



## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	33
Annual Incidence <sup>a</sup>	
LA County <sup>b</sup>	0.34
California	N/A
United States	N/A
Age at Diagnosis	
Mean	72
Median	75
Range	17–94 years

<sup>a</sup>Cases per 100,000 population

<sup>b</sup>Rates calculated based on less than 19 cases or events are considered unreliable

### DESCRIPTION

Listeriosis is a disease caused by infection with *Listeria monocytogenes*, a gram-positive rod bacteria found in soil throughout the environment. Listeriosis is often caused by ingestion of foods contaminated with *L. monocytogenes* such as raw fruits and vegetables, cold cuts, deli meats, and unpasteurized dairy products. The disease affects primarily persons of advanced age, pregnant women, newborns, and adults with weakened immune systems. On rare occasions, people without these risk factors have also contracted listeriosis. Symptoms of listeriosis include fever, muscle aches, and sometimes nausea or diarrhea. If infection spreads, sepsis or meningitis can occur, which may be fatal. Infected pregnant women may experience only a mild, flu-like illness; however, infection during pregnancy can lead to miscarriage or stillbirth, premature delivery, or infection of the newborn (see Listeriosis, perinatal).

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources and avoiding unpasteurized milk or foods made from unpasteurized milk. Individuals at risk for

severe outcomes from infection should also avoid soft cheeses and leftover foods or ready-to-eat foods such as deli meats and hot dogs. Deli meats should be cooked until steaming hot.

### 2016 TRENDS AND HIGHLIGHTS

- Whites comprised 46% of all nonperinatal listeriosis cases followed by Asians (24%), Hispanics (21%), and Blacks (6%) (Figure 3). In 2016, the proportion of cases among Whites and Asians increased by 7% from 2015. The proportion of cases among Blacks increased by 6%. The proportion of cases among Hispanics decreased by 5%.
- In 2016, nine nonperinatal listeriosis cases were part of a nationwide outbreak associated with store-bought hummus. However, four of these cases denied hummus consumption.
- In 2016, as in the past five years, the majority of cases (72%) occurred in those greater than 65 years old. Advanced age increases the risk of developing listeriosis.
- Two cases of *Listeria innocua* were identified. One case was part of a trial where genetically modified *Listeria* was used as cancer treatment. Reasons for the second *innocua* infection are unknown.
- Regionally, the greatest number of listeriosis was in SPA 2 (Figure 4) with 11 cases and an incidence of 0.5 per 100,000. SPA 5 had six cases and exhibited the highest incidence at 0.9 per 100,000.
- Cases in 2016 and the five-year average peaked in September (Figure 5).
- Individuals with pre-existing health conditions are disproportionately affected. The majority of cases (n=31, 84%) had one or more other medical conditions before receiving a diagnosis of listeriosis.
- There were four deaths due to nonperinatal listeriosis, resulting in a case-fatality rate of 12.1. These cases had underlying diseases including cancer, diabetes, kidney disease, and hypertension.



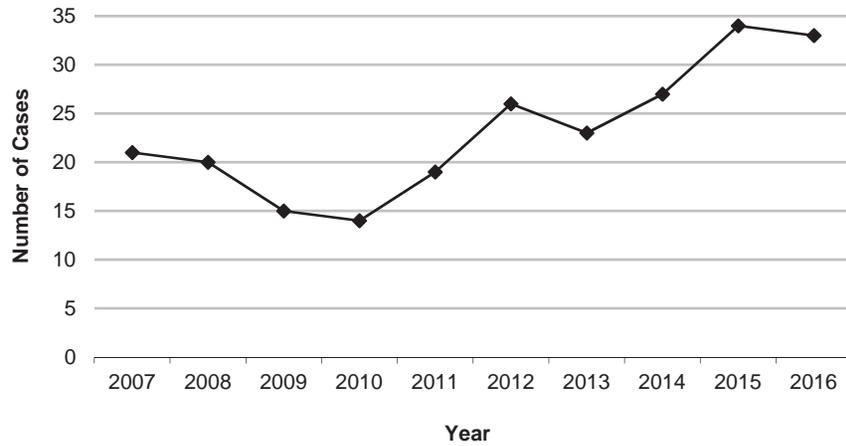
**Reported Listeriosis, Nonperinatal Cases and Rates\* per 100,000 by Age Group, Race/Ethnicity, and SPA  
LAC, 2012-2016**

	2012 (N=26)			2013 (N=23)			2014 (N=27)			2015 (N=34)			2016 (N=33)		
	No.	(%)	Rate/ 100,000												
<b>Age Group</b>															
<1	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
1-4	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
5-14	1	3.8	0.1	0	-	-	1	3.7	0.1	0	-	-	0	-	-
15-34	1	3.8	-	0	-	-	0	-	-	1	2.9	-	1	3.0	-
35-44	0	-	-	1	4.3	0.1	2	7.4	0.2	3	8.8	0.2	1	3.0	0.1
45-54	8	30.8	0.6	3	13.0	0.2	1	3.7	0.1	5	14.7	0.4	3	9.1	0.2
55-64	1	3.8	0.1	3	13.0	0.3	3	11.1	0.3	4	11.8	0.4	4	12.1	0.4
65+	15	57.7	1.4	16	69.6	1.4	20	74.1	1.8	21	61.8	1.8	24	72.7	2.0
Unknown	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
<b>Race/Ethnicity</b>															
Asian	5	19.2	0.4	7	30.4	0.5	9	33.3	0.7	6	17.6	0.4	8	24.2	0.6
Black	1	3.8	0.1	1	4.3	0.1	1	3.7	0.1	0	-	-	2	6.1	0.3
Hispanic	8	30.8	0.2	8	34.8	0.2	10	37.0	0.2	9	26.5	0.2	7	21.2	0.1
White	11	42.3	0.4	6	26.1	0.2	4	14.8	0.2	13	38.2	0.5	15	45.5	0.6
Other	0	-	-	0	-	-	0	-	-	1	-	-	1	3.0	-
Unknown	1	-	-	1	-	-	3	-	-	5	-	-	0	-	-
<b>SPA</b>															
1	1	3.8	0.3	0	-	-	0	-	-	0	-	-	0	-	-
2	9	34.6	0.4	7	30.4	0.3	9	33.3	0.4	8	23.5	0.4	11	33.3	0.5
3	2	7.7	0.1	2	8.7	0.1	5	18.5	0.3	10	29.4	0.6	5	15.2	0.3
4	3	11.5	0.3	4	17.4	0.4	2	7.4	0.2	5	14.7	0.4	7	21.2	0.6
5	5	19.2	0.8	1	4.3	0.2	2	7.4	0.3	3	8.8	0.5	6	18.2	0.9
6	3	11.5	0.3	2	8.7	0.2	3	11.1	0.3	2	5.9	0.2	0	-	-
7	0	-	-	5	21.7	0.4	2	7.4	0.2	3	8.8	0.2	3	9.1	0.2
8	3	11.5	0.3	2	8.7	0.2	4	14.8	0.4	3	8.8	0.3	1	3.0	0.1
Unknown	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-

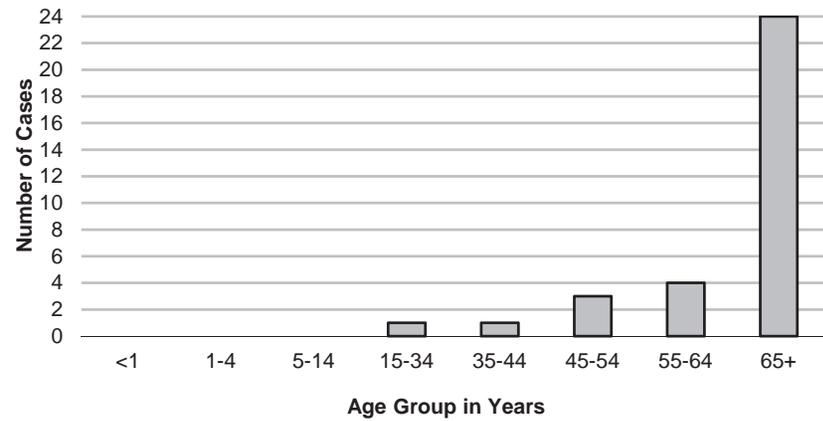
\*Rates calculated based on less than 19 cases or events are considered unreliable.



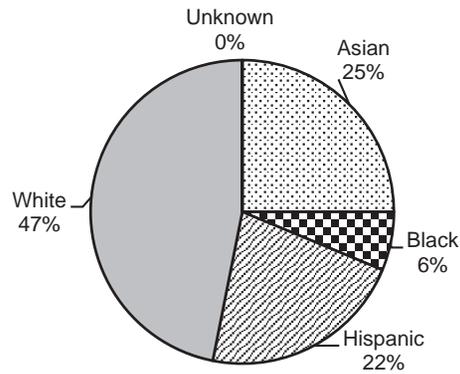
**Figure 1. Reported Cases of Nonperinatal Listeriosis LAC, 2007-2016**



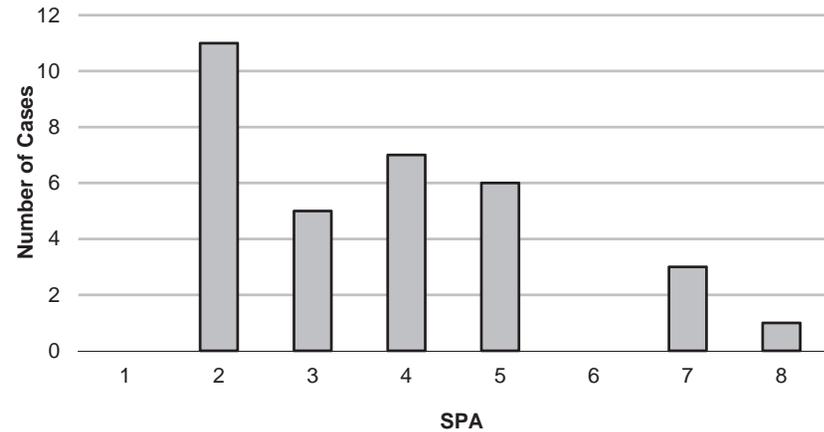
**Figure 2. Reported Cases of Nonperinatal Listeriosis by Age Group, LAC, 2016 (N=33)**



**Figure 3. Percent Cases of Nonperinatal Listeriosis by Race/Ethnicity, 2016 LAC (N=33)**

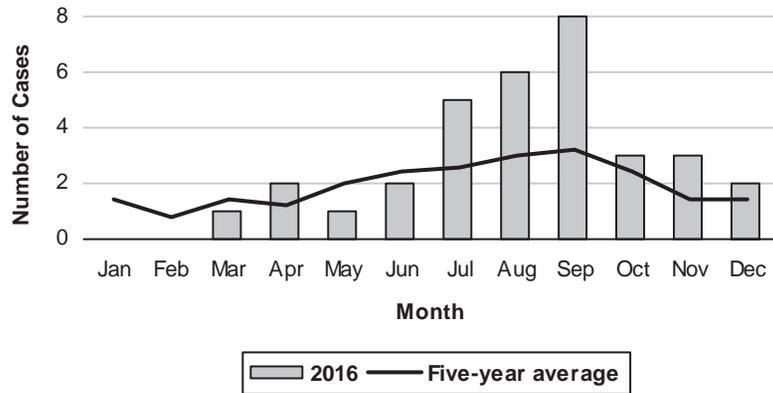


**Figure 4. Reported Cases of Nonperinatal Listeriosis by SPA LAC, 2016 (N=33)**





**Figure 5. Reported Nonperinatal Listeriosis Cases by Month of Onset, LAC, 2015 (N=33)**





## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	34
Annual Incidence <sup>a</sup>	
LA County <sup>b</sup>	0.36
California	N/A
United States	N/A
Age at Diagnosis	
Mean	67
Median	71
Range	32–97 years

<sup>a</sup>Cases per 100,000 population

<sup>b</sup>Rates calculated based on less than 19 cases or events are considered unreliable

### DESCRIPTION

Listeriosis is a disease caused by infection with *Listeria monocytogenes*, a gram-positive rod bacteria found in soil throughout the environment. Listeriosis is often caused by ingestion of foods contaminated with *L. monocytogenes* such as raw fruits and vegetables, cold cuts, deli meats, and unpasteurized dairy products. The disease affects primarily persons of advanced age, pregnant women, newborns, and adults with weakened immune systems. On rare occasions, people without these risk factors have also contracted listeriosis. Symptoms of listeriosis include: fever, muscle aches, and sometimes nausea or diarrhea. If infection spreads, sepsis or meningitis can occur, which may be fatal. Infected pregnant women may experience only a mild, flu-like illness; however, infection during pregnancy can lead to miscarriage or stillbirth, premature delivery, or infection of the newborn.

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources and avoiding unpasteurized milk or foods made from unpasteurized milk. Individuals at risk for severe outcomes from infection should follow additional recommendations including avoiding soft cheeses and leftover foods or ready-to-eat foods such as deli meats and hot dogs. Deli

meats should be cooked until steaming hot before eating.

### 2015 TRENDS AND HIGHLIGHTS

- Whites comprised 38% of all nonperinatal listeriosis cases followed by Hispanics (26%) and Asians (18%) (Figure 3). In 2015, the proportion of cases among Whites increased by 23% compared to 2014. This year, there were not any reported cases that identified as Black.
- In 2015, three nonperinatal listeriosis cases were part of a nationwide outbreak associated with a Middle Eastern cheese producer. One LAC case was a match for an outbreak associated with onions, but exposure could not be confirmed.
- This year, the number of cases  $\geq 65$  years old more than doubled since 2011. Advanced age increases the risk of developing listeriosis.
- Regionally, the greatest number of listeriosis were in SPA 3 (Figure 4) with an incidence rate of 0.6 per 100,000. SPA 2, which historically has a large percentage of cases, had the same incidence rate as that in 2014 (0.4 per 100,000).
- The occurrence of listeriosis cases in 2015 peaked in June (Figure 5) while the five-year average peaked at the end of summer and the start of fall.
- Individuals with pre-existing health conditions are disproportionately affected. The majority of cases (n=25, 74%) had one or more other medical conditions before receiving a diagnosis of listeriosis.
- There were five deaths due to nonperinatal listeriosis, resulting in a case-fatality rate of 14.7%. These cases had underlying diseases including cancer, diabetes, kidney disease, and hypertension.



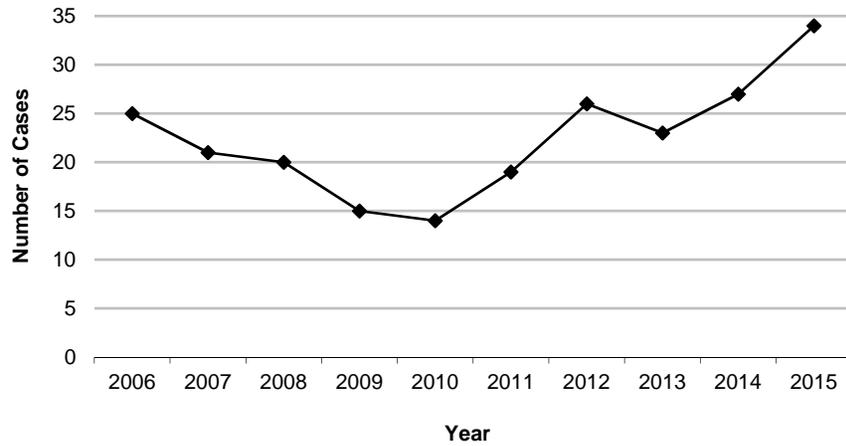
**Reported Listeriosis, Nonperinatal Cases and Rates\* per 100,000 by Age Group, Race/Ethnicity, and SPA  
LAC, 2011-2015**

	2011 (N=19)			2012 (N=26)			2013 (N=23)			2014 (N=27)			2015 (N=34)		
	No.	(%)	Rate/ 100,000												
<b>Age Group</b>															
<1	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
1-4	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
5-14	0	0.0	0.0	1	3.8	0.1	0	0.0	0.0	1	3.7	0.1	0	0.0	0.0
15-34	0	0.0	0.0	1	3.8	0.0	0	0.0	0.0	0	0.0	0.0	1	2.9	0.0
35-44	0	0.0	0.0	0	0.0	0.0	1	4.3	0.1	2	7.4	0.2	3	8.8	0.2
45-54	4	21.1	0.3	8	30.8	0.6	3	13.0	0.2	1	3.7	0.1	5	14.7	0.4
55-64	5	26.3	0.5	1	3.8	0.1	3	13.0	0.3	3	11.1	0.3	4	11.8	0.4
65+	10	52.6	0.9	15	57.7	1.4	16	69.6	1.4	20	74.1	1.8	21	61.8	1.8
Unknown	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
<b>Race/Ethnicity</b>															
Asian	2	10.5	0.1	5	19.2	0.4	7	30.4	0.5	9	33.3	0.7	6	17.6	0.4
Black	0	0.0	0.0	1	3.8	0.1	1	4.3	0.1	1	3.7	0.1	0	0.0	0.0
Hispanic	4	21.1	0.1	8	30.8	0.2	8	34.8	0.2	10	37.0	0.2	9	26.5	0.2
White	13	68.4	0.5	11	42.3	0.4	6	26.1	0.2	4	14.8	0.2	13	38.2	0.5
Other	0	-	-	0	-	-	0	-	-	0	-	-	1	-	-
Unknown	0	-	-	1	-	-	1	-	-	3	-	-	5	-	-
<b>SPA</b>															
1	0	0.0	0.0	1	3.8	0.3	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
2	5	26.3	0.2	9	34.6	0.4	7	30.4	0.3	9	33.3	0.4	8	23.5	0.4
3	4	21.1	0.2	2	7.7	0.1	2	8.7	0.1	5	18.5	0.3	10	29.4	0.6
4	1	5.3	0.1	3	11.5	0.3	4	17.4	0.4	2	7.4	0.2	5	14.7	0.4
5	4	21.1	0.6	5	19.2	0.8	1	4.3	0.2	2	7.4	0.3	3	8.8	0.5
6	0	0.0	0.0	3	11.5	0.3	2	8.7	0.2	3	11.1	0.3	2	5.9	0.2
7	2	10.5	0.1	0	0.0	0.0	5	21.7	0.4	2	7.4	0.2	3	8.8	0.2
8	3	15.8	0.3	3	11.5	0.3	2	8.7	0.2	4	14.8	0.4	3	8.8	0.3
Unknown	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-

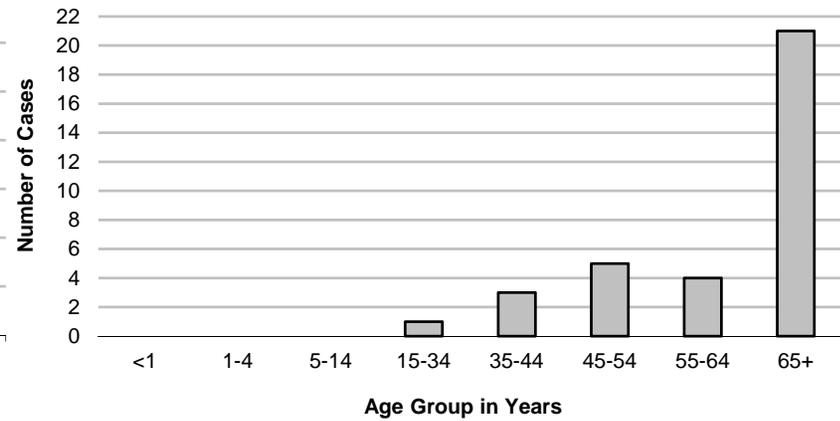
\*Rates calculated based on less than 19 cases or events are considered unreliable.



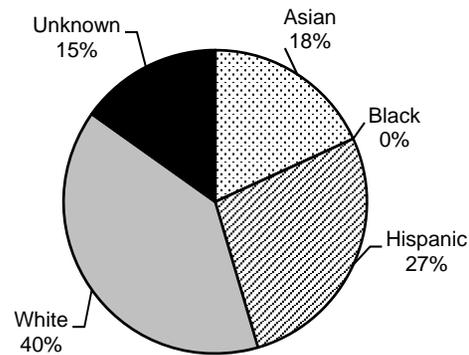
**Figure 1. Reported Cases of Nonperinatal Listeriosis LAC, 2006-2015**



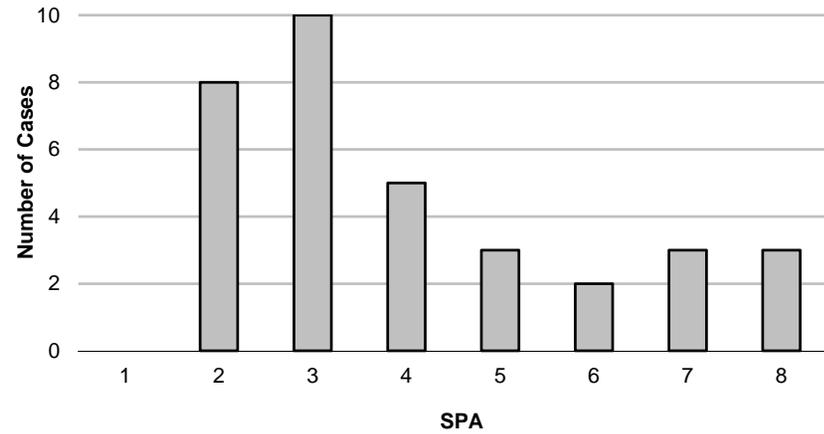
**Figure 2. Reported Cases of Nonperinatal Listeriosis by Age Group, LAC, 2015 (N=34)**



**Figure 3. Percent Cases of Nonperinatal Listeriosis by Race/Ethnicity, 2015 LAC (N=34)**

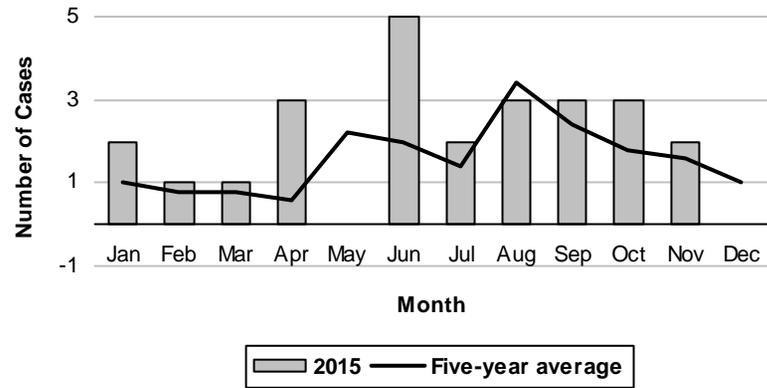


**Figure 4. Reported Cases of Nonperinatal Listeriosis by SPA LAC, 2015 (N=34)**





**Figure 5. Reported Nonperinatal Listeriosis Cases by Month of Onset LAC, 2015 (N=34)**





## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	27
Annual Incidence <sup>a</sup>	
LA County <sup>b</sup>	0.29
California	N/A
United States	N/A
Age at Diagnosis	
Mean	69.8
Median	75
Range	14–97 years

<sup>a</sup>Cases per 100,000 population.

