

Epi Monthly

December 2023 Vol 24, Issue 12

Public Health LOOK OUT!

Florida Department of Health in Miami-Dade County

- Join us in observing **National Blood Donor Month** in **January!** In the month of January, there is a period of critical blood shortages. People stop donating blood during the holidays and when they get sick during cold and flu season. Just 1 donation can save up to 3 lives. Visit <https://www.aabb.org/for-donors-patients/give-blood> to schedule your appointment
- **Maternal Health Awareness Day** is observed on January 23rd! Access to maternal health care has become unobtainable for many patients in the United States due to ongoing financial, staffing, and policy challenges within hospitals. This is causing patients to travel longer distances or go without needed care. The 12 months after delivery is the most critical because that is when the most pregnancy-related complications occur. During this time, those living with maternal health conditions must have continuous access to care and treatment. Help raise awareness about how access to maternal health care is at risk in your community and how policy solutions and program implementations can restore access to care. On January 23rd, join the American College of Obstetricians and Gynecologists in discussing Access in Crisis using #MaternalHealthAwarenessDay on social media. Visit <https://www.acog.org/> for more information
- **World Leprosy Day** is observed on January 28th. Every day, more than 40 children are diagnosed with Leprosy and many more will miss early diagnosis due to stigma, fear, and lack of medical expertise. If Leprosy is detected early, it can be cured and lifelong disabilities can be prevented. World Leprosy Day is on the last Sunday of January and brings awareness to the needs of those who suffer from Leprosy. For more information visit <https://leprosy.org/world-leprosy-day/>

For the most recent information on COVID-19 in Florida please visit: <https://floridahealthcovid19.gov/>

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Donate today!

Mayo Clinic Blood Donor Program

(507) 284-4475

mayoclinic.org/donateblood

Click the image to the left to watch the video.

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Background

Ciguatoxins (CTX) are a group of neurotoxins that accumulate in coral reef fish and invertebrates and can cause Ciguatera Fish Poisoning (CFP) which is the most common marine toxin related illness. Ciguatoxins are tasteless, colorless, odorless, heat and acid stable.¹ Every year, approximately 50,000 cases are reported worldwide, but because CFP is underrecognized and underreported, its frequencies are underestimated.² From 2017-2022, the state of Florida reported a total of 247 cases, 57% (143/247) were in Miami-Dade County.³ The purpose of this study is to identify clinical and epidemiologic characteristics of CFP, as well as determine the demographic distribution of CFP cases in Miami-Dade County.

Clinical presentation

The symptoms of CFP occur within 6 to 24 hours of eating a toxic fish with a clinical presentation composed of gastrointestinal, neurological and cardiovascular symptoms as well as neuropsychological manifestations after the acute illness. Gastrointestinal symptoms include nausea, vomiting and diarrhea.⁴ Common neurologic symptoms include headache, pain and weakness in the legs, dysesthesias such as tingling sensations around the mouth and the extremities, and a distinctive symptom called cold allodynia, also known as hot-cold reversal.⁴ These neurologic symptoms can persist for weeks to months and may be linked to depression and oftentimes be associated with a recurrent condition that resembles chronic fatigue syndrome.⁴ Cardiovascular symptoms such as acute bradycardia and hypotension may be present in severe cases as well as restlessness and confusion.⁴ There are anecdotal reports indicating that after experiencing CFP, alcohol, any type of fish, caffeine, nuts, chicken, and pork ingestion can cause a recurrence of symptoms.⁵ Experiencing physical over exertion and dehydration have also been associated to recurrence.⁵

Transmission

Dinoflagellates are microscopic algae that are mostly found attached to seaweeds, living and dead corals, and other surfaces contained in shallow tropical and subtropical waters.⁶ These dinoflagellates of the genus *Gambierdiscus* are ingested by herbivorous fish where the toxins are produced, modified, and concentrated as they pass the marine food chain to carnivorous fish and to humans.⁶ Table 1 provides a list of the most commonly ciguatoxic fish to avoid.

