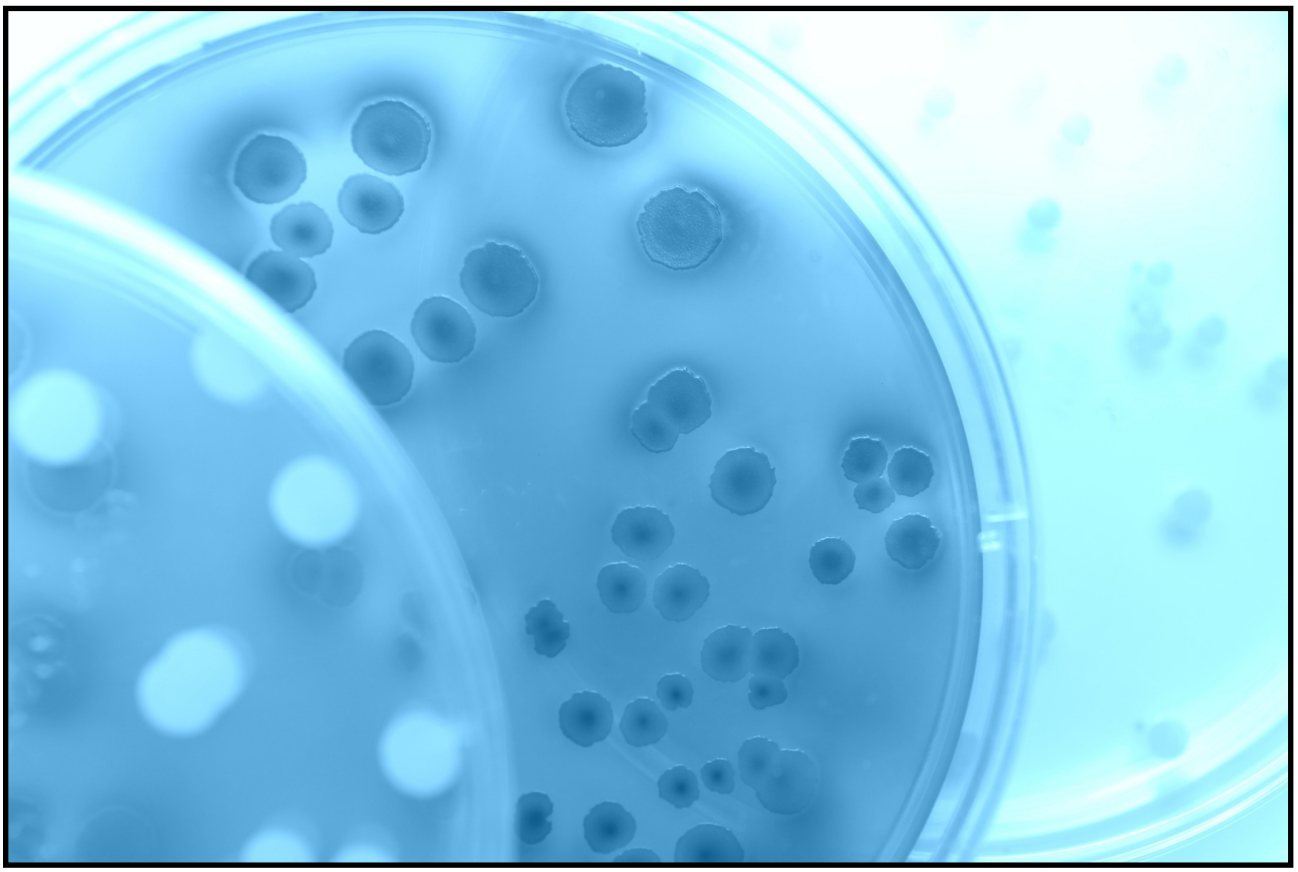
GWINNETT
ROCKDALE
NEWTON
COUNTY HEALTH DEPARTMENTS

Annual Report

Epidemiology & Infectious Disease

2016



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GWINNETT, NEWTON, AND ROCKDALE COUNTIES EPIDEMIOLOGY & INFECTIOUS DISEASE 2016 ANNUAL REPORT

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GWINNETT, NEWTON, AND ROCKDALE COUNTIES EPIDEMIOLOGY & INFECTIOUS DISEASE 2016 ANNUAL REPORT

Executive Summary

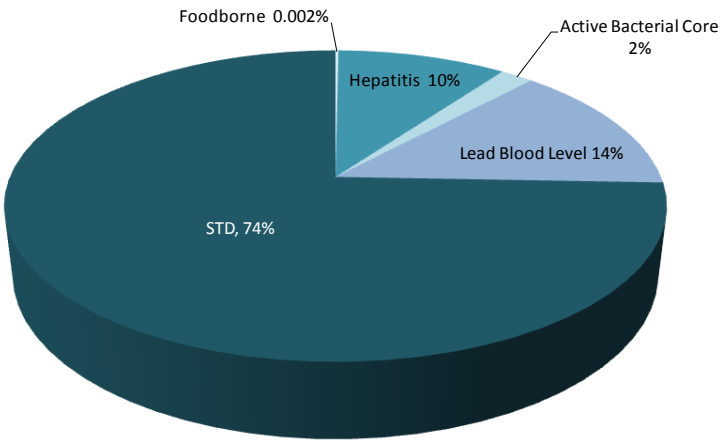
The Gwinnett, Newton, Rockdale County Health Departments (GNR), Division of Epidemiology and Infectious Disease serves the population of Gwinnett, Newton, and Rockdale Counties in metropolitan Atlanta, Georgia. The division is responsible for disease investigation and control for over one million residents. 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 2016, a total of 10,374 notifiable conditions including 7,079 STD cases, 3,258 general notifiable disease cases, and 37 tuberculosis cases were reported in the three-county health district. Notifiable conditions have increased by 117% since the first annual report was published in 2013. This increase is due in large part to increased reporting of viral hepatitis, *Chlamydia*, Gonorrhea, animal bites, and lead blood level results. Of all non-STD, non-TB notifiable diseases that require an investigation by epidemiology or a public health intervention, 98.6% were investigated.

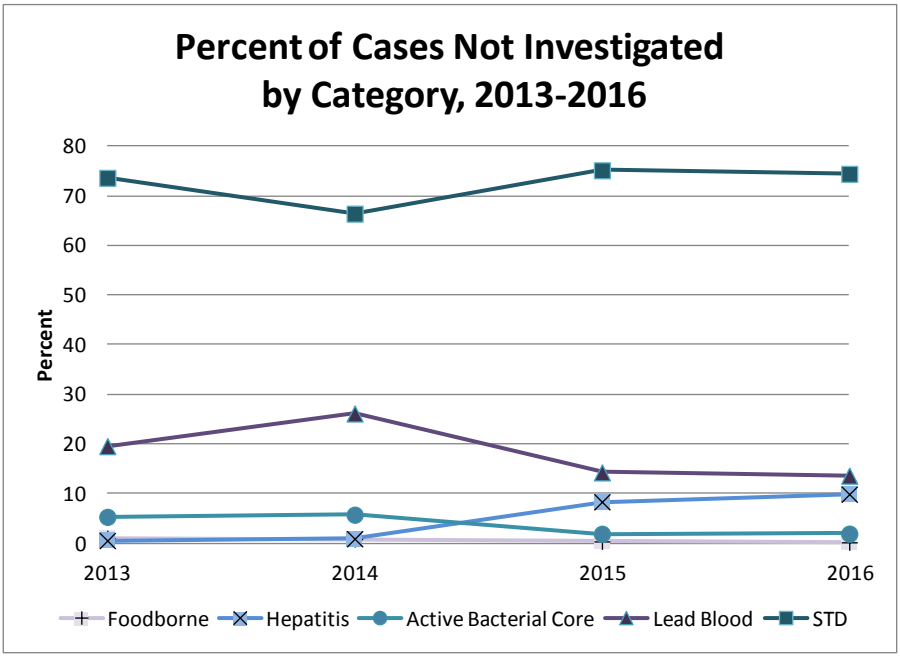
This report encompasses data that is collected at the local and state level. All data is verified at the state level before confirmation. As such, a time delay exists allowing for verification of cases according to CDC case definitions and reporting requirements. The publication of this report encompasses all confirmed 2016 Notifiable Disease data as of October 1, 2017.

A total of 1,771 (17.0%) of all notifiable diseases were investigated, and this is due to several factors. 2,221 (68.2%) of non-STD, non-TB diseases that were reported in 2016 did not require an investigation based on statewide disease protocols. *Chlamydia* and Gonorrhea make up the largest proportion of uninvestigated cases due to how the data is processed and reported at the state level. Reports for these STD's will only be made accessible to the local health district if they meet priority status, per the district's custom Partner Services Priority Grid, or if the individual was diagnosed at a public health center. Though all lead blood level test results are reportable to public health, Epidemiology is only required to investigate cases in children who meet the threshold for public health intervention (10 µg/dL or higher).

2016 Reported Cases Not Investigated by Category



Executive Summary



Program staff investigated numerous complaints (131) and clusters and outbreaks of illness (33); 100% of these instances were investigated. In 2016, Epidemiology responded to 1,383 de-duplicated individual reports of animal bites involving residents of Gwinnett, Newton, and Rockdale counties.

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 (N=907,135), Newton (N=106,999) and Rockdale (N=89,355) counties in metropolitan Atlanta, GA. Funding for each of the programs is secured through county, state and federal grant-in-aid.

The program is managed by the Director of Epidemiology and Infectious Disease, and is supported by an Infectious Disease Nurse and an Administrative Operations staff member.

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 an Epidemiology Nurse Specialist, an Epidemiology Program Manager, one General Epidemiologist, and one Environmental Epidemiologist.

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*. 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 two CDC Public Health Associates 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 provide 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.

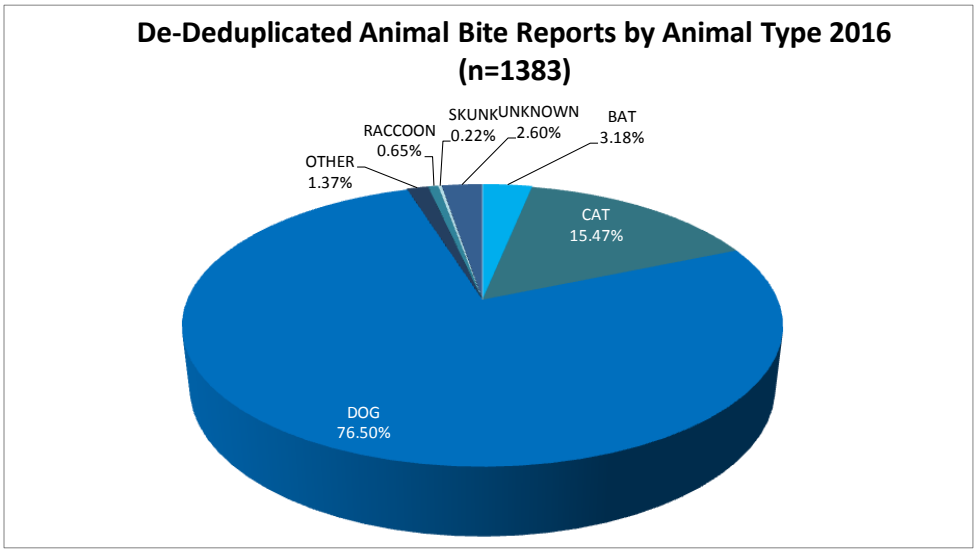
Staff Capacity:

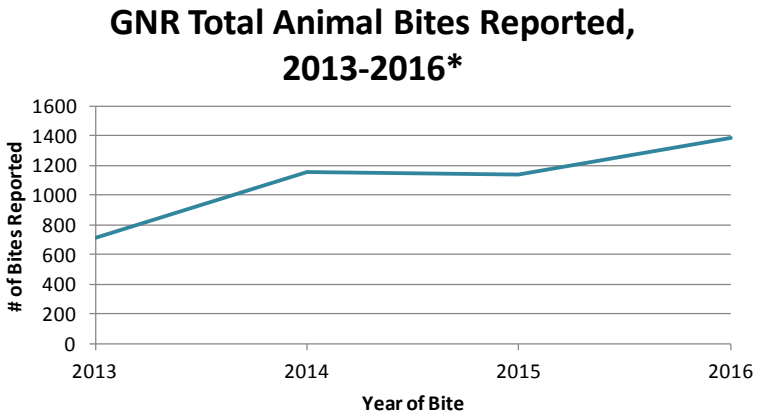
The TB program staff includes a Program Coordinator, one full time and one part time registered nurses, five case managers, a laboratory technician, a radiology technician and an operations analyst. Additional support was provided by two CDC Public Health Associates assigned to GNR

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.)[1]

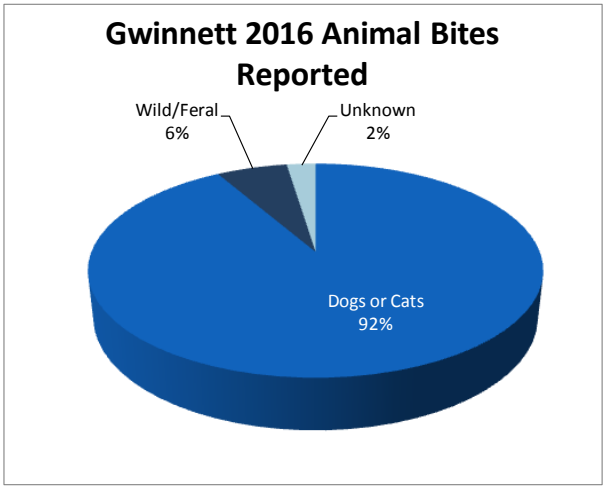
Animal bites/exposures are reported to Epidemiology by animal control, medical facilities, and private citizens. All reports are investigated to determine the risk for rabies transmission and to make recommendations regarding the need for rabies prophylaxis.



