Listeria monocytogenes

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The Organism: Listeria species are ubiquitous in the environment. Listeria monocytogenes is common in the intestinal tracts of animals and humans. In animals, the bacteria can be shed in the milk and in cattle; the bacteria can cause mastitis and abortion. Seven serotypes are associated with Listeria monocytogenes but only serotype 4b has been associated with food borne illness outbreaks.

Sources of the organism:
- Intestinal tracts of animals and humans
- Soil
- Contaminated water
- Manure

Associated foods:
- Unpasteurized milk
- Soft cheeses made from unpasteurized milk
- Raw fruits and vegetables
- Ready to eat deli meats and salads
- Hot dogs

Microorganism Characteristics: Gram positive rod shaped bacteria; Thrives in anaerobic and microaerophilic conditions.

Growth conditions:
- Temperature range: 1-45°C (34-113°F)
- Optimum Temperature: 30-37°C (86-98.6°F)
- pH range: 4.5-9.6
- Lowest reported A_w for growth: Unknown
- Salt Tolerance: 25.5%
- Environment: Prefers 10% Carbon Dioxide

The Disease: Listeriosis is a potentially fatal disease which occurs most often in immunocompromised individuals and elderly. Pregnant women and their unborn fetus are at the greatest risk.

Symptoms include:
- Meningitis
- Spontaneous abortions
- Stillbirths
- Nausea
- Fever
- Diarrhea
- Encephalitis
- Vomiting
- Septicemia

Onset time: 2-21 days

Infective Dose: Small numbers (fewer than 1000 organisms) need to be consumed for symptoms of the illness to develop in a susceptible host.

Duration of symptoms: Variable

Control:
- Thoroughly cook foods.
- Use pasteurized milk.
- Proper sanitation of food contact surfaces and utensils.
- Thoroughly wash fresh fruits and vegetables.
- Prevent cross contamination.
- Because Listeria monocytogenes grows slowly at refrigeration temperatures, refrigerated foods need to handled and stored properly. Observe “sell by” and “use by” dated on processed foods.