



Broward County Health Department

EPI Examiner

A Monthly Epidemiology Report

OCTOBER 2009

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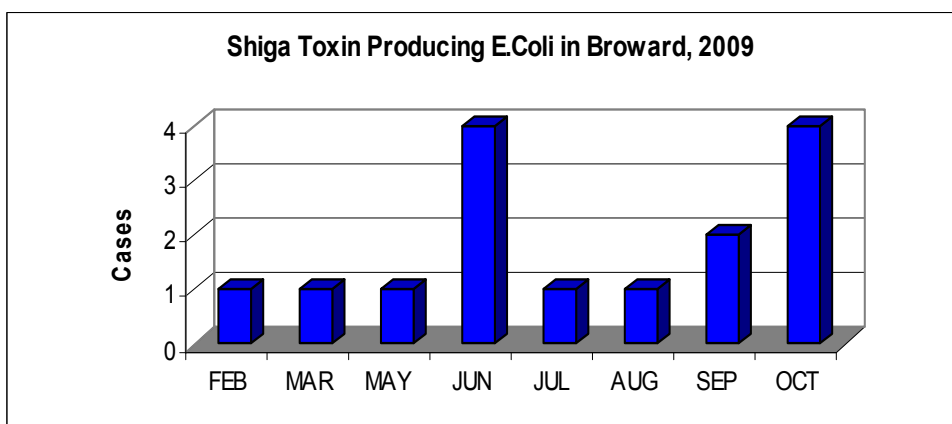
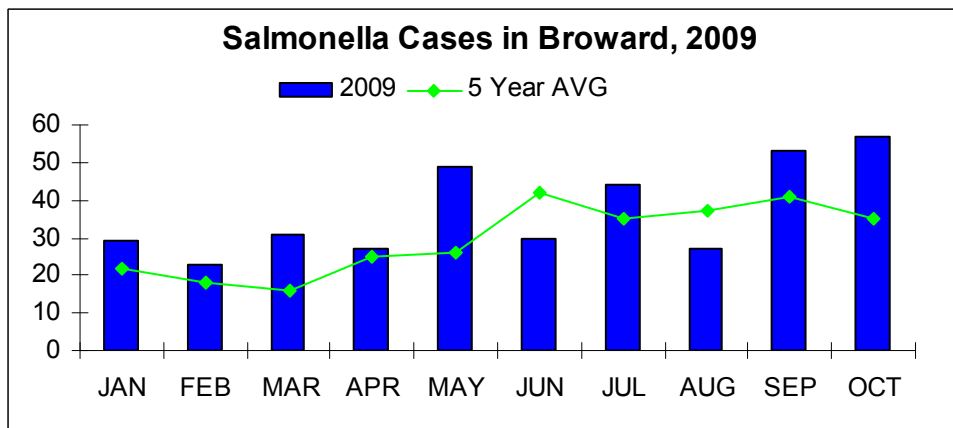
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October Disease Summary

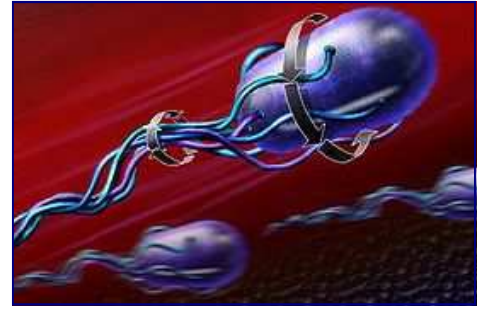
Confirmed and Probable notifiable disease cases were analyzed by date of event for this report (Table 1). Diseases were categorized as higher than expected using a two standard deviation threshold and as significantly higher than expected according to Pearson's chi-square test for fit of a distribution.

Shiga toxin producing E. Coli infections and Salmonellosis were significantly higher than expected in October. There were four more cases reported in October than in September. Salmonella has been higher than the five year average for most months up until October. Investigations are ongoing.



Escherichia coli

Escherichia coli (abbreviated as *E. coli*) are a large and diverse group of bacteria. It is a Gram negative motile rod that thrives in the intestines. Although most strains of *E. coli* are harmless, others can make you sick. Some kinds of *E. coli* can cause diarrhea, while others cause urinary tract infections, respiratory illness, pneumonia, and other illnesses. Still other kinds of *E. coli* are used as markers for water contamination—so you might hear about *E. coli* being found in drinking water, which are not themselves harmful, but indicate the water is contaminated. It does get a bit confusing even to microbiologists. *E. coli* is covered in short fimbriae that have strain-specific attachment proteins called adhesions.



