

## Typhoid Fever

2008 Cases	3	2008 Rate	0.08 per 100,000
2007 Cases	3	2007 Rate	0.09 per 100,000

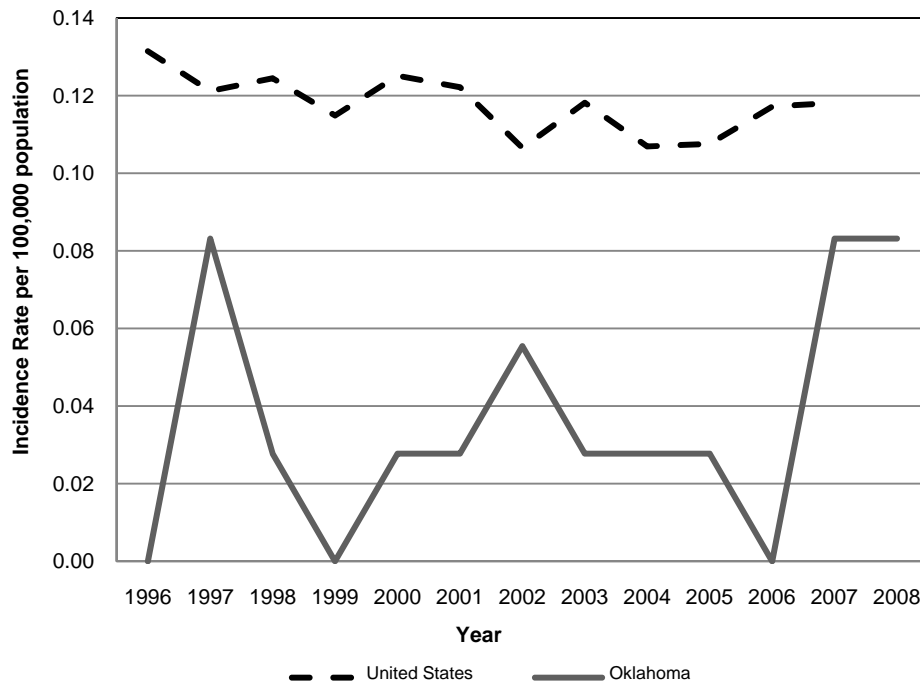
Typhoid fever is an immediately notifiable condition. The Oklahoma State Department of Health immediately investigates reported typhoid fever cases to identify potential exposures; determine if the case works in or attends a high-risk setting such as a patient care provider, childcare employee or attendee, or foodhandler in order to implement control measures to prevent continued spread; and identify symptomatic contacts to determine if secondary cases have occurred from exposure to a confirmed case. Three cases of typhoid fever were reported during 2008 resulting in an incidence rate of 0.08 per 100,000. The number of cases in 2008 is higher than the previous 10-year period (1998-2007) in Oklahoma where an average of one case was reported annually. From 1998 to 2007, the average number of reported cases in the United States was 358 cases (range: 321 - 552 cases) resulting in an average annual incidence rate of 0.13 per 100,000 US population.

While uncommon in the United States, typhoid fever is a common disease 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. All three cases reported in Oklahoma residents had a history of travel to typhoid fever endemic areas during their exposure period; cases report traveling to India, Pakistan and Mexico. The median age of the three cases reported in 2008 was 40 years with a range from 17 years to 81 years. Two of the three cases reported their race as Asian (incidence rate = 2 per 100,000 population) and one case reported Hispanic or Latino ethnicity (incidence rate = 0.4 per 100,000 population).

Typhoid fever is characterized by a gradual onset of fever, headache, malaise, anorexia, splenomegaly and non-productive cough. All cases reported fever, nausea, vomiting and diarrhea. *Salmonella typhi* (*S. typhi*) may cause chronic gall-bladder infections and result in long-term carriage. *S. typhi* was isolated in gall bladder tissue from a case with a prior history of typhoid fever who presented with symptoms of gall bladder failure. *S. typhi* was found in blood from the other two cases. There were two hospitalizations with a median stay of 9.5 days; no deaths due typhoid fever were reported in 2008. The number of contacts per case ranged from one to eight with a median of 4.5 contacts, none of which developed symptoms. None of the three reported cases or their contacts was associated with a high-risk setting.

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 is not 100% effective and avoidance of high-risk foods is still advised. None of the three cases were knowledgeable of their typhoid fever vaccination history. 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.

### Incidence Rate of Reported Typhoid Fever Cases by Year, United States and Oklahoma, 1996-2008



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