GWINNETT • ROCKDALE • NEWTON

COUNTY HEALTH DEPARTMENTS

Annual Report

Epidemiology & Infectious Disease

2015

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Gwinnett, Newton, Rockdale Counties Epidemiology & Infectious Disease 2015 Annual Report

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Gwinnett, Newton, Rockdale Counties Epidemiology & Infectious Disease 2015 Annual Report

Executive Summary

The Gwinnett, Newton, Rockdale County Health Departments (GNR), Division of Epidemiology and Infectious Disease serves the population of Gwinnett, Newton, and Rockdale Counties in metropolitan Atlanta, Georgia. The division is responsible for disease investigation and health promotion for over one million residents. The division also participates in emergency-preparedness activities. Funding for all activities is secured through county, state, and federal grant-in-aid. The division consists of three distinct programs: Epidemiology, Communicable Diseases and Tuberculosis. These programs operate as a team to meet local, state, and federal goals and deliverables.

In 2015, a total of 9,562 notifiable conditions were reported in the three-county health district. A total of 1,755 (18.4%) of these notifiable diseases were investigated. 98.3% of uninvestigated morbidity was due to reported gonorrhea and chlamydia cases. 1,923 (62.2%) of non-STD diseases reported did not require an investigation. Of all non-STD notifiable diseases requiring an investigation, 97.6% were investigated. Program staff investigated numerous complaints (125) and clusters and outbreaks of illness (21); 100% of these instances were investigated. In 2015, Epidemiology responded to 1,099 de-duplicated individual reports of animal bites involving residents of Gwinnett, Newton, and Rockdale counties.

This report encompasses data that is collected at the local and state level. All data is verified at the state level before confirmation. As such, a significant time delay exists allowing for verification of cases according to CDC case definitions and reporting requirements. The publication of this report encompasses all confirmed 2015 Notifiable Disease data as of June 6, 2016.

Program Descriptions

The GNR Division of Epidemiology and Infectious Disease is comprised of 3 distinct programs: Epidemiology, Communicable Disease, and Tuberculosis. The District serves over one million residents of Gwinnett, Newton and Rockdale counties in metropolitan Atlanta, GA. Funding for each of the programs is secured through county, state and federal grant-in-aid.

Epidemiology Program

Program Responsibilities: The Epidemiology program staff is responsible for investigation of cases, clusters, outbreaks and suspected cases of reported diseases including those which may not be captured in traditional surveillance systems such as syndromic surveillance triggers. Staff is also responsible for tracking and reporting nearly 70 notifiable diseases to the Georgia Division of Public Health Epidemiology Branch and implementing control measures to limit the spread of disease in the community. The Epidemiology program staff completes data requests and provides health advice and education to other public health staff, hospital staff, physicians and other health care providers, school and day care center staff, and other members of the community in addition to providing trainings and outreach. The Epidemiology staff is often responsible for publishing internal and external reports and participates in county and district public health programs as needed.

Staff Capacity: The Epidemiology program is staffed by the Division Director, an Epidemiology Nurse Specialist, an Environmental Epidemiologist, two General Epidemiologists, and an Administrative Support specialist.

Communicable Diseases Unit

Program Responsibilities: The staff of the Communicable Diseases Unit investigates sexually-transmitted infections (STI), which include HIV/AIDS, syphilis, gonorrhea, and chlamydia. In collaboration with the Epidemiology program, the Communicable Diseases Unit investigates, tracks, and reports to the Georgia Division of Public Health and provides community outreach and education. Unit staff is responsible for ensuring that cases are reported, diagnosed and treated, and partners are referred for testing and treatment as appropriate. The team also serves as a nonclinical consultation source for internal and external clinicians regarding CDC STD treatment guidance. These are the key components of STI control and prevention programs.

Staff Capacity: The Communicable Diseases Unit is staffed by a Communicable Diseases Supervisor, two Communicable Disease Specialists, and an Operational Analyst. Additional support was provided by a CDC Public Health Associate assigned to GNR.

Tuberculosis Control Program

Program Responsibilities: The tuberculosis program is responsible for investigating and managing all cases of active TB disease and certain latent tuberculosis infection in the District. Program staff provides source, case and contact investigations for the identification of active pulmonary and extrapulmonary tuberculosis. Timely identification of contacts provides the opportunity to limit the spread of disease and prevent future cases. Program staff provide case management of most cases and provide co-management of some cases with private health care providers. Case management services are designed to assure adequate treatment, diagnostic follow-up, monitoring for drug toxicity, and patient adherence to treatment. Services include monthly clinic visits, home-visits, family-centered case management, directly observed therapy (DOT), and appropriate use of incentives. In addition to direct services to patients, the TB program staff provide outreach, consultation, and education to other health care professionals, facilities, the local school systems, correctional facilities, and community members.

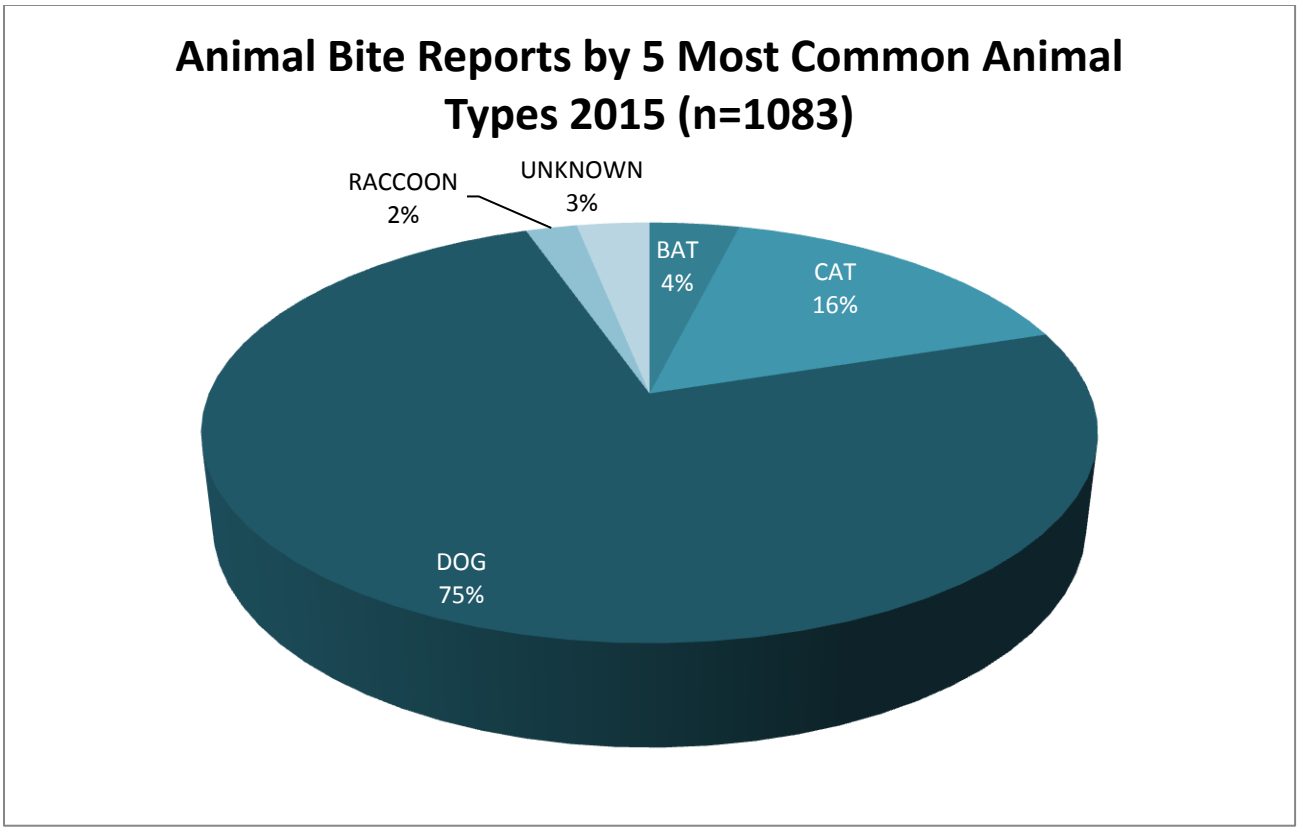
Staff Capacity: The TB program staff includes a Program Coordinator, two registered nurses, five case managers, a laboratory technician, a radiology technician and an operations analyst. Additional support was provided by a CDC Public Health Associate assigned to GNR.

Animal Bites

Rabies is a fatal viral infection transmitted through the saliva of infected mammals. Although all mammals are susceptible to rabies, only certain species act as reservoirs for rabies disease in the community. These species include raccoons, skunks, foxes, bats, and coyotes as well as domestic dogs, cats, and ferrets. Rabies in humans can be prevented by prohibiting exposure to rabid animals, by providing appropriate post-exposure prophylaxis, and by offering pre-exposure vaccinations to high-risk populations who might encounter rabid animals in their daily lives (veterinarians, animal control personnel, etc.)

Animal bites/exposures are reported to Epidemiology by animal control, medical facilities, and private citizens. All reports are investigated to determine the risk for rabies transmission and to make recommendations regarding the need for rabies prophylaxis.

Of 1,099 de-duplicated individual reports of animal bites involving residents in Gwinnett (N=738), Newton (N=198), and Rockdale (N=163) counties, 98.2% involved at least one human victim. There were 947 human victims associated with animal bite reports in 2015. The majority of animal bite reports involved exposure to a dog (75%) or a cat (16%). Of 179 animals tested for rabies in 2015, only 9 were positive. These 9 cases included 6 raccoons, 1 dog, 1 cat, and 1 bat. Recommendations were made to 142 human victims to receive preventative rabies prophylaxis and 55.6% (n=79) completed treatment.



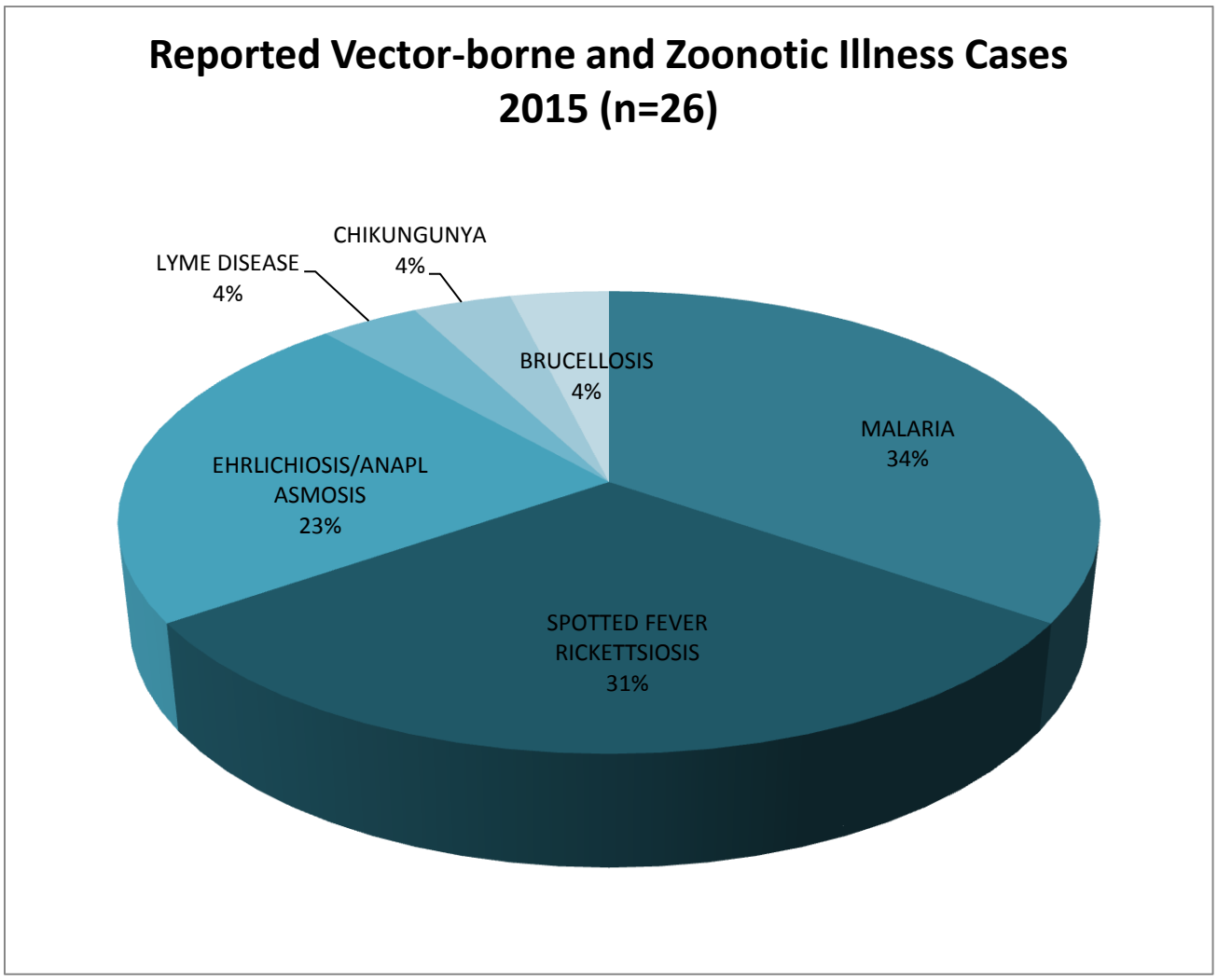
Vector-borne and Zoonotic Diseases

Vector-borne diseases are illnesses that are transmitted to humans or other animals by an insect or other arthropod such as mosquitoes and ticks. Many individuals infected with vector-borne diseases have no symptoms; however, a small percentage of people may develop serious illness such as encephalitis and meningitis that can result in irreversible neurological damage, paralysis, coma, or death. The Georgia Department of Public Health requires immediate reporting of all acute arboviral (arthropod-borne virus) infections. Vector-borne diseases that require reporting within 7 days include Malaria, Rocky Mountain Spotted Fever (RMSF), Human Monocytic Ehrlichiosis (HME), Human Granulocytic Anaplasmosis (HGA), and Lyme disease. The most common arboviral infections reported in Georgia include: Eastern Equine Encephalitis (EEE), LaCrosse Encephalitis, and West Nile Encephalitis (WNV). St. Louis Encephalitis (SLE) is less common but has also been reported in Georgia.

