

TYPHOID/PARATYPHOID

Typhoid Quick Fact: *Salmonella* Typhi and Paratyphi occur most often in persons who have travelled to endemic countries.

OVERVIEW

Salmonella Typhi and Paratyphi are considered separately from other types of *Salmonella* due to their distinct epidemiologic and clinical characteristics. These illnesses frequently (Typhi more than Paratyphi) cause systemic illness, affecting the bloodstream, liver, and other organs. Symptoms may include headache, high fever, malaise, anorexia, constipation or diarrhea, and signs include a characteristic rash and relative bradycardia. This clinical presentation is termed "Typhoid fever" or "enteric fever". In contrast to other types of *Salmonella*, *S. Typhi* and *Paratyphi* are transmitted by person to person spread, or through food or water contaminated by an affected person. Patients may carry this bacterium in stool for a prolonged period after recovery from illness. In the U.S., these infections are diagnosed primarily in travelers. Improvements in sanitation in the United States led to dramatic decreases in incidence of *S. Typhi* during the 20th century (1).

SURVEILLANCE

- All Georgia physicians, laboratories and other health care providers are required by law to report both lab-confirmed and clinical diagnoses of cases of *S. Typhi* and *Paratyphi*.
- Laboratories submit isolates for additional testing—serotyping and Pulsed Field Gel Electrophoresis.
- Outbreaks of these infections are unusual in the United States but strict public health follow up and preventive measures are important to prevent disease spread, so all reports are investigated.
- Public health staff interviews every *S. Typhi* or *Paratyphi* case with a standardized CDC case report form.
- Active Surveillance for all types of *Salmonella* is conducted through FoodNet, a component of the Emerging Infections Program (EIP). For more information, please visit:
 - <http://health.state.ga.us/eip/>
 - <http://www.cdc.gov/foodnet/>

INCIDENCE

In 2008, 10 reports of *S. Typhi* and 5 of *S. Paratyphi* were received by the Georgia Acute Disease Epidemiology Section (figures 1 and 2).

Figure 1. Reported *S. Typhi* Cases in Georgia

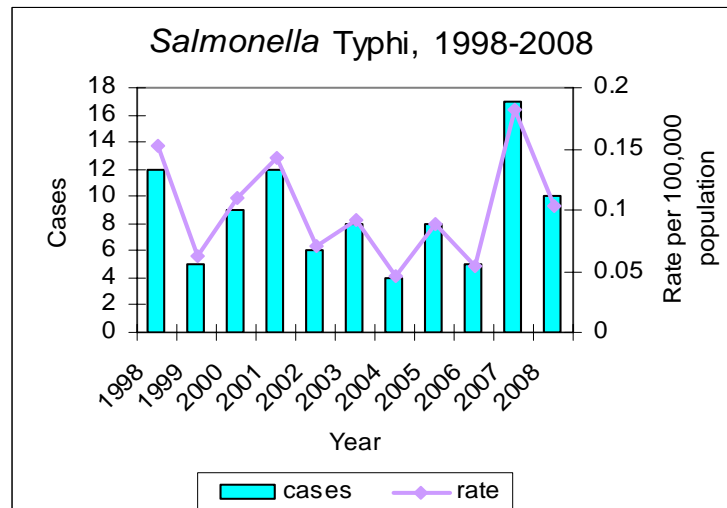
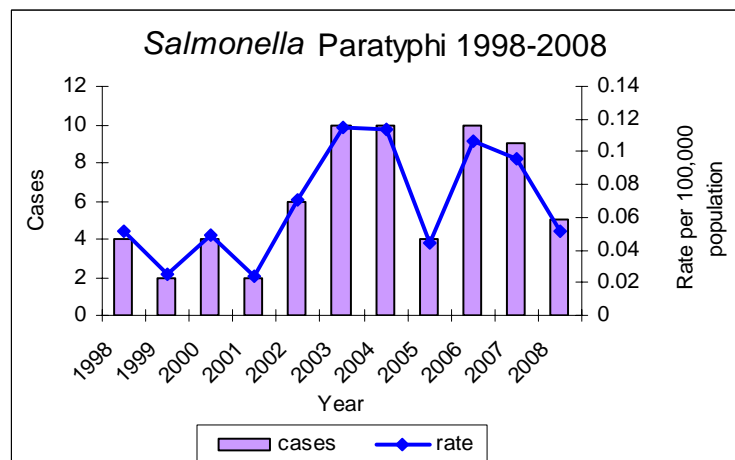


Figure 2. Reported *S. Paratyphi* Cases in Georgia



DEMOGRAPHICS AND TRAVEL HISTORY

- In 2008, most reported cases of *S. Typhi*/*Paratyphi* occurred among Asians (figure 3) and among children and younger adults (figure 4).
- Among the 4 *S. Paratyphi* cases with known travel history, 3 had travelled to India, and one did not have a clear travel history.
- Among the 8 *S. Typhi* cases with known travel history, 7 had travelled to India, Pakistan or Bangladesh. One patient reported travel to Columbia, but this was not within the typical disease incubation period (one month).

