

Salmonella

SALMONELLA IS A ROD-SHAPED, MOTILE BACTERIUM (NONMOTILE EXCEPTIONS *S. GALLINARUM* AND *S. PULLORUM*), NONSPORE FORMING AND GRAM-NEGATIVE. THERE IS A WIDESPREAD OCCURRENCE IN ANIMALS, ESPECIALLY IN POULTRY AND SWINE. ENVIRONMENTAL SOURCES OF THE ORGANISM INCLUDE WATER, SOIL, INSECTS, FACTORY SURFACES, KITCHEN SURFACES, ANIMAL FECES, RAW MEATS, RAW POULTRY, AND RAW SEAFOODS, TO NAME ONLY A FEW.

IT'S ESTIMATED THAT FROM 2 TO 4 MILLION CASES OF SALMONELLOSIS OCCUR IN THE U.S. ANNUALLY

NATURE OF ACUTE DISEASE

S. typhi and the paratyphoid bacteria normally cause septicemia and produce typhoid or typhoid-like fever in humans. Other forms of salmonellosis generally produce milder symptoms.

NATURE OF DISEASE

- Acute symptoms – Nausea, vomiting, abdominal cramps, diarrhea, fever, and headache.
- Chronic consequences – arthritic symptoms may follow 3-4 weeks after onset of acute symptoms.
- Onset time – 6-48 hours.
- Infective dose – As few as 15-20 cells; depends upon age and health of host, and strain differences among the members of the genus.
- Duration of symptoms – Acute symptoms may last for 1 to 2 days or may be prolonged, again depending on host factors, ingested dose, and strain characteristics.
- Cause of disease – Penetration and passage of *Salmonella* organisms from gut lumen into epithelium of small intestine where inflammation occurs; there is evidence that an enterotoxin may be produced, perhaps within the enterocyte.

ASSOCIATED FOODS

Raw meats, poultry, eggs, milk and dairy products, fish, shrimp, frog legs, yeast, coconut, sauces and salad dressing, cake mixes, cream-filled desserts and toppings, dried gelatin, peanut butter, cocoa, and chocolate.

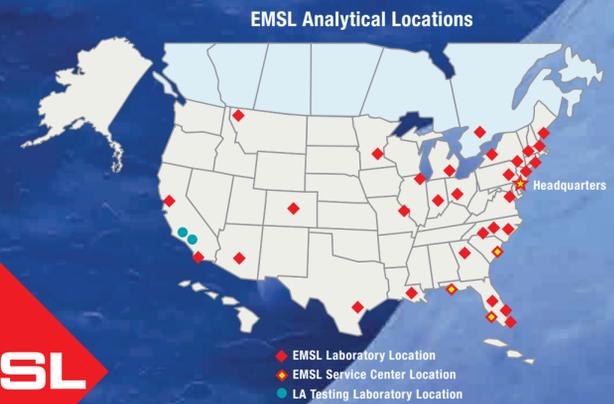
Various *Salmonella* species have long been isolated from the outside of egg shells. The present situation with *S. enteritidis* is complicated by the presence of the organism inside the egg, in the yolk. This and other information strongly suggest vertical transmission, i.e., deposition of the organism in the yolk by an infected layer hen prior to shell deposition. Foods other than eggs have also caused outbreaks of *S. enteritidis* disease.

RELATIVE FREQUENCY OF DISEASE

The incidence of salmonellosis appears to be rising both in the U.S. and in other industrialized nations. *S. enteritidis* isolations from humans have shown a dramatic rise in the past decade, particularly in the northeast United States (6-fold or more), and the increase in human infections is spreading south and west, with sporadic outbreaks in other regions.

TARGET POPULATIONS

All age groups are susceptible, but symptoms are most severe in the elderly, infants, and the infirm. AIDS patients suffer salmonellosis frequently (estimated 20-fold more than general population) and suffer from recurrent episodes.



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Some information used in this educational poster was obtained from the U.S. Food and Drug Administration (FDA)