GWINNETT • ROCKDALE • NEWTON

COUNTY HEALTH DEPARTMENTS

Annual Report

Epidemiology & Infectious Disease

2014

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Gwinnett, Newton, Rockdale Counties Epidemiology & Infectious Disease 2014 Annual Report

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Gwinnett, Newton, Rockdale Counties Epidemiology 2014 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 2014, a total of 5,955 notifiable conditions were reported in the three-county health district. A total of 3,175 (53.32%) of these notifiable diseases were investigated. 46.68% of uninvestigated morbidity was due to reported gonorrhea and chlamydia cases. Program staff investigated numerous complaints (150) and clusters and outbreaks of illness (21); 100% of these instances 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 2014 Notifiable Disease data as of October 1, 2015.

Program Descriptions

The GNR Division of Epidemiology and Infectious Disease is comprised of 3 distinct programs: Epidemiology, Communicable Disease, and Tuberculosis. The District serves the nearly 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, and provides trainings and outreach to the community. The Epidemiology staff is often responsible to publish internal and external reports and participate in county and district public health programs as needed.

Staff Capacity: The Epidemiology program staff consists of one Epidemiology Program Manager with assistance from the Division Director, an Epidemiology Nurse Specialist, an Environmental Epidemiologist, and a General 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. 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 guaranteeing that cases are reported, diagnosed and treated, and partners are referred for testing and treatment as appropriate. 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 latent tuberculosis infection in the District. Program staff provides source, case and contact investigations for the identification of active pulmonary and extrapulmonary cases and latent tuberculosis infection. Timely identification of contacts provides the opportunity to limit spread of disease and prevent future cases. Program staff provides case management of most cases and provides 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 provides 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, four case managers, a laboratory technician, a radiology technician and an operations analyst.

Arboviral Diseases and Other Vector-borne Diseases

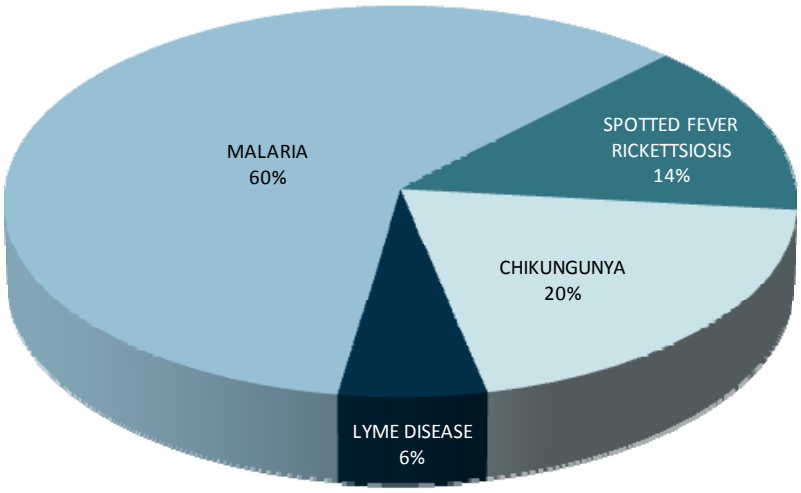
Arboviral diseases are caused by a large group of viruses that are transmitted by arthropods, such as mosquitoes and ticks, to humans and animals. In the United States, the majority of arboviruses are transmitted by mosquitoes. Often, mosquitoes can transmit viruses from birds to humans and horses. Many individuals infected with arboviruses have mild or no symptoms; however, some may develop serious symptoms such as inflammation of the brain (encephalitis). The Georgia Department of Human Resources requires immediate reporting of all acute arboviral infections. The most common arboviral infections reported in Georgia include: Eastern Equine Encephalitis, LaCrosse Encephalitis, and West Nile Encephalitis. St. Louis Encephalitis is less common but has also been reported in Georgia.

Other vector-borne diseases which are not classified as arboviruses but are transmitted to humans by ticks and must be reported immediately include Q fever and Tularemia. 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.

In late 2013, local transmission of the Chikungunya virus was identified in the Caribbean countries. US travelers to those countries were contracting the virus in record numbers. Between 2006-2013 an average of 28 cases of Chikungunya were reported in US residents, in 2014 2,799 cases were reported. All but 11 of the 2014 cases were travel associated and the 11 cases that were local transmitted were in Florida[1]. This began Chikungunya surveillance in Georgia.

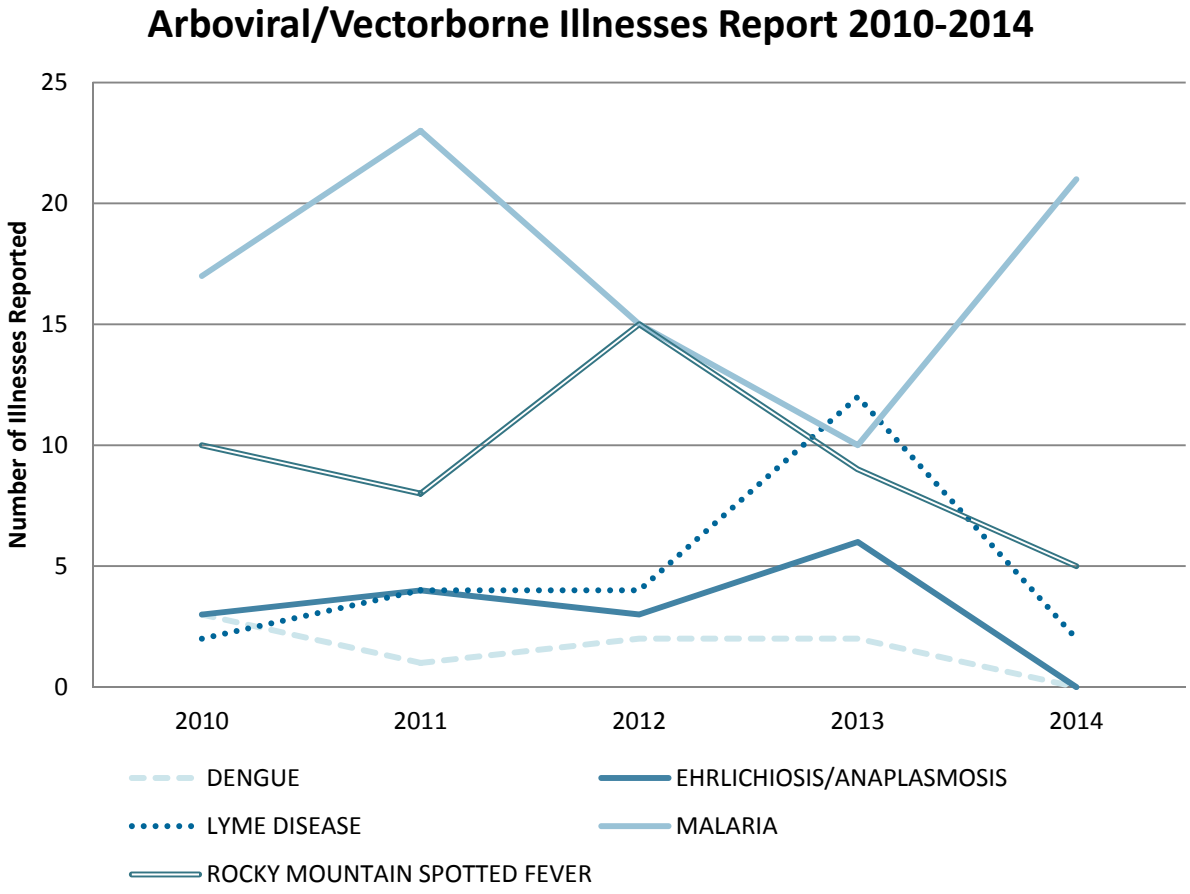
In 2014, a total of 35 arboviral/vector-borne illnesses were reported to GNR. These illnesses consisted primarily of Malaria, Chikungunya and Spotted Fever Rickettsiosis, there were still small amounts Lyme Disease.

