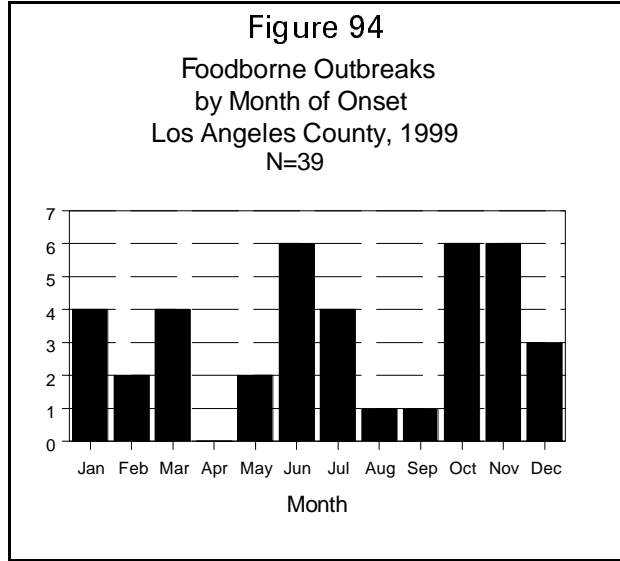


## FOODBORNE OUTBREAKS

CRUDE DATA	
Number Ill	742
Number Outbreaks	39
Annual Incidence:	
LA County <sup>a</sup>	8.1
California <sup>b</sup>	N/A

<sup>a</sup> Individual cases (not outbreaks) per 100,000 population.  
<sup>b</sup> California Department of Health Services, stats.



### ETIOLOGY

Foodborne outbreaks are caused by a variety of bacterial, viral and parasitic pathogens, or toxic substances. They are defined as clusters of persons with illness related by time and place where food is the suspected vehicle of disease transmission.

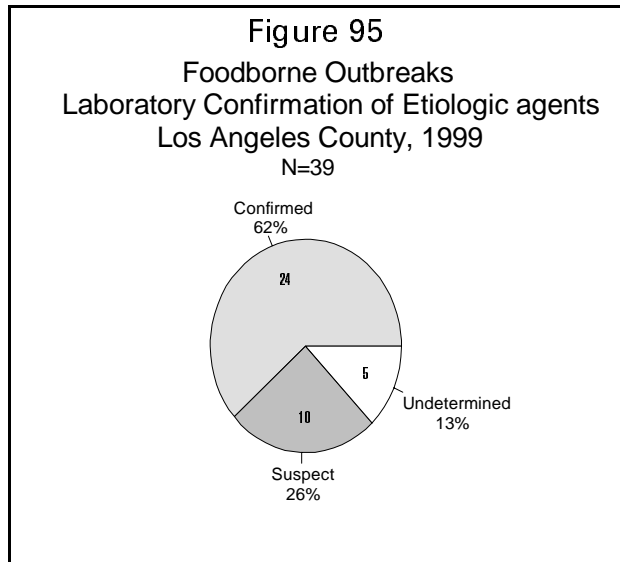
### DISEASE ABSTRACT

A total of 39 foodborne outbreaks in LAC were investigated by Department of Health Services in 1999. These outbreaks resulted in 742 cases of documented disease caused by a variety of pathogens.

### DATA

**Seasonality:** Foodborne outbreaks often increase in summer. In 1999 there were two peaks for outbreaks; early summer and fall (Figure 94).

**Agent:** A specific pathogen was laboratory-confirmed in 62% of the foodborne outbreaks (Figure 95). In 25% of the outbreaks, investigators used clinical and epidemiologic

