



Data Requested by Amber Erickson, Epidemiologist, North Central Health District

## Gastrointestinal Disease from 2007 to 2014

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**North Central Health District**

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September 18 2014

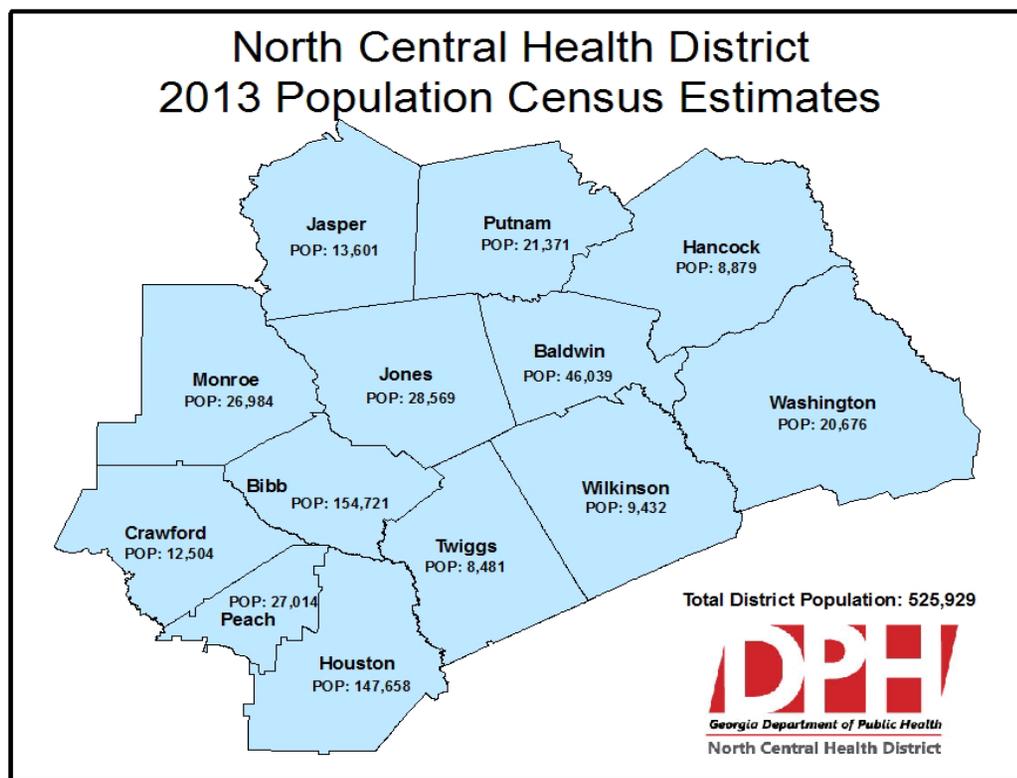
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# Background

## Gastrointestinal Disease

Intestinal Diseases are infections that are commonly transmitted through consuming contaminated food, but can also be spread through contact with water, animals, and other environmental sources. In order for a person to be tested for an intestinal disease, their doctor must collect stool samples and send it to a laboratory for testing. Since everyone doesn't go to the doctor when they are ill and/or does not have testing done; many cases of intestinal disease are not reported. The gastrointestinal diseases that will be surveyed are: campylobacteriosis, cryptosporidium, giardia, salmonella, shigellosis, shiga toxin producing E. coli (STEC), and yesinia. The data comes from reported confirmed cases available in the State Electronic Notifiable Disease Surveillance system (SENDSS) and shows trends in the number of cases reported from 2007 through 2013 throughout the district. Also included is a midyear summary for 2014.



# Diseases Surveyed

## Campylobacter

One of the most common diarrheal illnesses in the United States is due to the bacteria *Campylobacter*. This genus is responsible for the infectious GI illness called Campylobacteriosis, an illness characterized by diarrhea, cramping, abdominal pain, and fever. Symptoms occur two to five days after exposure and the illness can last up to one week. Bloody stool is another hallmark of this illness and in serious instances can spread to the bloodstream and cause severe infection. Some cases express no symptoms. According to the Foodborne Diseases Active Surveillance Network (FoodNet) indicates that about 14 cases are diagnosed each year for each 100,000 persons in the population. Many more cases go undiagnosed or unreported, and campylobacteriosis is estimated to affect over 1.3 million persons every year.

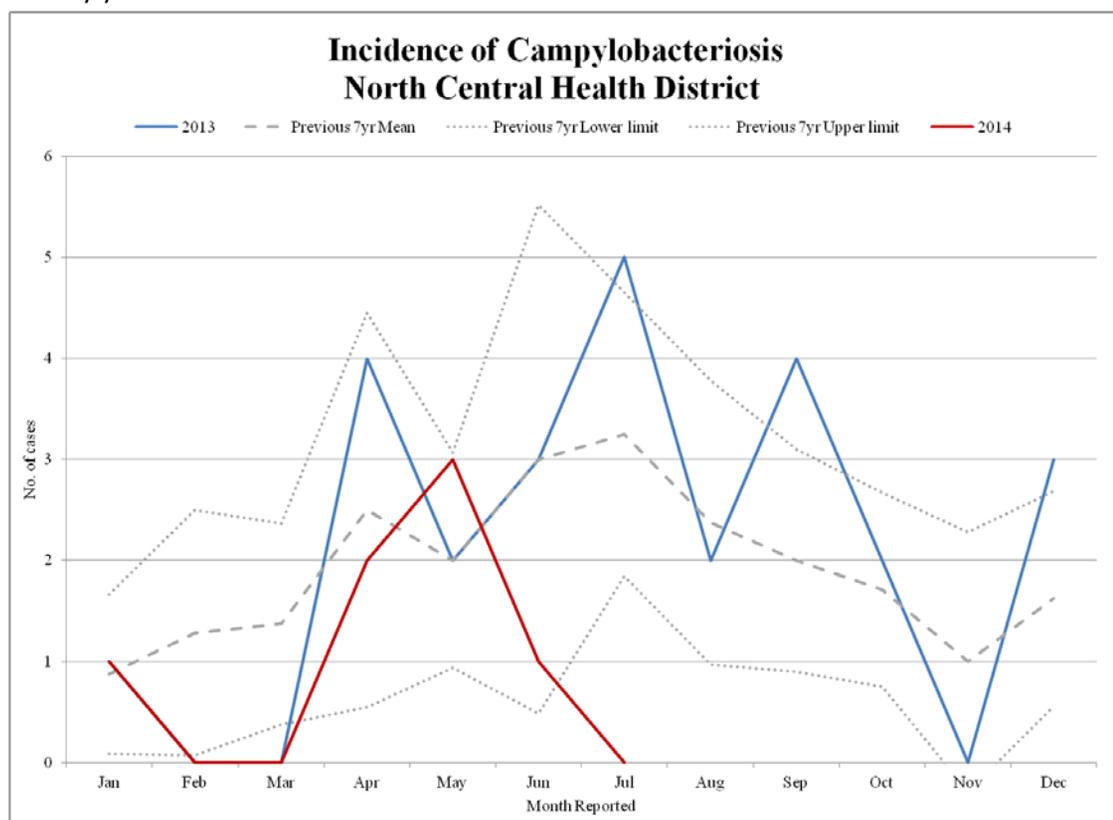


Figure 1: Source SendSS

Campylobacter Demographics			
		2013	2014
Age	0-4 years	27%	14%
	5-14 years	19%	0%
	15-24 years	4%	0%
	25-39 years	12%	14%
	40-64 years	27%	57%
	≥65 years	12%	14%
	Unknown	0%	0%
Gender	Male	54%	57%
	Female	46%	43%

Figure 2: Source SendSS

Bibb and Houston counties accounted for 35% of cases reported in 2013 and 29% in the first half of 2014. In 2013, reported Campylobacter cases sporadically jumped above baseline. So far in 2014 cases have remained below baseline, except for the month of May. In 2013, most cases were 0-4 years and 40-64 years old. In 2014, the majority of cases have been seen in the 40-64 year age group.