A zoonotic disease is an illness that can be passed from animals such as livestock, pets, and wild animals to humans. Brucellosis, Q fever, and tularemia are examples of zoonoses and must be reported immediately because they are classified as potential bioterrorism agents. Zoonotic diseases that require reporting within 7 days include leptospirosis, Hansen's disease, psittacosis, and toxoplasmosis.

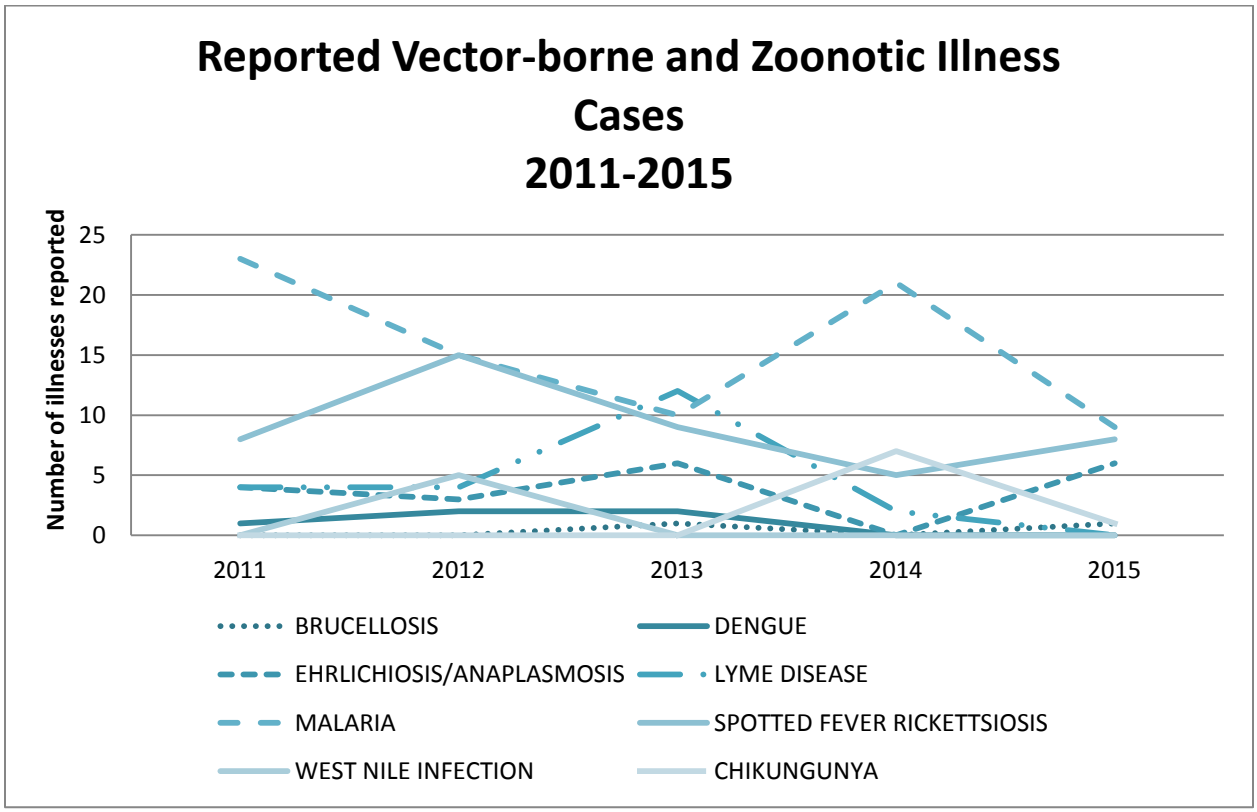
In May of 2015, The Pan American Health Organization (PAHO) issued an alert regarding the first confirmed Zika virus infections in Brazil. In December 2015, the Commonwealth of Puerto Rico reported its first confirmed locally acquired Zika virus case. On January 22, 2016, CDC activated its Emergency Operations Center (EOC) to respond to outbreaks of Zika occurring in the Americas and increased reports of birth defects and Guillain-Barre Syndrome (GBS) in areas affected by Zika. Currently, outbreaks are occurring in many countries and territories. As of June 2, 2016, the US reported a total of 618 travel-associated Zika cases to CDC and of these, 11 were sexually transmitted and 1 had GBS. CDC continues to work with states to monitor for additional cases[1].

[1] Centers for Disease Control and Prevention. Key Messages-Zika Virus Disease. Retrieved from http://www.cdc.gov/zika/pdfs/zika-key-messages.pdf on June 2, 2016.



In 2015, a total of 26 vector-borne and zoonotic illnesses were reported to GNR. These illnesses consisted of malaria, spotted fever rickettsiosis, ehrilichiosis/anaplasmosis, chikungunya, Lyme disease and brucellosis. Malaria and spotted fever rickettsiosis represented 65% of all vectorborne and zoonotic illness reported in 2015.

The incidence of vector-borne diseases has remained somewhat variable since 2010. It should be noted that all cases of malaria, dengue, and chikungunya were travel-associated. There was a decrease in travel-associated malaria from 2014 (21 cases) to 2015 (9 cases) which may be attributed to avoidance of nonessential travel to Africa due to the ongoing Ebola virus disease (EVD) outbreak. Epidemiology program staff attempted to investigate all cases of vector-borne disease; however, the interview process is complicated by language barriers, refusal to participate, and loss-to-follow-up. Confirmation of disease requires extensive laboratory testing. As a result many likely cases are not confirmed due to refusal to follow up with requested laboratory testing.



Cases of travel-associated Malaria were categorized by country visited in the table below. Nigeria was the most frequently visited country associated with Malaria infection.

2015 GNR District Malaria Cases by Country Visited

Nigeria	5	Haiti	1
Liberia	1	Dubai	1
Ghana	1	**Total**	**9**

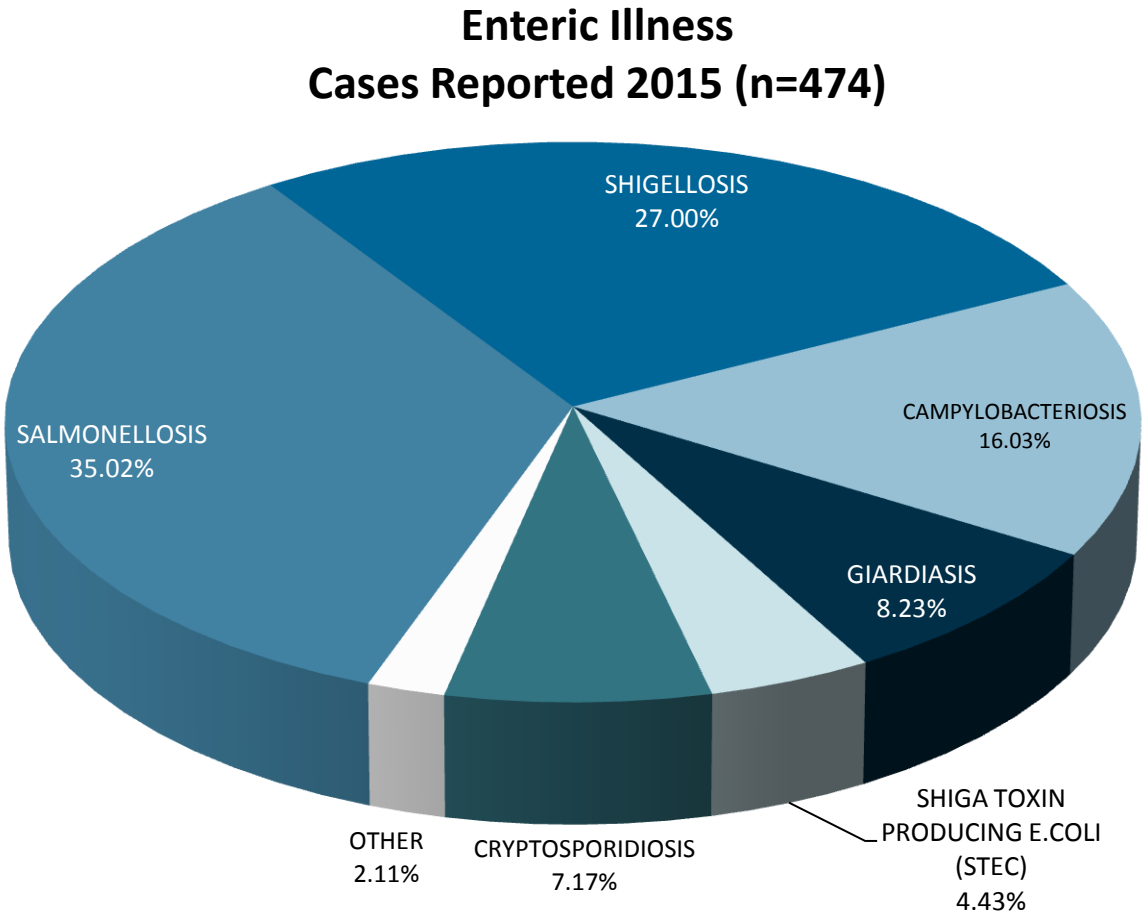
Enteric Illness (Foodborne Illness)

Enteric Diseases are most commonly caused by bacteria, viruses, or parasites, which are transmitted through the fecal-oral route or, frequently, through contaminated food and water, and enter the body through the gastrointestinal system. These microbes can also be spread through animal or person-to-person contact. There are over 250 identified foodborne diseases. The most common are caused by *Campylobacter, Salmonella, Shigella,* and *Escherichia coli* O157:H7 or shiga toxin-producing *E. coli* (STEC), and the calcivirus group of viruses known as Norwalk or Norwalk-like viruses. Other less common culprits include Hepatitis A, *Giardia lamblia, Yersinia, Listeria monocytogenes*, and *Cryptosporidia*. The incubation period varies widely from hours up to one week depending on the pathogen causing the illness.

The Epidemiology program partnered with Environmental Health to investigate potential and reported outbreaks and prevent enteric diseases caused by contaminated food or water as well as those spread person-to-person. Epidemiology staff conducted surveillance activities, investigations and community education to identify sources of infection and prevent further transmission of disease.