Table 1.

Most Common Types of Ciguatoxic Fish		
Moray eel	Surgeonfish	Coral trout
Barracuda	Kingfish	Flowery cod
Grouper	Parrotfish	Red emperor
Jacks	Wrasses	Trevally
Amberjack	Hogfish	Triggerfish
Snapper	Narrow barred Spanish mackerel	

Diagnosis

There is no confirmatory laboratory test for Ciguatera fish poisoning; instead, diagnosis requires the expertise of the clinician and the special attention to the evolution of the symptoms.⁷ Most patients who present to the emergency department manifest gastrointestinal symptoms which causes a challenge for healthcare providers since it may be difficult to differentiate CFP from other types of food poisoning.⁷ If the patient presents to the emergency department with cardiovascular or neurological symptoms after gastrointestinal symptoms have resolved, healthcare providers should consider inquiring about symptoms manifested earlier in the course of the disease.^{7,8}

Treatment

To date, the use of mannitol continues to be the main treatment consideration for CFP.⁸ Mannitol is recommended for reducing acute symptoms and shortening the duration of symptoms after the acute phase.⁸ To treat gastrointestinal symptoms, adequate hydration with correction of any acid-base or electrolyte disturbance is recommended.⁸ For cardiovascular symptoms such as bradycardia/hypotension the use of atropine is recommended.⁸ After the acute period, most patients present with mild, self-limited neurologic symptoms without incurring in severity. However, there are some medications such as fluoxetine that have been used to treat persistent fatigue, amitriptyline for paresthesia, pruritus and paracetamol and nifedipine to treat cephalaea.⁸

Methods

Confirmed CFP cases in Miami-Dade County from 01/01/2017 to 12/31/2022 were obtained from the Florida Department of Health Epidemiology Disease Surveillance System, Merlin. The statistical analysis was conducted using SAS 9.4 and ArcGIS Pro 3.03 was used to produce a map of the case distribution in Miami-Dade County.

Results

Time Series

In Miami Dade County, a total of 143 confirmed cases of Ciguatera Fish Poisoning (CFP) were reported between January 1st, 2017, and December 31st, 2022. The frequency of CFP cases greatly increased from 15 in 2017 to 36 in 2018 and peaked at 47 cases in 2019 (Figure 1). From 2019 to 2020 cases decreased by 74%, and a second peak of 21 cases occurred in 2021. The frequency of confirmed cases declined by 43% from 2021 to 2022. When exploring seasonality of CFP, the highest frequency of confirmed cases was in the winter (December-February) and summer (June-August) months (Figure 2). Compared to other seasons, winter of 2019 had the highest frequency of CFP cases (Figure 2).

Figure 1.