Arboviral/Vectorborne Illness
Cases Reported 2014 N=35



[1] CDC Chickungunya Virus 2014 Final data for the United States. Available at:www.cdc.gov/chikungunya/geo/united-states-2014.html Updated August 3, 2015

The incidence of arboviral and other vector-borne diseases has remained somewhat variable since 2010. It should be noted that all cases of malaria and dengue were travel-related. There was an increase in Lyme Disease from 2012 (14 cases) to 2013 (23 cases) possibly due to increased awareness and testing. Epidemiology program staff attempted to investigate all cases of arboviral/vector-borne disease, however, the interview process is complicated by issues including 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.



2014 GNR District Malaria Cases by Country Visited

Nigeria	8	Burundi	1	Gambia	1	Uganda	1
Liberia	4	Cameroon	1	Pakistan	1	**Total**	**21**
Ghana	2	Congo	1	Sierra Leone	1		

Enteric Illness (Foodborne Illness)

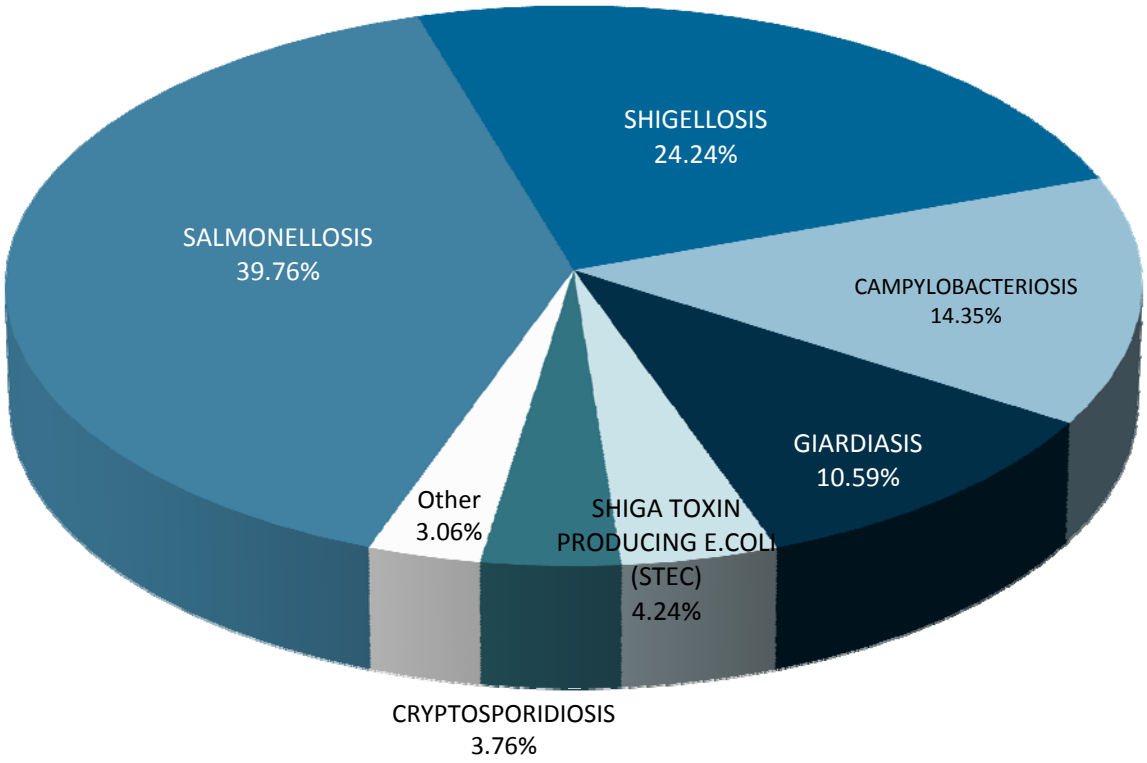
Enteric Diseases are most commonly caused by bacteria, viruses, or parasites, which are transmitted through the fecal-oral route or, frequently, through contaminated food and water, and enter the body through the gastrointestinal system. These microbes can also be spread through animal or person-to-person 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 and prevent enteric diseases caused by contaminated food or water, and 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.

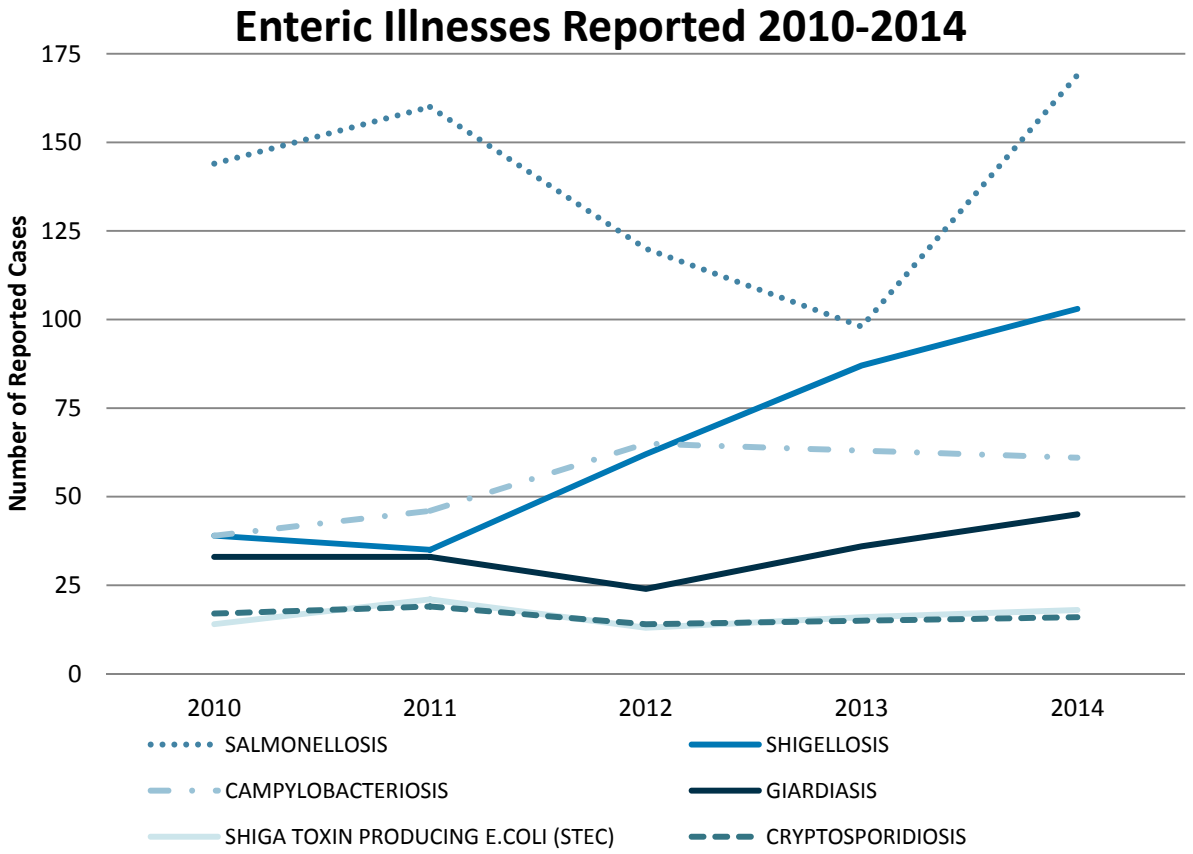
Current guidelines from the Notifiable Disease Section of the Georgia State Epidemiology Unit recommend reporting for all cases of *Campylobacter, Cryptosporidium, Cyclospora, E.Coli* O157:H7 or shiga toxin producing *E. coli*, *Giardia*, Hemolytic Uremic Syndrome, *Listeria, Salmonella, Shigella,* and *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 *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 2014.