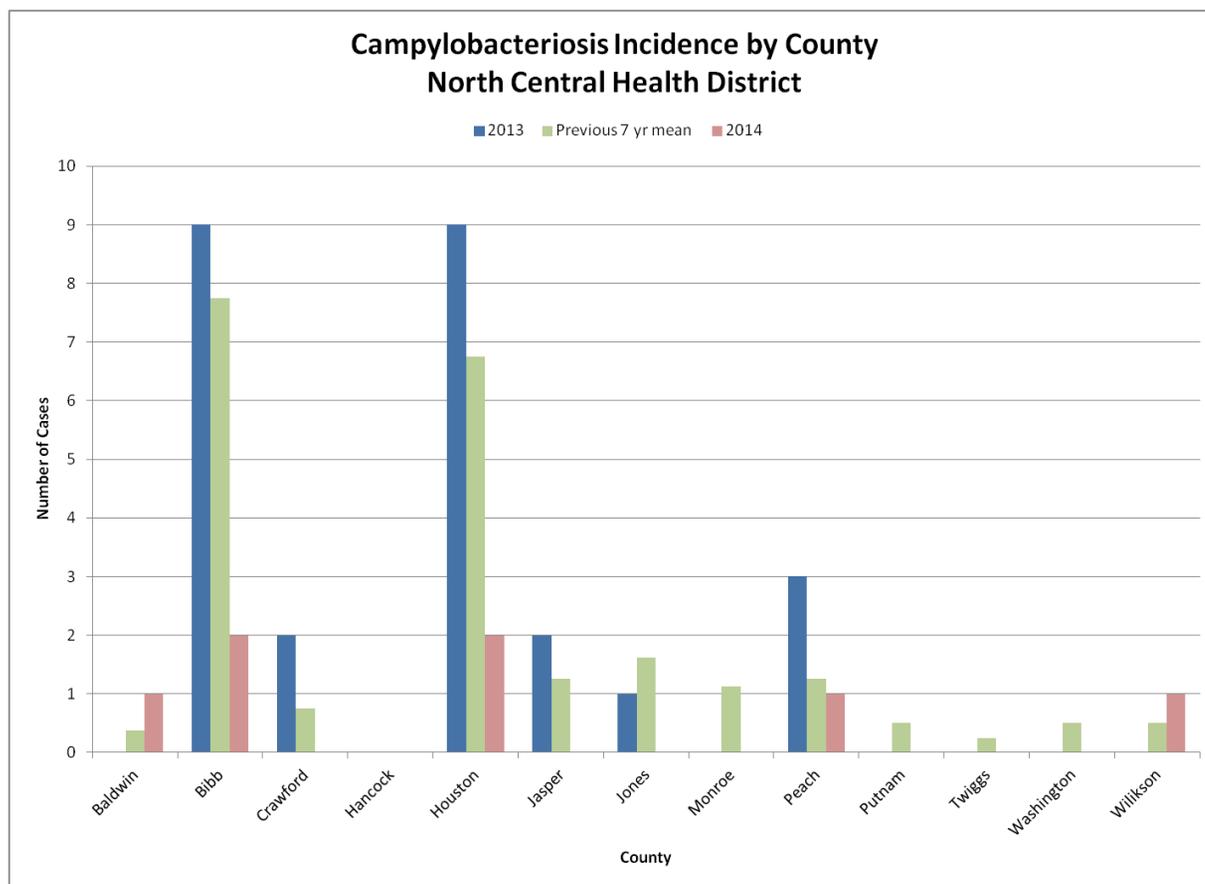


Figure 3: Source SendSS

## Cryptosporidium

Within the last ten years Cryptosporidiosis has become one of the most common causes of waterborne illnesses in the United States. This illness is a diarrheal disease caused by *Cryptosporidium*, which can live in the intestine of humans and animals and is passed in the stool of an infected person or animal. Both the disease and the parasite are commonly known as "Crypto." The parasite can survive outside the body for long periods of time because the parasite has an outer shell that protects it. This shell makes this organism resistant to chlorine-based disinfectants. The parasite is found in every region of the United States and throughout the world.

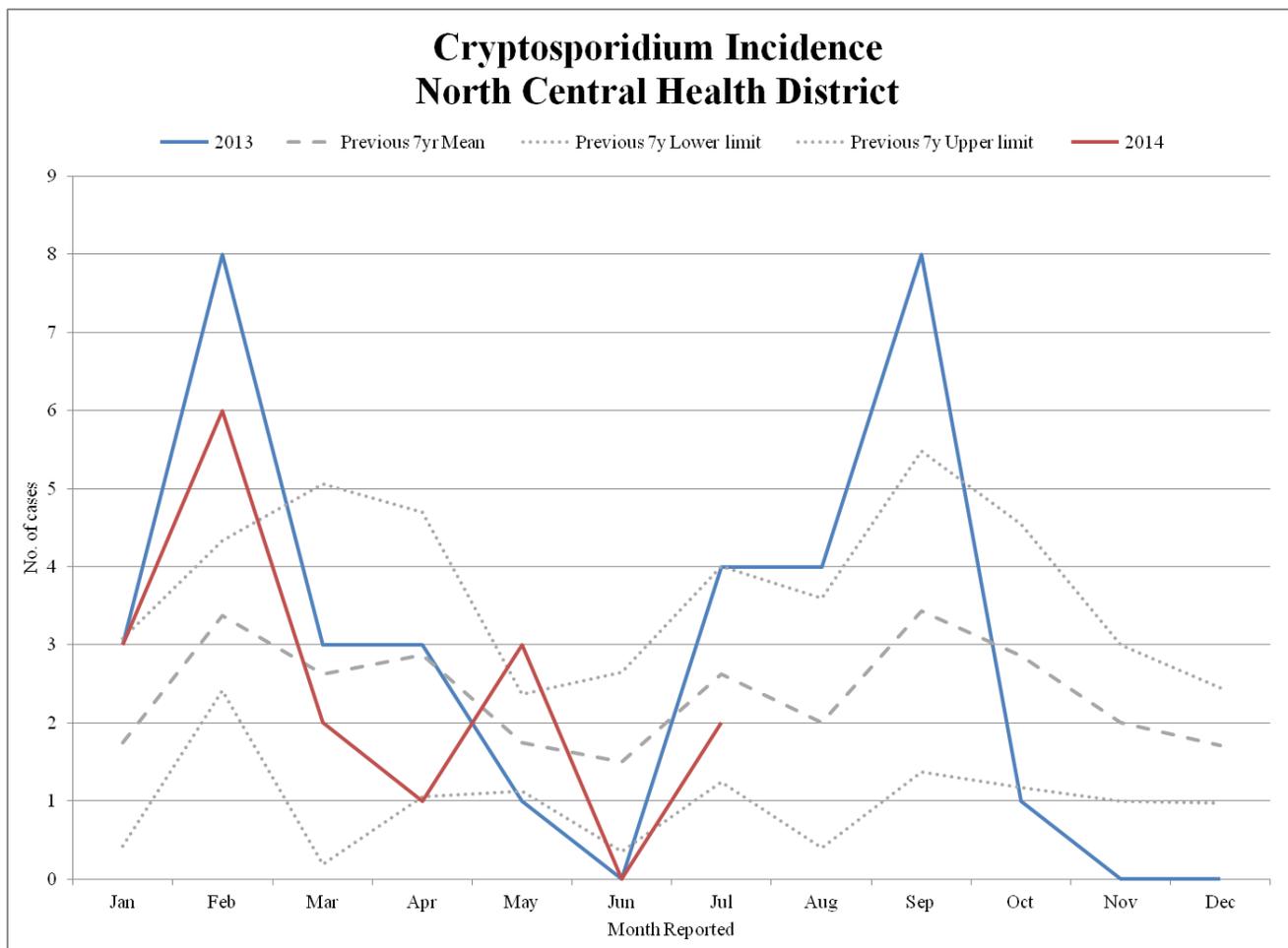


Figure 4: Source SendSS

Cryptosporidium Demographics			
		2013	2014
Age	0-4 years	6%	0%
	5-14 years	6%	6%
	15-24 year	17%	12%
	25-39 year	11%	12%
	40-64 year	31%	35%
	≥65 years	29%	35%
	Unknown	0%	0%
Gender	Male	57%	65%
	Female	43%	35%

Figure 5: Source SendSS

In 2013, Houston county accounted for 69 percent of cases and 82 percent for the first half of 2014. February and September cases were significantly above baseline in 2013. So far in 2014 cases are following the same trend for 2013 but in lower occurrences. Most Cryptosporidium cases that are reported occur in ages over 40.