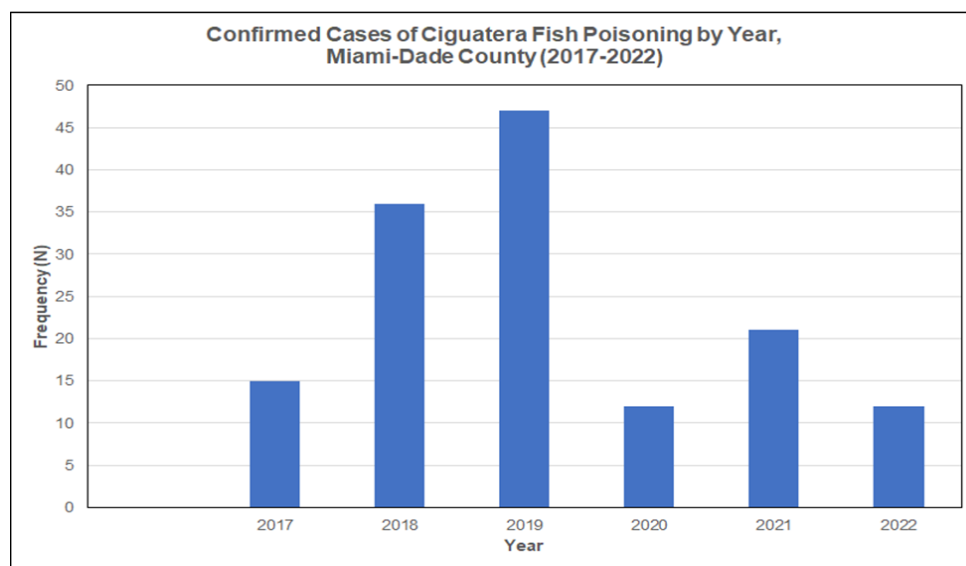
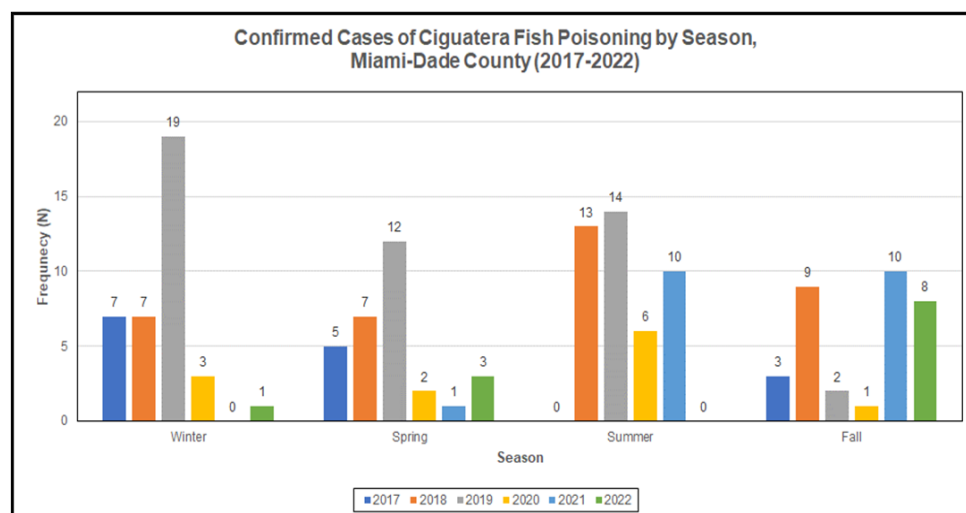


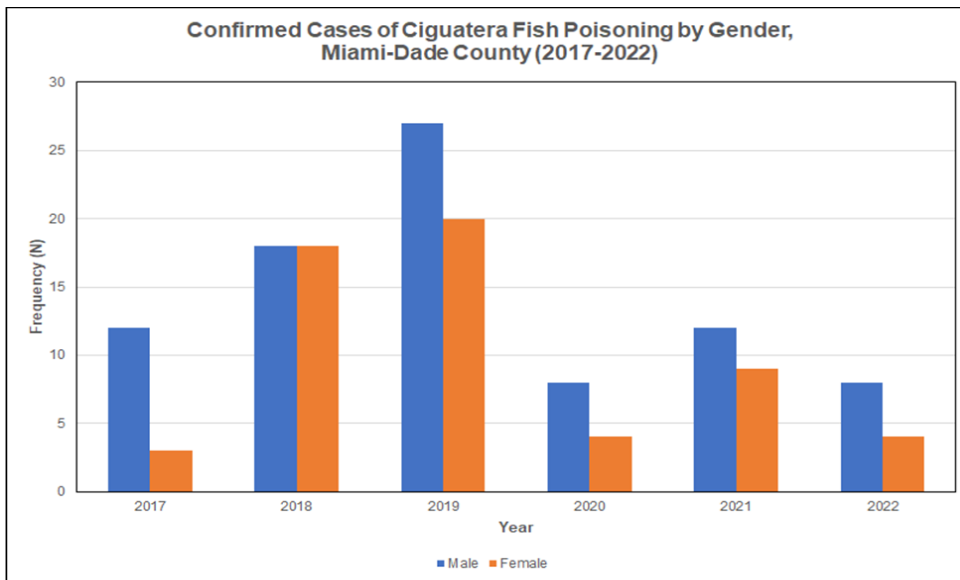
Figure 2.



