Florida HEALTH Miami-Dade County

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FLORIDA DEPARTMENT OF HEALTH IN MIAMI-DADE COUNTY

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INSIDE THIS ISSUE:

Increase in Reported *Salmonella* Infections in Miami-Dade County, 2010-2015

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Introduction

Salmonella is a bacteria that causes salmonellosis, an illness which can include diarrhea, fever, and abdominal cramps. The illness usually occurs within twelve to seventy -two hours after infection, and can last four to seven days. While most people recover without treatment, some have severe symptoms and may need to be hospitalized. The Centers for Disease Control and Prevention (CDC) estimate that 1.2 million people become infected with non-typhoidal *Salmonella* in the United States every year (1).

There are some groups of people who are more at risk of developing severe symptoms of *Salmonella* infection than others: neonates, young children, the elderly, transplant patients and immunocompromised individuals are at a higher risk. Of all age groups, young children are at the highest risk for *Salmonella* infection. This report describes the increase in reported and confirmed *Salmonella* infections in Miami-Dade County between 2010 and 2015.

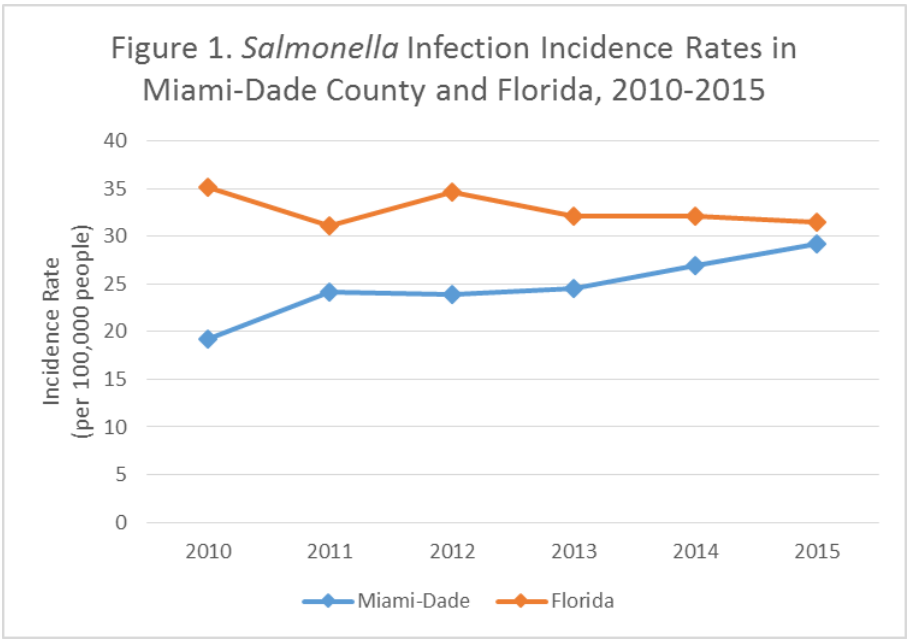
Methods

Data for this report was obtained from the Florida Department of Health, Epidemiology Disease Surveillance System Merlin. Data was retrieved for all cases of confirmed *Salmonella* infection in Miami-Dade County between 01/01/2010 and 12/31/2015 based on event date. Annual population estimates from the U.S. Census Bureau and Florida Charts were obtained to calculate incidence rates [2, 3]. Incidence was calculated by age, race/ethnicity, and sex. Age was divided into four groups: children younger than 1 year, children 1 to 4 years, school-aged children 5-17 years, adults 18-64 years, and older adults aged 65 years and older. Race/ethnicity was classified as non-Hispanic White, non-Hispanic Black, Hispanic, and Other. Statistical analyses were conducted using SAS 9.4. Arc GIS was used to identify clusters using optimized hot spot analysis.

Results

Incidence rates of *Salmonella* infection in Miami-Dade County have been steadily increasing since 2010. In 2010, there were 484 reported cases compared to 733 cases in 2015. Even with a growing population, the incidence rate has increased from 19.3 per 100,000 people in 2010 to 29.2 per 100,000 people in 2015 (Figure 1). While the incidence rates in Miami-Dade County remained lower than those at the Florida state level, the gap decreased from 2010-2015.