Enteric Illness
Cases Reported 2014 N=425



The most frequently reported enteric diseases in the GNR District in 2014 were salmonellosis and shigellosis, which together accounted for 64% of all reported enteric illness. Giardiasis, campylobacteriosis, and cryptosporidiosis together accounted for 28.7% of the total number of reported cases.

Limitations in staff capacity required prioritization of case investigations of foodborne or enteric illness. In 2014, the district received 425 reports of enteric illness of which staff was able to investigate 94.6% (402 cases).

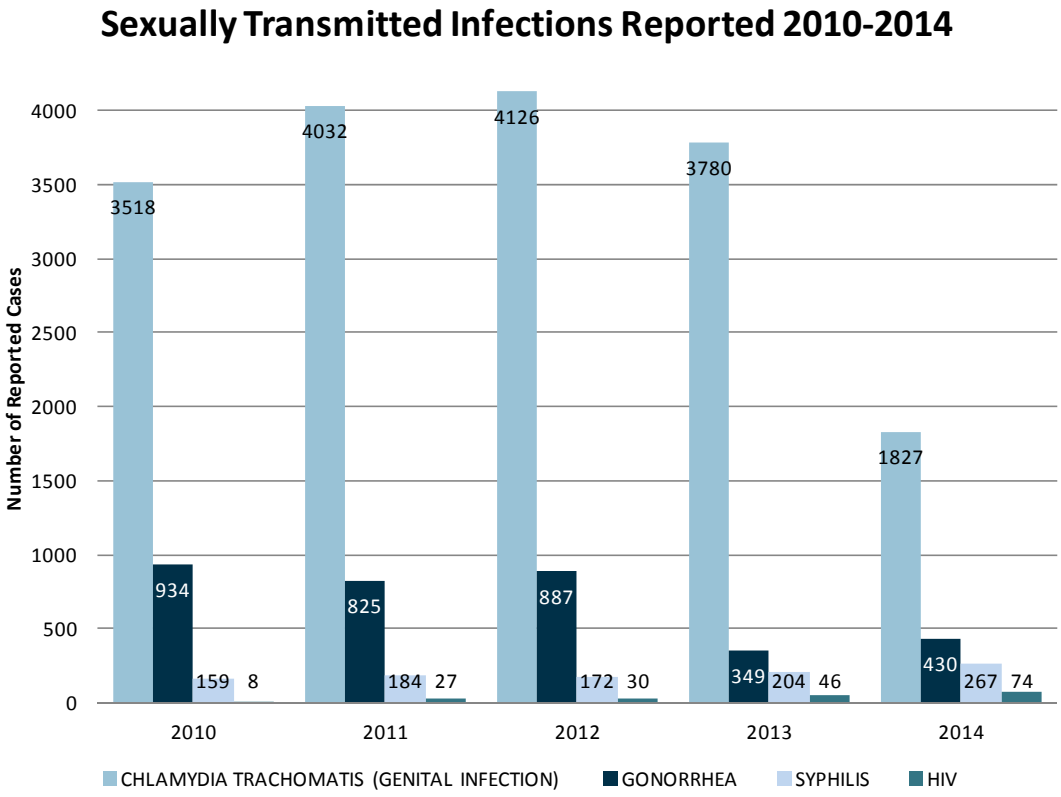


The disease rates of enteric illness increased in the year 2014. Salmonellosis cases increased by 72.4% and shigellosis increased by 18.4%. The decrease in salmonellosis during 2013 mirrored what was seen and reported nationally as noted in an April 2014 Morbidity and Mortality Weekly Report from the Center for Disease Control (CDC)[2]. Overall, the incidence of reported enteric illness has only increased by 44.1% since 2010.

[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.

Sexually Transmited Infections (STIs)