Figure 3

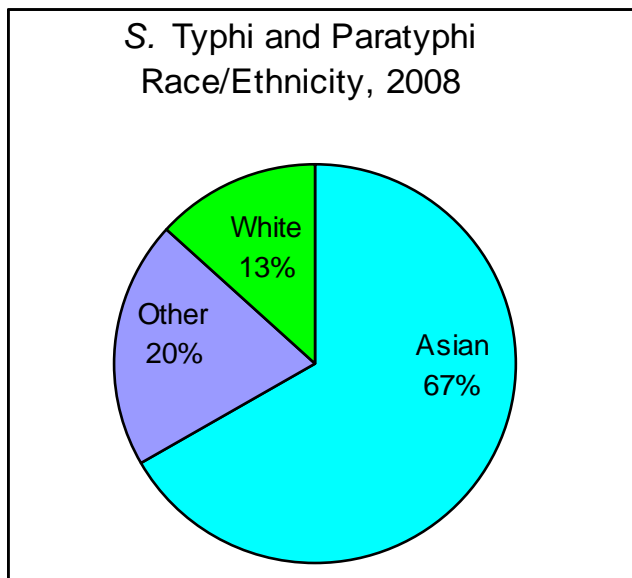
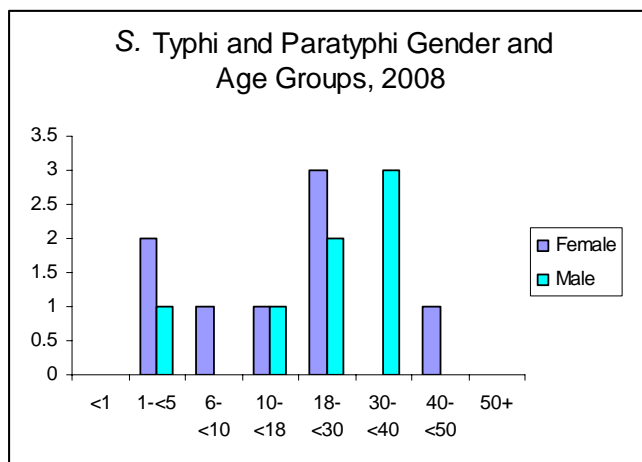


Figure 4



IMPACT OF S. TYPHI/PARATYPHI

Although these infections are uncommon in Georgia and the rest of the country, they result in high proportions of hospitalizations due to the illness severity. Of the 15 reported *S. Typhi* and *Paratyphi* cases, all but two patients were hospitalized at least overnight. No deaths were reported. One *S. Typhi* patient required public health monitoring for 6 months, until repeated testing results demonstrated that the patient had not developed into a chronic carrier.

PREVENTION AND RESEARCH

Persons travelling to endemic countries should consider obtaining a Typhoid vaccine per CDC recommendations (2). Vaccination should also be considered among close household contacts of chronic carriers. When travelling to endemic countries (2), food should be cooked and only fruits or vegetables that can be peeled or washed in water confirmed to be clean should be eaten. Questionable sources of water should be filtered, boiled, or chemically treated.

Ill persons and treating physicians should comply with public health recommendations that require patients to not participate in high risk occupations (food handling) and obtain the appropriate testing after treatment to confirm a state of chronic carriage has not occurred. Clinicians should be aware of the possibility of antimicrobial resistant infections among travelers to Southern Asia (3).

The Georgia EIP collaborates with FoodNet and the National Antimicrobial Resistance Monitoring System (NARMS) to monitor the development of antimicrobial resistance and its effects.

Data sources:

- 1) <http://www.cdc.gov/mmwr/PDF/wk/mm4840.pdf>
- 2) <http://wwwn.cdc.gov/travel/yellowBookCh4-Typhoid.aspx>
- 3) <http://www.cdc.gov/ncidod/eid/vol11no01/04-0145.htm>

For more information:

<http://health.state.ga.us/epi/foodborne>

Date updated: February 2009