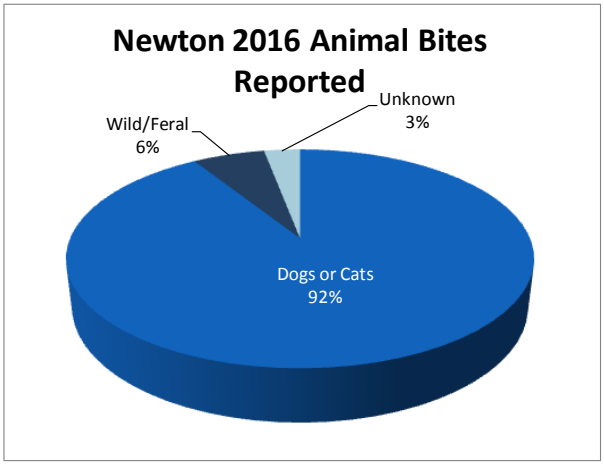


Between 2012 and 2013, state epidemiology changed the way animal bite data was captured in SendSS. Due to these changes, 2012 data is not included in the above graph.

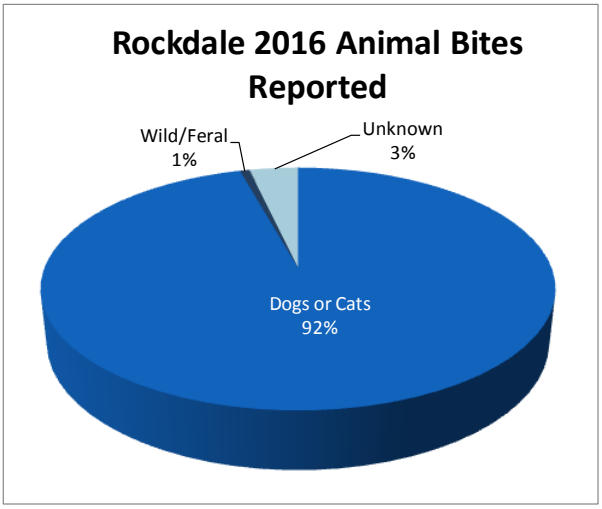
Of 1,383 de-duplicated individual reports of animal bites involving residents in Gwinnett (N=1,076), Newton (N=168), and Rockdale (N=139) counties, 93.3% involved at least one human victim. Post-exposure prophylaxis (PEP) was recommended to 175 human victims following an animal exposure/bite. 73 (42%) of human victims recommended PEP completed the full course of treatment, and 7 victims (4%) refused PEP during the interview. The majority of animal bite reports involved exposure to a dog (77%) or a cat (16%). Of 165 animals tested for rabies in 2016, 9 (5.4%) were positive. These 9 cases included 3 bats, 3 skunks, 2 raccoons, and 1 cat.



Gwinnett 2016	Bites Reported	Bites Investigated
Dogs or Cats	986	986
Wild/Feral	64	64
Unknown	26	26
Total	**1076**	**1076**



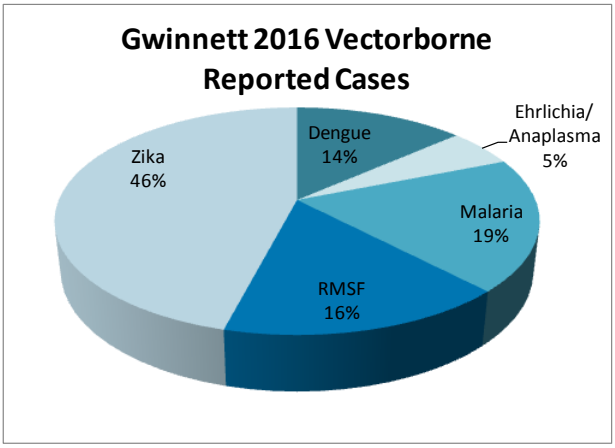
Newton 2016	Bites Reported	Bites Investigated
Dogs or Cats	153	153
Wild/Feral	10	10
Unknown	5	5
Total	**168**	**168**



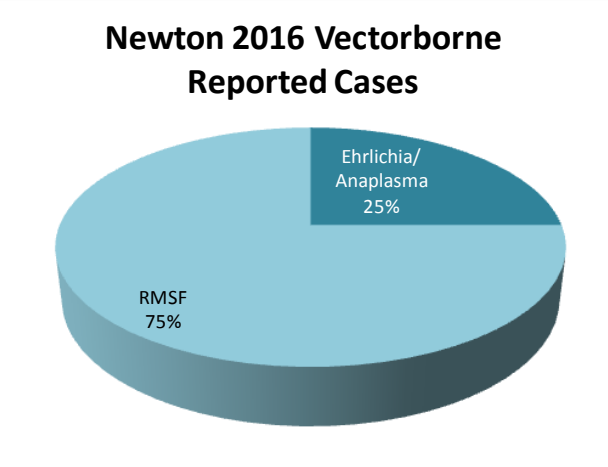
Rockdale 2016	Bites Reported	Bites Investigated
Dogs or Cats	133	133
Wild/Feral	1	1
Unknown	5	5
Total	**139**	**139**

Vectorborne and Zoonotic Diseases

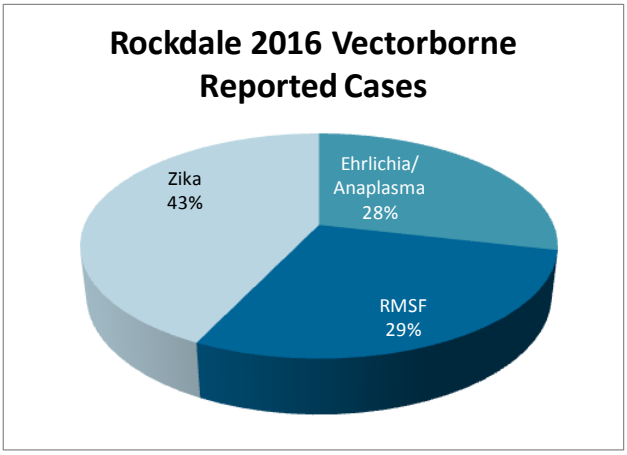
Vector-borne diseases are illnesses that are transmitted to humans or other animals by an insect or other arthropod such as mosquitoes and ticks. Many individuals infected with vector-borne diseases have no symptoms; however, a small percentage of people may develop serious illness such as encephalitis and meningitis that can result in irreversible neurological damage, paralysis, coma, or death. A combination of factors continues to define vectorborne disease epidemiology in the United States. These factors include the importation of pathogens and disease vectors from other countries, the evolution of pathogens currently impacting the U.S., and identification of novel pathogens already endemic to the U.S. but as yet uncharacterized. [2]



Gwinnett 2016	Reported Cases	Investigated Cases
Dengue	5	5
Ehrlichia/ Anaplasma	<5	<5
Malaria	7	7
RMSF	6	6
Zika	17	17
Total	**37**	**37**



Newton 2016	Reported Cases	Investigated Cases
Dengue	0	0
Ehrlichia/ Anaplasma	<5	<5
Malaria	0	0
RMSF	<5	<5
Zika	0	0
Total	**<5**	**<5**

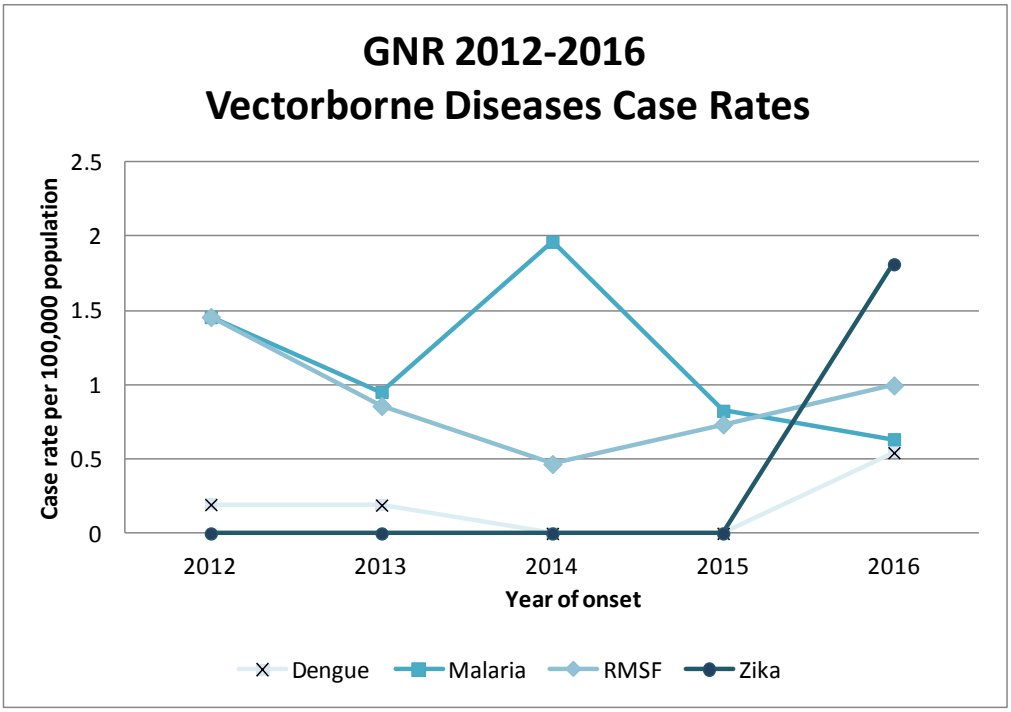


Rockdale 2016	Reported Cases	Investigated Cases
Dengue	0	0
Ehrlichia/ Anaplasma	<5	<5
Malaria	0	0
RMSF	<5	<5
Zika	<5	<5
Total	**7**	**7**

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 Granu-locytic 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 2016, a total of 50 vector-borne and zoonotic illnesses were reported to GNR. These illnesses consisted of Malaria, Rocky Mountain Spotted Fever (RMSF), Ehrilichiosis/Anaplasmosis, *Ehrlichia Chaffeensis*, Zika and Dengue. Zika and RMSF represented 62% of all vectorborne and zoonotic illness reported in 2016.