Averaging number of cases from 2010-2015, the largest number of cases were reported in children under 5 years of age in Miami-Dade County (Figure 2). Specifically, the highest average incidence rate was observed in children less than one year of age. The lowest average incidence rate was observed in adults 18-64 years old. The less than 1-year age group consistently had the highest incidence rate from 2010-215 (Figure 3). The incidence increased from 311 cases per 100,000 people in 2010 to 507 cases per 100,000 in 2015. The 1-4 age group also remained substantially higher than the older age groups and increased from 2010 to 2015.



Among different races and ethnicities, incidence rates for *Salmonella* infection appear to have increased overall among Hispanics from 2010 (21 per 100,000 people) to 2015 (31.6). During this time, incidence rates remained lower for non-Hispanic Blacks compared to non-Hispanic Whites and Hispanics (Figure 4).

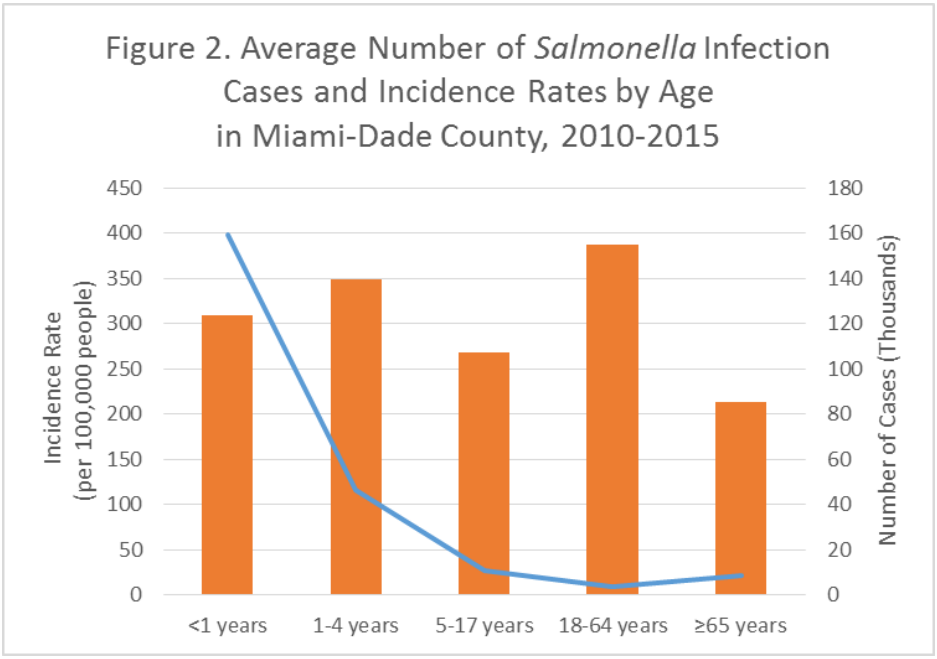
In children less than a year of age, incidence rates of *Salmonella* infection were highest among non-Hispanic Whites and Hispanics and lower for Blacks from 2010-2015 (Figure 5). In children 1 to 4 years, incidence rates were higher for Hispanics and lower for non-Hispanic Whites and Blacks (Figure 6). Compared to younger children, incidence rates were much lower in school-aged children 5-17 years of age, yet maintained similar patterns with the highest rates among Hispanics (Figure 7).

However, in adults 18-64, incidence rates were lowest compared to all age groups and differences in rates among race/ethnicities were not as apparent (Figure 8). Compared to younger adults, incidence rates were higher among adults 65 years or older with increasing rates among Hispanics (Figure 9).

Differences in incidence rates or patterns over time from 2010-2015 were not observed between men and women. Men accounted for approximately 49.5% of all cases during this time period.

A seasonal pattern was observed for *Salmonella* infections, with cases peaking during months in the summer through fall (Figure 10). August was the most common month for *Salmonella* infection with 554 cases reported from 2010-2015, compared to 186 cases in February. In 2011 and 2014, cases peaked in July instead of August.

Most of the confirmed cases of *Salmonella* infection occurred in highly dense residential areas of Miami-Dade County between 2010 and 2015. Hot spots at 95% and 99% confidence levels were identified predominantly in neighborhoods in 1) northwestern Miami-Dade, 2) central Miami-Dade, and 3) western Miami-Dade. Using 10 years of data from 2006-2015, results from the emerging hot spot analysis show consecutive and new hot spots in these areas as well as intensifying hot spots in western and northwestern Miami-Dade and persistent hot spots in in western Miami-Dade.