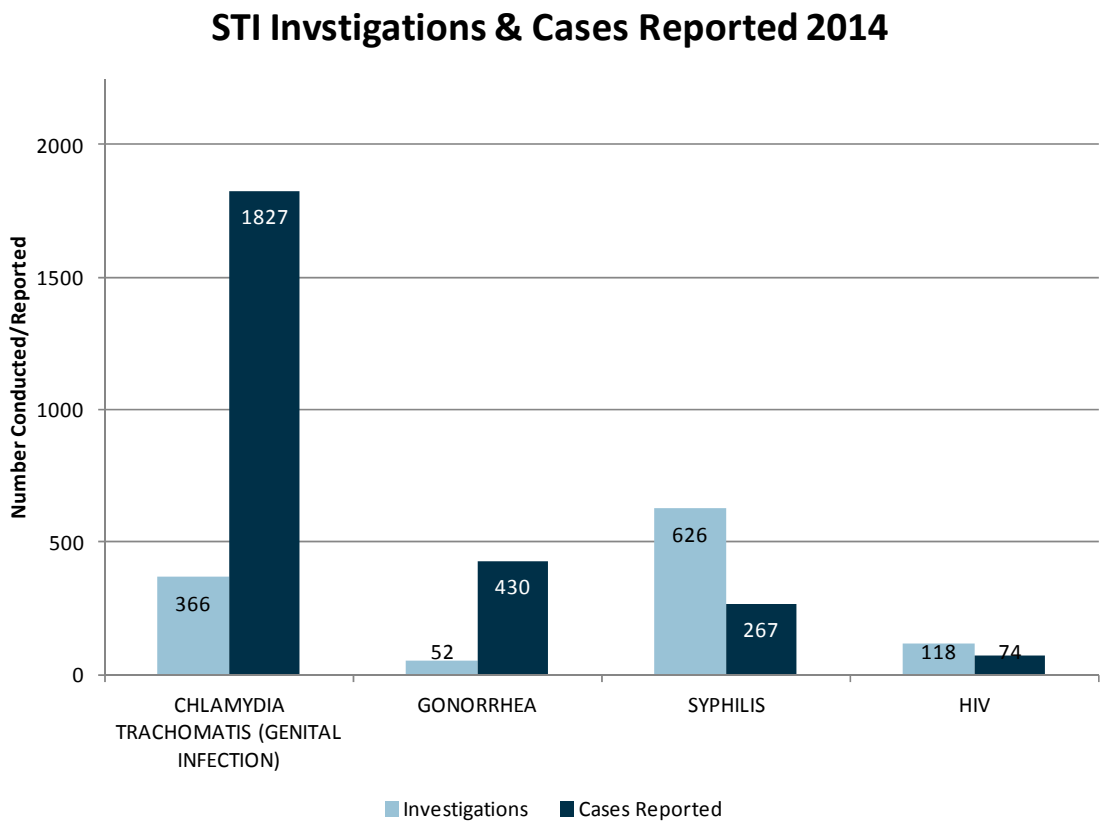
The Communicable Disease Unit of the GNR District received 2,598 reports of sexually-transmitted infections in 2014. Sexually-transmitted infections are a significant cause of morbidity and mortality in the GNR District and, generally, in the State of Georgia. Sexually-transmitted infections are both preventable and often curable with appropriate diagnosis and treatment. Without treatment, these infections can lead to sterility, cancer, and death. Based on current capacity, 29.25% 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 70.32% of the total number of cases of sexually-transmitted infections reported. The next most frequently reported sexually-transmitted infection was gonorrhea, which accounted for 16.55% of total cases reported. These two diseases represent a substantial percentage of the total burden of disease from STI in the GNR District. Reported cases of Chlamydia and Gonorrhea have decreased significantly since 2011. This is not novel to the GNR District, but also seen throughout the state of Georgia, the South and nationally[3]. While Georgia numbers were both down for the two illnesses in 2013, the state still held the ranking of 9th for Chlamydia and 8th for Gonorrhea. The nation as a whole and the south as a region still had an overall increase in cases. Georgia ranks 1st in the nation for primary and secondary syphilis and Gwinnett County is ranked 68th in the national county rankings following other metro Atlanta counties: Fulton (6), DeKalb (19), Cobb (59) and Clayton (67). At the time of this report 2014 national data and rankings were unavailable.

[3] CDC. Sexually Transmitted Disease Surveillance 2013. December 2014.

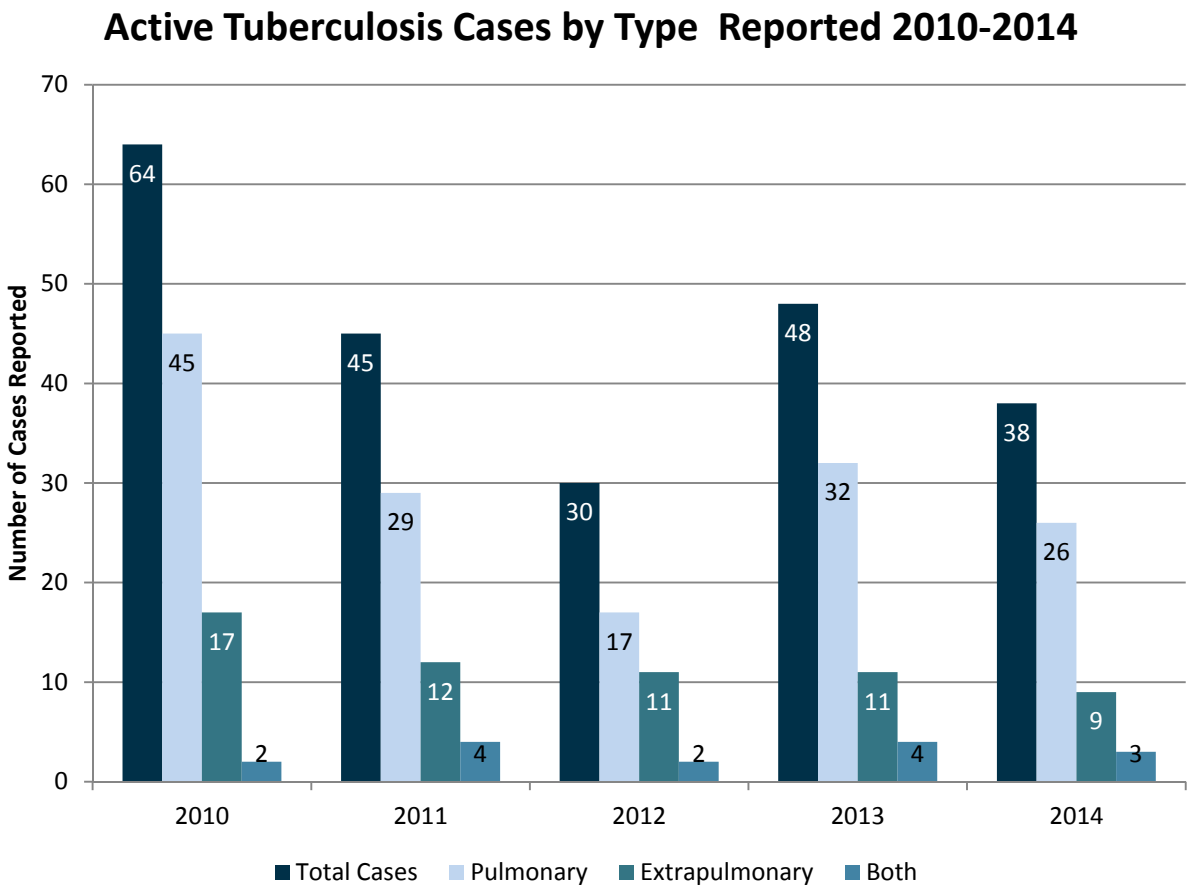
STI Investigations include provider record searches, patient follow up and/or interviews, and contact tracing. A provider record search is usually conducted when insufficient data is presented to the health department and additional information (i.e. demographics, signs/symptoms, labs, treatment, etc.) 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 epi data. 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 we are able to prevent the spread of STDs by offering testing and treatment to syphilis and HIV contacts. During 2014, 626 investigations were conducted for the 267 Syphilis case reports received and 118 investigations were conducted for the 74 HIV cases reported. The higher number investigation 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 multiorgan 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.



