

HEALTH-CARE-FACILITY OUTBREAKS

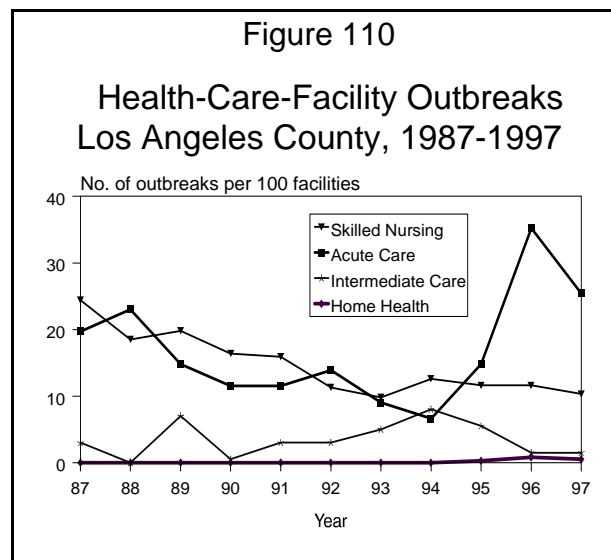
OUTBREAK DEFINITION AND ETIOLOGY

Outbreaks in health-care facilities may be defined as clusters of nosocomial (health-facility acquired) infections related in time and place or occurring above a baseline or threshold level for a facility or specific unit or ward. Nosohusial outbreaks are those related to home-health care.

ABSTRACT

During 1997 a notable decrease in outbreaks reported by acute-care hospitals occurred after a record high outbreak rate recorded the previous year in these facilities (Figure 110, Table 13). In the acute-care setting nosocomial scabies outbreaks (n=11)

continued to predominate, and reported vancomycin-resistant *enterococcus* (VRE) outbreaks (n=3) declined. The outbreak rate in skilled-nursing facilities (SNFs) has stabilized over the past four years following a declining trend between 1987-93 (Figure 110). An unusual late season influenza type A (H3N2, A/Wuhan/359/95-like) outbreak occurred in a SNF in the months of May and June.



**Table 13. Reported Outbreaks Occurring in Los Angeles County*
Health-Care Facilities, 1995-1997**

Type of Health-Care Facility	1995		1996		1997	
	No.	Rate**	No.	Rate**	No.	Rate**
Acute-Care Hospitals	18	(14.8)	43	(35.2)	31	(25.4)
Subacute Care						
Home-Health Agencies	1	(0.3)	3	(0.8)	2	(0.5)
Intermediate Care/Psychiatric	11	(5.5)	3	(1.5)	3	(1.5)
Skilled-Nursing Facilities	45	(11.6)	45	(11.6)	40	(10.3)
Total	75		94		76	

* Excludes facilities in Long Beach and Pasadena.

** Per 100 facilities.

DATA

In acute-care hospitals, 31 outbreaks were reported (Table 14), a 28% decrease from 1996. Nosocomial scabies outbreaks accounted for about one-third of the outbreaks reported from these hospitals. Reported VRE outbreaks declined by two-thirds (9 in 1996, down to 3 in 1997; Table 14). During 1997, 40 outbreaks were reported in skilled nursing facilities, 3 in intermediate care/psychiatric facilities, and 2 outbreaks in home-health agencies (Table 15). While scabies

outbreaks were the most frequently reported in these settings (24/45), the frequency of occurrence represents a stabilizing trend apparent since 1990. As in the previous three years, both outbreaks reported by home-health agencies were scabies infestations.

**Table 14. Acute-Care Hospital Outbreaks by Disease/Condition
Los Angeles County, 1997**

Disease/Condition	Number of Outbreaks	Number of Cases
Adenovirus	1	5
<i>Enterobacteriaceae</i> infections:		
<i>Acinetobacter</i> infections	4	39
<i>Klebsiella pneumoniae</i>	1	4
<i>Ochrobactrum anthropi</i> / <i>Stenotrophomonas maltophilia</i>	1	4
<i>Pseudomonas aeruginosa</i>	1	6
<i>Serratia marcescens</i>	1	12
Scabies	11	160
<i>Staphylococcal</i> infections:		
Methicillin-resistant <i>S. aureus</i>	4	58
<i>Staphylococcus aureus</i>	3	23
<i>Staphylococcus</i> species	1	13
Vancomycin-resistant <i>Enterococcus</i> sp.		
<i>E. faecium</i> / <i>E. faecalis</i> /Other species	1	96
<i>Enterococcus</i> unknown species	2	69
Total	31	489

**Table 15. Skilled Nursing/Intermediate Care/Psychiatric-Facility
and Home-Health-Agency Outbreaks
by Disease/Condition, Los Angeles County, 1997**