Discussion

Reported cases of *Salmonella* infection have increased by 51% in Miami-Dade County from 2010-2015, compared with a 4% decrease in the state of Florida during the same time period. However, the incidence of *Salmonella* infection remains lower in Miami-Dade County compared to the state of Florida. Children under a year of age had the highest incidence and adults 18-64 had the lowest incidence of *Salmonella* infection. The *Salmonella* infection incidence rate was higher overall among Hispanics and lower among non-Hispanic Blacks. It is important to note that diagnosis and reporting of *Salmonella* infection may also differ between age groups and race/ethnicity. For example, children under the age of one may be more likely to be taken to a healthcare provider when presenting with symptoms of a gastrointestinal illness compared with older children or adults. The number of people experiencing *Salmonella* infections may be higher than what is diagnosed and reported (5).

Younger children are also less likely to practice effective hand-washing techniques, yet more likely to place their hands and objects in their mouths. Larger *Salmonella* outbreaks are likely to occur in care facilities such as day cares and nursing homes, placing younger populations (<5 years old) and older populations (≥65 years old) at higher risk (6).

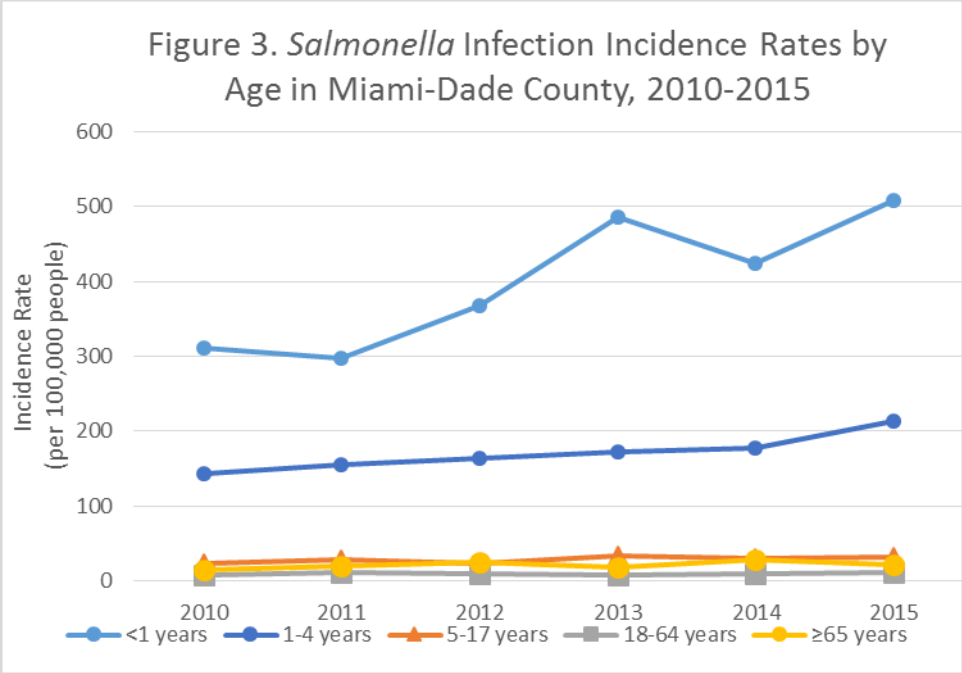
Our analysis identified hot spots in northwestern, central, and western Miami-Dade. This may be due to the larger populations of Hispanics in these areas or because these areas are more densely populated. Hot spots that are intensifying from 2006-2015 are of particular interest for prevention efforts.

Our data show that *Salmonella* infections were more common in the summer months. Warm weather is much more conducive to bacterial growth, and people are more likely to have outdoor picnics and gatherings where temperature-sensitive foods are not properly refrigerated, and where people have limited access to soap and water to wash their hands.

Prevention

Because there is no vaccine to prevent *Salmonella* infection, it is important to take preventative measures in terms of food preparation and hand hygiene. It is particularly important to be careful while caring for children and while handling animals and food products of animal origin. There were more *Salmonella* infections the United States associated with backyard poultry in 2016 than in any other year. To avoid *Salmonella* infection from food or from animals, consider adopting these tips:

- Foods that come from animals may be contaminated, so avoid raw or undercooked eggs, poultry, or meats.
- Make sure that meat is well-cooked with little to no pink in the middle.
- Avoid unpasteurized milk and dairy products.
- Use separate cutting boards, utensils, and containers for raw meats and for produce to avoid cross-contamination.
- Do not cook raw meat and handle an infant at the same time. Wash your hands after cooking with meat or raw eggs before caring for or feeding an infant.
- Wash your hands after handling pets, particularly reptiles as they are more likely to be contaminated with *Salmonella* bacteria.