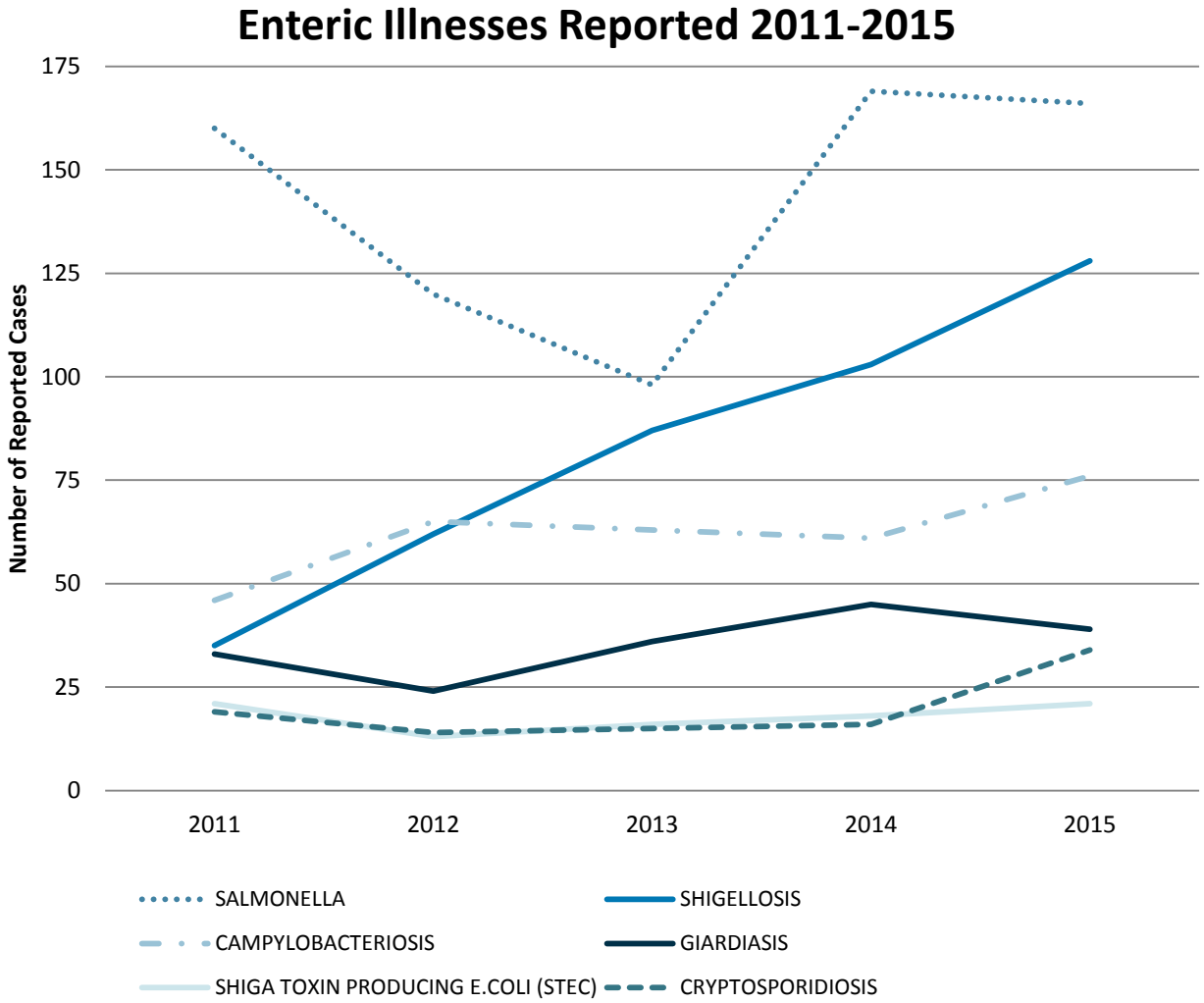
Particular attention was given to outbreaks in high-risk settings such as in-home and institutional day care centers and pre-schools. These settings are of particular concern because of the high potential for transmission due to the frequency of diapering and toileting, as well as food preparation and feeding of young children in the classroom setting. In younger children, frequent hand-to-mouth activity also increases the potential for transmission. The Epidemiology staff worked closely with employees from these settings to dispense information on the appropriate measures to prevent transmission of enteric diseases.

Current guidelines from the Notifiable Disease Section of the Georgia State Epidemiology Unit recommend reporting for all cases of *Campylobacter, Cryptosporidium, Cyclospora, E. coli* O157:H7 or shiga toxin-producing *E. coli*, *Giardia*, Hemolytic Uremic Syndrome, *Listeria, Salmonella, Shigella, Yersinia* and *Vibrio*. Additional follow-up is required for any clusters in person, place, or time. Case investigation with possible special follow-up is recommended for cases of *C. botulinum*, *Cyclospora, E. coli* O157:H7 or STEC, Hemolytic Uremic Syndrome, *Listeria*, Typhoid fever, and *Vibrio*. GNR District epidemiology staff met or exceeded these recommendations in 2015.



The most frequently reported enteric diseases in the GNR District in 2015 were salmonellosis and shigellosis, which together accounted for 62.0% of all reported enteric illness. Giardiasis, campylobacteriosis, and cryptosporidiosis together accounted for 31.4% of the total number of reported cases.

Limitations in staff capacity required prioritization of case investigations of foodborne or enteric illness, and staff limitations at the state resulted in late reporting of certain enteric illnesses, primarily Giardiasis, which represented 71.4% of uninvestigated enteric illness cases. In 2015, the district received 474 reports of enteric illness of which staff were able to investigate 94.0% (446 cases).



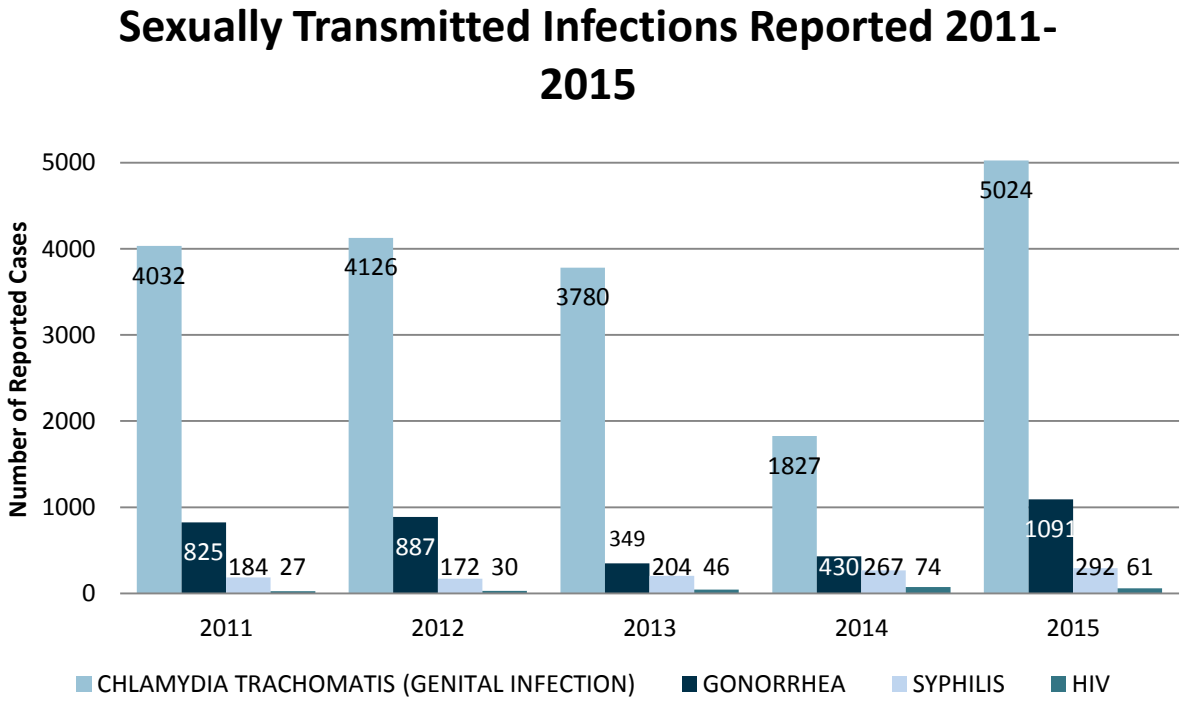
There was an increase of 11.5% in enteric illnesses reported in 2015 compared to the previous year. Salmonellosis case reporting decreased by 1.8% in 2015 following a 72.4% increase in cases in 2014. Shigellosis reporting increased by 24.3%. The decrease in salmonellosis during 2013 mirrored what was seen and reported nationally as noted in an April 2014 Morbidity and Mortality Weekly Report from the Center for Disease Control (CDC)[2]. Cryptosporidosis cases increased by 112.5% since 2014. This dramatic increase in cryptosporidosis is reflected in the findings from the CDC's Foodborne Diseases Active Surveillance Networks (FoodNet) 2015 preliminary report[3]. This report found a statistically significant increase (57%) in national Cryptosporidium cases compared to previous years. Overall, the incidence of reported enteric illness has increased by 43.6% since 2011.

[2] CDC. Incidence and Trends of Infection with Pathogens Transmitted Commonly Through Food-Foodborne Diseases Active Surveillance Network, 10 U.S. Sites, 2006-2013 MMWR 2014;63 (15); 328-332.

[3] Huang JY, Henao OL, Griffin PM, et al. Infection with Pathogens Transmitted Commonly Through Food and the Effect of Increasing Use of Culture-Independent Diagnostic Tests on Surveillance — Foodborne Diseases Active Surveillance Network, 10 U.S. Sites, 2012–2015. MMWR Morb Mortal Wkly Rep 2016;65:368–371. DOI: http://dx.doi.org/10.15585/mmwr.mm6514a2.

Sexually Transmitted Infections (STIs)

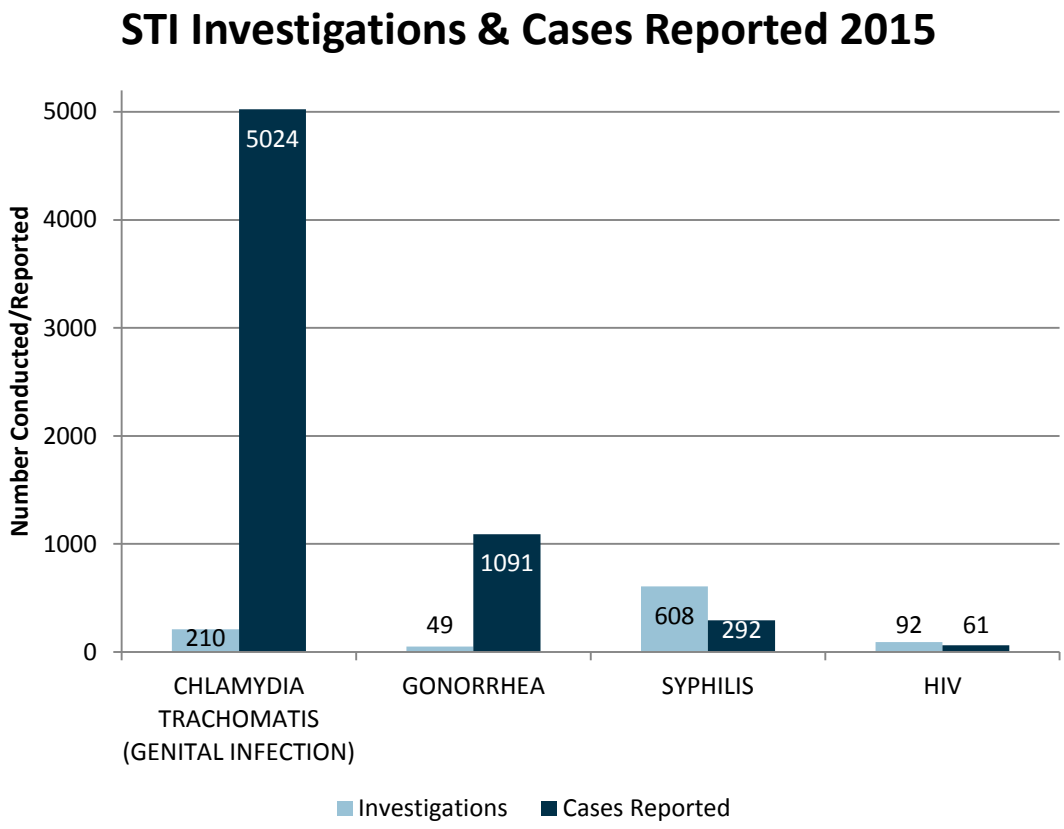
The Communicable Disease Unit of the GNR District received 6,468 reports of sexually-transmitted infections in 2015. Sexually-transmitted infections are a significant cause of morbidity and mortality in the GNR District and, generally, in the State of Georgia. Sexually-transmitted infections are both preventable and often curable with appropriate diagnosis and treatment. Without treatment, these infections can lead to sterility, cancer, and death. Based on current capacity, 14.8% of these cases were investigated by Communicable Disease staff. Investigations were prioritized based on factors such as age, pregnancy, clustering, and provider request; syphilis and HIV (when reported to GNR directly) are always investigated.



