



2024

Communicable Disease Report

PUBLIC HEALTH REPORT



Health &
Human Services

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1.0 INTRODUCTION AND OVERVIEW

Wake County Health and Human Services (WCHHS) provides the 10 Essential Public Health Services shown in Figure 1. Public Health reports (e.g., communicable disease, chronic disease, injuries) help fulfill public health essential services: 1. Assess and monitor population health and 2. Communicate effectively to inform and educate by sharing information on health and safety trends with Wake County residents, providers, policymakers, and the community to better inform decision-making. These reports are published annually and can be found at wake.gov/epidemiology.

Figure 1: Ten Essential Public Health Services

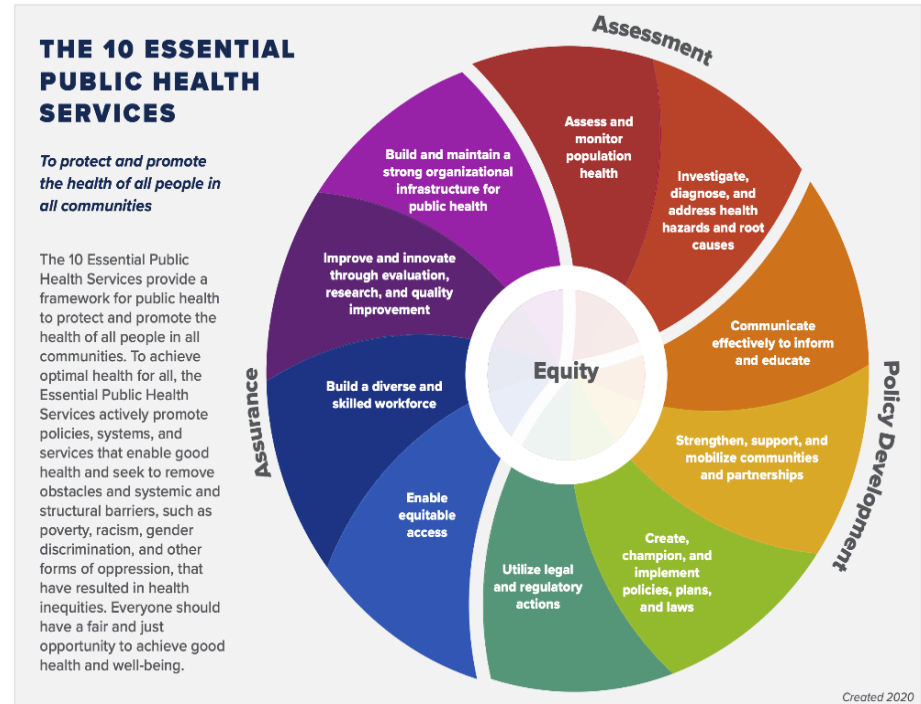


Image source: Centers for Disease Control and Prevention (CDC).

https://www.cdc.gov/public-health-gateway/php/about/?CDC_AAref_Val=https://www.cdc.gov/publichealthgateway/publichealthservices/essentialhealthservices.html

Communicable diseases, also known as infectious diseases, are illnesses caused by microorganisms such as bacteria, viruses, parasites, and fungi. The route of transmission varies by disease and may include direct contact with contaminated body fluids or excretions, contact with contaminated objects, inhalation of contaminated airborne particles, ingestion of contaminated food or water, or transmission from an animal or vector (i.e., arthropod) carrying the microorganism. This report contains information on the burden of communicable diseases in Wake County including:

- Demographic composition of the county's population
- Counts and rates of all reportable diseases and conditions for Wake County, NC (2019-2023)
- Detailed analysis of the top ten reported diseases for Wake County, NC (2023)
- Respiratory virus surveillance in Wake County, NC (2023-2024 season)

Additionally, Wake County Health and Human Services Public Health program' efforts to assess, identify, treat, follow up and prevent reportable (and some non-reportable) communicable diseases and conditions in Wake County.

2.0 SURVEILLANCE

In North Carolina, there are more than 75 reportable diseases and conditions that are determined to be of public health significance and are specified in the N.C. Administrative Code rule 10A NCAC 41A.0101. When a case of these diseases/conditions occurs, it must be reported to the North Carolina Department of Health and Human Services (NCDHHS). Many of these diseases/conditions must also be reported to the Centers for Disease Control and Prevention (CDC) as part of national public health surveillance.

Most of the diseases reported to NCDHHS are tracked through the North Carolina Electronic Disease Surveillance System (NCEDSS) but a few have their own reporting systems, such as the Enhanced HIV/AIDS Reporting System (eHARS).¹ NCEDSS and other databases diseases are reported to contribute to public health surveillance, which is "the ongoing, systematic collection, analysis, and interpretation of health-related data essential to planning, implementation, and evaluation of public health practice".² Although the list of reportable diseases may vary slightly from state to state, all states use the same criteria to define what constitutes a case of a given disease. Timely and complete disease reporting allows public health practitioners to monitor and respond to the changing health status of their community. It also helps ensure that prevention activities reach the right people, and that public health and community programs get the resources they need.¹

Case definitions are different for each reportable disease but, in general, a confirmed case requires both clinical symptoms and a positive laboratory test. A probable case has clinical symptoms and meets other criteria such as knowing how and when the individual was exposed (epidemiological linkage). A suspect case generally has clinical symptoms but no confirmatory lab test or epidemiological linkage. In this report, to ensure comprehensive reporting and capture all potential cases, we include all statuses (confirmed, probable, and suspect) for most of the diseases and conditions. This approach helps to avoid overlooking any opportunities to identify positive cases and monitor the spread of diseases accurately. By considering all possible scenarios, including probable and suspect cases, we can maintain a thorough and inclusive surveillance system.

2.1 EMERGING SURVEILLANCE: WASTEWATER MONITORING

Wastewater monitoring is an early detection tool that can help communities prepare for and take action to address increasing cases of infectious diseases. In response to the COVID-19 pandemic, the Centers for Disease Control and Prevention (CDC) launched the National Wastewater Surveillance System (NWSS) in September 2020.³ The CDC developed NWSS to coordinate and build the nation's capacity to track the presence of SARS-CoV-2, the virus that causes COVID-19, in wastewater samples collected across the country.³ Today, CDC's NWSS works with health departments to track SARS-CoV-2 levels in wastewater so communities can act quickly to prevent the spread of COVID-19 and other infectious diseases.³ In October 2021, five wastewater treatment plants (WWTPs) in Wake County began collecting wastewater samples twice per week. WWTPs in Wake County now collect wastewater samples weekly to monitor Respiratory Syncytial Virus (RSV), Influenza A (Flu A), Influenza B (Flu B), and Mpox.

The process of wastewater monitoring involves several key steps, including:

1. People with certain infections (such as COVID-19), can shed pieces of the virus or bacteria when they use the bathroom, shower, wash hands, or launder clothing, even if they don't have symptoms.
2. These pieces of virus or bacteria travel from the toilet, sink, shower, or other drain through the sewage system.
3. Before wastewater is treated, wastewater operators take samples to send to the laboratory.
4. Laboratories test the wastewater sample to detect and report on the different types of infections that are circulating in a community. This information can be available as quickly as 5 to 7 days after the wastewater sample is collected.
5. Public health officials use wastewater data to better understand disease trends in communities and make decisions, such as providing guidance on how to prevent infections or increasing testing or vaccination options.⁴

Wastewater monitoring data can be used with other disease surveillance data (such as hospital visits or clinical testing data) to provide a more complete picture of disease spread within a community.⁴ As an emerging surveillance tool, wastewater monitoring has already made its impact as a great contributor to public health surveillance, and public health practitioners have great hope it will continue to transform local efforts to prevent the spread of infections.

3.0 KEY FINDINGS

- During this respiratory virus season (October 2023–May 2024), influenza-like illness (ILI) and COVID-19 cases are lower than last year, while RSV cases are higher. In March 2024, the CDC released updated recommendations for respiratory viruses. This guidance offers a unified approach to addressing risks from different respiratory viruses and emphasizes the importance and continuation of preventive strategies (immunizations, hygiene, and taking steps for cleaner air) to protect oneself and others.
- Rates of foodborne diseases continue to increase year to year.
- Rates of early syphilis and newly diagnosed HIV decreased from 2022 to 2023 and are currently below North Carolina's rates.
- Rates of Tuberculosis continue to increase year to year, with a 10% increase in 2023 compared to 2022.

4.0 DEMOGRAPHIC PROFILE OF WAKE COUNTY

- In 2022, the median age of people living in Wake County was 37.3 years.
- More than half of the population (55.1%) in Wake County is between the ages of 25 and 64 years.
- 51% of Wake County residents are female and 49% are male.
- The four largest ethnic groups in Wake County are White (Non-Hispanic) (58.3%), Black or African American (Non-Hispanic) (20.8%), Hispanic or Latino (10.6%) and Asian (8.9%) (Table 2).

Table 1: Population Distribution by Sex, Wake County, NC 2022

Sex	Population	Percent
Female	597,948	51%
Male	577,073	49%
Total	1,175,021	100%

Table 2: Population Distribution by Race/Ethnicity, Wake County, NC 2022

Race/Ethnicity	Total Population *1,175,021	Percent
Non-Hispanic White	670,722	58.3%
Non-Hispanic Black	224,385	20.8%
Hispanic or Latino	124,402	10.6%
Asian	100,571	8.9%
Two or more races	105,686	2.8%
American Indian/ Alaska Native	3,043	0.8%
Native American	391	0.1%

Table 3: Population Distribution by Age Group, Wake County, NC 2022

Age Group	Total Population N = 1,175,021	Percent
<15	217,516	18.5%
15-24	157,180	13.4%
25-34	171,571	14.6%
35-44	175,493	14.9%
45-54	164,273	14.0%
55-64	135,843	11.6%
65+	153,145	13.0%

Source for Tables 1-3: 2022 American Community Survey Estimates, United States Census Bureau. Note: Percentages may not sum to 100% due to rounding. *This is the total including residents who identified as "other" race, which is not shown in the current table.

5.0 TOP TEN REPORTED COMMUNICABLE DISEASES IN WAKE COUNTY, 2023

Table 4: Top Ten Reported Communicable Diseases, Wake County, 2023

	Diseases and conditions	Cases, All Statuses (Confirmed, Suspect, Probable)
1	Chlamydia+	6266
2	Gonorrhea+	2448
3	Early syphilis*+	314
4	Salmonellosis	257
5	Campylobacter	252
6	Hepatitis B, Chronic	136
7	HIV, New+	135
8	<i>E. coli</i>	79
9	Shigellosis	72
10	Cryptosporidiosis	68

Notes: Cases are reported as “**confirmed**” when laboratory tests definitively identify the infectious agent. “**Probable**” cases lack confirmatory tests but have strong clinical symptoms or epidemiological evidence suggestive of the disease. “**Suspect**” cases lack both laboratory confirmation and epidemiologic evidence but has typical clinical features. For some diseases (e.g. Sexually Transmitted Diseases (STDs) such as Chlamydia and Gonorrhea) only confirmed cases are reported.

*Early syphilis includes primary, secondary, and early non-primary non-secondary cases. Additionally, the early syphilis data in this report include both confirmed and probable cases due to a change in the case definition that occurred in 2022. The breakdown of primary, secondary, and early non-primary non-secondary syphilis cases, along with details regarding syphilis case definitions, can be found in the Sexually Transmitted Diseases (STDs) section.

+The counts for sexually transmitted diseases in this table are limited to cases with Wake County residential addresses. Counts may differ from the *Counts and Rates of Reportable Diseases and Conditions in Wake County, NC* table later in this report (NCDHHS includes individuals who were tested in Wake County but have addresses in other counties in their counts).

6.0 VACCINE PREVENTABLE DISEASES

Hepatitis B

<https://www.cdc.gov/hepatitis-b>

Epidemiology

Overview: Hepatitis B is a vaccine preventable liver infection caused by the hepatitis B virus (HBV).

Symptoms: Not all cases have symptoms. Symptoms can include fatigue, poor appetite, stomach pain, nausea, and jaundice. Chronic infection can lead to serious issues such as liver disease and liver cancer.

Transmission: HBV is transmitted through activities that involve puncturing the skin or mucous membrane contact with infectious blood or body fluids (e.g., semen, saliva).

Treatment: Mostly supportive care (e.g., rest, good nutrition, plenty of fluids, avoiding alcohol, drugs, etc.).

Prevention: Vaccination is the best prevention. Other prevention methods include not sharing personal items like razors, not sharing needles or drug equipment, and safer sex practices.

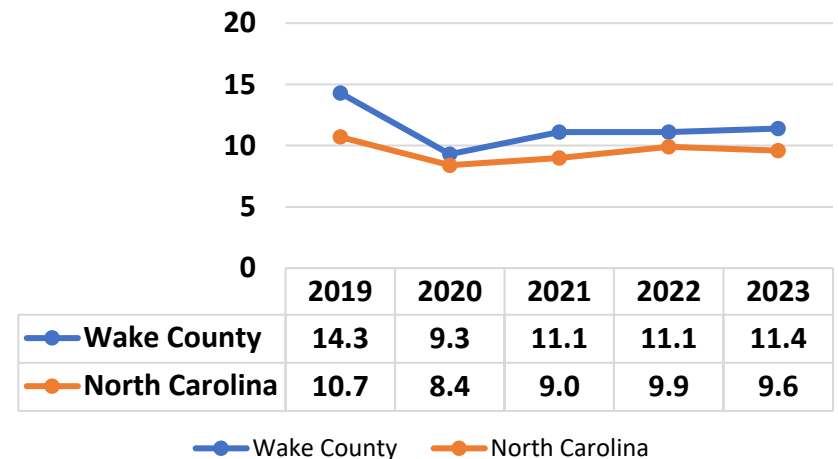
Local Facts and Figures:

The hepatitis B incidence rate in Wake County increased by 3% in 2023 compared to 2022.

In 2023:

- 136 cases were reported.
- 57% of cases were ages 25–49 years.
- 33% of cases were reported among Asians.

