



ESCHERICHIA COLI O157:H7

BACKGROUND

Escherichia coli O157:H7 is a gram-negative bacillus. This organism is a specific serotype of the enterohemorrhagic class of *Escherichia coli* which produces cytotoxins called shiga-like toxins or verocytotoxins. Clinical complications include hemolytic uremic syndrome (HUS) and thrombotic thrombocytopenic purpura (TTP).

STRATIFIED DATA

The number of cases for 1996 (18) has risen from 1994 (13) and 1995 (9) but most of the increase was due to a cluster of outbreak-associated cases which occurred in October 1996 (Figure 1). The annual incidence of *E. coli* O157:H7 cases doubled from 0.10 cases per 100,000 population in 1993 and 1995 (lowest incidence rates since 1993) to 0.20 in 1996.

Of the 18 cases in 1996, the mean age was 32 years (median 16 years, range two to 90 years). The highest frequency of reported cases was in the 5-14 age group (six cases) followed by the 65+ age group (four cases) and 1-4 age group (three cases). The male-to-female rate ratio was 1:1.9. The majority of the cases were Whites (16), with one Asian, one Hispanic, and no Blacks. West Health District had the most cases (5) followed by East Valley, San Fernando, and Torrance Health Districts with three cases each.

In 1996, the number of cases peaked in summer and early fall. The number of cases for June, August, September, and October were above the previous three-

Figure 1

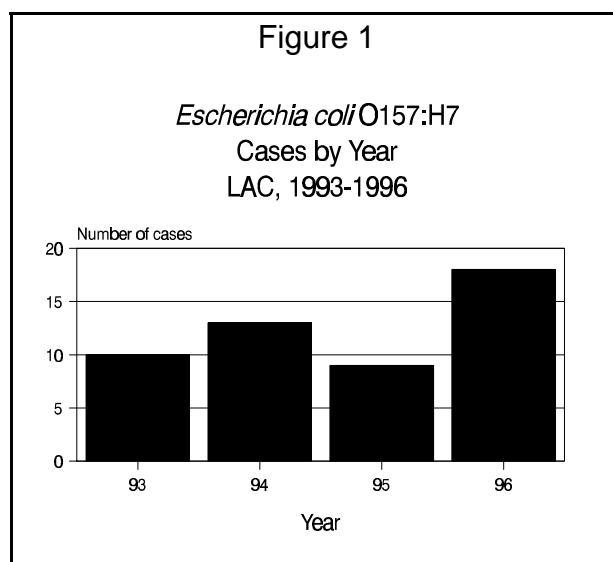
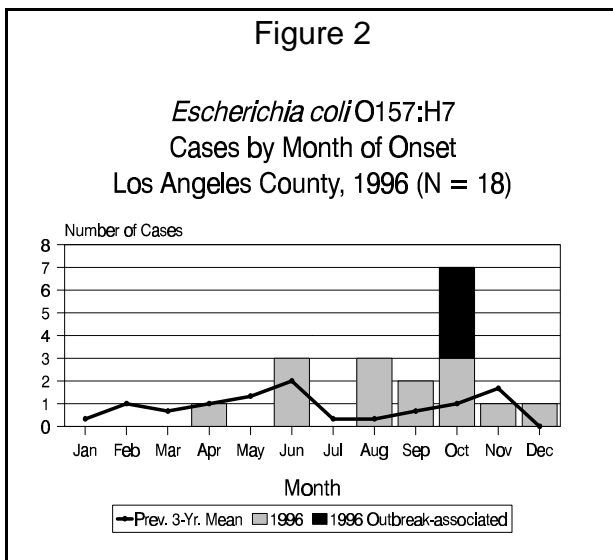


Figure 2





year mean (Figure 2). In October, an outbreak in Washington was epidemiologically linked with a brand of unpasteurized apple juice products made in California. Subsequently, four cases in LAC were reportedly associated with consumption of these products. These cases were all White females and ranged in age from two to seven years. No other common source of infection was identified for the other cases.

Of the cases reported in 1996, all reported bloody diarrhea and 83% had a low-grade fever ($< 100^{\circ}\text{F}$). Illnesses lasted from one to 10 days with an average of 4.5 days. Hospitalization was documented in 12 (67%) of the cases with no deaths. Two of the eight HUS cases reported in LAC in 1996 were positive for *E. coli* O157:H7. No cases of TTP were identified.

COMMENTS

Underdiagnosis by health providers and laboratories is a major problem with *E. coli* O157:H7 surveillance. Many physicians do not routinely request testing for this organism on their patients with diarrhea or HUS; laboratories may not regularly test bloody stools for *E. coli* O157:H7 or may not utilize the appropriate tests to isolate the organism.

In recent years, efforts have been made to improve surveillance for *E. coli* O157:H7 and HUS at the County and State level. In 1994, LAC requested voluntary reporting of suspected *E. coli* O157:H7 cases by laboratories and health care providers. In September 1995, in addition to *E. coli* O157:H7, HUS became part of an active surveillance system targeting acute-care hospital infection control practitioners and laboratories. In January 1996, both diseases officially became reportable in California. HUS is utilized as an indicator to stimulate a search for *E. coli* O157:H7 cases. Aside from the four outbreak-associated cases in 1996, the increased incidence may be a result of the change in surveillance activities.

Improvements are necessary in the following areas: (1) educating physicians to consider *E. coli* O157:H7 in their diagnoses, (2) educating laboratories to screen all bloody stool specimens and utilize the proper media, (3) enhancing surveillance, (4) educating the public regarding food handling practices and high-risk foods, and (5) strengthening food processing regulations on a national level to decrease food contamination.