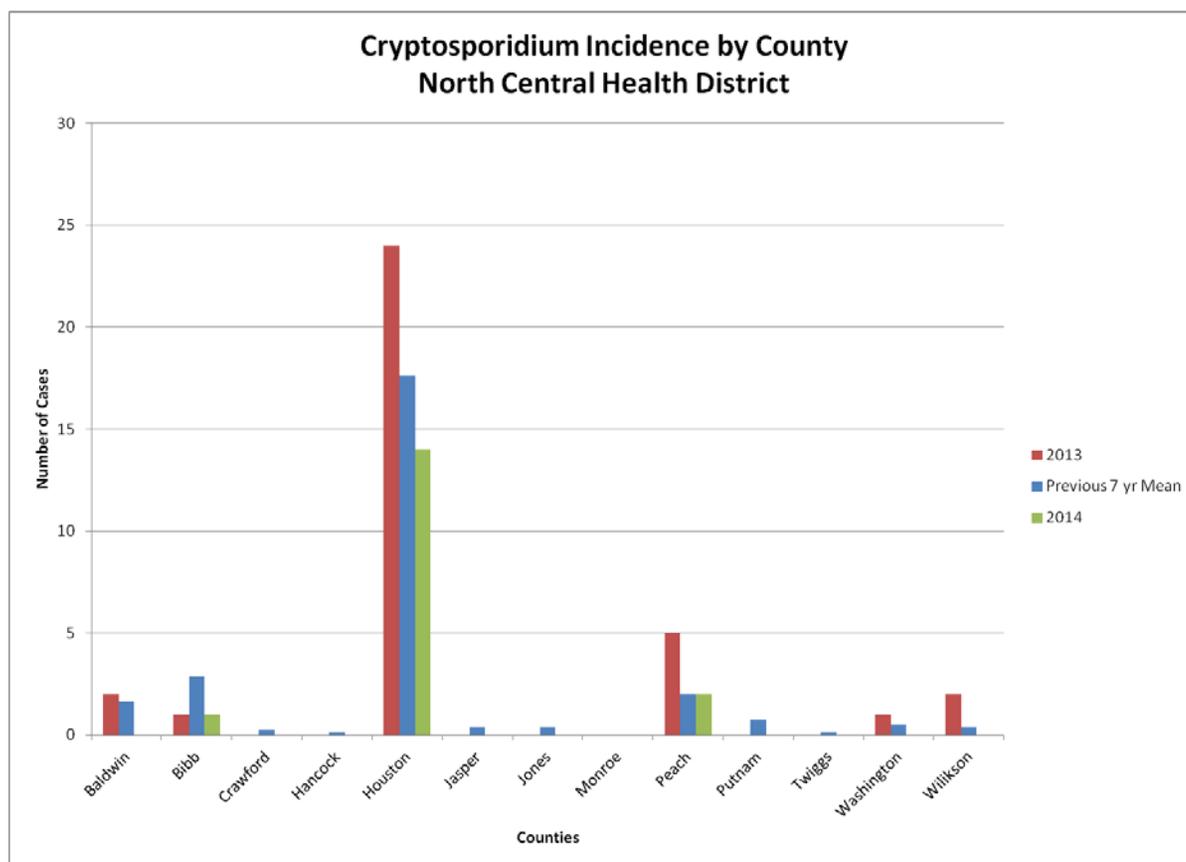


Figure 6: Source SendSS

### Houston County Cryptosporidium

Houston County has seen an increase of cryptosporidium over the last seven years. For the district in 2013, 69% of cases were in Houston County and in the first half of 2014 Houston County accounts for 84%. Investigation as to the reason for the amount of cases in Houston County is ongoing.

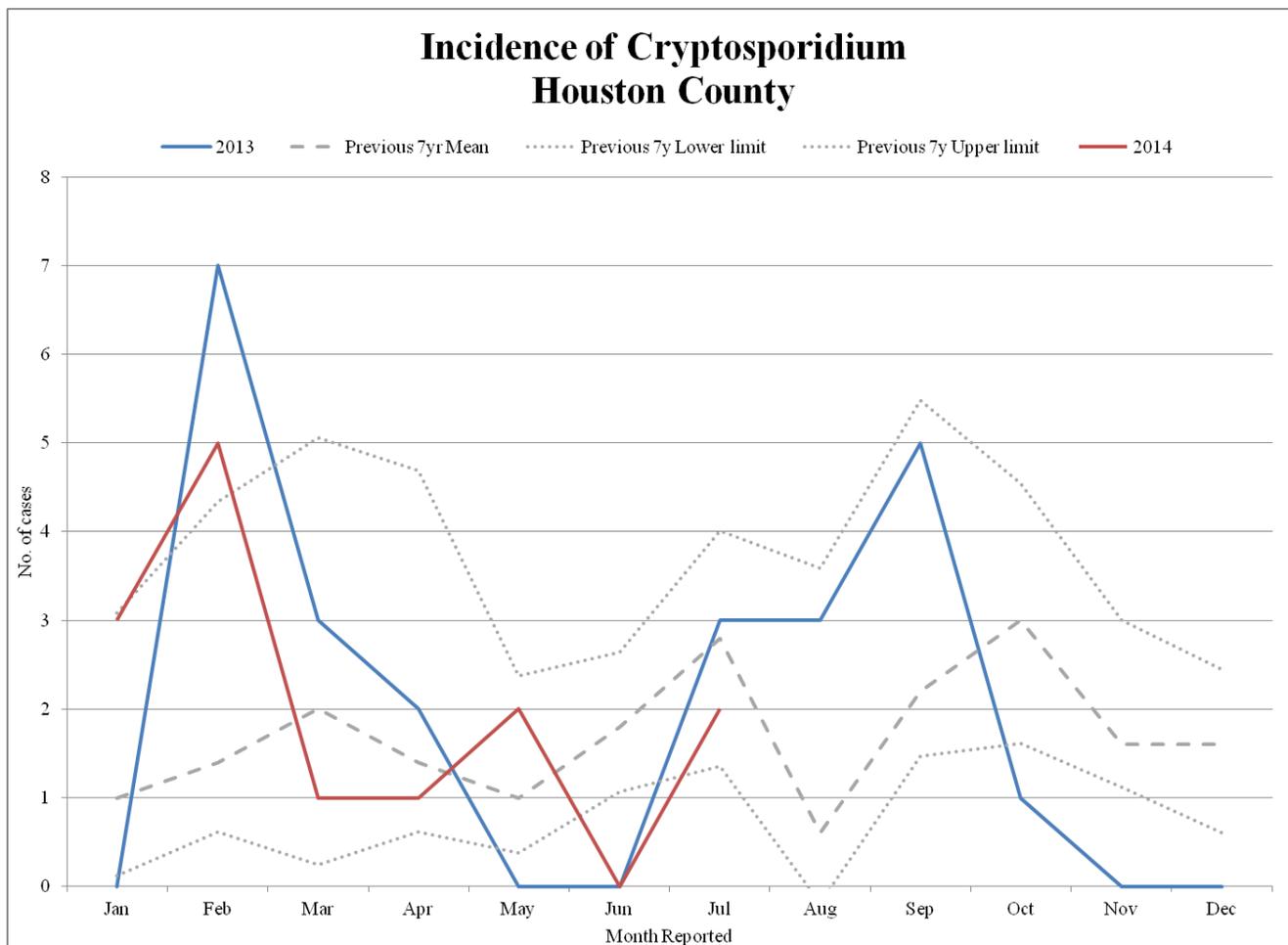


Figure 7: Source SendSS

## Giardia

Giardia infection (a.k.a. Giardiasis) is a waterborne infection and can be caused by parasites found in backcountry streams and lakes, as well as in municipal water supplies, swimming pools, whirlpool spas and wells. It is caused by the microscopic parasite *Giardia*. Once a person or animal has been infected with it, the parasite lives in the intestines and is passed in feces. Once outside the body, it can sometimes survive for weeks or months. It's found within every region of the U.S. and around the world. Anything that comes into contact with feces from infected humans or animals can become contaminated with the *Giardia* parasite. Ingestion of the parasite is the most common mode of transmission. Transmission through food and person-to-person contact are other possible modes. These infections usually clear up within a few weeks. long term intestinal problems can occur once parasites are gone. There are several options for drug treatment but not everyone responds to them the same way. Prevention is your best defense.