Gender

Of the total confirmed CFP cases, 59% (85/143) were male and 41% (58/143) were female. From 2017 to 2022, the frequency of CFP illness fluctuated for males and females. Males experienced the largest increase from 18 in 2018 to 27 in 2019; whereas cases in females greatly increased from 3 in 2017 to 18 in 2018 (Figure 3).

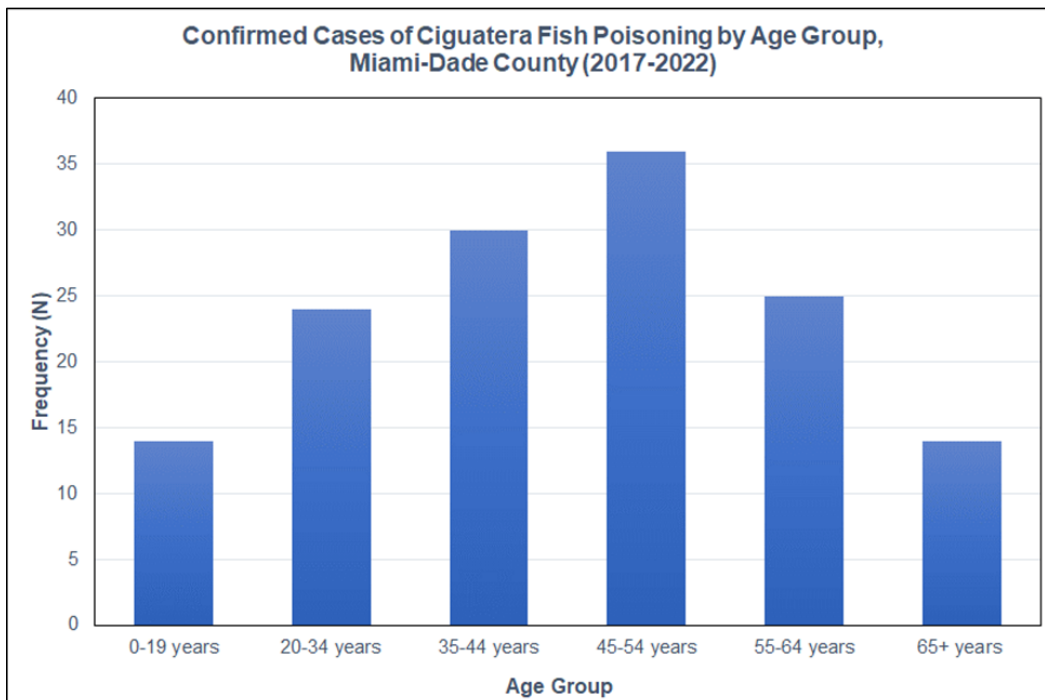
Figure 3.



Age Group

The ages with the highest percentage of CFP were adults 20-64 years old. Ages 45-54 had the highest percentage of CFP (25%, 36/143), followed by ages 35-44 (21%, 30/143), 55-64 (17%, 25/143) and 20-34 (17%, 24/143). The ages with the lowest percentage of CFP were ages 0-19 (10%, 14/143) and ages 65 years and older (10%, 14/143) (Figure 4).

Figure 4.