### DESCRIPTION

Listeriosis is a disease caused by infection with *Listeria monocytogenes*, a Gram-positive rod found in soil throughout the environment. Listeriosis is often caused by ingestion of foods contaminated with *L. monocytogenes*. Foods often associated with *Listeria* contamination include raw fruits and vegetables, cold cuts, deli meats, and unpasteurized dairy products. The disease affects primarily persons of advanced age, pregnant women, newborns, and adults with weakened immune systems. On rare occasions, people without these risk factors have also contracted listeriosis. Symptoms of listeriosis include fever, muscle aches, and sometimes nausea or diarrhea. If infection spreads to the nervous system, meningitis with symptoms such as headache, stiff neck, confusion, loss of balance, or convulsions can occur. Infected pregnant women may experience only a mild, flu-like illness; however, infection during pregnancy can lead to miscarriage or stillbirth, premature delivery, or infection of the newborn.

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw fruits and vegetables thoroughly before eating; and keeping uncooked meats separate from raw produce and cooked foods. Avoiding unpasteurized milk or foods made from unpasteurized milk and washing hands, knives, and cutting boards after handling uncooked foods also may prevent listeriosis.

Individuals at risk should follow additional recommendations: avoid soft cheeses such as feta, Brie, Camembert, blue-veined, and Mexican-style cheese. Hard cheeses, processed cheeses, cream cheese, cottage cheese, or yogurt need not be avoided altogether; however, individuals with severely compromised immune systems and/or several disease risk factors should avoid them.

Leftover foods or ready-to-eat foods, such as hot dogs and deli meats, should be cooked until steaming hot before eating. Finally, although the risk of listeriosis associated with foods from deli counters is relatively low, immunocompromised persons should avoid these foods or thoroughly heat cold cuts before eating.

### 2014 TRENDS AND HIGHLIGHTS

- By race/ethnicity, the highest incidence of listeriosis cases occurred among Asians (0.7 cases per 100,000); this was consistent with data from the previous two years. The greatest proportion of cases occurred among Hispanics (37%) who also comprise the largest proportion of the LAC population (Figure 3).
- Despite having a higher prevalence of immunosuppressive conditions that predispose them to listeriosis, blacks consistently make up a smaller than expected proportion of cases.
- In 2014, there were four *Listeria* outbreaks (associated with caramel apples, wholesome soy products, cheese, and dairy products) noted by the Centers for Disease Control and Prevention. No LAC cases were known to be connected to any of these outbreaks.
- By age, the incidence of cases among persons older than 65 years of age is substantially greater than any other age group, and the rate in this population has increased every year since 2010.
- The occurrence of listeriosis cases in 2014 peaked in July (Figure 5) and the five-year average shows more disease occurring during the late-summer months ( August and September)
- Individuals with pre-existing health conditions are disproportionately affected. Twenty-six cases (96%) had one or more other medical conditions before receiving a diagnosis of listeriosis.



- There were two deaths due to non-perinatal listeriosis, a case-fatality rate of 7.4%. This is down 9.9% percent from 2013. The fatal cases had underlying diseases including

cancer, diabetes, autoimmune disorder, and organ failure.



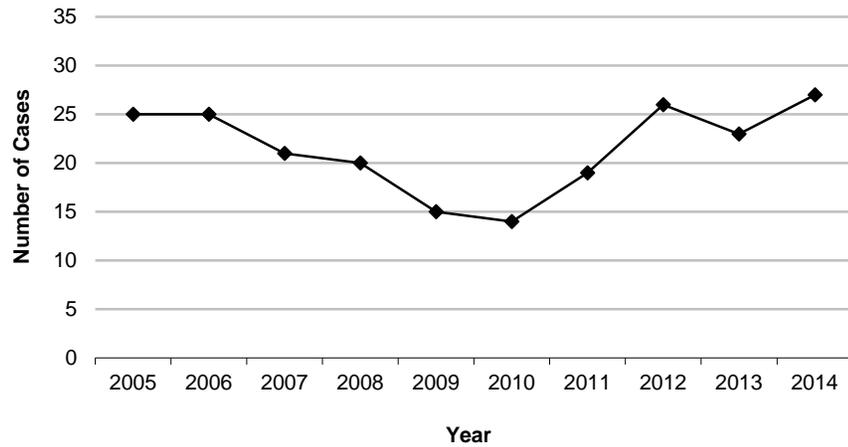
**Reported Listeriosis, Nonperinatal Cases and Rates\* per 100,000 by Age Group, Race/Ethnicity, and SPA  
Los Angeles County, 2010-2014**

	2010 (N=14)			2011 (N=19)			2012 (N=26)			2013 (N=23)			2014 (N=27)		
	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate*/ 100,000	No.	(%)	Rate*/ 100,000	No.	(%)	Rate/ 100,000
<b>Age Group</b>															
<1	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
1-4	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
5-14	1	7.1	0.1	0	-	-	1	3.8	0.1	0	-	-	1	3.8	0.1
15-34	2	14.1	0.1	0	-	-	1	3.8	0.0	0	-	-	0	0.0	0.0
35-44	2	14.1	0.1	0	-	-	0	-	-	1	4.3	0.1	2	7.4	0.2
45-54	2	14.1	0.2	4	21.1	0.3	8	30.8	0.6	3	13.0	0.2	1	3.8	0.1
55-64	2	14.1	0.2	5	26.3	0.5	1	3.8	0.1	3	13.0	0.3	3	11.0	0.3
65+	5	35.7	0.5	10	52.6	0.9	15	57.7	1.4	16	69.5	1.4	20	74.0	1.8
Unknown	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
<b>Race/Ethnicity</b>															
Asian	1	7.1	0.1	2	10.5	0.1	5	19.2	0.4	7	30.4	0.5	9	33.3	0.7
Black	1	7.1	0.1	0	-	-	1	3.8	0.1	1	4.3	0.1	1	3.7	0.1
Hispanic	7	50.0	0.2	4	21.1	0.2	8	30.8	0.2	8	34.7	0.2	10	37.0	0.2
White	5	35.7	0.2	13	68.4	4.5	11	42.3	0.4	6	26.0	0.2	4	14.8	0.2
Other	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Unknown	0	-	-	0	-	-	1	3.8	-	1	4.3	-	3	11.1	-
<b>SPA</b>															
1	0	-	-	0	-	-	1	3.8	0.3	0	-	-	0	-	-
2	5	35.7	0.2	5	26.3	0.2	9	34.6	0.4	7	30.4	0.3	9	33.3	0.4
3	1	7.1	0.1	4	21.1	0.2	2	7.7	0.1	2	8.7	0.2	5	18.5	0.3
4	4	28.6	0.4	1	5.3	0.1	3	11.5	0.3	4	17.4	0.4	2	7.4	0.2
5	0	-	-	4	21.1	0.6	5	19.2	0.8	1	4.3	0.2	2	7.4	0.3
6	1	7.1	0.1	0	-	-	3	11.5	0.3	2	8.6	0.2	3	11.1	0.3
7	1	7.1	0.1	2	10.5	0.2	0	-	-	5	21.7	0.4	2	7.4	0.2
8	2	14.1	0.2	3	15.8	0.3	3	11.5	0.3	1	4.3	0.3	4	14.8	0.4
Unknown	0	-	-	0	-	-	0	-	-	1	4.3	-	0	-	-

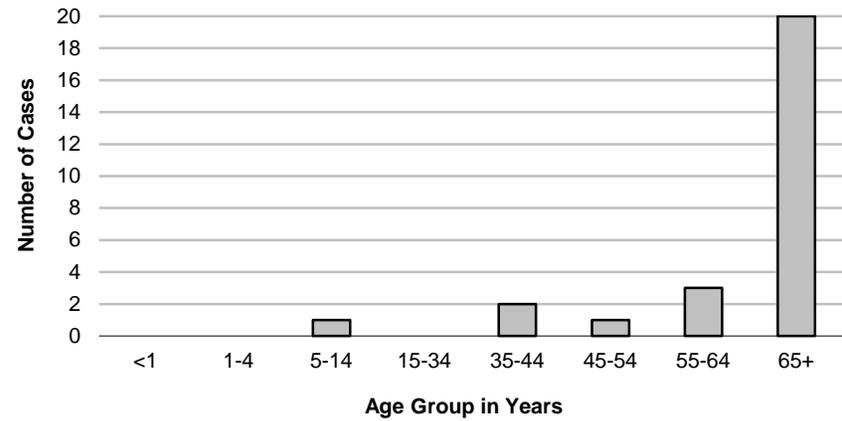
\*Rates calculated based on less than 19 cases or events are considered unreliable.



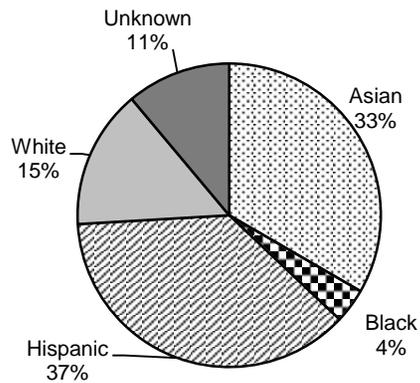
**Figure 1. Reported Cases of Nonperinatal Listeriosis  
LAC, 2005-2014**



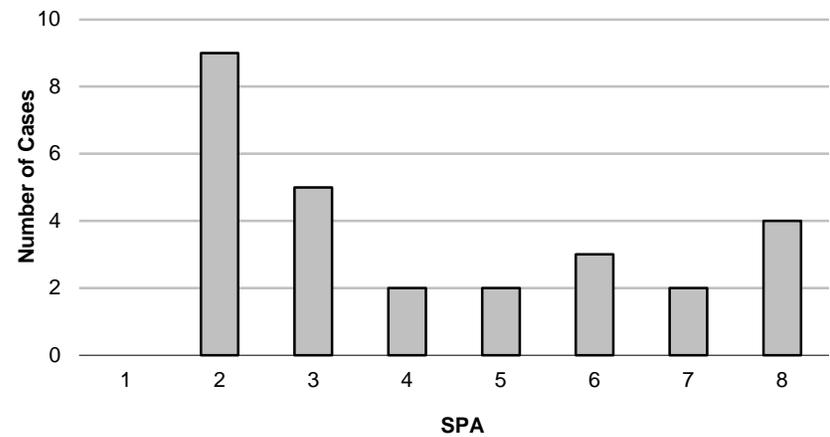
**Figure 2. Reported Cases of Nonperinatal Listeriosis  
by Age Group, LAC, 2014 (N=27)**



**Figure 3. Percent Cases of Nonperinatal Listeriosis  
by Race/Ethnicity, 2014 LAC(N=27)**

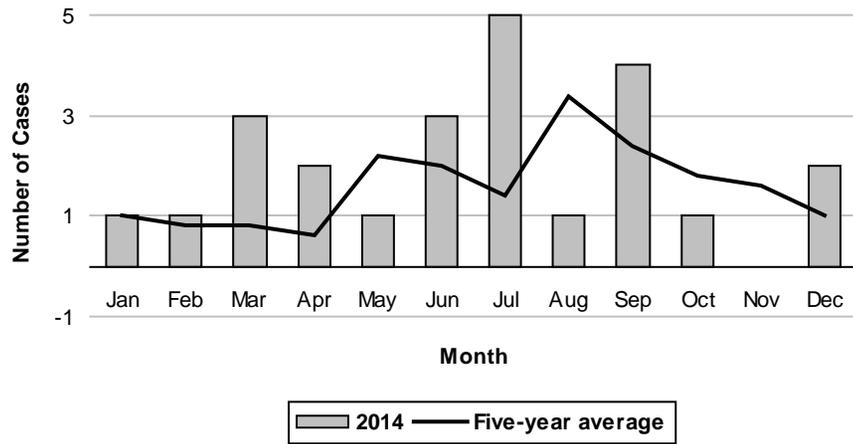


**Figure 4. Reported Cases of Nonperinatal Listeriosis by SPA  
LAC, 2014 (N=27)**





**Figure 5. Reported Nonperinatal Listeriosis Cases by Month of Onset  
LAC, 2014 (N=27)**





## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	23
Annual Incidence <sup>a</sup>	
LA County <sup>b</sup>	0.24
California	N/A
United States	N/A
Age at Diagnosis	
Mean	73
Median	77
Range	43 - 94

<sup>a</sup>Cases per 100,000 population.

<sup>b</sup>Rates calculated based on less than 19 cases or events are considered unreliable.

### DESCRIPTION

Listeriosis is a disease caused by infection with *Listeria monocytogenes*, a Gram-positive rod found in soil throughout the environment. Listeriosis is often caused by ingestion of foods contaminated with *L. monocytogenes*. Foods often associated with *Listeria* contamination include raw fruits and vegetables, cold cuts, deli meats, and unpasteurized dairy products. The disease affects primarily persons of advanced age, pregnant women, newborns, and adults with weakened immune systems. On rare occasions, people without these risk factors have also contracted listeriosis. Symptoms of listeriosis include: fever, muscle aches, and sometimes nausea or diarrhea. If infection spreads to the nervous system, meningitis with symptoms such as headache, stiff neck, confusion, loss of balance, or convulsions can occur. Infected pregnant women may experience only a mild, flu-like illness; however, infection during pregnancy can lead to miscarriage or stillbirth, premature delivery, or infection of the newborn.

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw fruits and vegetables thoroughly before eating; and keeping uncooked meats separate from raw produce and cooked foods. Avoiding unpasteurized milk or foods made from

unpasteurized milk and washing hands, knives, and cutting boards after handling uncooked foods also may prevent listeriosis.

Individuals at risk should follow additional recommendations: avoid soft cheeses such as feta, Brie, Camembert, blue-veined, and Mexican-style cheese. Hard cheeses, processed cheeses, cream cheese, cottage cheese, or yogurt need not be avoided altogether; however, individuals with severely compromised immune systems and/or several disease risk factors should avoid them.

Leftover foods or ready-to-eat foods, such as hot dogs and deli meats, should be cooked until steaming hot before eating. Finally, although the risk of listeriosis associated with foods from deli counters is relatively low, immunocompromised persons should avoid these foods or thoroughly heat cold cuts before eating.

### 2013 TRENDS AND HIGHLIGHTS

- Hispanics comprised 36% of all non-perinatal listeriosis cases followed by Asians 31%, and whites 26% (Figure 3). In 2013, the Asian population increased by 11% when compared to 2012, however over the last five years the numbers of cases have steadily been increasing. Despite increased prevalence of conditions such as diabetes, that predispose to listeriosis, blacks consistently make up a smaller than expected proportion of cases.
- In 2013, there was a nationwide cluster of non-perinatal listeriosis associated with deli meats. One LAC non-perinatal listeriosis case had an organism that matched the cluster. The case reported consuming deli meats purchased from a local membership warehouse club. This case was also among those that died.
- Regionally there continues to be a greater incidence of listeriosis in Service Planning Area (SPA) 2 compared to other SPAs in LAC (Figure 4). However SPAs 4 and 5 have the highest incidence rate, 0.4 per 100,000.
- Historically the occurrence of listeriosis cases peaks in August and September (Figure 5). However in 2013, cases peaked in May, September, and October. Most cases still occurred during warm-weather months.



- Nonperinatal listeriosis disproportionately affects the elderly and immunocompromised. The mean age of cases in 2013 was 73 years, with a median of 77 years, ranging from 43-94 years.
- There were four deaths due to nonperinatal listeriosis, at a case-fatality rate of 17.3%. All four cases had underlying diseases including cancer, congestive heart failure, diabetes, and kidney disease.



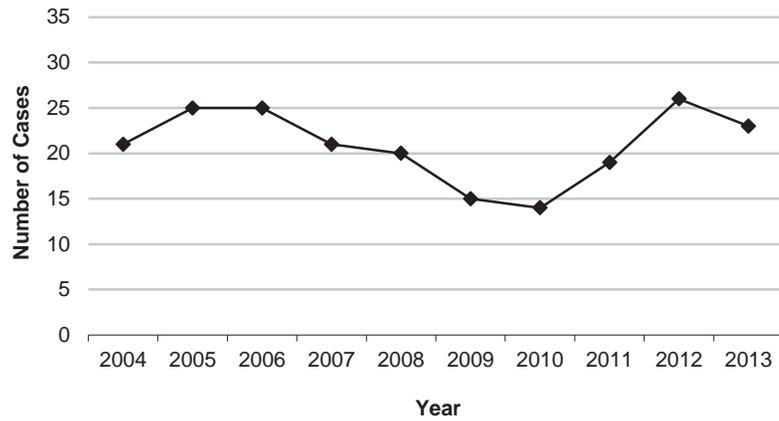
**Reported Listeriosis, nonperinatal Cases and Rates\* per 100,000 by Age Group, Race/Ethnicity, and SPA  
Los Angeles County, 2009-2013**

	2009 (N=15)			2010 (N=14)			2011 (N=19)			2012 (N=26)			2013 (N=23)		
	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate*/ 100,000	No.	(%)	Rate*/ 100,000
<b>Age Group</b>															
<1	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
1-4	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
5-14	1	6.7	0.1	1	7.1	0.1	0	0.0	0.0	1	3.8	0.1	0	0.0	0.0
15-34	1	6.7	0.0	2	14.1	0.1	0	0.0	0.0	1	3.8	0.0	0	0.0	0.0
35-44	0	0.0	0.0	2	14.1	0.1	0	0.0	0.0	0	0.0	0.0	1	4.3	0.1
45-54	2	13.3	0.2	2	14.1	0.2	4	21.1	0.3	8	30.8	0.6	3	13.0	0.2
55-64	1	6.7	0.1	2	14.1	0.2	5	26.3	0.5	1	3.8	0.1	3	13.0	0.3
65+	10	66.7	1.0	5	35.7	0.5	10	52.6	0.9	15	57.7	1.4	16	69.5	1.4
Unknown	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
<b>Race/Ethnicity</b>															
Asian	0	0.0	0.0	1	7.1	0.1	2	10.5	0.1	5	19.2	0.4	7	30.4	0.5
Black	1	6.7	0.1	1	7.1	0.1	0	0.0	0.0	1	3.8	0.1	1	4.3	0.1
Hispanic	7	46.7	0.2	7	50.0	0.2	4	21.1	0.2	8	30.8	0.2	8	34.7	0.2
White	7	46.7	0.3	5	35.7	0.2	13	68.4	4.5	11	42.3	0.4	6	26.0	0.2
Other	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0.0
Unknown	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	1	3.8		1	4.3	
<b>SPA</b>															
1	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	1	3.8	0.3	0	0.0	0.0
2	4	26.7	0.2	5	35.7	0.2	5	26.3	0.2	9	34.6	0.4	7	30.4	0.3
3	2	13.3	0.1	1	7.1	0.1	4	21.1	0.2	2	7.7	0.1	2	8.7	0.2
4	3	20.0	0.3	4	28.6	0.4	1	5.3	0.1	3	11.5	0.3	4	17.4	0.4
5	0	0.0	0.0	0	0.0	0.0	4	21.1	0.6	5	19.2	0.8	1	4.3	0.2
6	2	13.3	0.2	1	7.1	0.1	0	0.0	0.0	3	11.5	0.3	2	8.6	0.2
7	2	13.3	0.2	1	7.1	0.1	2	10.5	0.2	0	0.0	0.0	5	21.7	0.4
8	2	13.3	0.2	2	14.1	0.2	3	15.8	0.3	3	11.5	0.3	1	4.3	0.3
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		1	4.3	

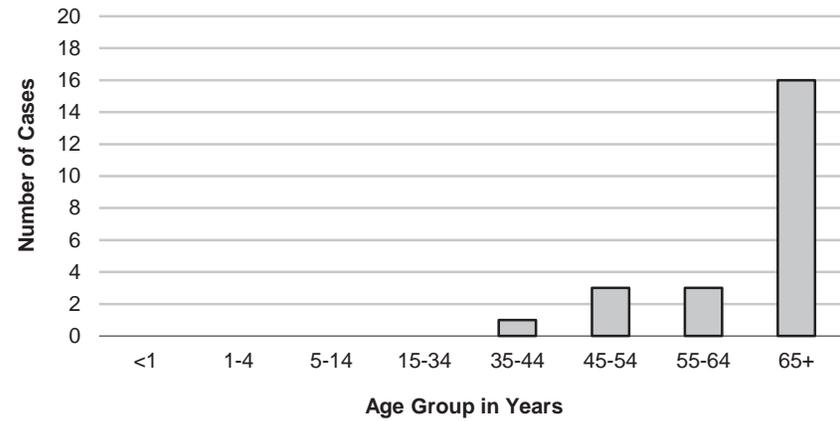
\*Rates calculated based on less than 19 cases or events are considered unreliable.



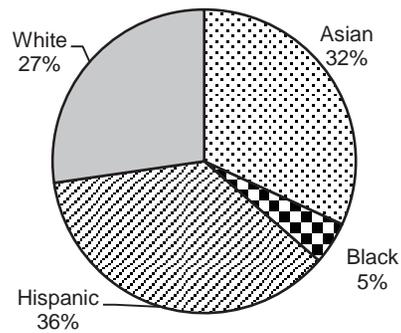
**Figure 1. Reported Cases of Nonperinatal Listeriosis  
LAC, 2004-2013**



**Figure 2. Reported Cases of Nonperinatal Listeriosis  
by Age Group, LAC, 2013 (N=23)**



**Figure 3. Percent Cases of Nonperinatal Listeriosis  
by Race/Ethnicity, LAC, 2013 (N=23)**



**Figure 4. Reported Cases of Nonperinatal Listeriosis by SPA  
LAC, 2013 (N=23)**

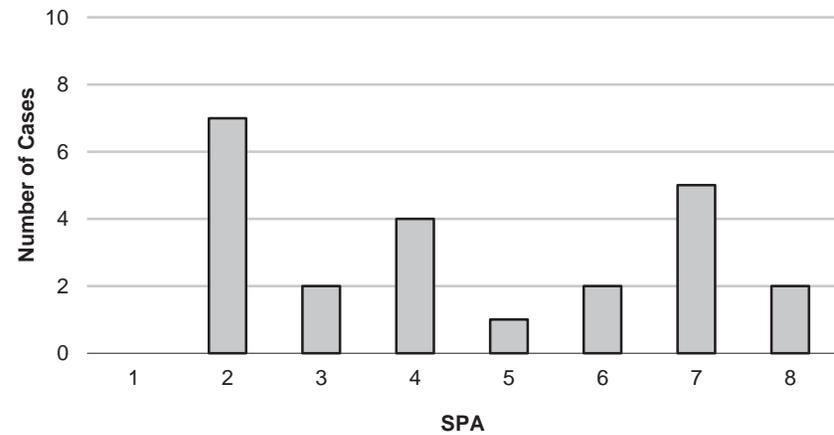
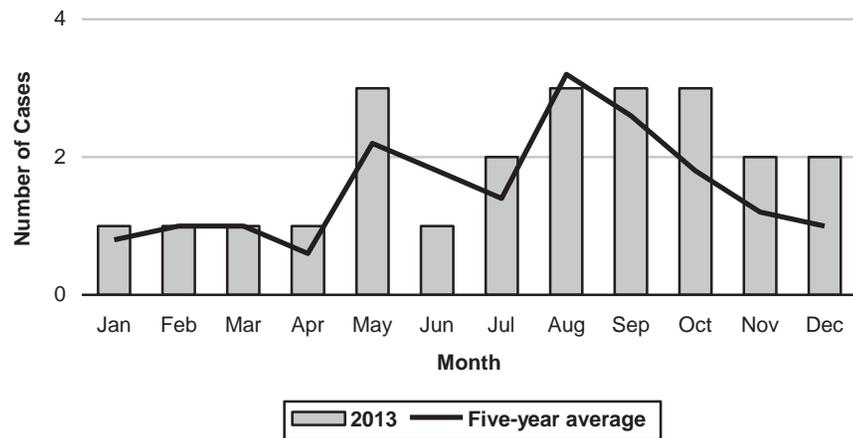




Figure 5. Reported Nonperinatal Listeriosis Cases by Month of Onset LAC, 2013 (N=23)







## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	26
Annual Incidence <sup>a</sup>	
LA County <sup>b</sup>	0.28
California <sup>c</sup>	0.30
United States <sup>d</sup>	0.17
Age at Diagnosis	
Mean	64
Median	70
Range	13 - 91

<sup>a</sup>Cases per 100,000 population.