Chlamydia accounted for almost 77.7% of the total number of cases of sexually-transmitted infections reported. The next most frequently reported sexually-transmitted infection was gonorrhea, which accounted for 16.9% of total cases reported. These two diseases represent a substantial percentage of the total burden of disease from STI in the GNR District. Approximately 2,400 cases of STI infection (primarily Chlamydia and Gonorrhea) were not geographically assigned in SENDSS, the statewide electronic surveillance network, and these cases, could not be investigated.
In 2014, rates of Chlamydia in Georgia increased while rates of Gonorrhea declined. The South as a region saw an increase in cases of both illnesses. In 2014, Georgia ranked 3rd in the nation for primary and secondary Syphilis, and Gwinnett County ranked 44th in the national county rankings, up from 68th in 2013. The only Atlanta metro counties with a higher ranking were Fulton (6th) and Dekalb (16th). At the time of this report 2015 national data and rankings were unavailable.[4]

[4] Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2014. Atlanta: U.S. Department of Health and Human Services; 2015.

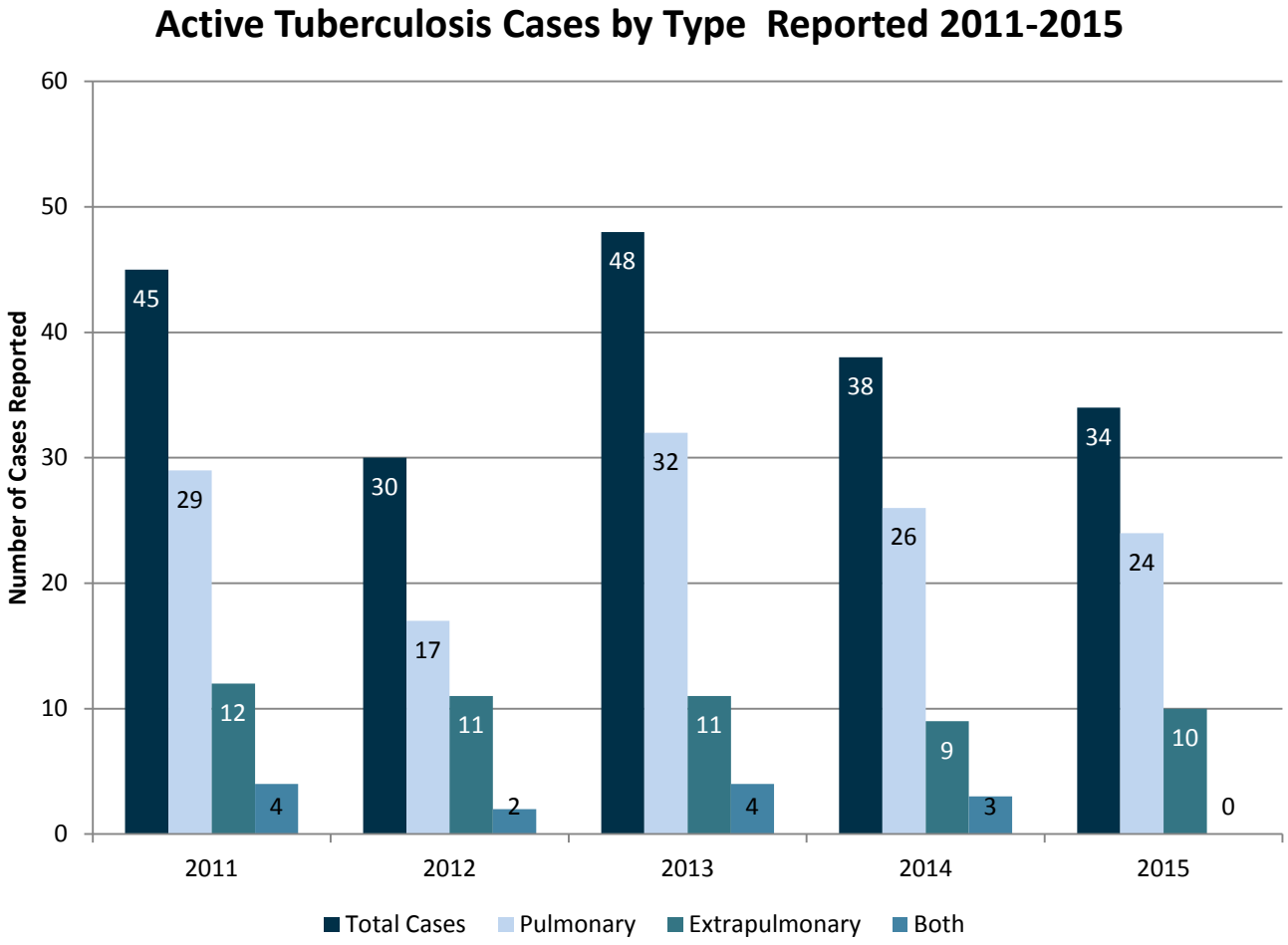
STI Investigations include provider record searches, patient follow up and/or interviews, and contact tracing. A provider record search is usually conducted when insufficient data is presented to the health department and additional information (i.e. demographics, signs/symptoms, labs, treatment, etc.) is required from the health provider. Positive Chlamydia and Gonorrhea cases warrant an investigation under certain circumstances. A field investigation is initiated on patients requiring treatment that are diagnosed at public health department clinics. Syphilis and HIV cases reported by private and public entities are investigated for epidemiologic data and to implement control measures. Individuals are educated about their infection, linked to care if necessary, and interviewed to identify their sexual and needle sharing partners. Contact tracing is also a very important public health function as STI staff are able to prevent the spread of STDs by offering testing and treatment to syphilis and HIV contacts. During 2015, 608 investigations were conducted for 283 Syphilis case reports received and 92 investigations were conducted for 57 HIV cases reported. Some cases of Syphilis and HIV were not investigated in 2015 due to incomplete reporting of the case's geographic location.



For syphilis and HIV, the higher number of investigations versus cases reported is due to testing and education of identified sexual partners of reported cases. Untreated Syphilis is infectious during the primary, secondary, and early latent stages. Persons with latent stage Syphilis are at risk for irreversible multi-organ damage making early identification and treatment a priority for Communicable Disease staff.

Tuberculosis

Tuberculosis continues to present a major threat to population health in GNR Health District. The goal of the Tuberculosis Program is to eliminate tuberculosis in the district. Until eradication can occur, the program staff strives to reduce the burden of disease, limit transmission, and prevent future cases. The staff provided diagnostic, treatment, and case management services to all identified persons with active TB disease. The TB program staff also conducted contact investigations for the identification of individuals with latent TB infection (LTBI) in order to prevent future cases of active disease and further transmission.

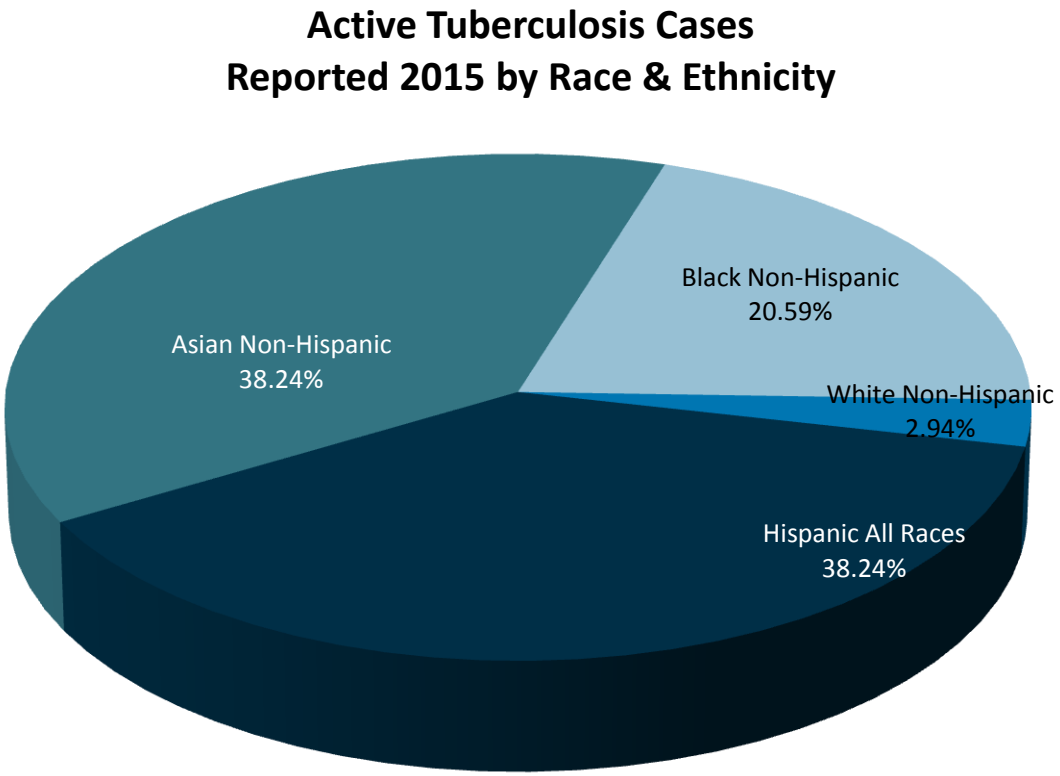


The TB program staff investigated all suspected and confirmed cases of tuberculosis disease in the district. There were 34 reports of active TB disease of which 71.0% were diagnosed as pulmonary TB; the remaining cases were reported as clinical TB and extra-pulmonary TB. An additional 52 persons were evaluated as suspect tuberculosis cases in 2015. An average of 8-12 weeks is spent investigating suspect cases. All suspect cases are fully evaluated and investigated pending negative culture results which can take up to 12 weeks to complete.

The TB program staff closely monitored the incidence of TB disease and noted that there was a disparate burden of disease in foreign-born persons, which accounted for 67.6% of all cases of active disease. Asian Non-Hispanic and Hispanic All Races were the most commonly reported race and ethnicity among TB cases in the GNR Health District. The U.S., Mexico, and Vietnam were the birth countries of the majority of GNR cases.

2015 GNR District TB Cases by Country of Birth

USA	11	Somalia	2	Guatemala	1	Dominican Republic	1
Mexico	5	Colombia	2	China	1		
Vietnam	4	Nigeria	1	Honduras	1	**Total**	**34**



Prompt diagnosis and treatment completion by individuals with active disease, timely investigation for identification of contacts with latent TB infection, and assurance of adherence to treatment are essential functions of TB control and prevention. Limited resources have required prioritization of services in order to assure the continuation of core TB activities that provide the highest yield. Directly observed therapy (DOT) is the gold standard for treatment of active tuberculosis and is used for all cases and LTB clients at highest risk of conversion to active disease.

The TB program staff utilizes current CDC recommendations for a concentric circle approach to contact investigations in order to achieve the highest yield while conserving resources. As resources allow, TB program staff prioritize outreach, education, and screening efforts.

Contact investigations are the gold standard for secondary prevention in individuals exposed to cases of pulmonary and laryngeal tuberculosis and for preventing future cases of active disease from untreated latent tuberculosis infections. For these reasons, investigations are a critical component of the TB program, but one which requires an extensive commitment of human and financial resources.

In 2015, TB program staff investigated 149 contacts of the 34 reported cases of active TB. In general, contact investigations involve close contacts such as members of the case's household and close social and work contacts. Large scale investigations in the public school and work settings are often conducted due to the calculated risk of exposure. The number of contacts investigated in 2015 is down from 2014 during which 38 cases and 213 contacts were investigated.

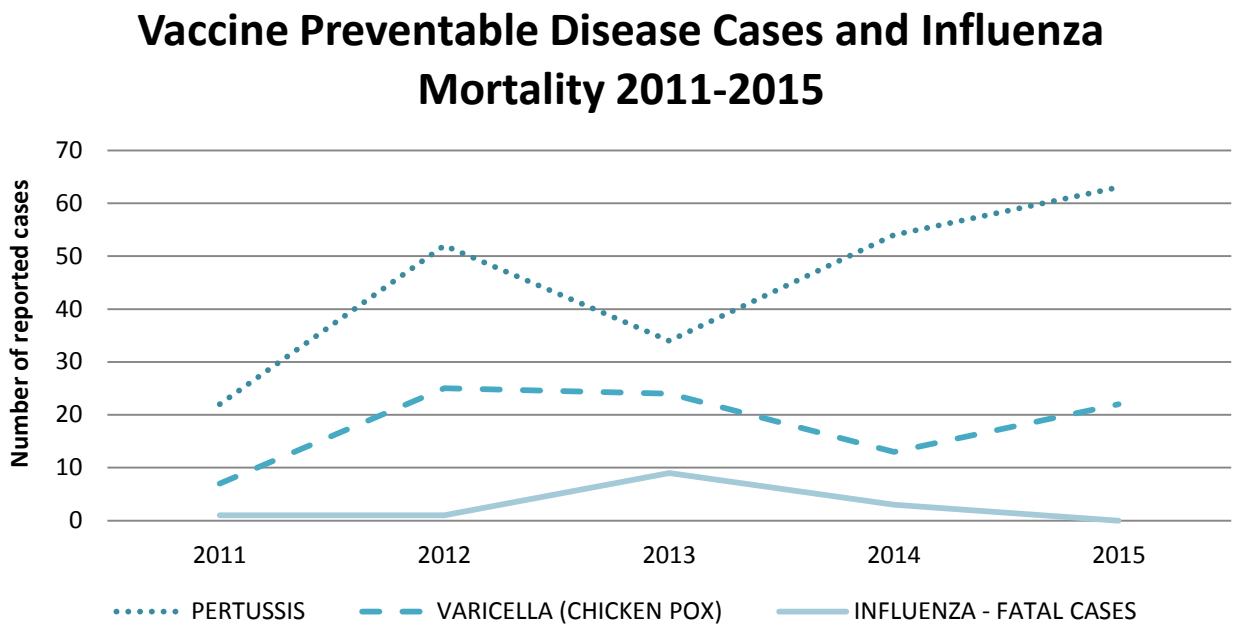
Contact elicitation is a core objective in the National TB Program Objectives & Performance Targets for 2020[5]. Performance against national standards is measured each year through a cohort review of investigation and management of TB cases and contacts in each Public Health district. In 2015, the GNR TB Control Program met the contact evaluation goal of 93%.