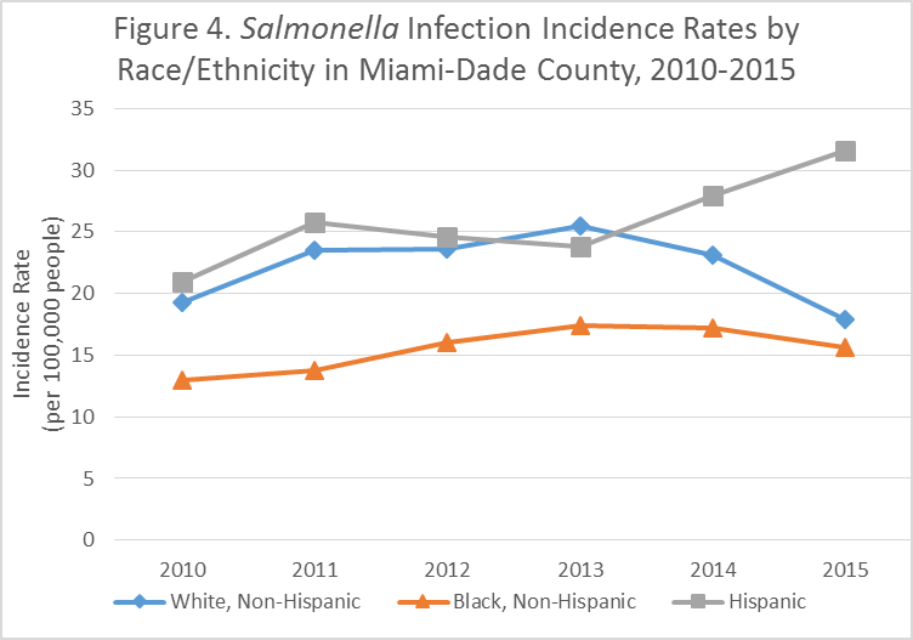


Figure 4. *Salmonella* Infection Incidence Rates by Race/Ethnicity in Miami-Dade County, 2010-2015
Incidence Rate (per 100,000 people)
35
30
25
20
15
10
5
0
2010
2011
2012
2013
2014
2015
White, Non-Hispanic
Black, Non-Hispanic
Hispanic