2016 GNR District Malaria Cases by Country visited

Nigeria	3	Nepal	1
Gambia	1	Sierra Leone	1
Guatemala	1	**Total**	7

The incidence of vector-borne diseases has remained somewhat variable since 2012. It should be noted that all cases of Malaria, Dengue, and Zika were travel-associated. There was a 28.6% decrease in travel-associated Malaria from 2015 (n=9) to 2016 (n=7). There were 6 cases of Dengue in 2016, and no cases reported the previous 2 years. This increase is likely due to CDC Zika testing protocols which recommend testing for Dengue and Chikungunya if Zika is suspected. All three viruses cause fever, muscle pain, joint pain, headache and rash, making them difficult to differentiate based on clinical presentation alone. In addition, Zika IgM immunoassays cross-react with other flaviviruses like Dengue, and IgM cannot reliably distinguish between current or previous infections of Dengue and Zika without further testing. Dengue incidence has also increased several fold in the past 15 years in endemic areas of the Western Hemisphere, which includes Puerto Rico and the U.S. Virgin Islands.[3] 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 also requires extensive laboratory testing. As a result many likely cases are not confirmed due to refusal to follow up with requested laboratory testing.

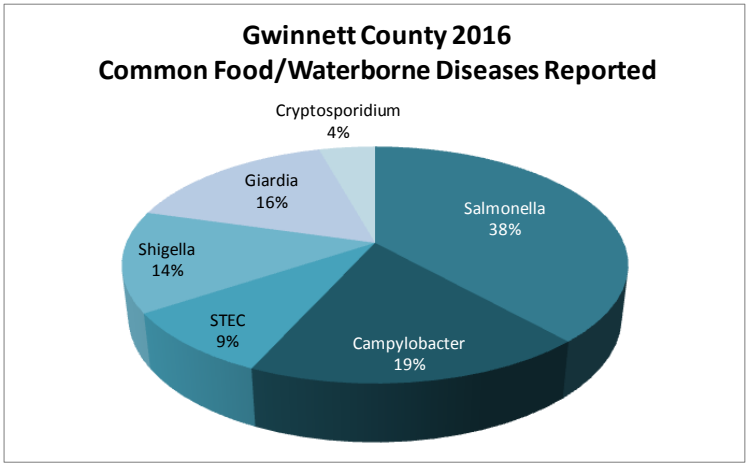
Food and Waterborne Diseases

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 calicivirus group of viruses known as Norwalk or Norwalk-like viruses. Other less common culprits include Hepatitis A, *Giardia lamblia*, *Yersinia*, *Listeria monocytogenes*, and *Cryptosporidium*. The incubation period varies widely from hours up to one week depending on the pathogen causing the illness.

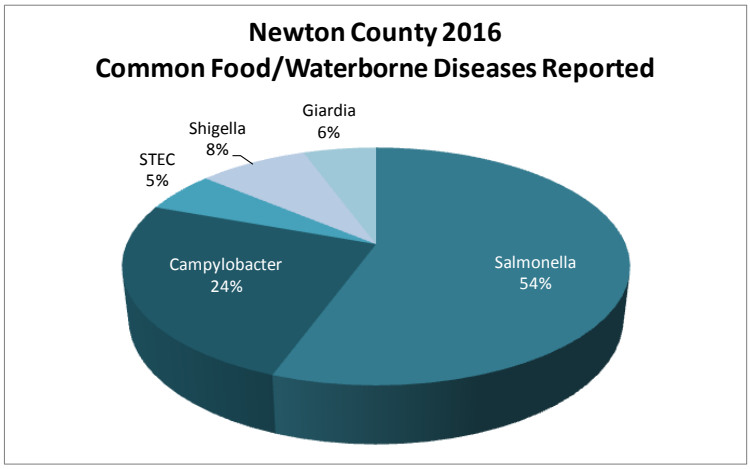
The Epidemiology program partnered with Environmental Health to investigate potential and reported outbreaks and prevent enteric diseases caused by contaminated food or water as well as those spread person -to-person. Epidemiology staff conducted surveillance activities, investigations and community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

Particular attention was given to outbreaks in facilities serving highly susceptible populations 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.

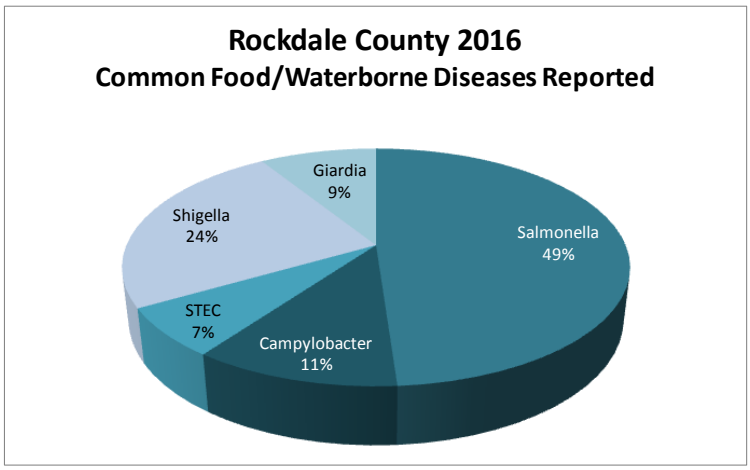
Current guidelines from the Notifiable Disease Section of the Georgia State Epidemiology Unit recommend reporting for all cases of *Campylobacter*, *Cryptosporidium*, *Cyclospora*, *E. coli* O157:H7 or shiga toxin-producing *E. coli*, *Giardia*, Hemolytic Uremic Syndrome, *Listeria*, *Salmonella*, *Shigella*, *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 2016.



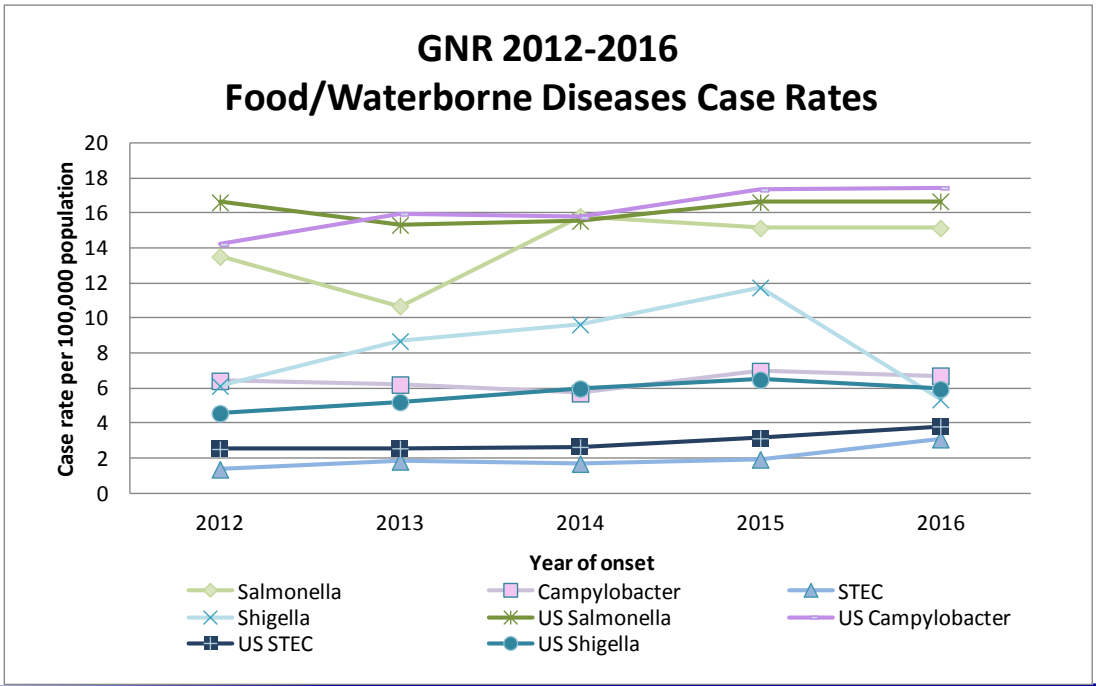
Gwinnett 2016	Reported Cases	Investigated Cases
Salmonella	125	122
Campylobacter	60	58
STEC	29	29
Shigella	45	45
Giardia	53	46
Cryptosporidium	14	13
Legionella	6	6
Listeria	<5	<5
Yersinia	<5	<5
Cyclospora	0	0
Typhoid Fever	<5	<5
Vibrio	<5	<5
Total	**343**	**330**



Newton 2016	Reported Cases	Investigated Cases
Salmonella	20	20
Campylobacter	9	9
STEC	<5	<5
Shigella	<5	<5
Giardia	<5	<5
Cryptosporidium	0	0
Legionella	<5	<5
Listeria	0	0
Yersinia	<5	<5
Cyclospora	0	0
Typhoid Fever	0	0
Vibrio	0	0
Total	**40**	**39**



Rockdale 2016	Reported Cases	Investigated Cases
Salmonella	22	22
Campylobacter	5	5
STEC	<5	<5
Shigella	11	11
Giardia	<5	<5
Cryptosporidium	0	0
Legionella	<5	<5
Listeria	0	0
Yersinia	0	0
Cyclospora	0	0
Typhoid Fever	0	0
Vibrio	0	0
Total	**46**	**45**



The most frequently reported enteric diseases in the GNR District in 2016 were *Salmonella*, *Shigella*, and *Campylobacter* which together accounted for 70.1% of all reported enteric illness. *Giardia* and *Cryptosporidium* together accounted for 15.6% 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 60.0% of uninvestigated enteric illness cases. In 2016, the district received 424 reports of enteric illness of which staff were able to investigate 96.4% (409 cases).

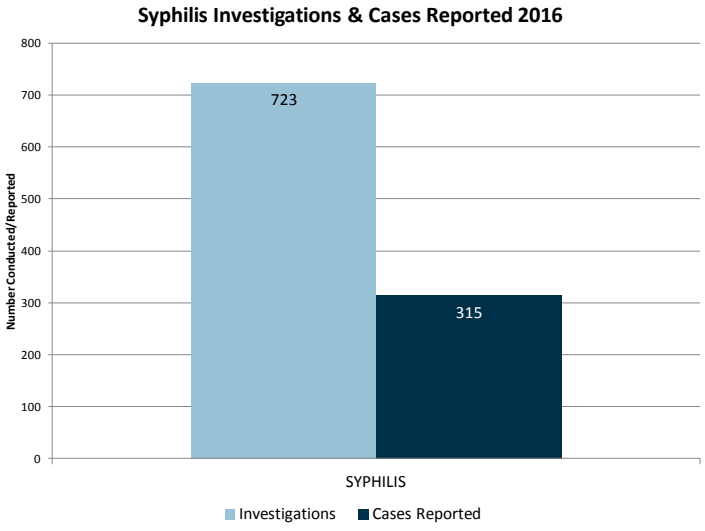
Shigella reporting decreased by 53% from 2015. This change is reflected in national 2016 *Shigella* rates which declined for the first time since 2012. GNR's *Salmonella* and *STEC* rates are comparable to U.S. rates in 2016. Cryptosporidium cases decreased by 59.0% in 2016 back to historic baseline levels of 1.35 cases per 100,000. The U.S. *Cryptosporidium* rates continue to rise at 3.7 cases per 100,000. Overall, the incidence of reported enteric illness has increased by 37.5% since 2012. Culture-independent testing (CIDT) for foodborne pathogens has become increasingly more common among clinical laboratories across the United States. The tests provide rapid diagnostic results, but do not yield samples that can be used to subtype a pathogen in an outbreak or to test for antibiotic resistance. A 2017 study conducted by CDC found statistically significant increases in national reporting of confirmed *Cryptosporidium*, *Yersinia*, and *STEC* due to CIDT but also noted many challenges to public health surveillance with the growing ease and availability of these new tests. [4,5]

Sexually Transmitted Infections (STIs)

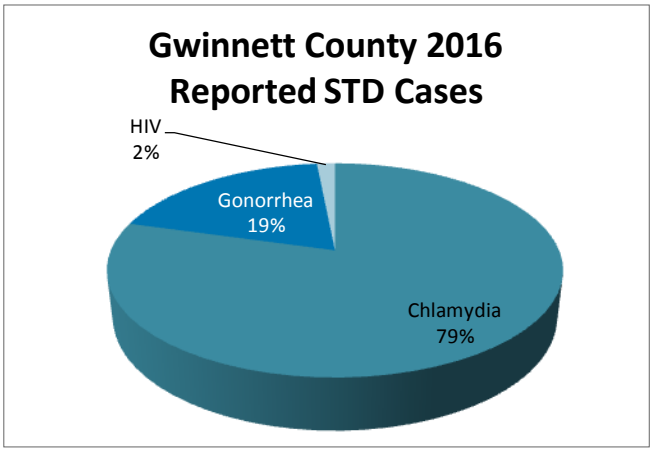
The Communicable Disease Unit of the GNR District received 7,079 reports of sexually-transmitted infections in 2016. Sexually-transmitted infections are a significant cause of morbidity and mortality in the GNR District and, generally, in the State of Georgia. Sexually-transmitted infections are both preventable and often curable with appropriate diagnosis and treatment. Without treatment, these infections can lead to sterility, dementia, and death. 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.