E. coli cells propel themselves with flagella

Other surface antigens are the O lipopolysaccharide portion of LPS (O157 means it was the 157th version of this antigen discovered) and the flagellar protein H. O157:H7 is the **serotype** of this *E. coli*, meaning that it will induce antibodies to the O157 antigen and H7 antigen as well as other antigens. *E. coli* O157:H7 is usually acquired from eating ground beef that has not been completely cooked, but it can also be ingested with uncooked vegetables like sprouts. *E. coli* colonizes the surface of the large intestine and some produces an exotoxin protein called Shiga toxin. Shiga toxin causes illness. Those bacteria are referred to as Shiga toxin producing *E. coli* or STEC and are labeled STEC O157:H7 or STEC non O157:H7.

Experts think that there are about 70,000 infections with *E. coli* O157 each year in the U.S. It can only be estimated because many infected people do not seek medical care, many do not submit a stool sample for testing if they do seek medical care. People who get sick with gastrointestinal symptoms should insist on a stool sample from their health care provider. There were 15 confirmed cases of shiga toxin producing *E. coli* not-serogrouped and 2 confirmed cases of *E. coli* O157:H7 reported in Broward County in 2007.

Signs and Symptoms

The symptoms of *E. coli* infections vary for each person but often include severe stomach cramps, diarrhea (often bloody), and vomiting. If there is fever, it usually is not very high (less than 101° F/less than 38.5° C). Most people get better within 5–7 days. Some infections are very mild, but others are severe or even life-threatening.

Around 5–10% of those who are diagnosed with *E. coli* O157:H7 infection develop a potentially life-threatening complication known as hemolytic uremic syndrome (HUS). Children are 3 times more likely to get HUS than adults. The shiga toxin damages the lining of blood vessels and as red blood cells travel through the damaged vessels, they are often destroyed. Signs of HUS include decreased frequency of urination, feeling very tired, and losing pink color in cheeks and inside the lower eyelids. Persons with HUS should be hospitalized because their kidneys may stop working and they may develop other serious problems. Most persons with HUS recover within a few weeks, but some suffer permanent damage or die.

Transmission

E. coli live in the guts of ruminant animals, including cattle, goats, sheep, deer, and elk. The major source for human illnesses is cattle. *E. coli* that cause human illness generally do not make animals sick. Other kinds of animals, including pigs and birds, sometimes pick up *E. coli* from the environment and may spread it.



Infections start when you swallow *E. coli*, when you get tiny (usually invisible) amounts of human or animal feces in your mouth. Exposures that result in illness include consumption of contaminated food, consumption of unpasteurized (raw) milk, consumption of water that has not been disinfected, contact with cattle, or contact with the feces of infected people. Some foods are considered to carry such a high risk of infection with *E. coli* O157 or another germ that health officials recommend that people avoid them completely.

These foods include unpasteurized (raw) milk, unpasteurized apple cider, and soft cheeses made from raw milk. Sometimes the contact is pretty obvious (working with cows at a dairy or changing diapers, for example), but sometimes it is not (like eating an undercooked hamburger or a contaminated piece of lettuce). People have gotten infected by swallowing lake water while swimming, touching the environment in petting zoos and other animal exhibits, and by eating food prepared by people who did not wash their hands well after using the toilet. Almost everyone has some risk of infection.

Incubation

The time between ingesting the *E.Coli* bacteria and feeling sick is called the “incubation period.” The incubation period is usually 3-4 days after the exposure, but may be as short as 1 day or as long as 10 days. The symptoms often begin slowly with mild belly pain or non-bloody diarrhea that worsens over several days. HUS, if it occurs, develops an average 7 days after the first symptoms, when the diarrhea is improving.

Diagnosis

E. coli infections are usually diagnosed through lab testing of stool specimens (feces). Identifying the specific strain of *E. coli* involved is very important for public health purposes, such as finding outbreaks. Most labs can determine if an *E. coli* is present and can identify *E. coli* O157. To determine the O group of non-O157 *E. coli*, strains must be sent to a State Public Health laboratory. *E. coli* typically disappear from the feces by the time the illness is resolved, but may be shed for several weeks, even after symptoms go away. Young children tend to carry *E. coli* longer than adults. A few people keep shedding these bacteria for several months. Good hand-washing is always a smart idea to protect yourself, your family, and other persons.