<sup>b</sup>Rates calculated based on less than 19 cases or events are considered unreliable.

<sup>c</sup>California combines non-perinatal and perinatal cases, thus making non-comparable rates.

<sup>d</sup>Based on 2011 CDC Listeria Initiative data and 2011 US census data.

### DESCRIPTION

Listeriosis is a disease caused by infection with *Listeria monocytogenes*, a Gram-positive rod found in soil throughout the environment. Listeriosis is often caused by ingestion of foods contaminated with *L. monocytogenes*. Foods often associated with *Listeria* contamination include raw fruits and vegetables, cold cuts, deli meats, and unpasteurized dairy products. The disease affects primarily persons of advanced age, pregnant women, newborns, and adults with weakened immune systems. On rare occasions, people without these risk factors have also contracted listeriosis. Symptoms of listeriosis include: fever, muscle aches, and sometimes nausea or diarrhea. If infection spreads to the nervous system, meningitis with symptoms such as headache, stiff neck, confusion, loss of balance, or convulsions can occur. Infected pregnant women may experience only a mild, flu-like illness; however, infection during pregnancy can lead to miscarriage or stillbirth, premature delivery, or infection of the newborn.

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw fruits and vegetables thoroughly before

eating; and keeping uncooked meats separate from raw produce and cooked foods. Avoiding unpasteurized milk or foods made from unpasteurized milk and washing hands, knives, and cutting boards after handling uncooked foods also may prevent listeriosis.

Individuals at risk should follow additional recommendations: avoid soft cheeses such as feta, Brie, Camembert, blue-veined, and Mexican-style cheese. Hard cheeses, processed cheeses, cream cheese, cottage cheese, or yogurt need not be avoided altogether; however, individuals with severely compromised immune systems and/or several disease risk factors should avoid them.

Leftover foods or ready-to-eat foods, such as hot dogs and deli meats, should be cooked until steaming hot before eating. Finally, although the risk of listeriosis associated with foods from deli counters is relatively low, immunocompromised persons should avoid these foods or thoroughly heat cold cuts before eating.

### 2012 TRENDS AND HIGHLIGHTS

- No single race category comprised a majority of cases. Non-Hispanic whites comprised 42% of all non-perinatal listeriosis cases, whereas Hispanics comprised 31% cases. Asians made up 19% of cases, the highest percentage since 2008 (Figure 3). Despite increased prevalence of conditions such as diabetes, that predispose to listeriosis, blacks consistently make up a smaller than expected proportion of cases.
- Regionally there is greater incidence of listeriosis in Service Planning Area (SPA) 2 compared to other SPAs in LAC (Figure 4). However SPA 5 has the highest incidence rate, 0.8 per 100,000.
- Historically the occurrence of listeriosis cases peaks in August and September (Figure 5). However in 2012, cases peaked in September and October. Most cases still occurred during warm-weather months.
- Nonperinatal listeriosis disproportionately affects the elderly and immunocompromised. The mean age of cases in 2012 was 64 years, with a median of 70 years, ranging from 13-91 years.
- There were three deaths due to nonperinatal listeriosis, at a case-fatality rate of 11.5%.



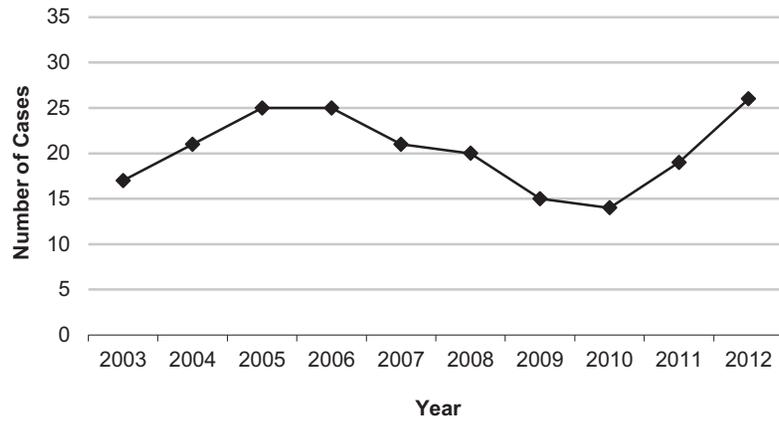
**Reported Listeriosis, nonperinatal Cases and Rates\* per 100,000 by Age Group, Race/Ethnicity, and SPA  
Los Angeles County, 2008-2012**

	2008 (N=20)			2009 (N=15)			2010 (N=14)			2011 (N=19)			2012 (N=26)		
	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate*/ 100,000	No.	(%)	Rate*/ 100,000
<b>Age Group</b>															
<1	0	0.0	0.0	0	0.0		0	0.0		0	0.0	0.0	0	0.0	0.0
1-4	0	0.0	0.0	0	0.0		0	0.0		0	0.0	0.0	0	0.0	0.0
5-14	1	5.0	0.1	1	6.7		1	7.1		0	0.0	0.0	1	3.8	0.1
15-34	1	5.0	0.0	1	6.7		2	14.1		0	0.0	0.0	1	3.8	0.0
35-44	1	5.0	0.1	0	0.0		2	14.1		0	0.0	0.0	0	0.0	0.0
45-54	1	5.0	0.1	2	13.3		2	14.1		4	21.1	0.3	8	30.8	0.6
55-64	5	25.0	0.5	1	6.7		2	14.1		5	26.3	0.5	1	3.8	0.1
65+	11	55.0	1.1	10	66.7		5	35.7		10	52.6	0.9	15	57.7	1.4
Unknown	0	0.0	0.0	0	0.0		0	0.0		0	0.0	0.0	0	0.0	0.0
<b>Race/Ethnicity</b>															
Asian	6	30.0	0.5	0	0.0		1	7.1		2	10.5	0.1	5	19.2	0.4
Black	1	5.0	0.1	1	6.7		1	7.1		0	0.0	0.0	1	3.8	0.1
Hispanic	5	25.0	0.1	7	46.7		7	50.0		4	21.1	0.2	8	30.8	0.2
White	8	40.0	0.3	7	46.7		5	35.7		13	68.4	4.5	11	42.3	0.4
Other	0	0.0	0.0	0	0.0		0	0.0		0	0.0	0.0	0	0.0	0.0
Unknown	0	0.0	0.0	0	0.0		0	0.0		0	0.0	0.0	1	3.8	
<b>SPA</b>															
1	0	0.0	0.0	0	0.0		0	0.0		0	0.0	0.0	1	3.8	0.3
2	3	15.0	0.1	4	26.7		5	35.7		5	26.3	0.2	9	34.6	0.4
3	6	30.0	0.3	2	13.3		1	7.1		4	21.1	0.2	2	7.7	0.1
4	3	15.0	0.2	3	20.0		4	28.6		1	5.3	0.1	3	11.5	0.3
5	1	5.0	0.2	0	0.0		0	0.0		4	21.1	0.6	5	19.2	0.8
6	2	10.0	0.2	2	13.3		1	7.1		0	0.0	0.0	3	11.5	0.3
7	3	15.0	0.2	2	13.3		1	7.1		2	10.5	0.2	0	0.0	0.0
8	2	10.0	0.2	2	13.3		2	14.1		3	15.8	0.3	3	11.5	0.3
Unknown	0	0.0	0.0	0	0.0		0	0.0		0	0.0	0.0	0	0.0	0.0

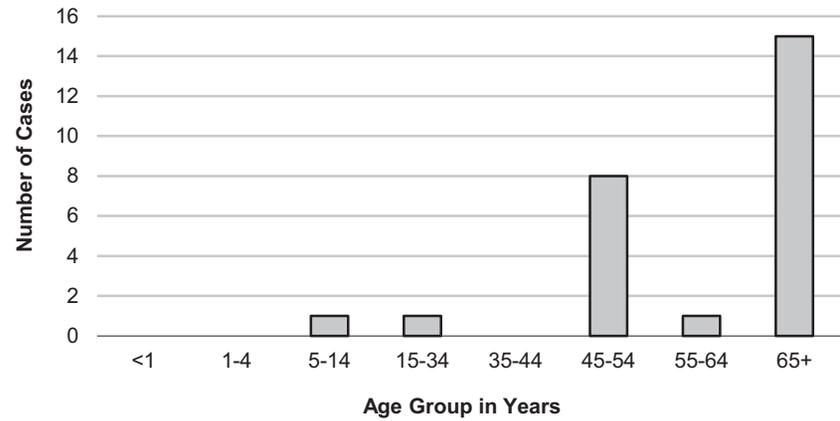
\*Rates calculated based on less than 19 cases or events are considered unreliable.



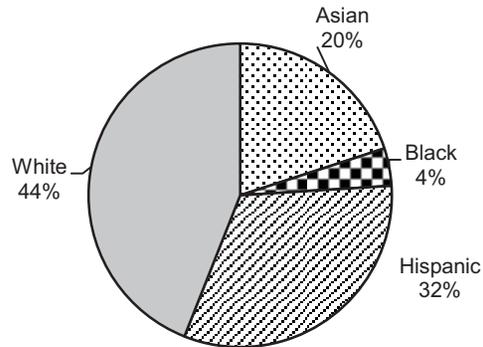
**Figure 1. Reported Cases of Nonperinatal Listeriosis  
LAC, 2003-2012**



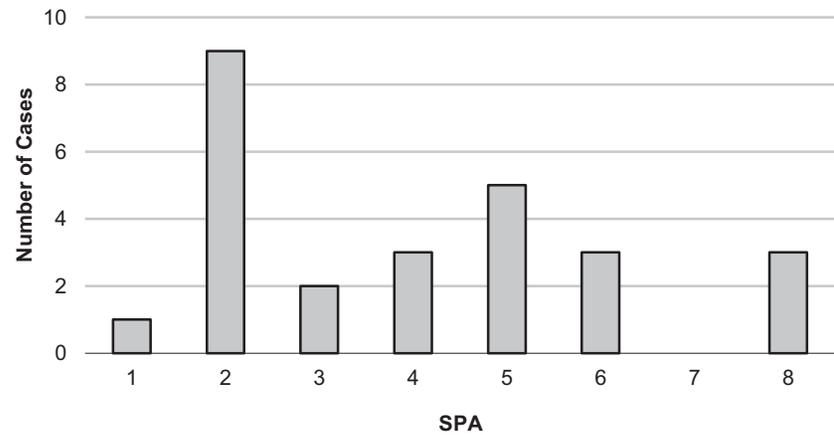
**Figure 2. Reported Cases of Nonperinatal Listeriosis  
by Age Group, LAC, 2012 (N=26)**



**Figure 3. Percent Cases of Nonperinatal Listeriosis  
by Race/Ethnicity, LAC, 2012 (N=26)**

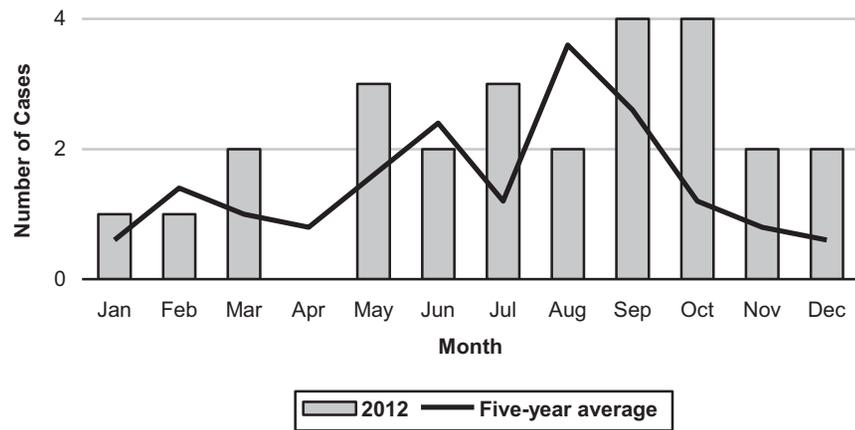


**Figure 4. Reported Cases of Nonperinatal Listeriosis by SPA  
LAC, 2012 (N=26)**





**Figure 5. Reported Nonperinatal Listeriosis Cases by Month of Onset LAC, 2012 (N=26)**





## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	19
Annual Incidence <sup>a</sup>	
LA County	0.19
California <sup>b</sup>	--
United States <sup>b</sup>	--
Age at Diagnosis	
Mean	68
Median	66
Range	50-95

<sup>a</sup>Cases per 100,000 population.

<sup>b</sup>California and US combine non-perinatal and perinatal cases, thus making non-comparable rates.

### DESCRIPTION

Listeriosis is a disease caused by infection with *Listeria monocytogenes*, a Gram-positive rod found in soil throughout the environment. Listeriosis is often caused by ingestion of foods contaminated with *L. monocytogenes*. Foods often associated with *Listeria* contamination include raw fruits and vegetables, cold cuts, deli meats, and unpasteurized dairy products. The disease affects primarily persons of advanced age, pregnant women, newborns, and adults with weakened immune systems. On rare occasions, people without these risk factors have also contracted listeriosis. Symptoms of listeriosis include: fever, muscle aches, and sometimes nausea or diarrhea. If infection spreads to the nervous system, meningitis with symptoms such as headache, stiff neck, confusion, loss of balance, or convulsions can occur. Infected pregnant women may experience only a mild, flu-like illness; however, infection during pregnancy can lead to miscarriage or stillbirth, premature delivery, or infection of the newborn.

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw fruits and vegetables thoroughly before eating; and keeping uncooked meats separate from raw produce and cooked foods. Avoiding

unpasteurized milk or foods made from unpasteurized milk and washing hands, knives, and cutting boards after handling uncooked foods also may prevent listeriosis.

Individuals at risk should follow additional recommendations: avoid soft cheeses such as feta, Brie, Camembert, blue-veined, and Mexican-style cheese. Hard cheeses, processed cheeses, cream cheese, cottage cheese, or yogurt need not be avoided altogether; however, individuals with severely compromised immune systems and/or several disease risk factors should avoid them.

Leftover foods or ready-to-eat foods, such as hot dogs and deli meats, should be cooked until steaming hot before eating. Finally, although the risk of listeriosis associated with foods from deli counters is relatively low, immunocompromised persons should avoid these foods or thoroughly heat cold cuts before eating.

### 2011 TRENDS AND HIGHLIGHTS

- White non-Hispanics comprised 68% of all non-perinatal listeriosis cases. Hispanics comprised 21% of the remaining cases, with Asians 10% of cases (Figure 3). Despite increased prevalence of conditions such as diabetes that predispose to listeriosis, blacks consistently make up a smaller than expected proportion of listeriosis cases. There were no black cases of listeriosis this year.
- Regionally there is greater incidence of listeriosis in Service Planning Area (SPA) 2 compared to other SPAs in LAC (Figure 4). However SPA 5 has the highest incidence, 0.6 per 100,000.
- Historically the occurrence of listeriosis cases peaks in August and September (Figure 5), and 2011 is consistent with these periodic trends. Most of the cases occurred during warm-weather months, but 42% of cases occurred during cooler months.
- Nonperinatal listeriosis disproportionately affects the elderly and immunocompromised. The mean and median age of nonperinatal listeriosis cases was 68 years in 2011, ranging from 50-95 years.
- In 2011, there was a nationwide outbreak of nonperinatal listeriosis associated with



cantaloupes grown in Colorado. One LAC nonperinatal listeriosis case carried an organism that matched the outbreak pattern. The case reportedly traveled to Colorado at the end of August and ate local cantaloupe while he was there. He survived, but his illness was complicated by pre-existing

inflammatory bowel disease and resulted in a colectomy two months later.

- There were two deaths due to nonperinatal listeriosis, yielding a case-fatality rate of 10.5%.



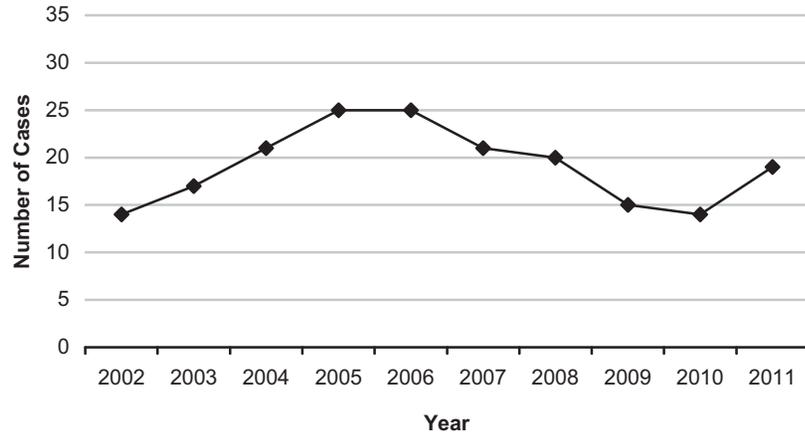
**Reported Listeriosis, nonperinatal Cases and Rates\* per 100,000 by Age Group, Race/Ethnicity, and SPA  
Los Angeles County, 2006-2011**

	2007 (N=21)			2008 (N=20)			2009 (N=15)			2010 (N=14)			2011 (N=19)		
	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate*/ 100,000	No.	(%)	Rate*/ 100,000
<b>Age Group</b>															
<1	0	0.0	0.0	0	0.0	0.0	0	0.0		0	0.0		0	0.0	0.0
1-4	0	0.0	0.0	0	0.0	0.0	0	0.0		0	0.0		0	0.0	0.0
5-14	0	0.0	0.0	1	5.0	0.1	1	6.7		1	6.7		0	0.0	0.0
15-34	0	0.0	0.0	1	5.0	0.0	1	6.7		1	6.7		0	0.0	0.0
35-44	0	0.0	0.0	1	5.0	0.1	0	0.0		0	0.0		0	0.0	0.0
45-54	6	28.6	0.5	1	5.0	0.1	2	13.3		2	13.3		4	21.1	0.3
55-64	6	28.6	0.7	5	25.0	0.5	1	6.7		1	6.7		5	26.3	0.5
65+	9	42.9	0.9	11	55.0	1.1	10	66.7		10	66.7		10	52.6	0.9
Unknown	0	0.0	0.0	0	0.0	0.0	0	0.0		0	0.0		0	0.0	0.0
<b>Race/Ethnicity</b>															
Asian	3	14.3	0.2	6	30.0	0.5	0	0.0		0	0.0		2	10.5	0.1
Black	0	0.0	0.0	1	5.0	0.1	1	6.7		1	6.7		0	0.0	0.0
Hispanic	8	38.1	0.2	5	25.0	0.1	7	46.7		7	46.7		4	21.1	0.2
White	10	47.6	0.3	8	40.0	0.3	7	46.7		7	46.7		13	68.4	4.5
Other	0	0.0	0.0	0	0.0	0.0	0	0.0		0	0.0		0	0.0	0.0
Unknown	0	0.0	0.0	0	0.0	0.0	0	0.0		0	0.0		0	0.0	0.0
<b>SPA</b>															
1	0	0.0	0.0	0	0.0	0.0	0	0.0		0	0.0		0	0.0	0.0
2	6	28.6	0.3	3	15.0	0.1	4	26.7		4	26.7		5	26.3	0.2
3	4	19.0	0.2	6	30.0	0.3	2	13.3		2	13.3		4	21.1	0.2
4	1	4.8	0.1	3	15.0	0.2	3	20.0		3	20.0		1	5.3	0.1
5	4	19.0	0.6	1	5.0	0.2	0	0.0		0	0.0		4	21.1	0.6
6	3	14.3	0.3	2	10.0	0.2	2	13.3		2	13.3		0	0.0	0.0
7	3	14.3	0.2	3	15.0	0.2	2	13.3		2	13.3		2	10.5	0.2
8	0	0.0	0.0	2	10.0	0.2	2	13.3		2	13.3		3	15.8	0.3
Unknown	0	0.0	0.0	0	0.0	0.0	0	0.0		0	0.0		0.0	0.0	0.0

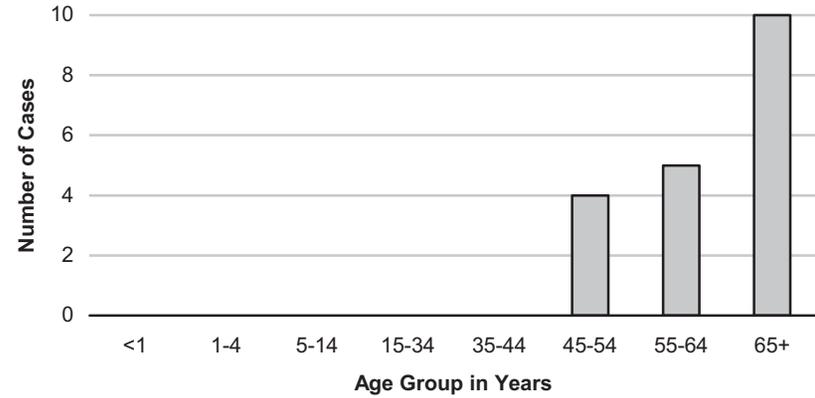
\*Rates calculated based on less than 19 cases or events are considered unreliable.