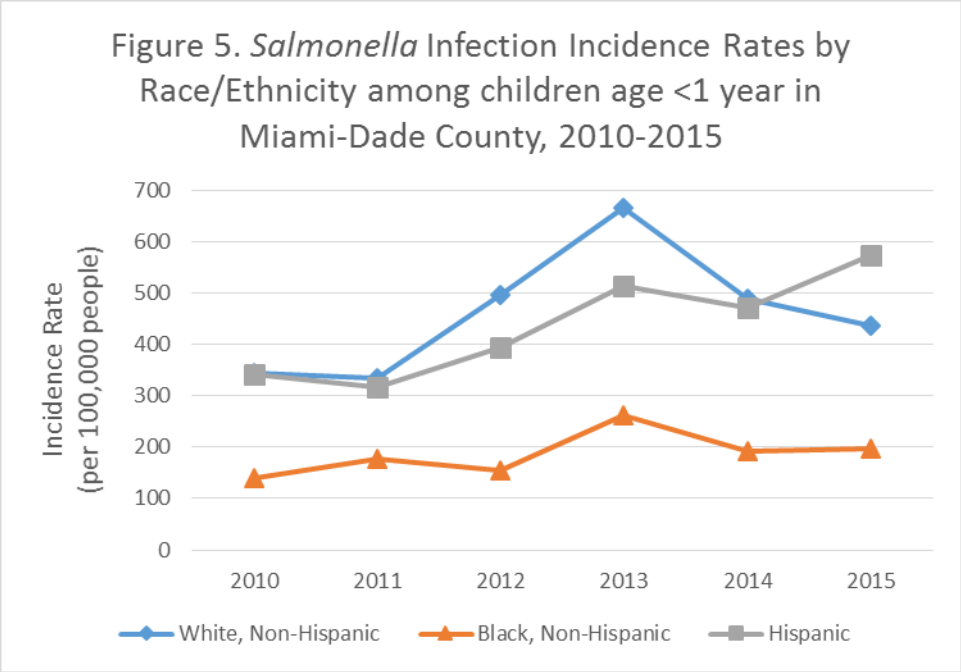


Figure 5. *Salmonella* Infection Incidence Rates by Race/Ethnicity among children age <1 year in Miami-Dade County, 2010-2015
Incidence Rate (per 100,000 people)
700
600
500
400
300
200
100
0
2010
2011
2012
2013
2014
2015
White, Non-Hispanic
Black, Non-Hispanic
Hispanic

Figure 6. *Salmonella* Infection Incidence Rates by Race/Ethnicity among children age 1-4 years in Miami-Dade County, 2010-2015

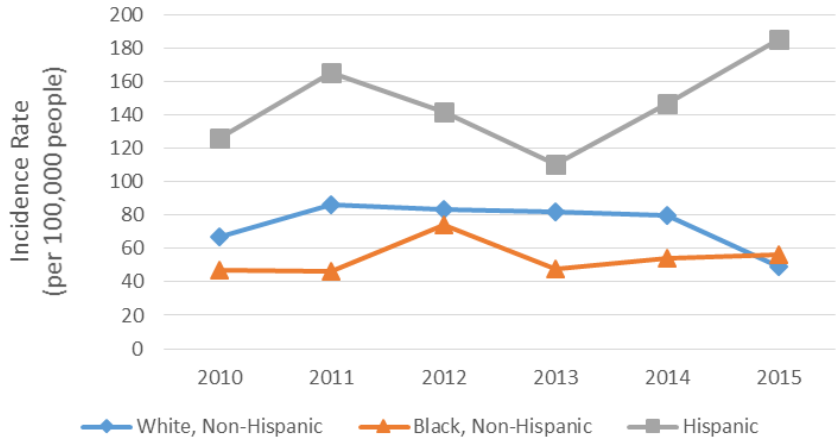


Figure 7. *Salmonella* Infection Incidence Rates by Race/Ethnicity among children age 5-18 years in Miami-Dade County, 2010-2015

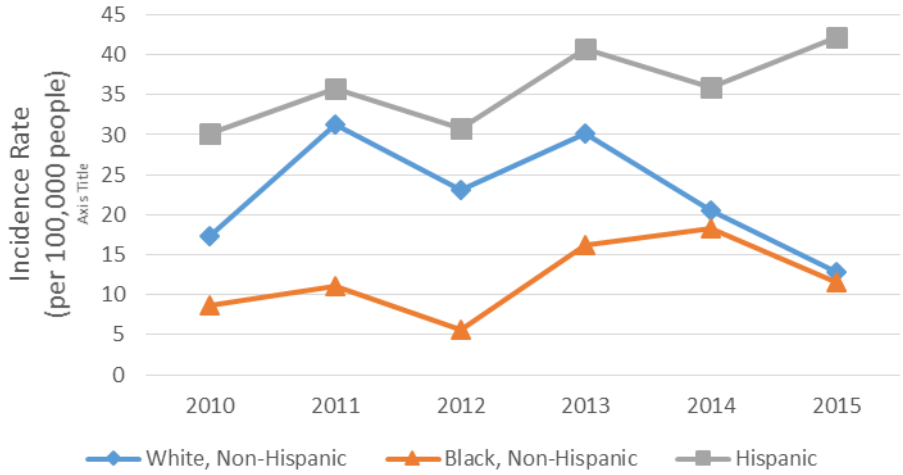


Figure 8. *Salmonella* Infection Incidence Rates by Race/Ethnicity among adults age 18-64 years in Miami-Dade County, 2010-2015

