

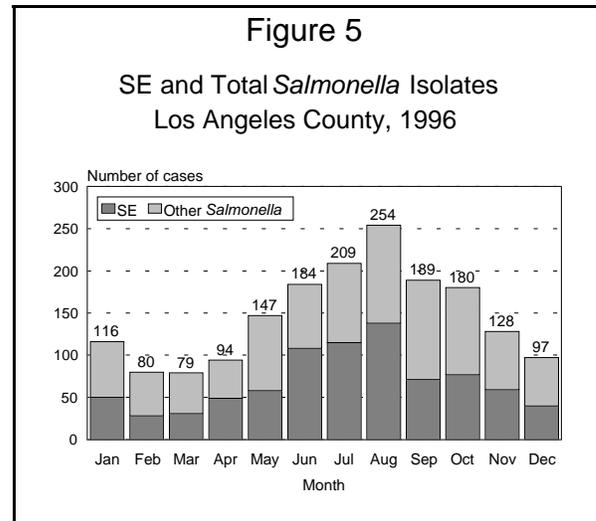
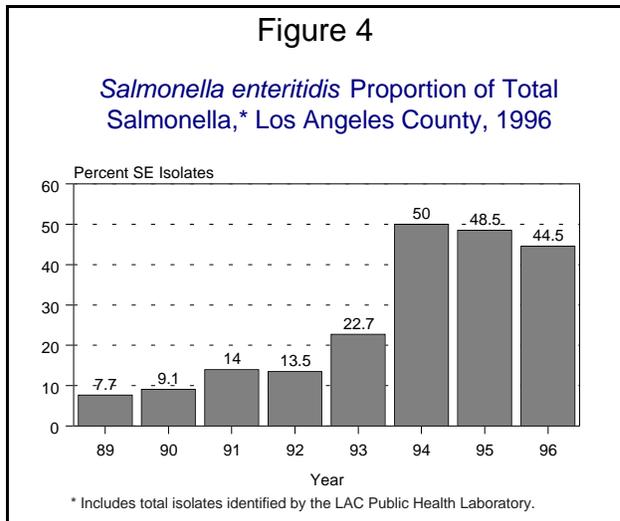
SALMONELLA SEROTYPE ENTERITIDIS IN LOS ANGELES COUNTY, 1996

INTRODUCTION

Since 1990, human cases of *Salmonella* serotype *enteritidis* (SE) have increased in Los Angeles County (LAC), and in the rest of Southern California. Initially, the increase was noted to be gradual, with a few small outbreaks occurring each year. In 1994, following an increase in SE cases, a case-control study of sporadic cases was conducted by the Acute Communicable Disease Control Unit (ACDC) and the California Department of Health Services.¹ The case-control study showed a strong association between SE infection and consumption of eggs, especially raw or undercooked eggs. Eating in restaurants also was associated with increased risk of SE infection.

TRENDS

SE continues to be the major *Salmonella* serotype identified from isolates submitted to the Public Health Laboratory. In 1996, SE comprised 44.8% (787 of 1757) of *Salmonella* isolates serotyped for LAC cases, a 9% decrease from 1995 when 48.5% (Figure 4) of isolates were SE. The highest frequency of SE cases occurred during the summer months (Figure 5) similar to other *Salmonella*



serotypes. The male-to-female rate ratio for SE was 1:1.06, the same as for all *Salmonella* isolates. The majority (88.7%) of SE isolates were from feces, followed by blood (4.5%), urine (2.2%), and rectal swab (1.5%).

DESCRIPTIVE DATA

A review of all 1996 non-outbreak associated SE epidemiologic case history forms was conducted in March 1997. Out of 787 known SE cases, 594 histories (75%) were reviewed. Among the 594 cases reviewed, 166 (29%) were hospitalized for a mean of six days (range 1-60 days). Underlying medical problems were reported for 181 (32%) of the reviewed cases, with allergy, heart disease and cancer being the most frequent. Three deaths occurred in persons with underlying disease, with salmonellosis caused by SE as a contributing cause. Egg consumption was reported by 416 persons (70%), of which 13% of egg consumers stated that they had consumed eggs raw during the incubation period. Reptile contact occurred in 60 (11%) of SE cases, with 67% of those with reptile contact reporting miniature turtle contact. SE has been isolated from miniature turtle feces by the LAC Public Health Laboratory. For the 19% where no likely source of SE infection was identified, some may have acquired infections from contact with an undiagnosed case.

OUTBREAKS

In 1996, seven of ten (70%) *Salmonella* outbreaks were due to SE phage type 4, which is now the most common SE phage type in Southern California. Six of the outbreaks occurred during the hot summer months, when layer chickens may be stressed by the heat and shed more *Salmonella* via the ovary into the eggs. In 1996, refrigeration was not required from farm to table, so eggs may have been stored in hot warehouses or trucks, encouraging bacterial replication. Eggs were the suspected source for four outbreaks; the source was unknown for two outbreaks; and turkey was suspected for one outbreak (Table 5). There was one death associated with an SE outbreak, in an elderly person with underlying heart disease, with *Salmonella* infection as a contributing cause.

ACDC continues to monitor sporadic cases and outbreaks of SE, and continues to work with private industry groups, the State, and the federal government to improve egg production/ distribution processes and consumer education that will decrease the risk of SE infection.

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Table 5. *Salmonella enteritidis* Outbreaks Los Angeles County, 1996

Date	Event	Setting	No. Ill	No. SE	Suspect Vehicle
3/22/96	None	Retirement Home	23	14	Frozen turkey croissant
6/2/96	Picnic	Park	31	5	Homemade ice cream
6/29/96	None	Restaurant	11	6	Chicken dishes
7/7/96	Filipino party	Private home	16	2	Homemade egg rolls
7/31/96	Party	Restaurant	14	2	Unknown
8/4/96	Lunch	Church	~100	29	Egg dish
8/17/96	Birthday dinner	Hotel restaurant	10	1	Caesar salad Tiramisu
Totals	7	---	205	59	---

REFERENCES

1. Passaro DJ, Reporter R, Mascola L, et al: Epidemic *Salmonella enteritidis* infection in Los Angeles County, California—the predominance of phage type 4. *West J Med* 1996; 165:126-30.