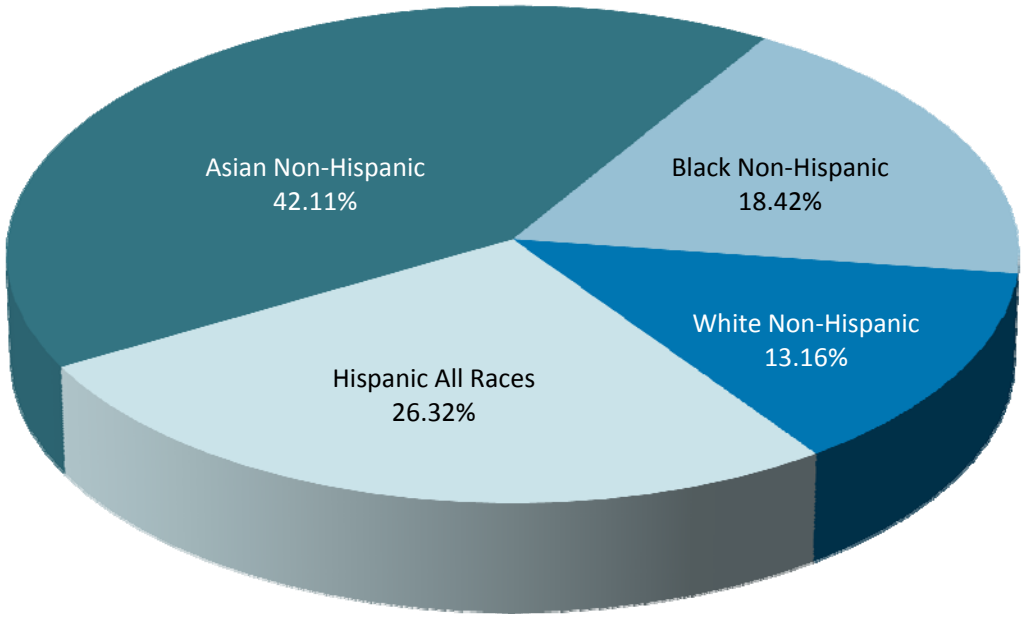
The TB program staff investigated all suspected and confirmed cases of tuberculosis disease in the district. There were 38 reports of active TB disease of which 76.3% were diagnosed as pulmonary TB and the remaining cases were reported as clinical TB and extra-pulmonary TB cases. An additional 46 persons were evaluated as suspect tuberculosis cases in 2014.

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 89.4% of all cases of active disease. Asian and African-American races, combined with Hispanic ethnicity, were also predominant for tuberculosis disease in the GNR Health District.

2014 GNR District TB Cases by Country of Birth

Vietnam	8	Pakistan	2	Cameroon	1	Peru	1
USA	7	Afghanistan	1	China	1	Philippines	1
Honduras	4	Argentina	1	Ghana	1	**Total**	**38**
Mexico	4	Bangladesh	1	India	1		
Liberia	2	Cambodia	1	Kenya	1		

Active Tuberculosis Cases Reported 2014 by Race & Ethnicity



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 clients at highest risk of morbidity, transmission, and non-adherence to treatment. 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 2014, TB program staff investigated 213 contacts of the 38 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 2014 is down from 2013 during which 48 cases and 227 contacts were investigated.

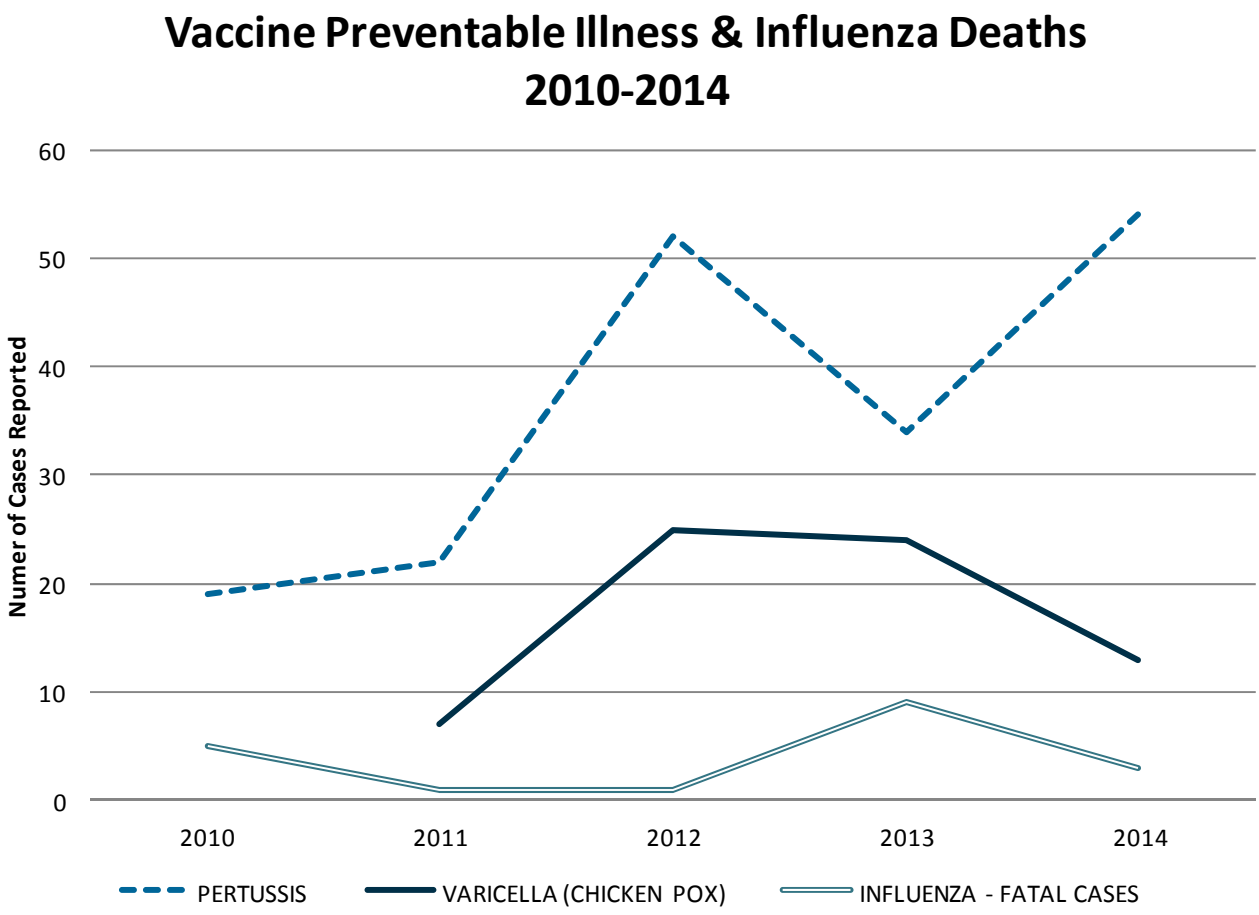
Contact elicitation is a core objective in the National TB Program Objectives & Performance Targets for 2020[4]. Performance against national standards is measured each year through a cohort review of investigation and management of TB cases and contacts in each Public Health district. In 2004, the GNR TB Control Program did not meet the contact evaluation goal of 93%. Of the contacts evaluated as a part of the Cohort Review, 68% (88/130) of contacts were fully evaluated. While great effort is made to evaluate all contacts, many barriers exist to meet the CDC National standards. Barriers include inability to require evaluation of contacts and inability to evaluate and treat contacts that live outside of the GNR jurisdiction. In addition, many individuals who immigrate from countries where TB is endemic think that TB infection is not a health concern and they are often not eager or willing to be tested and treated despite great educational efforts.

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 gold-standard 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.

[4] 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 every year 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. 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. Not listed on the below figure are two cases of Mumps that occurred in 2010.