Figure 2: Hepatitis B Incidence Rates, 2019-2023



*Rate per 100,000 population

Figure 3: Hepatitis B by Age Group, 2023

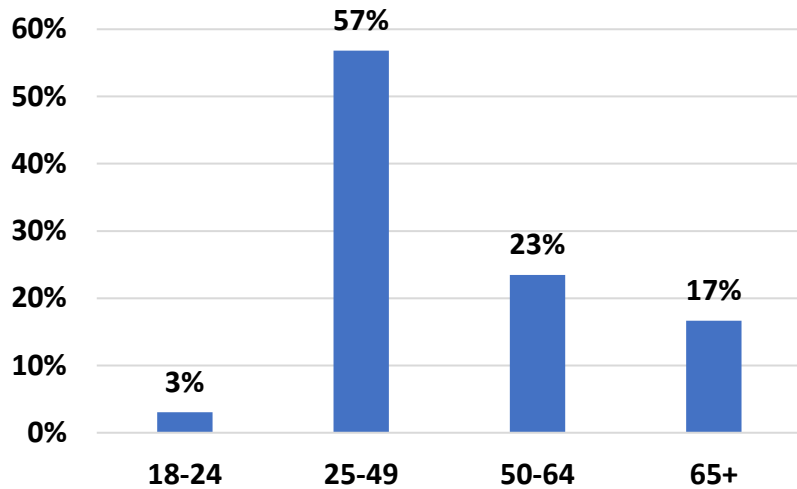


Figure 4: Hepatitis B by Race, 2023

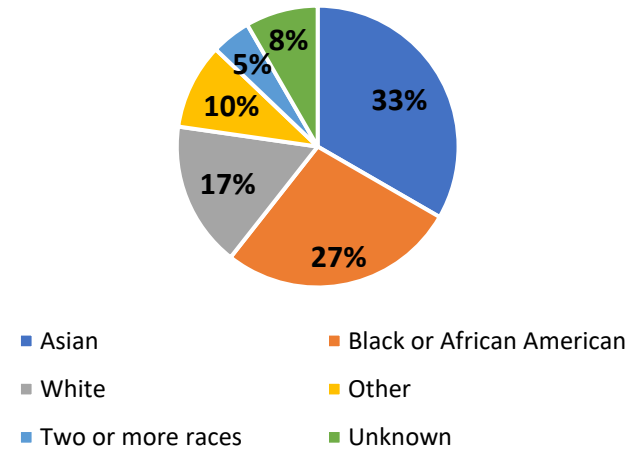
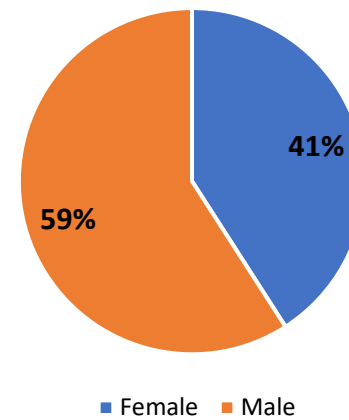
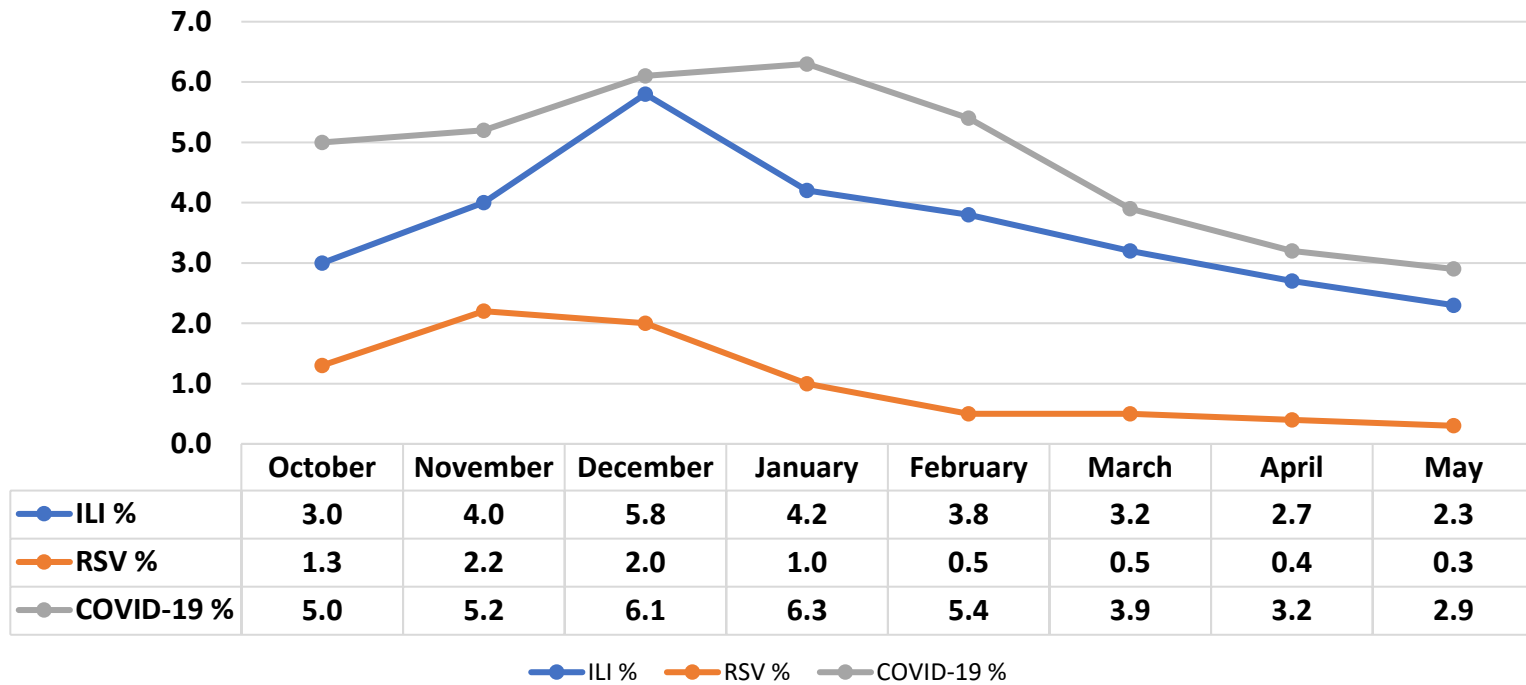


Figure 5: Hepatitis B by Sex, 2023



7.0 RESPIRATORY VIRUS SURVEILLANCE

Figure 6: Percent of Emergency Department (ED) Visits, ILI, RSV, COVID-19, 2023-2024



*COVID-19- COVID-19 is an illness caused by the SARS-CoV-2 virus, leading to severe respiratory symptoms.

*Influenza-like illness (ILI)- ILI is defined as fever (temperature over 100F or greater) and cough and/or sore throat.

*Respiratory Syncytial Virus (RSV)-RSV is a common respiratory virus that usually causes mild, cold-like symptoms. It is the most common cause of bronchiolitis and pneumonia in children younger than 1 year of age.

During the 2023-2024 respiratory virus season, Emergency Department (ED) visits for ILI, RSV, and COVID-19 peaked between November and December and then declined. The previous year, ILI and RSV peaked between October and November. This season, ILI and COVID-19 cases are lower than last year, while RSV cases are higher.

For all three viruses, the most affected age group was 0-4 years, suggesting a higher vulnerability to getting sick from respiratory viruses among young children. In terms of race, for ILI and COVID-19, the highest percentage of ED visits were among the Black population (42% and 41%, respectively), whereas for RSV, the highest percentage of ED visits were among the White population (35%).

The Wake County Health and Human Services (WCHHS) Communicable Disease Surveillance Team (CDST) investigated 77 COVID-19 outbreaks from January 1, 2023, to December 31, 2023, all of which occurred in long-term care facilities (outbreaks can also occur in childcare facilities, schools, and other settings).

In March 2024, the Centers for Disease Control and Prevention (CDC) released updated recommendations for respiratory viruses. This guidance offers a unified approach to addressing risks from different respiratory viruses including COVID-19, flu, and RSV and emphasizes the importance of immunizations, hygiene, and taking steps for cleaner air for respiratory virus protection.

The CDC recommends that people stay home and away from others if they have respiratory virus symptoms. Further, people may return to normal activities when, for **at least 24 hours both are true:**

1. Symptoms are getting better overall, **AND**
2. They have not had a fever (and are not using fever-reducing medication)

Added precautions for five days after time at home and away from others is over, **is encouraged**. Using prevention strategies, such as taking more steps for cleaner air, enhancing hygiene practices, wearing a well-fitting mask, keeping a distance from others, and/or getting tested for respiratory viruses can lower the chance of spreading respiratory viruses to others.

In addition to the guidance above, the CDC also offers additional actions for people to take to help protect themselves and others from health risks caused by respiratory viruses. The core preventive strategies include:

- Staying up to date with vaccination to protect you and others against serious illness, hospitalization, and death. This includes flu, COVID-19, and RSV if eligible.
- Practicing good hygiene by covering coughs and sneezes, washing or sanitizing hands often, and cleaning frequently touched surfaces.
- Taking steps for cleaner air, such as bringing in more fresh outside air, purifying indoor air, or gathering outdoors.
- If you get sick with a respiratory virus, please stay home and away from others.

For more information regarding these core prevention strategies and more, please visit <https://www.cdc.gov/respiratory-viruses/guidance/respiratory-virus-guidance.html>

8.0 TUBERCULOSIS

Tuberculosis

<https://www.cdc.gov/tb/topic/basics/default.htm>

Epidemiology

Overview: Tuberculosis (TB) is caused by the bacterium *Mycobacterium tuberculosis*. The bacteria typically attack the lungs but can attack any part of the body such as the kidney, spine, and brain.

Not all TB bacteria infections lead to sickness. Consequently, two TB-related conditions exist: latent TB infection, where the bacteria reside in the body without causing illness, and TB disease, wherein active bacteria will make the person sick.

Symptoms: Bad cough that lasts three weeks or longer, chest pain, coughing up blood or sputum, weakness or fatigue, weight loss, no appetite, chills, fever, sweating at night.

Transmission: TB bacteria can spread through the air from one person to another.

Treatment: Treatment can take four, six, or nine months depending on the regimen which includes a four-month rifapentine-moxifloxacin regimen and a six- or nine-month RIPE (rifampin, isoniazid, pyrazinamide and ethambutol) TB regimen. Directly Observed Therapy (DOT) helps patients' complete treatment.

Prevention: Close contact with infectious TB patients should be avoided.

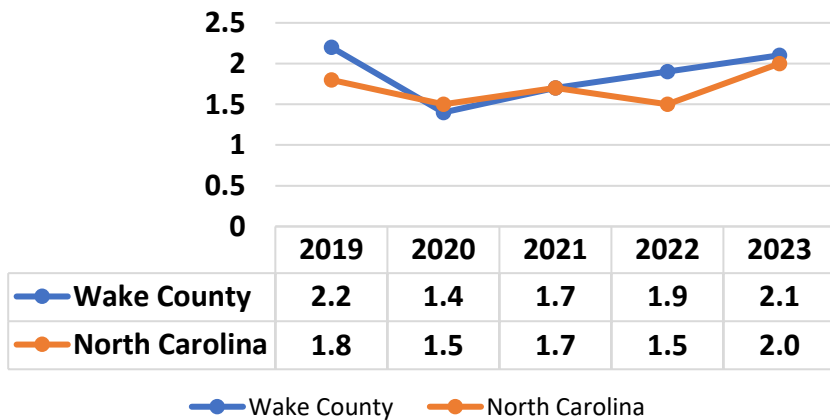
Local Facts and Figures:

Tuberculosis incidence rates in Wake County increased by 10% in 2023 compared to 2022.

In 2023:

- 25 cases were reported.
- Majority of cases (68%) reported among ages 25-44 years.
- 40% of cases reported among the Black population and 36% of cases reported among the Asian population.

Figure 7: Tuberculosis Incidence Rates, 2019-2023



*Rate per 100,000 population

Figure 8: Tuberculosis by Age Group, 2023

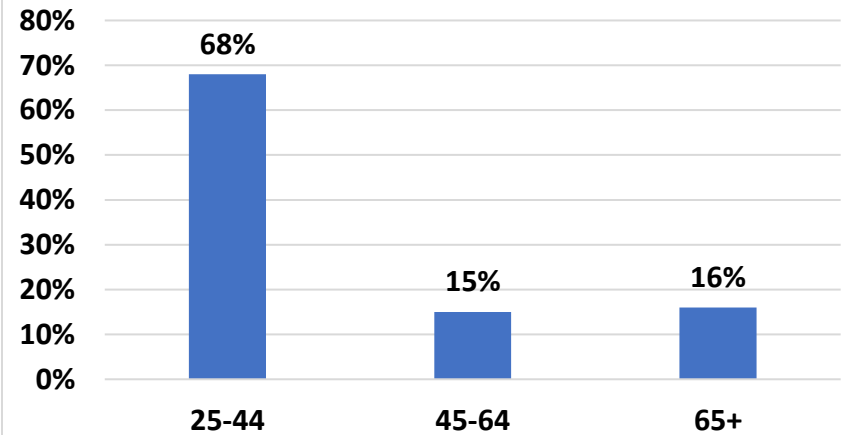


Figure 9: Tuberculosis by Race, 2023

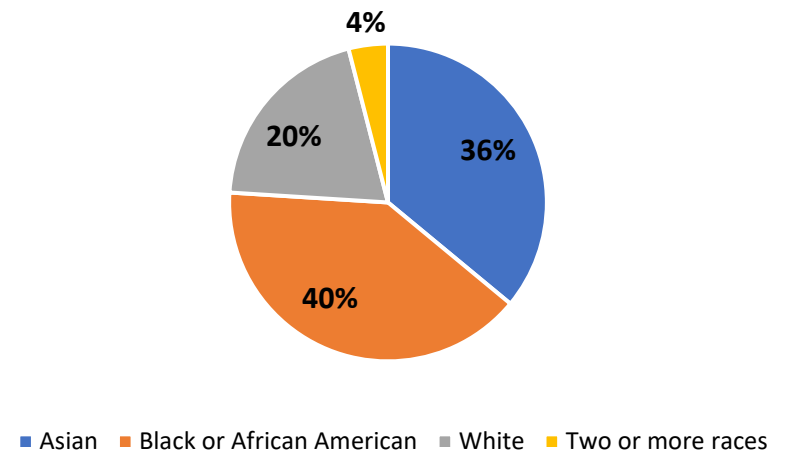
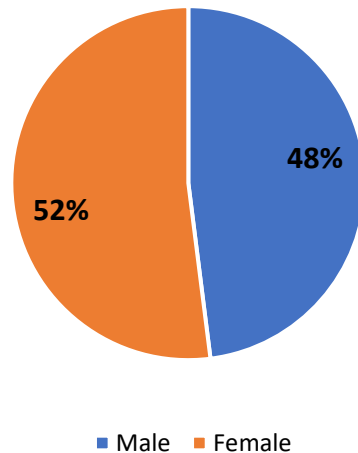


Figure 10: Tuberculosis by Sex, 2023



9.0 FOODBORNE DISEASES

Salmonellosis

<https://www.cdc.gov/salmonella>

Epidemiology

Overview: Salmonellosis is an infectious disease caused by *Salmonella* bacteria.

Symptoms: Common symptoms include diarrhea, fever, and abdominal cramps 12 to 72 hours after infection.

Transmission: Transmission occurs by eating or drinking contaminated food or water. *Salmonella* bacteria is also spread by direct contact with an infected person or animal.

Treatment: Most people recover without treatment. However, small children, the elderly, and those with severe diarrhea should see a healthcare provider for treatment options.

Prevention: Prevention methods include washing hands after contact with animals and before eating, drinking only pasteurized milk, avoiding untreated water, and cooking food to temperature.

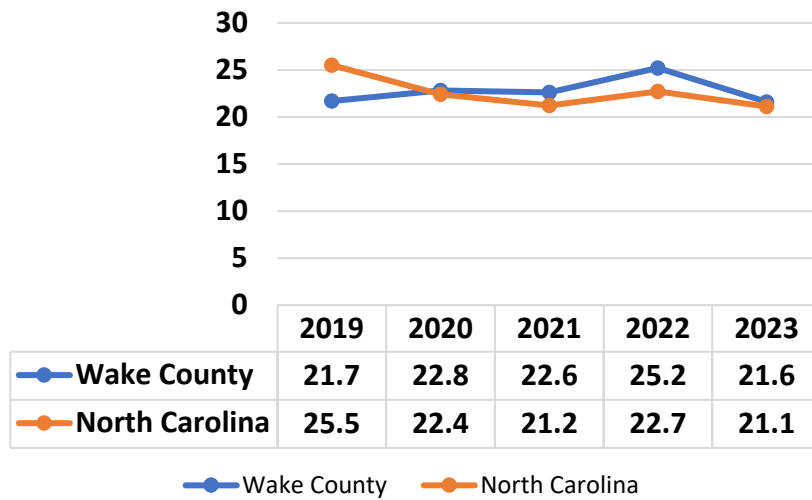
Local Facts and Figures:

Salmonellosis incidence rates in Wake County decreased by 14% in 2023 compared to 2022.

In 2023:

- 257 cases were reported.
- 26% of cases were reported among those ages 0–4 years.
- 58% of cases were among the White population.

