Surveillance for *E. coli* O157:H7 Infections in FoodNet Sites, 1996-1998: No Decline in Incidence and Marked Regional Variation

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Background: *E. coli* O157:H7 (O157) is an important cause of diarrhea, bloody diarrhea, and , hemolytic uremic syndrome and infects an estimated 73,000 persons a year in the United States. Although recent food safety activities have been aimed at reducing the number of infections, there is limited information on trends in the incidence of O157 infections from broad geographic areas. We evaluated the incidence and other epidemiologic features of O157 infections at five original Emergirig Infections Program's Foodbome Diseases Active Surveillance Network {FoodNet) sites.

Methods: Cases of culture-confirmed O157 infection were ascertained through active laboratory surveillance in California, Connecticut, Georgia, Minnesota, and Oregon from 1996 to 1998. In addition, we reviewed previous FoodNet studies on O157 including, 1) a survey of physician and laboratory practices in FoodNet sites which may have an impact on detection of O157 detection; and, 2) a case-control study in FoodNet sites to detect risk factors for sporadic O157 infections.

Results: A total of 1125 cases were ascertained from 1996 to 1998: 388 in 1996,329 in 1997, and 408 in 1998. Rates of O157 infection remained relatively stable during the study period: 2.7,2.3, and 2.8 cases per 100,000 population in 1996,1997, and 1998 respectively. However, overall rates for the 1996 to 1998 study period differed substantially by site, ranging from 0.7 cases per 100,000 population per year in Georgia to 4.6 in Minnesota. Infections were distinctly seasonal, with the majority (70%) occurring during June through September. Cases occurred more commonly among females (53%) than males (47%). Thirty percent of reported infections resulted in hospitalization, and eight reported cases (0.7%) were fatal. Two factors were identified that likely contribute to the variable incidence of O157 infections observed among FoodNet sites. First, the physician and laboratory surveys indicated that laboratory practices for culturing O157 and physician knowledge of these practices vary among FoodNet sites; sites where physicians had greater knowledge of culturing practices used by their laboratories had a higher incidence of reported O157 infections. Second, a case-control study of sporadic O157 cases identified significant farm-associated risk factors (e.g., direct farm.exposures, consumption of locally processed beef) that were present only in more rural FoodNet sites (e.g, Mimiesota, Oregon), which had higher reported rates of O157 infection.

Conclusion: Despite enhanced food safety efforts, the incidence of O157 infections in FoodNet sites has remained stable over the past 3 years. There is a wide diversity in the reported incidence by site; this can be accounted for at least in part by variable physician and laboratory practices and site-specific factors (e.g., farm environments). Further efforts are necessary to decrease the incidence of O157 infections.

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