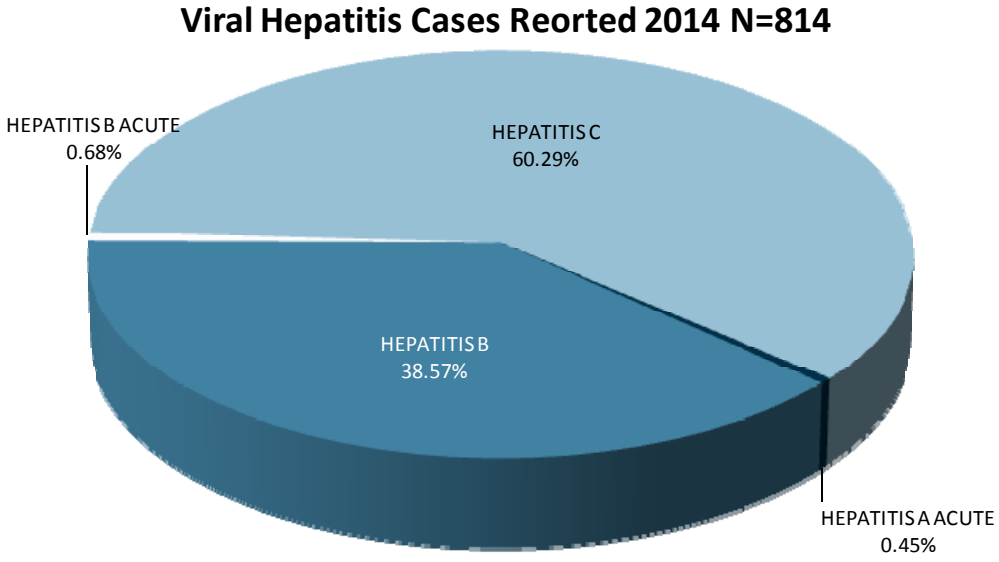


Pertussis is a respiratory illness resulting from local infection of the nasopharyngeal area by the bacteria *Bordatella pertussis*. Transmission occurs through contact with respiratory droplets from an infected person. In older children and adults, pertussis typically causes mild symptoms that resolve 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. The greatest risk of pertussis in older children and adults is infection of young infants who are at greatest risk for complications of pertussis such as pneumonia, encephalopathy and death.

Viral Hepatitis

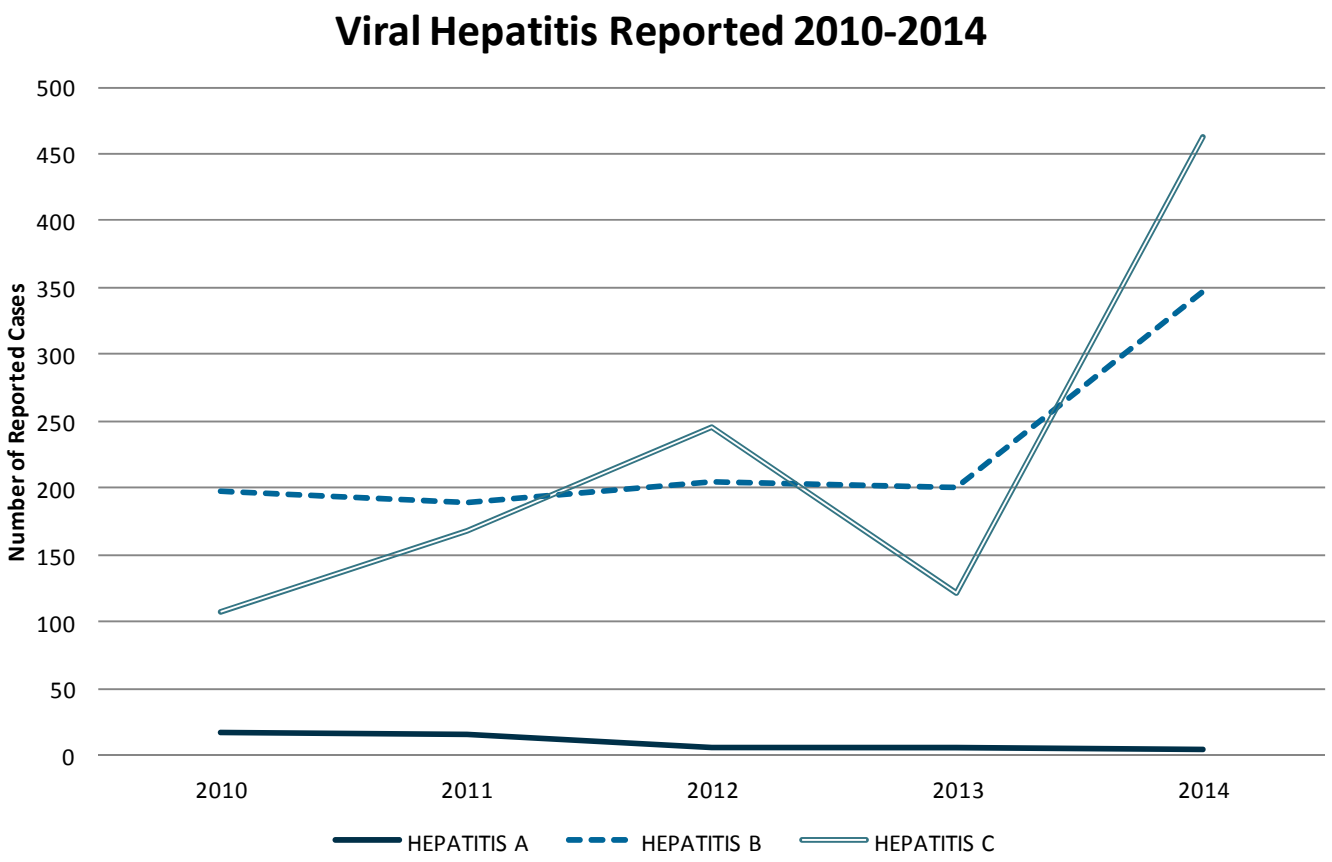
GNR staff in 2014 investigated 814 viral hepatitis cases; only 10 (1.2%) of the reported cases were acute. All reported viral hepatitis cases are evaluated for acute illness symptomology by GNR epidemiology staff. Preventative medication can be given to close contacts of Hepatitis A and B cases to prevent illness. Unfortunately there is no preventative medication for Hepatitis C.

The majority of the reports were Hepatitis C, a new finding for 2014 when previous years were predominantly hepatitis B. Hepatitis A cases accounted for only 0.45% of the total number of viral hepatitis cases. Chronic Hepatitis B is found predominately in the Asian community with Asian and Pacific Islanders (APIs) making up less than 5% of the total population in the United States, but accounting for more than 50% of Americans living with chronic Hepatitis B[5]. While Newton and Rockdale do not have a significantly high Asian population, 11.4%[6] or 99,778 residents of Gwinnett County are Asian according to 2014 population statistics.



Hepatitis A is of significant concern to epidemiology staff, even with 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 and can occur either 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.

[5] CDC. Recommendations for Identification and Public Health Management of Persons with Chronic Hepatitis B Virus Infection. MMWR 2008;57(RR-8).
[6] www.oasis.state.ga.us Population Statistics.