Figure 11: Salmonellosis Incidence Rates, 2019-2023



*Rate per 100,000 population

Figure 12: Salmonellosis by Age Group, 2023

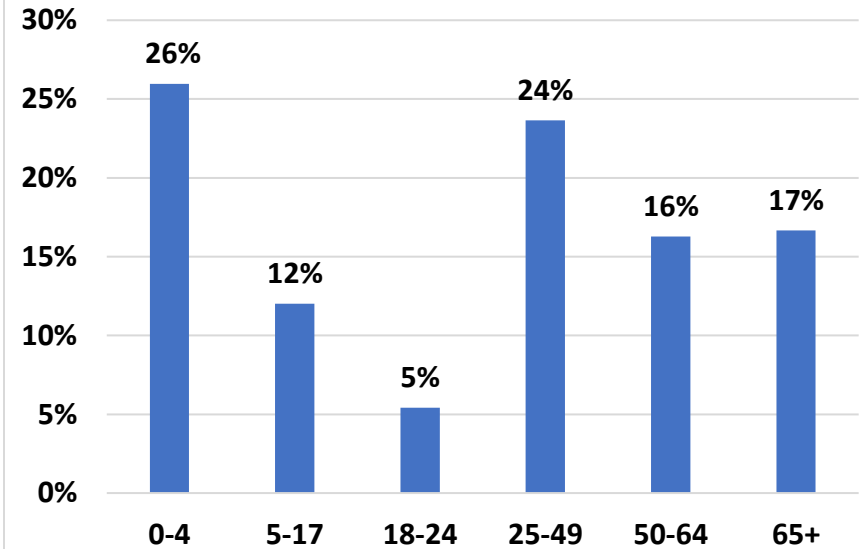
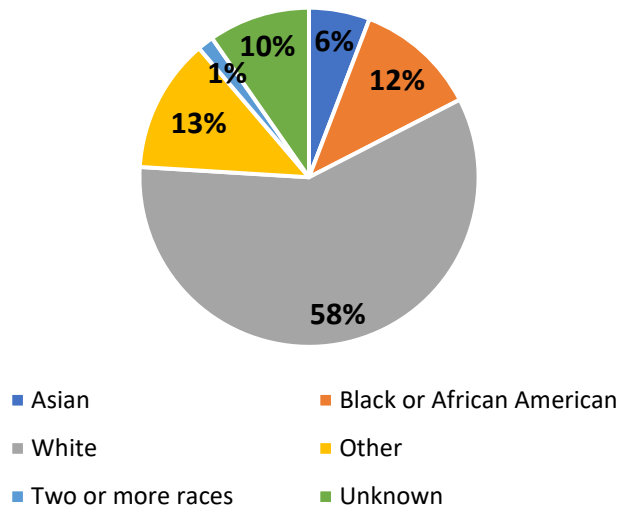
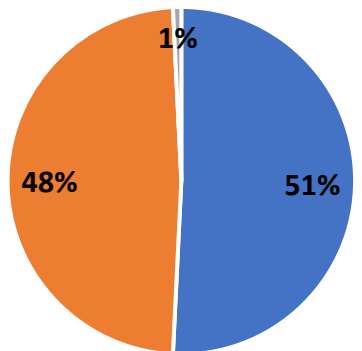


Figure 13: Salmonellosis by Race, 2023



■ Asian ■ Black or African American
■ White ■ Other
■ Two or more races ■ Unknown

Figure 14: Salmonellosis by Sex, 2023



■ Female ■ Male ■ Unknown

Campylobacteriosis

<https://www.cdc.gov/campylobacter>

Epidemiology

Overview: Campylobacteriosis is an infectious disease caused by the *Campylobacter* bacteria. It is one of the most common causes of diarrheal illness in the U.S.

Symptoms: Symptoms typically include diarrhea (often bloody), fever, abdominal cramps, and bloating. Symptoms occur within 2-5 days after exposure and last about a week.

Transmission: Most infections are associated with eating raw or undercooked poultry or contamination transferred to other foods.

Treatment: Most people recover without treatment and antibiotics are only recommended for the very ill.

Prevention: Proper hand hygiene before eating and after contact with animals will help prevent the spread of disease. Avoiding raw milk also helps to prevent infection.

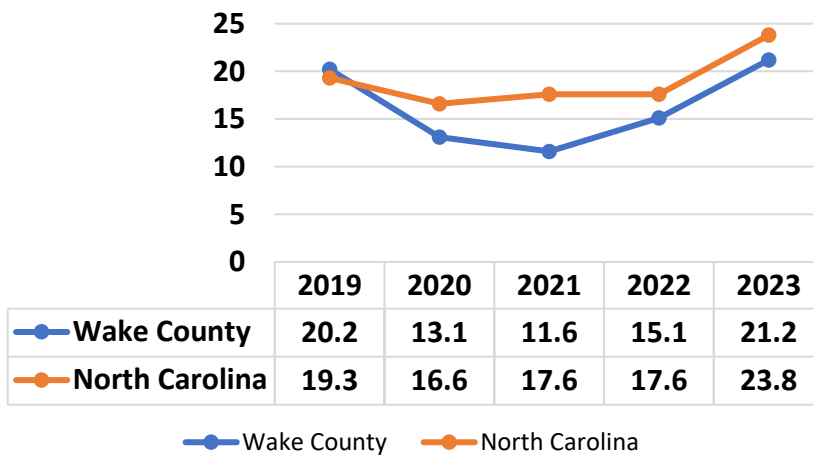
Local Facts and Figures:

Campylobacteriosis incidence rates in Wake County increased by 40% in 2023 compared to 2022.

In 2023:

- 252 cases were reported.
- 33% of cases were reported among those between the ages of 25 and 49 years.
- Majority (55%) of cases were reported among the White population.

Figure 15: Campylobacteriosis Incidence Rates, 2019-2023



*Rate per 100,000 population

Figure 16: Campylobacteriosis by Age Group, 2023

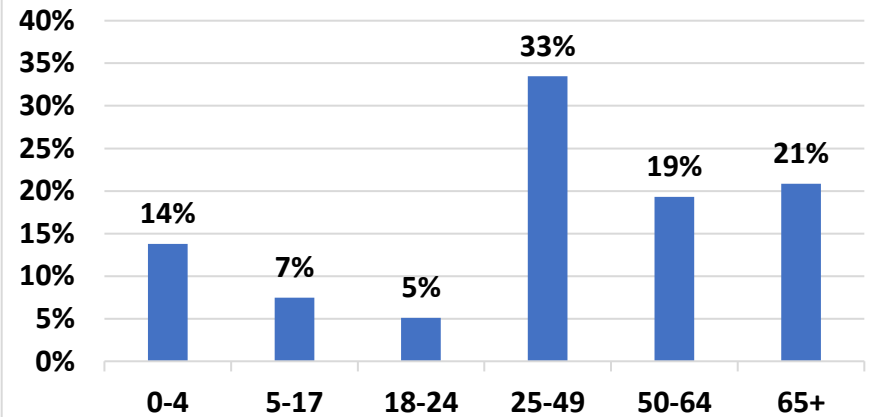


Figure 17: Campylobacteriosis by Race, 2023

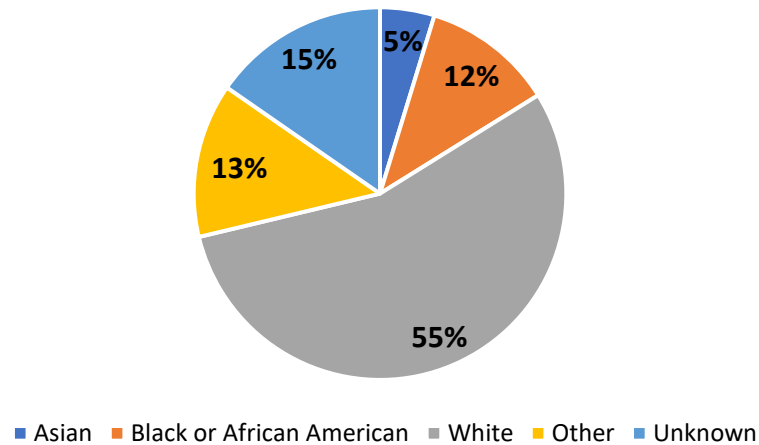
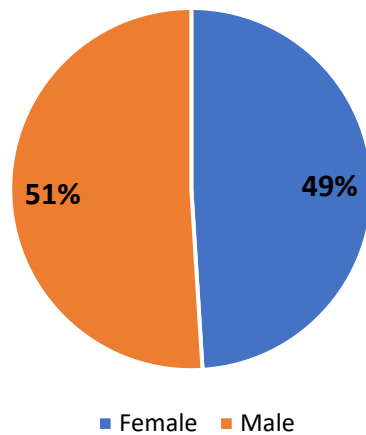


Figure 18: Campylobacteriosis by Sex, 2023



E. coli

<https://www.cdc.gov/ecoli>

Epidemiology

Overview: *E. coli* is an intestinal disease caused by the bacteria *Escherichia Coli*. Strains of *E. coli* can produce a toxin that causes serious illness.

Symptoms: Common symptoms include bloody diarrhea and can create a condition called hemolytic uremic syndrome. This syndrome can cause kidney failure.

Transmission: The disease is spread through the fecal-oral route by the consumption of contaminated food, raw milk, untreated water, and other contact with feces of an infected person.

Treatment: Treatment is supportive care. Antibiotics should not be used to treat infection.

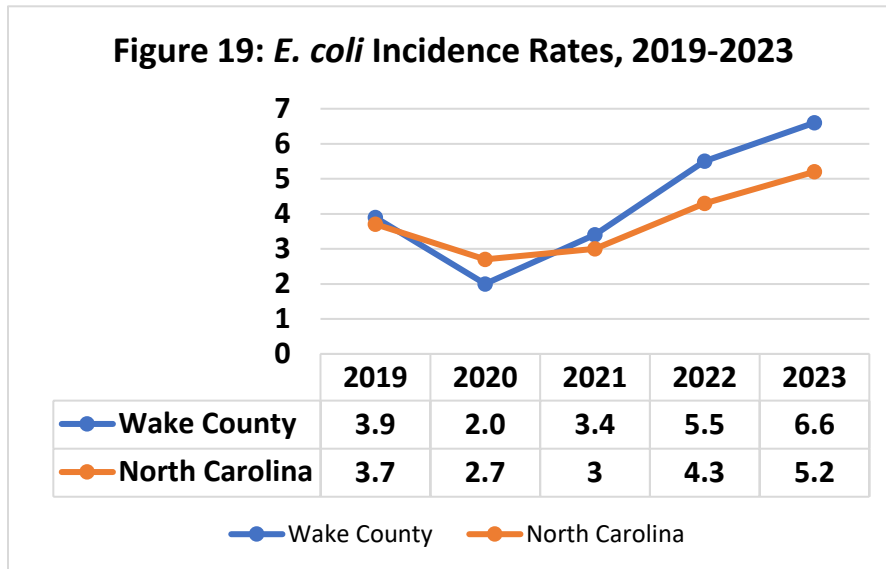
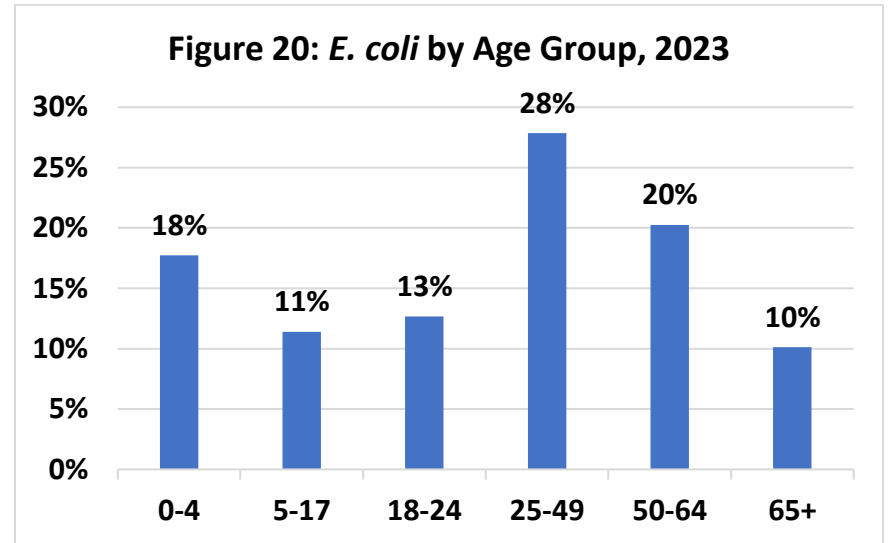
Prevention: Prevention methods include proper hand hygiene before handling food and after contact with animals. Ensure food is cooked to the proper temperature.

Local Facts and Figures:

E. coli incidence rates in Wake County have been on the rise since 2020, with a 20% increase observed in 2023 compared to 2022.

In 2023:

- 79 cases were reported.
- 28% of cases were reported among those ages 25-49 years.
- The majority (51%) of cases were reported among the White population.



*Rate per 100,000 population

Figure 21: *E. coli* by Race, 2023

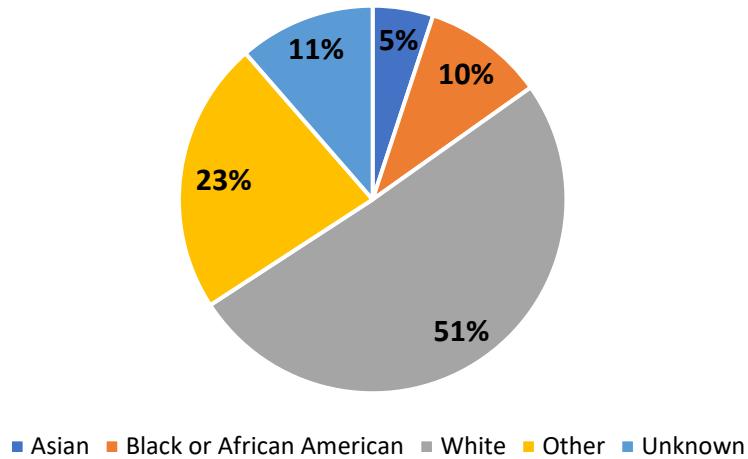
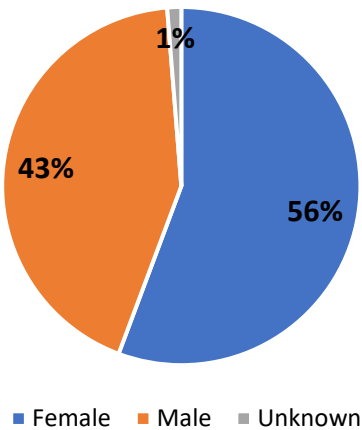


Figure 22: *E. coli* by Sex, 2023



Shigellosis

<https://www.cdc.gov/shigella>

Epidemiology

Overview: Shigellosis is an infectious disease caused by a group of bacteria called *Shigella*. There are four different species of *Shigella* which include *Shigella sonnei*, *Shigella flexneri*, *Shigella boydii*, and *Shigella dysenteriae*.

Symptoms: Symptoms commonly include diarrhea, fever, and stomach cramps. Some individuals may be asymptomatic.

Transmission: The disease is spread person to person via the fecal-oral route. *Shigella* is very contagious and only a small number of bacteria are needed to make someone ill.

Treatment: Treatment is supportive care. Antibiotics are not recommended unless the infection is severe. Anti-diarrheal medications are also not recommended.

Prevention: Frequent and proper handwashing with soap can help stop the spread of disease.