Treatment

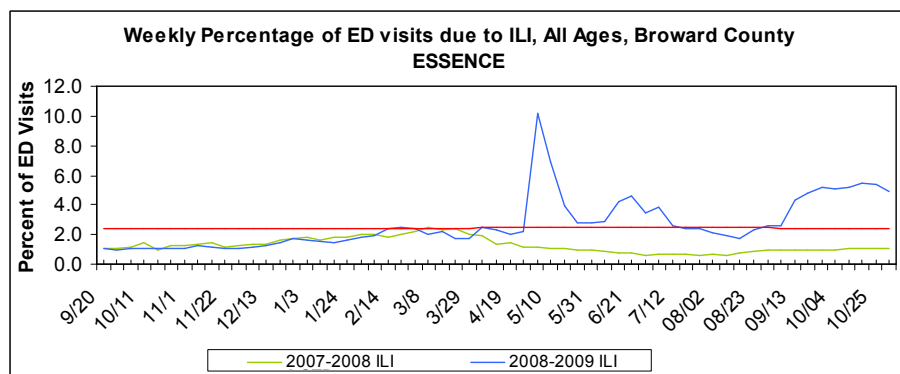
Non-specific supportive therapy, including hydration, is important. Antibiotics should not be used to treat this infection. There is no evidence that treatment with antibiotics is helpful, and taking antibiotics may increase the risk of HUS. Anti-diarrheal agents like Imodium may also increase that risk.

Prevention

- **Always** wash hands after using the bathroom, changing diapers & before preparing or eating food.
- **Always** wash hands after contact with animals at farms, petting zoos, fairs, or even your own backyard.
- **Avoid** raw milk, unpasteurized dairy products, and unpasteurized juices (like fresh apple cider).
- **Avoid** swallowing water when swimming in lakes, ponds, streams, swimming pools, and kiddie pools.
- In day-care centers, schools, etc., any small children with diarrhea should be carefully handled, and kept separate from all well children. All diapers, and any soiled clothing should be kept separate from all well children. The day-care worker, teacher, and health-care personnel should practice strict hygiene at all times.

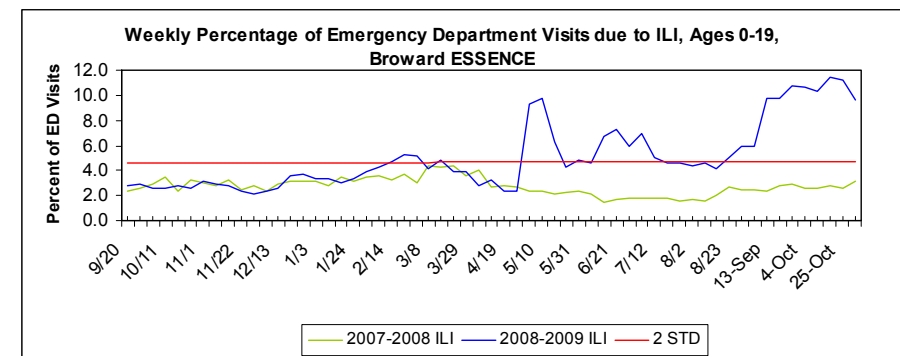
Broward County Influenza Surveillance

Psyche Doe, Influenza Coordinator



ILI incidence in youth and children continues to comprise the largest percentage of persons presenting to the Emergency Department in Broward County with ILI symptoms. ILI incidence among this age group has superseded the 2 standard deviation.

Broward County ILI incidence exceeded the 2 standard deviation threshold. Emergency Department visits have increased and we are seeing an increase in hospital labs reporting Influenza A positive results. Broward is also noticing an increase in physician lab reporting of ILI. October 4, 2009 was the start of Influenza season.



H1N1 Update:

As of October 31, 2009 Broward County has confirmed 11 deaths due to H1N1. The Jacksonville state lab tested 159 specimens for Influenza of those 53 specimens were confirmed H1N1 positive. While most cases of H1N1 Swine Flu are mild, there are exceptions. Pre-existing health conditions often play a role in how individuals react to the flu. To-date, there have been 149 laboratory confirmed H1N1 Swine Flu deaths in Florida.