Testing guidance for Hepatitis C has changed dramatically in the past five years and this is noted in the number of cases reported to GNR. In 1998, guidance simply stated testing for asymptomatic persons with specific risk factors[7]. In 2009 HIV infected persons were added[8] and then in 2012 all adults born during 1945-1965 were included into the routine testing group[9]. The change in testing guidance caused the jump in cases in the past 10 years.

A risk of having an adult population with chronic hepatitis B is the 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[10]. 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. Generally, GNR Health Districts track PHBPP babies for 15 months.

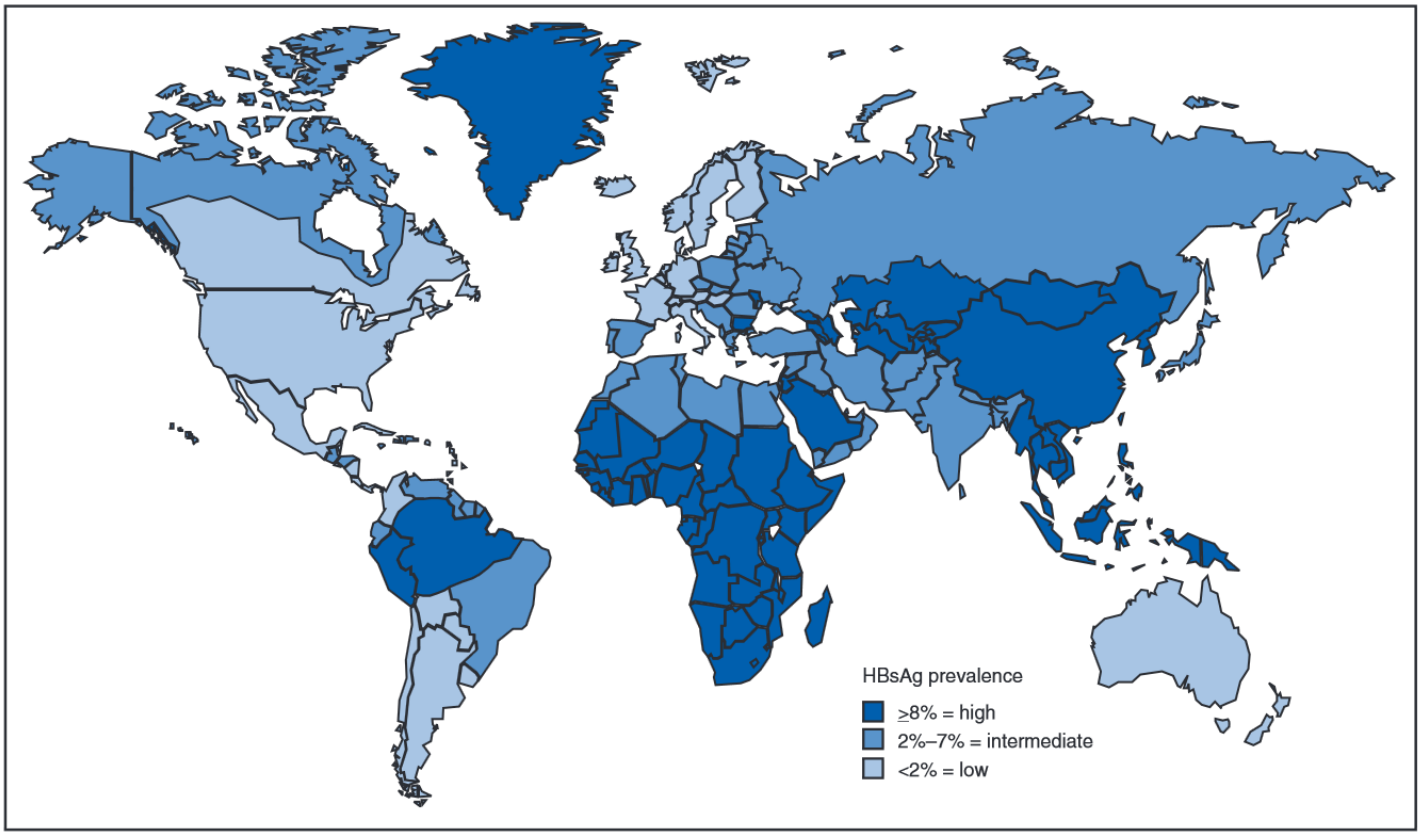
[7] CDC. Recommendations for prevention and control of hepatitis C virus (HCV) infection and HCV-related chronic disease. MMWR 1998;47(No. RR–19).
[8] CDC. Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents. MMWR 2009; 58(RR04).
[9] CDC. Recommendations for the Identification of Chronic Hepatitis C Virus Infection Among Persons Born During 1945–1965. MMWR 2012;61(RR04);1-18.
[10] 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 their needed preventative medication and scheduled vaccinations. Post vaccination testing is also conducted to ensure immunity. Due to the high Asian population in Gwinnett County, the PHBPP the GNR district is large as well. GNR has had the largest caseload of babies in the state of Georgia for the last five years and for babies born in 2014, there are 309 in Georgia's PHBPP with 27.2% (84) from the GNR district. Of the PHBPP babies born in the GNR district where mother's country of birth is known (81), 88.8% 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.

2014 GNR District PHBPP Births by Mother's Country of Birth

Vietnam	19	Korea	6	Guyana	1	Romania	1
China	16	Cambodia	3	Jamaica	1	Senegal	1
USA	9	Congo	2	Liberia	1	Taiwan	1
Nigeria	8	Ethiopia	2	Malaysia	1	Unknown	3
Ghana	7	Guinea	1	Pakistan	1	**Total**	**38**

Geographic Distribution of chronic hepatitis B virus (HBV) Infection-worldwide, 2006*[11]



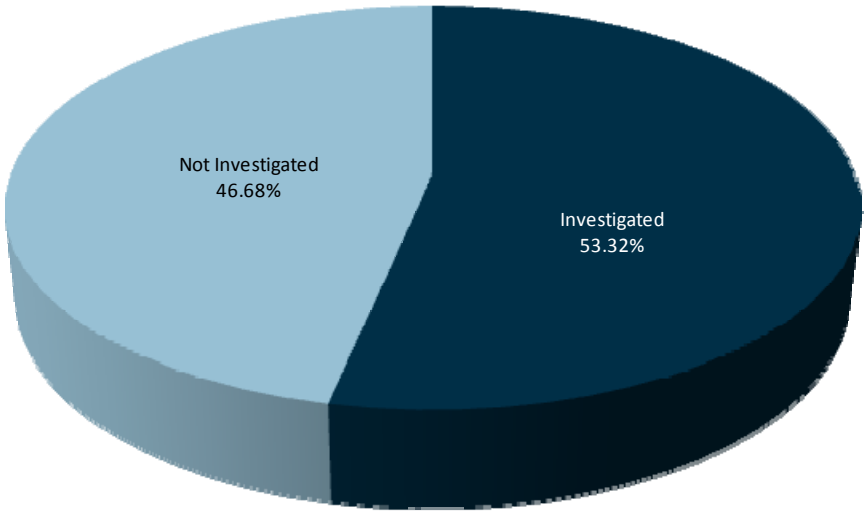
* For multiple countries, estimates of prevalence of hepatitis B surface antigen (HBsAg), a marker of chronic HBV infection, are based on limited data and might not reflect current prevalence in countries that have implemented childhood hepatitis B vaccination. In addition, HBsAg prevalence might vary within countries by subpopulation and locality.