Disease/Condition	Number of Outbreaks	Number of Cases
Diarrheal illness, unspecified	6	151
Influenza	1	50
Methicillin-resistant <i>S. aureus</i>	9	28
<i>Pseudomonas aeruginosa</i>	1	3
Rash illness, unspecified	1	11
Respiratory infection, unspecified	2	20
Rubella	1	4
Scabies	24	159
Total	45	426

COMMENTS

Hospital outbreaks are principally managed by hospital infection control practitioners and monitored by ACDC staff. ACDC staff provided extensive consultation in six large-scale scabies hospital outbreaks. In response to numerous requests for assistance in outbreak management and inservice education on scabies, ACDC developed a comprehensive guideline for management of scabies in health-care facilities which includes information on scabies diagnosis, treatment, and outbreak management.

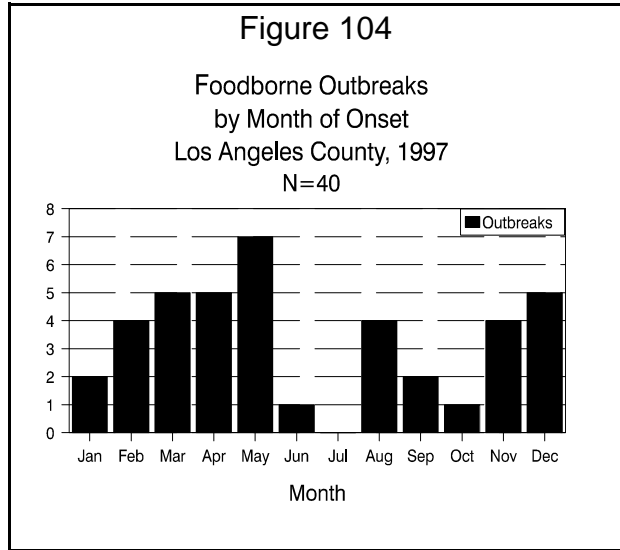
Community Health Services district staff have primary responsibility for disease investigations in skilled nursing, intermediate care and psychiatric facilities. Growing attention to infection control in subacute settings is evident based on the increasing number of telephone inquiries from health-care-licensing inspectors and long-term-care nursing directors with respect to management of residents with resistant organisms such as methicillin-resistant *Staphylococcus aureus* (MRSA) and VRE. An updated guideline for control of MRSA and a guideline for control of VRE in long-term care is being developed by ACDC.

ACDC staff conducted an in-depth investigation of an influenza type A (H3N2, A/Wuhan/359/95-like) outbreak in a SNF which occurred late in the 1996-97 influenza season between May 17 and June 14, 1997; 40 residents and 10 employees met the case definition for influenza. This outbreak illustrates the importance of advising SNFs to immediately report any increase in respiratory illness associated with fever and/or requiring hospitalization. A detailed summary of this investigation can be found in the *Acute Communicable Disease Control Special Studies Report, 1997*.

FOODBORNE OUTBREAKS

CRUDE DATA	
Number Ill	1,508
Number Outbreaks	40
Annual Incidence:	
LA County ^a	16.7
California ^b	6.0
United States ^c	5.8

^a Cases per 100,000 population.
^b California Department of Health Services, 1997 provisional stats.
^c MMWR, Vol. 45, No. SS-5, 1996.



ETIOLOGY

Foodborne outbreaks are caused by a variety of bacterial, viral, or parasitic pathogens.

DISEASE ABSTRACT

A total of 40 foodborne outbreaks in Los Angeles County (LAC) were investigated by LAC's Acute Communicable Disease Control (ACD) Unit in 1997. These outbreaks resulted in 1,508 cases of disease and were caused by a variety of pathogens.

DATA

This is the first year ACDC has analyzed "foodborne outbreaks" as a separate report in this publication. These 40 outbreaks are defined as clusters of persons with illness related by time and place where food is the suspected vehicle of disease transmission.

Seasonality: Foodborne outbreaks often increase in summer. However, numbers of reported outbreaks did not increase in the summer of 1997 (Figure 104).