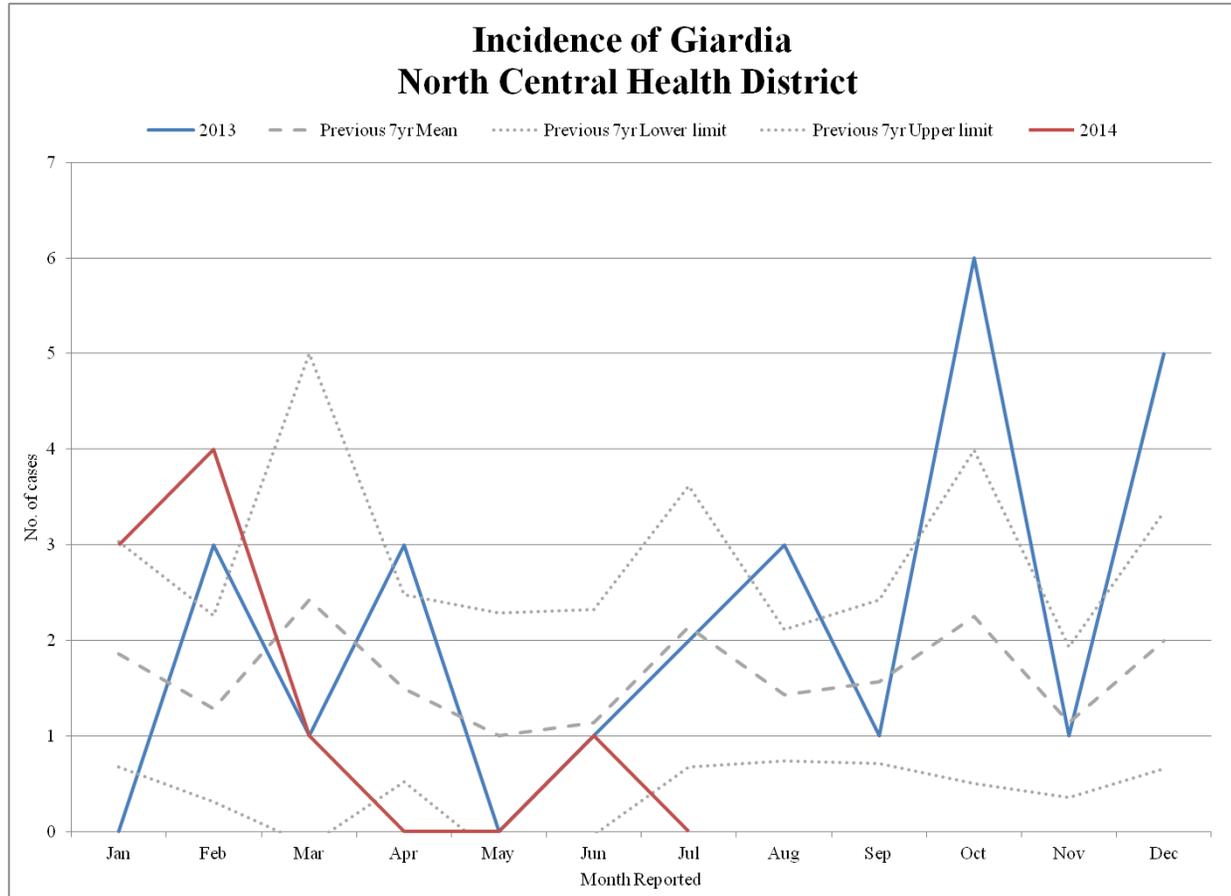


Figure 8: Source SendSS

Gastrointestinal Diseases, NCHD, 2007-2014

Giardia Demographics			
		2013	2014
Age	0-4 years	4%	0%
	5-14 years	12%	0%
	15-24 year	15%	0%
	25-39 year	23%	0%
	40-64 year	27%	67%
	≥65 years	19%	33%
	Unknown	0%	0%
Gender	Male	58%	67%
	Female	38%	33%

Figure 9: Source SendSS

Houston County in 2013 accounted for 65% of reported cases and 44% of thus far in 2014. Over the last seven years this illness seems to be slightly increasing. In 2013, Houston county accounted for 69 percent of cases and 44 percent in 2014. In 2013 cases jumped over base line significantly in October. For 2014, cases have been below baseline. In 2014, all cases reported were over the age of 40 and the majority were males.

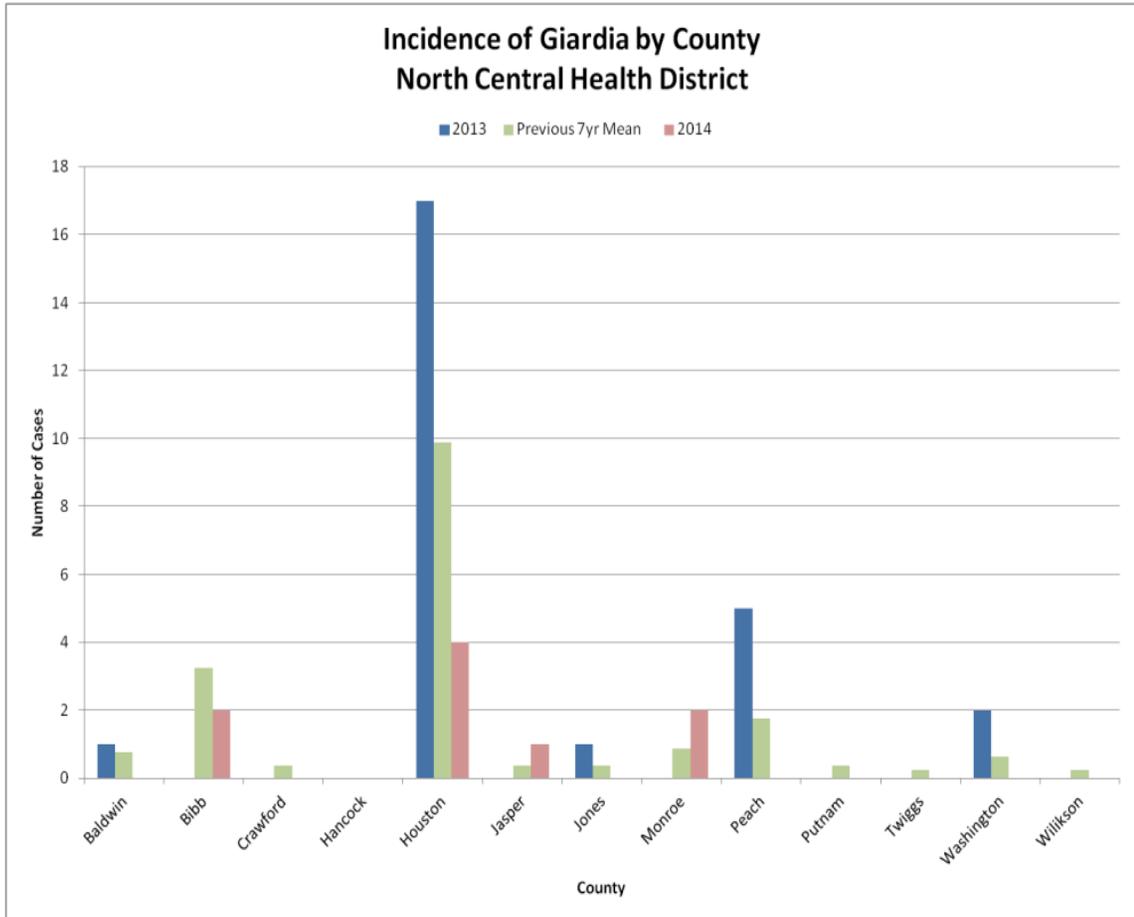


Figure 10: Source SendSS

## Salmonella

Salmonellosis is an infection with bacteria called *Salmonella*. Most persons infected with *Salmonella* develop diarrhea, fever, and abdominal cramps 12 to 72 hours after infection. The illness usually lasts 4 to 7 days, and most persons recover without treatment. However, in some persons, the diarrhea may be so severe that the patient needs to be hospitalized. In worse cases other infections are possible. Infection may spread from the intestines to the blood stream, and then to other body sites and can cause death. According to the baseline data the disease peaks late summer into early fall.

