Salmonella

Compiled By: Julie A. Albrecht, Ph.D., Associate Professor

The Organism: Many species of Salmonella bacteria exist; several cause food borne illness. Salmonella typhimurium has been the species that accounts for most food borne illnesses related to this bacteria. Another species, Salmonella enteritidis, has been associated with food borne diseases resulting from consumption of contaminated undercooked eggs. Salmonella Heidelberg has caused outbreaks associated with raw produce. Salmonella DT104, a specific serotype, is resistant to a wide range of antibiotics. The bacteria are easily destroyed with heat.

Sources of the organism:
- Normal microflora of animals and poultry
- Unpasteurized milk

Associated foods:
- Raw meat
- Milk and dairy products
- Cream-filled desserts and toppings
- Poultry
- Eggs
- Fish, shrimp

Microorganism Characteristics: Gram negative non-spore forming rod.

Growth conditions:
- Temperature range: 6-46°C (43-115°F)
- Optimum Temperature: 37°C (98.6°F)
- pH range: 4.1-9.0
- Optimum pH: 6.5 – 7.5
- Lowest reported A_w for growth: 0.93

The Disease: Consumption of live Salmonella bacteria can result in the food borne infection, Salmonellosis.

Symptoms include:
- Stomach pain
- Diarrhea
- Nausea
- Chills
- Fever
- Headache

Onset time:
- 6-48 hours

Infective Dose:
- As few as 15-20 cells; depends on age and health of host, and strain of Salmonella

Duration of symptoms:
- Usually 1-2 days
- Prolonged depending on host factors, ingested dose, strain characteristics

Control:
- Thoroughly cook all poultry, poultry products, eggs, ground meat products and fish.
- Use only pasteurized milk
- Thoroughly wash hands before and handling raw meat, poultry and egg products.
- Use clean utensils and surfaces to prepare foods
- Wash utensils, cutting boards and surfaces thoroughly with hot soapy water and rinse before preparing foods.