Agent: A specific pathogen was laboratory-confirmed in 46% of the foodborne outbreaks (Figure 105). In 40% of the outbreaks, investigators used clinical and epidemiologic

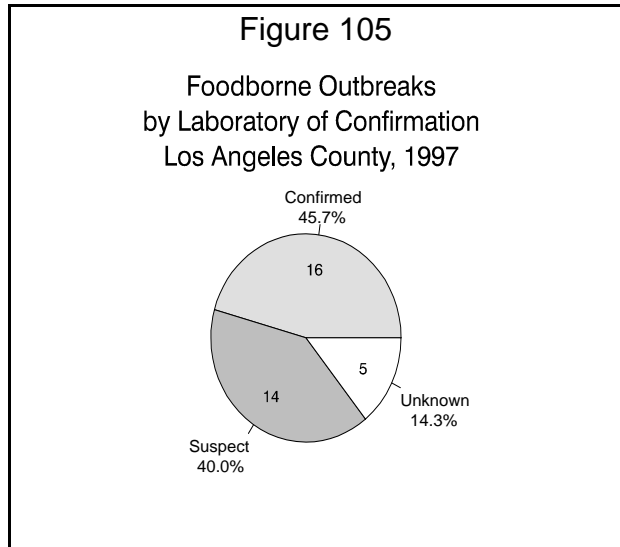


Table 12. Foodborne Outbreaks in Los Angeles County, 1997 (N=40)

O.B. #	Etiologic Agent	# Affected	Implicated Food/Meal	Avg. Incub. (hrs)
222	<i>Bacillus cereus</i>	3	Unknown	5
218	<i>Bacillus cereus</i>	203	Turkey, stuffing	10
30	Bacterial	63	Unknown	12
83	<i>Campylobacter jejuni</i> *	87	Unknown	?
28	<i>Clostridium perfringens</i>	50	Greens with hamhocks	7
89	<i>Clostridium perfringens</i>	147	Carne asada	10
1	<i>Clostridium perfringens</i> *	35	Beef short ribs	8
98	<i>Clostridium perfringens, Bacillus cereus</i>	21	Unknown	10
196	<i>Clostridium perfringens, Bacillus cereus</i>	150	Unknown	10
88	<i>Cyclospora cayetanensis</i> *	58	Raspberries or salad	168
127	<i>Cyclospora cayetanensis</i> *	3	Unknown	240
69	Enterotoxigenic <i>E. coli</i> *	41	Unknown	24
214	Norwalk-like virus	15	Unknown	23
180	Norwalk-like virus	21	Unknown	24
15	Norwalk-like virus	15	Potluck meal	28
33	Norwalk-like virus	20	Unknown	30
44	Norwalk-like virus	13	Unknown	30
100	Norwalk-like virus	48	Catered sandwiches	34
41	Norwalk-like virus	14	Turkey	36
215	Norwalk-like virus	46	Unknown	37
160	<i>Salmonella braenderup</i> *	93	Fish patties	20
198	<i>Salmonella enteritidis</i> *	47	Unknown	8
43	<i>Salmonella enteritidis</i> *	7	Eggs benedict	24
145	<i>Salmonella enteritidis</i> *	76	Potato salad, carne asada	28
147	<i>Salmonella enteritidis</i> *	13	Cheesecake (non-bake)	36
131	<i>Salmonella enteritidis</i> *	2	Egg-battered shrimp	60
154	<i>Salmonella heidelberg</i> *	6	Baked sole	12
187	<i>Salmonella infantis</i> *	11	Guacamole	24
47	<i>Salmonella muenchen</i> ,* <i>Salmonella montevideo</i> *	13	Chicken	17
114	<i>Salmonella typhi</i> , var. <i>Copenhagen</i> *	18	Chicken	18
146	<i>Shigella</i> *	17	Unknown	12
78	<i>Staphylococcus aureus</i>	13	Chow Mein, tuna	6
68	<i>Staphylococcus aureus</i>	?	Unknown	8
56	Unknown	4	Carnitas	8
184	Unknown	7	Unknown	8
99	Unknown	15	Unknown	24
212	Unknown	6	Unknown	24
96	Unknown	34	Chinese chicken salad	38
150	<i>Vibrio parahaemolyticus</i> *	16	Unknown	16
19	Viral	24	Unknown	22

*Laboratory confirmed.

evidence to classify outbreaks as “suspect” bacterial, viral, or parasitic. Investigators classified remaining outbreaks with insufficient or conflicting information to “unknown” causes.

When the etiologic agent could not be laboratory confirmed, the most common suspect cause of the outbreaks was a viral etiology. Twenty-four percent of investigated outbreaks were reported as viral based on symptoms, incubation, and duration of illness.