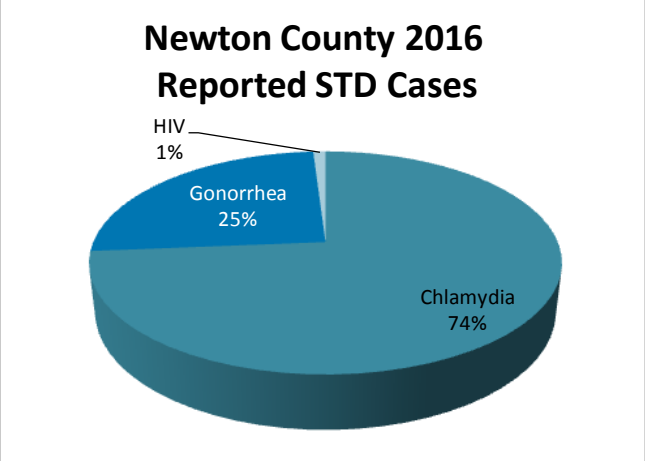
Chlamydia accounted for 74.7% of the total number of cases of sexually-transmitted infections reported. The next most frequently reported sexually-transmitted infection was Gonorrhea, which accounted for 19.4% of total cases reported. These two diseases represent a substantial percentage of the total burden of disease from STI in the GNR District.

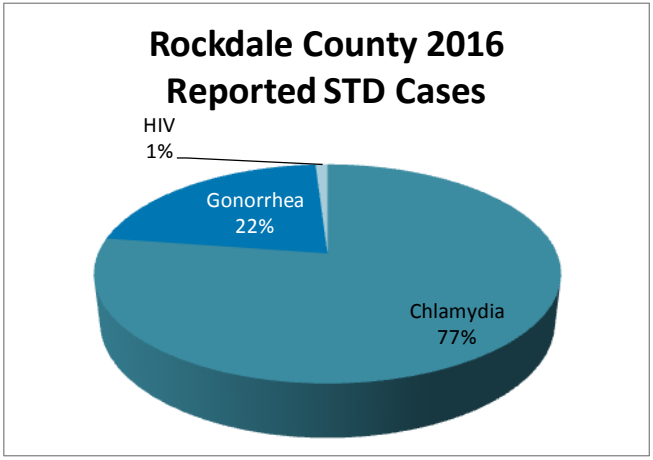
For syphilis and HIV, the higher number of investigations versus cases reported is due to testing and education of identified sexual partners of reported cases. The Georgia HIV/ Syphilis Pregnancy Screening Act of 2015 requires every provider who assumes responsibility for the prenatal care of pregnant women to require a HIV and syphilis test, resulting in a larger number of partner investigations for these illnesses. 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.



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.

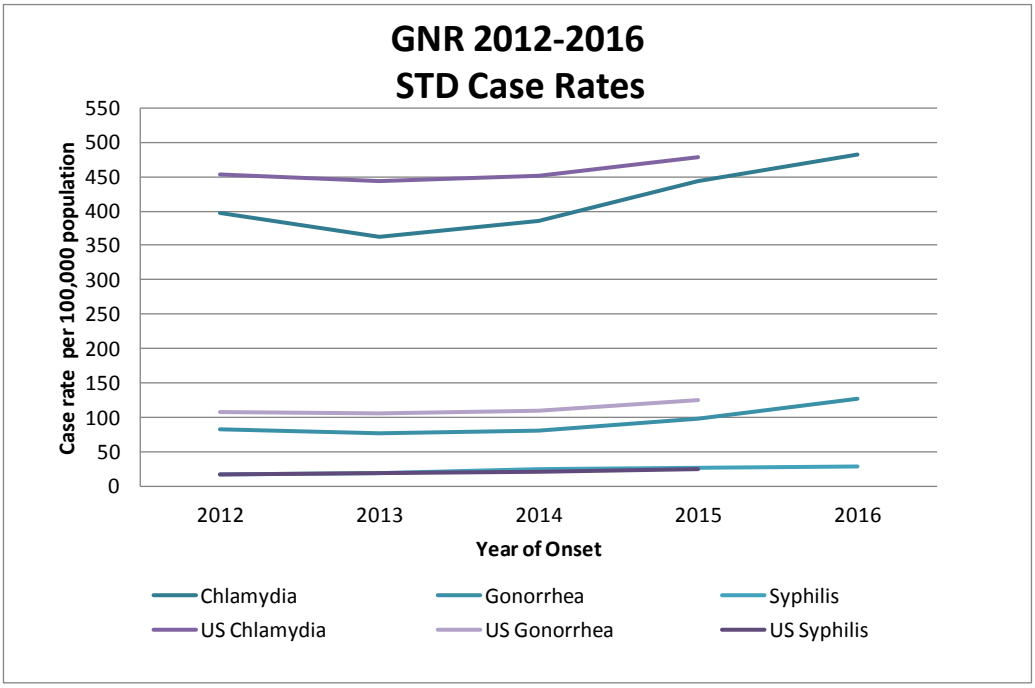






During 2016, 723 investigations were conducted for 315 syphilis case reports received. 31 (9.9%) were primary syphilis, 102 (32.8%) were secondary syphilis, 85 (27.3%) were early latent syphilis, 93 (29.9%) were late latent, and four cases were congenital syphilis. (Note: Investigations conducted on reported cases *and* identified partners.)

The state of Georgia ranks 6th in the rate of reported *Chlamydia* cases (570.8 cases/100,000 people) and 7th in the rate of reported Gonorrhea cases (158 cases/100,000 people). [6] The rates of *Chlamydia* and gonorrhea continue to increase, with the south region experiencing the highest rate of cases. [7] In 2015, Georgia ranked 2nd in the nation for primary and secondary Syphilis, up from 3rd in 2014. In 2015, 65.3% of primary and secondary syphilis cases reported occurred mainly within 70 counties or independent cities in the U.S. Out of those 70 counties or independent city rankings, Gwinnett county ranked 51st in the rate of reported cases, down from 44th in 2014, with a rate of 11.2 cases per 100,000. Newton and Rockdale Counties were not included in the ranking. The only Atlanta metro counties with higher rankings were Fulton county (7th), with a rate of 45.2 cases per 100,000 people and Dekalb county (13th), with a rate of 42.8 cases per 100,000 people. Cobb county ranked 60th in national county rankings, with a rate of 11.2 cases per 100,000. At the time of this report 2016 national data and rankings were unavailable. [8]

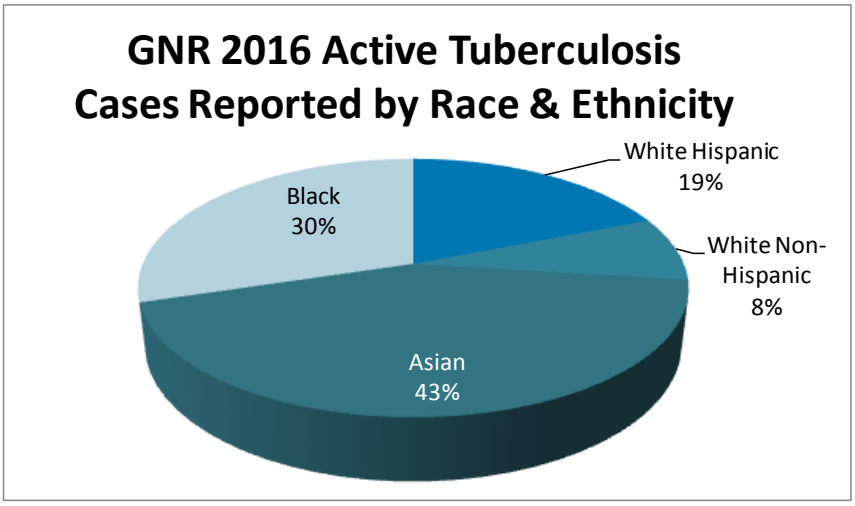


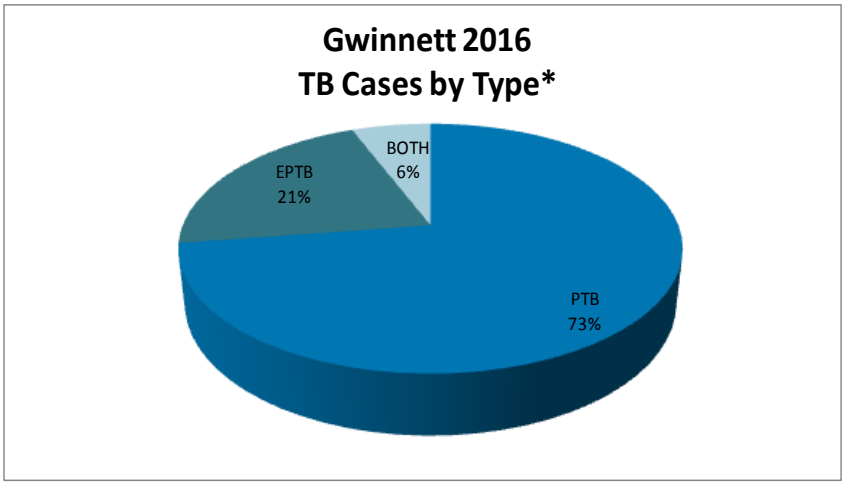
Tuberculosis

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 37 reports of active TB disease; 75.6% of these were pulmonary TB , characterized as TB disease occurring in the lungs. The remaining cases were reported as extra-pulmonary TB, or a combination of both tuberculosis presentations. Extra-pulmonary TB is TB disease occurring in any part of the body other than the lungs (CDC). Co-infection with HIV occurred in <5 of the 37 active TB cases (compared to only one case in 2015). TB is one of the leading causes of death among people living with HIV and an individual who has both HIV infection and TB disease has an AIDS defining condition (CDC). An additional 125 persons were evaluated as suspect tuberculosis cases in 2016. 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.

2016 GNR District TB Cases, Countries of Birth				
Vietnam		Guatemala		India
Nigeria		Mexico		Liberia
U.S		Haiti		Nepal
Korea		Ethiopia		



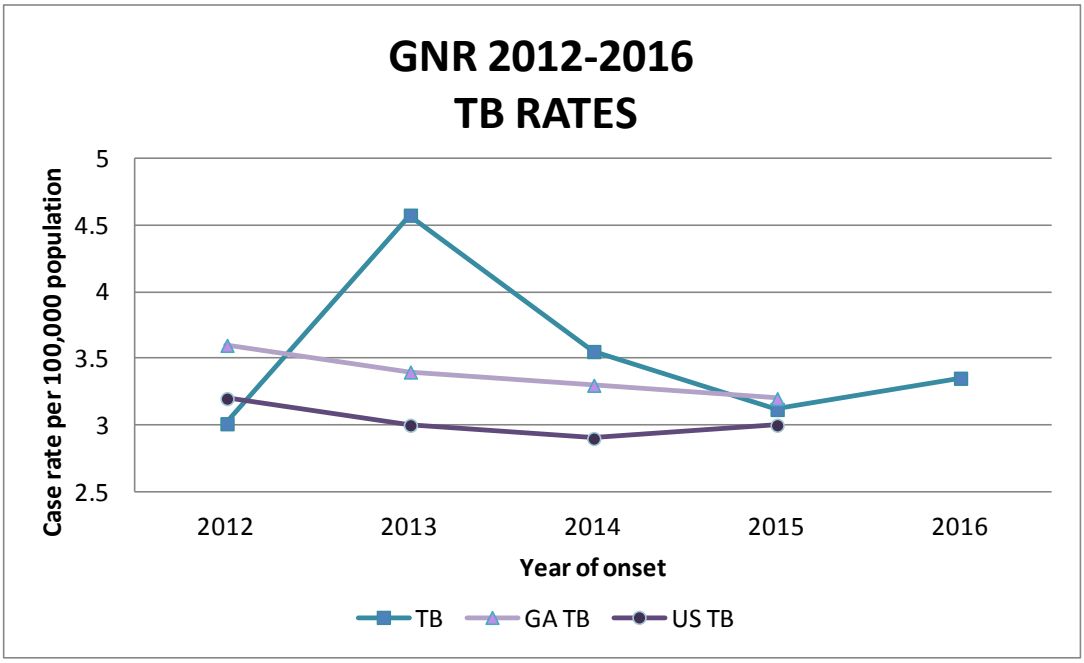


Gwinnett 2016	Cases Reported
PTB	24
EPTB	7
BOTH	<5

Newton 2016	Cases Reported
PTB	<5
EPTB	0
BOTH	0

Rockdale 2016	Cases Reported
PTB	<5
EPTB	0
BOTH	0

PTB = Pulmonary TB
EPTB = Extra-Pulmonary TB
BOTH = Pulmonary and Extra-Pulmonary TB
Other sites include: Ovary, Lymph Node, Pancreas, Testicles, Eye, Psoas, Skin



Please note: The vertical axis has been truncated to highlight variability in case rates.[9]

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.