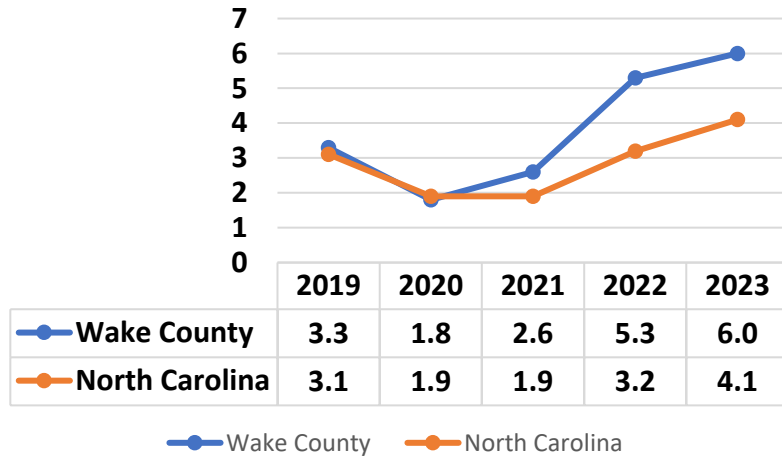
Local Facts and Figures:

Shigellosis incidence rates in Wake County increased by 13% in 2023 compared to 2022.

In 2023:

- 72 cases were reported.
- The majority (49%) of cases were reported among those 25-49 years.
- The majority of cases (74%) were reported among males.

Figure 23: Shigellosis Incidence Rates, 2019-2023



*Rate per 100,000 population

Figure 24: Shigellosis by Age Group, 2023

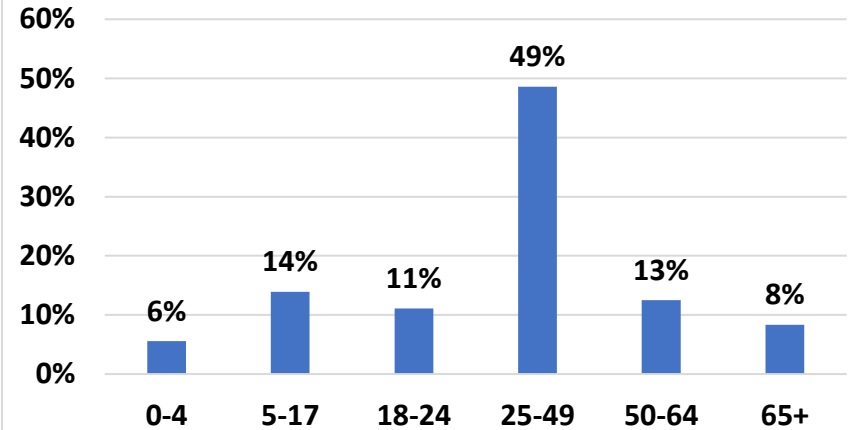


Figure 25: Shigellosis by Race, 2023

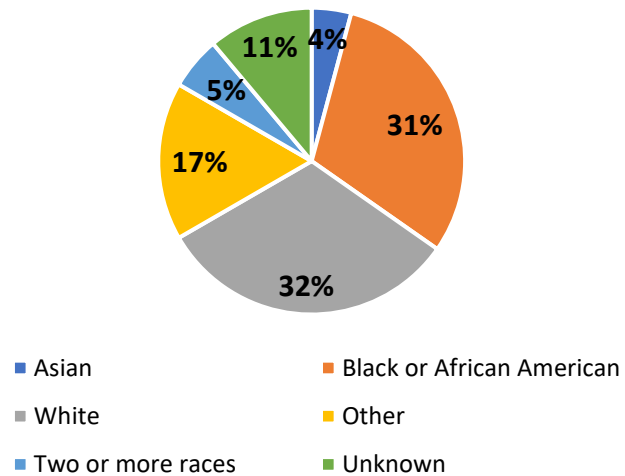
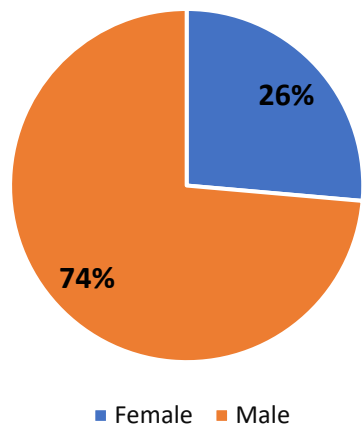


Figure 26: Shigellosis by Sex, 2023



Cryptosporidiosis

<https://www.cdc.gov/cryptosporidium/about/index.html>

Epidemiology

Overview: Cryptosporidiosis is an intestinal illness caused by the microscopic parasite *Cryptosporidium*.

Symptoms: The most common symptom is prolonged, frequent, watery diarrhea. Other symptoms include stomach cramps, nausea, vomiting, fever, and weight loss.

Transmission: Millions of Crypto germs can be found in the feces of infected people or animals. Infection occurs when others (people or animal) swallow these germs.

Treatment: Most healthy individuals will recover without treatment. Nitazoxanide is prescribed for treating cryptosporidiosis in people with healthy immune systems who are at least one years old.

Prevention: To prevent cryptosporidiosis, avoid food or water that may be contaminated especially when traveling, wash hands often with soap and water, and practice safer sex.

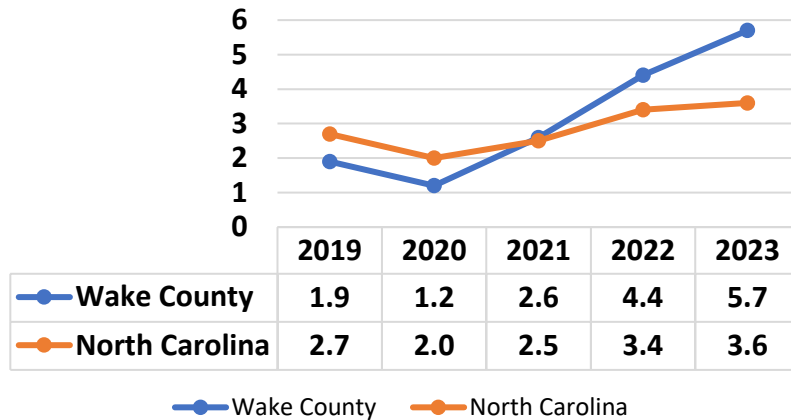
Local Facts and Figures:

Cryptosporidiosis incidence rates in Wake County have been on the rise since 2020, with a 30% increase observed in 2023 compared to 2022.

In 2023:

- 68 cases were reported.
- The majority (47%) of cases were reported among those ages 25-49.
- 44% of cases were among the White population.

Figure 27: Cryptosporidiosis Incidence Rates, 2019-2023



*Rate per 100,000 population

Figure 28: Cryptosporidiosis by Age Group, 2023

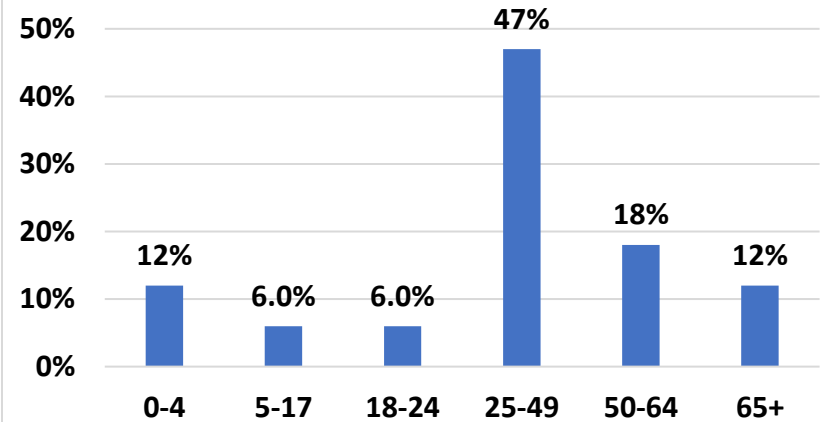


Figure 29: Cryptosporidiosis by Race, 2023

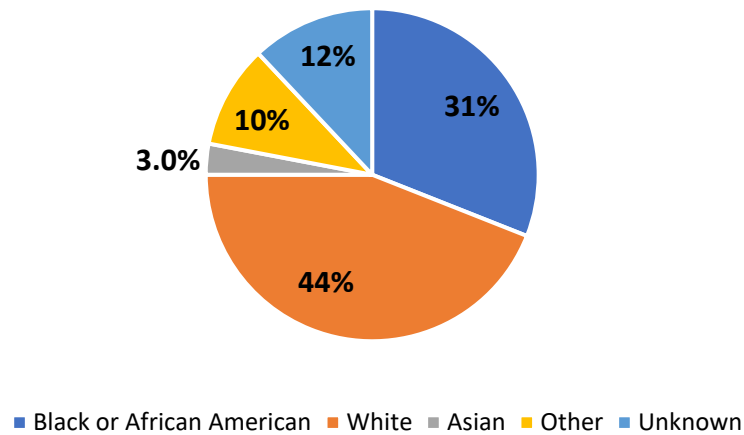
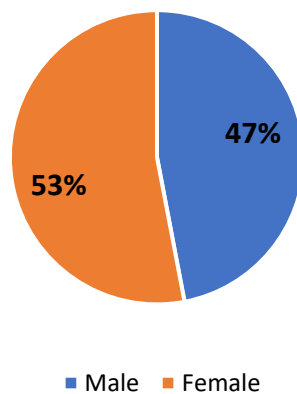


Figure 30: Cryptosporidiosis by Sex, 2023



10.0 FOODBORNE OUTBREAKS

All foodborne and/or gastrointestinal outbreaks must be reported to the local health department and the North Carolina Division of Public Health (NC DPH). In 2023, the Wake County Health and Human Services (WCHHS) Communicable Disease Surveillance Team (CDST) investigated 10 outbreaks involving foodborne and/or gastrointestinal illnesses that involved at least 350 sickened individuals.

10.1 KEY PARTNERSHIPS IN OUTBREAK INVESTIGATIONS

While partnership and collaboration efforts vary by each specific outbreak, collaboration and cooperation from facilities experiencing an outbreak and community members reporting illness are key to recognizing, responding to, and minimizing the impact of an outbreak. In addition to facility and community member input, it takes a team of Wake County staff to respond to outbreaks and keep the public safe. These teams include, but are not limited to, the Communicable Disease Program, Environmental Health Services, Epidemiology, and Communications. For a detailed example of how Wake County Health and Human Services staff worked together to respond to an outbreak associated with a restaurant in 2023, please see the appendix at the end of this report.

11.0 VECTOR-BORNE DISEASES

Vector-borne diseases are caused by microbes that are spread to people by arthropods like ticks and mosquitoes that feed on human blood. Tick and mosquito-transmitted diseases affect people across the United States and are significant health threats in North Carolina. Based on public health surveillance conducted by the North Carolina Department of Health and Human Services Division of Public Health, almost 800 cases of tick and mosquito-borne diseases were reported among people in North Carolina last year. Tick-borne diseases including Spotted fever, ehrlichiosis, and Lyme disease, as well as mosquito-borne diseases including La Crosse encephalitis, West Nile encephalitis, and eastern equine encephalitis have all been reported in North Carolina. North Carolina also monitors for cases of other mosquito-borne infections associated with travel, such as Zika, chikungunya, malaria, and dengue.

Effective prevention against tick- and mosquito-borne illness is achievable through scientifically informed and integrated pest management strategies as well as personal protective measures during seasons of high tick and mosquito activity. Personal protective measures include wearing long-sleeve shirts and pants, particularly in the early morning and early evening hours to protect against mosquitoes, using repellent to prevent mosquito and tick bites, checking daily for ticks, and showering soon after being outdoors.

In April 2024, North Carolina's Governor Roy Cooper proclaimed April as Tick and Mosquito Awareness Month in North Carolina. This proclamation creates the opportunity for North Carolina residents and health care providers to learn more about the threat, medical implications, and prevention of these diseases.⁵ For more information on tick distribution and tickborne illness in North Carolina, visit <https://epi.dph.ncdhhs.gov/cd/ticks/figures.html>.

Table 5 shows confirmed, suspect and probable cases of tickborne (ehrlichiosis, Lyme disease, and Spotted fever) and mosquito-borne (chikungunya, dengue, malaria, West Nile Virus, and Zika virus) disease over the last five years in Wake County. For tickborne diseases, many more cases are suspected and investigated than can be confirmed. This is due to the difficulty in getting clinical and/or laboratory information needed to meet the confirmed case definition.

Table 5: Vector-borne Diseases in Wake County, Annual Counts, 2019-2023

		2019	2020	2021	2022	2023
All Statuses (Confirmed, Probable, and Suspect)						
		No. of Cases	No. of Cases	No. of Cases	No. of Cases	No. of Cases
Tick-borne	Ehrlichiosis, chaffeensis	15	8	12	9	19
	Spotted Fever Rickettsiosis	56	11	4	16	15
	Lyme Disease	37	4	20	25	10
Mosquito-borne	Chikungunya	3	2	1	0	0
	Dengue	6	0	2	0	4
	Malaria	12	1	7	11	7
	West Nile Virus	0	0	2	1	3
	Zika Virus	1	0	0	0	0

Preventive Measures:

Preventing Mosquito Bites

- Wear long sleeve shirts and long pants, treat clothing with permethrin (0.5%) for extra protection, effective for several washes.
- Use EPA registered insect repellents containing DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undecanone.
- Mosquito-proof your home using screens on windows and doors.
- Eliminate breeding sites by preventing stagnant water.

Preventing Tick Bites

- Wear a hat and light-colored clothing (long sleeves and pants tucked into boots or socks) to spot ticks easily.
- Use EPA registered insect repellents containing DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undecanone.
- Avoid ticks in wooded/brushy areas with high grasses and leaf litter by walking in the center of trails.
- Check clothing and skin for ticks you may have encountered while outdoors; shower soon after returning indoors.

Vaccination

- Vaccines for vector borne diseases such as malaria, Japanese encephalitis, tickborne encephalitis and yellow fever are available for travelers. Check with your healthcare provider if you are eligible.

Stay informed

- Stay updated on the current situation and specific preventive measures recommended by local health authorities in your region.
- Follow destination-specific guidelines for travel.

For more information on vector-borne disease prevention, visit

<https://www.cdc.gov/vector-borne-diseases/prevention/index.html>

12.0 SEXUALLY TRANSMITTED DISEASES (STDs)

A sexually transmitted infection (STI) is a virus, bacteria, fungus, or parasite people can get through sexual contact.⁶ Many STIs have no symptoms, so people can have an infection but be unaware of it.⁶ A sexually transmitted disease (STD) develops because of an STI and the term implies that the infection has led to some symptom of disease.⁶ This section contains early syphilis, gonorrhea, and chlamydia data from NCEDSS and HIV data from the NCDHHS Division of Public Health HIV/STD/Hepatitis Surveillance Unit.⁷ STD cases during 2020 and 2021 may have been undetected therefore under reported, because testing and diagnostic services were reduced in those years due to the COVID-19 pandemic.

Congenital syphilis cases have been on the rise nationally and in North Carolina in recent years. Congenital syphilis occurs when pregnant people pass the infection on to their infants during pregnancy. Undetected congenital syphilis can result in poor pregnancy outcomes such as miscarriage, stillbirth, preterm delivery, and perinatal death.⁸ Additionally, illnesses associated with congenital syphilis can manifest in the newborn or later in childhood including hydrops fetalis, hepatosplenomegaly, blindness, deafness, and deformities of the bones and teeth.⁸ Infected infants may be asymptomatic at birth but, if left untreated, manifest complications later in life.

Congenital syphilis is preventable through early detection and appropriate treatment of maternal infection during pregnancy. North Carolina public health law requires healthcare providers to screen all pregnant women for syphilis during the first prenatal visit, between 28–30 weeks gestation, and again at delivery.⁸ If providers fail to adhere to this law or pregnant people are not able to access appropriate prenatal care, there is a missed opportunity to identify, treat, and prevent congenital syphilis.

Early Syphilis

<https://www.cdc.gov/syphilis>

Epidemiology

Overview: Syphilis is a sexually transmitted disease caused by the bacterium *Treponema pallidum*.

