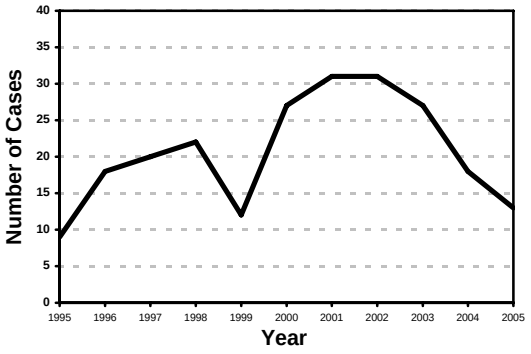
ESCHERICHIA COLI O157:H7 / HEMOLYTIC UREMIC SYNDROME

CRUDE DATA	
Number of Cases	13
Annual Incidence[a]	
LA County	--- [b]
California	157
United States	2,461
Age at Diagnosis	
Mean	16.2
Median	17
Range	3-45 years
Case Fatality	
LA County	0.0%
United States	N/A

Figure 1
Escherichia coli O157:H7
Cases by Year of Onset
LAC 1996–2005*



[a] Cases per 100,000 population.
[b] Rates based on less than 20 observations are unreliable.

DESCRIPTION

Escherichia coli O157:H7, a Gram-negative bacillus, is a specific serotype of the shiga toxin producing class of *E. coli* (STEC) and the most common such serotype in the US. Incubation period is 2-8 days. Shiga toxins cause abdominal cramps and watery diarrhea, often developing into bloody diarrhea; fever is uncommon. Likely modes of transmission include foodborne (e.g., undercooked ground beef, fresh produce, unpasteurized juice, raw milk) and person-to-person (e.g., day-care settings). There also have been outbreaks associated with exposure to animals and their environments and recreational water exposure. All *E.coli* O157:H7 isolates are confirmed by the Los Angeles County Public Health Laboratory.

Hemolytic uremic syndrome (HUS) is a clinical diagnosis and may or may not be associated with *E. coli* O157:H7. Children younger than five years of age are at highest risk for hemolytic uremic syndrome (HUS), a clinical complication consisting of hemolytic anemia, thrombocytopenia, and kidney failure. Adults may acquire thrombotic thrombocytopenic purpura (TTP) after infection after STEC infection.

DISEASE ABSTRACT

- There was a decrease in confirmed cases in 2005.
- There were no LAC outbreaks in 2005, although two cases were associated with a multi state cluster possibly associated with ground beef.

STRATIFIED DATA

Trends: After peaking in 2001, rates of *E.coli* O157:H7 infection have been steadily decreasing. This is the second time there have been fewer than twenty cases in LAC since 1999 (Figure 1). There were three cases of HUS in addition to the 13 cases of O157:H7.

Seasonality: In 2005, 85% of confirmed cases occurred during the summer and fall months (Figure 2). This is consistent with previous years.

Age: In 2005, there were more cases in adults (54%; n=7) than in children. All cases were sporadic and not linked to an outbreak.

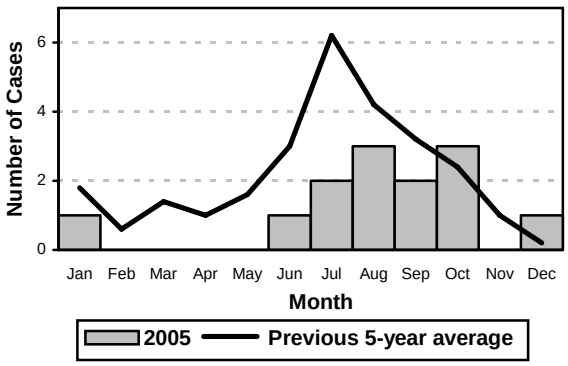
Sex: There were 8 male and 5 female cases.

Race/Ethnicity: Twelve cases were reported in Whites and one in a Latino. Asians and Blacks had no confirmed cases.