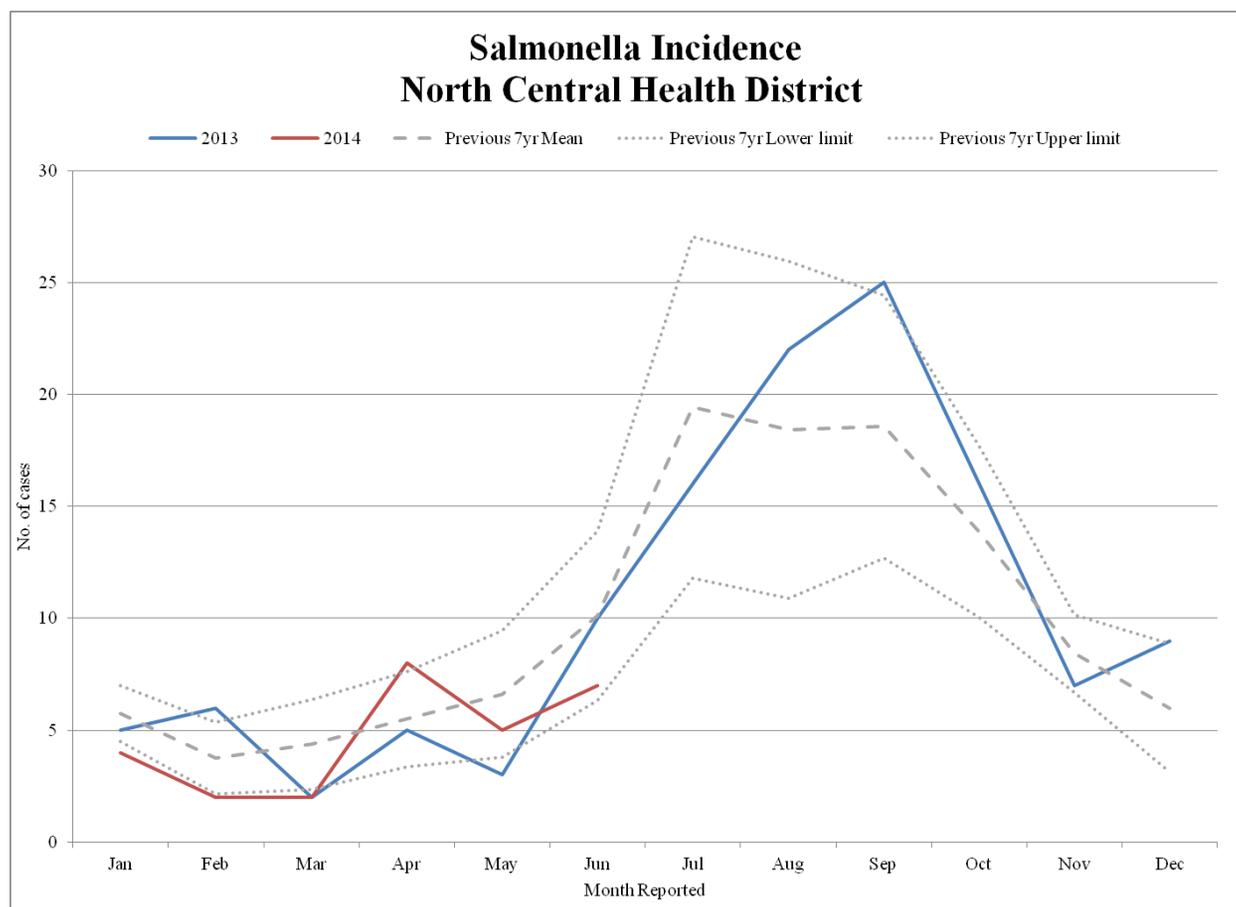


Figure 11: Source SendSS

Salmonella Demographics			
		2013	2014
Age	0-4 years	44%	36%
	5-14 years	10%	4%
	15-24 year	5%	0%
	25-39 year	6%	11%
	40-64 year	21%	14%
	≥65 years	14%	36%
	Unknown	0%	0%
Gender	Male	55%	54%
	Female	44%	46%

Figure 12 Source SendSS

Bibb and Houston accounted for the most cases. In 2013 they accounted for 59 percent and in 2014 54 percent. The cases are consistent with the baseline for 2013 and thus far in 2014, following the same shape as the baseline. In 2013 September cases were highest amount of cases. The 0-4 age group and those over 40 years old have the most reported cases.

