

## Typhoid Fever

2009 Case Total	2	2009 Rate	0.05 per 100,000
2008 Case Total	3	2008 Rate	0.08 per 100,000

Typhoid fever is an immediately notifiable condition. The Oklahoma State Department of Health immediately investigates reported typhoid fever cases to identify potential exposures; determine if the person works in or attends a high-risk setting such as patient care, child care, or a food establishment in order to implement control measures to prevent continued spread; and identify symptomatic contacts to determine if secondary cases have occurred. Two cases of typhoid fever were reported during 2009 resulting in an incidence rate of 0.05 per 100,000. The number of cases in 2009 were higher than the previous 10-year period (1999-2008) in Oklahoma where a median number of one case was reported annually. From 1998 to 2007, the median number of reported cases in the United States was 361 cases (range: 322 - 434 cases) resulting in an average annual incidence rate of 0.12 per 100,000 US population.

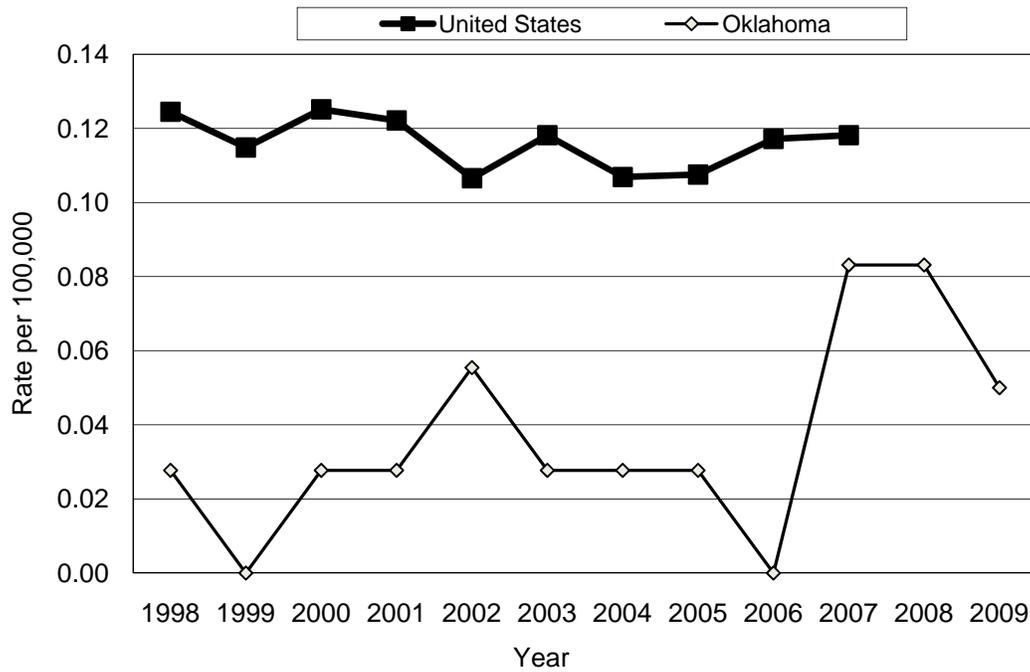
While uncommon in the United States, typhoid fever is prevalent in underdeveloped countries causing an estimated 22 million cases and 200,000 related deaths each year around the world.<sup>1</sup> The majority of typhoid fever cases in the United States are the result of importation from endemic countries. In 2009, both cases reported in Oklahoma residents had history of travel to endemic areas during their exposure period; cases reported traveling to Cameroon and the Marshall Islands. Transmission occurs when people consume contaminated food items or water. One of the infected individuals consumed fresh fruit and raw fish. This client reported attending an event in the Marshall Islands where over half of the attendees became ill with diarrheal illness. Ages of the two cases were 22 years and 58 years. The two cases reported their race as African American or Black and Native Hawaiian or Other Pacific Islander and neither reported Hispanic ethnicity.

Typhoid fever is characterized by a gradual onset of fever, headache, malaise, anorexia, splenomegaly, and non-productive cough. Both cases reported fever, abdominal pain, nausea, non-productive cough and diarrhea. Both infected individuals had *S. typhi* sepsis and were hospitalized for a mean duration of six days.

People infected with typhoid fever who work in high-risk settings are required to have three negative stool samples collected at least 24 hours apart and 48 hours after last use of antibiotics prior to returning to work. Both cases reported working in direct patient care in long-term care settings. Communicable Disease Nurses at the Oklahoma and Garfield County Health Departments provided enteric kits to the infected individuals and testing was performed at the Public Health Laboratory.

A vaccine is available for typhoid fever and is recommended for travelers to areas where the disease is endemic or for household members of known carriers. However, the vaccine efficacy is quite low ranging from 51% to 77% and avoidance of high-risk foods such as those items that have not been fully cooked is advised.<sup>2</sup> One case reported receiving the typhoid vaccine five years prior to developing symptoms. A booster dose of the vaccine is recommended every two years to travelers to endemic areas.<sup>2</sup> The Centers for Disease Control and Prevention traveler's health website at <http://www.cdc.gov/travel/> has useful information for individuals traveling to areas where typhoid fever is a concern.

Typhoid Fever Incidence Rate by Year, Oklahoma and U.S.,  
1998-2009



<sup>1</sup> CDC. Coordinating Center for Infectious Diseases / Division of Bacterial and Mycotic Disease. Typhoid Fever. July 21, 2009.

<sup>2</sup> CDC. Typhoid Immunization Recommendations of the Advisory Committee on Immunization Practices (ACIP). Vol. 43. No. RR-14. December 9, 1994