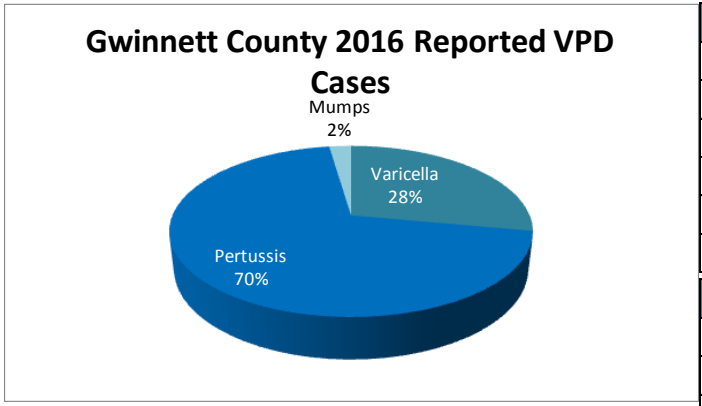
In 2016, TB program staff investigated 247 contacts of the 37 reported cases of active TB. In general, contact investigations involve close contacts such as members of the case's household and close social and work contacts. Large scale investigations in the public school and work settings are often conducted due to the calculated risk of exposure. The number of contacts investigated in 2016 is up from 2015, during which 34 cases and 213 contacts were investigated.

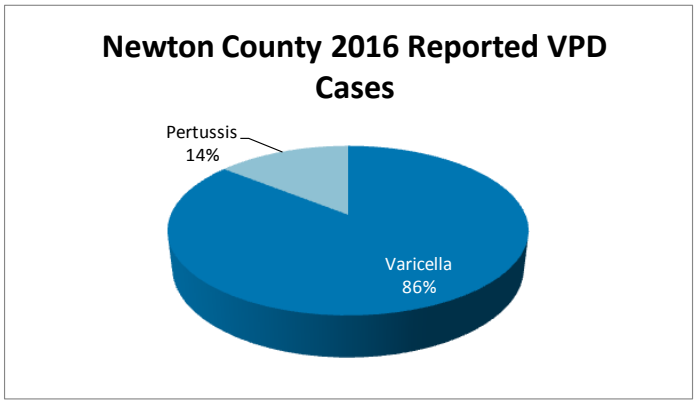
Contact elicitation is a core objective in the National TB Program Objectives & Performance Targets for 2020. Performance against national standards is measured each year through a cohort review of investigation and management of TB cases and contacts in each Public Health district. In 2016, the GNR TB Control Program met the contact evaluation goal of 100%.

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.

Vaccine Preventable Diseases

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 outbreaks across the country. 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.





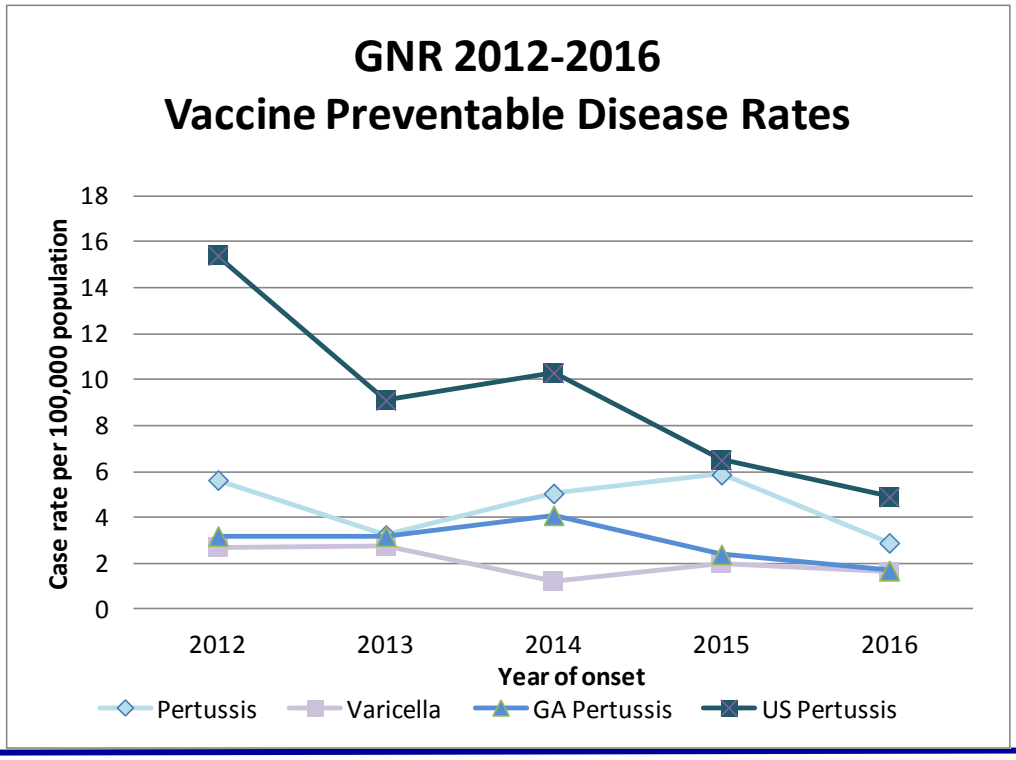
Gwinnett 2016	Reported	Investigated
Varicella	12	12
Pertussis	30	30
Mumps	<5	<5
Neisseria Meningitidis	<5	<5
*Haemophilus Influenzae	9	9
Total	**53**	**53**

Newton 2016	Reported	Investigated
Varicella	6	6
Pertussis	<5	<5
Mumps	0	0
Neisseria Meningitidis	0	0
*Haemophilus Influenzae	<5	<5
Total	**8**	**8**

Rockdale 2016	Reported	Investigated
Varicella	0	0
Pertussis	0	0
Mumps	0	0
Neisseria Meningitidis	0	0
*Haemophilus Influenzae	<5	<5
Total	<5	<5

*Though all invasive H.influenzae cases are reviewed, only Type B requires public health intervention

The graph below provides a comparison of GNR Pertussis case rates in comparison to Georgia and National Pertussis case rates. The GNR Pertussis case rates are trending above Georgia case rates, but well below the National case rates. Since 2015, Pertussis rates at all levels have declined. The decline in the rates of Pertussis in our district may be attributable to the current high vaccination coverage of 85.8%. It should be noted that overall vaccination rates for children under 24 months have declined since 2013.[10]



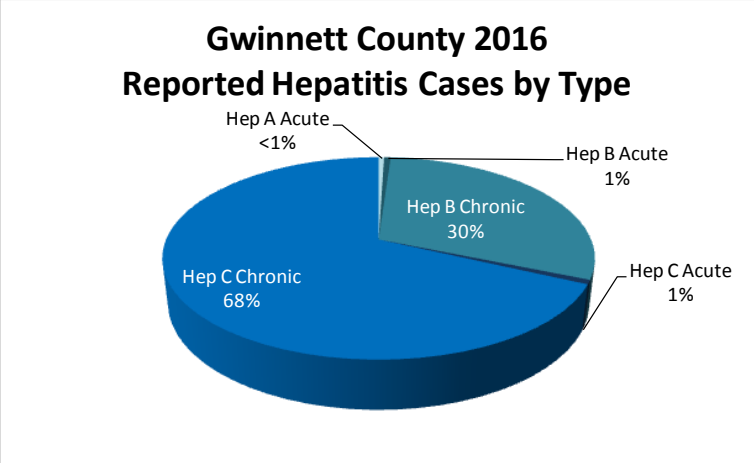
Viral Hepatitis

GNR staff in 2016 investigated 1,328 viral hepatitis cases; 21 (1.6%) of the reported cases were acute or probable acute and 1307 (98.4%) were chronic. 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.

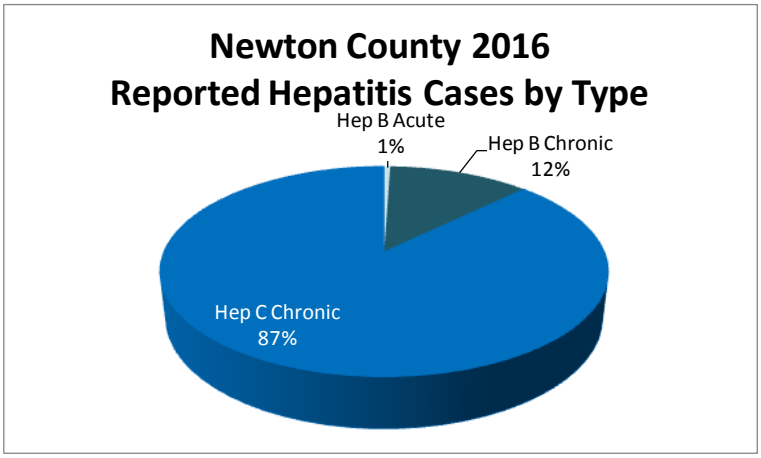
The majority of the viral hepatitis reports were Hepatitis C, a new trend that was identified in 2014 when previous years were predominantly Hepatitis B. Hepatitis A cases accounted for only 0.38% of the total number of viral hepatitis cases. Chronic Hepatitis B is found predominately in the Asian community. 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. While Newton and Rockdale do not have a significantly high Asian population, 25.7% (n= 107,947) of residents in Gwinnett County are Asian according to 2016 population statistics.

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 with 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.

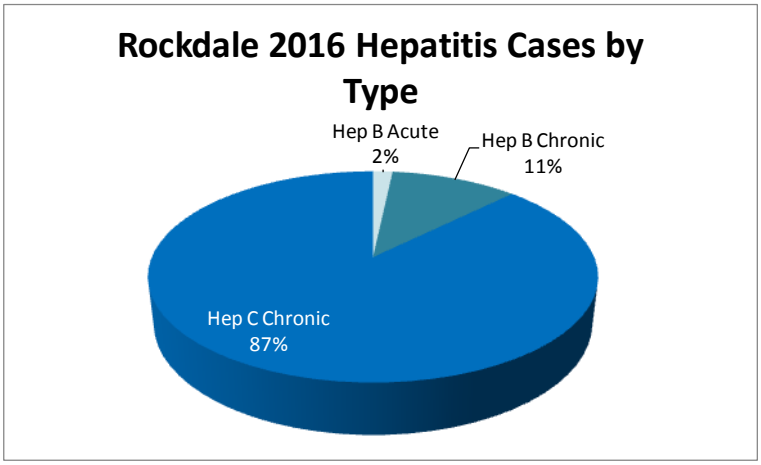
Testing guidance for Hepatitis C has changed dramatically in the past five years and this has impacted the number of cases reported to GNR. In 1998, guidance simply stated testing was recommended for asymptomatic persons with specific risk factors. In 2009 HIV infected persons were added and then in 2012 all adults born from 1945 to 1965 were included into the routine testing group. The US Centers for Disease Control and Prevention and US Preventive Services Task Force (USPSTF) recommend a one-time hepatitis C virus (HCV) screening for adults born between 1945 and 1965 (a birth cohort known as “baby boomers”). Approximately three-quarters of persons chronically infected with HCV are baby boomers, many of whom are unaware of their infection.[11] These recommendation were implemented in an effort to increase case identification and linkage to care. These changes in testing guidance resulted in an increase in reporting of Hepatitis C cases over the past 10 years, without an increase in funding or staffing. To ensure that high priority acute cases are being investigated promptly, epidemiology now investigates only cases thirty years old or younger, unless the patient is experiencing symptoms or elevated liver enzymes.