Symptoms: Syphilis occurs in stages, with different symptoms at each stage. In the primary stage, one or more sores may develop where the exposure to syphilis occurred, such as the penis, vagina, anus, or mouth. In the secondary stage, skin rashes or more sores may develop, as well as fever, sore throat, headaches, muscle aches, and fatigue.

Transmission: Syphilis spreads through direct contact with a syphilis sore, particularly during vaginal, anal, or oral sex, or to the baby during pregnancy.

Treatment: Syphilis can be treated with antibiotics prescribed by a healthcare provider. Treatment may not reverse some harmful effects of syphilis.

Prevention: Prevent STI exposure through proper and consistent use of condoms and regularly testing yourself and any sexual partners.

Early syphilis includes primary, secondary, and early non-primary non-secondary syphilis cases. In this report, the data for early syphilis include both confirmed and probable cases due to a change in the case definition for a confirmed syphilis case that occurred in 2022. A confirmed syphilis case now must have a positive result for *T. pallidum* using a darkfield microscopy test in a clinical specimen that was not obtained from the oropharynx and is not potentially contaminated by stool or from a polymerase chain reaction (PCR) test in any clinical specimen. Positive results from other laboratory tests lead to a probable case status, not confirmed.

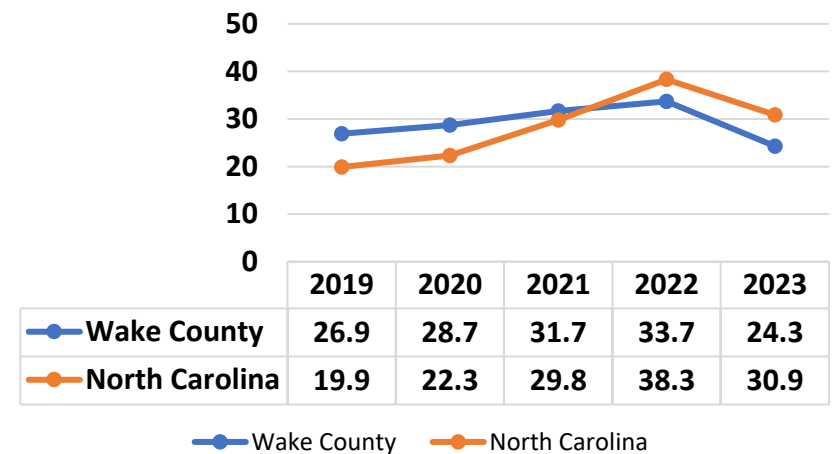
The change in case definition caused many cases in 2022 and 2023 that would have previously been confirmed to be categorized as probable cases. In order to compare syphilis data from 2022 and 2023 to previous years, all five years include both confirmed and probable cases.

Local Facts and Figures:

In 2023:

- 314 Early syphilis cases were reported in Wake County in 2023 (as of 06/24/2024). Of those cases:
 - 59 were primary syphilis
 - 122 were secondary syphilis
 - 133 were early non-primary non-secondary syphilis
- The rate of Early syphilis declined both in North Carolina and Wake County from 2022 to 2023.
- The majority (83%) of the cases were reported among males.
- Nearly half (48%) of the cases were reported among Black or African Americans.
- The majority (66%) of the cases were reported in individuals ages 25-49.
- The zip codes with the highest rates of Early syphilis cases per 1,000 population in 2023 were 27601, 27610, and 27617.

Figure 31: Early Syphilis Incidence Rates, 2019-2023*



*Rates per 100,000 population. Note: counts for sexually transmitted diseases in this graph are limited to cases with Wake County residential addresses, counts may differ from the *Counts and Rates of Reportable Diseases and Conditions in Wake County, NC* table (includes individuals tested in Wake County but with addresses in other counties) later in this report.

Figure 32: Early Syphilis by Age Group, 2023

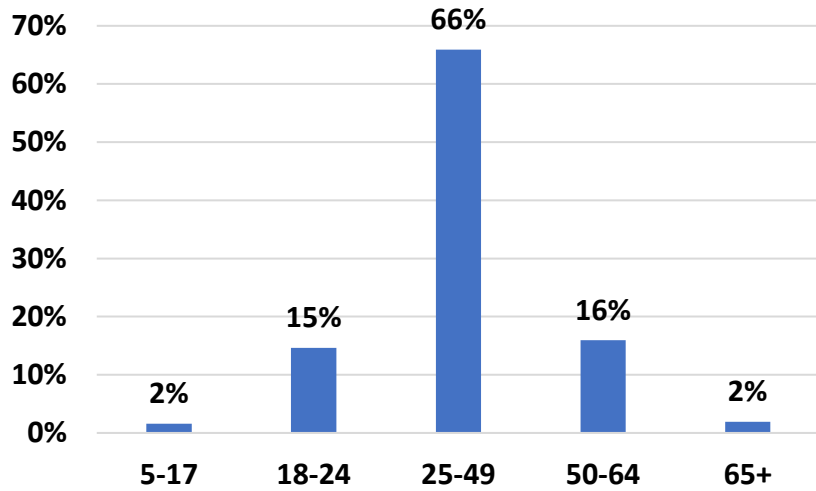


Figure 33: Early Syphilis by Race, 2023

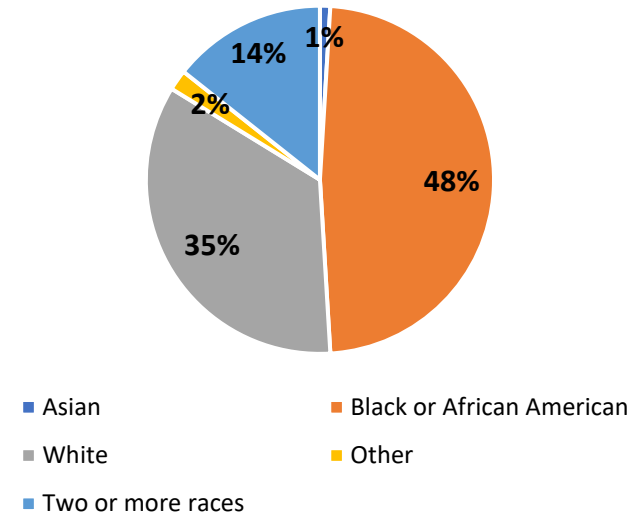


Figure 34: Early Syphilis by Sex, 2023

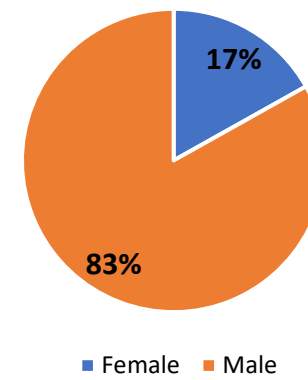
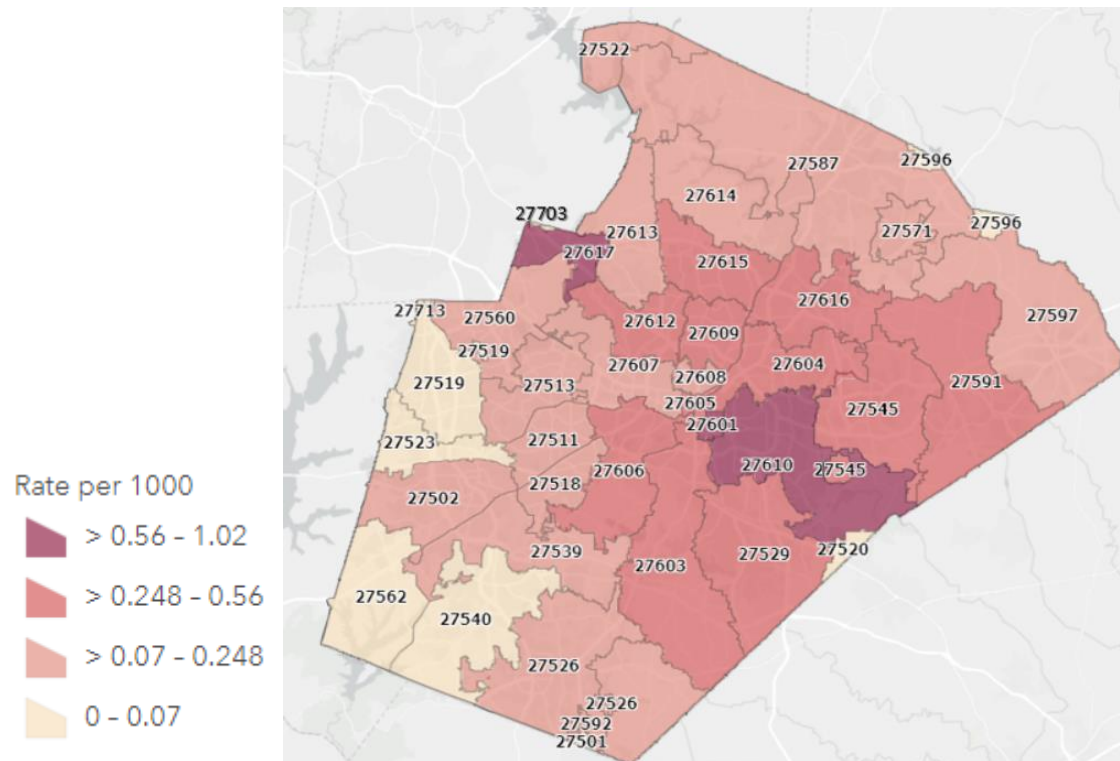


Figure 35: 2023 Early Syphilis Rates Per 1,000 Population by Zip Code, Wake County



*Zip code-level rates were calculated using 2022 population estimates as 2023 estimates at the zip code level were not available as of 8/1/2024.

Human Immunodeficiency Virus (HIV)

<https://www.cdc.gov/hiv>

Epidemiology

Overview: HIV (human immunodeficiency virus) is a virus that when untreated can cause AIDS (Acquired Immunodeficiency syndrome).

Symptoms: Common early symptoms of HIV include flu-like symptoms such as fever, sore throat, muscle aches, and fatigue. Some people do not experience any symptoms. If untreated, HIV infection can become chronic, eventually leading to AIDS.

Transmission: HIV is transmitted through exposure to certain body fluids of an infected person. Most transmission occurs through anal sex, vaginal sex, or shared needles. Only blood, semen, pre-seminal fluid, rectal fluids, vaginal fluids, and breast milk can contain HIV.

Treatment: HIV can be treated with antiretroviral therapy (ART), which is prescribed by a healthcare provider. ART should be started as soon as possible once HIV is diagnosed. Though HIV cannot currently be cured, proper treatment prevents AIDS and transmission of HIV.

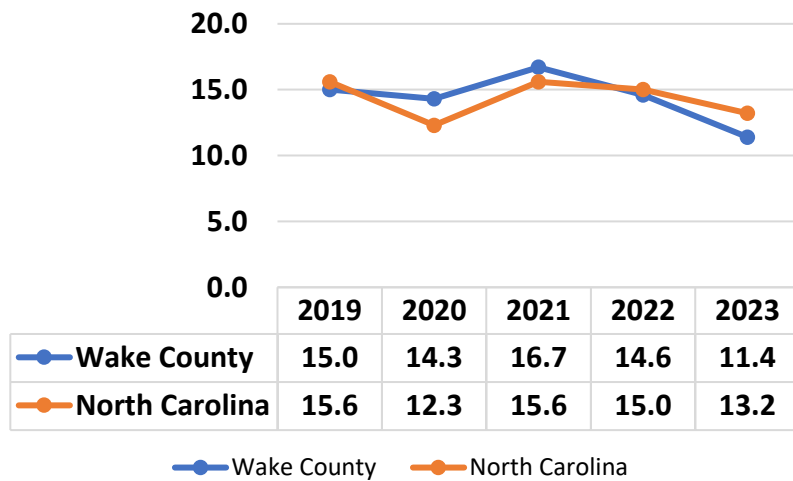
Prevention: Prevent HIV exposure through proper and consistent use of condoms and regularly testing yourself and any sexual partners. HIV infection can also be prevented using PrEP or PEP, which can be prescribed by a healthcare provider to anyone at risk of getting HIV.

Local Facts and Figures:

In 2023:

- 135 newly diagnosed HIV cases were reported in Wake County in 2023 (as of 06/24/2024).
- The majority (77%) of the cases were reported among males.
- Over half (52%) of the cases were reported among Black or African Americans.
- The majority (66%) of the cases were reported among individuals ages 25-49.

Figure 36: New HIV Incidence Rates, 2019-2023*



*Rates per 100,000 population. Note: counts for sexually transmitted diseases in this graph are limited to cases with Wake County residential addresses, counts may differ from the *Counts and Rates of Reportable Diseases and Conditions in Wake County, NC* table (includes individuals tested in Wake County but with addresses in other counties) later in this report.

Figure 37: New HIV by Age Group, 2023

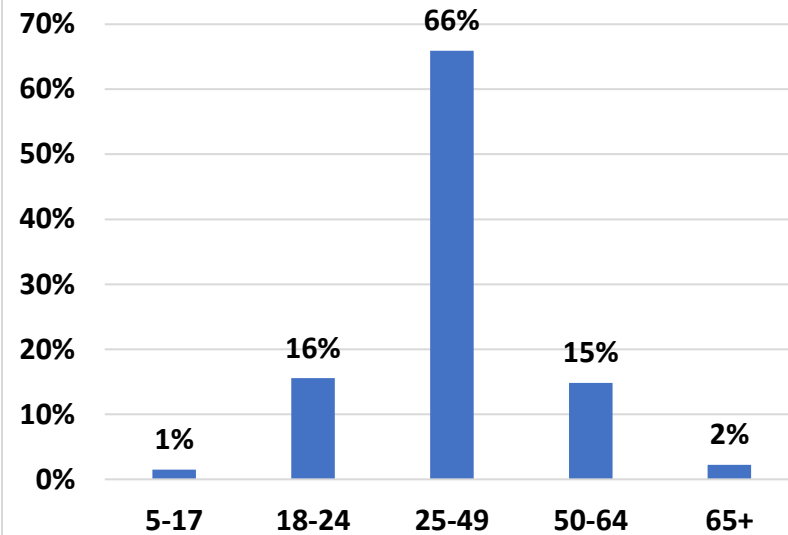
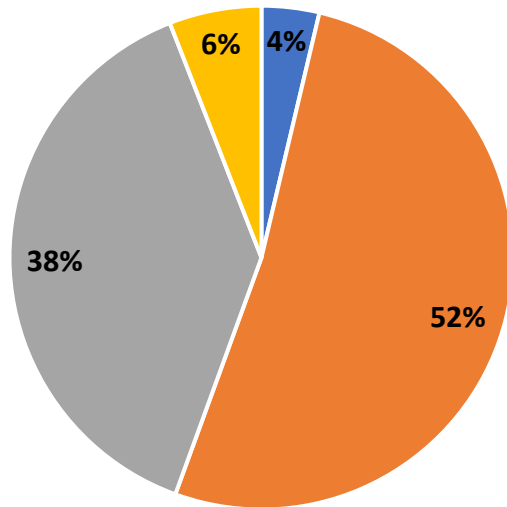
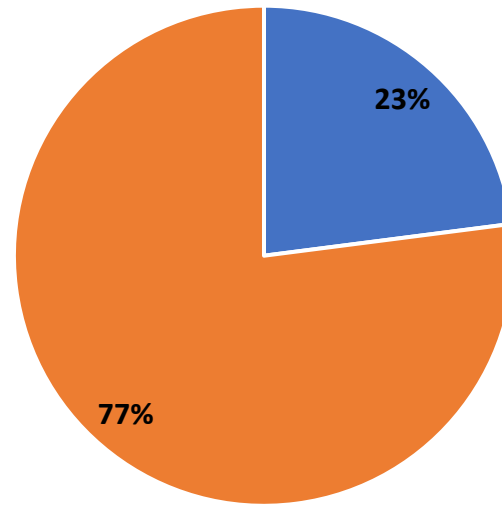


Figure 38: New HIV by Race, 2023



■ Asian ■ Black or African American ■ White ■ Two or more races

Figure 39: New HIV by Sex, 2023



■ Female ■ Male

Gonorrhea

<https://www.cdc.gov/gonorrhea>

Epidemiology

Overview: Gonorrhea is a sexually transmitted disease caused by the bacterium *Neisseria gonorrhoeae*.