Case management services were provided to all active patients and to LTBI patients including directly observed therapy, monthly contact for monitoring adherence to treatment, efficacy of treatment, and signs of drug toxicity. Directly Observed Therapy (DOT) is the preferred treatment method for cases of Tuberculosis as well as certain individuals with LTBI (HIV infected, children ≤5 years of age, etc.). DOT is provided in GNR clinic sites and at the homes/worksites of patients as necessary. Program staff also worked closely with staff at the public schools for DOT in the school setting whenever possible. The Program staff are closely monitoring this change for impact on adherence to treatment.

[5] CDC: National TB Program Objectives & Performance Targets for 2020. August 2015. Available at http://www.cdc.gov/tb/programs/evaluation/pdf/programobjectives.pdf.

Vaccine Preventable Illnesses

Vaccine preventable diseases are immediately notifiable in the state of Georgia. Just a decade ago vaccine preventable illnesses were declining in Georgia and in the GNR Health District. Pertussis cases were decreasing in conjunction with a 2005 innovation in adolescent and adult formulations of the Tdap vaccine. Over the past ten years, anti- vaccination movements have played a role in an increase in vaccine preventable illnesses across the county. Outbreaks of measles and pertussis are showing up across the United States. Luckily, measles has not entered the GNR Health District, although epidemiology staff facilitate testing of suspect cases and participate in investigating contacts to cases in other districts. Another new addition to surveillance is varicella (chickenpox), which became a notifiable disease in 2011. Early reports of varicella were most likely sporadic in 2011 as providers were not accustomed to reporting it.



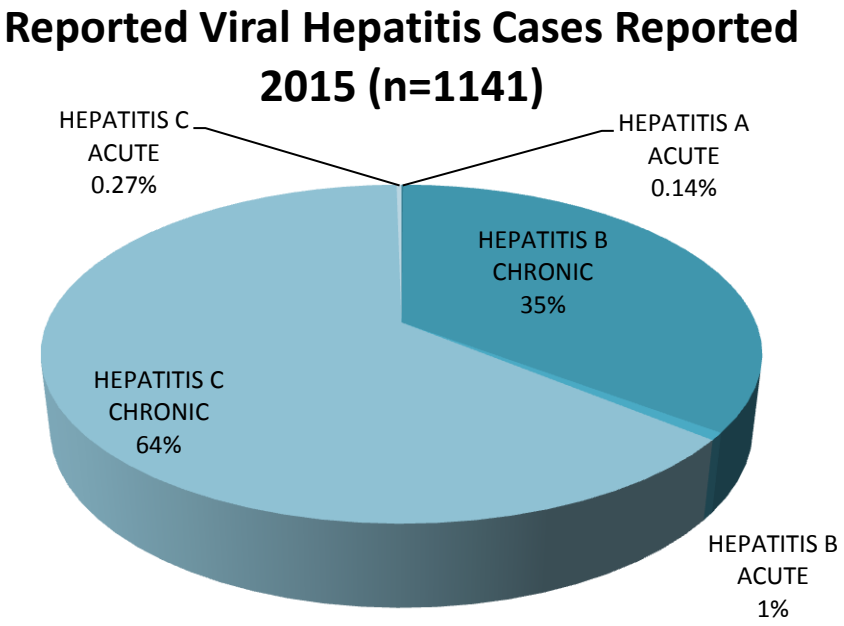
Pertussis is a respiratory illness resulting from local infection of the nasopharyngeal area by the bacteria *Bordatella pertussis*. In 2015, 63 cases of Pertussis were reported to GNR, an increase of 16.66% from 2014. At the time of this report, finalized national data from the CDC was unavailable. Overall, the number of GNR Pertussis cases has increased by 186% since 2011. Transmission occurs through contact with respiratory droplets from an infected person. In older children and adults, Pertussis typically causes mild symptoms that resolve over the course of several weeks. Many adolescents and adults are susceptible to pertussis due to waning immunity 5-10 years after the initial series of pertussis vaccinations. In 2005, two new adolescent and adult formulations of Tdap vaccine were licensed for use in the United States. Pertussis poses the greatest risk to young infants. Infants experience complications including pneumonia, encephalopathy, and death, and often require extensive treatment and hospitalizations. Most infants are infected by ill siblings and adult caregivers.[6]

[6] Skoff TH, Kenyon C, Cocoros N, et al. Sources of infant pertussis infection in the United States. *Pediatrics*. 2015;136(4):635–41.

Viral Hepatitis

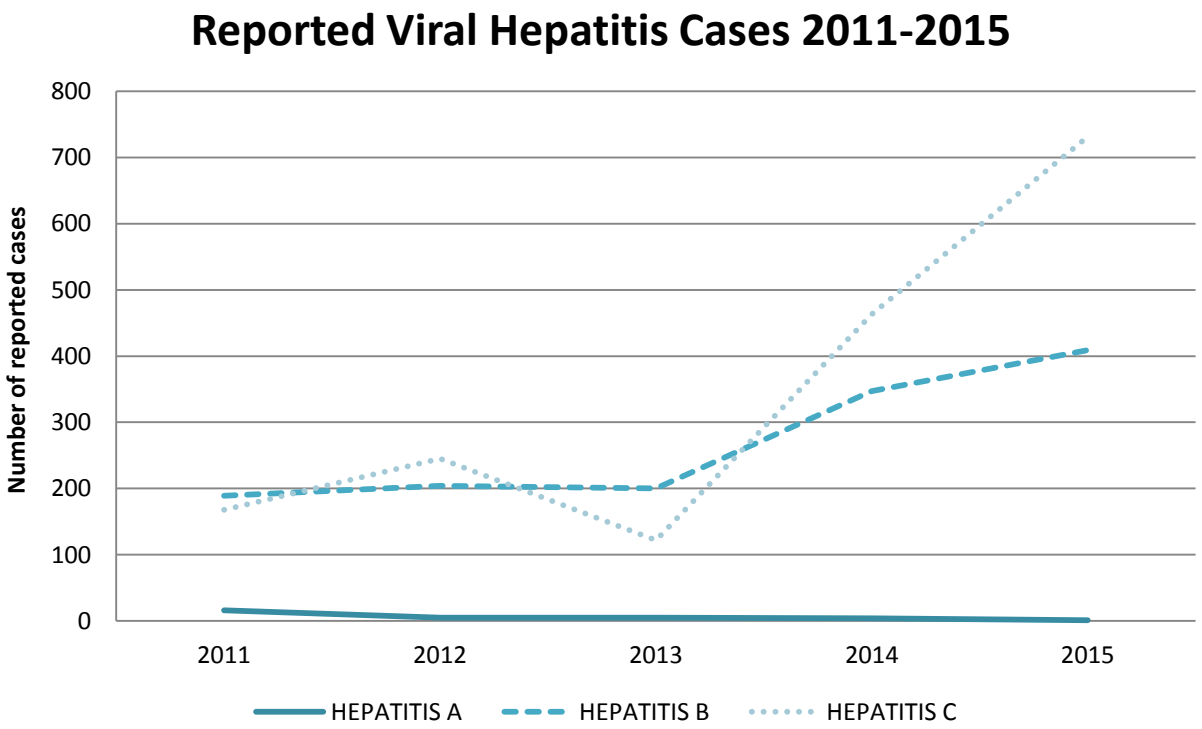
GNR staff in 2015 investigated 1,141 viral hepatitis cases; only 10 (0.8%) of the reported cases were acute. All reported viral hepatitis cases are evaluated for acute illness symptomology by GNR epidemiology staff. Preventative medication can be given to close contacts of Hepatitis A and B cases to prevent illness. There is no preventative medication for Hepatitis C.

The majority of the viral hepatitis reports were Hepatitis C, a new trend that was identified in 2014 when previous years were predominantly Hepatitis B. Hepatitis A cases accounted for only 0.14% of the total number of viral hepatitis cases. Chronic Hepatitis B is found predominately in the Asian community. Asian and Pacific Islanders (APIs) make up less than 5% of the total population in the United States but account for more than 50% of Americans living with chronic Hepatitis B[7]. While Newton and Rockdale do not have a significantly high Asian population, 11.5% (n= 103,020) of residents in Gwinnett County are Asian according to 2015 population statistics.[8]



Hepatitis A is of significant concern to epidemiology staff despite its low prevalence due to the potential for outbreaks within the community. Unlike Hepatitis B and C that are spread through contact to blood and other bodily fluids, Hepatitis A is spread through the fecal-oral route. Hepatitis A is transmitted person-to-person or through food or water that has been contaminated with the virus. Epidemiology staff members work closely with Environmental Health to ensure that the risk for exposure to Hepatitis A is minimized in all local food service establishments and to quickly respond to any reports of Hepatitis A to prevent transmission from food or waterborne sources.

[7] CDC. Recommendations for Identification and Public Health Management of Persons with Chronic Hepatitis B Virus Infection. MMWR 2008;57(RR-8).
[8] United States Census Bureau. QuickFacts Gwinnett County, Georgia. Retrieved on May 19, 2016 from http://www.census.gov/quickfacts/table/PST045215/13135



Testing guidance for Hepatitis C has changed dramatically in the past five years and this has impacted the number of cases reported to GNR. In 1998, guidance simply stated testing was recommended for asymptomatic persons with specific risk factors[9]. In 2009 HIV infected persons were added[10] and then in 2012 all adults born from 1945 to 1965 were included into the routine testing group[11]. The changes in testing guidance resulted in an increase in reporting of Hepatitis C cases over the past 10 years.

A risk of having an adult population with chronic Hepatitis B is the possibility of transmission of the virus to newborns through child birth. Regardless of the delivery method, babies are exposed to the virus when their mother is infected. Transmission of perinatal Hepatitis B infection can be prevented in approximately 95% of infants born to positive mothers by early active immunoprophylaxis through immunoglobulin administration and vaccination[12]. The Perinatal Hepatitis B Prevention Program (PHBPP) is funded through the CDC's National Center for Immunization and Respiratory Disease, Immunization Services Division, with technical support from CDC's National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention.

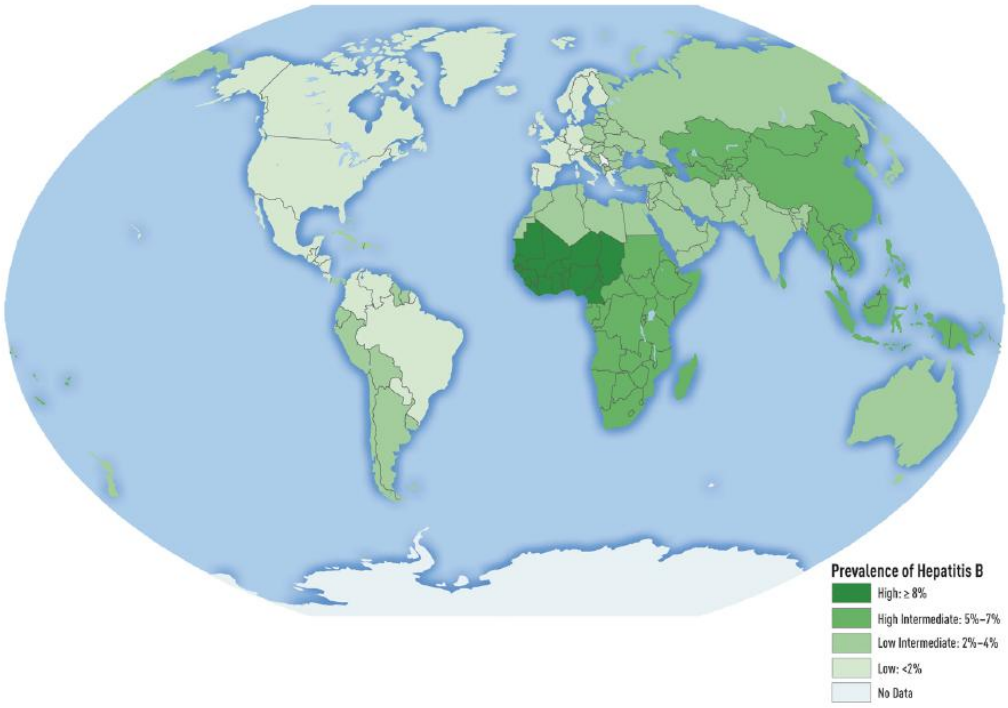
[9] CDC. Recommendations for prevention and control of hepatitis C virus (HCV) infection and HCV-related chronic disease. MMWR 1998;47(No. RR–19).
[10] CDC. Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents. MMWR 2009; 58(RR04).
[11] CDC. Recommendations for the Identification of Chronic Hepatitis C Virus Infection Among Persons Born During 1945–1965. MMWR 2012;61(RR04);1-18.
[12] American Academy of Pediatrics. Hepatitis B. In: Pickering LK, Baker CJ, Kimberlin DW, Long SS, eds. *Red Book: 2009 Report of the Committee on Infectious Diseases.* 28th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2009: p. 352.

