

# Outbreak of Salmonellosis Associated with Travel to Mexico – Smith County, May 2015

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## Background

On May 19, 2015, the Smith County Health Department notified the Kansas Department of Health and Environment's Infectious Disease Epidemiology and Response section (KDHE) of a potential outbreak of salmonellosis. During routine case investigation of a single salmonellosis case, other symptomatic persons were identified; all reported travel to Cancun, Mexico. An outbreak investigation was initiated on May 19, 2015 to determine the cause and scope of the outbreak and to provide prevention resources.

## Methods

### *Epidemiologic Investigation*

A retrospective cohort study was conducted among members of the travel group. Travelers were interviewed by investigators from the Smith County Health Department. A standardized questionnaire developed for this outbreak investigation was utilized in order to obtain demographic information, clinical information, and exposure history.

For this investigation, a confirmed case was defined as laboratory evidence of *Salmonella* infection in a person who traveled to Cancun, Mexico between April 29 and May 6, 2015. A probable case was defined as diarrhea without confirmatory laboratory results in a member of the travel group.

### *Laboratory Analysis*

Testing on stool specimens was performed at hospital and reference laboratories. Pulsed-field gel electrophoresis (PFGE) was conducted at Kansas Health and Environmental Laboratories.

## Results

### *Epidemiologic Investigation*

Twenty-five persons traveled to a resort in Cancun, Mexico between April 29 and May 6, 2015. Seventeen (68%) travelers were interviewed with the standardized questionnaire. One confirmed and six probable cases of salmonellosis were identified. Five (71%) ill persons were male and two (29%) were female; all were adults. Ill persons resided in three Kansas counties (Smith, Pottawatomie, and Riley) and in Missouri.

The most common symptom was diarrhea, which was experienced by all persons with outbreak cases of salmonellosis [Table 1]. Fever and vomiting were also reported. Onset of gastrointestinal illness for persons with outbreak cases of salmonellosis ranged from May 2 to 7, 2015. Two (29%) persons sought health care as a result of their gastrointestinal illness.

Travelers reported eating most or all of their meals at resort restaurants and also reported consuming a variety of food items. No individual food item or meal was associated with illness.

Table 1: Symptoms reported among persons with confirmed or probable salmonellosis (n=7)

Symptom	# of Cases with Symptom	% of Cases with Symptom
Diarrhea	7	100%
Fever	3	43%
Vomiting	1	14%

## Laboratory Analysis

One ill person submitted a stool specimen for culture; this specimen was positive for *Salmonella* Enteritidis with PFGE pattern JEGX01.0002.

## Conclusions

This outbreak of acute gastroenteritis was associated with travel to Cancun, Mexico. One confirmed and six probable cases were identified. No single food item, meal, or event could be associated with illness. Although one positive result is insufficient to confirm *Salmonella* as the etiologic cause of the outbreak, the clinical information provided by travelers is consistent with illness caused by *Salmonella* infection.

*Salmonella* is estimated to cause more than 1.2 million illnesses each year in the United States, with more than 23,000 hospitalizations and 450 deaths<sup>1</sup>. Those infected with *Salmonella* will usually develop diarrhea, fever, and abdominal cramps 12–72 hours after infection. Illness generally lasts 4 to 7 days, but infants, the elderly, and those with weakened immune systems are more likely than others to develop severe illness<sup>2</sup>. *Salmonella* serotype Enteritidis is one of the two most common types of *Salmonella* causing illness in the United States<sup>3</sup>.

The risk of *Salmonella* infection among travelers returning to the United States varies by region of the world visited. In one analysis, the incidence of laboratory-confirmed infections from 2004 through 2009 was 7.1 cases per 100,000 among travelers to Latin American and Caribbean. The true number of illnesses is likely much higher, because most ill people do not have a stool specimen tested. Travelers with salmonellosis were most likely to report visiting Mexico (38% of travel-associated salmonellosis)<sup>4</sup>. This is the fourth outbreak of acute gastroenteritis associated with travel to Mexico investigated by KDHE in 2015.

This investigation was limited by several factors: only one clinical specimen was obtained from an ill person for laboratory testing, and inaccuracies may exist in interviewees' food and symptom histories due to recall bias. The investigation was aided by the cooperation and hard work of the Smith County Health Department in identifying and interviewing travelers.

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7 June 2015

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<sup>1</sup> Scallan E, Hoekstra RM, Angulo FJ, Tauxe RV, Widdowson MA, Roy SL, et al. Foodborne illness acquired in the United States---major pathogens. *Emerg Infect Dis* 2011; 17(1): 7-15.

<sup>2</sup> CDC. *Salmonella* General Information. Accessed 7 July 2015: <http://www.cdc.gov/salmonella/general/index.html>.

<sup>3</sup> CDC. *Salmonella* serotype Enteritidis. An Atlas of *Salmonella* in the United States, 1968 – 2011; 2013. Accessed 7 July 2015: <http://www.cdc.gov/salmonella/pdf/enteritidis-508c.pdf>.

<sup>4</sup> CDC. Salmonellosis (Nontyphoidal), Chapter 3: Infectious Diseases Related to Travel. CDC Health Information for International Travel 2014: The Yellow Book. Accessed 7 July 2015:

<http://wwwnc.cdc.gov/travel/yellowbook/2014/chapter-3-infectious-diseases-related-to-travel/salmonellosis-nontyphoidal>.