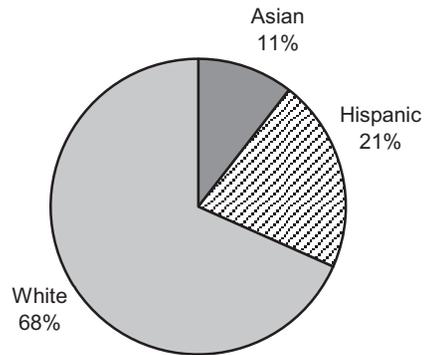
**Figure 1. Reported Cases of Nonperinatal Listeriosis  
LAC, 2002-2011**



**Figure 2. Reported Cases of Nonperinatal Listeriosis  
by Age Group, LAC, 2011 (N=19)**



**Figure 3. Percent Cases of Nonperinatal Listeriosis  
by Race/Ethnicity, LAC, 2011 (N=19)**



**Figure 4. Reported Cases of Nonperinatal Listeriosis by SPA  
LAC, 2011 (N=19)**

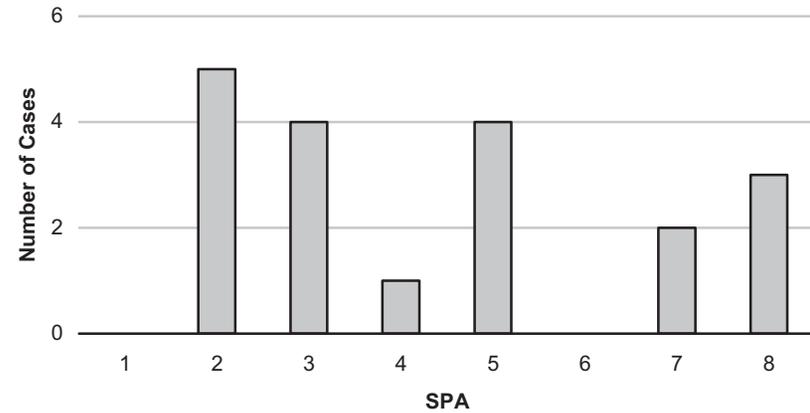
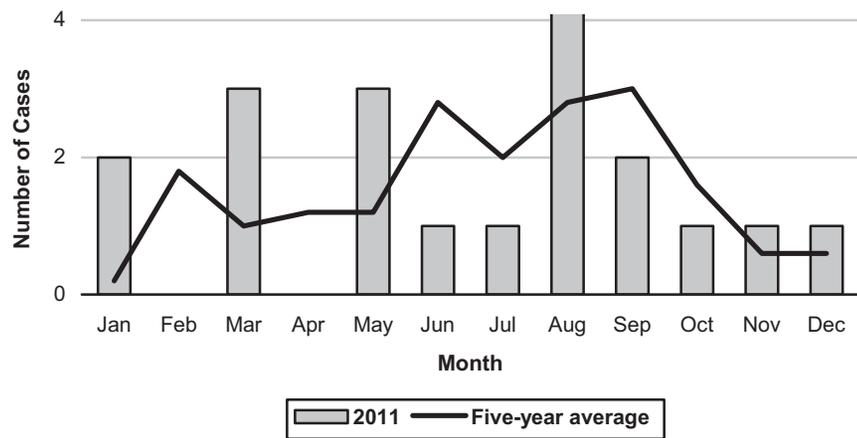




Figure 5. Reported Nonperinatal Listeriosis Cases by Month of Onset LAC, 2011 (N=19)







## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	14
Annual Incidence <sup>a</sup>	
LA County <sup>b</sup>	0.14
California <sup>c</sup>	--
United States <sup>c</sup>	--
Age at Diagnosis	
Mean	54
Median	54
Range	8-85

<sup>a</sup>Cases per 100,000 population.

<sup>b</sup>Rates calculated based on less than 19 cases or events are considered unreliable.

<sup>c</sup>California and US combine non-perinatal and perinatal cases, thus making non-comparable rates.

### DESCRIPTION

Listeriosis is a disease caused by infection with *Listeria monocytogenes*, a Gram-positive rod found in soil throughout the environment. Listeriosis is often caused by ingestion of foods contaminated with *L. monocytogenes*. Foods often associated with *Listeria* contamination include raw fruits and vegetables, cold cuts, deli meats, and unpasteurized dairy products. The disease affects primarily persons of advanced age, pregnant women, newborns, and adults with weakened immune systems. On rare occasions, people without these risk factors have also contracted listeriosis. Symptoms of listeriosis include: fever, muscle aches, and sometimes nausea or diarrhea. If infection spreads to the nervous system, meningitis with symptoms such as headache, stiff neck, confusion, loss of balance, or convulsions can occur. Infected pregnant women may experience only a mild, flu-like illness; however, infection during pregnancy can lead to miscarriage or stillbirth, premature delivery, or infection of the newborn.

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw fruits and vegetables thoroughly before eating; and keeping uncooked meats separate

from raw produce and cooked foods. Avoiding unpasteurized milk or foods made from unpasteurized milk and washing hands, knives, and cutting boards after handling uncooked foods also may prevent listeriosis.

Individuals at risk should follow additional recommendations: avoid soft cheeses such as feta, Brie, Camembert, blue-veined, and Mexican-style cheese. Hard cheeses, processed cheeses, cream cheese, cottage cheese, or yogurt need not be avoided altogether; however, individuals with severely compromised immune systems and/or several disease risk factors should avoid them.

Leftover foods or ready-to-eat foods, such as hot dogs and deli meats, should be cooked until steaming hot before eating. Finally, although the risk of listeriosis associated with foods from deli counters is relatively low, immunocompromised persons should avoid these foods or thoroughly heat cold cuts before eating.

### 2010 TRENDS AND HIGHLIGHTS

- Hispanics comprised 50% of all non-perinatal listeriosis cases. Whites comprised 36% of the remaining cases, with Asians and blacks each comprising 7% of cases (Figure 3). Despite increased prevalence of conditions such as diabetes, that predispose to listeriosis, blacks consistently make up a smaller than expected proportion of listeriosis cases (5%). Regionally there is greater incidence of listeriosis in Service Planning Area (SPA) 2 compared to other SPAs in LAC (Table).
- Historically the occurrence of listeriosis cases peaks in August and September (Figure 5). In 2010, however, there were no cases in September. Most of the cases still occurred during warm-weather months, consistent with previous trends
- Nonperinatal listeriosis disproportionately affects the elderly and immunocompromised. The median age of nonperinatal cases decreased from 67 in 2009 to 54 in 2010, reflecting a larger number of younger cases with immunodeficiencies.
- There were two deaths due to nonperinatal listeriosis, yielding a case-fatality rate of 14.3%.



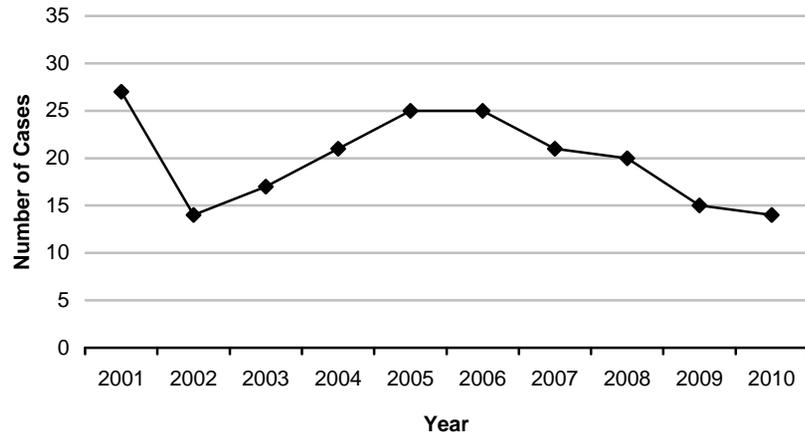
**Reported Listeriosis, nonperinatal Cases and Rates\* per 100,000 by Age Group, Race/Ethnicity, and SPA  
Los Angeles County, 2006-2010**

	2006 (N=25)			2007 (N=21)			2008 (N=20)			2009 (N=15)			2010 (N=14)		
	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate*/ 100,000	No.	(%)	Rate*/ 100,000
<b>Age Group</b>															
<1	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
1-4	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
5-14	0	0.0		0	0.0		1	5.0		1	6.7		1	7.1	
15-34	2	8.0		0	0.0		1	5.0		1	6.7		2	14.3	
35-44	1	4.0		0	0.0		1	5.0		0	0.0		2	14.3	
45-54	4	16.0		6	28.6		1	5.0		2	13.3		2	14.3	
55-64	6	24.0		6	28.6		5	25.0		1	6.7		2	14.3	
65+	12	48.0		9	42.9		11	55.0		10	66.7		5	35.7	
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
<b>Race/Ethnicity</b>															
Asian	3	12.0		3	14.3		6	30.0		0	0.0		1	7.1	
Black	1	4.0		0	0.0		1	5.0		1	6.7		1	7.1	
Hispanic	8	32.0		8	38.1		5	25.0		7	46.7		7	50.0	
White	13	52.0		10	47.6		8	40.0		7	46.7		5	35.7	
Other	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
<b>SPA</b>															
1	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
2	7	28.0		6	28.6		3	15.0		4	26.7		5	35.7	
3	8	32.0		4	19.0		6	30.0		2	13.3		1	7.1	
4	5	20.0		1	4.8		3	15.0		3	20.0		4	28.6	
5	4	16.0		4	19.0		1	5.0		0	0.0		0	0.0	
6	1	4.0		3	14.3		2	10.0		2	13.3		1	7.1	
7	0	0.0		3	14.3		3	15.0		2	13.3		1	7.1	
8	0	0.0		0	0.0		2	10.0		2	13.3		2	14.3	
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	

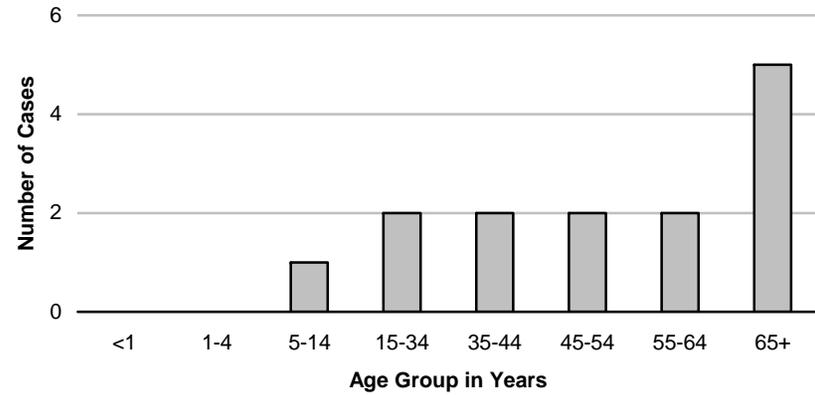
\*Rates calculated based on less than 19 cases or events are considered unreliable.



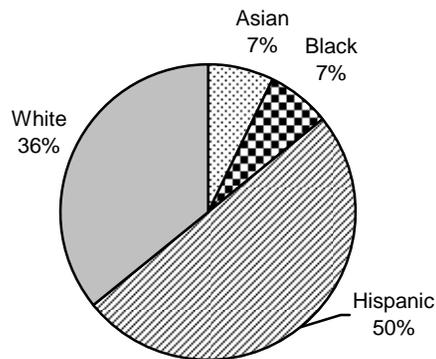
**Figure 1. Reported Cases of Nonperinatal Listeriosis  
LAC, 2001-2010**



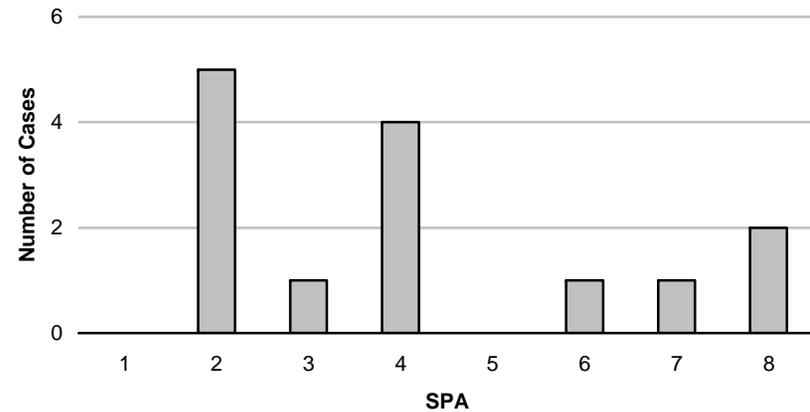
**Figure 2. Reported Cases of Nonperinatal Listeriosis  
by Age Group, LAC, 2010 (N=14)**



**Figure 3. Percent Cases of Nonperinatal Listeriosis  
by Race/Ethnicity, LAC, 2010 (N=14)**

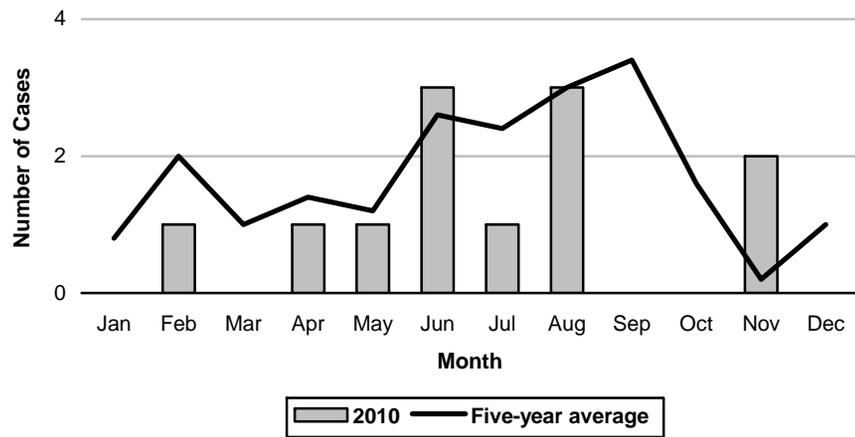


**Figure 4. Reported Cases of Nonperinatal Listeriosis by SPA  
LAC, 2010 (N=14)**





**Figure 5. Reported Nonperinatal Listeriosis Cases by Month of Onset LAC, 2010 (N=14)**





## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	15
Annual Incidence <sup>a</sup>	
LA County	0.15
California	n/a
United States	n/a
Age at Diagnosis	
Mean	62
Median	67
Range	7-88

<sup>a</sup>Cases per 100,000 population.

### DESCRIPTION

Listeriosis is a disease caused by infection with *Listeria monocytogenes*, a Gram-positive rod that is found in soil throughout the environment. Listeriosis is often caused by ingestion of foods contaminated with *L. monocytogenes*. Foods often associated with *Listeria* contamination include raw fruits and vegetables, cold cuts and deli meats and unpasteurized dairy products. The disease affects primarily persons of advanced age, pregnant women, newborns, and adults with weakened immune systems. On rare occasions, people without these risk factors have also contracted listeriosis. Symptoms of listeriosis include: fever, muscle aches, and sometimes nausea or diarrhea. If infection spreads to the nervous system, symptoms such as headache, stiff neck, confusion, loss of balance, or convulsions can occur. Infected pregnant women may experience only a mild, flu-like illness; however, infections during pregnancy can lead to miscarriage or stillbirth, premature delivery, or infection of the newborn.

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw fruits and vegetables thoroughly before eating; and keeping uncooked meats separate from raw produce and cooked foods. Avoiding unpasteurized milk or foods made from unpasteurized milk and washing hands, knives,

and cutting boards after handling uncooked foods also may prevent listeriosis.

Persons at high risk for listeriosis include the elderly, those with cancer, HIV, diabetes, weakened immune systems, and those on immunosuppressive therapy. These individuals should follow additional recommendations: avoid soft cheeses such as feta, Brie, Camembert, blue-veined, and Mexican-style cheese. Hard cheeses, processed cheeses, cream cheese, cottage cheese, or yogurt need not be avoided altogether; however, individuals with severely compromised immune systems and/or several disease risk factors should avoid them.

Leftover foods or ready-to-eat foods, such as hot dogs and deli meats, should be cooked until steaming hot before eating. Finally, although the risk of listeriosis associated with foods from deli counters is relatively low, immunocompromised persons should avoid these foods or thoroughly reheat cold cuts before eating.

### 2009 TRENDS AND HIGHLIGHTS

- In previous year, Asians comprised almost one-third of all nonperinatal listeriosis cases; however, in 2009, there are no cases of nonperinatal listeriosis among Asians. Cases were nearly evenly divided among whites (47%) and Hispanics (46%), with blacks comprising the remaining 7% of cases (Figure 3). Despite increased prevalence of conditions (such as diabetes, respiratory and cardiovascular disease) that predispose to contracting listeriosis, blacks consistently make up a small proportion of listeriosis cases (5%). Regionally there is greater incidence of listeriosis in Service Planning Area (SPA) 2 compared to other SPAs in LAC (Figure 4). Distribution of cases is fairly even across the other SPAs.
- Historically the occurrence of listeriosis cases peaks in August and September (Figure 5). Listeriosis cases in 2009 also peaked in August and September, but a rise in cases during June deviated from the previous 5-year trend.
- Nonperinatal listeriosis disproportionately affects the elderly and immunocompromised. The median age of nonperinatal cases is 67 years, consistently reflecting advanced age as a risk factor for listeriosis.



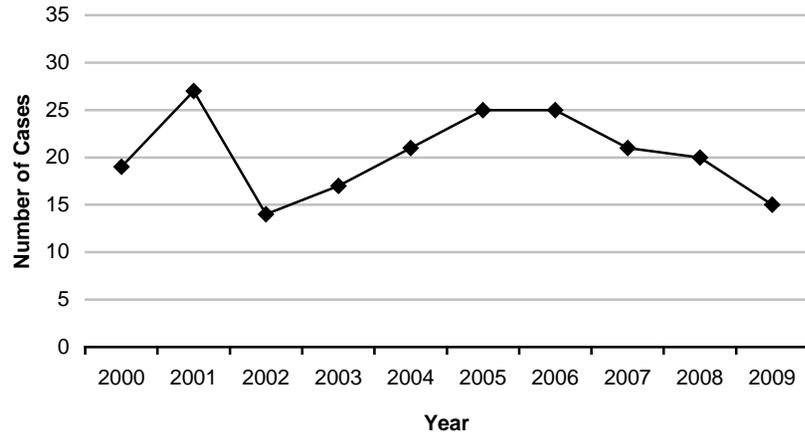
**Reported Listeriosis, nonperinatal Cases and Rates\* per 100,000 by Age Group, Race/Ethnicity, and SPA  
Los Angeles County, 2005-2009**

	2005 (N=25)			2006 (N=25)			2007 (N=21)			2008 (N=20)			2009 (N=15)		
	No.	(%)	Rate/ 100,000												
<b>Age Group</b>															
<1	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
1-4	2	8.0	0.3	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
5-14	2	8.0	0.1	0	0.0	0.0	0	0.0	0.0	1	5.0	0.1	1	6.7	0.1
15-34	0	0.0	0.0	2	8.0	0.1	0	0.0	0.0	1	5.0	0.0	1	6.7	0.0
35-44	0	0.0	0.0	1	4.0	0.1	0	0.0	0.0	1	5.0	0.1	0	0.0	0.0
45-54	5	20.0	0.4	4	16.0	0.3	6	28.6	0.5	1	5.0	0.1	2	13.3	0.1
55-64	6	24.0	0.7	6	24.0	0.7	6	28.6	0.7	5	25.0	0.5	1	6.7	0.1
65+	10	40.0	1.0	12	48.0	1.2	9	42.9	0.9	11	55.0	1.1	10	66.7	0.9
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
<b>Race/Ethnicity</b>															
Asian	4	16.0	0.3	3	12.0	0.2	3	14.3	0.2	6	30.0	0.5	0	0.0	0.0
Black	2	8.0	0.2	1	4.0	0.1	0	0.0	0.0	1	5.0	0.1	1	6.7	0.1
Hispanic	5	20.0	0.1	8	32.0	0.2	8	38.1	0.2	5	25.0	0.1	7	46.7	0.1
White	14	56.0	0.5	13	52.0	0.5	10	47.6	0.3	8	40.0	0.3	7	46.7	0.2
Other	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
<b>SPA</b>															
1	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
2	8	32.0	0.4	7	28.0	0.3	6	28.6	0.3	3	15.0	0.1	4	26.7	0.2
3	5	20.0	0.3	8	32.0	0.5	4	19.0	0.2	6	30.0	0.3	2	13.3	0.1
4	0	0.0	0.0	5	20.0	0.4	1	4.8	0.1	3	15.0	0.2	3	20.0	0.2
5	4	16.0	0.6	4	16.0	0.6	4	19.0	0.6	1	5.0	0.2	0	0.0	0.0
6	3	12.0	0.3	1	4.0	0.1	3	14.3	0.3	2	10.0	0.2	2	13.3	0.2
7	3	12.0	0.2	0	0.0	0.0	3	14.3	0.2	3	15.0	0.2	2	13.3	0.1
8	2	8.0	0.2	0	0.0	0.0	0	0.0	0.0	2	10.0	0.2	2	13.3	0.2
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	

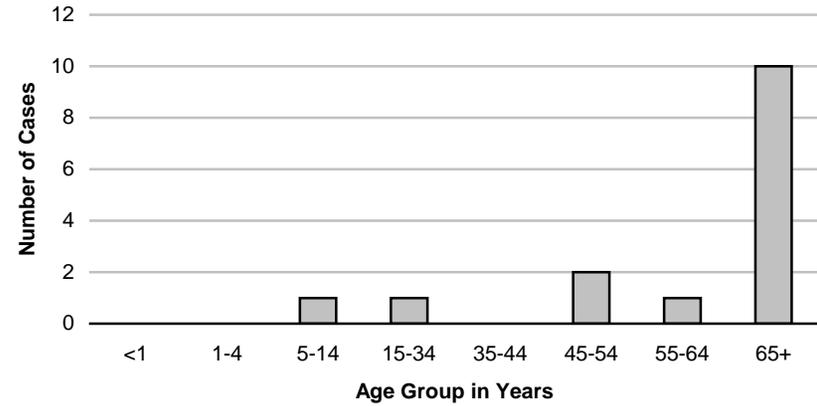
\*Rates calculated based on less than 19 cases or events are considered unreliable.



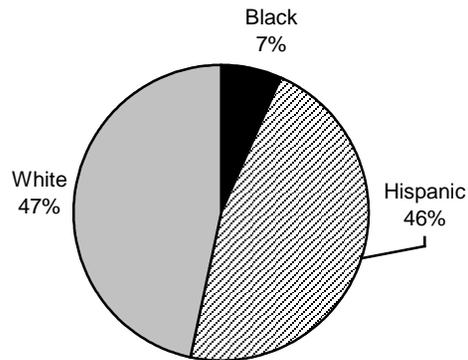
**Figure 1. Reported Cases of Nonperinatal Listeriosis  
 LAC, 2000-2009**



**Figure 2. Reported Cases of Nonperinatal Listeriosis  
 by Age Group, LAC, 2009 (N=15)**



**Figure 3. Percent Cases of Nonperinatal Listeriosis  
 by Race/Ethnicity, LAC, 2009 (N=15)**



**Figure 4. Reported Cases of Nonperinatal Listeriosis by SPA  
 LAC, 2009 (N=15)**

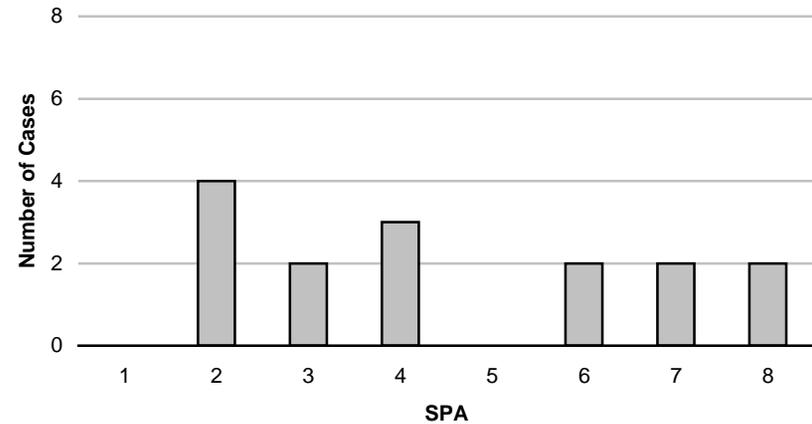
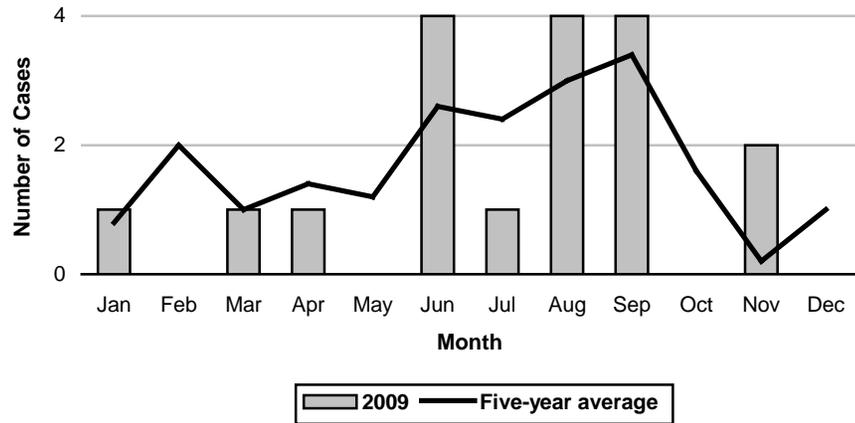




Figure 5. Reported Nonperinatal Listeriosis Cases by Month of Onset LAC, 2009 (N=15)





## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	20
Annual Incidence <sup>a</sup>	
LA County	0.21
California	n/a
United States	n/a
Age at Diagnosis	
Mean	60
Median	67
Range	9-80

<sup>a</sup>Cases per 100,000 population.