Gwinnett 2016	Cases Reported	Cases Investigated
Hep A Acute	5	5
Hep B Acute	6	6
Hep B Chronic	308	308
Hep C Acute	7	7
Hep C Chronic	694	94
Total	**1020**	**420**



Newton 2016	Cases Reported	Cases Investigated
Hep A Acute	0	0
Hep B Acute	<5	<5
Hep B Chronic	23	23
Hep C Acute	0	0
Hep C Chronic	165	11



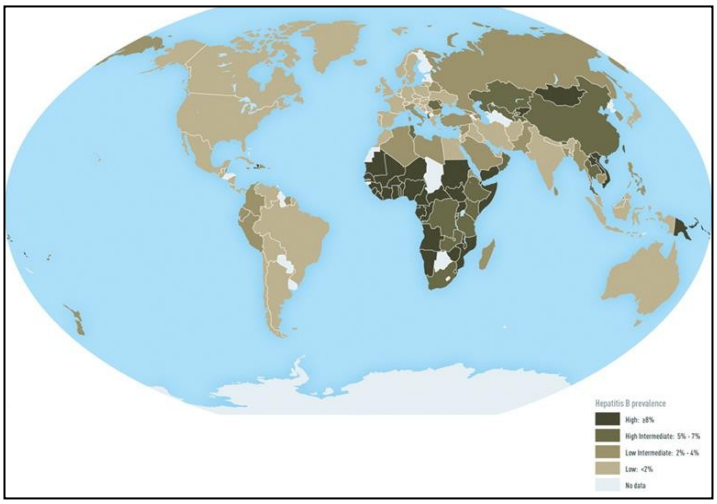
Rockdale 2016	Cases Reported	Cases Investigated
Hep A Acute	0	0
Hep B Acute	<5	<5
Hep B Chronic	13	13
Hep C Acute	0	0
Hep C Chronic	104	8

Having an adult population with chronic Hepatitis B can lead to 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. 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.

2016 GNR District PHBPP Births, Mothers' Countries of Birth

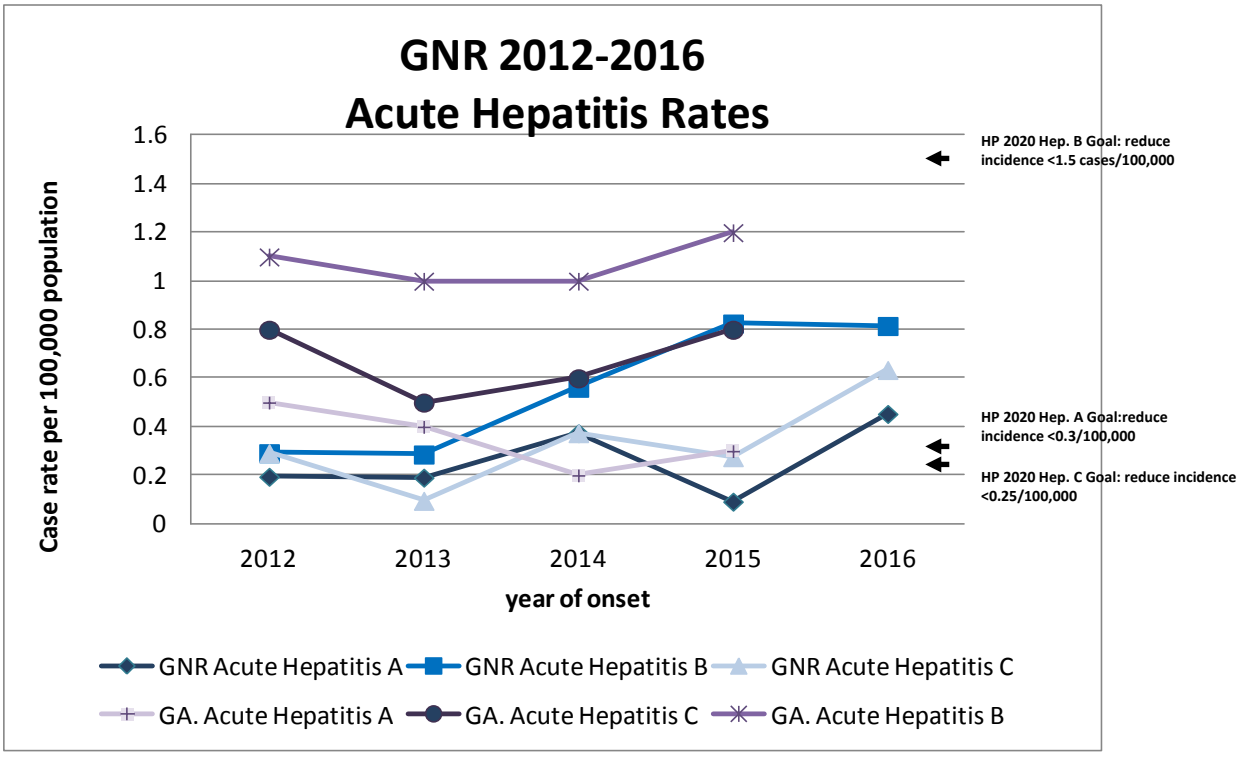
Vietnam	Ethiopia	Ivory Coast	Sierra Leone
Nigeria	Liberia	Kenya	Thailand
Vietnam	Burma	Malaysia	
USA	Congo	Mali	
Ghana	Taiwan	Moldova	
Korea	Unknown	Other	
Ghana	Gambia	Philippines	

Prevalence of Chronic Hepatitis B among adults worldwide

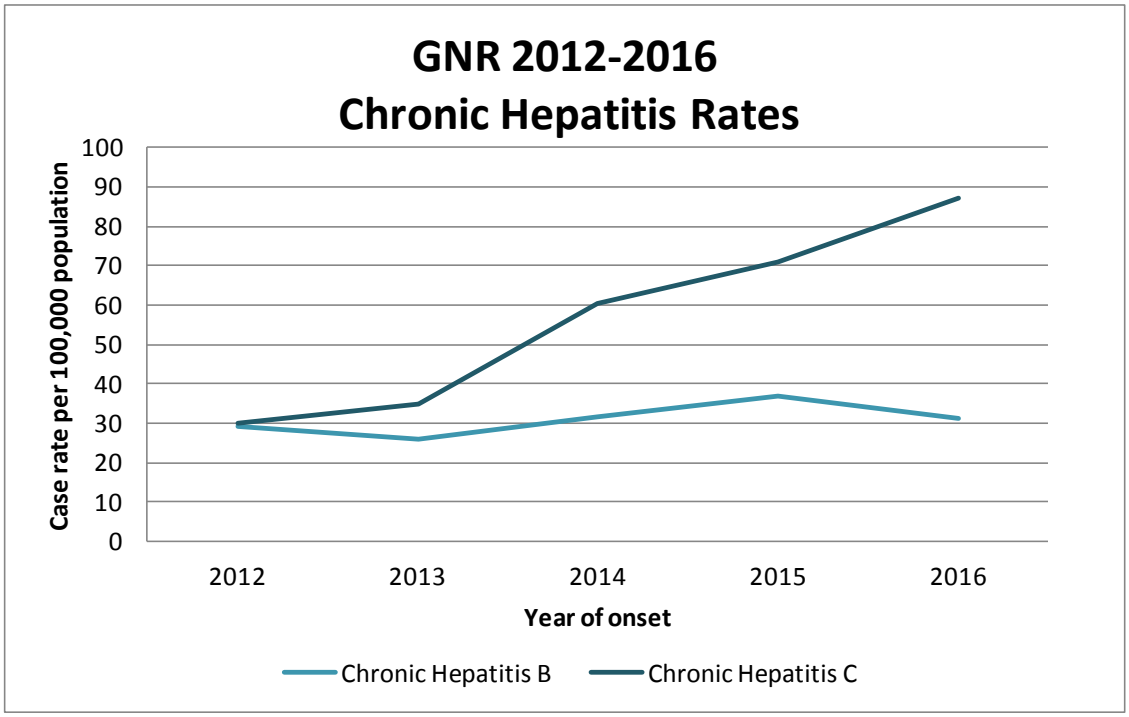


Source:https://wwwnc.cdc.gov/travel/yellowbook/2018/infectious-diseases-related-to-travel/hepatitis-c

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 seven years. In 2016, there were 332 newborn babies in Georgia's PHBPP with 20.5% (68) from the GNR district. Of the PHBPP babies born in the GNR district where mother's country of birth is known (62), 88.5% 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.



The above graph shows the GNR acute hepatitis case rates by hepatitis type. In addition, the graph compares GNR case rates to the Georgia case rates and Healthy People 2020 goals, a set of evidence-based 10-year national health benchmarks. Cases of Hepatitis C have been increasing in Georgia since 2013, with most new cases occurring in injection drug users associated with the nationwide opioid epidemic.[12,13,14]

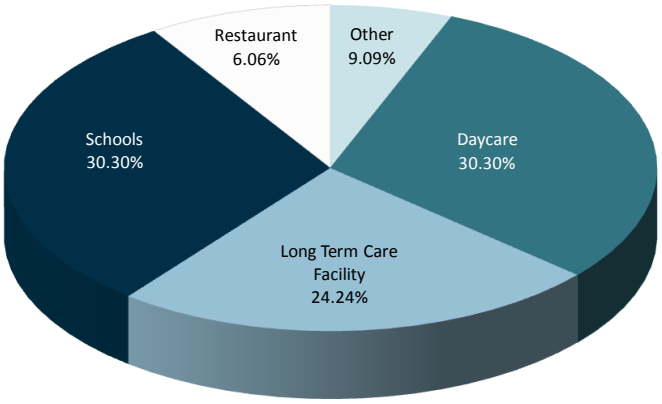


While Hepatitis B case rates have been relatively steady since 2012, chronic Hepatitis C infections have increased dramatically. According to the CDC, 6 out of 100 infants born to mothers with chronic Hepatitis C will also become infected, and state epidemiology is developing a prenatal Hepatitis C surveillance system similar to our existing prenatal Hepatitis B program.[15] Though methods for Hepatitis C treatment continue to improve, they remain cost-prohibitive for many infected individuals. [16]

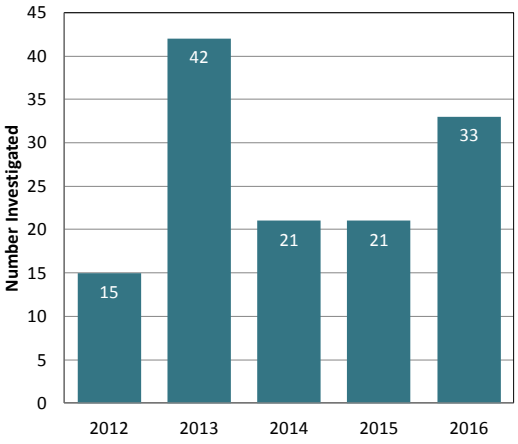
Outbreak Summary

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 2016, norovirus or suspected norovirus was the predominate pathogen for illness causing 19 (58%) of the outbreaks investigated.

