



## LISTERIOSIS SURVEILLANCE IN LOS ANGELES COUNTY: 1986-1995

### BACKGROUND

Prompted by a large foodborne listeriosis outbreak in Los Angeles County (LAC) in 1985, the Los Angeles County Department of Health Services initiated an active surveillance project in 1986 to monitor sporadic cases of human listeriosis, since the majority of listeriosis cases in the United States (US) occur as sporadic cases rather than in outbreaks. Additionally, in 1989, US regulatory agencies began enforcing aggressive food monitoring policies. In 1992, consumer guidelines were disseminated for listeriosis prevention. This study describes the trends and epidemiology of listeriosis cases between 1986 and 1995 in LAC and presents information on the underlying medical conditions for nonperinatal cases.

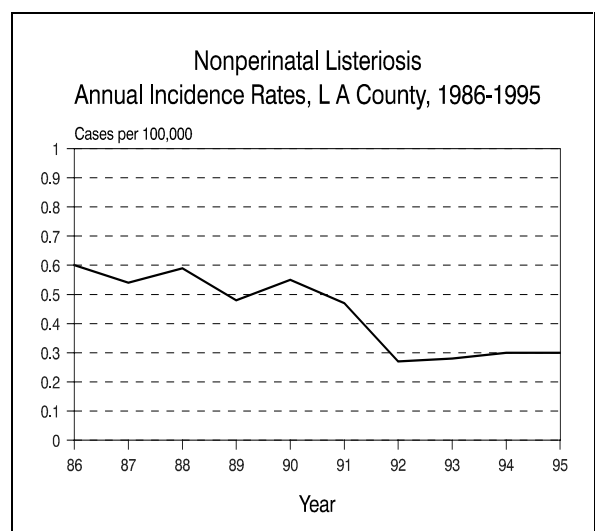
### METHODS

Surveillance officers in the LAC area ascertained cases biweekly by contacting the microbiology laboratories and infection control departments of all acute care hospitals in LAC. A perinatal listeriosis case was defined as a pregnant woman or her fetus or a newborn with infection of a sterile site with *L. monocytogenes* within the first 31 days of life. A nonperinatal case was defined as the isolation of *L. monocytogenes* from a sterile site. Medical information on cases was collected through review of medical records and case interviews. Steroid use before disease onset was defined dichotomously one year before disease onset. Annual rates by year were calculated by using live births and population data.

### RESULTS

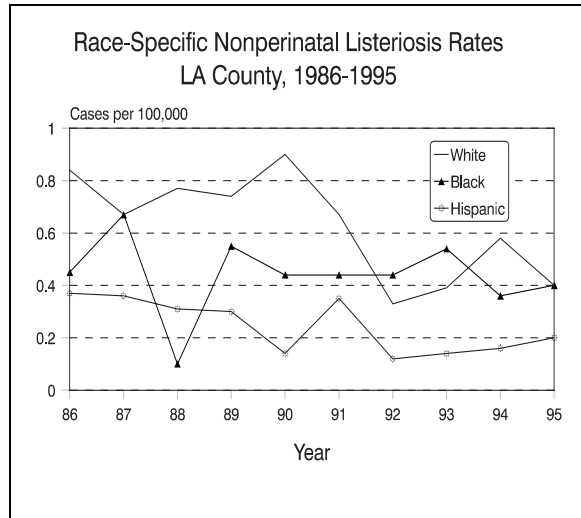
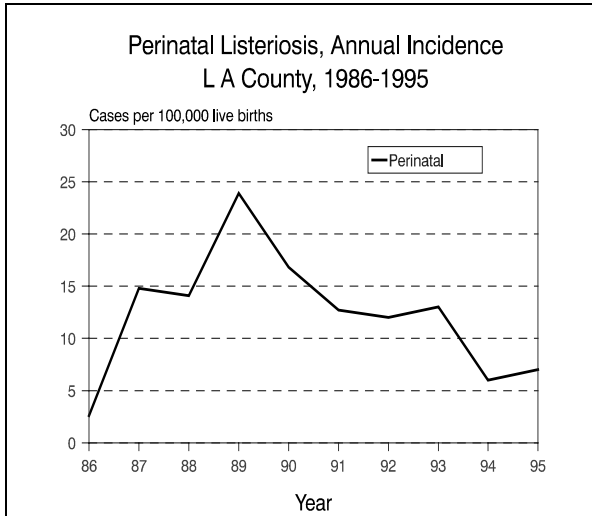
Of the 603 listeriosis cases identified during the 1986-1995 study period, 354 (59%) were nonperinatal and 246 (41%) were perinatal cases. The rate of listeriosis decreased for both nonperinatal (0.61 to 0.3/1,000,000) and perinatal cases (26.9 to 6.2/100,000 live births) (Figures 3 and 4). No outbreaks of listeriosis were identified during the entire study period. The average case-fatality rate for perinatal listeriosis cases remained close to 25%, while it decreased for nonperinatal cases from 1986 (41%) to 1995 (19.2%).

Among nonperinatal cases, all races had decreases in disease rates. For perinatal cases, all races except Asians experienced a decrease in disease rates. However, the total number of Asian cases reported for the study period was not significant. It is worth noting that Hispanic





women, who once had the highest perinatal listeriosis rate, experienced a significant decrease between 1986 and 1995 (29.4 to 8.8/100,000 live births) (Figure 5).



Perinatal cases were more likely to have ingested Mexican-style cheese before onset of listeriosis than were nonperinatal cases (overall OR=11.5, CI=6.7-19.7), and this proportion did not change over time.

Examining the underlying medical conditions among nonperinatal cases, cancer, diabetes, and renal disease were the most prevalent conditions (26.8%, 18.1%, and 13.6%, respectively) (Table 11). Steroid usage prior to the onset of nonperinatal listeriosis remained relatively constant (36.7%) over the study period.

Top Five Underlying Medical Conditions\* Among Nonperinatal Cases, L A County, 1986-1995 (N=356)

Underlying Medical Condition	N	Percent
Cancer	95	26.8
Diabetes	64	18.1
Renal disease	48	13.6
HIV/AIDS	32	9.0
Alcoholism	17	4.8

\* Less than 5% of all nonperinatal cases had no identifiable risk.

## DISCUSSION AND CONCLUSIONS

The rate of listeriosis in LAC decreased between 1990 and 1995. The decrease may be attributed to the stringent measures applied by the US food industry and government regulatory agencies for the control of listeriosis or to the success of education efforts targeting pregnant women and other high-risk groups (1). However, listeriosis remains one of the most dangerous infections to the fetus and newborn infants, and the high case-fatality



ratio (overall average case-fatality ratio is 28%) suggests the strong need for continuing prevention efforts. Results from this study suggest that cancer, diabetes, renal disease, and other immunosuppressive diseases may place persons at risk for listeriosis. This suggests that the development of listeriosis may be due to a person's underlying T-cell mediated immune status. Anaissie and colleagues (1992) demonstrated that different types of treatment for cancer patients had different impacts on CD4 counts, which in turn influenced the pathogenesis of listeriosis. Therefore, it is possible that therapy and not the malignancy itself may be a more important predisposing factor. Unfortunately, our data is not able to answer this question. It is well known that the administration of steroids results in a wide range of effects on immunity (3). Approximately 36% of our nonperinatal cases received steroids before onset of listeriosis.

Further studies are needed to define the physiological mechanism of cancer (type, treatment modalities), diabetes (insulin dependent or not), and steroids (dose) in the development of listeriosis.

## REFERENCES

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