### DESCRIPTION

Listeriosis is a disease caused by infection with *Listeria monocytogenes*, a Gram-positive rod that is found in soil throughout the environment. Listeriosis is often caused by ingestion of foods contaminated with *L. monocytogenes*. Foods often associated with *Listeria* contamination include raw fruits and vegetables, cold cuts and deli meats and unpasteurized dairy products. The disease affects primarily persons of advanced age, pregnant women, newborns, and adults with weakened immune systems. On rare occasions, people without these risk factors have also contracted listeriosis. Symptoms of listeriosis include: fever, muscle aches, and sometimes nausea or diarrhea. If infection spreads to the nervous system, symptoms such as headache, stiff neck, confusion, loss of balance, or convulsions can occur. Infected pregnant women may experience only a mild, flu-like illness; however, infections during pregnancy can lead to miscarriage or stillbirth, premature delivery, or infection of the newborn.

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw fruits and vegetables thoroughly before eating; and keeping uncooked meats separate from raw produce and cooked foods. Avoiding unpasteurized milk or foods made from unpasteurized milk and washing hands, knives,

and cutting boards after handling uncooked foods also may prevent listeriosis.

Persons at high risk for listeriosis include the elderly, those with cancer, HIV, diabetes, weakened immune systems, and those on immunosuppressive therapy. These individuals should follow additional recommendations: avoid soft cheeses such as feta, brie, camembert, blue-veined, and Mexican-style cheese. Hard cheeses, processed cheeses, cream cheese, cottage cheese, or yogurt need not be avoided altogether; however, individuals with severely compromised immune systems and/or several disease risk factors should avoid them.

Leftover foods or ready-to-eat foods, such as hot dogs and deli meats, should be cooked until steaming hot before eating. Finally, although the risk of listeriosis associated with foods from deli counters is relatively low, immunocompromised persons should avoid these foods or thoroughly reheat cold cuts before eating.

### 2008 TRENDS AND HIGHLIGHTS

- Despite increased risk of having conditions (such as diabetes, respiratory and cardiovascular disease) that predispose them to contracting listeriosis, blacks comprise a relatively small proportion of listeriosis cases (5%). Close to half (40%) of cases of listeriosis occurred among whites. Asians comprised 30% of cases, and Hispanics comprised 25% of cases (Figure 3).
- Regionally there is greater incidence of listeriosis in Service Planning Area (SPA) 3 compared to other SPAs in Los Angeles County (Figure 4).
- The incidence of listeriosis in 2008 has been consistent with seasonal trends from the past five years (Figure 5). Historically the occurrence of listeriosis cases peaks in August and September.
- Nonperinatal listeriosis disproportionately affects the elderly and immunocompromised. The median age of nonperinatal cases is 67 years, consistently reflecting age as a risk factor for listeriosis.



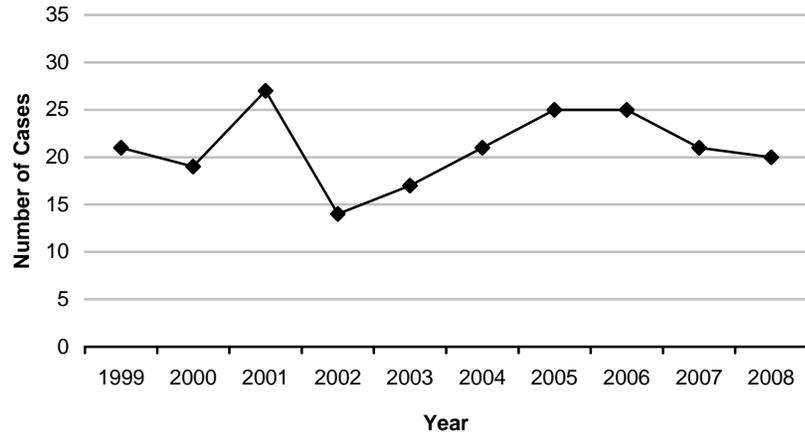
**Reported Listeriosis, nonperinatal Cases and Rates\* per 100,000 by Age Group, Race/Ethnicity, and SPA  
Los Angeles County, 2004-2008**

	2004 (N=21)			2005 (N=25)			2006 (N=25)			2007 (N=21)			2008 (N=20)		
	No.	(%)	Rate/ 100,000												
<b>Age Group</b>															
<1	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
1-4	0	0.0	0.0	2	8.0	0.3	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
5-14	0	0.0	0.0	2	8.0	0.1	0	0.0	0.0	0	0.0	0.0	1	5.0	0.1
15-34	1	4.8	0.0	0	0.0	0.0	2	8.0	0.1	0	0.0	0.0	1	5.0	0.0
35-44	0	0.0	0.0	0	0.0	0.0	1	4.0	0.1	0	0.0	0.0	1	5.0	0.1
45-54	2	9.5	0.2	5	20.0	0.4	4	16.0	0.3	6	28.6	0.5	1	5.0	0.1
55-64	7	33.3	0.9	6	24.0	0.7	6	24.0	0.7	6	28.6	0.7	5	25.0	0.5
65+	11	52.4	1.2	10	40.0	1.0	12	48.0	1.2	9	42.9	0.9	11	55.0	1.1
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
<b>Race/Ethnicity</b>															
Asian	1	4.8	0.1	4	16.0	0.3	3	12.0	0.2	3	14.3	0.2	6	30.0	0.5
Black	3	14.3	0.4	2	8.0	0.2	1	4.0	0.1	0	0.0	0.0	1	5.0	0.1
Hispanic	8	38.1	0.2	5	20.0	0.1	8	32.0	0.2	8	38.1	0.2	5	25.0	0.1
White	9	42.9	0.3	14	56.0	0.5	13	52.0	0.5	10	47.6	0.3	8	40.0	0.3
Other	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
<b>SPA</b>															
1	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
2	6	28.6	0.3	8	32.0	0.4	7	28.0	0.3	6	28.6	0.3	3	15.0	0.1
3	4	19.0	0.2	5	20.0	0.3	8	32.0	0.5	4	19.0	0.2	6	30.0	0.3
4	3	14.3	0.2	0	0.0	0.0	5	20.0	0.4	1	4.8	0.1	3	15.0	0.2
5	3	14.3	0.5	4	16.0	0.6	4	16.0	0.6	4	19.0	0.6	1	5.0	0.2
6	1	4.8	0.1	3	12.0	0.3	1	4.0	0.1	3	14.3	0.3	2	10.0	0.2
7	3	14.3	0.2	3	12.0	0.2	0	0.0	0.0	3	14.3	0.2	3	15.0	0.2
8	1	4.8	0.1	2	8.0	0.2	0	0.0	0.0	0	0.0	0.0	2	10.0	0.2
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	

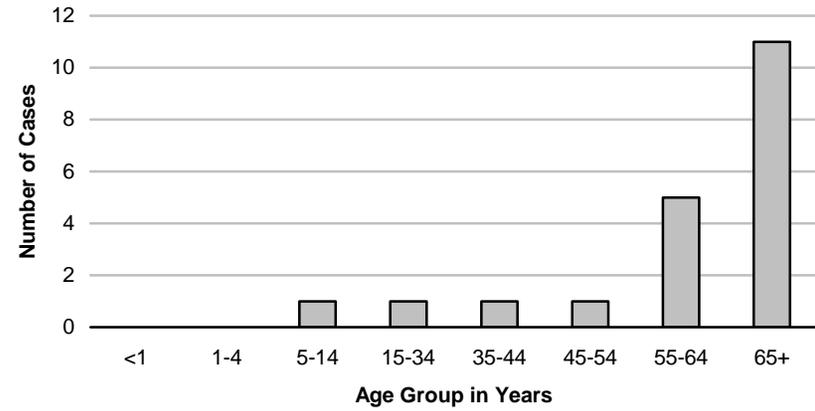
\*Rates calculated based on less than 19 cases or events are considered unreliable.



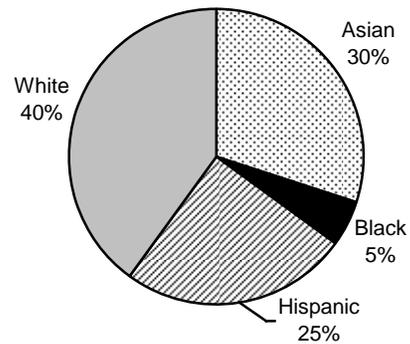
**Figure 1. Reported Cases of Nonperinatal Listeriosis  
LAC, 1999-2008**



**Figure 2. Reported Cases of Nonperinatal Listeriosis  
by Age Group, LAC, 2008 (N=20)**



**Figure 3. Percent Cases of Nonperinatal Listeriosis  
by Race/Ethnicity, LAC, 2008 (N=20)**



**Figure 4. Reported Cases of Nonperinatal Listeriosis by SPA  
LAC, 2008 (N=20)**

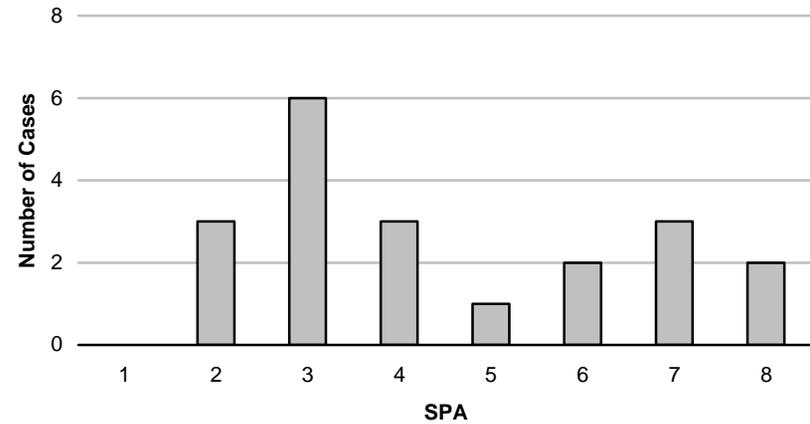
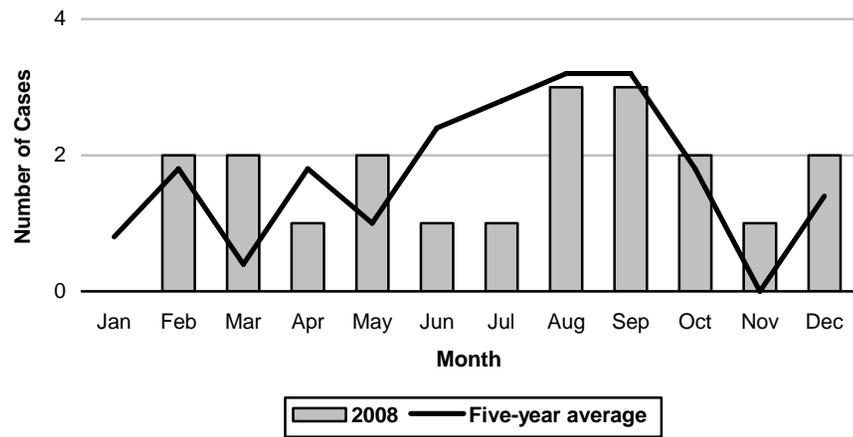




Figure 5. Reported Nonperinatal Listeriosis Cases by Month of Onset LAC, 2008

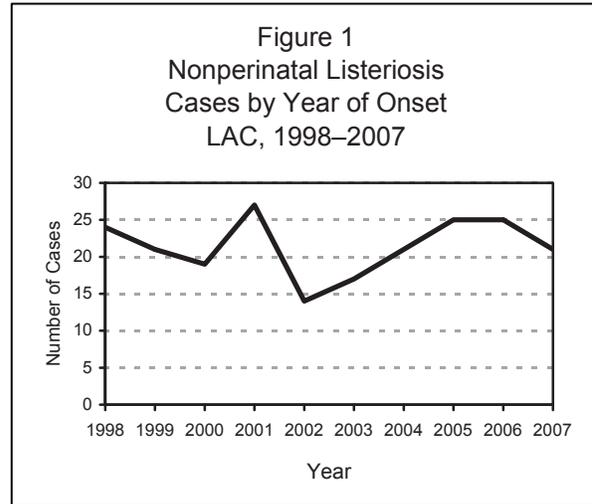




## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	21
Annual Incidence <sup>a</sup>	
LA County	0.22
United States	N/A
Age at Diagnosis	
Mean	66.43
Median	62
Range	47-95 years

<sup>a</sup> Cases per 100,000 population.



### DESCRIPTION

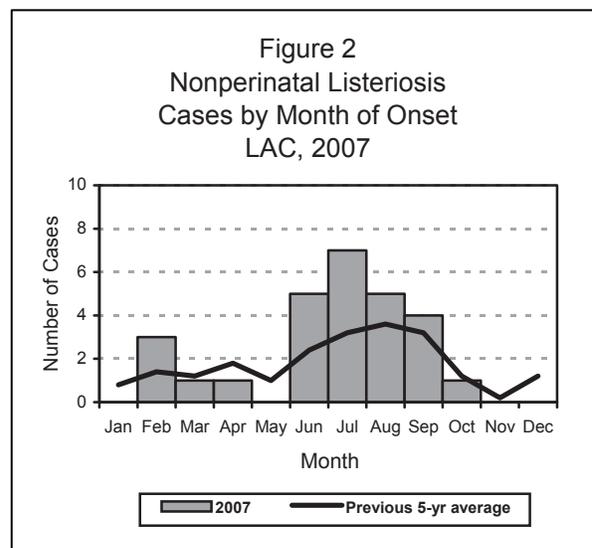
Listeriosis is a disease transmitted primarily through consumption of food contaminated with *Listeria monocytogenes*, a Gram-positive bacterium. *L. monocytogenes* is found in soil and water, and can contaminate raw foods (e.g., uncooked meats and vegetables), as well as processed foods that become contaminated after processing (e.g., soft cheeses and cold cuts). Unpasteurized (raw) milk and foods made from unpasteurized milk may also contain the bacterium. Common symptoms of listeriosis include fever, muscle aches, headache, nausea, diarrhea, and neck stiffness. A case of nonperinatal listeriosis is one that occurs in persons other than pregnant women and/or their fetuses, neonates, or infants up to 42 days after birth. Historically, nonperinatal listeriosis presents as meningoenzephalitis and/or septicemia, primarily affecting elderly and immunocompromised persons, such as those with cancer or HIV, and those on immunosuppressive therapy.

### DISEASE ABSTRACT

- In 2007, 21 nonperinatal listeriosis cases were reported, slightly lower than the previous year (2006, n=25) (Figure 1).
- There were ten case fatalities in 2007 (47.6%), a noticeable increase from 2006 (n=2, 8%). As in years past, these fatalities were more likely due to severe underlying disease (i.e., cancer, liver disease) and advanced age.
- There were no clusters of nonperinatal listeriosis identified through PulseNet during 2007. Additionally, there were no confirmed foodborne listeriosis outbreaks during this year.

### STRATIFIED DATA

**Trends:** Since 2005 (N=25), the number of nonperinatal listeriosis cases has remained about the same (Figure 1).





**Seasonality:** Listeriosis typically follows a seasonal trend with most cases occurring during the summer months. This year's trend was similar to years past with the highest incidence of cases occurring in July (Figure 2).

**Age:** In 2007, 43% (n=9) of nonperinatal listeriosis cases were 65 years of age or older. The median age was 62 years. All of the cases in 2007 were over the age of 45 years.

**Race/Ethnicity:** In 2007, whites and Hispanics had the highest numbers of incident cases of nonperinatal listeriosis (n=7, 33%, and n=11, 52%, respectively) (Figure 4). In 2007, there was a slight increase in Hispanic cases.

**Location:** There was no significant clustering of cases by location.

**Predisposing Conditions and Medical Risk Factors:** In 2007, 43% (n=9) of the nonperinatal cases occurred in adults older than 65 years of age. In addition, 43% had cancer, 43% had kidney disease, 38% had diabetes, 38% had recent steroid use, and 29% had an autoimmune disorder. Seventeen (81%) of nonperinatal cases had two or more medical risk factors. One case had no known risk factors for listeriosis (Table 1).

**High-risk Foods:** For high-risk foods routinely investigated, 29% of the cases reported eating cold cuts or deli meats; 19% Mexican style cheese, 19% other cheese (non-Mexican-style cheese; non-soft cheese); 19% raw fruits and 19% raw vegetables (Table 2).

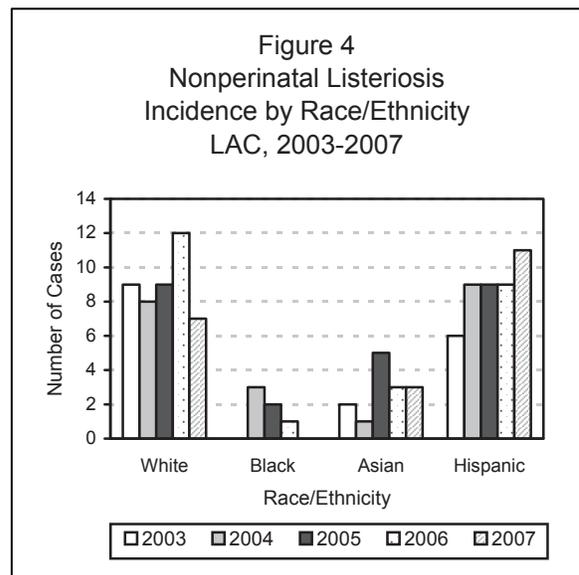
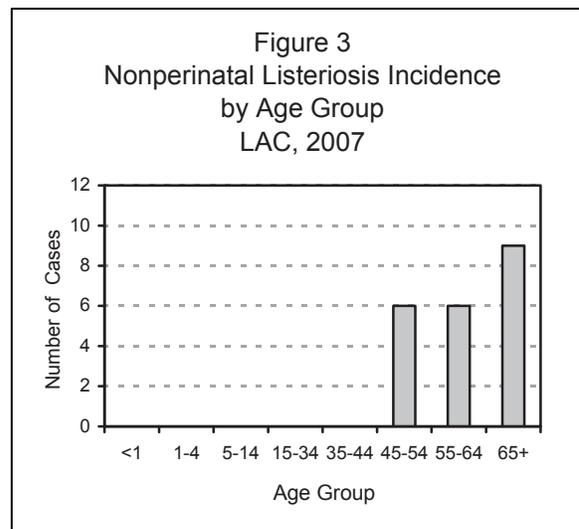
**Outcome:** Ten (47.6%) of the 21 cases in 2007 died. These cases were severely immunocompromised with cancer and liver disease. Additionally, these ten cases had an average age of 68 years, significantly higher than the average for all nonperinatal cases.

**Culture Sites:** *L. monocytogenes* was isolated from blood only in 17 (81%) cases and CSF in four (19%) cases.

**PFGE-Identified Clusters:** All *L. monocytogenes* isolates are analyzed by pulsed field gel electrophoresis (PFGE). No cases matched a PulseNet pattern during 2007.

## PREVENTION

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw fruits and vegetables thoroughly before eating; and keeping uncooked meats separate from raw produce and cooked foods. Avoiding unpasteurized milk or foods made from unpasteurized milk and washing hands, knives, and cutting boards after handling uncooked foods also may prevent listeriosis.





**Table 1. Predisposing Factors in Cases of Nonperinatal Listeriosis—LAC, 2007**

Medical Conditions	Number	Percent
Age >65 years	9	43
Cancer	9	43
Kidney Disease	9	43
Diabetes	8	38
Steroid Use	8	38
Autoimmune Disease	6	29
Gastrointestinal Disease	4	19
Liver Disease	4	19
Chemotherapy	3	14
Lung Disease	3	14
Antacid Use	2	10
Chronic Alcoholism	1	5
No Identified Risk Factors	1	5
Prior Antibiotic Use	1	5
Other Immunosuppressive Therapy	0	0
Radiation Therapy	0	0

**Table 2. High-risk Foods among Cases of Nonperinatal Listeriosis—LAC, 2007**

Risk foods	Number	Percent
Cold Cuts/Deli-Meats	6	29
Mexican Style Cheese	4	19
Other Cheese	4	19
Raw Fruit	4	19
Raw Vegetables	4	19
Soft Cheese	0	0

Persons at high risk for listeriosis include the elderly, those with cancer, HIV, diabetes, weakened immune systems, and those on immunosuppressive therapy. These individuals should follow additional recommendations: avoid soft cheeses such as feta, brie, camembert, blue-veined, and Mexican-style cheese. Hard cheeses, processed cheeses, cream cheese, cottage cheese, or yogurt need not be avoided all together; however, individuals with severely compromised immune systems and/or several disease risk factors should avoid them.

Leftover foods or ready-to-eat foods, such as hot dogs and deli meats, should be cooked until steaming hot before eating. Finally, although the risk of listeriosis associated with foods from deli counters is relatively low, immunosuppressed persons should avoid these foods or thoroughly reheat cold cuts before eating.