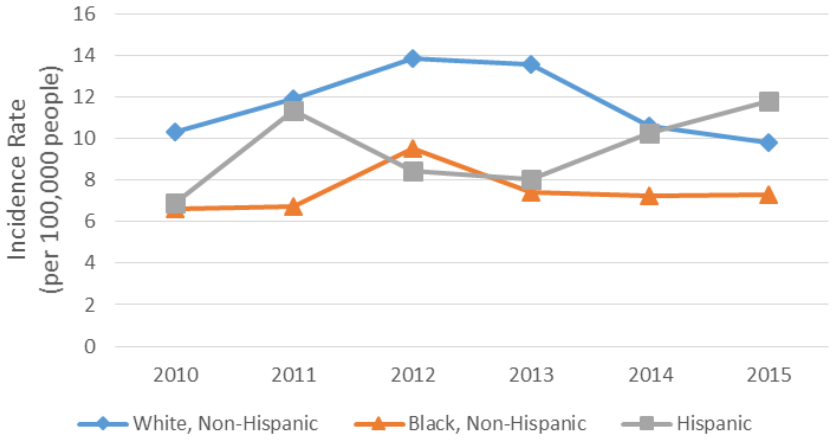
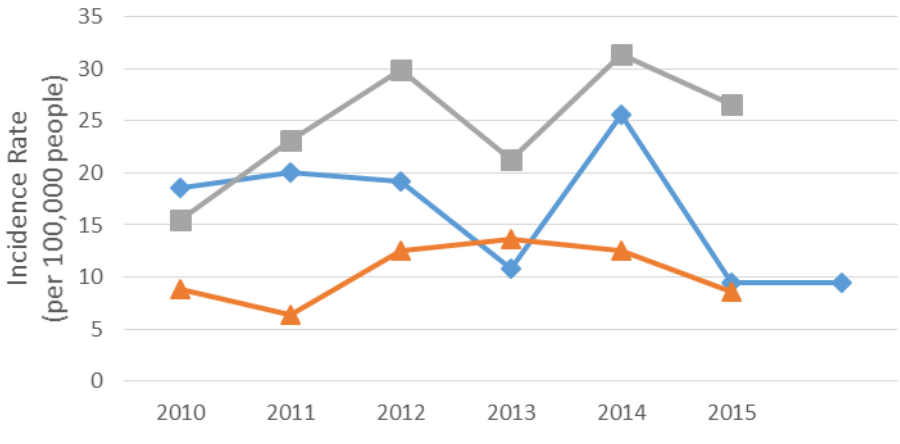
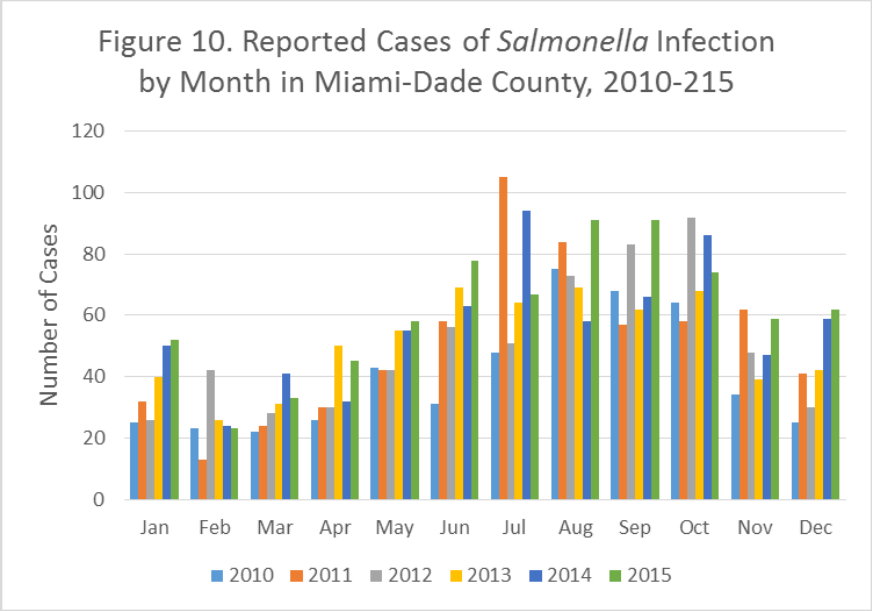
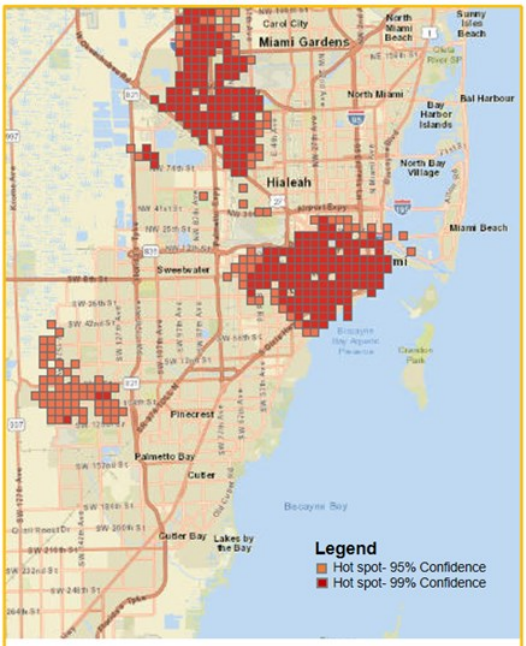