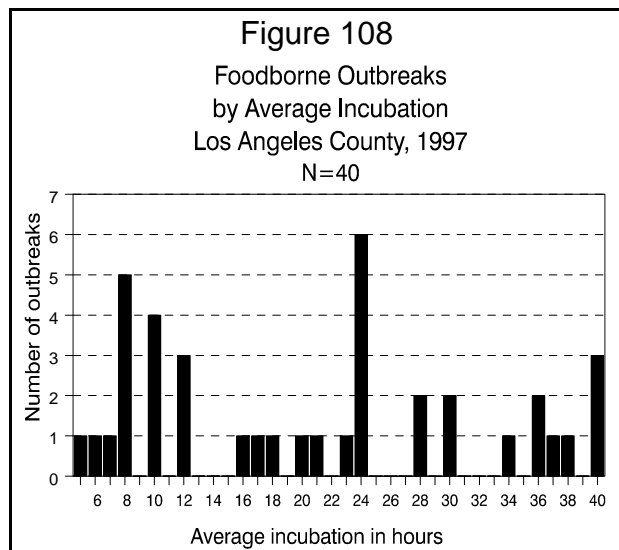
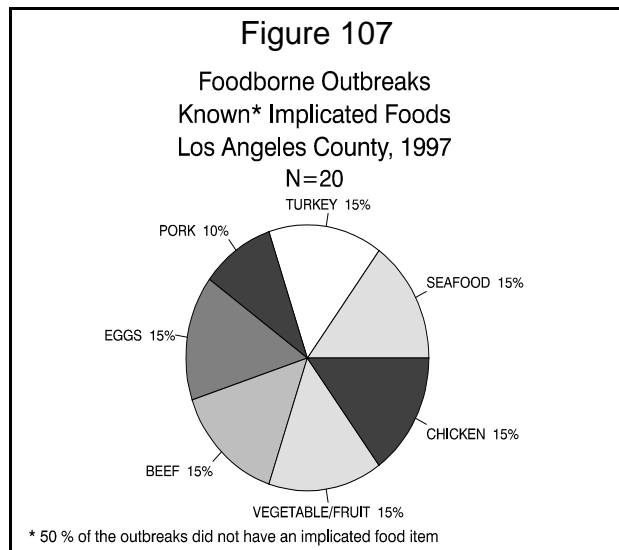
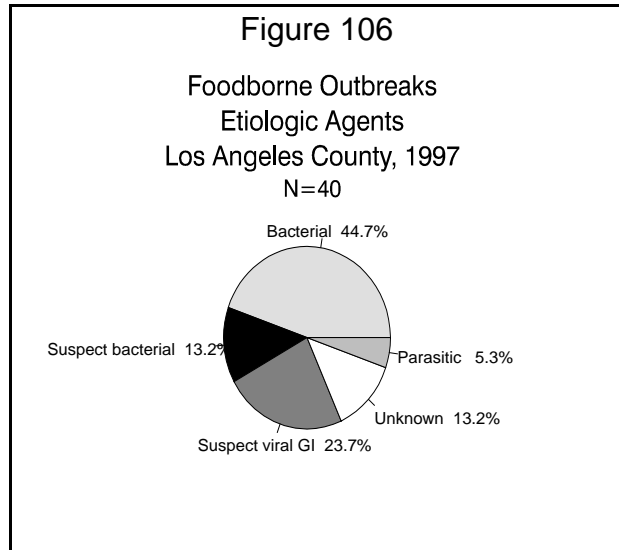
Implicated Foods: Epidemiological analysis implicated a specific food item(s) in 48% of the outbreaks (Figure 107). No single food type predominated; however, specific foods were implicated in only about one-half of the foodborne outbreaks.

Incubation: The graph (Figure 108) of incubation periods of the foodborne outbreaks shows three peaks: 8-12 hours, 24 hours (incubations of 1 day), and 28-40 hours. These three groups roughly correspond to expected incubation periods for different types of foodborne outbreak agents: under 12 hours for the short-acting bacterial toxin agents, 12-40 hours for the viral agents and for the bacterial agents which need to proliferate in the human gut to cause disease, and multiple days for the parasitic agents.

Food Establishment Type: Catered events rather than “sit-down” restaurant meals were responsible for the vast majority of known outbreaks (Figure 109), indicating the importance of proper food transportation, handling, and temperature control.

DISCUSSION

Public health nurses follow up individually reported cases of laboratory-confirmed salmonella, shigella, and campylobacter. During the course of these investigations, foodborne outbreaks may be identified. With the current availability of laboratory testing,



outbreaks of a viral etiology must be reported as such by the victims or treating medical provider. Mild symptoms, long incubation periods, and poor public/medical community awareness of the public health procedures could lead to under-representation of foodborne outbreaks.

Interestingly, foods causing outbreaks were distributed across all major food groups (except the bread group) when the implicated food was known.

COMMENTS

It is clear from reported outbreak data that a variety of bacterial, viral, and parasitic pathogens and many different meat, dairy, fruit and vegetable products caused the 1997 foodborne outbreaks in LAC. As the etiologic agent was laboratory confirmed in less than half of the outbreaks, there is clearly a need for increased and properly collected human stool samples for laboratory analysis (viral, parasitic, and bacterial).

