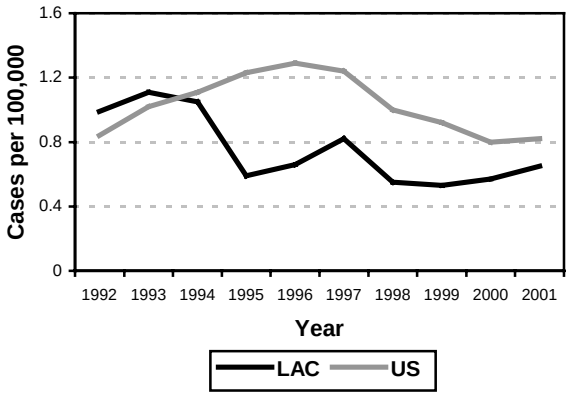
MENINGOCOCCAL DISEASE

CRUDE DATA	
Number of Cases	58
Annual Incidence[a]	
LA County	0.7
California	0.9
United States	0.8
Age at Diagnosis	
Mean	30
Median	22
Range	<1-84 years
Case Fatality	
LA County	16.0%
United States	N/A

Figure 1
Meningococcal Disease
Incidence Rates by Year of Onset
LAC and US, 1992-2001



[a] Cases per 100,000 population.

DESCRIPTION

Meningococcal disease, occurring most often as meningococcal meningitis or meningococcemia, is transmitted through direct or droplet contact with nose or throat secretions of a person infected with the *Neisseria meningitidis* bacterium. It affects all age groups but occurs most often in infants. Common symptoms include sudden onset of fever, headache, nausea and vomiting, stiff neck and lethargy, which can progress to overwhelming sepsis, shock and death within hours. In LAC, a confirmed case is one with clinically compatible signs and symptoms and recovery of the organism from a normally sterile site, usually the blood or cerebrospinal fluid. A presumptive case is one with clinically compatible signs and symptoms, and a positive bacterial antigen test on CSF, or identification of gram-negative diplococci from a normally sterile site. *N. meningitidis* serogroups B, C and Y are the serogroups commonly seen in LAC and the US. Serogroups A, C, Y and W-135 are vaccine-preventable; a vaccine for serogroup B.

DISEASE ABSTRACT

- Meningococcal disease cases increased but overall incidence remained low.
- A cluster of cases occurred among nightclub patrons.
- Serogroup C predominated.

STRATIFIED DATA

Trends: The number of cases increased but remained relatively low in comparison to previous years (Figure 1). Serogroup C replaced B as the predominant serogroup identified. Cases among older teenagers increased (see “Age” below).

Seasonality: Cases were characteristically highest during winter and early spring, with over 50% occurring in the first quarter of the year (Figure 2).

Age: Rates of meningococcal disease are characteristically highest among infants and children aged 1-4 years. In 2001, rates in these age groups were 5.2/100,000 and 1.2/100,000, respectively. Combined, these two age groups accounted for 19% of all cases. The rate among all age groups remained about the same (Figure 3). The rate in persons aged 15-19 years, a subset of the 15-34 year old group (0.6/100,000), was 1.5/100,000. Cases in this age group accounted for 17% of all cases. There has been an increasing incidence in this age group in recent years, associated with outbreaks among high school as well as freshman college students - especially those living in dormitories (see Comments below). This trend has been seen around the country in recent years.

Sex: The male-to-female rate ratio was 1.6:1.

Race/Ethnicity: In 2001, the highest rate (1.01/100,000), and number of cases (n=28), occurred among Whites. Among Latinos the rate increased slightly (0.54/100,000) (n=22), but in Blacks it decreased by 50% (0.73/100,000) (n=6). Among Asians, who historically have the lowest rates, the rate (0.18/100,000) was unchanged from 2000 (n=2) (Figure 4).

Location: The highest number of cases occurred in SPAs 2 (n=13), 3 (n=13) and 4 (n=10). Rates were highest in SPAs 4 and 8 (0.9/100,000 respectively), and SPA 3 (0.8/100,000).

Figure 2
Meningococcal Disease
by Month of Onset
LAC, 2001 (N=58)