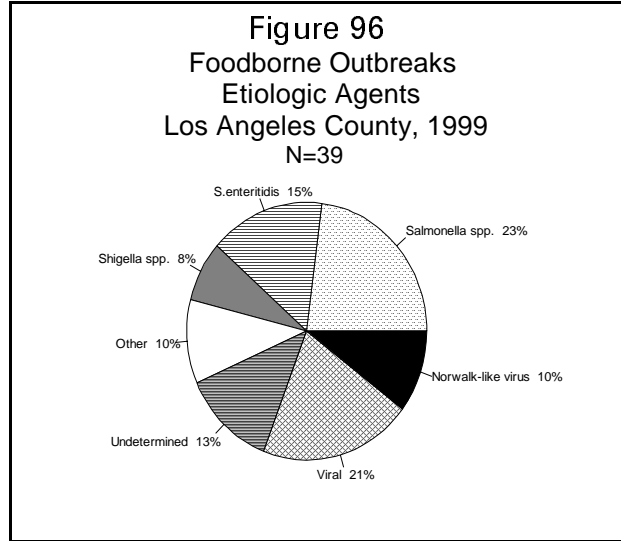


**Table 12. Foodborne Outbreaks in Los Angeles County, 1999 (N=39)**

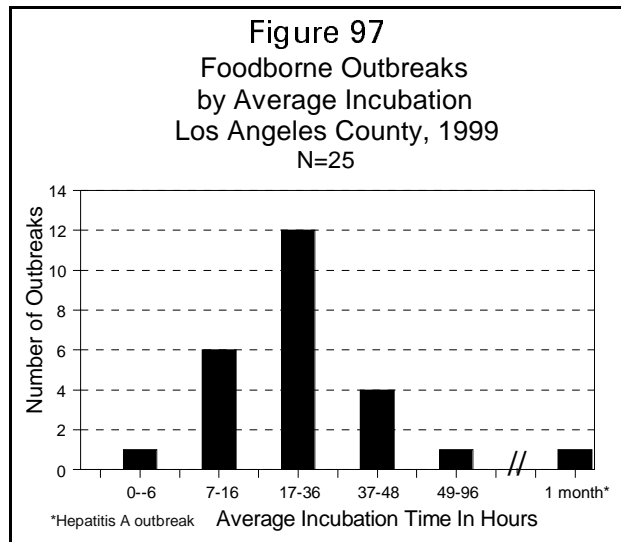
O.B. #	Etiologic Agent	# Affected	Implicated Food/Meal	Avg. Hrs. Incub.
<b><u>CONFIRMED</u></b>				
145	<i>Campylobacter jejuni</i>	6	chicken	2.5
128	Hepatitis A virus	3	undetermined	30days
178	Norwalk-like virus	38	tuna fish, bagels	37
190	Norwalk-like virus	14	undetermined	32
158	Norwalk-like virus	94	lemonade slushy	--
159	Norwalk-like virus	37	lemonade slushy	--
70	<i>Salmonella</i> Braenderup	17	undetermined	--
109	<i>Salmonella</i> Braenderup	7	chicken	24
59	<i>Salmonella</i> Enteritidis	2	chile relleno	24
118	<i>Salmonella</i> Enteritidis	29	egg dishes	--
119	<i>Salmonella</i> Enteritidis	100	honey dew	24
134	<i>Salmonella</i> Enteritidis	4	undetermined	--
168	<i>Salmonella</i> Enteritidis	2	undetermined	--
187	<i>Salmonella</i> Enteritidis	7	chicken	48
196	<i>Salmonella</i> Hadar	11	chicken	13.7
116	<i>Salmonella</i> Muenchen	10	unpasteurized orange juice	--
188	<i>Salmonella</i> Muenchen	8	undetermined	--
5	<i>Salmonella</i> Newport	11	mangos	--
167	<i>Salmonella</i> St. Paul	15	undetermined	24
55	<i>Salmonella</i> Thompson	42	cilantro	25
83	<i>Salmonella</i> Thompson	3	undetermined	29
15	<i>Shigella flexneri</i>	32	shredded lettuce	51
120	<i>Shigella sonnei</i>	15	undetermined	12
126	<i>Shigella</i> spp.	5	undetermined	--
<b><u>UNCONFIRMED</u></b>				
78	<i>Clostridium perfringens</i>	40	beef tri-tip	8.4
160	<i>Clostridium perfringens</i>	11	spaghetti w/ meat	12
1	Viral	10	undetermined	--
27	Viral	17	undetermined	39
44	Viral	24	undetermined	33
77	Viral	14	undetermined	21
102	Viral	14	undetermined	28.5
110	Viral	14	undetermined	32
177	Viral	18	undetermined	24
180	Viral	19	undetermined	48
6	Undetermined	14	undetermined	--
8	Undetermined	20	undetermined	--
9	Undetermined	5	undetermined	8.3
52	Undetermined	2	undetermined	--
112	Undetermined	10	undetermined	12

evidence to classify outbreaks as “suspected” bacterial, viral, or parasitic. Investigators classified remaining outbreaks (13%) with insufficient information to “undetermined” causes.