GNR Epidemiology staff work closely with hospitals and pediatricians to ensure babies born to Hepatitis B infected mothers receive needed preventative medication and scheduled vaccinations. Post vaccination testing is also conducted to ensure immunity. GNR has had the largest caseload of babies in the state of Georgia for the last six years. In 2015, there were 401 newborn babies in Georgia's PHBPP with 22.4% (90) from the GNR district. Of the PHBPP babies born in the GNR district where mother's country of birth is known (73), 81% were born outside of the United States. The countries of birth for the majority of GNR PHBPP mothers are countries where there is a high prevalence of chronic Hepatitis B.

2015 GNR District PHBPP Births by Mother's Country of Birth

Vietnam	20	Cambodia	2	Burma	1	Malaysia	1
China	16	Congo	2	Cameroon	1	Other	1
USA	7	Gambia	2	Ethiopia	1	South Korea	1
Unknown	9	Guinea	2	Germany	1	Thailand	1
Nigeria	6	Romania	2	Guyana	1	Zimbabwe	1
Liberia	4	Taiwan	2	Hong Kong	1	**Total**	**90**
Ghana	3	Albania	1	Kazakhstan	1		

Prevalence of chronic Hepatitis B virus infection among adults[13]

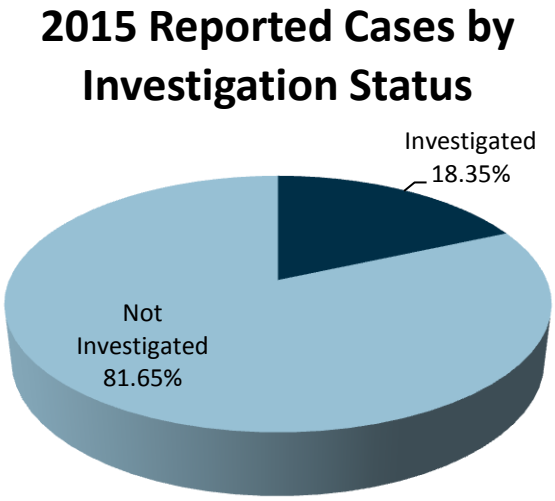


MAP 3-4. PREVALENCE OF CHRONIC HEPATITIS B VIRUS INFECTION AMONG ADULTS[1]
[1] Disease data source: Ott JJ, Stevens GA, Groeger J, Wiersma ST. Global epidemiology of hepatitis B virus infection: new estimates of age-specific HBsAg seroprevalence and endemicity. Vaccine. 2012; 30(12): 2212-2219.

[13] CDC. Travelers' health; yellow book. Atlanta, GA: US Department of Health and Human Services, CDC 2016; http://wwwnc.cdc.gov/travel/yellowbook/2016/infectious-diseases-related-to-travel/hepatitis-b

Notifiable Disease Summary

The Epidemiology and Community Health Division received a total of 9,562 reports of notifiable disease in 2015. Of these reports, a total of 18.35% of cases were investigated by program staff. Chlamydia and Gonorrhea accounted for 98.3% of all uninvestigated mortality. There were also 347 STI investigations of contacts and 149 TB investigations of contacts that are not included in the figure below.

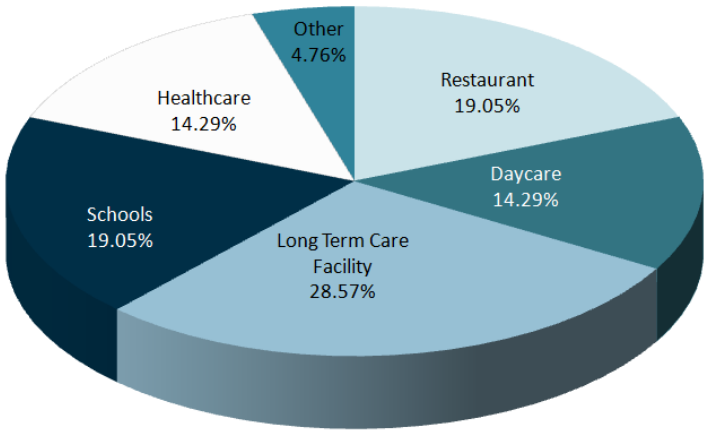


2015 Cases Reported Not Investigated

Reportable Disease	Number of cases	Percentage of Cases Reported
Campylobacteriosis > 30 days	2	0.03%
Chlamydia	4814	80.84%
Cryptospordiosis > 30 days	1	0.02%
Gonorrhea	1042	17.50%
Giardiasis > 30 days	20	0.34%
Haemophilus Influenzae (Invasive)	13	0.22%
Hepatitis B from blood donor	11	0.18%
Hepatitis C from blood donor	6	0.10%
Chronic Hepatitis C over 30 yr	633	10.63%
Lead Blood Level < 10	1112	18.67%
Salmonellosis > 30 days	2	0.03%
STEC >30 days	0	0.00%
Shigellosis > 30 days	3	0.05%
Streptococcal Disease, Group A	31	0.52%
Streptococcal Disease, Group B	57	0.96%
Streptococcal Toxic Shock	6	0.10%
S. pneumoniae (Invasive)	54	0.91%
Total	7,807	100.00%

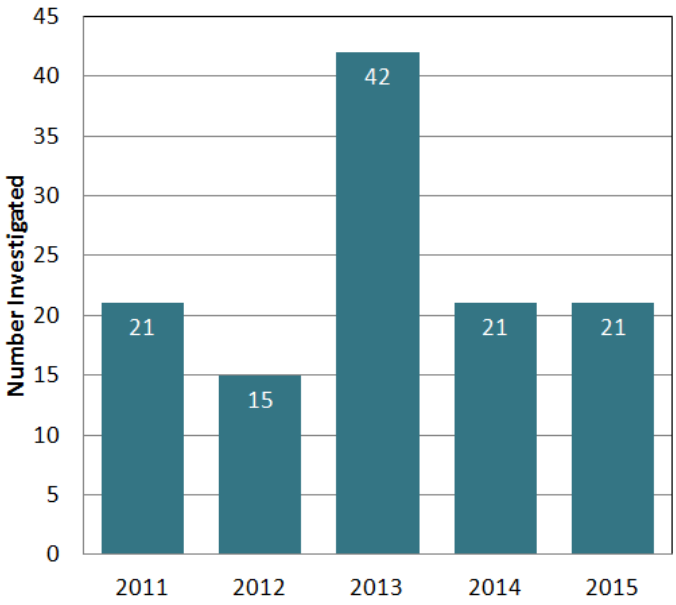
The number of notifiable disease case investigations did not include clusters or other non-notifiable disease investigations. Priority was given to investigation of 100% of reported outbreaks (N=21) of communicable diseases and diseases of interest not classified as notifiable and other activities of priority to the community. In 2015, norovirus was the predominate pathogen for illness causing 10 (47.62%) of the outbreaks investigated.

2015 Outbreak Investigations by Location (N=21)

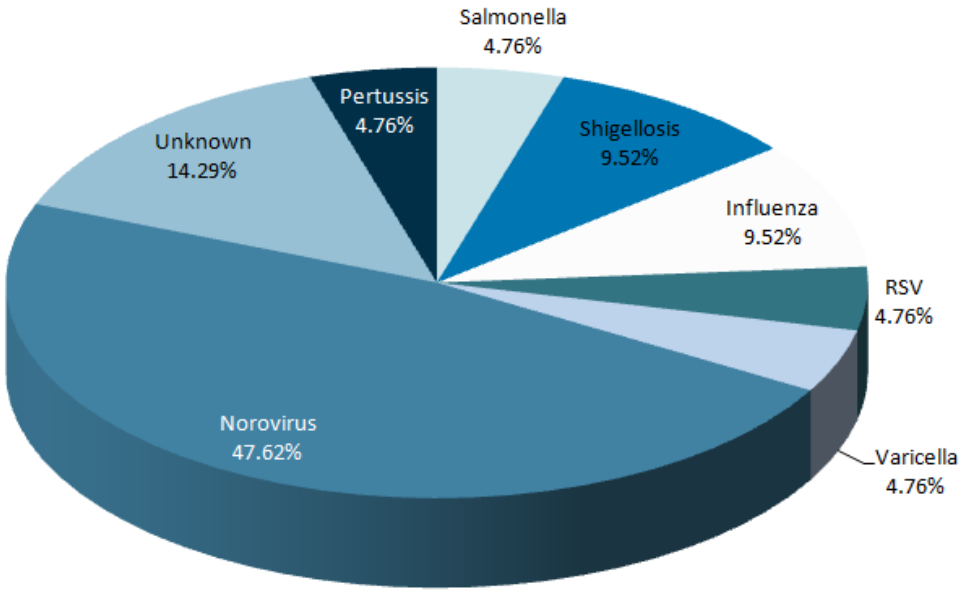


Other includes: Grocery Store

Outbreak Investigations 2011-2015



2015 Outbreak Investigations by Pathogen (N=21)



Emerging Pathogens

All emerging pathogen updates are as of June 6, 2016. Epidemiology works closely with emergency planners to prepare an evidence-based response to emerging pathogens. Epidemiology investigates all reported and suspect cases of emerging pathogens and utilizes surveillance data to inform GNR's public health actions. Epidemiology distributes pathogen-specific information on illness prevention to internal and external partners and works with these partners to implement control measures.

Zika Virus

Zika fever is a febrile illness caused by a mosquito-borne virus and is spread to people primarily through the bite of an infected *Aedes* mosquito species. Perinatal and sexual transmission have been documented. Zika virus was first identified in 1947 and is named after the Zika forest in Uganda where it was first discovered. Prior to 2015, Zika virus outbreaks had been reported in tropical Africa, Southeast Asia, and the Pacific islands. In May 2015, the Pan American Health Association (PAHO) issued an alert regarding the first confirmed Zika virus infection in Brazil and on February 1, 2016, the World Health Organization (WHO) declared Zika virus a Public Health Emergency of International Concern (PHEIC). No cases of local transmission have been documented in the continental United States however, travel associated cases have been reported. On April 13, 2016, the Centers for Disease Control and Prevention (CDC) concluded that Zika virus causes microcephaly and other severe fetal brain defects. The CDC anticipates Zika virus to continue to spread (see figure below for current active transmission areas) and have activated their Incident Management System to a Level 1 (highest response level) to enhance surveillance and to provide diagnostic testing and guidance as the situation evolves. GNR Health has begun testing pregnant women and symptomatic individuals who have traveled to a Zika affected area and will continue to conduct active surveillance to monitor for cases.