Table 1. Selected Reportable Communicable Diseases and Other Conditions through October, Broward County, FL

	5-Yr								YTD	YTD
	Oct-09	Sep-09	AVG	Oct-08	Oct-07	Oct-06	Oct-05	Oct-04	Oct-09	Oct-08
Animal Bite, PEP	3	1	2.6	6	1	4	2	0	11	18
Brucellosis	0	0	0.0	0	0	0	0	0	1	0
Campylobacteriosis	4	5	6.0	8	7	4	4	7	73	102
Carbon Monoxide Poisoning	0	0	0.0	0	0	0	0	0	3	0
Ciguatera	0	1	0.0	0	0	0	0	0	5	1
Creutzfeldt-Jacob CJD	0	0	0.0	0	0	0	0	0	0	2
Cryptosporidiosis	1	1	3.6	9	1	5	2	1	12	50
Cyclosporiasis	0	0	0.0	0	0	0	0	0	4	1
Dengue Fever	1	1	0.6	0	3	0	0	0	6	8
E. Coli (Not Shiga Toxin)	0	0	0.0	0	0	0	0	0	0	3
E.Coli Shiga Toxin	4	2	0.2	1	0	0	0	0	16	3
EHEC O157:H7	0	0	0.6	0	0	1	0	2	0	4
Giardiasis	8	6	6.8	19	4	4	3	4	83	85
Group A Streptococcus	2	2	1.8	2	2	3	1	1	24	19
Haemophilus Influenzae Invasive	0	0	2.0	2	3	1	3	1	20	14
Haemophilus Influenzae Meningitis	0	0	0.0	0	0	0	0	0	0	1
Hepatitis A	2	2	1.0	0	2	1	1	1	27	12
Hepatitis B Acute	2	2	4.2	4	4	2	3	8	31	37
Hepatitis B Chronic	4	9	29.4	41	15	33	26	32	271	413
Hepatitis B HBsAg	1	1	3.6	6	3	1	4	4	40	47
Hepatitis C Acute	0	0	0.0	0	0	0	0	0	1	2
Hepatitis C Chronic	114	68	209.6	215	192	183	185	273	1562	2019
Lead Poisoning	0	0	2.4	3	2	0	2	5	12	28
Legionellosis	3	4	1.8	3	4	1	1	0	12	10
Listeriosis	0	0	0.2	0	0	0	0	1	1	6
Lyme Disease	1	2	0	0	0	0	0	0	5	2
Malaria	0	2	1.2	2	0	2	1	1	21	11
Meningitis Group B Strep	0	0	0.4	0	0	2	0	0	0	1
Meningitis Listeria	0	0	0	0	0	0	0	0	0	0
Meningitis Other*	0	2	2.2	2	2	3	1	3	15	17
Meningitis Strep Pneumoniae	0	0	0	0	0	0	0	0	0	4
Meningococcal Disease	1	0	0.8	1	1	1	1	0	4	2
Mercury Poisoning	1	0	0.8	3	1	0	0	0	4	8
Mumps	0	0	0	0	0	0	0	0	1	0
Neurotoxic Shellfish Poisoning	0	0	0.4	0	0	2	0	0	0	0
Novel Influenza	11	9	N/A	0	0	0	0	0	431	0
Pertussis	0	0	0.8	3	0	1	0	0	6	6
Salmonellosis	57	53	35	41	38	22	49	25	370	344
Shigellosis	4	7	6.4	2	8	7	4	11	55	81
Staphylococcus	0	0	0	0	0	0	0	0	2	0
Streptococcus Pneumoniae	5	1	4	5	6	2	3	4	39	44
Streptococcus Pneumoniae Drug Resistant	5	3	4	6	4	4	3	3	61	60
Tetanus	0	0	0.2	0	0	0	1	0	0	0
Typhoid Fever	0	0	0.2	1	0	0	0	0	3	3
Varicella	1	1	1.8	2	7	0	0	0	28	40
Vibrio (All)	1	2	0.6	0	0	0	2	1	5	1
Total	236	187	335.6	387	310	289	302	388	3,265	3,509

*Includes bacterial, cryptococcal, and mycotic meningitis

Data accessed on 12/28/09 from FL Merlin Communicable Disease Reports

These diseases are significantly higher than expected.

Table 2. Broward County ESSENCE Alerts, Oct. 1 - Oct. 30, 2009

Alert	Syndrome										
	Influenza like Illness	Botulism like	Injury	Fever	Gastro-intestinal	Hemorrhagic Illness	Neurological	Rash	Respiratory	Shock/ Coma	Other
Low Level	5	1	0	1	1	2	4	1	1	1	1
High level	2	3	1	1	1	0	2	3	0	1	1