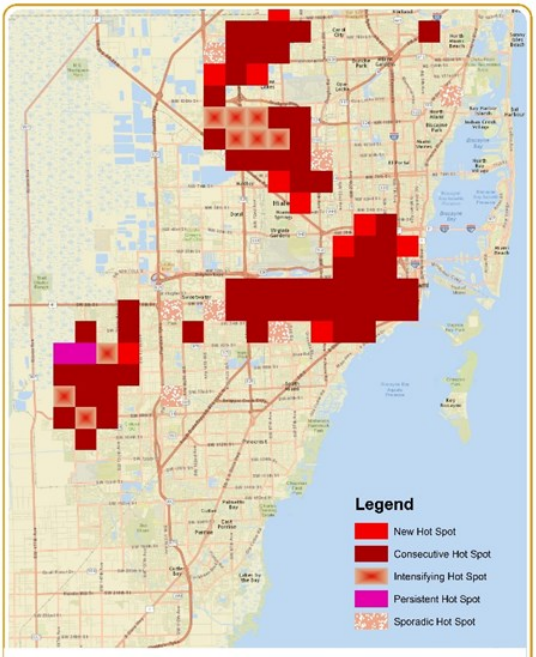
Figure 9. *Salmonella* Infection Incidence Rates by Race/Ethnicity among adults age 65 years or older in Miami-Dade County, 2010-2015







Clusters and Hot Spots of *Salmonella* Infection, Miami-Dade County, 2010-2015



Emerging Hot Spot Analysis for Salmonellosis, Miami-Dade County, 2006-2015

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Scallan E, Hoekstra RM, Angulo FJ, Tauxe RV, Widdowson M-A, Roy SL, et al. Foodborne illness acquired in the United States—major pathogens. Emerg Infect Dis. 2011 Jan.

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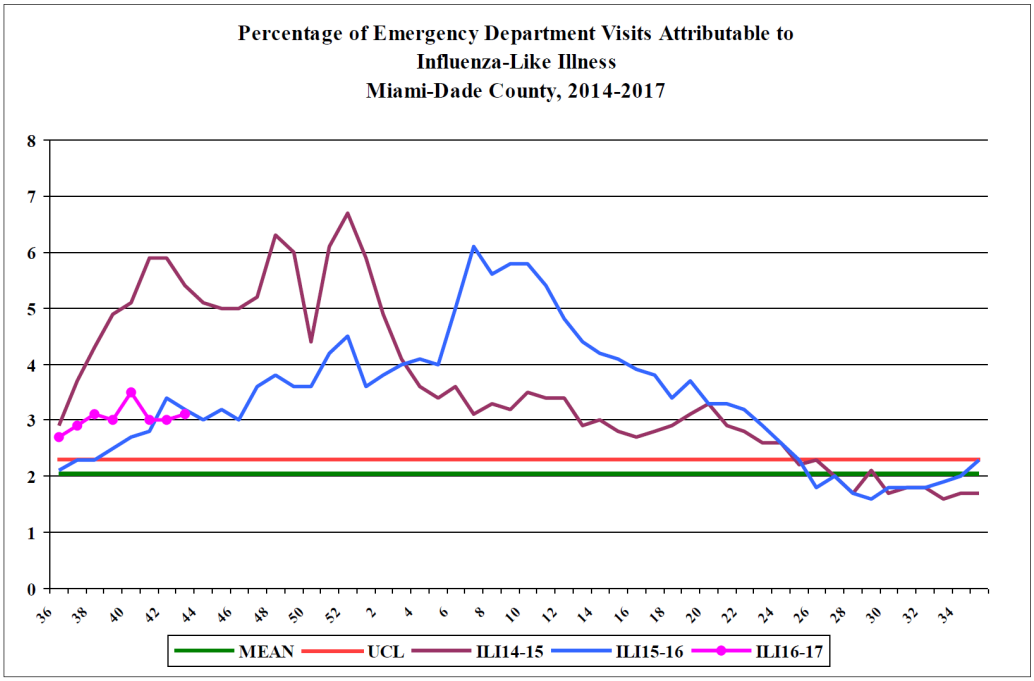
Influenza-Like-Illness, All Age



During this period, there were 27,425 ED visits; among them 844 (3.1%) were ILI. At the same week of last year, 3.2% of ED visits were ILI.