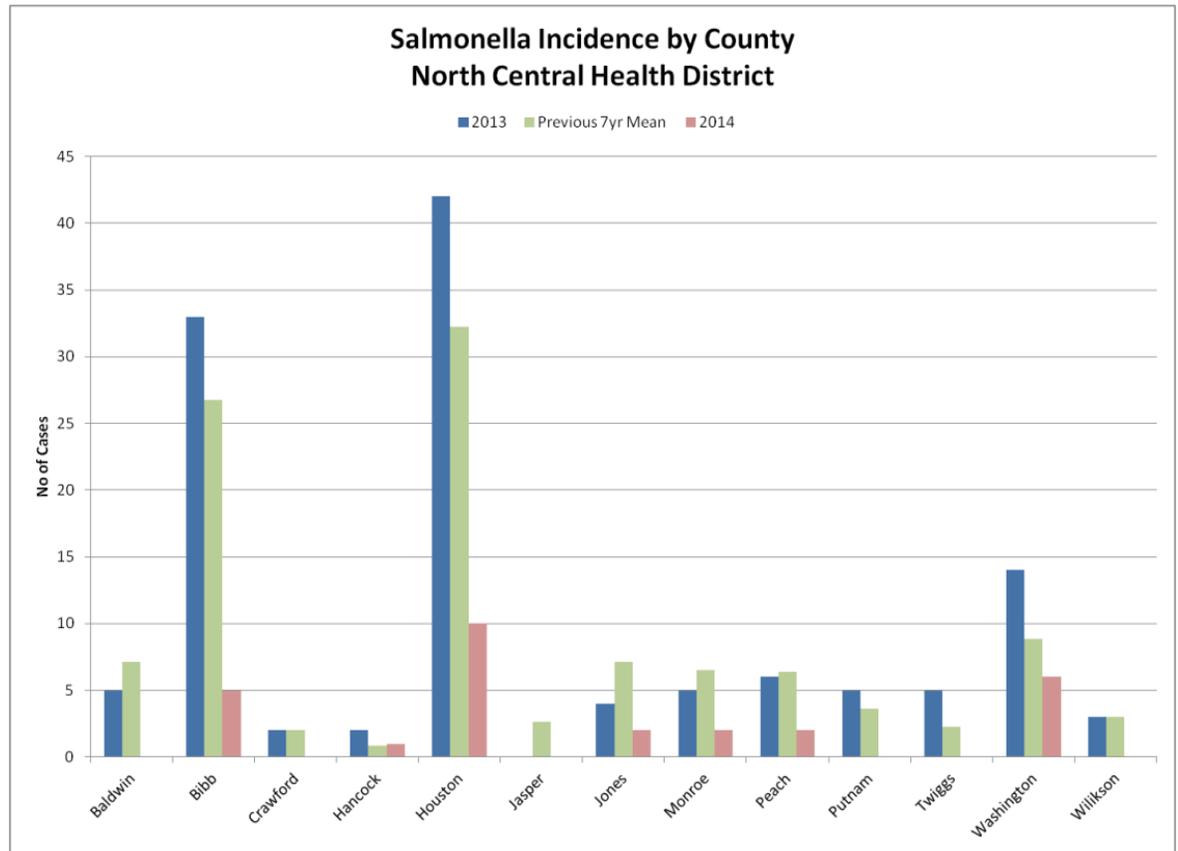


Figure 13 Source SendSS

## Shigella

Shigellosis is an infectious disease caused by a group of bacteria called *Shigella*. Most who are infected with *Shigella* develop diarrhea, fever, and stomach cramps starting a day or two after they are exposed to the bacteria. The diarrhea is often bloody. Shigellosis usually resolves in 5 to 7 days. Persons with shigellosis in the United States rarely require hospitalization. A severe infection with high fever may be associated with seizures in children less than 2 years old. Some persons who are infected may have no symptoms at all, but may still pass the *Shigella* bacteria to others. The *Shigella* germ is actually a family of bacteria that can cause diarrhea in humans. They are microscopic living creatures that pass from person to person. Persons with mild infections usually recover quickly without antibiotic treatment. However, appropriate antibiotic treatment may shorten the duration of illness and decrease the spread of infection. Antibiotic treatment is recommended for patients with severe disease, bloody diarrhea, or compromised immune systems. Every year, about 14,000 cases of shigellosis are reported in the United States.

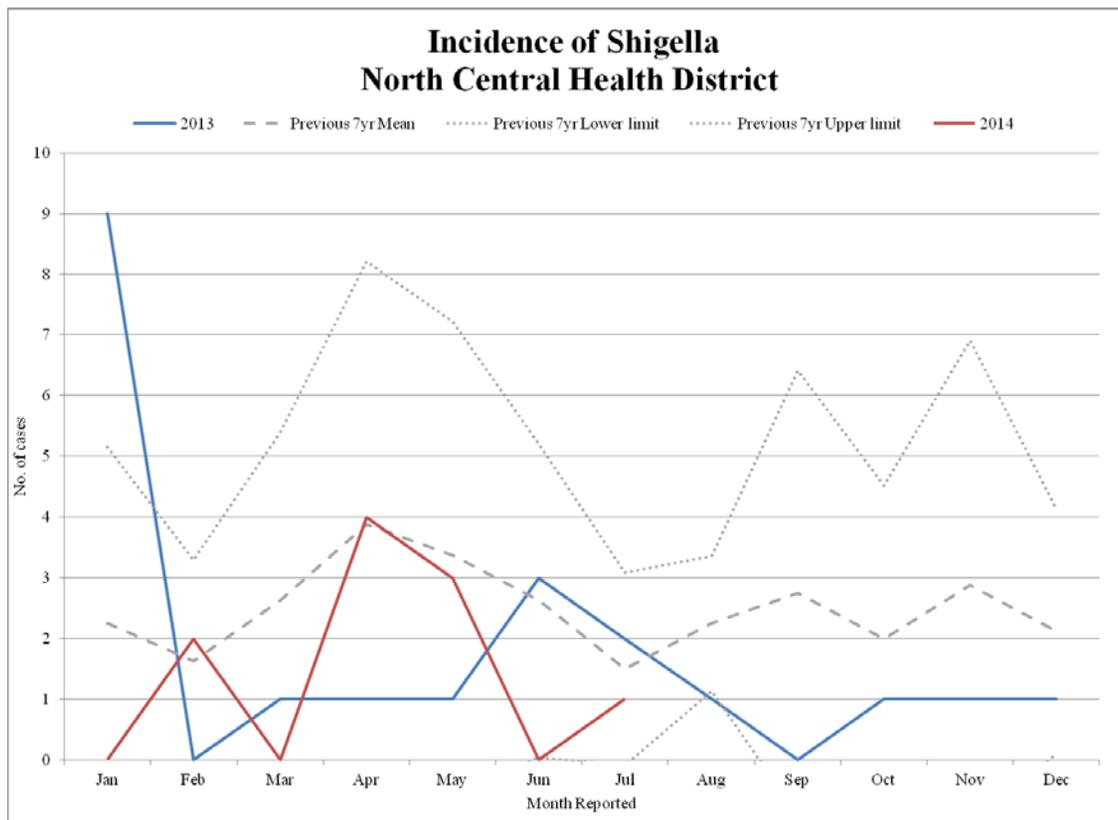


Figure 14: Source SendSS

Shigella Demographics			
		2013	2014
Age	0-4 years	29%	0%
	5-14 years	33%	63%
	15-24 years	5%	13%
	25-39 years	19%	13%
	40-64 years	5%	0%
	≥65 years	10%	13%
	Unknown	0%	0%
Gender	Male	43%	50%
	Female	57%	50%

Figure 15: Source SendSS

Bibb County accounts for most cases, reporting 48% in 2013 and 50% so far in 2014. It seems to be rising according to the seven-year data. For 2013, the number of cases were the highest in January then stayed below baseline for the remainder of the year. In 2014, there was a peak in April and May, but cases have been below baseline. Most cases reported are under 14 years old.

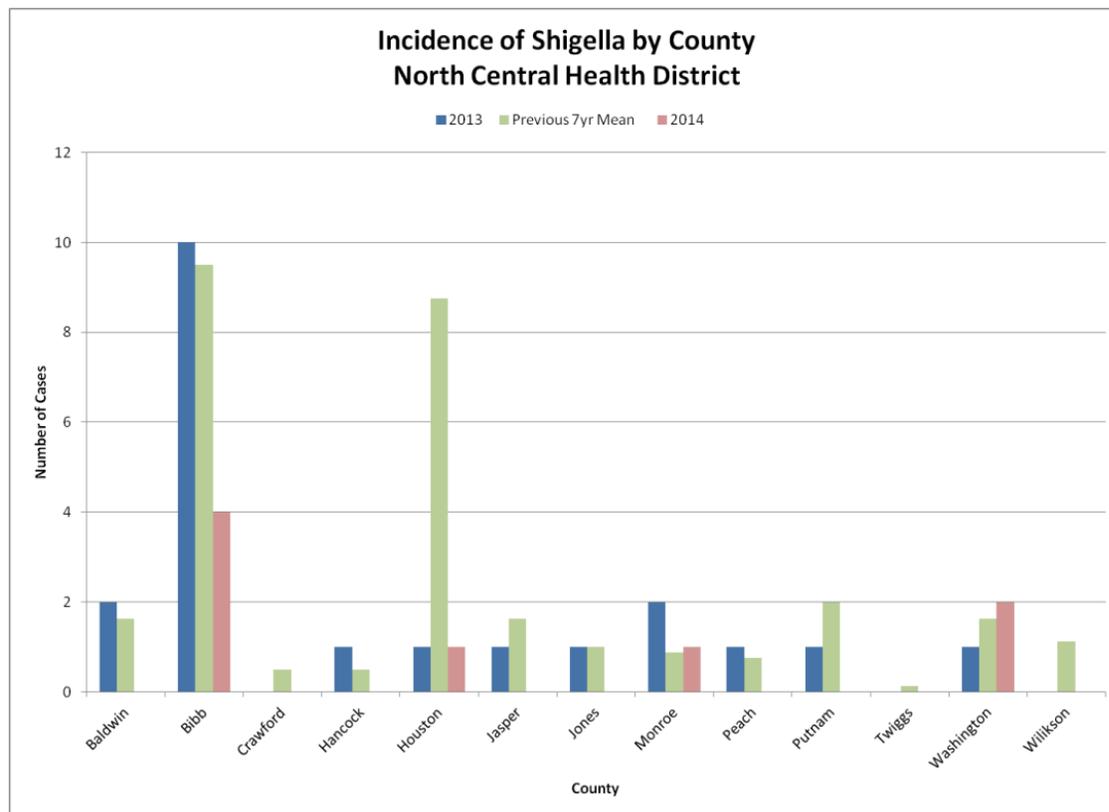


Figure 16: Source SendSS

### Shiga Toxin Producing *E. coli* (STEC)

Shiga toxin-producing *E. coli* (STEC) also referred to as Verocytotoxin-producing *E. coli* (VTEC) or enterohemorrhagic *E. coli* (EHEC). This pathogen is one of the most commonly heard about in the news in association with foodborne outbreaks. Most *E. coli* are harmless and actually are an important part of a healthy human intestinal tract. However, STEC is pathogenic, meaning they can cause illness, either diarrhea or illness outside of the intestinal tract. The types of *E. coli* that can cause diarrhea can be transmitted through contaminated water or food, or through contact with animals or persons. The most commonly identified STEC in North America is *E. coli* O157:H7 (O157).

