

LISTERIOSIS, SOMETHING TO THINK ABOUT

ICE CREAM, CARAMEL APPLES and MELONS...some of our favorite things have been associated with outbreaks of Listeriosis. *Listeria* is an illness caused by the bacteria *Listeria monocytogenes*. In the United States, an estimated 1,600 people get sick from *Listeria* each year. Of these, 260 will die. 90% of the people who get *Listeria* infections are in the higher risk group. People most at risk of infection include individuals with weakened immune systems, age 65 and older, pregnant women and newborns. Healthy people occasionally get infected but rarely become seriously ill. Pregnant women are about 10 times more likely than the general population to get *Listeria* infection and pregnant Hispanic women are about 24 times more likely than the general population to get *Listeria*. Over the last decade, the average number of cases of Listeriosis in Texas has been 42 cases per year (ranging from 24 to 64). *Listeria monocytogenes* is commonly found in soil and water. Animals can carry the bacterium without appearing ill and can contaminate foods of animal origin, such as meats and dairy products. When *Listeria* bacteria get into a food processing factory, they can live there for years, sometimes contaminating food products. *Listeria* is killed by cooking and pasteurization. However, in some ready to eat meats, such as hot dogs and deli meats, contamination may occur after factory cooking but before packaging or even at the deli counter. *Listeria* can grow and multiply in some foods in the refrigerator. Recent outbreaks of Listeriosis, involving cases in Texas have been asso-

ciated with ice cream, Mexican-style cheese such as queso fresco, diced celery and whole cantaloupe. There have also been cases related to caramel apples. As of April 21, 2015 there have been 10 patients in four states (5 in Kansas, 3 in Texas, 1 in Arizona and 1 in Oklahoma), related to an outbreak involving Blue Bell Creameries. All 10 were hospitalized and there have been 3 deaths.

TRANSMISSION

Listeriosis is transmitted primarily through ingestion of contaminated food. Transmission also occurs in utero from mother to fetus. Although infected individuals can shed the bacteria in stools for months, secondary cases among household contacts are rare to nonexistent

SYMPTOMS

A person with Listeriosis usually has fever and muscle aches, sometimes preceded by diarrhea or other gastrointestinal symptoms. Almost everyone who is diagnosed with Listeriosis has "invasive" infection, in which the bacteria spread beyond the GI tract. Symptoms for non-pregnant individuals include fever, muscle aches, headaches, stiff neck, confusion and loss of balance, weakness, sometimes vomiting and diarrhea and convulsions. In older adults and people with compromised immunity, septicemia and meningitis are the most common clinical presentations. Symptoms for pregnant women can be non-specific and include: fever, fatigue and body aches. These symptoms can be followed by fetal loss (including still-birth, miscarriage or premature delivery), or bacteremia and meningitis in their newborns. Immunocompetent people may experience acute febrile gastroenteritis or no symptoms.



Photo courtesy of The Public Health Image Library # 13105



Table 1: Select reportable conditions, including confirmed, probable, and suspect cases (as applicable) in DSHS HSR 1, including all public health jurisdictions: Six month comparison (October through March for the time period October 1, 2012 through March 31, 2015) Data source: Texas NEDSS Database. Data extracted: 05/22/2015. Time period based on Event Date. These counts are generated by DSHS HSRI. 2014 data is preliminary and subject to change.