June 6, 2016

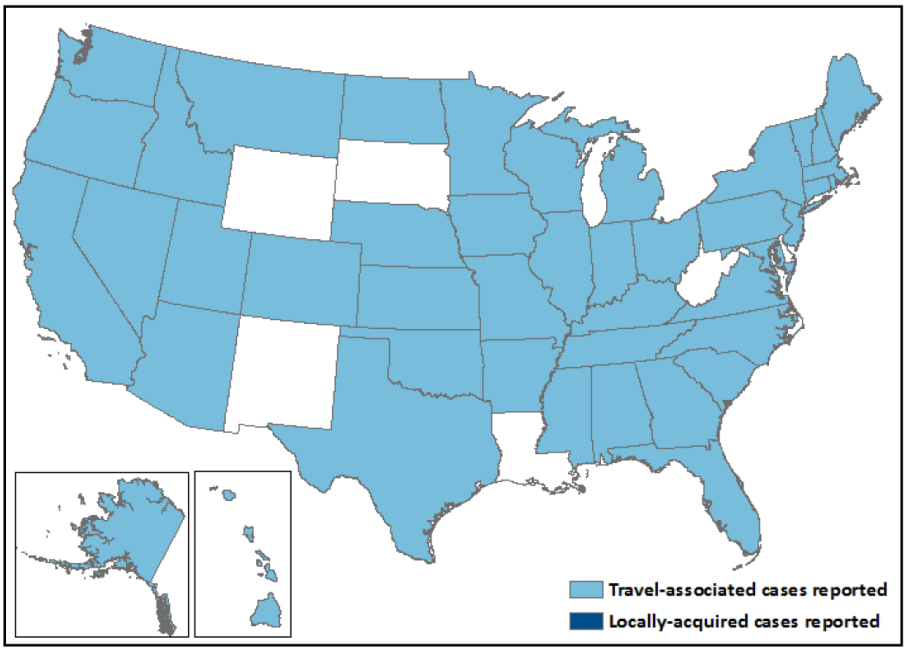
Centers for Disease Control and Prevention. What CDC is doing. Retrieved on June 6, 2016 at http://www.cdc.gov/zika/cdc-role.html
Centers for Disease Control and Prevention. CDC Concludes Zika Causes Microcephaly and Other Birth Defects. Retrieved on May 19, 2016 at http://www.cdc.gov/media/releases/2016/s0413-zika-microcephaly.html
Centers for Disease Control and Prevention. All Countries and Territories with Active Zika Virus Transmission. Retrieved on May 19, 2016 at http://www.cdc.gov/zika/geo/active-countries.html

Chikungunya Fever

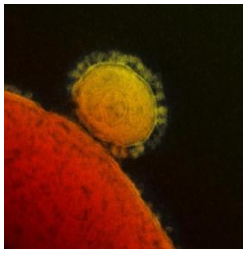
Chikungunya fever is a mosquito-borne virus and is primarily spread to people from the bite of an infected mosquito. Chikungunya fever is primarily seen in Africa and Asia; it has recently emerged in the Americas. An outbreak was reported on St. Martin in December 2013, and the disease has since spread to other Caribbean islands and French

Guiana in South America. Since then, local transmission has been identified in 45 countries or territories throughout the Americas with more than 1.7 million suspected cases. Because the mosquito species is common in the Americas, the virus is expected to spread and mimic dengue geographic dispersal. Persons are considered at risk if they travel to an area where Chikungunya or Dengue viruses are present. A Level 1 travel watch (practice usual precautions) advisory issued by the CDC still remains in effect for many countries in the Caribbean.

Chikungunya Virus Disease Cases-United States, 2015 (as of January 12, 2016)



Middle East Respiratory Syndrome (MERS)



MERS is caused by a coronavirus: MERS-CoV. It emerged in Jordan and Saudi Arabia in April of 2012. CDC has confirmed two cases of travel-associated MERS in the US while more than 750 have tested negative. Both cases reside in Saudi Arabia and acquired the disease while abroad. They were both healthcare workers in Saudi Arabia. Camels are suspected to be the primary source of infection for humans. Approximately 3-4 out of every 10 people infected with MERS-CoV have died. In June 2015, CDC updated their *Interim Infection Prevention and Control Recommendations for Hospitalized Patients with Middle East Respiratory Syndrome Coronavirus* which highlighted the following considerations: current lack of a safe and effective vaccine and chemoprophylaxis, a possible high rate of morbidity and mortality among infected patients, and incompletely defined modes of transmission.

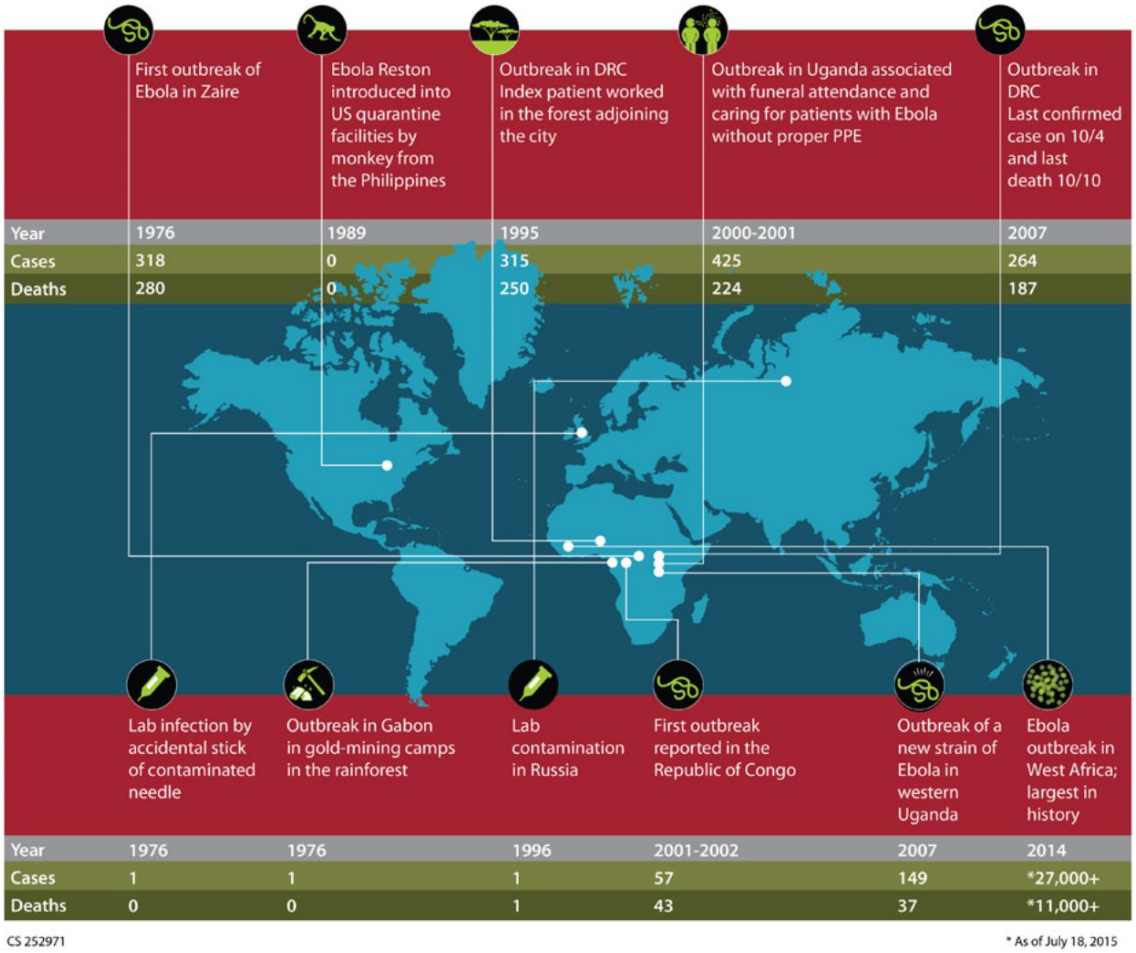
Centers for Disease Control and Prevention. Chikungunya in the Caribbean. Retrieved on May 19.2016 from http://wwwnc.cdc.gov/travel/notices/watch/chikungunya-caribbean

Centers for Disease Control and Prevention. Middle East Respiratory Syndrome (MERS). Retrieved on May 19, 2016 from http://www.cdc.gov/coronavirus/mers/faq.html

Ebola Virus Disease (EVD)

Ebola is caused by a filovirus, and can cause viral hemorrhagic fever. Symptoms include fever, headache, joint and muscle aches, sore throat, and weakness, followed by diarrhea, vomiting and stomach pain. Skin rash, red eyes, and internal and external bleeding may be seen in some patients. Symptoms typically present 8-10 days after exposure, but range from 2-21 days. Individuals are not infectious during the incubation period, but are infectious while ill. EVD is spread by contact with blood or other body fluids of infected people or by contact with objects contaminated by blood or body fluids. There is no FDA-licensed EVD vaccine.

A large outbreak in West Africa began in March of 2014 in Guinea and has continued to spread to other countries in West Africa. This is the largest outbreak in documented history. Guinea, Sierra Leone, and Liberia are free of Ebola with at least 42 days (two incubation periods) that have elapsed since the last day that any person in the country had contact with a person with confirmed Ebola. As of April 13, 2016, 28,652 total cases (confirmed, probable, and suspect) have been reported with 11,325 deaths.



Centers for Disease Control and Prevention. 2014 Ebola Outbreak in West Africa-Case Counts. Retrieved on May 19, 2016 from http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html

Centers for Disease Control and Prevention. Outbreaks Chronology: Ebola Virus Disease. Retrieved on May 19, 2016 from http://www.cdc.gov/vhf/ebola/outbreaks/history/chronology.html

Other Activities

Public Health Associate Program (PHAP)

GNR Epidemiology has been a host site for the Public Health Associate Program managed by CDC's Office for State, Tribal, Local and Territorial Support (OSTLTS) since August 2012. The program is designed for entry-level public health professionals with either a bachelor's or master's degree to obtain real world public health experience by working at a host site for two years. GNR is hosting two 2015 associates working two year assignments in Communicable Disease and in Tuberculosis Control respectively. The current associates have been a great addition to our staff by providing education, routine surveillance and investigations, and linking patients to testing and treatment for STD's, HIV, TB disease, and latent TB infections.

Emergency Preparedness

GNR Emergency Preparedness is tasked under the Georgia Emergency Operations plan to lead efforts related to Emergency Support Function 8 (Health and Medical) and support Emergency Support Function 6 (Mass Care). GNR Epidemiology provides technical assistance and guidance as well as assists in emergencies as members of Public Health Action Support Team (PHAST). GNR Epidemiology works in conjunction with GNR Emergency Preparedness to plan, facilitate, and participate in public health emergency table top exercises and trainings. The Epidemiology staff also monitors surveillance data and reports any unusual activity or bioterrorism agents to Emergency Preparedness. GNR Epidemiology is a member of the shelter inspection team and provides pre-emergency inspections as well as opening inspections and daily clinic checks during an emergency. In November 2015, Epidemiology participated in a statewide emergency preparedness exercise simulating the release of a bioterrorism agent. During this exercise, staff members provided ongoing disease surveillance and monitoring, served as subject matter experts to community members and emergency responders, and coordinated the implementation of multiple mass dispensing sites.

Public Health Accreditation Board (PHAB)

GNR Health District completed a two day site visit as part of the national accreditation process through the Public Health Accreditation Board (PHAB) on April 13-14, 2016. GNR Health is awaiting a final decision from the board regarding accreditation status in August 2016. The accreditation process seeks to improve the standards of quality and performance within public health departments across the county. GNR Epidemiology has been a vital part of the district's accreditation application process. Epidemiology staff have been involved with the Community Health Assessment, Community Health Improvement Plan and the District's Strategic Plan as well as compiling the documentation for the Standards and Measures in the twelve domains of the application.

Attachment 1: Notifiable Disease Reporting Poster

All Georgia physicians, laboratories, and other health care providers are required by law to report patients with the following conditions. Both lab-confirmed and clinical diagnoses are reportable within the time interval specified below.

NOTIFIABLE DISEASE / CONDITION REPORTING

Reporting enables appropriate public health follow-up for your patients, helps identify outbreaks, and provides a better understanding of disease trends in Georgia. For the latest information from the Department of Public Health, visit their web site at: www.health.state.ga.us

REPORT IMMEDIATELY

To Report Immediately
Call: District Health Office or
1-866-PUB-HLTH (1-866-782-4584)

- any cluster of illnesses
- animal bites
- ▶ anthrax
- all acute arboviral infections:
  - -Eastern Equine Encephalitis (EEE)
  - -LaCrosse Encephalitis (LAC)
  - -St. Louis Encephalitis (SLE)
  - -West Nile Virus (WNW)
- ▶ botulism
- ▶ brucellosis
- cholera
- diphtheria
- *E. coli O157*
- *Haemophilus influenzae (invasive)**
- hantavirus pulmonary syndrome
- hemolytic uremic syndrome (HUS)
- hepatitis A (acute)
- measles (rubeola)
- meningitis (specify agent)
- meningococcal disease
- novel influenza A virus infections
- pertussis
- ▶ plague
- poliomyelitis
- ▶ Q fever
- rabies (human & animal)
- severe acute respiratory syndrome (SARS)
- shiga toxin positive tests
- *S. aureus with vancomycin MIC ≥ 4µg/ml*
- ▶ smallpox
- syphilis (congenital & adult)
- tuberculosis
- latent TB infection in children<5 years old
- ▶ tularemia
- ▶ viral hemorrhagic fevers

▶ Potential agent of bioterrorism.
* Invasive – isolated from blood, bone, CSF, joint, pericardial, peritoneal, or pleural fluid.