Symptoms: Common symptoms include painful or burning sensations when urinating, increased vaginal discharge or bleeding between periods, or discharge from the penis that is white, yellow, or green. Rectal infections are also possible and can cause rectal discharge, anal itching, or painful bowel movements.

Transmission: Gonorrhea spreads through vaginal, anal, or oral sex with someone who is infected.

Treatment: Gonorrhea can be treated with antibiotics prescribed by a healthcare provider.

Prevention: Prevent STI exposure through proper and consistent use of condoms and regularly testing yourself and any sexual partners.

Local Facts and Figures:

In 2023:

- 2,448 cases were reported (as of 06/24/2024).
- The majority (55%) of cases were reported in individuals ages 25–49 years.
- The majority of cases (63%) were reported among males.
- The majority of cases (64%) were reported among Black and African Americans.
- The zip codes with the highest rates of gonorrhea cases per 1,000 population in 2023 were 27610, 27601, 27604, and 27603.

Figure 40: Gonorrhea Incidence Rates, 2019-2023*

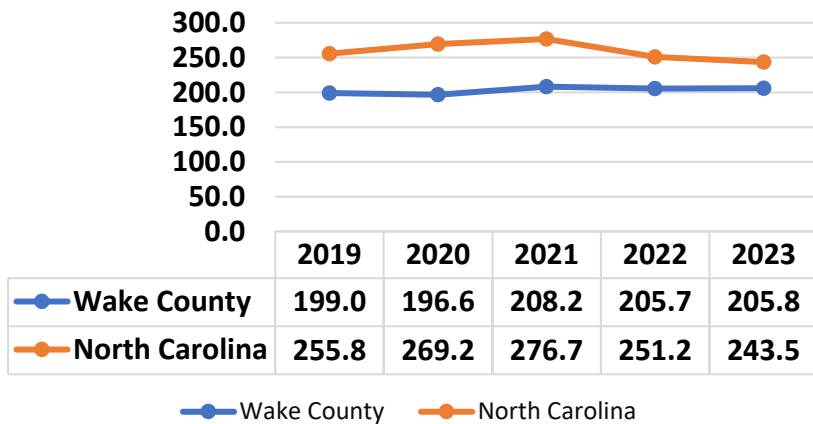
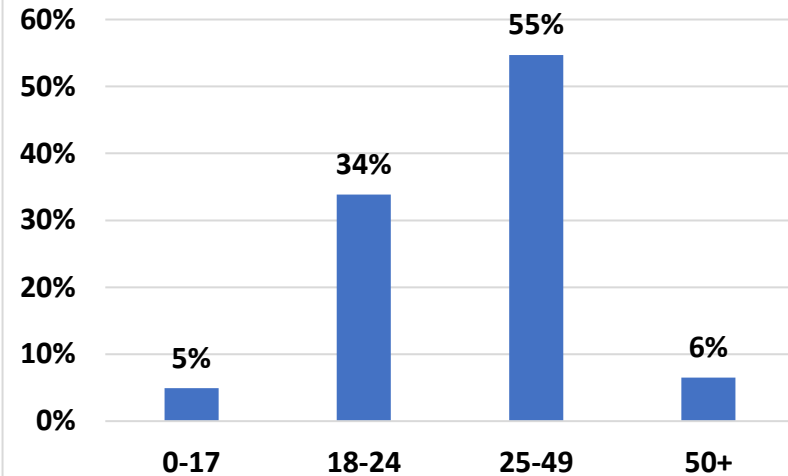


Figure 41: Gonorrhea by Age Group, 2023



*Rates per 100,000 population. Note: counts for sexually transmitted diseases in this graph are limited to cases with Wake County residential addresses, counts may differ from the *Counts and Rates of Reportable Diseases and Conditions in Wake County, NC* table (includes individuals tested in Wake County but with addresses in other counties) later in this report.

Figure 42: Gonorrhea by Race, 2023

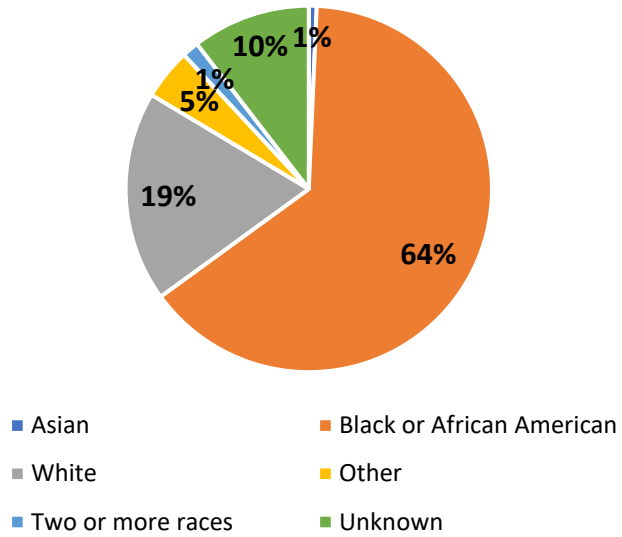


Figure 43: Gonorrhea by Sex, 2023

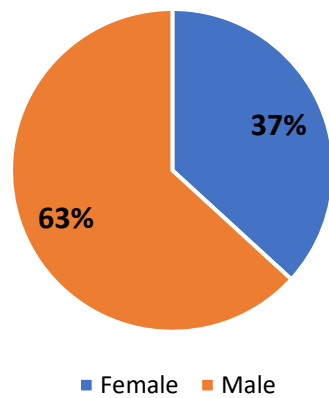
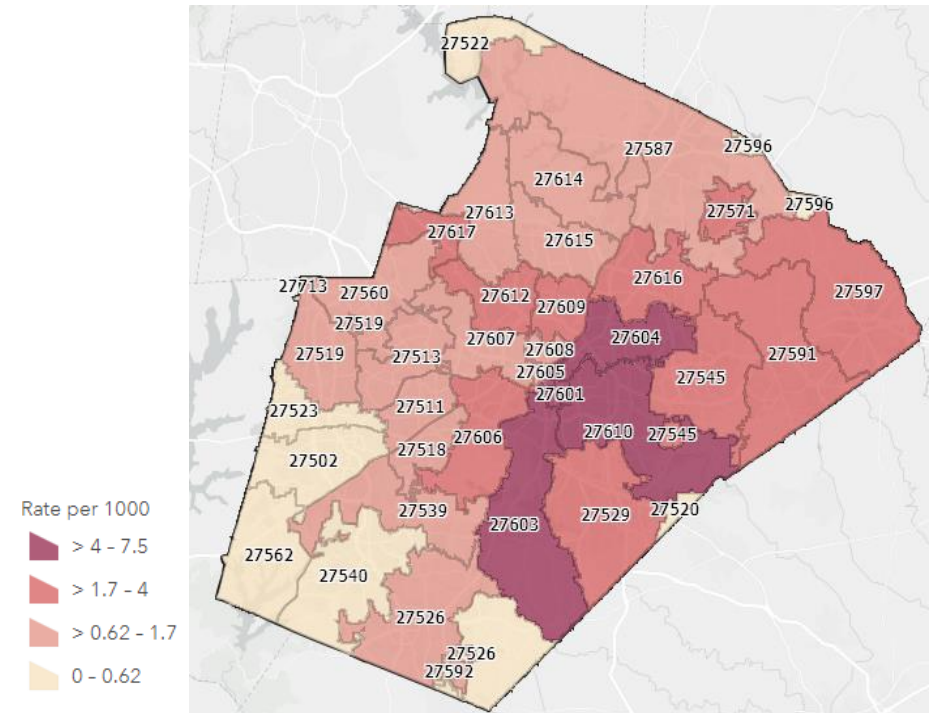


Figure 44: 2023 Gonorrhea Rates Per 1,000 Population by Zip Code, Wake County



*Zip code-level rates were calculated using 2022 population estimates as 2023 estimates at the zip code level were not available as of 8/1/2024.

Chlamydia

<https://www.cdc.gov/chlamydia>

Epidemiology

Overview: Chlamydia is a sexually transmitted disease caused by the bacterium *Chlamydia trachomatis*.

Symptoms: There are often no symptoms of chlamydia infection, though there may be abnormal genital discharge or a burning sensation when urinating. Whether symptomatic or asymptomatic, serious health problems can occur if the infection is left untreated.

Transmission: Chlamydia spreads through vaginal, anal, or oral sex with someone who is infected.

Treatment: Chlamydia can be treated with antibiotics prescribed by a healthcare provider.

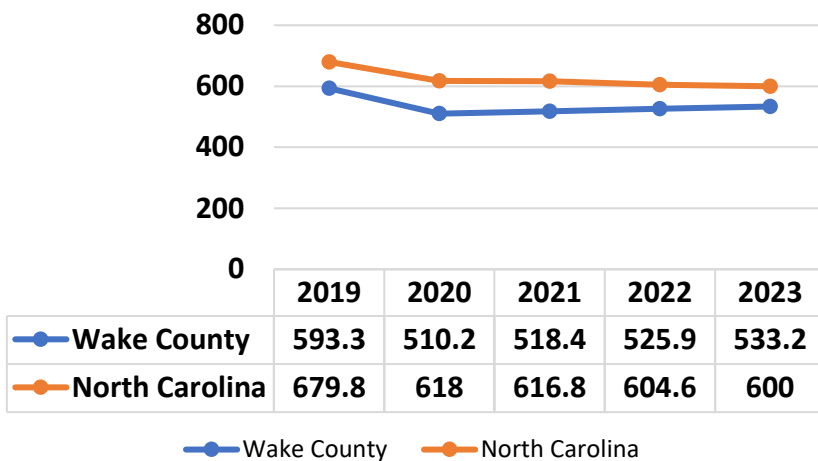
Prevention: Prevent STI exposure through proper and consistent use of condoms and regularly testing yourself and any sexual partners.

Local Facts and Figures:

In 2023:

- 6,266 cases were reported in 2023 (as of 06/24/2024).
- Nearly half (48%) of cases were reported in individuals ages 18-24.
- Nearly half (47%) of the cases reported were among Black and African Americans.
- The majority of cases (61%) were reported among females.
- The zip codes with the highest rates of chlamydia cases per 1,000 population in 2023 were 27610, 27601, 27604, and 27616.

Figure 45: Chlamydia Incidence Rates, 2019-2023*



*Rates per 100,000 population. Note: counts for sexually transmitted diseases in this graph are limited to cases with Wake County residential addresses, counts may differ from the Counts and Rates of Reportable Diseases and Conditions in Wake County, NC table (includes individuals tested in Wake County but with addresses in other counties) later in this report.

Figure 46: Chlamydia by Age Group, 2023

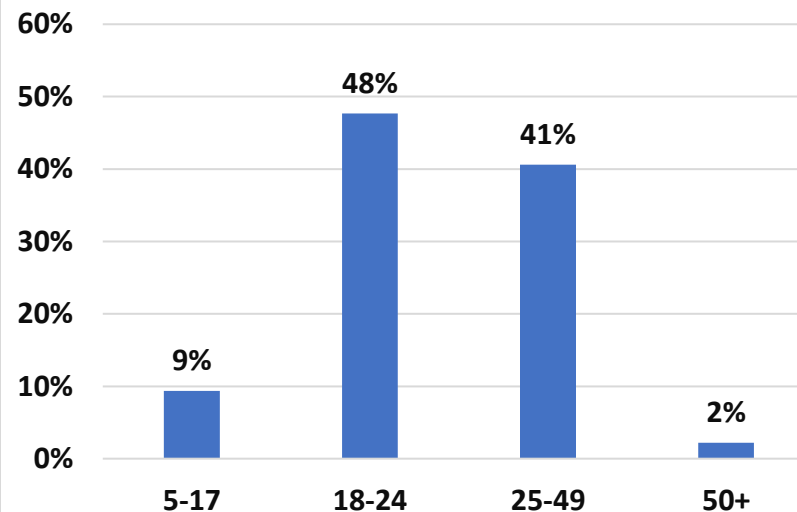


Figure 47: Chlamydia by Race, 2023

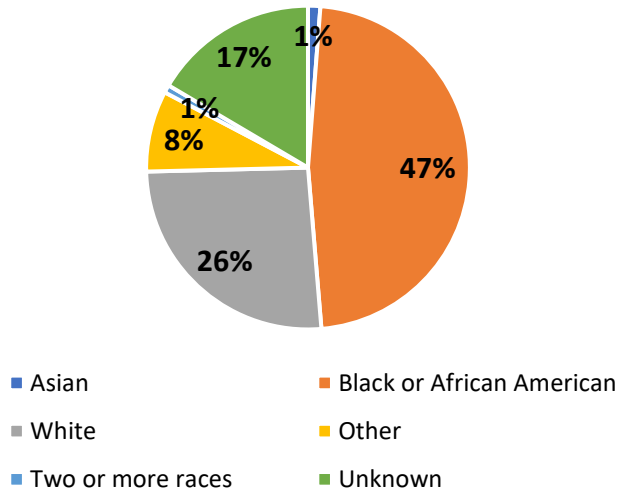


Figure 48: Chlamydia by Sex, 2023

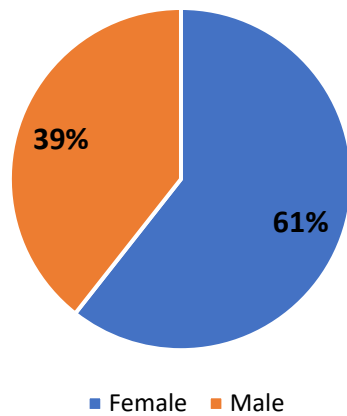
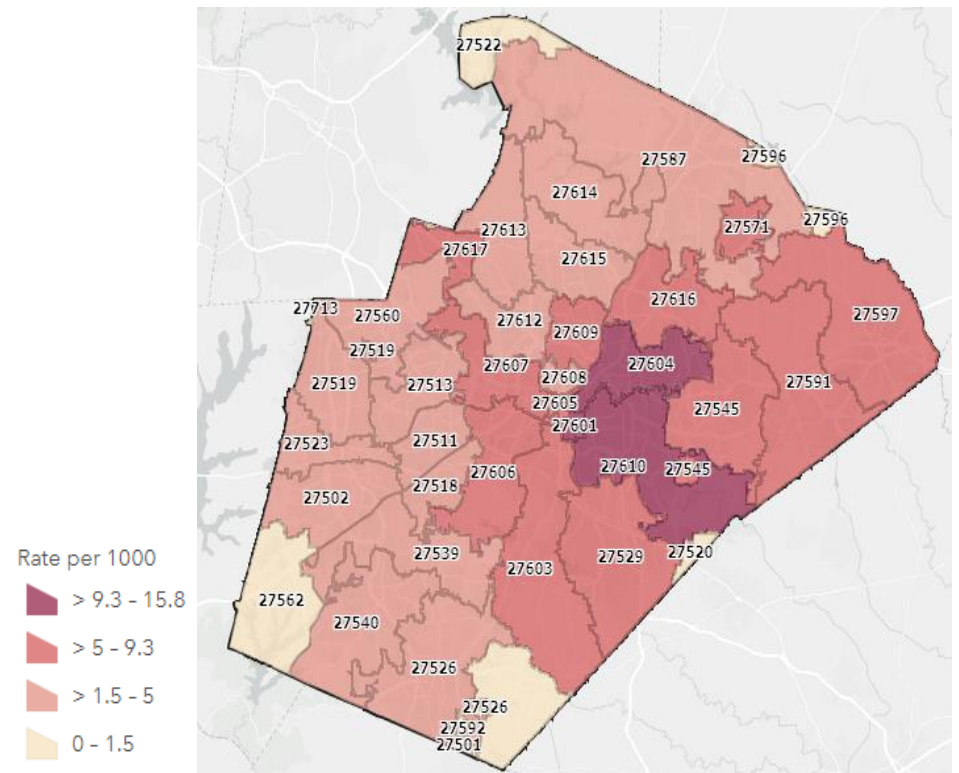


Figure 49: 2023 Chlamydia Rates Per 1,000 Population by Zip Code, Wake County



*Zip code-level rates were calculated using 2022 population estimates as 2023 estimates at the zip code level were not available as of 8/1/2024.

