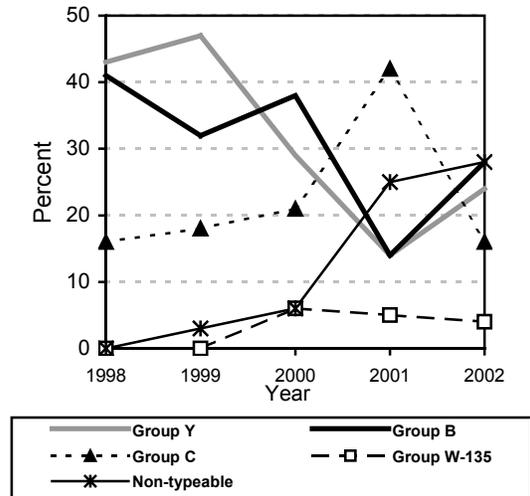


Figure 6
Meningococcal Disease
by Culture Site
LAC, 2002

