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	Poultry
Milk and dairy products	Eggs
Cream-filled desserts and toppings	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^{o}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.