REPORT WITHIN 7 DAYS

To Report Within 7 Days
Report cases electronically through the State Electronic Notifiable Disease Surveillance System at **http://sendss.state.ga.us (SEE REPORTING FOOTNOTES BELOW.)**

- AIDS#
- aseptic meningitis
- blood lead level (all)
- campylobacteriosis
- chancroid
- *Chlamydia trachomatis* (genital infection)
- Creutzfeldt-Jakob Disease (CJD), suspected cases, under age 55
- cryptosporidiosis
- cyclosporiasis
- ehrlichiosis
- giardiasis
- gonorrhea
- HIV#
- hearing impairment†
  (permanent, under age 5)
- hepatitis B
  - -acute hepatitis B
  - -newly identified HBsAg+ carriers**
  - -HBsAg+ pregnant women
- hepatitis C virus infection (past or present)
- influenza-associated death (all ages)
- legionellosis
- leptospirosis
- listeriosis***
- leprosy or Hansen's disease (*Mycobacterium leprae*)
- Lyme disease
- lymphogranuloma venereum
- malaria
- maternal death••
- methicillin-resistant *S. aureus* (*community-associated*)•
- mumps
- psittacosis
- Rocky Mountain spotted fever
- rubella (including congenital)
- salmonellosis
- shigellosis
- streptococcal disease, Group A or B (invasive)*
- *Streptococcus pneumoniae* (invasive)*
  - - report with antibiotic-resistance information
- tetanus
- toxic shock syndrome
- toxoplasmosis
- typhoid
- Varicella (Chickenpox)
- *Vibrio* infections
- yersiniosis

* Invasive – isolated from blood, bone, CSF, joint, pericardial, peritoneal, or pleural fluid.
** HBsAg+ – hepatitis B surface antigen positive.
*** *L. monocytogenes* isolated from blood, bone, CSF, joint, pericardial, peritoneal, or pleural fluid, or other normally sterile site; or from placenta or products of conception in conjunction with fetal death or illness. Infant mortality is reportable to Vital Records.
• Resulting in severe illness or death

REPORTING HIV/AIDS:
Report forms and reporting information for HIV/AIDS available by telephone (1-800-827-9769) OR at http://health.state.ga.us/epi/hivaids/reportinginformation.asp. For mailing HIV/AIDS reports, please use double envelopes marked "confidential", addressed to Georgia Department of Public Health Epidemiology Section, P.O.Box 2107, Atlanta, GA 30301
† Report forms and reporting information for **hearing impairment** available at http://health.state.ga.us/programs/unhs/reporting.asp

REPORT WITHIN 1 MONTH

birth defects (under age 6)
maternal deaths (during pregnancy or within 1 year of delivery)

Report forms and reporting information for **birth defects and maternal deaths** available at http://health.state.ga.us/epi/mch/publications.asp

REPORT WITHIN 6 MONTHS

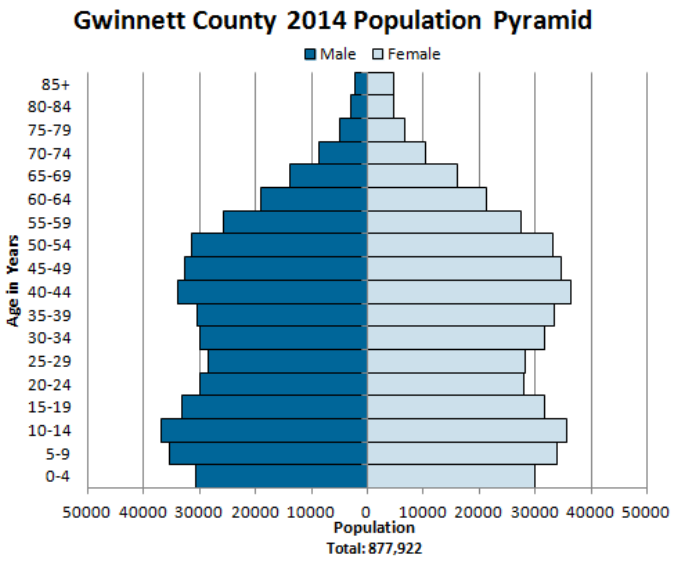
benign brain and central nervous system tumors
cancer

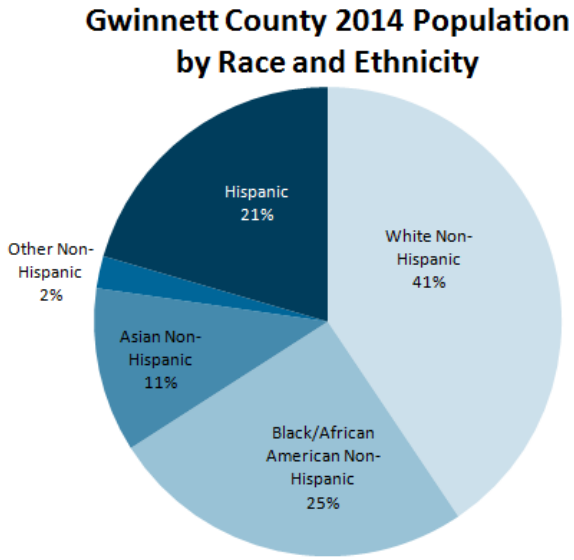
Report forms and reporting information for **tumors and cancer** found at http://health.state.ga.us/programs/gccr/reporting.asp

(Rev 07-14-11)

Attachment 2: Counties at a Glance

Gwinnett County Population at a Glance





Top 10 Causes of Hospitalizations in Gwinnett County for 2014 by Age-Adjusted Deduplicated Hospital Discharge Rate

Total: 49,676

(rates per 100,000 population)

1	Bone & Muscle Diseases	402.7
2	Blood Poisoning	239.7
3	Cardiovascular Diseases	234.4
4	Falls	206.5
5	Pneumonia	160.8
6	Stroke	157.5
7	Kidney Diseases	105.1
8	Diabetes	87.8
9	Chronic Obstructive Pulmonary Disease	64.6
10	Asthma	76.0

Select Population Based Statistics:

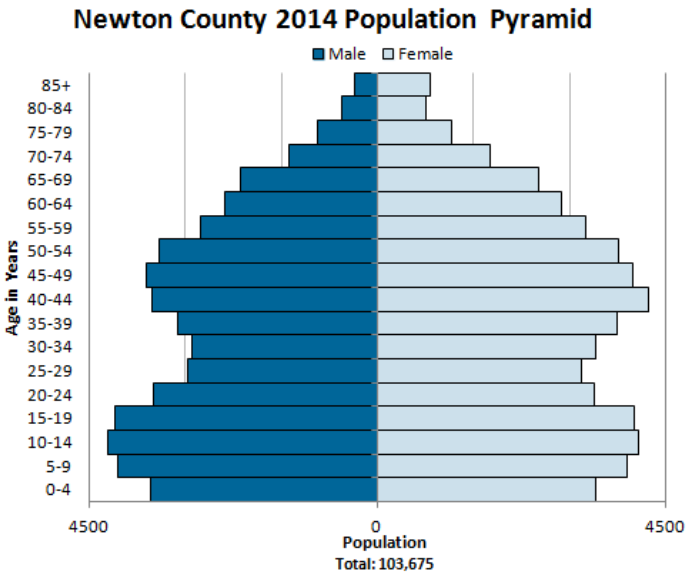
2014 Pregnancy Rate: 78.7 per 1,000 females 15-44 years

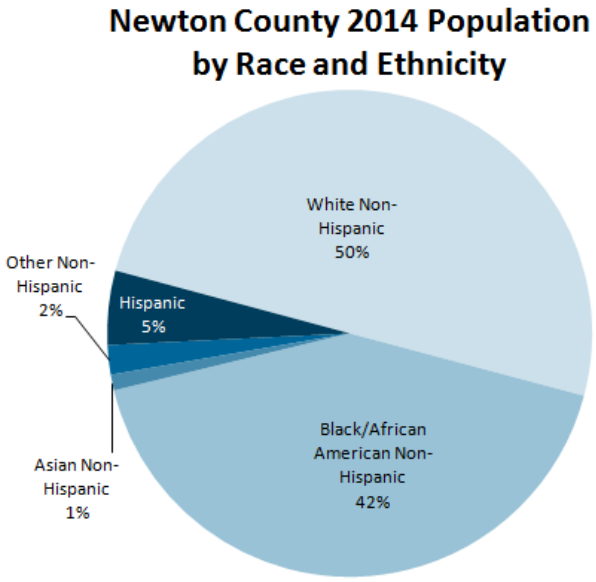
2014 Birth Rate: 39.0 per 1,000 females

2014 Infant Mortality Rate: 6.4 per 1,000 births

Online Analytical Statistical Information System. https://oasis.state.ga.us

Newton County Population at a Glance





Top 10 Causes of Hospitalizations in Newton County for 2014 by Age-Adjusted Deduplicated Hospital Discharge Rate

Total: 8,262

(rates per 100,000 population)

1	Bone & Muscle Diseases	511.7
2	Cardiovascular Diseases	352.4
3	Pneumonia	269.8
4	Falls	226.7
5	Chronic Obstructive Pulmonary Disease	191.6
6	Stroke	186.7
7	Blood Poisoning	174.8
8	Kidney Disease	164.8
9	Diabetes	128.6
10	Hypertension	110.6

Select Population Based Statistics:

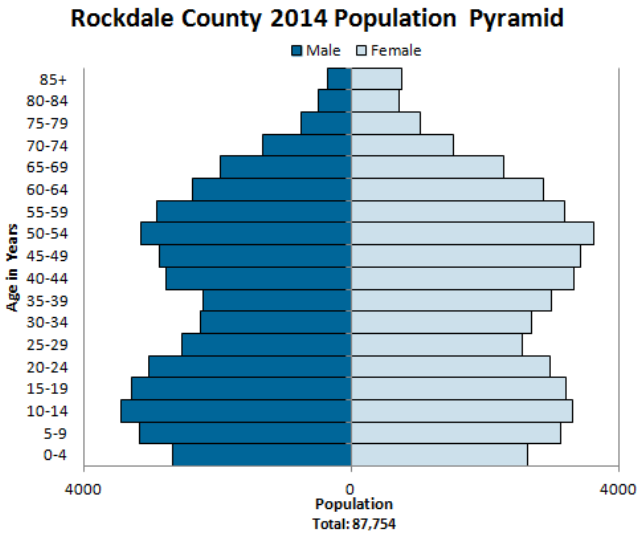
2014 Pregnancy Rate: 80.7 per 1,000 females 15-44 years

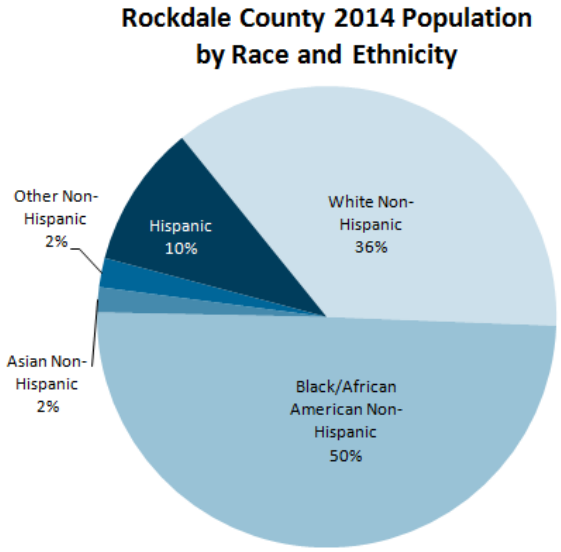
2014 Birth Rate: 38.3 per 1,000 females

2014 Infant Mortality Rate: 6.2 per 1,000 births

Online Analytical Statistical Information System. https://oasis.state.ga.us

Rockdale County Population at a Glance





Top 10 Causes of Hospitalizations in Rockdale County for 2014 by Age-Adjusted Deduplicated Hospital Discharge Rate

Total: 6,889

(rates per 100,000 population)

1	Bone & Muscle Diseases	477.3
2	Cardiovascular Diseases	271.7
3	Pneumonia	259.1
4	Falls	212.2
5	Blood Poisoning	208.2
6	Stroke	201.5
7	Chronic Obstructive Pulmonary Disease	156.3
8	Diabetes	148.0
9	Kidney Disease	125.2
10	Hypertension	109.2

Select Population Based Statistics:

2014 Pregnancy Rate: 80.5 per 1,000 females 15-44 years

2014 Birth Rate: 34.0 per 1,000 females

2014 Infant Mortality Rate: 17.3 per 1,000 births

Online Analytical Statistical Information System. https://oasis.state.ga.us

For additional copies of this report visit
www.gnrhealth.com
or call Epidemiology at
770-339-4260