Condition	October 2012 through March 2013						October 2013 through March 2014						October 2014 through March 2015						2015 Total	2014 Total	2013 Total
	Oct	Nov	Dec	Jan	Feb	Mar	Oct	Nov	Dec	Jan	Feb	Mar	Oct	Nov	Dec	Jan	Feb	Mar			
	6 mo. Total						6 mo. Total						6 mo. Total								
Amebiasis						1				2								1	1	2	1
Botulism, foodborne								3	1												4
Campylobacteriosis	14	16	7	10	3	11	28	13	10	5	4	7	14	12	11	9	11	11	68	162	188
Creutzfeldt-Jakob Disease																					1
Cryptosporidiosis		2	1	2	1		3	3	3		2	3	2	1				5	8	5	28
Cyclosporiasis																		1	1	1	1
Dengue																					
Encephalitis, West Nile	1						4						1						1	38	28
Haemophilus influenzae, invasive													1						1	1	1
Hantavirus pulmonary syndrome										1										4	
Hemolytic uremic synd., postdiarrheal							1														1
Hepatitis A, acute							1	1				1				1			1	5	5
Hepatitis B Viral Infection, Perinatal																					
Hepatitis B, acute							1	1	1						1				1	3	4
Hepatitis C, acute																1			1	1	
Influenza-associated pediatric mortality																					
Legionellosis	1																				
Listeriosis										1											5
Lyme disease																				2	1
Malaria										1									1	2	4
Mumps																					1
Neisseria meningitidis, invasive																					2
Pertussis		4		3			18	24	23	17	15	4	1		6	3	4	4	18	11	113
Salmonellosis	13	18	10	5	6	13	20	18	10	5	7	6	30	18	9	50	65	9	181	124	192
Shiga toxin-producing Escherichia coli	4		1				2	1		3	2	2	2	1				1	4	1	17
Shigellosis	17	32	3	1	5	3	3	2		1			1	2		3	3	1	10	7	14
Spotted Fever Rickettsiosis			1																		
Streptococcus pneumoniae, invasive	5	6	9	15	7	7	9	4	6	10	12	14	5	5	12	5	11	16	54	32	95
Streptococcus, invasive Group A		3	5	4	3	8	23	1	6	3	3	5	2	3	2	3	4	5	19	12	22
Streptococcus, invasive Group B	3	3	5	4	5	4	24	6	4	3	3	5	8	7	3	4	3	7	32	14	63
Varicella (Chickenpox)	5	8	4	4	2	6	29	8	3	4	2	2	7	3	1	4	9	7	31	20	37
Vibrio vulnificus infection																					
Vibriosis, other or unspecified																					
West Nile Fever																				36	32
Yersiniosis						1															1

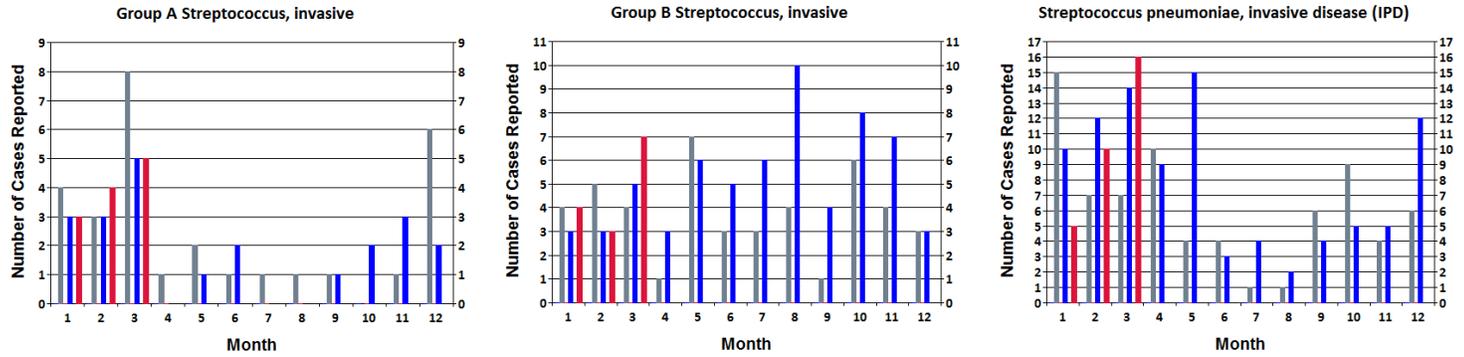
Chart 1: Select reportable conditions, including confirmed, probable, and suspect cases (as applicable) in DSHS HSR 1, including all public health jurisdictions, for the period January 01, 2013 through March 31, 2015 by Month/Year. Time period is based on Event Date.