### ADDITIONAL RESOURCES

General listeriosis information – [http://www.cdc.gov/nczved/dfbmd/disease\\_listing/listeriosis\\_gi.html](http://www.cdc.gov/nczved/dfbmd/disease_listing/listeriosis_gi.html)

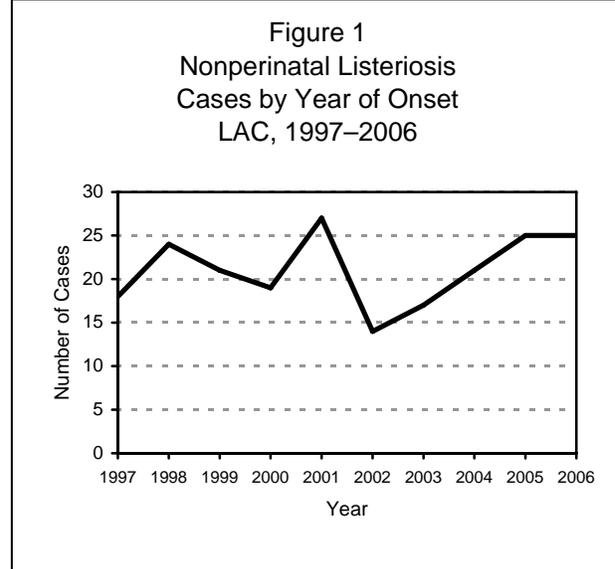
LAC General information and reporting information about this and other foodborne diseases – <http://www.lapublichealth.org/acd/food.htm>

PulseNet – <http://www.cdc.gov/pulsenet/>

## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	25
Annual Incidence <sup>a</sup>	
LA County	0.26
United States	N/A
Age at Diagnosis	
Mean	62.96
Median	64
Range	20–90 years

<sup>a</sup> Cases per 100,000 population.



### DESCRIPTION

Listeriosis is a disease transmitted primarily through consumption of food contaminated with *Listeria monocytogenes*, a Gram-positive bacterium. *L. monocytogenes* is found in soil and water, and can contaminate raw foods (e.g., uncooked meats and vegetables), as well as processed foods that become contaminated after processing (e.g., soft cheeses and cold cuts). Unpasteurized (raw) milk and foods made from unpasteurized milk may also contain the bacterium. Common symptoms of listeriosis include fever, muscle aches, headache, nausea, diarrhea, and neck stiffness. A case of nonperinatal listeriosis is one that occurs in persons other than pregnant women and/or their fetuses, neonates, or infants up to 42 days after birth. Historically, nonperinatal listeriosis presents as meningoen­cephalitis and/or septicemia, primarily affecting elderly and immunocompromised persons, such as those with cancer or HIV, and those on immunosuppressive therapy.

### DISEASE ABSTRACT

- In 2006, 25 nonperinatal listeriosis cases were reported, the same as the previous year (2005, n=25) (Figure 1).
- There were two case fatalities in 2006. As in 2005, these fatalities were more likely due to severe underlying disease (i.e., cancer, liver disease).
- Although one multi-state cluster was identified by PulseNet, no food source was identified. Additionally, there were no confirmed foodborne listeriosis outbreaks during 2006.

**STRATIFIED DATA**

**Trends:** Since 2002 (N=14), the number of nonperinatal listeriosis cases has been increasing (Figure 1). In 2006 there were 25 cases of nonperinatal listeriosis; the same as 2005.

**Seasonality:** Listeriosis typically follows a seasonal trend with most cases occurring during the summer months. During the previous five years, the highest incidence of cases occurred during July and August. This year's trend was different in that there were two peaks (one in July and another in October) (Figure 2).

**Age:** Advanced age is considered a risk factor for nonperinatal listeriosis. In 2006, 48% (n=12) of nonperinatal listeriosis cases were 65 years of age or older - an increase from 2005 (36%, n=9). In 2006, the median age of nonperinatal listeriosis cases was 64 years, markedly higher than the median age of 54 years in 2005. The majority of cases in 2006 were over the age of 45 years.

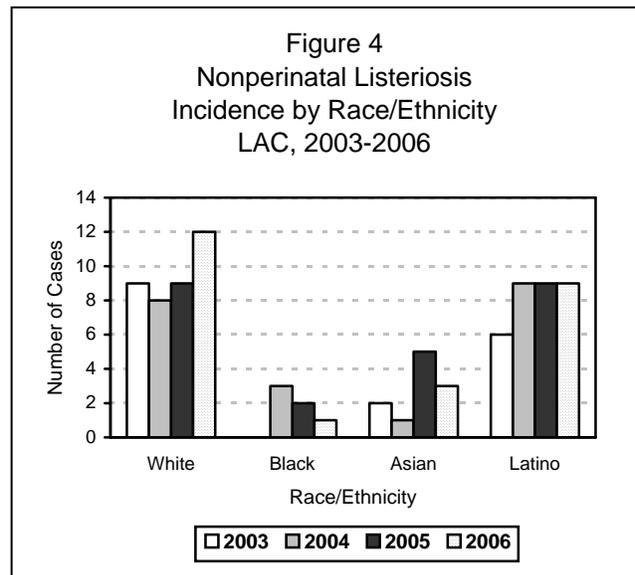
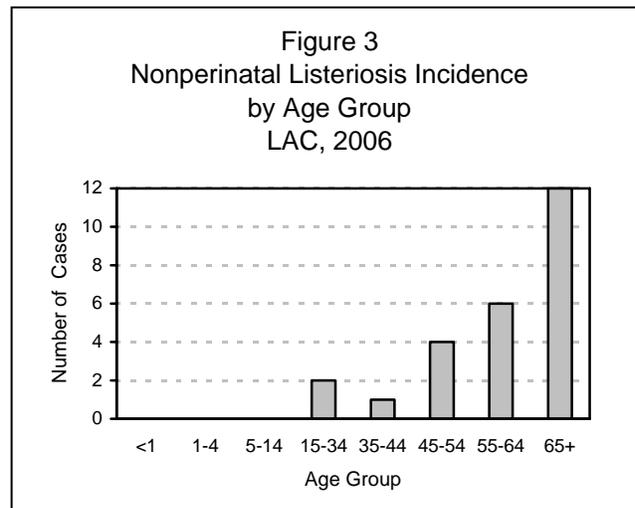
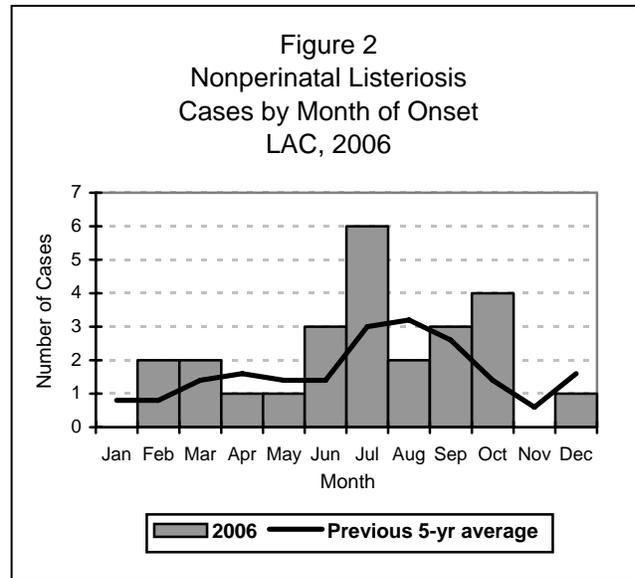
**Sex:** Similar to previous years, more males (n=13) than females (n=12) contracted nonperinatal listeriosis; though due to the relatively small number of cases, the difference in the infection rate between the two sexes is probably not significant.

**Race/Ethnicity:** In 2006, whites and Latinos had the highest numbers of incident cases of nonperinatal listeriosis (n=12, 48%, and n=9, 43%, respectively) (Figure 4). Since 2004, the annual numbers of Latino cases has remained the same. In 2006 there was a significant increase in white cases.

**Location:** Geographic information was known for all 25 of the cases. During 2006, there was no significant clustering of cases by location.

**Predisposing Conditions and Medical Risk Factors:** In 2006, 72% (n=18) of the nonperinatal cases occurred in adults older than 65 years of age. In addition, 56% had cancer; 36% had history of gastrointestinal disease; 32% had recent chemotherapy; 20% had kidney disease; 20% had recent antibiotic use; and 20% had recent steroid use. Twenty-two (88%) of nonperinatal cases had two or more medical risk factors. One case had no known risk factors for listeriosis (Table 1).

**High-risk Foods:** For high-risk foods routinely investigated, 25% of cases reported eating



Mexican or soft cheese; 16% cold cuts or deli meats; 16% other cheese (non-Mexican-style cheese; non-soft cheese); 16% raw fruits; and 20% raw vegetables (Table 2).

**Outcome:** Two (8%) of the 25 cases in 2006 died. These cases were not of advanced age but were severely immunocompromised with cancer and liver disease.

**Culture Sites:** *L. monocytogenes* was isolated from blood only in 22 (88%) cases, CSF in two (8%) cases, and one culture drawn from ascitic fluid.

**PFGE-identified Clusters:** All *L. monocytogenes* isolates are analyzed by pulsed field gel electrophoresis (PFGE). Two cases matched a PulseNet pattern which was part of a cluster with cases from New York, Ohio and Texas.

## PREVENTION

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw fruits and vegetables thoroughly before eating; and keeping uncooked meats separate from raw produce and cooked foods. Avoiding unpasteurized milk or foods made from unpasteurized milk, and washing hands, knives, and cutting boards after handling uncooked foods also may prevent listeriosis.

Persons at high risk for listeriosis include the elderly, those with cancer, HIV, diabetes, weakened immune systems, and those on immunosuppressive therapy. These individuals should follow additional recommendations: avoid soft cheeses such as feta, brie, camembert, blue-veined, and Mexican-style cheese. Hard cheeses, processed cheeses, cream cheese, cottage cheese, or yogurt need not be avoided all together; however, individuals with severely compromised immune systems and/or several disease risk factors should avoid them. Leftover foods or ready-to-eat foods, such as hot dogs and deli meats, should be cooked until steaming hot before eating. Finally, although the risk of listeriosis associated with foods from deli counters is relatively low, immunosuppressed persons should avoid these foods or thoroughly reheat cold cuts before eating.

## ADDITIONAL RESOURCES

General disease information is available from the CDC at: [www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis\\_g.htm](http://www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis_g.htm)

General information and reporting information about this and other foodborne diseases in LAC is available at: [www.lapublichealth.org/acd/food.htm](http://www.lapublichealth.org/acd/food.htm)

**Table 1. Predisposing Factors in Cases of Nonperinatal Listeriosis—LAC, 2006**

Medical Conditions	Number	Percent
Age >65 years	18	72
Cancer	14	56
Gastrointestinal Disease	9	36
Chemotherapy	8	32
Kidney Disease	5	20
Prior Antibiotic Use	5	20
Steroid Use	5	20
Autoimmune Disease	4	16
Liver Disease	4	16
Lung Disease	4	16
Antacid Use	3	12
Chronic Alcoholism	3	12
Diabetes	3	12
Radiation Therapy	3	12
Other Immunosuppressive Therapy	2	8
No Identified Risk Factors	1	4

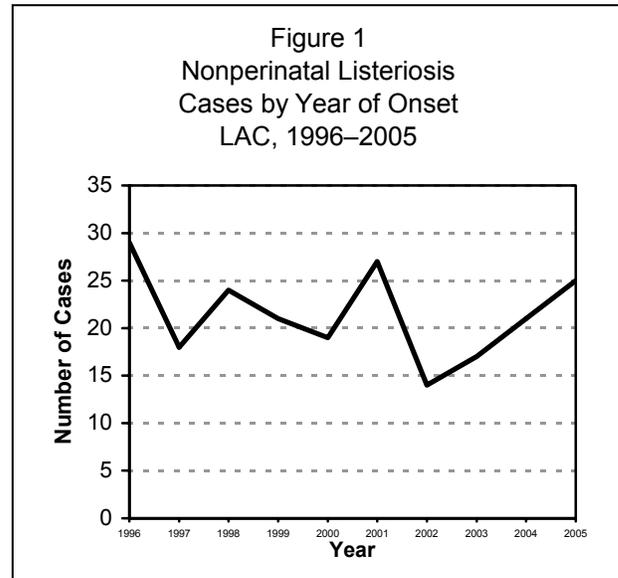
**Table 2. High-risk Foods among Cases of Nonperinatal Listeriosis—LAC, 2006**

Risk foods	Number	Percent
Raw Vegetables	5	20
Raw Fruit	4	16
Cold Cuts/Deli-Meats	4	16
Soft Cheese	4	16
Other Cheese	4	16
Mexican Style Cheese	3	12



## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	25
Annual Incidence <sup>a</sup>	
LA County	0.26
United States	N/A
Age at Diagnosis	
Mean	54.4
Median	57
Range	1–89 years
Case Fatality	
LA County	10%
United States	N/A



<sup>a</sup> Cases per 100,000 population.

### DESCRIPTION

Listeriosis is a disease transmitted primarily through consumption of food contaminated with *Listeria monocytogenes*, a gram-positive bacterium. *L. monocytogenes* is found in soil and water, and can contaminate raw foods (e.g., uncooked meats and vegetables), as well as processed foods that become contaminated after processing (e.g., soft cheeses and cold cuts). Unpasteurized (raw) milk and foods made from unpasteurized milk may also contain the bacterium. Common symptoms of listeriosis include fever, muscle aches, headache, nausea, diarrhea, and neck stiffness. A case of nonperinatal listeriosis is one that occurs in persons other than pregnant women and/or their fetuses, neonates, or infants up to 42 days after birth. Historically, nonperinatal listeriosis presents as meningoenzephalitis and/or septicemia, primarily affecting elderly and immunocompromised persons, such as those with cancer or HIV, and those on immunosuppressive therapy.

### DISEASE ABSTRACT

- In 2005, 25 nonperinatal listeriosis cases were reported, an increase from the previous year (N=21) that indicates a rising trend of infection in LA County. However, the ten-year trend is still one of decline (Figure 1).
- There were five case fatalities in 2005. Like in 2004, these fatalities were more likely due to severe underlying disease (i.e. cancer) although advanced age exacerbated the effect.
- Although two multistate clusters were identified by PulseNet and investigated, there were no confirmed foodborne listeriosis outbreaks during 2005.



## STRATIFIED DATA

**Trends:** Since 2002 (N=14), the number of nonperinatal listeriosis cases has been increasing (Figure 1). In 2005 there were 25 cases of nonperinatal listeriosis.

**Seasonality:** Listeriosis typically follows a seasonal trend with most cases occurring during the summer months. During the previous five years, the highest incidence of cases occurred during June. Except for having relatively few cases in June, 2005 followed the typical seasonal trend with a peak in August (Figure 2).

**Age:** Advanced age is considered a risk factor for nonperinatal listeriosis. In 2005, 36% (n=9) of nonperinatal listeriosis cases were 65-years of age or older—a decrease from 2004 (52%, n=11). In 2005, 24% (n=6) of cases were 55 to 64 years of age (Figure 3). In 2005 the median age of nonperinatal listeriosis cases was 55 with a majority of cases over the age of 45 years.

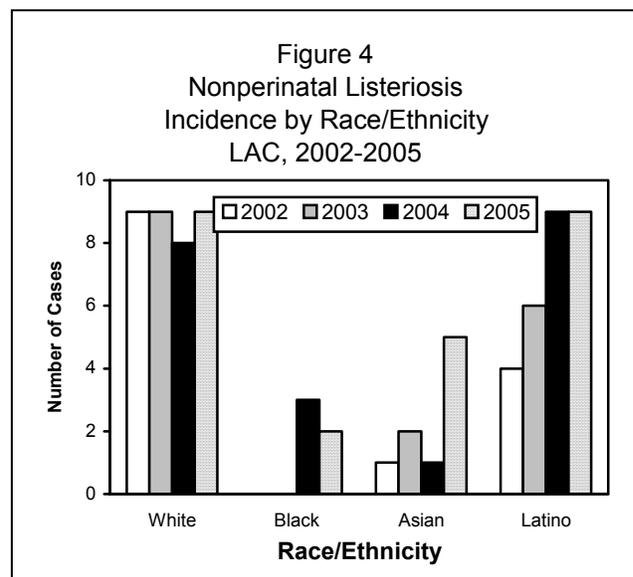
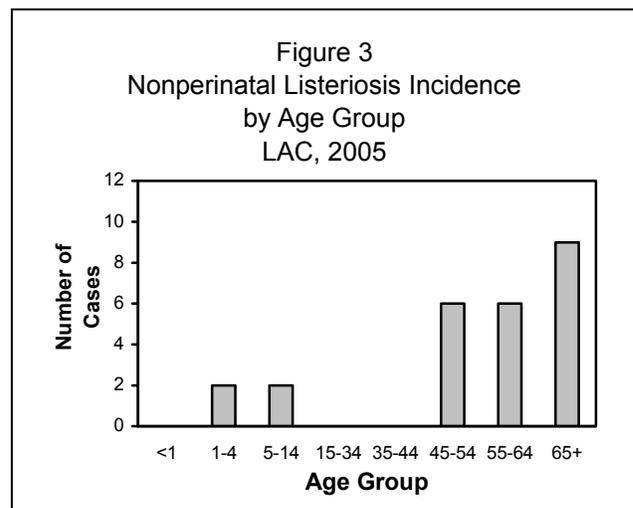
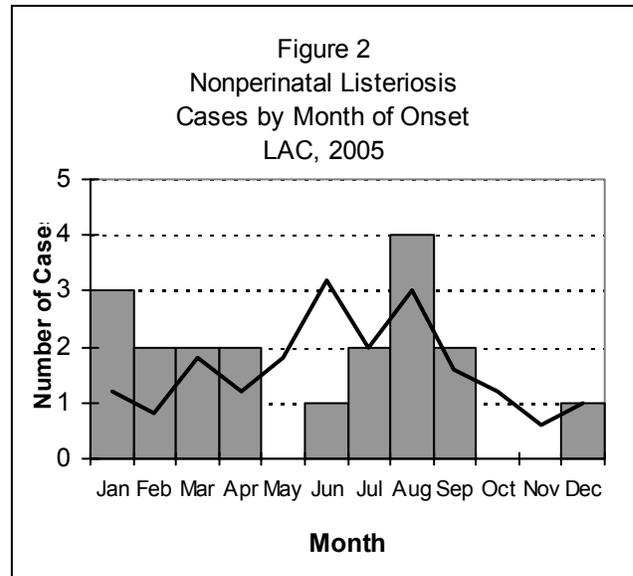
**Sex:** Similar to previous years, more males (n=13) than females (n=12) contracted nonperinatal listeriosis; the male-to-female incidence ratio was 1.083:1, reflecting a narrowing in the gender gap.

**Race/Ethnicity:** In 2005, Latinos and Whites had the highest numbers of incident cases of nonperinatal listeriosis (n=9, 43%, and n=8, 38%, respectively). Since 2002, the annual numbers of Latino cases have been increasing. In 2005 there was a significant increase in Asian cases.

**Location:** During 2005, there was no significant clustering of cases by location. Geographic information was known for 24 of the cases, and unknown for one case.

**Predisposing Conditions and Medical Risk Factors:** In 2005 50% of the nonperinatal cases occurred in adults older than 54 years of age. In addition, 48% had diabetes, 38% were on steroid medication, 38% had history of gastrointestinal disease, 38% were using antacids, 33% had cancer, 24% had recent chemotherapy, 24% had kidney disease, and 24% had recent antibiotic use. Sixteen (76%) of nonperinatal cases had two or more medical risk factors. Two cases did not have any known risk factors for listeriosis (Table 1).

**High-risk Foods:** For high-risk foods routinely investigated, 24% of cases reported eating soft cheese, 36% cold cuts or deli meats, 40% other cheese (non-Mexican-style cheese, non-soft





cheese), 84% raw fruits, 56% raw vegetables, and 36% Mexican-style cheese (Table 2).

**Outcome:** Five (20%) of the 25 cases in 2005 died. These cases were not of advanced age but were at advanced stages of cancer.

**Culture Sites:** *L. monocytogenes* was isolated from blood only in 16 (64%) cases, CSF in four (16%) cases, and one culture each drawn from a groin abscess, paracentesis and peritoneal fluid.

**PFGE-identified Clusters:** Five clusters of listeriosis were identified by using pulsed-field gel electrophoresis (PFGE) and participating in PulseNet under CDC, but none of the CDC investigations found a common source.

**PREVENTION**

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw vegetables thoroughly before eating; and keeping uncooked meats separate from vegetables, cooked foods, and ready-to-eat foods. Avoiding unpasteurized milk or foods made from unpasteurized milk, and washing hands, knives, and cutting boards after handling uncooked foods also may prevent listeriosis.

Persons at high risk for listeriosis include the elderly, those with cancer, HIV, diabetes, weakened immune systems, and those on immunosuppressive therapy. These individuals should follow additional recommendations: avoid soft cheeses such as feta, brie, camembert, blue-veined, and Mexican-style cheese. Hard cheeses, processed cheeses, cream cheese, cottage cheese, or yogurt need not be avoided all together; however, individuals with severely compromised immune systems and/or several disease risk factors should avoid them. Leftover foods or ready-to-eat foods, such as hot dogs, should be cooked until steaming hot before eating. Finally, although the risk of listeriosis associated with foods from deli counters is relatively low, immunosuppressed persons may choose to avoid these foods or thoroughly reheat cold cuts before eating.

**Table 1. Predisposing Factors in Cases of**

<b>Nonperinatal Listeriosis—LAC, 2005</b>		
<b>Medical Conditions</b>	<b>Number</b>	<b>Percent</b>
Age >65 years	9	36
Cancer	7	28
Chemotherapy	5	20
Steroid Use	8	32
Diabetes	9	36
Kidney Disease	7	28
Chronic Alcoholism	2	8
Radiation Therapy	1	4
Autoimmune Disease	3	12
Liver Disease	4	16
Lung Disease	1	4
Prior Antibiotic Use	7	28
Antacid Use	8	32
Asthma	0	0
Gastrointestinal Disease	7	28
HIV+/AIDS	0	0
Other Immunosuppressive Therapy	1	4
Organ Transplant	0	0
Intravenous Drug Use	0	4
No Identified Risk Factors	4	16

**Table 2. High-risk Foods among Cases of Nonperinatal Listeriosis—LAC, 2004**

<b>Risk foods</b>	<b>Number</b>	<b>Percent</b>
Raw Milk	0	0
Raw Milk Products	1	4
Mexican-style Cheese	9	36
Soft Cheese	6	24
Other Cheese	10	40
Raw Beef	1	4
Raw Pork	0	0
Raw Poultry	0	0
Raw Fish	3	12
Cold Cuts/ Deli Meats	9	36
Raw Egg	1	4
Raw Fruit	21	84
Raw Vegetables	14	56



## COMMENTS

2005 marked another increase in annual cases. Although 2002 had the second lowest incidence rate for listeriosis in at least 10 years, the increase, particularly among Latinos, indicates public health education may be necessary to reverse the upward trend. While better reporting might be a contributor to having more cases in 2005, the need for public health action is apparent. Case fatality was 24% (n=4) in 2003 and 10% (n=2) in 2004. There were two pediatric listeriosis cases in 2005; one had underlying disease (lymphoma) the other had no known medical risk factors.

*L. monocytogenes* is an opportunistic disease targeting people who have compromised immune systems. Healthy immune systems and intestinal tracts are important to prevent clinical illness. This year also highlighted the significance of iron overload and blood transfusions in the pathology of *L. monocytogenes* as one PFGE-identified cluster involved an asymptomatic platelet donor. The investigation of this cluster demonstrated that while iron overload is routinely investigated for listeriosis cases, there is a diagnostic bias as only patients with certain chronic anemias are tested for iron overload. Including history of blood transfusions and blood disorders like anemia in the routine investigation of listeriosis is now being considered.