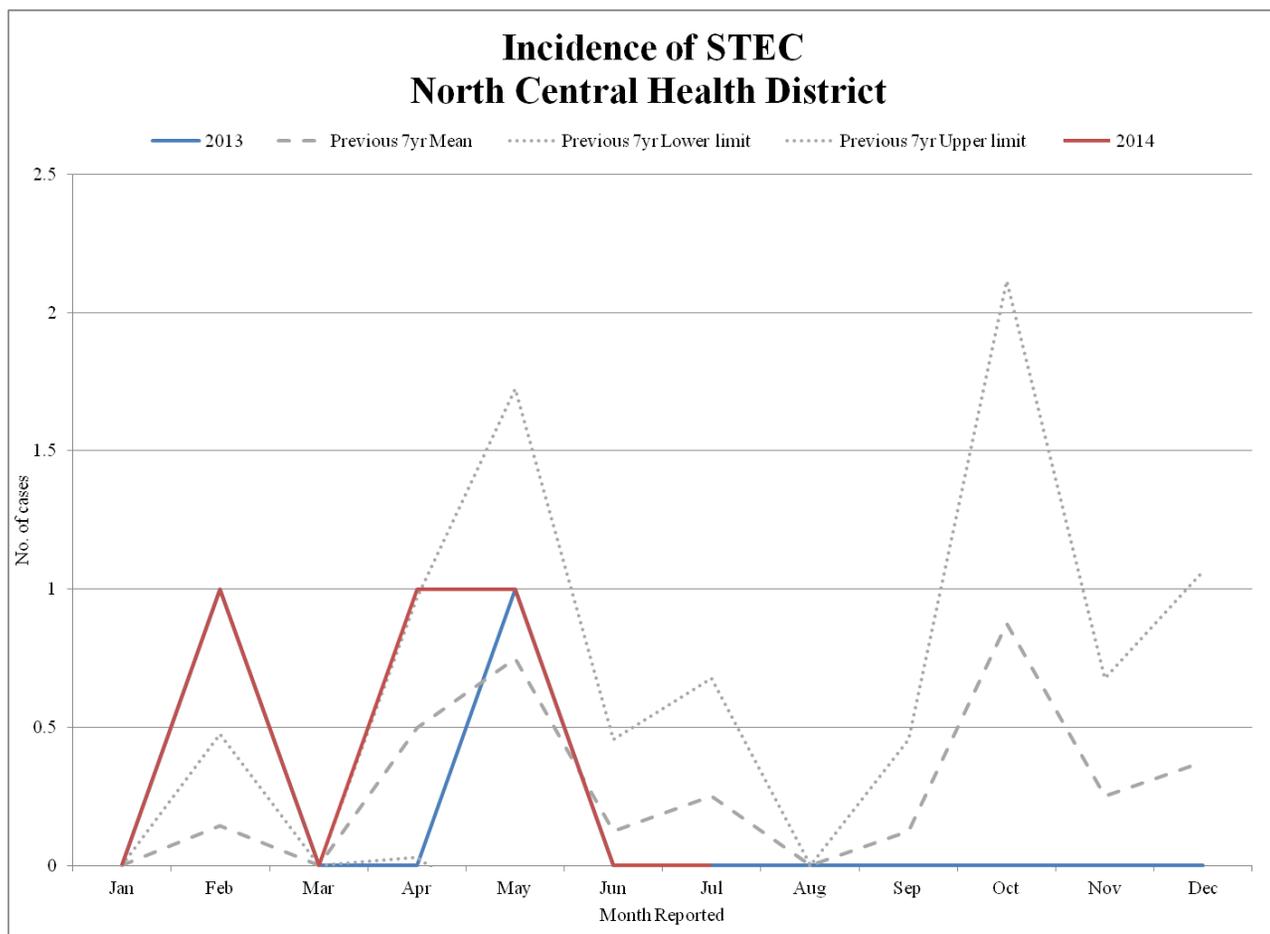


Figure 17: Source SendSS

STEC Demographics			
		2013	2014
Age	0-4 years	0%	33%
	5-14 years	0%	0%
	15-24 year	0%	67%
	25-39 year	50%	0%
	40-64 year	50%	0%
	≥65 years	0%	0%
	Unknown	0%	0%
Gender	Male	0%	33%
	Female	100%	67%

Figure 18: Source SendSS

Houston County accounted for 100% of cases in 2013 and 33% in 2014. In 2013, the cases are above baseline slightly in March and then falls below the remainder of the year. in 2014 so far cases were above baseline up until March then levels off.