Data source: Texas NEDSS Database. Data extracted: 05/22/2015. These counts are generated by DSHS HSR1. 2014 data is preliminary and subject to change.

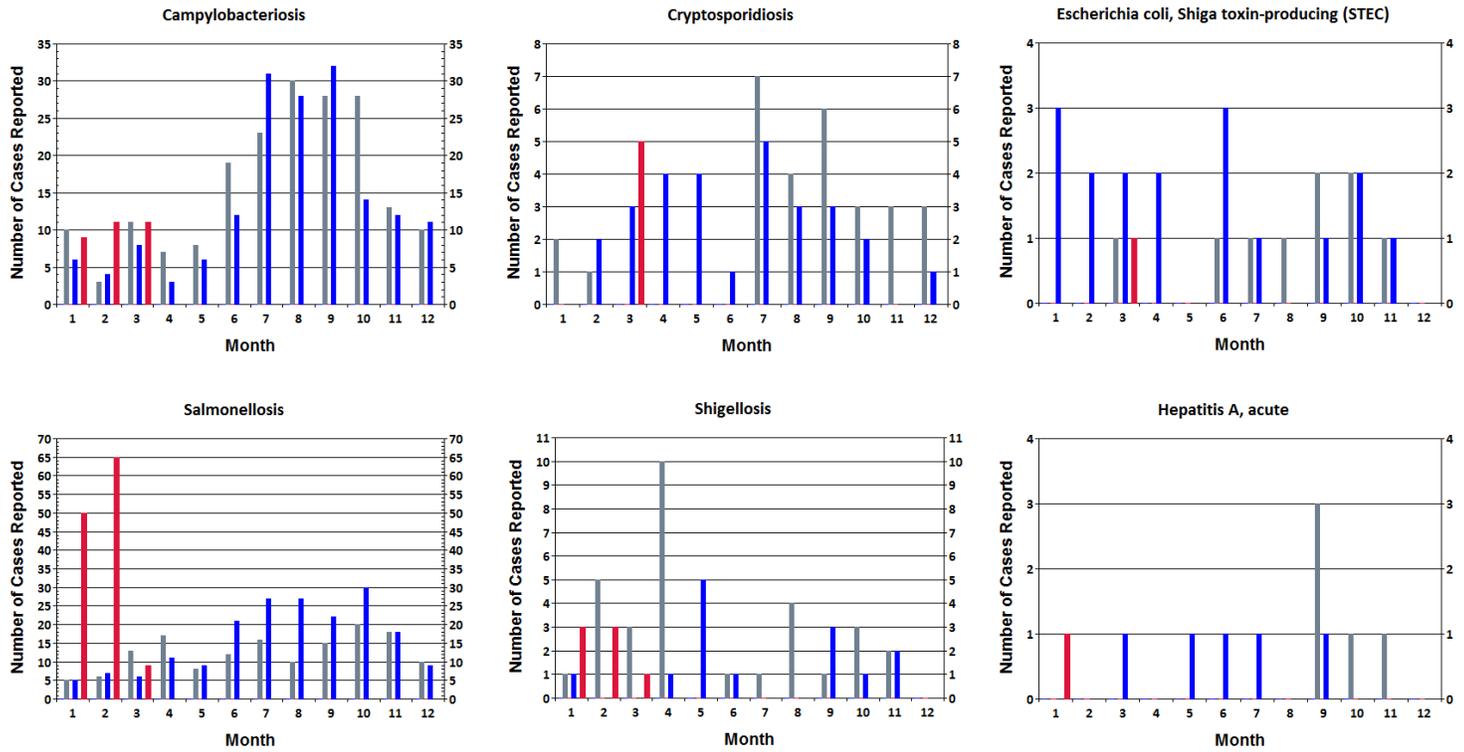
LEGEND

■ 2013 ■ 2014 ■ 2015

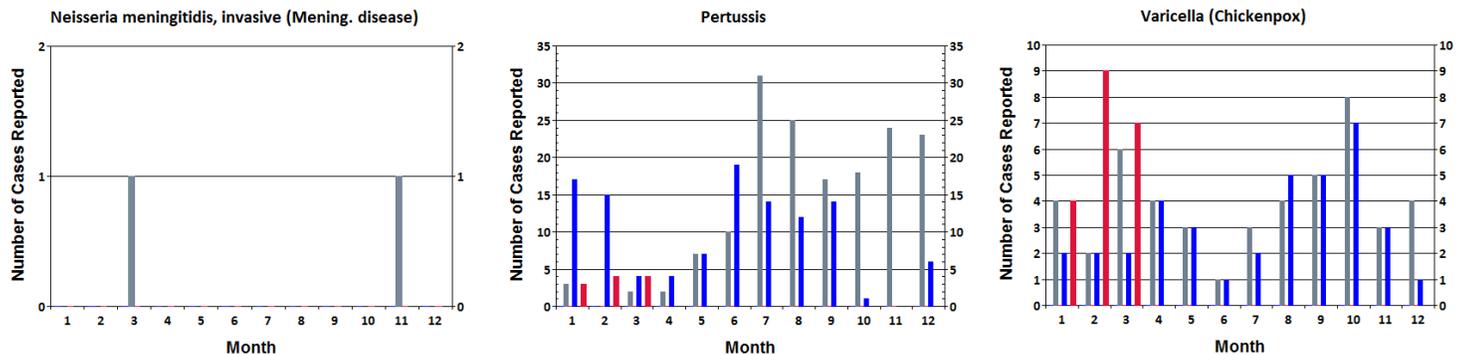
Invasive Streptococcal Disease



Foodborne/Waterborne Disease



Other Vaccine Preventable Disease



INCUBATION PERIOD

The incubation period from ingestion of a contaminated food to development of symptoms can range from 1 day up to 70 days. Typically the incubation period is 2 to 3 weeks. Median incubation period is longer among pregnant women.

DIAGNOSIS

Listeria is found in the environment and all people are exposed to it regularly. Therefore, there is no clinical value in performing laboratory testing on asymptomatic patients, even if they are high risk. For symptomatic patients, diagnosis is confirmed only after isolation of *Listeria monocytogenes* from a normally sterile site, such as blood, spinal fluid, or amniotic fluid/placenta, or less commonly joint, pleural, or pericardial fluid. In the case of miscarriage or stillbirth, isolation of *L. monocytogenes* from placental or fetal tissue also meets lab confirmation criteria. Stool samples are of limited use and are not recommended. *Listeria monocytogenes* can be isolated readily on routine media, but care must be taken to distinguish this organism from other Gram-positive rods, particularly diphtheroids. You can expect that cultures will take 1-2 days for growth. Importantly, a negative culture does not rule out infection in the presence of strong clinical suspicion. Serological tests are unreliable, and are not recommended. **Isolates should be sent to the DSHS laboratory for confirmation. Contact the Regional/local health department for further instructions regarding specimen submission/shipping requirements.**

TREATMENT

Prompt treatment with appropriate antibiotics should be given. For invasive infection, the antimicrobial regimen should be the standard therapy for Listeriosis, typically including IV ampicillin and gentamicin for 14-21 days for non-allergic patients. Longer courses of treatment are needed for patients who are severely ill or who have endocarditis or brainstem encephalitis due to listeria. Even with prompt treatment, some Listeriosis cases result in death especially in older adults and in persons with other serious medical problems.

PREVENTION

Reduce the risk by following these general recommendations for avoiding Listeriosis:

- Rinse all raw fruits and vegetables with running water before eating, cutting or cooking (including those that will be peeled).
- Fresh produce with a thick outer layer



should be scrubbed with a clean brush during washing (for example fruits such as melons and apples, and vegetables such as cucumbers and potatoes).