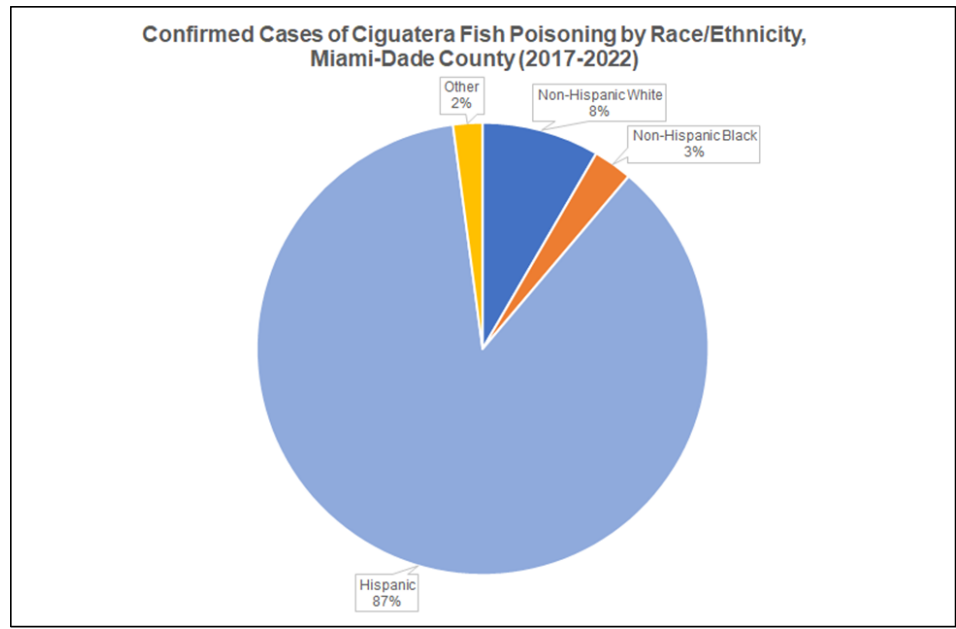
Race and Ethnicity

The percentage of confirmed CFP cases was higher among the Hispanic population (87%, 124/143). Next, Non-Hispanic Whites accounted for 8% (12/143) of all CFP cases, followed by Non-Hispanic Blacks (3%) and Others (2%) (Figure 5).

Symptoms

All confirmed cases of CFP reported more than one symptom. The most common symptoms were diarrhea (87%), vomiting (59%), nausea (50%), paresthesia (49%), abdominal pain (45%), cold allodynia (43%), myalgia (33%), arthralgia (31%), numbness (17%), metallic taste (13%), and blurred vision (1%). All other non-specific symptoms such as fever, malaise, and headache accounted for less than 1% (Table 2).

Figure 5.



Type of Fish and its Origin

Confirmed cases of CFP reported eating more than one type of fish and obtaining fish from multiple origins. The most reported fish eaten prior to illness was barracuda (64%, 92/143), followed by amberjack (13%, 18/143). All other types of fish consumed can be found in Table 2. When exploring origin of ciguateric fish, 66% were recreationally harvested, 24% were obtained by a friend, 6% were consumed in a restaurant, 6% obtained from a grocery store and 11% at an unknown location (Table 3).

Table 2.

Reported Symptoms of Ciguatera Fish Poisoning, Miami-Dade County (2017-2022) (N=143)	
Symptoms	Percent (%)
Diarrhea	87.4
Vomiting	59.4
Nausea	50.4
Paresthesia	49.0
Abdominal pain	44.8
Cold allodynia	43.4
Myalgia	32.9
Arthralgia	30.8
Numbness	16.8
Metallic taste	12.6
Blurred vision	1.4

Note: Patients may report more than one symptom

Table 3.

Type of Fish and Origin of Ciguatera Fish Poisoning, Miami-Dade County (2017-2022) (N=143)	
Type of Fish	Percent (%)
Barracuda	64.3
Amberjack	12.6
Snapper	7.7
Grouper	6.3
Hogfish	5.0
Mahi Mahi	0.6
Unknown fish	4.2
Origin	
Recreationally harvested	66.4
Obtained from a friend	24.5
Restaurant	6.3
Grocery store	6.3
Unknown	11.2

Note: Patients may report eating more than one type of fish and its origin

Outbreak Association

From 2017 to 2022, 34% of confirmed CFP cases were classified as sporadic, whereas the remaining 64% were outbreak associated (Table 4).