13.0 SUMMARY

Monitoring the spread of diseases and educating communities on disease trends are essential public health services. Public health organizations and agencies utilize surveillance systems to track diseases and implement prevention activities.

Wastewater monitoring is an emerging surveillance tool that captures infected individuals with and without symptoms.

Wastewater monitoring continues to capture different respiratory viruses and other infectious diseases such as Mpox.

In Wake County, during the 2023–2024 respiratory virus season, Emergency Department (ED) visits for ILI, RSV, and COVID-19 peaked between November and December and then declined. The previous year, ILI and RSV peaked between October and November. This season, ILI and COVID-19 cases are lower than last year, while RSV cases are higher. In March 2024, the CDC released updated recommendations for respiratory viruses. This guidance offers a unified approach to addressing risks from different respiratory viruses and emphasizes the importance of preventive strategies (immunizations, hygiene, and taking steps for cleaner air) to protect oneself and others.

The rates of foodborne diseases continue to increase year to year. All foodborne and/or gastrointestinal outbreaks must be reported to the local health department and the North Carolina Division of Public Health (NC DPH).

In 2023, the Wake County Health and Human Services (WCHHS) Communicable Disease Surveillance Team (CDST) investigated ten outbreaks involving foodborne and/or gastrointestinal illnesses that involved at least 350 sickened individuals. When foodborne/gastrointestinal outbreaks take place, Wake County staff respond to keep the public safe.

STDs remain prevalent. Education around prevention, testing, and treatment remain important. In Wake County, rates of early syphilis and newly diagnosed HIV decreased from 2022 to 2023 and are currently below North Carolina's rates. However, locally and nationally, congenital syphilis continues to increase. Congenital syphilis is preventable through early detection and appropriate treatment of maternal infection during pregnancy.

Water, sanitation, food, and/or air quality are vital elements in the transmission of communicable diseases such as Tuberculosis and Cryptosporidiosis. As counts and rates continue to increase year to year, safe water, proper hand hygiene, and good air quality remain essential to preventing outbreaks of these diseases and others.

Communicable diseases can have tremendous impacts on communities. It is essential to monitor and track diseases over time and analyze information as part of public health surveillance. North Carolina law requires that more than 75 communicable diseases be reported to local health departments by a variety of sources including healthcare providers, school administrators, childcare center operators, food or drink establishments, and laboratories.

This surveillance ensures appropriate measures can be placed and actions can be taken to protect the public's health. Staff at local health departments, including Wake County, work to contact individuals diagnosed with reportable communicable diseases and provide disease education and information regarding measures such as isolation. These staff members also interview individuals to find out information such as how they were exposed to the pathogen and any close contacts they have, and then give guidance based on the answers to those questions and the specific disease. Staff also work to ensure their jurisdiction meets all state and national requirements for reportable diseases.

14.0 DATA SOURCES

United States Census Bureau

The Census Bureau collects and provides information about the people and economy of the United States. The Census Bureau's website (<http://www.census.gov/>) includes data on demographic characteristics of the population, family structure, educational attainment, income level, and the proportion of persons who live at or below the federal poverty level. State and county-specific data are easily accessible, and valuable to understand a population. In some sections of this report, 2022 American Community Survey (ACS) (Census Bureau) 1-year estimate is reported for Wake County.

North Carolina Disease Data Dashboards

The North Carolina Department of Health and Human Services' Division of Public Health created two data dashboards: Quarterly and Annual (Interactive) to provide case counts and rates of probable and confirmed reportable infectious diseases in North Carolina. The Quarterly dashboard was created to provide the most recent case counts and rates data on a quarterly basis based on the calendar year (Quarter 1: January-March, Quarter 2: April-June, Quarter 3: July-September, and Quarter 4: October-December) (<https://epi.dph.ncdhhs.gov/cd/dashboards/quarterly.html>). The Annual dashboard was created to provide case counts between 2015-2022 then on a yearly basis (<https://epi.dph.ncdhhs.gov/cd/figures.html>). Both dashboards are intended to serve as a reference for local health departments, program managers, health planners, researchers, and others who are concerned with the public health implications of the communicable diseases in North Carolina. Dashboards reflect cases reported to the North Carolina Division of Public Health by healthcare organizations such as hospitals, primary care offices, clinics, local health departments, pharmacies, testing facilities, and laboratories for conditions or diseases deemed reportable by State and Federal Law. All data within the dashboards are downloadable.

North Carolina Electronic Disease Surveillance System (NCEDSS)

This report uses communicable disease data from NCEDSS and the North Carolina Disease Data Dashboard (Annual) mentioned above. NCEDSS is a component of the CDC initiative to move states to web-based health surveillance and reporting systems. NCEDSS is also part of the Public Health Information Network (PHIN). The electronic system replaced a patchwork of smaller disease-specific surveillance systems and paper-based reporting. NCEDSS is used by the NCDHHS, the Division of Public Health, the state's 86 local and multi-county district health departments (LHDs), and eight HIV/STD Regional Offices. Laboratories also report electronically to NCEDSS.

North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT)

This report uses emergency department (ED) data from NC DETECT. NC DETECT is North Carolina's statewide syndromic surveillance system. It was created by the North Carolina Division of Public Health (NC DPH) in 2004 in collaboration with the Carolina Center for Health Informatics (CCHI) in the UNC Department of Emergency Medicine to address the need for early event detection and timely public health surveillance in North Carolina using a variety of secondary data sources. Authorized users are currently able to view data from emergency departments, North Carolina Poison Control, and emergency medical services (EMS), as well as pilot data from

select urgent care centers. NC DETECT is designed, developed, and maintained by CCHI staff with funding by the NC DPH. New functionality is added regularly based on end user feedback. This report includes 2023 and 2024 ED data.

15.0 REFERENCES

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17.0 APPENDIX

17.1 COUNTS AND RATES OF REPORTABLE DISEASES AND CONDITIONS, WAKE COUNTY, NC



Table 6:
Vaccine-
Preventable
Diseases
among
Wake
County
Residents,
2019-
2023

	2019		2020		2021		2022		2023	
Population*:	1,112,795		1,129,352		1,152,301		1,170,778		1,190,275	
	All Statuses (Confirmed, Probable, and Suspect)									
Disease/Condition	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †
Acute flaccid myelitis	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Haemophilus influenzae, invasive disease	19	1.7	11	1.0	2	0.2	16	1.4	20	1.7
Influenza, adult death	8	0.7	9	1.0	0	0.0	9	1.0	3	0.3
Influenza, NOVEL virus infection	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Influenza, pediatric death	1	0.4	0	0.0	0	0.0	0	0.0	0	0.0
Measles	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Meningitis, pneumococcal	4	0.4	1	0.1	2	0.2	1	0.1	4	0.3
Meningococcal invasive disease	2	0.2	0	0.0	0	0.0	3	0.3	4	0.3
Mumps	2	0.2	1	0.1	0	0.0	0	0.0	0	0.0
Pertussis	15	1.3	8	0.7	1	0.1	4	0.3	5	0.4
Tetanus	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Varicella	0	0.0	0	0.0	2	0.2	7	0.6	13	1.1

†Rate per 100,000 population.
 All statuses (confirmed, probable, and suspect cases) are reported in this section.
 * U.S. Census Bureau, postcensal vintage estimates was used to calculate the total population



Table 7:
Foodborne
Diseases
among
Wake
County
Residents,
2019-
2023

	2019		2020		2021		2022		2023	
Population*:	1,112,795		1,129,352		1,152,301		1,170,778		1,190,275	
All Statuses (Confirmed, Probable, and Suspect)										
Disease/Condition	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †
Botulism - foodborne/wound	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Brucellosis	0	0.0	0	0.0	1	0.1	1	0.1	0	0.0
Campylobacteriosis	225	20.2	148	13.1	134	11.6	178	15.2	252	21.2
Cyclosporiasis	4	0.4	3	0.3	14	1.2	17	1.5	64	5.4
E. coli - shiga toxin producing	43	3.9	23	2.0	39	3.4	64	5.5	79	6.6
Foodborne C. perfringens	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Foodborne other/unknown	0	0.0	1	0.1	9	0.8	13	1.1	1	0.1
Foodborne Staphylococcal	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Foodborne poisoning	1	0.1	0	0.0	1	0.1	0	0.0	0	0.0
Hemolytic Uremic Syndrome	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2
Listeriosis	1	0.1	2	0.2	3	0.3	1	0.1	2	0.2

Salmonellosis	242	21.7	257	22.8	260	22.6	295	25.2	257	21.6
Shigellosis	37	3.3	20	1.8	30	2.6	61	5.3	72	6.0
Staph aureus, reduced suscept. to vancomycin	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Trichinosis	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Typhoid - carriage	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Typhoid Fever - acute	2	0.2	1	0.1	2	0.2	3	0.3	1	0.1
Vibrio infection	9	0.8	2	0.2	4	0.3	11	0.9	18	1.5
Vibrio vulnificus infection	2	0.2	1	0.1	1	0.1	1	0.1	1	0.1

†Rate per 100,000 population.

All statuses (confirmed, probable, and suspect cases) are reported in this section.

* U.S. Census Bureau, postcensal vintage estimates was used to calculate the total population



Table 8:
Waterborne
Diseases
among
Wake
County
Residents,
2019-
2023

		2019		2020		2021		2022		2023	
Population*:		1,112,795		1,129,352		1,152,301		1,170,778		1,190,275	
All Statuses (Confirmed, Probable, and Suspect)											
Disease/Condition	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	
Cryptosporidiosis	21	1.9	14	1.2	30	2.6	52	4.4	68	5.7	
Legionellosis	16	1.4	9	0.8	12	1.0	17	1.5	14	1.2	
Leptospirosis	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0	

†Rate per 100,000 population.


All statuses (confirmed, probable, and suspect cases) are reported in this section.

* U.S. Census Bureau, postcensal vintage estimates was used to calculate the total population.



Table 9:
Vector-
borne
and
Zoonotic
Diseases
among
Wake
County
Residents,
2019-
2023

	2019		2020		2021		2022		2023		
Population*:	1,112,795		1,129,352		1,152,301		1,170,778		1,190,275		
All Statuses (Confirmed, Probable, and Suspect)											
Disease/Condition	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	
Anaplasmosis	2	0.2	1	0.1	0	0.0	0	0.0	0	0.0	
Chikungunya	3	0.3	2	0.2	1	0.1	0	0.0	0	0.0	
Dengue	6	0.5	0	0.0	2	0.2	0	0.0	4	0.3	
Ehrlichiosis, chaffeensis	15	1.3	8	0.7	12	1.0	9	0.8	19	1.6	
Ehrlichiosis, unspecified	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	
Encephalitis, arboviral, EEE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	
Encephalitis, arboviral, LAC	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	
Encephalitis, arboviral, other	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	
Encephalitis, arboviral, WNV	0	0.0	0	0.0	2	0.2	1	0.1	3	0.3	



Lyme Disease	37	3.3	4	0.4	20	1.7	25	2.1	10	0.8
Malaria	12	1.1	1	0.1	7	0.6	11	0.9	7	0.6
Psittacosis	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Q fever	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Spotted Fever Rickettsiosis	56	5.0	11	1.0	4	0.3	16	1.4	15	1.3
Tularemia	1	0.1	0	0.0	0	0.0	0	0.0	2	0.0
Zika	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0

†Rate per 100,000 population.

All statuses (confirmed, probable, and suspect cases) are reported in this section.

* U.S. Census Bureau, postcensal vintage estimates was used to calculate the total population

Table 10: Viral Hepatitis among Wake County Residents, 2019- 2023	2019		2020		2021		2022		2023			
	Population*:		1,112,795		1,129,352		1,152,301		1,170,778		1,190,275	
	All Statuses (Confirmed, Probable, and Suspect)											
Disease/Condition	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †		
Hepatitis A	11	1.0	0	0.0	8	0.7	2	0.2	4	0.3		
Hepatitis B - Acute	8	0.7	0	0.0	4	0.3	3	0.3	3	0.3		
Hepatitis B - Chronic Carrier	159	14.3	105	9.3	128	11.1	130	11.1	136	11.4		
Hepatitis B - Perinatally Acquired	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0		
Hepatitis B Lab/Condition Report	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0		
Hepatitis C - Acute	11	1.0	4	0.4	4	0.3	5	0.4	6	0.5		
Hepatitis C - Chronic	1,224	110.0	923	81.7	992	86.1	708	60.5	591	49.7		

†Rate per 100,000 population except Hepatitis B, perinatally acquired, which is per 100,000 live births.

All statuses (confirmed, probable, and suspect cases) are reported in this section.

* U.S. Census Bureau, postcensal vintage estimates was used to calculate the total population



Table 11:
Sexually Transmitted Infections (STI) among Wake County Residents, 2019-2023

	2019		2020		2021		2022		2023		
Population*:	1,112,795		1,129,352		1,152,301		1,170,778		1,190,275		
All Statuses (Confirmed, Probable, and Suspect)											
Disease/Condition	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	
Chancroid	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	
Chlamydia trachomatis infection	6,602	593.3	5,761	510.1	5,974	518.4	6,180	525.9	6,339	532.6	
Gonorrhea	2,214	199.0	2,220	196.6	2,399	208.2	2,418	206.5	2,488	209.0	
HIV	139	15.0	136	14.5	161	16.7	146	14.9	141	14.1	
Lymphogranuloma venereum	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	
PID	122	11.0	50	4.4	53	4.6	85	7.3	56	4.7	
Syphilis - Congenital Syphilis	5	-	0	0.0	2	-	4	-	8	-	
Syphilis - Early, Non-Primary, Non-Secondary Syphilis	143	12.9	149	13.2	160	13.9	155	13.2	133	11.2	
Syphilis - Late Latent Syphilis	184	16.5	154	13.6	258	22.4	278	23.7	314	26.4	
Syphilis - Primary Syphilis	60	5.4	65	5.8	84	7.3	88	7.5	60	5.0	
Syphilis - Secondary Syphilis	96	8.6	109	9.7	121	10.5	152	13.0	125	10.5	

†Rate per 100,000 population except congenital syphilis, which is per 100,000 live births.
-Case Rate is not calculated when counts are too low.