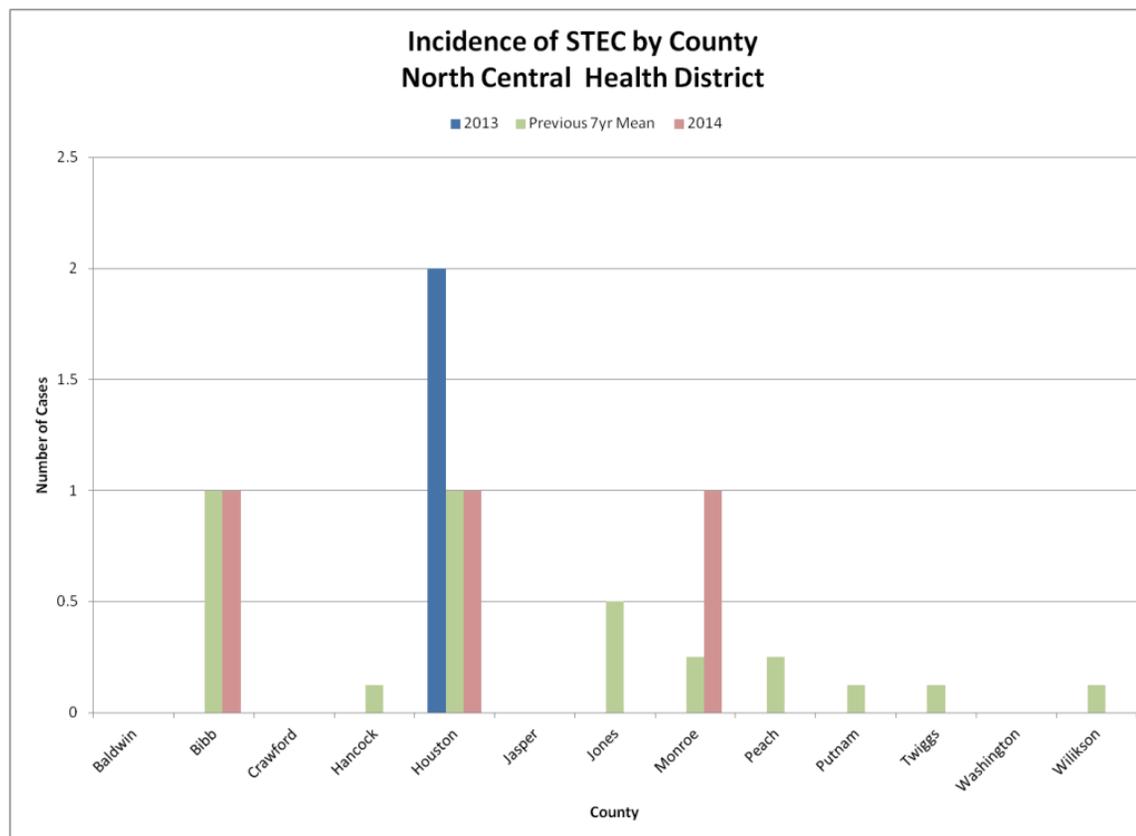


Figure 19: Source SendSS

## Yersinia

Yersiniosis is an infectious disease caused by a bacterium of the genus *Yersinia*. Illness is caused by one species in particular which is *Y. enterocolitica*. *Y. enterocolitica* infections cause a variety of symptoms depending on the age of the person infected. Infection occurs most often in young children. Common symptoms in children are fever, abdominal pain, and diarrhea, which is often bloody. Symptoms typically develop 4 to 7 days after exposure and may last 1 to 3 weeks or longer. In older children and adults, right-sided abdominal pain and fever may be the predominant symptoms, and may be confused with appendicitis. In a small proportion of cases, complications such as skin rash, joint pains, or spread of bacteria to the bloodstream can occur. Cases for this disease is low, about one culture-confirmed *Y. enterocolitica* infection per 100,000 persons occurs each year. Eating contaminated food, especially raw or undercooked pork products most often acquire infection. Infants can be infected if their caretakers handle raw chitterlings and then do not adequately clean their hands before handling the infant or the infant’s toys, bottles, or pacifiers. Drinking contaminated unpasteurized milk or untreated water can also transmit the infection.

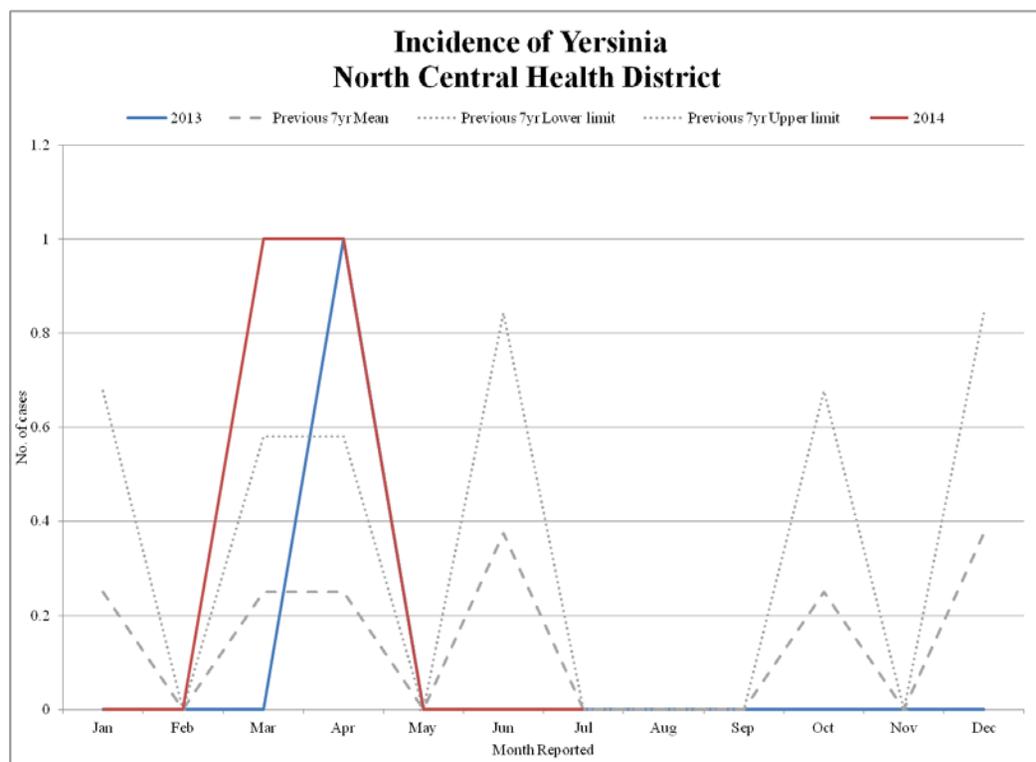


Figure 20: Source SendSS

Yersinia Demographics			
		2013	2014
Age	0-4 years	0%	50%
	5-14 years	0%	0%
	15-24 year	0%	0%
	25-39 year	100%	0%
	40-64 year	0%	50%
	≥65 years	0%	0%
	Unknown	0%	0%
Gender	Male	0%	0%
	Female	100%	100%

Figure 20: Source SendSS

Across the district the occurrence of Yersinia infections are minimal. The average amount of cases is under 1. In 2013 100 percent of cases were in Houston County and in 2014 100 percent of cases were in Bibb county.

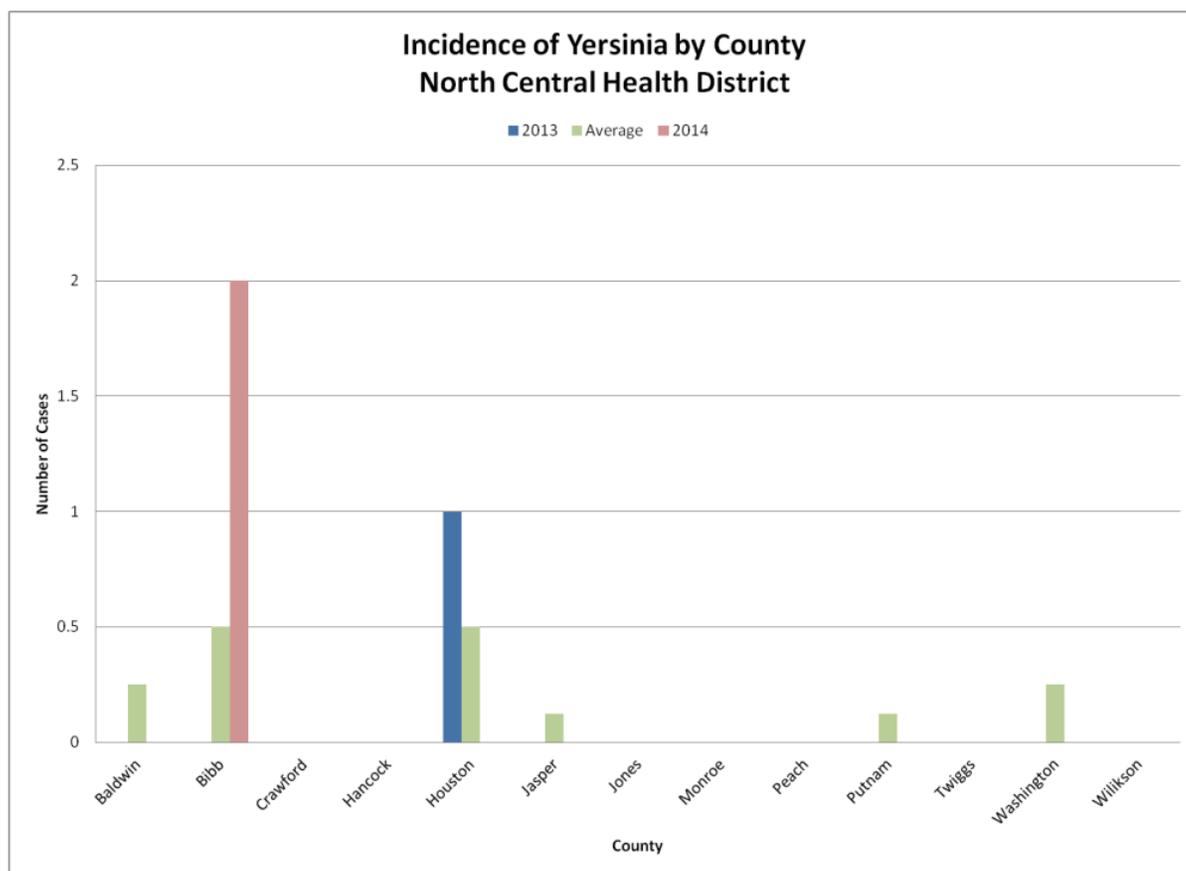


Figure 21: Source SendSS

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