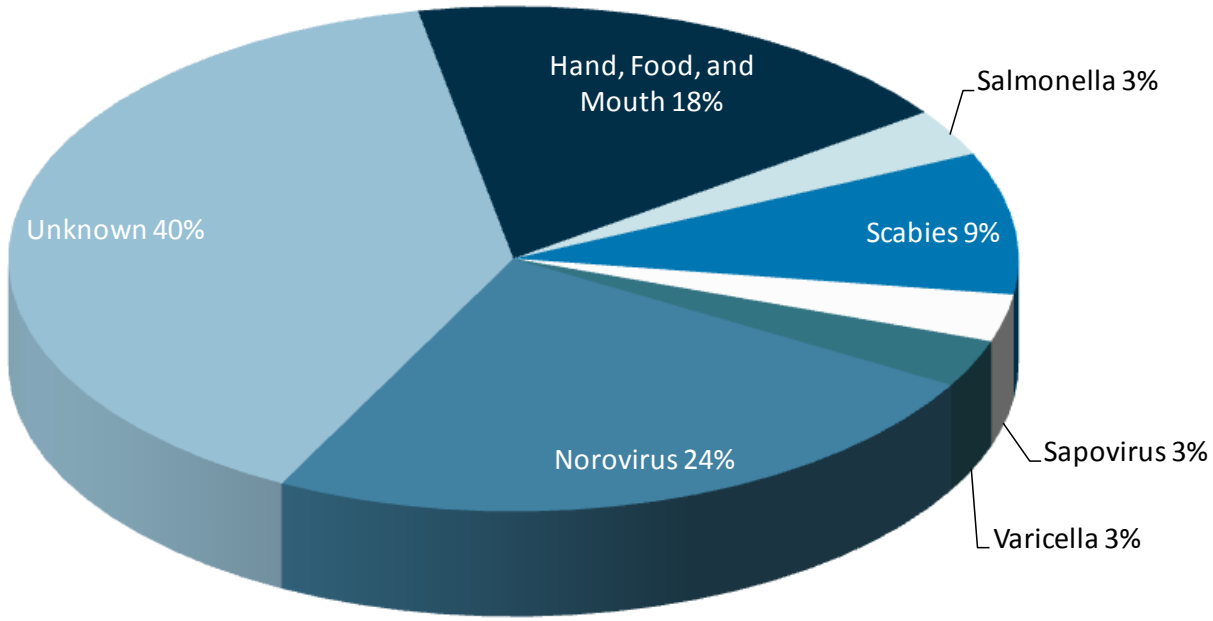
2016 Outbreak Investigations by Location (N=33)



Outbreak Investigations 2012-2016



2016 Outbreak Investigations by Pathogen (N=33)



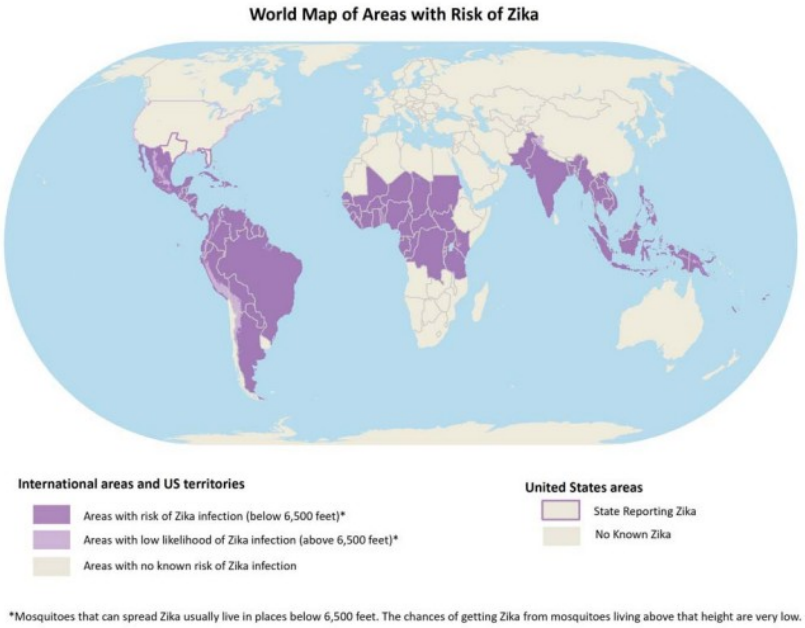
Emerging Pathogens

All emerging pathogen updates are as of June 9, 2017. 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.

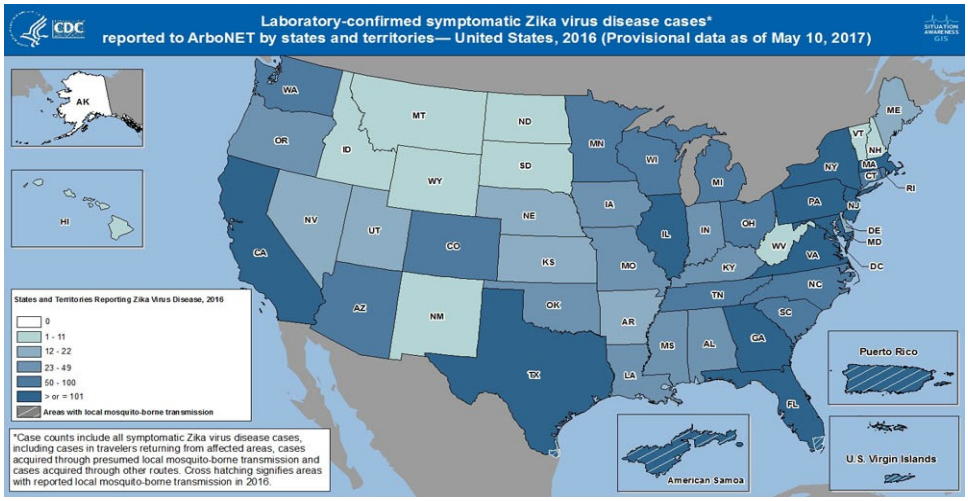
Zika Virus

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). In 2016, Zika Virus Disease became a nationally notifiable condition. As of June 7, 2017, the U.S reported 5,283 symptomatic Zika virus cases. Ninety-five percent of cases occurred in travelers returning from affected areas and 4% cases were acquired through presumed local mosquito-borne transmission in Florida (N=218) and Texas (N=6). 48 cases were acquired through other routes, including sexual transmission (N=46), laboratory transmission (N=1) and person-to-person through an unknown route (N=1). In the U.S Territories, 36,587 symptomatic Zika virus cases were reported, 99% of which were acquired through presumed local mosquito-borne transmission.[17] GNR investigated 153 suspect Zika cases in 2016 and of those, 20 were confirmed. The cases resided in Gwinnett and Rockdale counties, and all GNR cases were travel-associated.

Zika virus is the first known mosquito-borne virus to cause birth defects in humans. On April 13, 2016, the CDC concluded that Zika virus can cause microcephaly and other severe fetal brain defects.[18] Additionally, a study released by the Journal of the America Medical Association or JAMA, concluded that Zika infection during pregnancy may also cause a wide spectrum of birth defects and developmental delays outside of microcephaly known as congenital Zika syndrome.[19] In an effort to ensure thorough and accurate case reporting and facilitate public health response to the Zika virus outbreak, the CDC established the US Zika Pregnancy Registry (USZPR) to collect information on the impact of Zika virus infection during pregnancy on women and their infants. As of June 2017, current scientific research indicates that approximately 5-6% of pregnancies in the United States and in U.S. territories with laboratory-confirmed Zika virus infection resulted in Zika-related birth defects. [20] The CDC anticipates Zika virus to continue to spread (see figure on the next page for current active transmission areas).[21] situation evolves. GNR Health continues to test symptomatic individuals who have traveled to a Zika-affected area and will continue to conduct active surveillance to monitor for cases.



Laboratory-Confirmed Symptomatic Zika Cases in U.S 2016



Highly Pathogenic Asian Avian Influenza A (H5N1) Virus

Asian highly pathogenic avian influenza (HPAI) A (H5N1) virus occurs mainly in birds, but has been detected in other animals as well, such as pigs, cats and dogs. The virus is highly contagious among birds and is deadly, especially for domestic poultry. The virus was first detected in 1996 in geese in China and was first detected in humans in 1997 during a poultry outbreak in Hong Kong. H5N1 has since been detected in poultry and wild birds in more than 50 countries in Africa, Asia, Europe and the Middle East, and since December 2003, the virus has resulted in high mortality. In certain countries of the world, domestic poultry infected with the virus has become endemic.

Human infection with HPAI H5N1 is rare, and sporadic human infections with the virus have been reported. Human to human viral spread has occurred, but has not been sustained and community spread of the virus has not been identified. Human infection usually occurs following prolonged, close contact with infected birds. Viral infection in humans is associated with severe disease, such as pneumonia, respiratory failure and even death. Approximately 60% of individuals infected with the HPAI H5N1 virus have died. [22,23]

Influenza A viruses circulating among poultry have the potential to combine with human influenza A viruses and become transmissible among humans. If the virus gains the ability for efficient and sustainable transmission among humans, this could result in an influenza pandemic, resulting in potentially high rates of illness and death worldwide. More than 700 human infections with Asian HPAI H5N1 infection have been reported, but there have been no reported cases of HPAI Asian H5N1 viruses in the United States. Additionally, the virus has never been detected in U.S. birds or poultry. In preparation for a potential pandemic, the Asian H5N1 vaccine is being stockpiled in the U.S.

HPAI subtypes H5N2 and H5N8 were introduced into the U.S. commercial flock by wild birds in late 2014. The novel H5N1 found in wild birds and in recent outbreaks in the U.S. is not the same strain of H5N1 that originated in China in 1997. The novel H5N1 is a genetic recombination of Asian HPAI H5N8 virus and a low pathogenic influenza virus found in North American wild birds. No cases of human transmission have occurred in the U.S., but commercial flock outbreaks have been reported in the Midwest. No cases of HPAI H5 have been reported in Georgia flock.[24,25]

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. On May 11, 2017 the Ministry of Public Health of the Republic of the Congo reported a cluster of suspected cases of Ebola Virus Disease. As of June 5, 2017, there have been 9 total cases (suspected, probable or confirmed), 4 deaths and 15 contacts followed. [26,27]

Epidemiology worked with district, clinic, and emergency preparedness leadership to develop protocols for clinic operations. The process for developing these protocols included identifying an isolation room in each clinic, identifying and acquiring personal protective equipment (PPE) that was suitable for GNR staff, providing training on donning and doffing, and coordinating transport with the state Ebola EMS network. Epidemiology first provided information to partners on August 1, 2014 through an Emerging Infectious Disease Briefing. Subsequent email updates, conference calls and community wide meetings occurred. In addition, Epidemiology collaborated with internal and external partners to develop, implement and update a patient screening algorithm. In collaboration with state epidemiology, epidemiologists visited the homes of some GNR residents being monitored for signs and symptoms of Ebola to ensure completion of the 21-day follow-up required after travel to a Ebola-affected area.

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 2017 associate working a two year assignment in Communicable Disease. 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 October 2016, the district emergency operations center was activated for the Hurricane Matthew response. When an evacuation order of southern and coastal Georgia was issued, GNR opened one shelter in Gwinnett County with a 150-person capacity. Epidemiology conducted an on-site opening inspection of the shelter, and visited the shelter twice over the Columbus Day weekend to conduct surveillance and link American Red Cross staff to additional community resources.

Public Health Accreditation Board (PHAB)

In August 2016, GNR Health was granted accreditation by the Public Health Accreditation Board. The accreditation process sought 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 and are currently involved with updating the Community Health Assessment, Community Health Improvement Plan and the District's Strategic Plan as well as compiling the documentation for the new PHAB Standards and Measures required for reaccreditation in five years.

Attachment 1: Notifiable Disease Reporting Poster

Georgia Department of Public Health

NOTIFIABLE DISEASE / CONDITION REPORTING

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.

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 DPH, Department of Public Health, visit their web site at: dph.georgia.gov/

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 (WNV)
- ▶ 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 infection and Perinatal HIV exposure*
- 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 deaths## (during pregnancy or within 1 year of end of pregnancy)##
- mumps
- Neonatal Abstinence Syndrome
- 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.

REPORTING HIV/AIDS:
Report forms and reporting information for HIV/AIDS available by telephone (1-800-827-9769) OR at http://dph.georgia.gov/georgias-hivaids-epidemiology-surveillance-section. 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 maternal deaths are available at http://dph.georgia.gov/documents/forms-surveys-and-documents
† Report forms and reporting information for **hearing impairment** available at http://dph.georgia.gov/documents/forms-surveys-and-documents

REPORT WITHIN 1 MONTH

birth defects (under age 6)

Report forms and reporting information for **birth defects** available at http://dph.georgia.gov/documents/forms-surveys-and-documents

Healthcare-associated Infections (HAIs)
For facilities required to report HAI data to CMS via NHSN. Report in accordance with the NHSN protocol. Reporting requirements and information available at http:/dph.georgia.gov/notifiable-hai-reporting.