TO REPORT ANY DISEASE AND FOR INFORMATION CALL:
Epidemiology, Disease Control & Immunization Services

Childhood Lead Poisoning Prevention Program 305-470-6877
Hepatitis 305-470-5536
Immunizations or outbreaks 305-470-5660
HIV/AIDS Program 305-470-6999

STD Program 305-575-5430
Tuberculosis Program 305- 575-5415

Immunization Service 305-470-5660

To make an appointment.....786-845-0550

PARTICIPATE IN INFLUENZA SENTINEL PROVIDER SURVEILLANCE

Florida Department of Health in Miami-Dade County NEEDS Influenza Sentinel Providers!

Sentinel providers are key to the success of the Florida Department of Health's Influenza Surveillance System. Data reported by sentinel providers gives a picture of the influenza virus and ILI activity in the U.S. and Florida which can be used to guide prevention and control activities, vaccine strain selection, and patient care.

- Providers of any specialty, in any type of practice, are eligible to be sentinel providers.
- Most providers report that it takes **less than 30 minutes a week** to compile and report data on the total number of patients seen and the number of patients seen with influenza-like illness.
- Sentinel providers can submit specimens from a subset of patients to the state laboratory for virus isolation **free of charge**.

For more information, please contact

Lakisha Thomas at 305-470-5660.

About the Epi Monthly Report

The Epi Monthly Report is a publication of the Florida Department of Health in Miami-Dade County: Epidemiology, Disease Control & Immunization Services. The publication serves a primary audience of physicians, nurses, and public health professionals. Articles published in the Epi Monthly Report may focus on quantitative research and analysis, program updates, field investigations, or provider education. For more information or to submit an article, please contact Emily Moore at (305) 470-6918.

Miami-Dade County Monthly Report
Select Reportable Disease/Conditions
September 2016

Diseases/Conditions	2016 Current Month	2016 Year to Date	2015 Year to Date	2014 Year to Date
HIV/AIDS				
AIDS*	45	415	353	409
HIV	134	1215	1011	957
STD				
Infectious Syphilis*	29	313	237	261
Chlamydia*	870	9239	7552	7312
Gonorrhea*	206	2128	1483	1612
TB				
Tuberculosis**	7	75	79	92
Epidemiology, Disease Control & Immunization Services				
Epidemiology				
Campylobacteriosis	24	241	508	284
Chikungunya Fever	0	0	22	48
Ciguatera Poisoning	1	4	15	20
Cryptosporidiosis	1	22	36	30
Cyclosporiasis	0	2	3	1
Dengue Fever	6	17	16	27
Escherichia coli, Shiga Toxin-Producing	0	7	14	19
Encephalitis, West Nile Virus	0	0	0	0
Giardiasis, Acute	5	154	142	167
Influenza Novel Strain	0	0	0	0
Influenza, Pediatric Death	0	0	0	1
Legionellosis	3	14	20	14
Leptospirosis	0	0	1	0
Listeriosis	0	5	2	2
Lyme disease	0	0	4	5
Malaria	2	10	6	5
Meningitis (except aseptic)	0	7	6	15
Meningococcal Disease	0	0	6	7
Salmonella serotype Typhy (Typhoid Fever)	0	1	2	1
Salmonellosis	87	518	495	446
Shigellosis	6	60	113	632
Streptococcus pneumoniae, Drug Resistant	0	3	1	36
Vibriosis	1	7	16	6
West Nile Fever	0	0	0	0
Immunization Preventable Diseases				
Measles	0	4	0	0
Mumps	0	4	3	0
Pertussis	6	22	27	29
Rubella	0	0	0	0
Tetanus	0	0	0	0
Varicella	10	61	41	37
Hepatitis				
Hepatitis A	7	33	31	30
Hepatitis B (Acute)	3	13	12	9
Healthy Homes				
Lead Poisoning	2	74	63	59

*Data is provisional at the county level and is subject to edit checks by state and federal agencies.

** Data on tuberculosis are provisional at the county level.