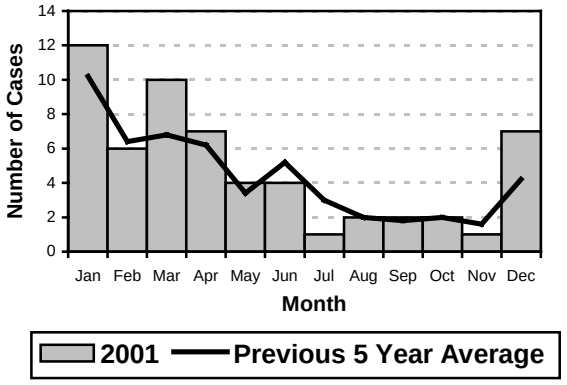


Figure 3
Meningococcal Disease
Incidence Rates by Age Group
LAC, 2001

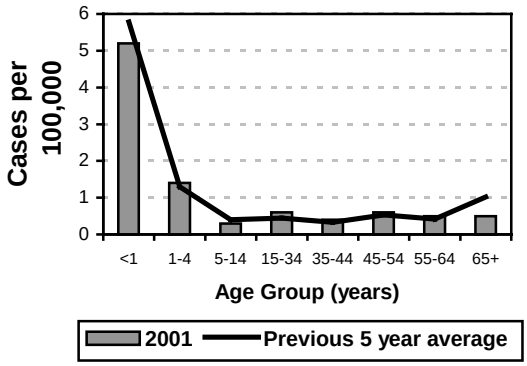
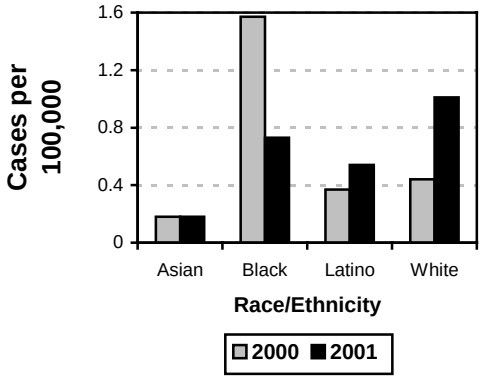


Figure 4
Meningococcal Disease
Incidence Rates by Race/Ethnicity
LAC, 2000 - 2001

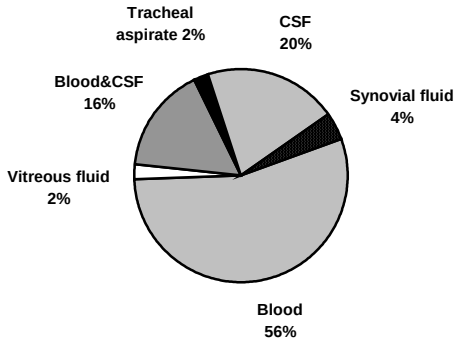


COMMENTS

In 2001, *N. meningitidis* was confirmed by culture in 49 of 58 cases: 27 (56%) from blood, 10 (20%) from cerebrospinal fluid (CSF), 8 (16%) from both blood and CSF, 2 (4%) from synovial fluid, and 1 each (2%) from vitreous fluid and tracheal aspirate (Figure 5). Although tracheal aspirate is not usually considered

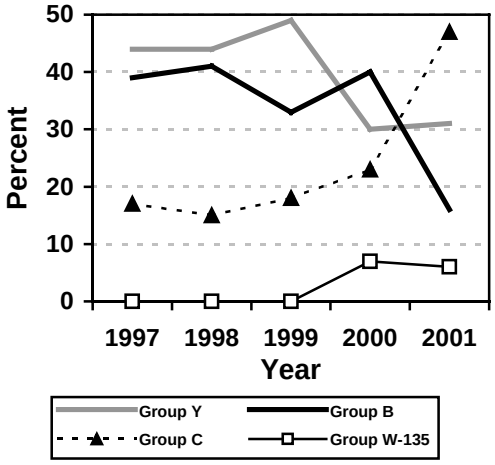
sterile, and the patient, a 25 day old infant, had evidence of respiratory syncytial virus infection as well, this was considered a meningococcal case because the physician considered the infant too sick for RSV infection only. The Public Health Laboratory performed serogroup identification on isolates from 41 confirmed cases. Serogroup identification was made in 32 cases. Of all isolates submitted, 12% were serogroup B; 37% were serogroup C; 24% were serogroup Y; and 5% were serogroup W-135 (Figure 6). Nine case isolates (22%) were nontypeable. In 16% of cases, serogroup information was not obtained.

Figure 5
Meningococcal Disease
by Culture Site
LAC, 2001



There was continued public concern about meningococcal disease among high school and college students in 2001. Several high school clusters occurred in northern California and other states. None occurred in LAC. However, there was a cluster of cases among young men of college age and three unrelated cases in college students. The cluster occurred among three unacquainted men, aged 19-22 years, who attended a popular nightclub on the same night, along with several hundred others. Two of the cases were confirmed as Serogroup C meningococcal disease. The third case was presumptive based on Gram-negative cocci in cerebrospinal fluid and clinical signs and symptoms. Active surveillance in LAC and adjacent counties did not identify additional cases. The college cases, two in unimmunized college freshmen and the third in a graduate student whose immunization status was not determined, occurred at different universities,. Serogroup C was identified in two cases, stimulating renewed interest in meningococcal immunization among students.

Figure 6
Meningococcal Disease
by Serogroup
LAC, 1997 - 2001



PREVENTION

In 2001, at least 47% of the cases and 44% of the deaths from meningococcal disease in LAC were caused by serogroups covered by the vaccine, and thus potentially preventable. Currently, a one-dose polysaccharide vaccine for meningococcal disease, effective against serogroups A,C,Y, and W-135, is available in the U.S. , and research continues on a vaccine effective against serogroup B disease. 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.

ADDITIONAL RESOURCES

Centers For Disease Control and Prevention Website: www.cdc.gov/mmwr/PDF/rr/rr4907.pdf
Prevention and control of meningococcal disease and college students: recommendations of the Advisory Committee on Immunization Practices (ACIP).
MMWR 2000;49 (RR-7):1-20.

Centers For Disease Control and Prevention Website:
www.cdc.gov/epo/mmwr/preview/mmwrhtml/00046263.htm
Control and Prevention of Meningococcal Disease: Recommendations of the Advisory Committee on Immunization Practices (ACIP).
MMWR 1997; 46(RR-5):1-51

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.