Table 4.

Frequency of Ciguatera Fish Poisoning by Outbreak and Sporadic Cases, Miami-Dade County (2017-2022) (N=143)		
Outbreak	Frequency	Percent (%)
Outbreak Associated	92	64.3
Sporadic	49	34.3
Unknown	2	1.4

Distribution of cases

Zip codes with the highest frequency of confirmed cases of CFP were observed in the Little Havana area (33125), Cutler Bay (33157) and Princeton (33170) (Figure 6).

Discussion

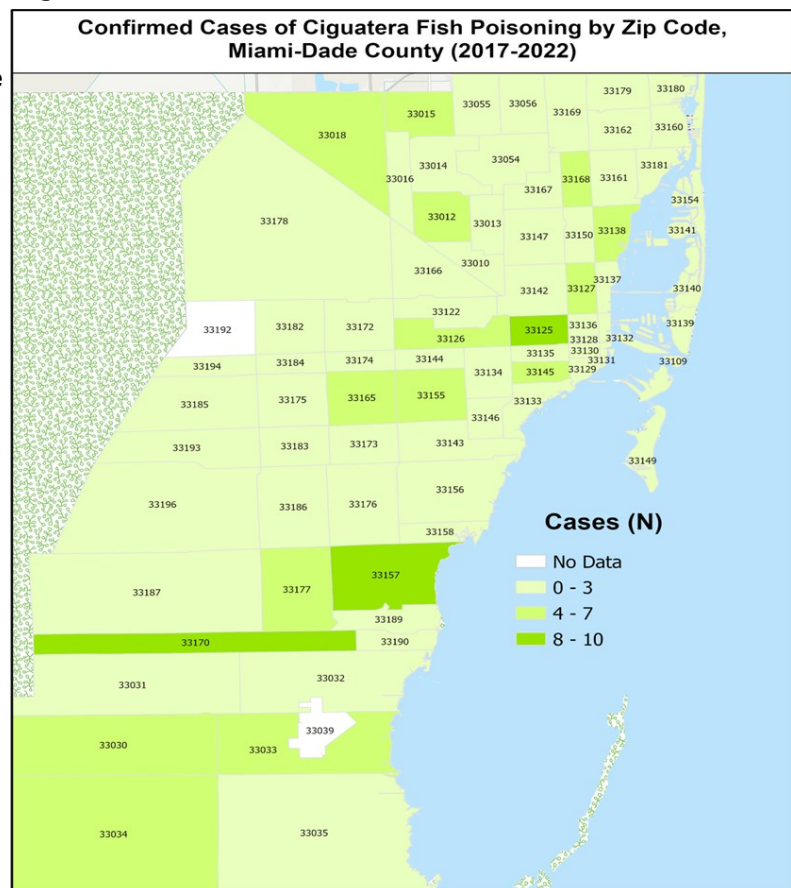
Ciguatera Fish Poisoning is an endemic disease that affects many tropical and subtropical areas around the world, including Miami-Dade County. From 2017-2022, Miami-Dade County accounted for 57% of all CFP cases in the state of Florida and peaked in 2019. The increase of CFP cases during summer and winter could be related to migratory patterns of potentially ciguateric fish.⁹

Next, ciguatera caused the highest burden in patients aged 34 to 54 who are known to be more prone to recreational fishing. This is also consistent with 66% of cases who reported the origin of fish as recreationally harvested. Throughout the six-year period, Hispanics accounted for the highest percentage of CFP cases. Cultural and dietary practices may be a contributing factor to this, as Hispanics are more likely to consume barracuda.¹⁰ Barracuda is known to be associated with cases of ciguatera and it was responsible for 64% of CFP cases in Miami-Dade County. Lastly, this analysis found that a higher percentage of CFP was reported in males compared to females. Susceptibility of toxicants may differ by gender due to hormonal, anatomic, immunologic and genetic factors that influence physiopathology, clinical manifestations and health behaviors.^{11,12}