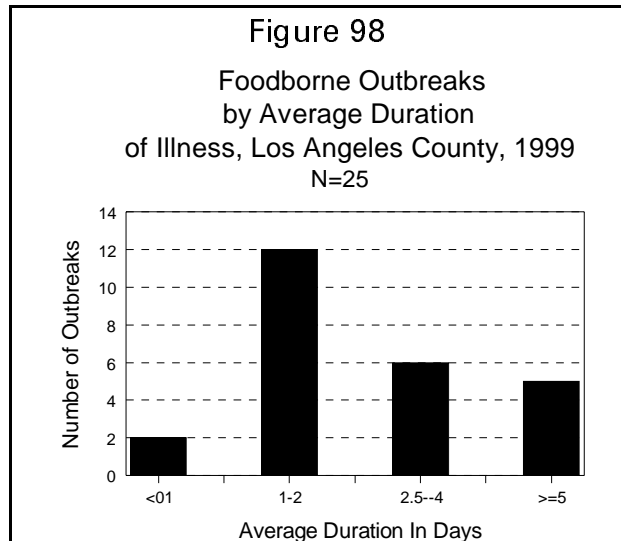
The most common laboratory confirmed etiologic agents responsible for outbreaks in 1999 were *Salmonella* species (38%) *Salmonella enteritidis* was the largest subgroup of *Salmonella* species (15%). Viruses made up the second largest category of etiologic agents (31%). Four of these outbreaks were confirmed to be caused by Norwalk-like viruses (10%)(Figure 96).



**Incubation:** Figure 97 shows incubation periods of the 25 outbreaks with documented information. The majority of outbreaks had an incubation of 17-36 hours with an average incubation of 25.5 hours (not including the Hepatitis A outbreak).



**Duration:** Figure 98 features average duration of illness in days from those reports with available information (N=25). Most illnesses lasted 1-2 days except some, like Hepatitis A infections which lasted 5 or more days.



**Food Establishment Type:** A restaurant was the location for most reported outbreaks (41%), followed by catered events(15%) (Figure 99).“Catered events” were defined as those situations where a restaurant or caterer prepared the food, which was then brought by that establishment to another location. “Take out” was defined as situations where the patron picked up the food themselves.

**Violations:** Eighteen outbreak reports documented violations that Food & Milk program inspectors cited at the eating establishment. Not all these violations may be contributors to an outbreak. However, violations such as improper storage or holding temperature, contaminated equipment or working surfaces, and poor personal hygiene

of the food handler are factors that can contribute to the propagation and spread of foodborne agents. Fifteen of 18 (83%) establishments were improperly storing food or holding foods at inadequate temperatures. Twelve of 18 establishments (67%) had employees not practicing adequate personal hygiene (e.g. not washing hands). Twelve of 18 (67%) were using contaminated equipment or were improperly washing the equipment.

**DISCUSSION**

Public health nurses follow up individually reported cases of laboratory-confirmed salmonellosis, shigellosis, and campylobacteriosis; during the course of these investigations, foodborne outbreaks may be identified. Outbreaks of a viral etiology are not readily detected unless reported by the victims or medical provider. Mild symptoms, long incubation periods, and poor public/medical community awareness of public health procedures could lead to under-reporting of foodborne outbreaks.

**COMMENTS**

It is clear from reported outbreak data that a variety of bacterial and viral pathogens can cause foodborne illness. The etiologic agent was laboratory confirmed in more than half of the outbreaks. The average incubation time of 24 hours for most foodborne illnesses reconfirms that most outbreaks were not caused by the last meal eaten by the victim. This indicates that educational efforts are needed to increase public awareness of the nature of foodborne illness.

The Los Angeles County Public Health laboratory added reverse-transcriptase polymerase chain reaction (RT-PCR) testing for caliciviruses in 1999. This test should identify outbreaks caused by Norwalk-like virus, an agent believed to be a major cause of foodborne illness. The laboratory has also joined the PulseNet National Laboratory Surveillance System. Utilizing pulse-field gel electrophoresis (PFGE), disease isolates which previously would have seemed sporadic in the past now can be laboratory-linked, aiding in cluster identification.