All *L. monocytogenes* isolates are now analyzed by pulsed field gel electrophoresis (PFGE). There were no LAC outbreaks or LAC cases associated with a multi-jurisdictional outbreak identified in this manner in 2004.

## ADDITIONAL RESOURCES

General disease information is available from the CDC at:  
[www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis\\_g.htm](http://www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis_g.htm)

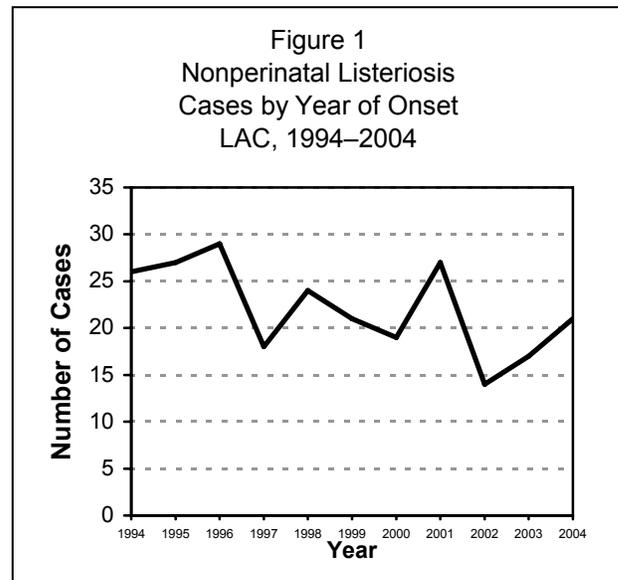
General information and reporting information about this and other foodborne diseases in LAC is available at: [www.lapublichealth.org/acd/food.htm](http://www.lapublichealth.org/acd/food.htm)



## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	21
Annual Incidence <sup>a</sup>	
LA County	0.22
United States	N/A
Age at Diagnosis	
Mean	66
Median	65
Range	23–100 years
Case Fatality	
LA County	10%
United States	N/A

<sup>a</sup> Cases per 100,000 population.



### DESCRIPTION

Listeriosis is a disease transmitted primarily through consumption of food contaminated with *Listeria monocytogenes*, a gram-positive bacterium. *L. monocytogenes* is found in soil and water, and can contaminate raw foods (e.g., uncooked meats and vegetables), as well as processed foods that become contaminated after processing (e.g., soft cheeses and cold cuts). Unpasteurized (raw) milk and foods made from unpasteurized milk may also contain the bacterium. Common symptoms of listeriosis include fever, muscle aches, headache, nausea, diarrhea, and neck stiffness. A case of nonperinatal listeriosis is one that occurs in persons other than pregnant women and/or their fetuses, neonates, or infants up to 42 days after birth. Historically, nonperinatal listeriosis presents as meningoenzephalitis and/or septicemia, primarily affecting elderly and immunocompromised persons, such as those with cancer or HIV, and those on immunosuppressive therapy.

### DISEASE ABSTRACT

- In 2004, 21 nonperinatal listeriosis cases were reported, a 24% increase from the previous year (N=17) that indicates a rising trend of infection in LA County. However, the ten-year trend is still one of decline (Figure 1).
- There were two case fatalities in 2004. Unlike in 2003, these fatalities were more likely due to severe underlying disease (i.e. cancer) and not advanced age as the cases were 23 and 57 years old. Case fatality was 14% (n=2) in 2002 and 24% (n=4) in 2003.
- Listeriosis typically follows a seasonal trend with most cases occurring during the summer months. During the previous five years, the highest incidence of cases occurred during June. Except for having relatively few cases in June, 2004 followed the typical seasonal trend (Figure 2).
- Although two interstate clusters were identified by PulseNet and investigated, there were no confirmed foodborne listeriosis outbreaks during 2004.



## STRATIFIED DATA

**Trends:** Since 2002 (N=14), the number of nonperinatal listeriosis cases has been increasing (Figure 1).

**Seasonality:** In the previous five years, the average number of reported cases was greatest in the summer, particularly in June. In 2004, the majority of cases occurred during the summer, although relatively fewer occurred in June (Figure 2).

**Age:** Advanced age is considered a risk factor for nonperinatal listeriosis. In 2004, 52% (n=11) of nonperinatal listeriosis cases were 65-years of age or older—similar to 2003 (53%, n=9) but slightly higher than 2002 (43%, n=6). In 2004, 33% (n=7) of cases were 55 to 64 years of age (Figure 3).

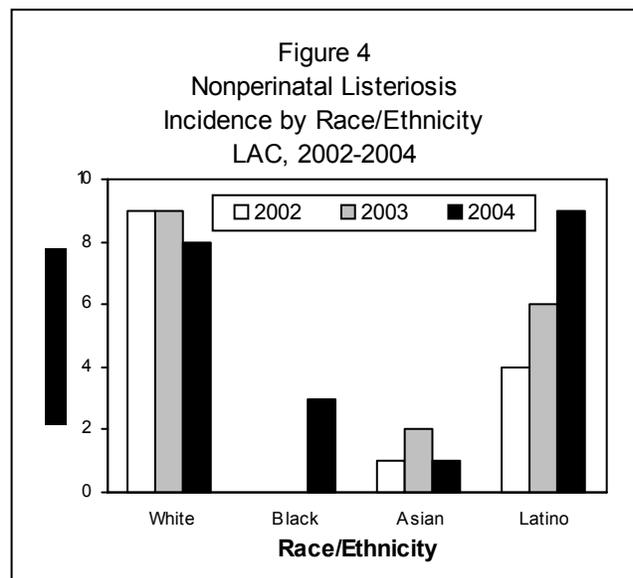
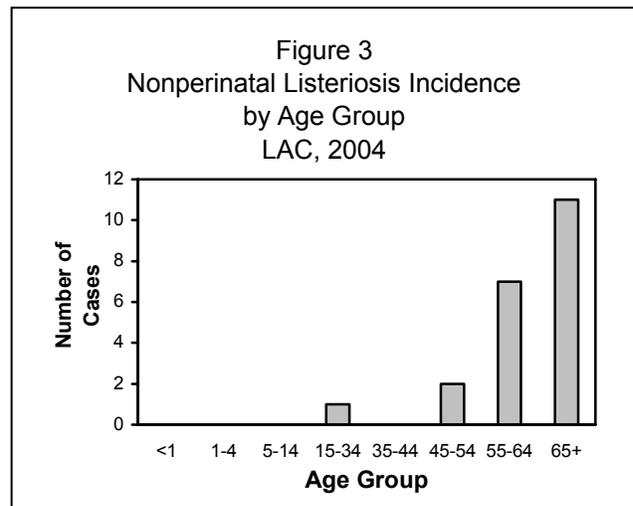
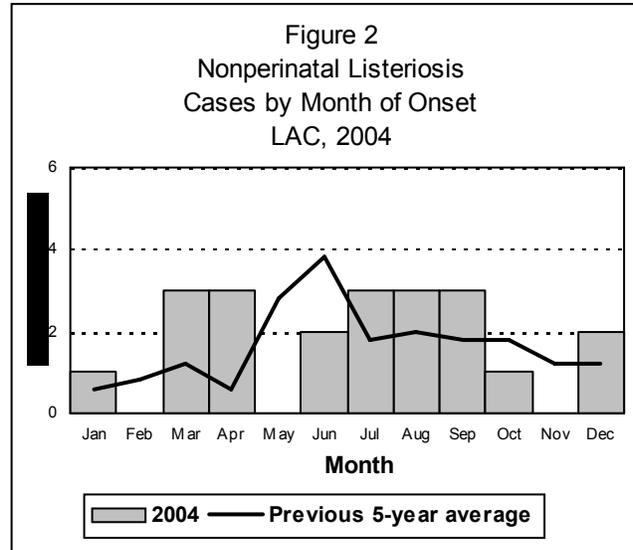
**Sex:** Similar to previous years, more males contracted nonperinatal listeriosis; the male-to-female incidence ratio was 4:3.

**Race/Ethnicity:** In 2004, Latinos and Whites had the highest numbers of incident cases of nonperinatal listeriosis (n=9, 43%, and n=8, 38%, respectively). Since 2002, the annual numbers of Latino cases have been increasing. In 2004, three Black cases were reported, as opposed to none in the previous two years (Figure 4).

**Location:** During 2004, there was no significant clustering of cases by location. However, a geographic map with nonperinatal and perinatal cases showed that about one-third (30%) of these cases occurred in the San Fernando Valley, which was seen also in 2003.

**Predisposing Conditions and Medical Risk Factors:** As mentioned, 52% of the nonperinatal cases occurring in 2004 were older than 65 years of age. In addition, 48% had diabetes, 38% were on steroid medication, 38% had history of gastrointestinal disease, 38% were using antacids, 33% had cancer, 24% had recent chemotherapy, 24% had kidney disease, and 24% had recent antibiotic use. Sixteen (76%) of nonperinatal cases had two or more medical risk factors. Two cases did not have any known-risk factors for listeriosis (Table 1).

**High-risk Foods:** Regarding risk foods routinely investigated, 43% of cases reported eating soft cheese, 38% cold cuts or deli meats, 29% other cheese (non-Mexican-style cheese, non-soft





cheese), 29% raw fruits, 24% raw vegetables, and 14% Mexican-style cheese (Table 2).

**Outcome:** Two (10%) of the 21 cases in 2004 died. These cases were not of advanced age but were at advanced stages of cancer.

**Culture Sites:** *L. monocytogenes* was isolated from blood only in 17 (81%) cases, CSF only in two (10%) cases, platelets in one case (5%), and an eye in one case (5%).

**PFGE-identified Clusters:** Two listeriosis clusters were identified by using pulsed-field gel electrophoresis (PFGE) and participating in PulseNet under CDC. In October 2004, a nonperinatal case and a perinatal case were part of cluster 0412ml-1ca which by January 2005 became a five-person cluster with an additional isolate from food sampling. The states involved were California, Wisconsin, and New Jersey. No epidemiologic links were identified.

In November 2004, three nonperinatal cases with onsets 8/9/03, 9/29/04, and no onset (asymptomatic platelet donor) were part of the four-person cluster 0411nl-1c which included a Colorado case. Although a health alert was issued, no further PFGE-matching cases were reported and no epidemiologic links were identified.

## PREVENTION

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw vegetables thoroughly before eating; and keeping uncooked meats separate from vegetables, cooked foods, and ready-to-eat foods. Avoiding unpasteurized milk or foods made from unpasteurized milk, and washing hands, knives, and cutting boards after handling uncooked foods also may prevent listeriosis.

Persons at high risk for listeriosis include the elderly, those with cancer, HIV, diabetes, weakened immune systems, and those on immunosuppressive therapy. These individuals should follow additional recommendations: avoid soft cheeses such as feta, brie, camembert, blue-veined, and Mexican-style

**Table 1. Predisposing Factors in Cases of**

<b>Nonperinatal Listeriosis—LAC, 2004</b>		
<b>Medical Conditions</b>	<b>Number</b>	<b>Percent</b>
Age >65 years	12	57
Cancer	7	33
Chemotherapy	5	24
Steroid Use	8	38
Diabetes	10	48
Kidney Disease	5	24
Chronic Alcoholism	3	14
Radiation Therapy	2	10
Autoimmune Disease	3	14
Liver Disease	4	19
Lung Disease	2	10
Prior Antibiotic Use	5	24
Antacid Use	8	38
Asthma	1	5
Gastrointestinal Disease	8	38
HIV+/AIDS	0	0
Other Immunosuppressive Therapy	1	5
Organ Transplant	0	0
Intravenous Drug Use	1	5
No Identified Risk Factors	2	10

**Table 2. High-risk Foods among Cases of Nonperinatal Listeriosis—LAC, 2004**

<b>Risk foods</b>	<b>Number</b>	<b>Percent</b>
Raw Milk	1	5
Raw Milk Products	0	0
Mexican-style Cheese	3	14
Soft Cheese	9	43
Other Cheese	6	29
Raw Beef	1	5
Raw Pork	0	0
Raw Poultry	1	5
Raw Fish	2	10
Cold Cuts/ Deli Meats	8	38
Raw Egg	0	0
Raw Fruit	6	29
Raw Vegetables	5	24
Yeast Products	1	5



cheese. Hard cheeses, processed cheeses, cream cheese, cottage cheese, or yogurt need not be avoided all together; however, individuals with severely compromised immune systems and/or several disease risk factors should avoid them. Leftover foods or ready-to-eat foods, such as hot dogs, should be cooked until steaming hot before eating. Finally, although the risk of listeriosis associated with foods from deli counters is relatively low, immunosuppressed persons may choose to avoid these foods or thoroughly reheat cold cuts before eating.

## COMMENTS

2004 marked another increase in annual cases. Although 2002 had the second lowest incidence rate for listeriosis in at least 10 years, the increase, particularly among Latinos, indicates public health education may be necessary to reverse the upward trend. While better reporting might be a contributor to having more cases in 2004, the need for public health action is apparent.

*L. monocytogenes* is an opportunistic disease targeting people who have compromised immune systems. Healthy immune systems and intestinal tracts are important to prevent clinical illness. This year also highlighted the significance of iron overload and blood transfusions in the pathology of *L. monocytogenes* as one PFGE-identified cluster involved an asymptomatic platelet donor. The investigation of this cluster demonstrated that while iron overload is routinely investigated for listeriosis cases, there is a diagnostic bias as only patients with certain chronic anemias are tested for iron overload. Including history of blood transfusions and blood disorders like anemia in the routine investigation of listeriosis is now being considered.

All *L. monocytogenes* isolates are now analyzed by pulsed field gel electrophoresis (PFGE). There were no LAC outbreaks or LAC cases associated with a multi-jurisdictional outbreak identified in this manner in 2004.

## ADDITIONAL RESOURCES

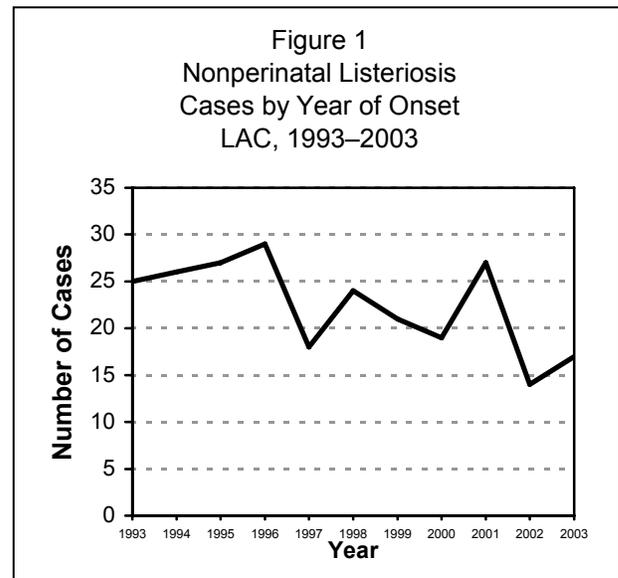
General disease information is available from the CDC at:  
[www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis\\_g.htm](http://www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis_g.htm)

General information and reporting information about this and other foodborne diseases in LAC is available at: [www.lapublichealth.org/acd/food.htm](http://www.lapublichealth.org/acd/food.htm)



## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	17
Annual Incidence <sup>a</sup>	
LA County	--- <sup>b</sup>
United States	N/A
Age at Diagnosis	
Mean	65
Median	65
Range	18–96 years
Case Fatality	
LA County	24%
United States	N/A



<sup>a</sup> Cases per 100,000 population.

<sup>b</sup> Rates based on less than 20 observations are unreliable.

### DESCRIPTION

Listeriosis is a disease transmitted primarily through consumption of food contaminated with *Listeria monocytogenes*, a gram-positive bacterium. *L. monocytogenes* is found in soil and water, and can contaminate raw foods (e.g., uncooked meats and vegetables), as well as processed foods that become contaminated after processing (e.g., soft cheeses and cold cuts). Unpasteurized (raw) milk and foods made from unpasteurized milk may also contain the bacterium. Common symptoms of listeriosis include fever, muscle aches, headache, nausea, diarrhea, and neck stiffness. A case of nonperinatal listeriosis is one that occurs in persons other than pregnant women and/or their fetuses, neonates, or infants up to 42 days after birth. Historically, nonperinatal listeriosis presents as meningoen­cephalitis and/or septicemia, primarily affecting elderly and immunocompromised persons, such as those with cancer or HIV, and those on immunosuppressive therapy.

### DISEASE ABSTRACT

- In 2003, 17 nonperinatal listeriosis cases were reported, a 21% increase from the previous year (N=14) but the second lowest incidence in 10 years (Figure 1).
- There were four case fatalities due to listeriosis in 2003. Three of the four were the oldest of all 17 nonperinatal listeriosis cases (>86 years of age). Two case fatalities occurred during the previous year and the 2003 case fatality rate increased substantially, from 14% to 24%.
- Listeriosis cases typically follow a seasonal trend with cases increasing during the summer months. During the previous five years, the highest incidence of cases occurred during June. Except for having no cases in June, 2003 followed the typical seasonal trend (Figure 2).
- There were no foodborne listeriosis outbreaks during 2003.



## STRATIFIED DATA

**Trends:** Although there was a slight increase in cases from 2002 to 2003, the incidence of nonperinatal listeriosis was the second lowest in 10 years. However, case fatality has been increasing from 7% (2/27) in 2001, to 14% (2/14) in 2002, to 24% (4/17) in 2003.

**Seasonality:** In the previous five years, the average number of reported cases was greatest in June. However, in 2003, there were no cases in June and similar to 2002 the majority of cases occurred during the second half of the year (Figure 2).

**Age:** Advanced age is considered a risk factor for nonperinatal listeriosis. In 2003, a greater percentage of cases (53%, n=9) were 65-years of age or older—an increase compared to 2002 (43%) and 2001 (33%). In 2003, 24% (n=4) of cases were 55 to 64 years of age (Figure 3).

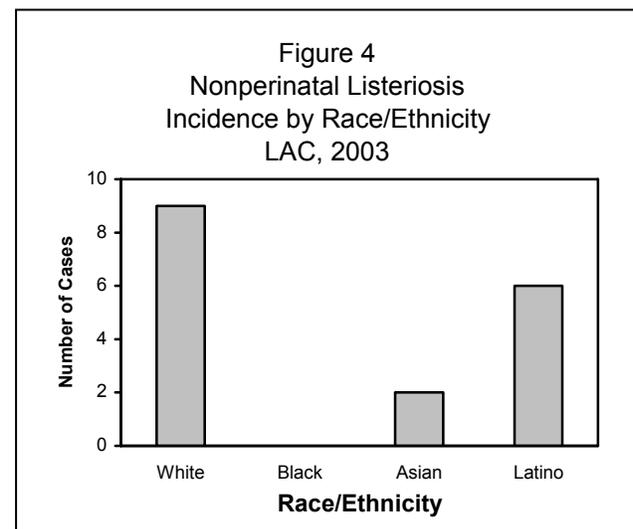
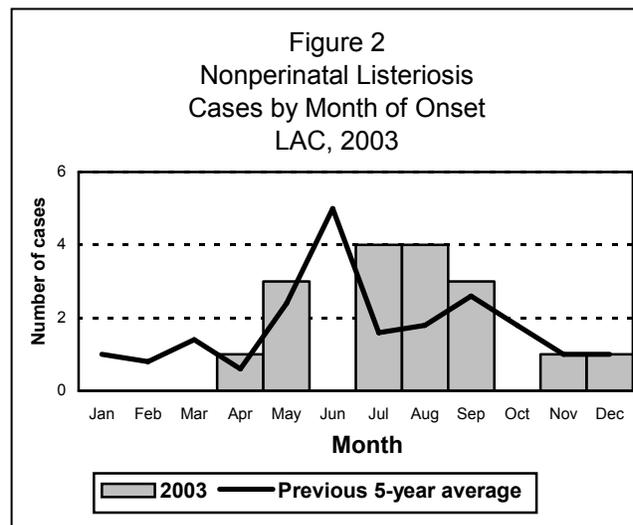
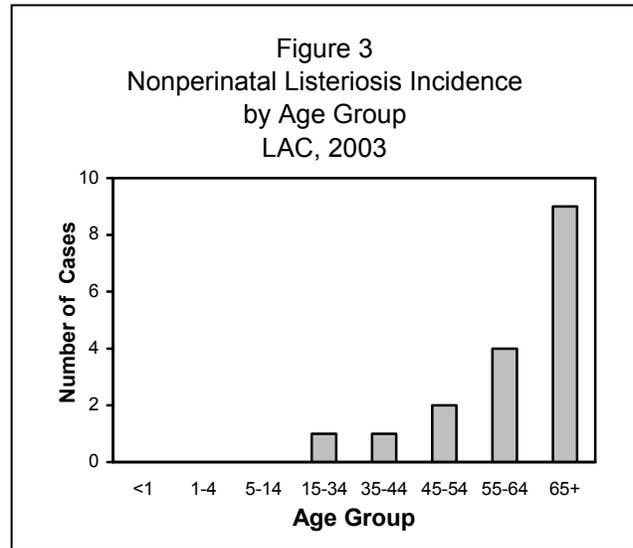
**Sex:** Like in 2002, more males contracted nonperinatal listeriosis; the male-to-female incidence ratio was 10:7.

**Race/Ethnicity:** In 2003, Whites had the highest number of incident cases of nonperinatal listeriosis (n=9). Latinos had the second highest number of new cases (n=6) followed by Asians (n=2). There were no Black cases reported in 2003 (Figure 4). This pattern of incidence by race is almost identical to that of 2002.

**Location:** During 2003, there was no significant clustering of cases by location. However, a geographic map with nonperinatal and perinatal cases showed that about one-third of these cases occurred in the San Fernando Valley.

**Predisposing Conditions and Medical Risk Factors:** As mentioned, many of the nonperinatal cases occurring in 2003 (n=9, 53%) were older than 65 years of age. In addition, nearly half of the cases (n=8, 47%) were diagnosed with cancer, many of which were on chemotherapy (n=7) or steroid medication (n=5). Three of the four cases with kidney disease also had diabetes. Only one case in 2003 did not have a known-risk factor for listeriosis (Table 1).

**High-risk Foods:** Cases reported eating Mexican-style cheese (n=4, 24%), soft cheese (n=4, 24%), other types of cheese (n=3, 18%), unpasteurized





milk products (n=1, 6%), raw beef (n=2, 12%), cold cuts (n=2, 12%), raw fruits (n=4, 24%), raw vegetables (n=5, 29%), and yeast (n=1, 6%).

**Outcome:** Four (24%) of the 17 cases in 2003 died.

**Culture Sites:** *L. monocytogenes* was isolated from blood and CSF in two (12%) cases, blood only in 13 (76%) cases, CSF only in one case (6%), and pleural fluid in one case (6%).

## PREVENTION

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw vegetables thoroughly before eating; and keeping uncooked meats separate from vegetables, cooked foods, and ready-to-eat foods. Avoiding unpasteurized milk or foods made from unpasteurized milk, and washing hands, knives, and cutting boards after handling uncooked foods also may prevent listeriosis.