Prevention

To decrease the rate of CFP, avoid or limit eating fresh reef fish such as barracuda and moray eel, as well as fish that weigh greater than five pounds.^{13,14} In addition, do not eat the fish's liver, intestines, eggs, or head, as these have the highest concentration of ciguatera toxins.^{13,14} Next, persons engaged in fish production such as capture, or handling are advised not to purchase or harvest fish from endemic areas. It is also fundamental to educate the public and healthcare providers about CFP to improve diagnoses and provide treatment to ciguateric fish consumers.

Figure 6.



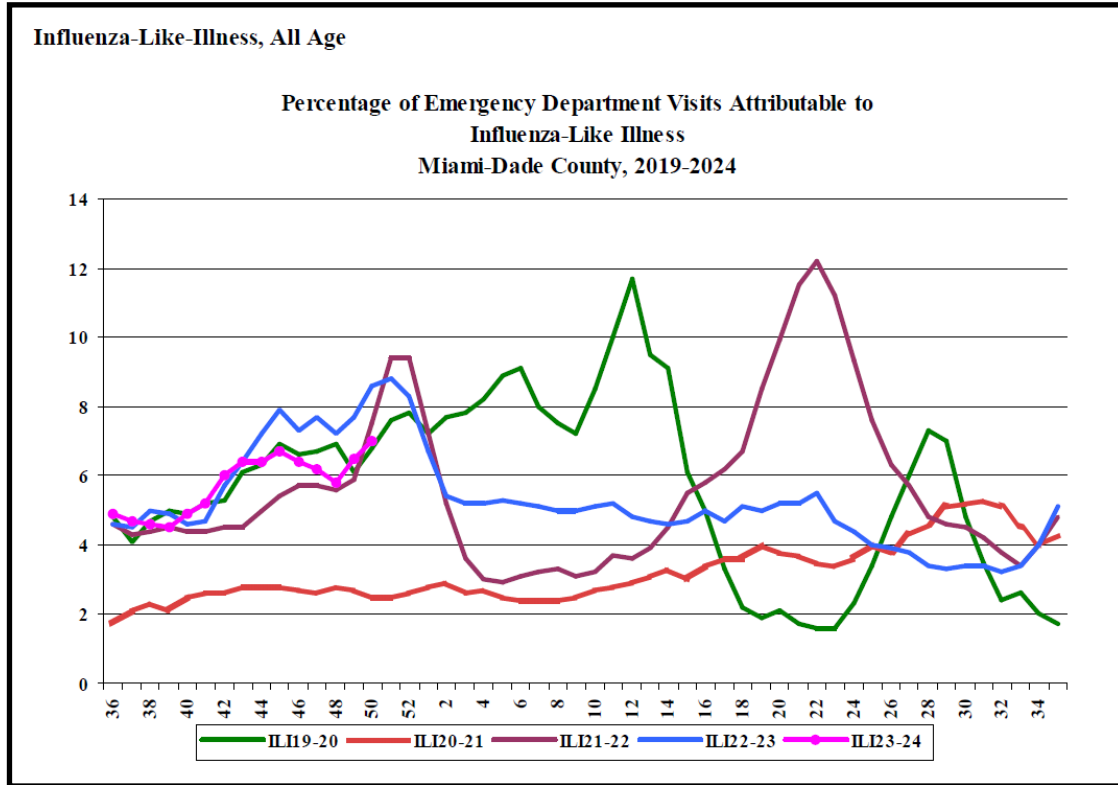
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Epidemiology, Disease Control and Immunization Services

Florida Department of Health in Miami-Dade County

On a daily basis, all of Miami-Dade County's emergency department (ED) hospitals electronically transmit ED data to the Florida Department of Health. This data is then categorized into 11 distinct syndromes. The influenza-like illness (ILI) syndrome consists of fever with either cough or sore throat. It can also include a chief complaint of "flu" or "ILI". This season's 2023-2024 data is compared to the previous 4 influenza seasons (2019-2020, 2020-2021, 2021-2022, 2022-2023).