Location: SPA 8 had five confirmed cases but they were unrelated. The remaining SPAs had 1 or 2 cases each.

Severity of Illness: All cases reported bloody diarrhea, six reported abdominal cramps, and only three reported having fever (mean temperature was 100.0^{0}F). Seven cases required hospitalization. There were no reported deaths in confirmed cases.

Figure 2
Esherichia coli O157:H7
Cases by Month of Onset
LAC, 2005



HUS: One LAC case had both confirmed *E. coli* O157:H7 enterocolitis and HUS; two HUS cases did not have lab confirmation of *E. coli* O157:H7 infection. Two were school aged children and the third a seventy-one year old adult, with multiple medical problems. All three required hospitalization, and the adult expired. Two had some sort of recent antibiotic therapy prior to onset of HUS. All three cases required dialysis. The adult did not have a clear history of risk exposure. The other unconfirmed case was in a seven y/o boy who regularly consumed raw milk from a natural food market. There were no other cases associated with raw milk consumption. He was admitted to the hospital with complaints of bloody stool and acute renal failure and tested negative for *E.coli* O157:H7.

Risk Factors: In the week prior to onset, cases with available information reported eating ground beef (62%), lettuce (31%), fast food (69%) or food from other types of restaurants (62%). Thirty-one percent (N= 4) traveled, one inside California and three outside California. Three confirmed cases received antibiotic therapy for entercolitis, and one of these developed HUS. There were no confirmed cases associated with raw milk consumption during this period.

COMMENTS

There were no outbreaks of confirmed *E. coli* O157:H7 investigated in LAC during 2005. Two cases were identified as part of a multi-state clusters of *E. coli* O157:H7 but were unrelated to each other.

Collaborative efforts among physicians, laboratories and the health department are important for enhancement of surveillance activities. Physicians should request testing for *E. coli* O157:H7 or shiga toxin on all bloody stools. Physicians should consider *E. coli* O157:H7 in their diagnoses by asking about consumption of high-risk foods, attendance at day-care centers or farms, and exposure to other individuals with diarrhea. All cases of HUS should be reported immediately and physicians should request stool testing for *E.coli* O157:H7 for these patients.

Laboratory analysis with PFGE has been helpful in detecting clusters of *E. coli* O157:H7. PulseNet is a nationwide network of laboratories that perform PFGE, or “DNA fingerprinting” of foodborne bacteria. This network permits rapid comparison of fingerprint patterns to identify clusters and enhance outbreak investigation. In 2005, two LAC isolates were identified as matches to patterns in the PulseNet database, but no epidemiological links were found.

PREVENTION

Increased public education to prevent *E. coli* O157:H7 infection is needed. Information should focus on safe food handling practices, proper hygiene and identifying high-risk foods and activities both in the

home and while eating out. To avoid infection, beef products should be cooked thoroughly. Produce, including pre-washed products should be thoroughly rinsed prior to eating. In addition, one should drink only treated water and avoid swallowing water during swimming or wading. Careful handwashing is essential, especially before eating and after handling raw beef products or coming in contact with or being around animals. The collection of detailed food histories is important to understand underlying sources of infection. The strengthening of national food processing regulations to decrease contamination is also important to reduce infection.

ADDITIONAL RESOURCES

General information about this disease can be found at:
www.cdc.gov/ncidod/diseases/submenus/sub_ecoli.htm

Foodborne disease active surveillance is available from FoodNet (CDC) at: www.cdc.gov/foodnet

Information from the Gateway to Government Food Safety is available at:
www.foodsafety.gov

Information about outbreaks (nationwide) is available from the Outbreak Response and Surveillance Unit of the CDC at: www.cdc.gov/foodborneoutbreaks/index.htm

General information and reporting information about this and other foodborne diseases in LAC is available at: www.lapublichealth.org/acd/food.htm