- Dry washed produce with a clean cloth or paper towels prior to use.
- Keep all raw/uncooked meat, fish and poultry separate from fruit, vegetables, cooked foods and ready-to-eat foods.
- Avoid consuming raw milk or other unpasteurized dairy products.



Kitchen safety:

- Wash hands, knives, utensils, cutting boards, kitchen surfaces and other materials used when preparing raw food products (including meat, dairy, vegetables and fruit).
- Ensure your refrigerator is at 40°F or lower and freezer 0°F or lower to avoid the bacteria from growing.
- Routinely clean the inside walls and shelves of the refrigerator and immediately clean any spills involving high risk foods (especially juices from hot dog and lunch meat packages, raw meat and raw poultry), use hot soapy water and then rinse.

Food Storage and preparation safety:

- Cook all raw food from an animal origin to the appropriate internal temperature . <http://www.foodsafety.gov/keep/charts/mintemp.html>
- Check and adhere to the used-by dates on ready-to-eat foods.
- Eat any unlabeled/unpackaged deli items, such as sliced deli meats, salads and smoked fish the day of purchase or within 2 days.
- Re-heat any left-over cold deli meats, pre-cooked meats or food, hot dogs and smoked seafood prior to consumption and dispose of left overs within 2 days.
- Eat all cooked and pre-cooked seafood products when hot, do not keep left-overs.

Continued from page 4

PREVENTION (CONTINUED)

- Home or pre-cooked meat, such as rotisserie chicken, should be eaten when first cooked and hot or thoroughly re-heated and eaten within 2 days
- High risk foods at room temperature –
 - Up to 2 hours – can be returned to the refrigerator (to be re-heated)
 - Between 2 to 4 hours – must be eaten immediately or disposed
 - More than 4 hours – dispose of all product



Photo courtesy of The Public Health Image Library # 7907

Additional recommendations for high risk groups (Pregnant women, elderly and those with weakened immune systems):

Soft Cheese:

- Avoid eating soft cheeses unless they are made with pasteurized milk, including – queso fresco (be aware many pasteurized Mexican-style cheeses have been responsible for cases of Listeriosis and are likely contaminated during the cheese making process), Brie, Camembert, blue-veined cheese, queso panela and feta.



Meat:

- Avoid eating deli/lunch meats, cold cuts, hot dogs and fermented or dry sausages (ready-to-eat meats) unless they have been heated to 165°F or steaming hot before consumption.
- Avoid eating refrigerated or deli-bought meat spreads or pâtés. Canned/shelf stable meat spreads or pâtés are safe to eat but must be refrigerated after opening.
- Wash hands when handling and ensure all fluids from ready-to-eat meat packaging does not contaminate surfaces, utensils or other food.

Seafood:

- Avoid eating any refrigerated smoked seafood products, often labeled as nova-style, lox, kippered, smoked or jerky (including salmon, whitefish, trout, mackerel, cod, tuna, shellfish).
- Avoid eating any smoked seafood unless it has been thoroughly cooked before consumption or has originated from a can/shelf-stable product (commercial bought only).

HANDWASHING

Routine hand washing with soap and warm water, especially: before preparing, handling, or eating any food, after going to the bathroom, after changing a diaper, after caring for someone with diarrhea, and after contact with animals and their living areas.

EXCLUSIONS

Children with gastroenteritis, including Listeriosis, should be excluded from school/child-care until they are diarrhea free and fever free for 24 hours without the use of diarrhea/fever suppressing medications. Food handlers must not return to work until asymptomatic. Further work restrictions may be made by the public health authority based on medical documentation or if an outbreak occurs.

REPORTING

Listeriosis is a notifiable condition. Cases should be reported within one week to the state/regional or local health department to facilitate early recognition and control of common-source outbreaks.

SOURCES

- <http://www.cdc.gov/listeria/>
- <http://www.dshs.state.tx.us/idcu>

DSHS IDCU Epi Case Criteria Guide 2015
29th Edition of The Red Book,
Report of the Committee on Infectious Diseases