Persons at high risk for listeriosis include the elderly, those with cancer, HIV, diabetes, weakened immune systems, and those on immunosuppressive therapy. These individuals should follow additional recommendations: avoid soft cheeses such as feta, brie, camembert, blue-veined, and Mexican-style cheese. Hard cheeses, processed cheeses, cream cheese, cottage cheese, or yogurt need not be avoided. Leftover foods or ready-to-eat foods, such as hot dogs, should be cooked until steaming hot before eating. Finally, although the risk of listeriosis associated with foods from deli counters is relatively low, immunosuppressed persons may choose to avoid these foods or thoroughly reheat cold cuts before eating.

Medical Conditions	Number	Percent
Age >65 years	9	53
Cancer	8	47
Chemotherapy	7	41
Steroid Use	6	35
Diabetes	4	24
Kidney Disease	4	24
Chronic Alcoholism	3	18
Radiation Therapy	3	18
Autoimmune Disease	2	12
Liver Disease	2	12
Lung Disease	2	12
Prior Antibiotic Use	2	12
Antacid Use	1	6
Asthma	1	6
Gastrointestinal Disease	1	6
HIV+/AIDS	1	6
Other Immunosuppressive Therapy	1	6
Organ Transplant	1	6
No Identified Risk Factors	1	6



## COMMENTS

2003 had the second lowest incidence rate for listeriosis in at least 10 years. This decline may be attributable to better food safety handling and/or packaging, improved education and knowledge from experience with *L. monocytogenes*. Similar to last year, there were no foodborne *L. monocytogenes* outbreaks. Another contributing factor may be variations in reporting and hospital laboratory testing practices. Foodborne illnesses both locally and nationwide have decreased substantially in recent years. Whether this represents a real decrease in disease, a reduction in laboratory testing and/or reporting, or both remains to be determined.

*L. monocytogenes* still appears to be an opportunistic disease targeting people who are very ill and/or weaker in fighting off infections. The four case fatalities included the three oldest cases ( $\geq 87$  years) and one person who was a heavy smoker that had not seen a doctor in many years and was discovered to have metastatic adenocarcinoma upon hospitalization. All nonperinatal cases in 2003 except one had at least one predisposing health condition that might lead to a weaker immune system. Thirteen cases (76%) had more than one medical risk factor identified.

All *L. monocytogenes* isolates are now analyzed by pulsed field gel electrophoresis (PFGE). There were no LAC outbreaks or LAC cases associated with a multi-jurisdictional outbreak identified in this manner in 2003.

## ADDITIONAL RESOURCES

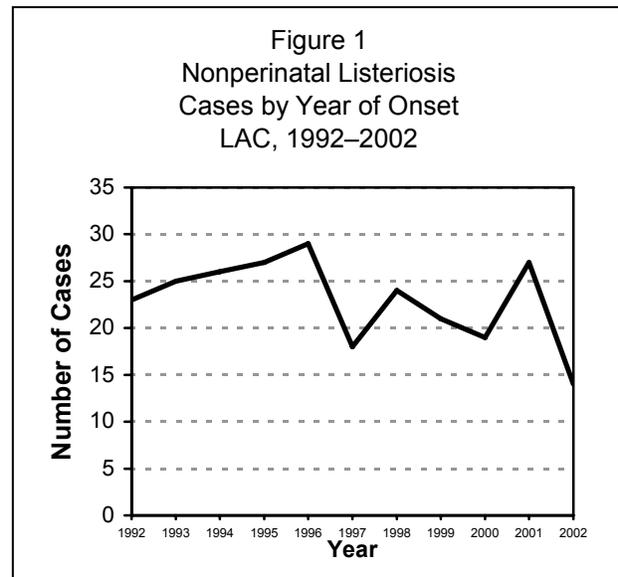
General disease information is available from the CDC at:  
[www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis\\_g.htm](http://www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis_g.htm)

General information and reporting information about this and other foodborne diseases in LAC is available at: [www.lapublichealth.org/acd/food.htm](http://www.lapublichealth.org/acd/food.htm)



## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	14
Annual Incidence <sup>a</sup>	
LA County	--- <sup>b</sup>
United States	N/A
Age at Diagnosis	
Mean	68.5
Median	64
Range	47–92 years
Case Fatality	
LA County	14%
United States	N/A



<sup>a</sup> Cases per 100,000 population.

<sup>b</sup> Rates based on less than 20 observations are unreliable.

### DESCRIPTION

Listeriosis is a disease transmitted primarily through consumption of food contaminated with *Listeria monocytogenes*, a gram-positive bacterium. *L. monocytogenes* is found in soil and water, and can contaminate raw foods (e.g., uncooked meats and vegetables), as well as processed foods that become contaminated after processing (e.g., soft cheeses and cold cuts). Unpasteurized (raw) milk and foods made from unpasteurized milk may also contain the bacterium. Common symptoms of listeriosis include fever, muscle aches, headache, nausea, diarrhea, and neck stiffness. A case of nonperinatal listeriosis is one that occurs in persons other than pregnant women and/or their fetuses, neonates, or infants up to 42 days after birth. Historically, nonperinatal listeriosis presents as meningoencephalitis and/or septicemia, primarily affecting elderly and immunocompromised persons, such as those with cancer or HIV, and those on immunosuppressive therapy.

### DISEASE ABSTRACT

- In 2002, 14 nonperinatal listeriosis cases were reported, 50% fewer cases than the previous year (N=27) and the lowest rate in at least 10 years.
- There were two case fatalities due to listeriosis during 2002. While the same number of deaths occurred during the previous year, since the overall incidence decreased, the case fatality rate increased substantially, from 7% to 14%.
- Listeriosis cases typically follow a seasonal trend with cases increasing during the summer months. During the previous five years, the highest incidence of cases occurred during June. However, this seasonal pattern did not occur during 2002; no cases were reported during June 2002 and the majority of cases occurred during the final, winter months of the year.
- There were no foodborne listeriosis outbreaks during 2002.

### STRATIFIED DATA

**Trends:** There has been a considerable decline in the number of cases; the number of incident cases in 2002 decreased by more than 48% compared to the previous year (N=27). The incidence rate in 2002



was lowest rate identified in the past 10 years. However, since the number of fatalities remained stable, the case fatality in 2002 increased to 14% (2/14) from 7% (2/27) in 2001.

**Seasonality:** In the previous five years, the average number of reported cases was greatest in June. However, in 2002, there were no cases in June and the majority of cases occurred during the second half of the year (Figure 2).

**Age:** Advanced age is considered a risk factor for nonperinatal listeriosis. In 2002, a greater percentage of cases (43%, n=6) were 65-years of age or older—an increase compared to 2001 (33%). In 2002, just as many cases occurred those 55 to 64 years of age (43%). There were no nonperinatal cases among residents younger than 47 years (Figure 3).

**Sex:** In 2002, more males contracted nonperinatal listeriosis; the male-to-female incidence ratio was 1:0.75.

**Race/Ethnicity:** In 2002, Whites had the highest number of incident cases of nonperinatal listeriosis (n=9). Latinos had the second highest number of new cases (n=4) followed by Asians (n=1). There were no Black cases reported in 2002 (Figure 4).

**Location:** During 2002, there was no significant clustering of cases by location.

**Predisposing Conditions and Medical Risk Factors:** As mentioned, many of the cases occurring in 2002 (n=6, 43%) were older than 65 years of age. In addition, half of the cases (n=7, 50%) were diagnosed with cancer, and four cases (29%) were on steroid medication. All of the cases during 2002 had at least one risk factor associated with infection (Table 1).

**Outcome:** Two (14%) of the 14 cases in 2002 died.

**Culture Sites:** *L. monocytogenes* was isolated from blood in all 14 cases as well as in CSF in four cases.

## PREVENTION

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw vegetables thoroughly before eating; and keeping uncooked meats separate from vegetables, cooked

Figure 2  
Nonperinatal Listeriosis  
Cases by Month of Onset  
LAC, 2002

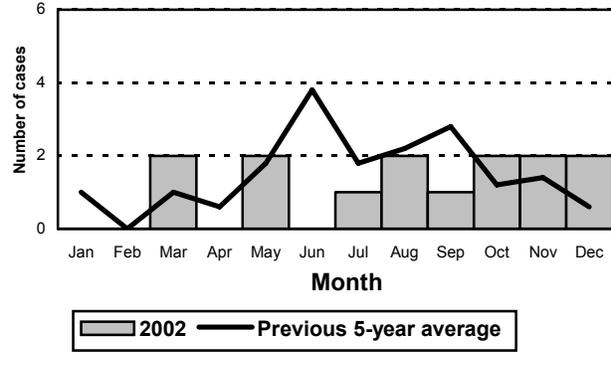


Figure 3  
Nonperinatal Listeriosis Incidence  
by Age Group  
LAC, 2002

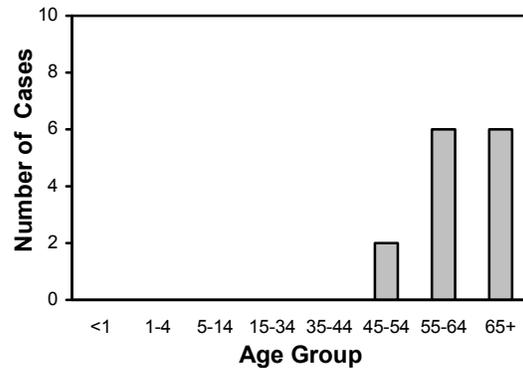
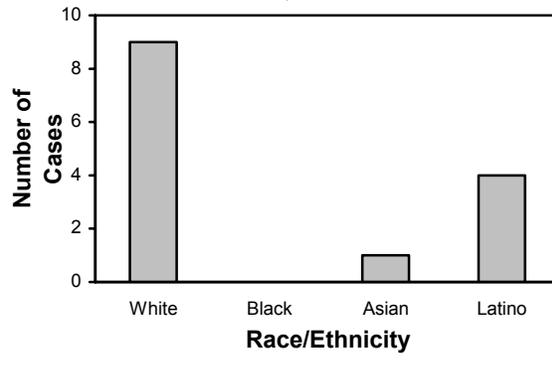


Figure 4  
Nonperinatal Listeriosis  
Incidence by Race/Ethnicity  
LAC, 2002





foods, and ready-to-eat foods. Avoiding unpasteurized milk or foods made from unpasteurized milk, and washing hands, knives, and cutting boards after handling uncooked foods also may prevent listeriosis.

Persons at high risk for listeriosis include the elderly and those with cancer, HIV, diabetes, weakened immune systems, and those on immunosuppressive therapy. These individuals should follow additional recommendations: avoid soft cheeses such as feta, brie, camembert, blue-veined, and Mexican-style cheese. Hard cheeses, processed cheeses, cream cheese, cottage cheese, or yogurt need not be avoided. Leftover foods or ready-to-eat foods, such as hot dogs, should be cooked until steaming hot before eating. Finally, although the risk of listeriosis associated with foods from deli counters is relatively low, immunosuppressed persons may choose to avoid these foods or thoroughly reheat cold cuts before eating.

**Table 1. Predisposing Factors in Cases of Nonperinatal Listeriosis—LAC, 2002**

Medical Conditions	Number	Percent
Age >65 years	6	43
Cancer	7	50
Diabetes	1	7
Steroid Use	4	29
Kidney Disease	3	21
Prior Antibiotic Use	3	21
No Identified Risk Factors	0	0

## COMMENTS

2002 had the lowest incidence rate for listeriosis in at least 10 years. This decline may be attributable to better food safety handling and/or packaging, improved education and knowledge from experience with *L. monocytogenes*. As opposed to previous years, there were no foodborne *L. monocytogenes* outbreaks. Another contributing factor may be variations in reporting and hospital laboratory testing practices. Foodborne illnesses both locally and nationwide have decreased substantially in recent years. Whether this represents a real decrease in disease, a reduction in laboratory testing and/or reporting, or both remains to be determined.

Although there were fewer cases in 2002, the number of case fatalities was the same as in 2001. Given the older age distribution (no cases less than 47 years and just as many 50 to 64 year-old cases as those 65 years and older) and the predisposing health conditions of the cases (all of the cases had at least one predisposing condition that might lead to a weaker immune system), *L. monocytogenes* still appears to be an opportunistic disease targeting people who are very ill and/or weaker in fighting off infections.

All *L. monocytogenes* isolates are now analyzed by pulsed field gel electrophoresis (PFGE). There were no LAC outbreaks or LAC cases associated with a multi-jurisdictional outbreak identified in this manner in 2002.

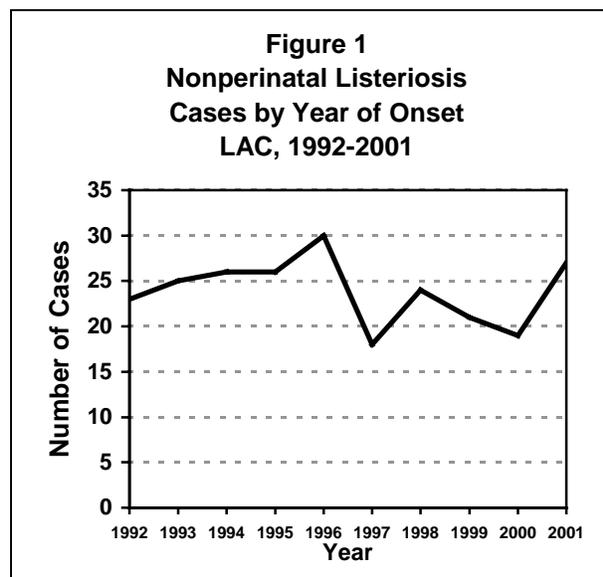
## ADDITIONAL RESOURCES

General disease information is available from the CDC at:  
[www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis\\_g.htm](http://www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis_g.htm)

General information and reporting information about this and other foodborne diseases in LAC is available at: [www.lapublichealth.org/acd/food.htm](http://www.lapublichealth.org/acd/food.htm)

## LISTERIOSIS, NONPERINATAL

CRUDE DATA	
Number of Cases	27
Annual Incidence	
LA County	0.30 <sup>a</sup>
United States	0.21 <sup>a</sup>
Age at Diagnosis	
Mean	48
Median	50
Range	9-94 years
Case Fatality	
LA County	7.0%
United States	N/A



<sup>a</sup> Rates include both nonperinatal and perinatal cases.

### DESCRIPTION

Listeriosis is a disease transmitted primarily through consumption of food contaminated with *Listeria monocytogenes* (LM), a gram-positive bacterium. LM is found in soil and water, and can contaminate raw foods, such as uncooked meats and vegetables, as well as processed foods that become contaminated after processing, such as soft cheeses and cold cuts. Unpasteurized (raw) milk or foods made from unpasteurized milk may also contain the bacterium. Common symptoms of listeriosis may include fever, muscle aches, headache, nausea, diarrhea and neck stiffness. A case of nonperinatal listeriosis is one that occurs in persons other than pregnant women and/or their fetuses, neonates, or infants up to 42 days after birth. Historically, nonperinatal listeriosis presents as meningoencephalitis and/or septicemia, primarily affecting elderly and immunocompromised persons, such as those with cancer or HIV, and those on immunosuppressive therapy.

### DISEASE ABSTRACT

- In June 2001 there was a foodborne listeriosis outbreak with 13 cases in LAC affecting previously healthy individuals with gastroenteritis, associated with turkey deli meat. This outbreak accounted for nearly half of the cases in 2001.
- The nonperinatal listeriosis incidence rate increased in 2001, due to the June outbreak, following a two-year decline in cases.
- The majority of cases occurred in persons >65 years of age, followed by those 15-24 years of age.
- Most cases were White, followed by Latinos. No cases were reported in Blacks.

### STRATIFIED DATA

**Trends:** The incidence of nonperinatal listeriosis increased in 2001, following a two-year decline

in incidence, with 27 cases (Figure 1).

**Seasonality:** The highest number of reported cases occurred in June (n=13) as a result of an outbreak associated with turkey deli meat. There were smaller peaks seen in May (n=4) followed by October (n=3) (Figure 2).

**Age:** Age greater than 65 is considered a risk factor for nonperinatal listeriosis. Thirty-three percent of cases were older than 65 years in 2001, resulting in a decrease compared to 2000 (47%) and 1999 (57%). There was an increase in the younger age groups in 2001. There were two cases in the 5-14 year group and six cases in the 15-34 year group, which is not typically seen in LAC. Five of these younger cases were associated with the June outbreak (Figure 3).

**Sex:** The male-to-female incidence ratio was 0.59:1.

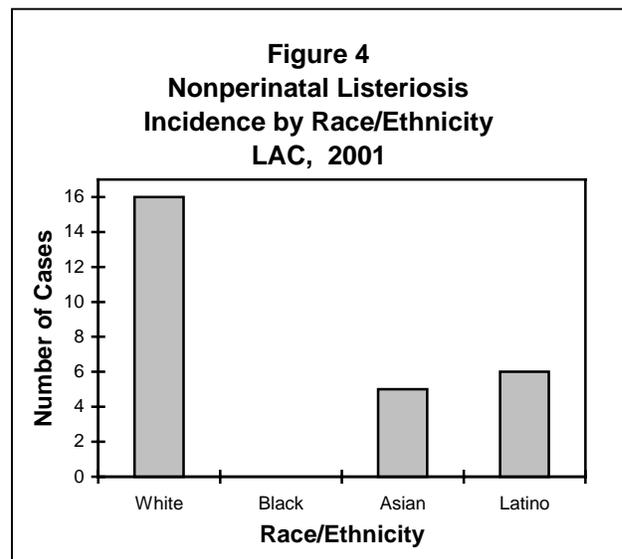
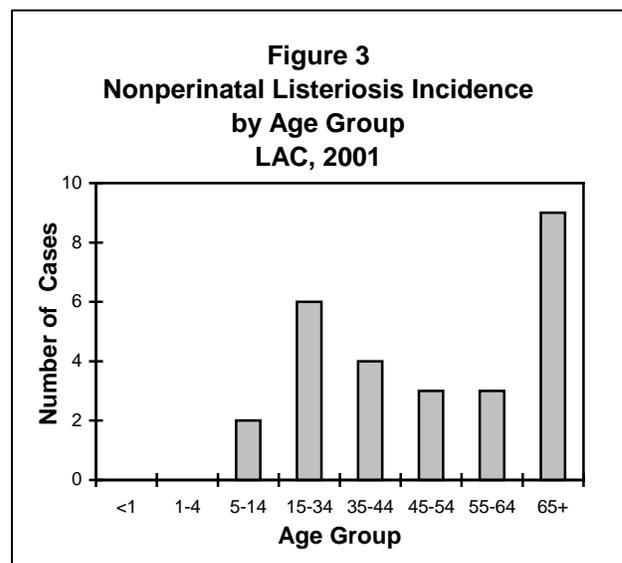
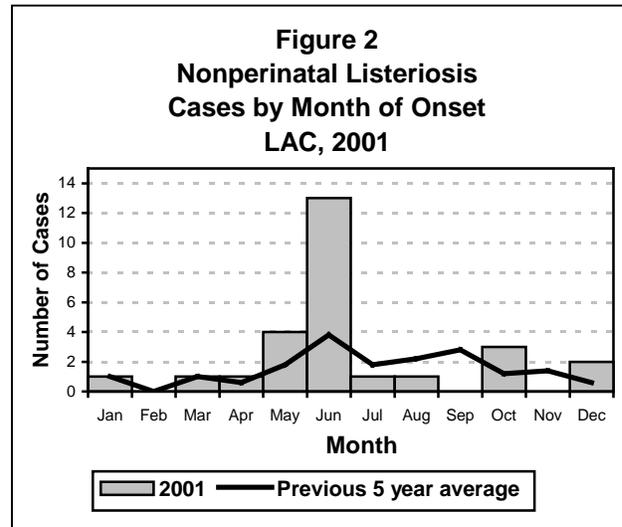
**Race/Ethnicity:** In 2001, Whites had the highest incidence of nonperinatal listeriosis (n=16). Latinos had the second highest number (n=6) followed by Asians (n=5). All 6 of the June outbreak cases were White. There were no Black cases reported in 2001 (Figure 4).

**Location:** Glendale Health District had the highest incidence (n=9); 5 of the 9 cases were part of the June outbreak. Alhambra Health District had the next highest incidence (n=4); 1 of the cases was part of the June outbreak.

**Predisposing Conditions and Medical Risk Factors:** Nine (33%) of 26 cases were older than 65 years of age, 7 (26%) were diagnosed with cancer, 6 (22%) had diabetes, and 8 (30%) had no identified risk factors. Of the eight with no identified risk factors, six were part of the June outbreak (Table 1).

**Outcome:** Two (7%) of 27 cases in 2001 died.

**Culture Sites:** *Listeria monocytogenes* was isolated from blood (n=14), stool (n=8), CSF (n=6), and once each from inguinal tissue and peritoneal fluid. Three cases had LM isolated from two locations.



## COMMENTS

There was a foodborne *Listeria monocytogenes* outbreak with 28 individuals experiencing gastroenteritis associated with turkey deli meat, 6 were lab-confirmed cases; only lab-confirmed cases were counted as cases in this report. The outbreak occurred following a catered birthday party. Two other events catered by the same caterer were also associated with this outbreak. See 2001 Special Reports for a complete summary of this outbreak.

**Table 1: Predisposing Factors in Cases of Nonperinatal Listeriosis, LAC, 2001**

Medical Conditions	Number	Percent
Age >65 years	9	33
Cancer	7	26
Diabetes	6	22
Steroid Use	4	15
Kidney Disease	4	15
Prior Antibiotic Use	3	11
No Identified Risk Factors	8	30

All LM isolates are now typed by pulsed field gel electrophoresis (PFGE). There were no LAC outbreaks or LAC cases associated with a multi-jurisdictional outbreak identified in this manner in 2001.

## PREVENTION

In general, listeriosis may be prevented by thoroughly cooking raw food from animal sources, such as beef, pork, or poultry; washing raw vegetables thoroughly before eating; and keeping uncooked meats separate from vegetables, cooked foods, and ready-to-eat foods. Avoiding raw (unpasteurized) milk or foods made from raw milk, and washing hands, knives, and cutting boards after handling uncooked foods can also help prevent listeriosis.

Persons at high risk for nonperinatal listeriosis include the elderly and those with cancer, HIV, diabetes, weakened immune systems, and those on immunosuppressive therapy. These individuals should follow additional recommendations: avoid soft cheeses such as feta, Brie, Camembert, blue-veined, and Mexican-style cheese. Hard cheeses, processed cheeses, cream cheese, cottage cheese, or yogurt need not be avoided. Leftover foods or ready-to-eat foods, such as hot dogs, should be cooked until steaming hot before eating. Finally, although the risk of listeriosis associated with foods from deli counters is relatively low, immunosuppressed persons may choose to avoid these foods or thoroughly reheat cold cuts before eating.

## ADDITIONAL RESOURCES

[www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis\\_g.htm](http://www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis_g.htm)

Information regarding the rules, regulations and control of this disease within LAC is available from the Acute Communicable Disease Control website at:

[www.lapublichealth.org/acd/procs/b73/b73index.htm](http://www.lapublichealth.org/acd/procs/b73/b73index.htm)