All statuses (confirmed, probable, and suspect cases) are reported in this section.
* U.S. Census Bureau, postcensal vintage estimates was used to calculate the total population

Table 12:
Other Reportable Diseases
among Wake County Residents,
2019-2023

	2019		2020		2021		2022		2023		
Population*:	1,112,795		1,129,352		1,152,301		1,170,778		1,190,275		
All Statuses (Confirmed, Probable, and Suspect)											
Disease/Condition	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	No. of Cases	Case Rate †	
Botulism - infant	0	0.0	0	0.0	2	-	1	-	2	-	
Candida auris	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2	
Carbapenem-resistant Enterobacterales	17	1.5	9	0.8	12	1.0	27	2.3	26	2.2	
Creutzfeldt-Jakob Disease	4	0.4	0	0.0	0	0.0	0	0.0	3	0.3	
Leprosy	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	
Mpox	0	0.0	0	0.0	0	0.0	115	9.8	0	0.0	
Non-gonococcal urethritis	121	10.9	25	2.2	14	1.2	9	0.8	4	0.3	
Streptococcal invasive infection, Group A	31	2.8	15	1.3	11	1.0	17	1.5	67	5.6	
Toxic Shock Syndrome, non-streptococcal	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	
Toxic Shock Syndrome, streptococcal	0	0.0	0	0.0	1	0.1	0	0.0	4	0.3	
Tuberculosis	24	2.2	16	1.4	20	1.7	22	1.9	25	2.1	

†Rate per 100,000 population except Botulism-infant, which is per 100,000 live births.
-Case Rate is not calculated when counts are too low.

All statuses (confirmed, probable, and suspect cases) are reported in this section.
* U.S. Census Bureau, postcensal vintage estimates was used to calculate the total population.

17.2 WAKE COUNTY PROGRAM
PROFILES (IMMUNIZATION
TRACKING TEAM,
COMMUNICABLE DISEASE
PROGRAM, HIV/STD
COMMUNITY PROGRAM,
EPIDEMIOLOGY PROGRAM)

Immunization Tracking Team

Wake County’s Immunization Tracking Team ensures that children and adults living in Wake County are age-appropriately immunized per North Carolina Law.

Program and Services	Description	Outcomes/Outputs Data for period January 1, 2023 through December 31, 2023 (unless otherwise noted)
Tracking for Compliance	Tracking to ensure Wake County children are age appropriately immunized, focus on 19–35-month-old children with medical home at WCHHS.	For children born 10/02/2020 – 10/01/2021: <ul style="list-style-type: none"> • 681 clients have WCHHS as medical home • 89% compliant at 24 months • 88% compliant at 35 months
North Carolina Immunization Registry (NCIR)	Provide system administration, training, and support to Wake County and Wake County Public School System staff	<ul style="list-style-type: none"> • 684 active users • 247 new users added
Immunization Program Management	Provides vaccine supply and inventory management to support 12 clinic and program areas.	<ul style="list-style-type: none"> • 30,962 doses received • 31,729 doses administered • 13,057 clients immunized
Middle School Immunization Compliance	A State-led electronic reporting system where schools submit their reports directly to the State.	8/11/2023 – 11/30/2023: <ul style="list-style-type: none"> • 416 students immunized • 635 vaccine doses administered

Outreach Immunization Clinics	Provides access to immunization services to Wake County employees and the public.	<ul style="list-style-type: none"> • 5,643 flu vaccine doses administered to clients by WCHHS • 187 flu vaccine doses to Wake County employees
Supports Public Health Division	Provides clinical and/or administrative support and services for special projects and emergency response.	<p>Between October 1, 2022 and May 31, 2023:</p> <ul style="list-style-type: none"> • 9,936 doses of COVID- 19 vaccines were administered by WCHHS <p>As of February 2023, WCHHS administered:</p> <ul style="list-style-type: none"> • 2,748 Mpox (Jynneos) vaccines to at-risk individuals.

Communicable Disease (CD) Program

The Wake County Communicable Disease (CD) Program investigates and follows up on diseases and conditions reported as required under North Carolina law; the program reports disease data to the North Carolina Division of Public Health through the North Carolina Electronic Disease Surveillance System (NCEDSS) and responds to public health emergencies.

Program and Services	Description	Outcomes/Outputs Data for period January 1, 2023 through December 31, 2023 (unless otherwise noted)
Communicable Disease Surveillance	<ul style="list-style-type: none"> • Conduct investigations for over 70 reportable diseases and conditions as well as animal exposures • Report disease data to North Carolina Division of Public Health through NCEDSS 	<ul style="list-style-type: none"> • 1,956 total CD cases (859 foodborne diseases, 548 vaccine preventable diseases, 353 vector-borne diseases, and 6 different outbreaks investigated) • 1,380 animal exposures investigated
Tuberculosis	<ul style="list-style-type: none"> • Conduct investigations for all TB cases in Wake County (both county and out-of-area residents) • Provide clinical care and Directly Observed Therapy (DOT) home visits. • Report TB data to North Carolina Division of Public Health through NCEDSS 	<ul style="list-style-type: none"> • 25 TB cases • 1832 clinic visits • 272 field visits
Disease Intervention Specialist (DIS)	<ul style="list-style-type: none"> • Conduct investigations for HIV and syphilis cases • Report HIV and syphilis data to North Carolina Division of Public Health through NCEDSS 	<ul style="list-style-type: none"> • 260 syphilis investigations • 129 HIV investigations

<p>Health Education</p>	<p>Provides support to Communicable Disease program by;</p> <ul style="list-style-type: none"> • Assessing, developing, and evaluating written educational materials and curricula for use with staff, clients, healthcare professionals, and the community • Providing communicable disease prevention education in the community • Creating and maintaining educational content for wake.gov • Representing the CD program and Public Health on agency and county wide committees and special initiatives • Responding to public health emergencies 	<ul style="list-style-type: none"> • Planned, implemented, and evaluated, with Wake AHEC, a communicable disease prevention training for long-term care facilities staff workshop with 33 participants. • Developed educational displays for the public health center and Out! Raleigh Pride • Updated content for childcare provider communicable disease prevention manual • Supported program with revision and approval of program protocols • Created or updated content on wake.gov <ul style="list-style-type: none"> ○ 21 content revisions and 9 list serve notifications • Provided support to 2 special projects including month long food safety education activity for Wake County staff • Served on Core Epi-Team • Responded to public inquiries about communicable diseases. • Outreach education at farmers markets (food safety and safe produce handling (83) and Community Pet Days (healthy people and pets and rabies prevention education (94)
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The HIV/STD Community Program

The mission of the HIV/STD Community Program is to provide HIV/STD health/outreach education services, HIV/STD counseling/testing services and HIV/AIDS Case Management services to populations at highest risk for HIV/STD in Wake County. These services are focused around the principles of Teach, Test and Treat. We provide prevention services by utilizing health education and outreach best practices, identification of new cases through testing in community settings, and connecting people with HIV/STD treatment and care.

Program and Services	Description	Outcomes/Outputs Data for period January 1, 2023 through December 31, 2023 (unless otherwise noted)
Health Education and Outreach	<p>Local Universities Peer Education Programs (Shaw University, St. Augustine’s University, and NC State University): College students are trained peer educators who provide comprehensive prevention education on sexual health and aligning topics. Education is provided to students one-on-one, through educational sessions and workshops, and through collaborative campus wide initiatives.</p> <p>Classes at Clinic A and Regional Centers: Provide HIV/STD prevention classes for patients in STD waiting room.</p> <p>Substance abuse centers: Provide HIV/STD prevention classes for substance abuse center clients.</p> <p>Community response: Respond to community requests for health education classes such as colleges and churches.</p>	<ul style="list-style-type: none"> • St. Augustine's University, 17 Peer Educators • Shaw University, 13 Peer Educators • NC State University, 6 Peer Educators • 1,500 Students reached collectively through various campus initiatives. • 800 participants • 1,642 participants • 4,733 participants

<p>Health Education and Outreach cont.</p>	<p>Outreach services: Provide one-on-one education to high-risk populations (e.g. unhoused, sex workers, individuals with substance use disorders, individuals at health fairs).</p> <p>Condom Distribution Sites (CDS): Establish and maintain 46 sites throughout Wake County.</p>	<ul style="list-style-type: none"> • 3,000 contacts with community members • 77,440 condoms distributed among all sites
<p>Counseling and Testing</p>	<p>Community testing sites (24 sites): Provide regularly scheduled HIV, STD, and hepatitis C testing at: shelters, substance abuse centers, colleges/universities, County jails, LGBTQ Center, community-based organizations, pregnancy centers, Regional Centers and local events.</p> <p>Field Delivered Therapy (FDT): Deliver medication to clients that test positive for chlamydia at community testing sites.</p>	<p># persons tested for:</p> <ul style="list-style-type: none"> • HIV - 205 • Syphilis - 3,232 • Chlamydia - 3,456 • Gonorrhea - 3,455 • Hepatitis C - 2,446 • 381 patients received FDT

<p>HIV/AIDs Case Management and Bridge Counselors</p>	<p>Services for HIV/AIDS patients: Social Workers (Bridge Counselors and AIDS Case Managers) connect HIV-positive patients to medical care and other support services such as food, housing, emergency financial assistance, support groups, and education.</p> <p>Assistance for HIV/AIDS patients: Provide walk-in assistance to clients at Under One Roof center (emergency, financial, educational, emotional, housing)</p> <p>Services for Hepatitis C patients: Hepatitis C Bridge Counselors, assist newly diagnosed Hepatitis C positive patients and connects them with medical care and other supportive services</p>	<ul style="list-style-type: none"> • 266 HIV Referrals • 206 total clients connected to medical care • 70 newly diagnosed clients connected to HIV medical care • 100 total clients received ongoing HIV/ AIDS case management, Collectively receiving 1,435 services. • 884 individuals received assistance through walk-ins and or by appointment. • 109 clients referred to bridge counselors • 46 clients linked to treatment
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Wake County Health and Human Services Epidemiology Program

Wake County Health and Human Service's Epidemiology Program works to understand the distribution and determinants of health-related events in communities in Wake County and applies findings to control such events. We strive to accomplish our mission through three major approaches:

- **Research:** We investigate and study areas of interest over time to be informed and knowledgeable of trends.
- **Data Analysis:** We review, clean, transform and model data to discover useful information and determine the extent to which different interventions may be effective.
- **Education:** We communicate findings to the public to control health-related events in communities.

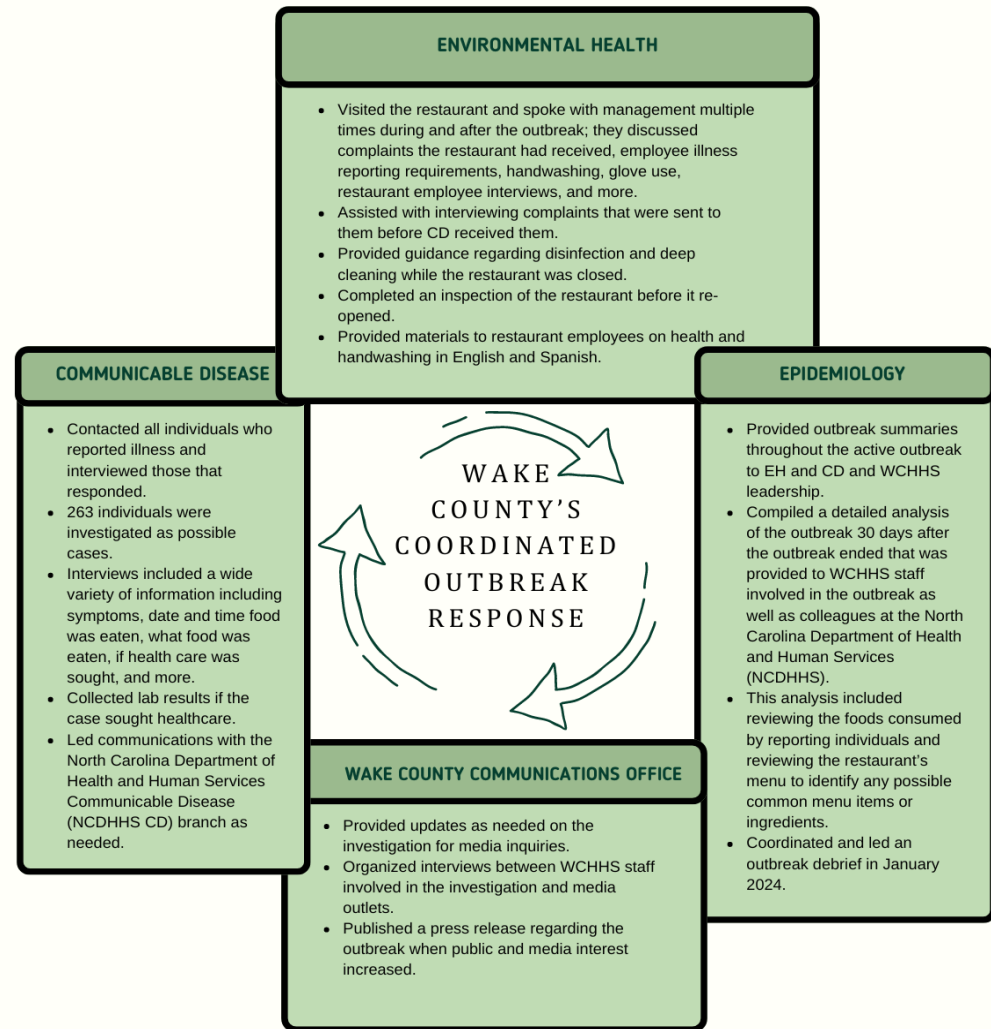
Program and Services	Description	Outcomes/Outputs Data for period January 1, 2023 through December 31, 2023 (unless otherwise noted)
Surveillance	Monitors disease surveillance data (such as wastewater monitoring, emergency department, clinical testing, mortality) routinely to determine disease incidence and trends in Wake County. Analyzes such data for public health reporting, presentations, and publications.	<ul style="list-style-type: none"> • Annual Public Health Reports: Communicable Disease; Chronic Diseases and Conditions; Poisonings and Injuries; Maternal and Child Health; and Prevention) • Respiratory Virus Surveillance Updates including Emergency Department visits for COVID-19, Influenza, and RSV; Influenza Season Updates including Emergency Visits for Influenza; Wastewater Monitoring Updates for COVID-19, Influenza A and B, RSV, and Mpox • 2023 SOTCH Report • 2022 CHNA • 35 publications and materials presented (includes additional reporting and presentations)

<p>Outbreak/Public Health Incident Support</p>	<p>Provides support for outbreaks and other public health incidents such as conducting an outbreak analysis report as part of an outbreak investigation for outbreaks of public health concern in Wake County.</p>	<ul style="list-style-type: none"> • Cyclosporiasis Outbreak Associated with Restaurant-August 2023 • Norovirus Outbreak Associated with Restaurant-December 2023 • Serve on Core Epi-Team (facilitate quarterly meetings, facilitate public health incident debriefs, share epidemiology updates, plan meeting agendas)
<p>Technical Consultation and Support</p>	<ul style="list-style-type: none"> • Provides technical guidance and protocols on respiratory viruses to schools, childcare operators, and others serving specific populations that may be in a high-risk setting. Additionally, will report COVID-19 clusters for schools and childcare facilities to the State after consultation with entity administration. • Provides data-driven materials to leadership and others to inform targeted efforts amongst communities. 	<ul style="list-style-type: none"> • COVID-19 Public Health Emergency Ending Email Update to Schools and Childcare Facilities in Wake County • COVID-19 Guidance for Vulnerable Populations presentation
<p>Data Requests</p>	<p>Completes ongoing and one time data requests for internal and external partners (Commonly requested data includes communicable diseases, sexually transmitted diseases (STDs), HIV/AIDS, injury data, and county demographics.</p>	<ul style="list-style-type: none"> • 40 data requests filled



Expansion Request Support	Provides data, data analyses and geographical analyses to support other Public Health program's expansion requests to expand their efforts and reach.	<ul style="list-style-type: none">• STD/HIV/Hep C Community Program Expansion Request• WCHHS Mobile Unit Expansion Request• DIS Expansion Request
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17.3 VISUAL OF WAKE COUNTY'S COORDINATED OUTBREAK RESPONSE DURING NOROVIRUS OUTBREAK ASSOCIATED WITH LOCAL RESTAURANT, DECEMBER 2023



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