TYPHOID FEVER FACT SHEET

Agent: *Salmonella* Typhi bacteria, the typhoid bacillus.

Brief Description: An illness caused by *Salmonella* Typhi that is often characterized by insidious onset of persistent high fever, headache, malaise, anorexia, relative bradycardia, constipation or diarrhea, and nonproductive cough. However, many mild and atypical infections occur. Stool carriage of *S.* Typhi in infected persons may be prolonged. Most cases reported in the U.S. are imported from other countries.

Reservoir: Humans are the reservoir. Chronic carriers are the most important reservoirs, as they excrete large numbers of organisms in stool and/or in urine. The chronic carrier state is most common among persons infected in middle age, particularly women, who have biliary tract abnormalities including gallstones.

Mode of Transmission: By food and water contaminated by stool and urine of patients and carriers. Under the right conditions, *S.* Typhi can remain viable for weeks or even months in water, ice, or elsewhere in the environment.

Incubation Period: Usually 1-2 weeks (range 3 days - 1 month). The incubation period depends on the size of the infecting dose.

Lab Criteria for Diagnosis:

- Isolation of *S.* Typhi from blood, stool, or other clinical specimen

The organism can be isolated from the blood early in the disease and from feces after the first week. Serologic evidence alone is not sufficient for diagnosis.

Diagnostic Testing:

A. *S.* Typhi culture
   1. Specimen: feces or blood
   2. Outfits: stool culture outfit; or sterile tube for blood
   3. Lab Form: 3416 for stool; 3415 for blood
   4. Lab Test Performed: Isolation and identification of typhoid bacillus.
   5. Lab: Bacteriology, Georgia Public Health Laboratory (GPHL) in Decatur.

B. *S.* Typhi identification
   1. Specimen: pure culture
   2. Outfits: culture referral
   3. Lab Form: 3410
   4. Lab Test Performed: Identification of typhoid bacillus.
   5. Lab: Bacteriology, GPHL.

Case Classification:

- ***Probable:*** a clinically compatible case that is epidemiologically linked to a confirmed case in an outbreak.
- ***Confirmed:*** a clinically compatible case that is laboratory confirmed.

Period of Communicability: As long as organisms are excreted in the feces or urine. Typically, this begins about a week after onset, continues through convalescence and for a variable period thereafter. Up to 10% of patients are infective for 3 months after onset, and 2% to 5% become permanent carriers. Typhoid bacillus may be isolated from blood early in the course of the disease and from stool and urine after the first week.

Treatment: Isolates should be checked for drug sensitivity, as resistant strains are increasingly prevalent. Oral ciprofloxacin is the drug of choice in adults, particularly those from Asia. Oral chloramphenicol, amoxicillin or TMP-SMX may be used for acute infections. Studies indicate the new oral quinolones are highly effective in treating carriers.

Vaccine: Typhoid vaccine should be considered for those who are chronically exposed to a chronic carrier. Routine administration of vaccine has limited value for family, household and nursing contacts that have been exposed to active cases. Typhoid vaccine should also be considered for international travelers visiting countries where typhoid is common.

Investigation: Secure assistance from the District Health Office and the State Epidemiology Branch. Forward stool, blood, or isolates from each patient to the Georgia Public Health Laboratory for culture and identification. CDC form 52.5, "Typhoid Fever Surveillance Report," will help guide the follow-up investigation. Determine the possible source of the disease for all cases and outbreaks. Every effort should be made to detect potentially contaminated shellfish (particularly oysters), food, milk, and water. Special attention should be given to the possibility of an asymptomatic carrier among close friends or relatives, especially a household contact who resides in familial settings. Most carriers in the United States are now elderly or immigrants. Consider vaccinating household contacts of an identified carrier. Ensure that a carrier is treated and followed-up until 3 consecutive negative cultures are obtained from specimens taken at least one month apart and at least 48 hours after antimicrobial therapy has ceased.

Reporting: Report all cases **WITHIN 7 DAYS** electronically through the State Electronic Notifiable Disease Surveillance System (SENDSS) at http://sendss.state.ga.us, or complete and mail a GA Notifiable Disease Report Form (#3095). Complete CDC form 52.5, "Typhoid Fever Surveillance Report," and forward to the Epidemiology Branch as soon as possible. This form should only be completed for new, symptomatic, culture-proven cases of typhoid fever.

Reported Cases of Typhoid Fever in Georgia, 1993-2000

Year	Number of Cases
1993	2
1994	2
1995	0
1996	1
1997	7
1998	10
1999	5
2000	9

References and Further Reading:

1. Centers for Disease Control and Prevention. Case Definitions for Infectious Conditions under Public Health Surveillance. *MMWR* 1997; 46(RR10): 1-55.
2. Chin J, ed. Typhoid. In: Control of Communicable Diseases Manual. 17th ed. Washington, DC: American Public Health Association, 2000: pp 535-541
3. Pradier C, Keita-Perse O, Bernard E, Gisbert C, Vezolles MJ, Armengaud A, Carles D, Grimont F, Desenclos JC, Dellamonica P. Outbreak of typhoid fever on the French Riviera. Eur J Clin Microbiol Infect Dis 2000 Jun;19(6):464-7.

Links:

CDC Typhoid Fact Sheet – http://www.cdc.gov/ncidod/dbmd/diseaseinfo/typhoidfever_g.htm