REPORT WITHIN 6 MONTHS

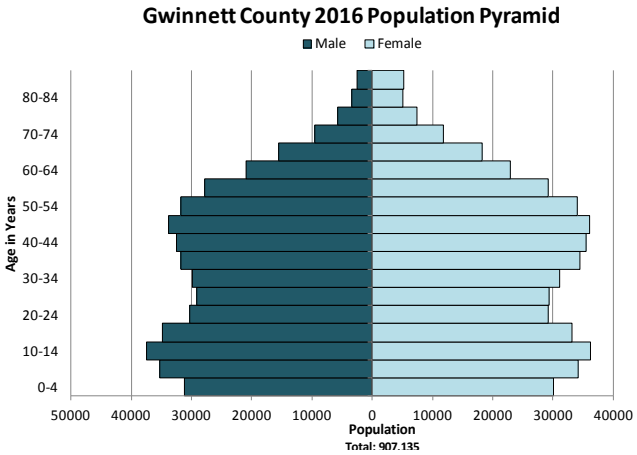
benign brain and central nervous system tumors
cancer

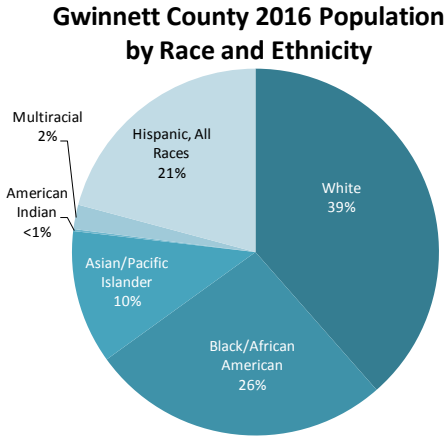
Report forms and reporting information for **tumors and cancer** found at http://dph.georgia.gov/georgia-comprehensive-cancer-registry.

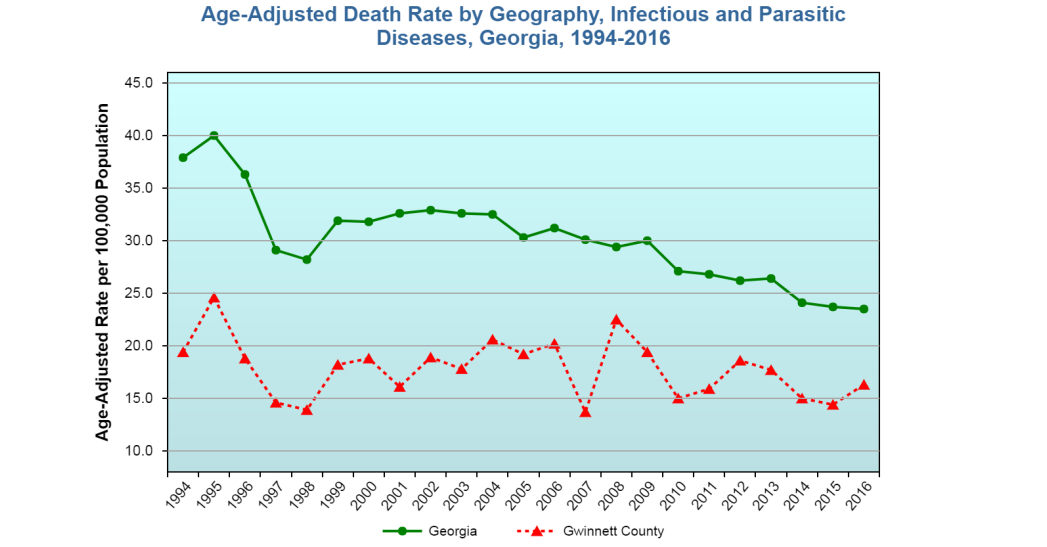
(Rev 2-1-16)

Gwinnett County

Population at a Glance







Georgia Department of Public Health
Office of Health Indicators for Planning (OHIP)

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Top 10 Causes of Hospitalizations in Gwinnett County for 2015 by Age-Adjusted Deduplicated Hospital Discharge Rate
Total Discharges: 68,309
(rates per 100,000 population)

1	Bone & Muscle Diseases	402.0
2	Blood Poisoning	257.8
3	Mental and Behavioral Disorders	228.8
4	Cardiovascular Diseases	220.9
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

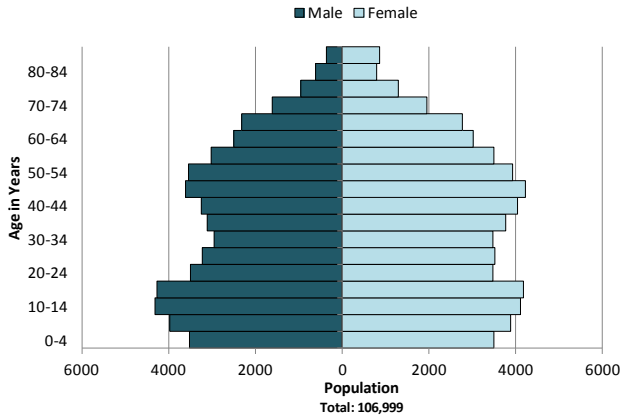
Select Population Based Statistics:

2015 Pregnancy Rate: 79.3 per 1,000 females 15-44 years
2016 Birth Rate: 38.5 per 1,000 females
2016 Infant Mortality Rate: 7.8 per 1,000 births
Source: www.oasis.state.ga.us

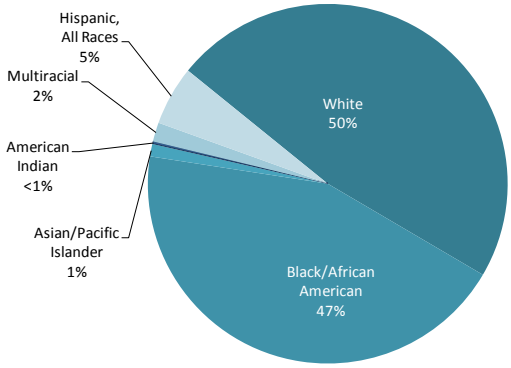
Newton County

Population at a Glance

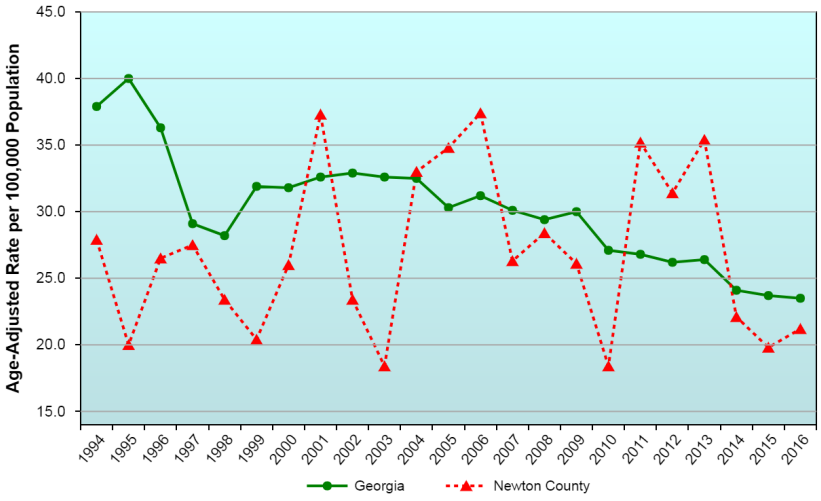
Newton County 2016 Population Pyramid



Newton County 2016 Population by Race and Ethnicity



Age-Adjusted Death Rate by Geography, Infectious and Parasitic Diseases, Georgia, 1994-2016



Georgia Department of Public Health
Office of Health Indicators for Planning (OHIP)

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Top 10 Causes of Hospitalizations in Newton County for 2015 by Age-Adjusted Deduplicated Hospital Discharge Rate
Total Discharges: 10,120
(rates per 100,000 population)

1	Bone & Muscle Diseases	519.7
2	Cardiovascular Diseases	344.6
3	Blood Poisoning	336.4
4	Pneumonia	256.7
5	Stroke	254.5
6	Urogenital Diseases	206.5
7	Nutritional and Metabolic Diseases	197.3
8	Mental and Behavioral Disorders	193.4
9	Falls	193.4
10	Chronic Obstructive Pulmonary Disease	177.0

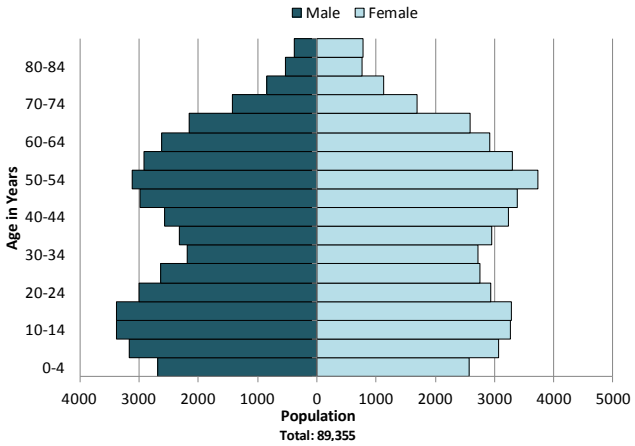
Select Population Based Statistics:

2015 Pregnancy Rate: 77.5 per 1,000 females 15-44 years
2016 Birth Rate: 38.7 per 1,000 females
2016 Infant Mortality Rate: 5.8 per 1,000 births
Source: www.oasis.state.ga.us

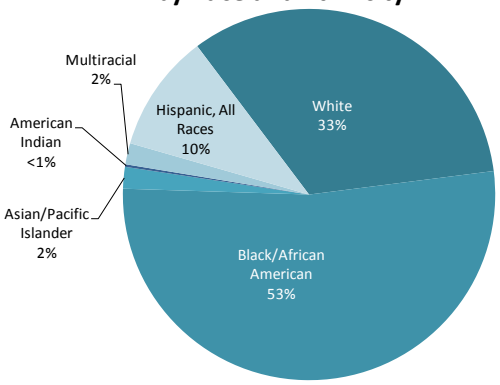
Rockdale County

Population at a Glance

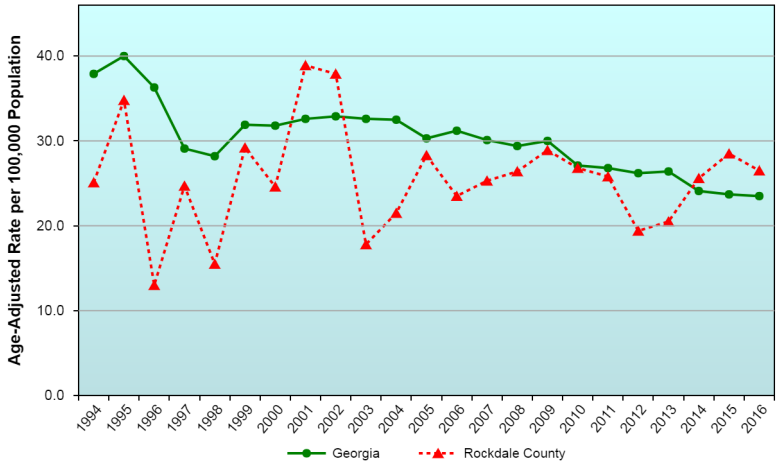
Rockdale County 2016 Population Pyramid



Rockdale County 2016 Population by Race and Ethnicity



Age-Adjusted Death Rate by Geography, Infectious and Parasitic Diseases, Georgia, 1994-2016



Georgia Department of Public Health
Office of Health Indicators for Planning (OHIP)

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Top 10 Causes of Hospitalizations in Rockdale County for 2015 by Age-Adjusted Deduplicated Hospital Discharge Rate
Total Discharges: 10,254
(rates per 100,000 population)

1	Bone & Muscle Diseases	511.0
2	Cardiovascular Diseases	275.7
3	Blood Poisoning	241.6
4	Mental and Behavioral Disorders	241.1
5	Urogenital Diseases	231.5
6	Nutritional and Metabolic Diseases	218.3
7	Pneumonia	214.6
8	Chronic Obstructive Pulmonary Disease	213.4
9	Falls	203.2
10	Stroke	189.5

Select Population Based Statistics:

2015 Pregnancy Rate: 80.2 per 1,000 females 15-44 years
2016 Birth Rate: 34.3 per 1,000 females
2016 Infant Mortality Rate: 10.1 per 1,000 births
Source: www.oasis.state.ga.us

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

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