There were 37,958 ED visits; among them 2,665 (7.0%) were due to ILI. During the same week last year, 8.6% of ED visits were ILI.

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
Stephanie Ramirez at 305-470-5660.



Miami-Dade County Monthly Report Select Reportable Disease/Conditions November 2023

Diseases/Conditions	2023 Current Month	2023 Year to Date	2022 Year to Date	2021 Year to Date
HIV/AIDS				
AIDS*	25	349	376	377
HIV	80	1219	1614	1185
STD				
Infectious Syphilis*	54	263	607	587
Chlamydia*	1292	14865	13129	13057
Gonorrhea*	648	6759	5741	5719
TB				
Tuberculosis**	9	131	122	84
Epidemiology, Disease Control & Immunization Services				
Epidemiology				
Campylobacteriosis	74	737	617	532
Chikungunya Fever	0	0	0	0
Ciguatera Poisoning	7	30	11	21
Cryptosporidiosis	4	91	72	52
Cyclosporiasis	1	34	71	19
Dengue Fever	84	446	583	5
Escherichia coli, Shiga Toxin-Producing	17	252	194	108
Encephalitis, West Nile Virus	0	0	0	0
Giardiasis, Acute	20	273	271	104
Influenza, Pediatric Death	1	3	0	0
Legionellosis	4	41	42	53
Leptospirosis	0	0	1	1
Listeriosis	1	5	8	9
Lyme disease	0	14	11	6
Malaria	0	7	6	5
Meningitis (except aseptic)	1	7	9	11
Meningococcal Disease	1	2	8	6
Salmonella serotype Typhi (Typhoid Fever)	0	5	0	1
Salmonellosis	110	1315	1339	995
Shigellosis	20	247	177	64
S. Pneumoniae, invasive disease	13	90	82	60
Vibriosis	4	38	37	25
West Nile Fever	0	0	0	2
Zika Virus (non-congenital)	0	0	0	0
Immunization Preventable Diseases				
Measles	0	1	0	0
Mumps	0	0	5	5
Pertussis	1	8	5	0
Rubella	0	0	0	0
Tetanus	0	0	0	0
Varicella	11	41	29	19
Hepatitis				
Hepatitis A	3	20	30	8
Hepatitis B (Acute)	1	65	85	38
Healthy Homes				
Lead Poisoning	47	471	360	107

For more information access: [The Florida Department of Health in Miami-Dade County Reportable Disease Handbook](#)



What's New at DOH-Miami-Dade!

- The Florida Department of Health's **Medical Foster Care Program** provides foster children with medical conditions an opportunity to receive care within a family setting. Training and support are provided to foster care parents who give in-home, family-based, and individualized care for children from birth to 21 years with medically complex needs. For more information visit <https://medicalfostercarefl.org/>
- **Florida Cancer Connect** is a centralized resource hub for information on cancer care, detection, prevention, research, treatment, caregiver tools, and stories from Floridians who have fought this disease. To review data and the approach to combat cancer, visit <https://flcancerconnect.com/>
- DOH Miami-Dade offers COVID-19 vaccines, vaccine boosters, pediatric vaccines, and flu shots. Visit miamidade.floridahealth.gov for clinic locations and appointments!

To report disease and for information, call EDC-IS at:

Childhood Lead Poisoning Prevention Program	305-470-6877
Epidemiology and Disease Surveillance	305-470-5660
Hepatitis Program	305-470-5536
HIV/AIDS Program	305-470-6999
Immunization Services	305-470-5660
STD Program	305-575-5430
Tuberculosis Program	305-575-5415
Appointment Line	786-845-0550



About the Epi Monthly

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 Kelsey Bricker at (305) 470-5643 or Kelsey.Bricker@flhealth.gov.