[11] CDC. Travelers' health; yellow book. Atlanta, GA: US Department of Health and Human Services, CDC; 2008. Available at http://wwwn.cdc.gov/travel/yellowbookch4-HepB.aspx.

Notifiable Disease Summary

The Epidemiology and Community Health Division received a total of 5,955 reports of notifiable disease in 2014. Of these reports, a total of 53.32% of cases were investigated by program staff. There were also 403 STI investigations of contacts that are not reported in the below figure and table.

2014 Reported Cases by Investigation Status

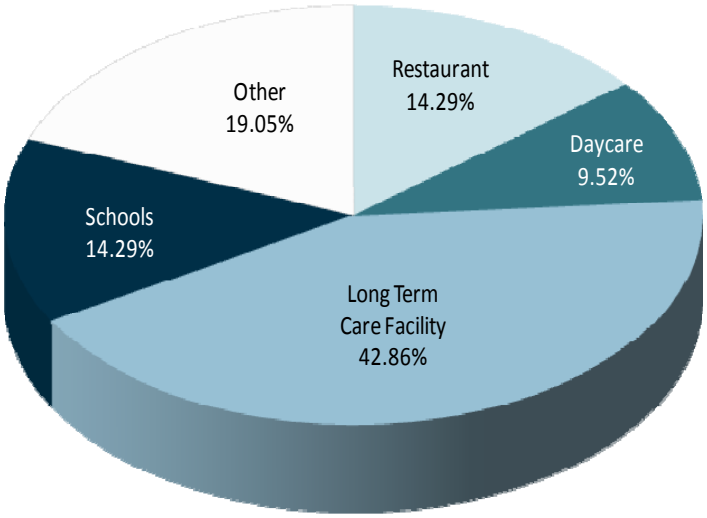


2014 Cases Reported Not Investigated

Reportable Disease	Number of cases	Percentage of Cases Reported
Campylobacteriosis > 30 days	4	0.07%
Chlamydia	1461	24.53%
Cryptospordiosis > 30 days	1	0.02%
Gonorrhea	378	6.35%
Giardiasis > 30 days	10	0.17%
Haemophilus Influenzae (Invasive)	10	0.17%
Hepatitis B from blood donor	9	0.15%
Hepatitis C from blood donor	16	0.27%
Lead Blood Level < 10	724	12.16%
Sallmonellosis > 30 days	5	0.08%
Shigellosis > 30 days	3	0.05%
Streptococcal Disease, Group A	30	0.50%
Streptococcal Disease, Group B	67	1.13%
S. pneumoniae (Invasive)	62	1.04%
Total	2,780	46.68%

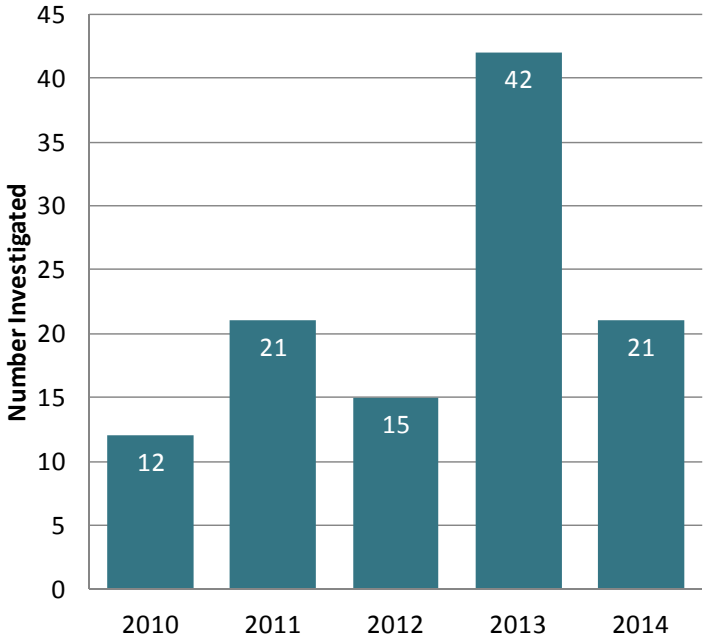
The number of notifiable disease case investigations did not include clusters or other non-notifiable disease investigations. Priority was given to investigation of 100% of reported outbreaks (N=21) of communicable diseases and diseases of interest not classified as notifiable and other activities of priority to the community. In 2014, norovirus was the predominate pathogen for illness causing 6 (28.57%) of the outbreaks investigated.

2014 Outbreak Investigations by Location (N=21)

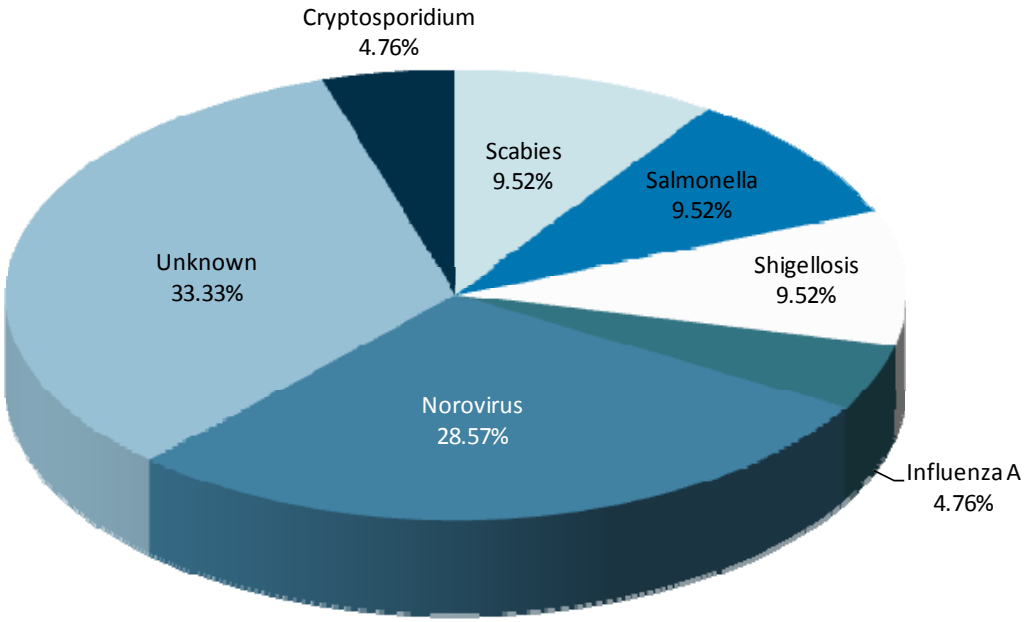


Other Includes: Church, Medical Provider, Mission Trip & Water Park

Outbreak Investigations 2010-2014



2014 Outbreak Investigations by Pathogen (N=21)



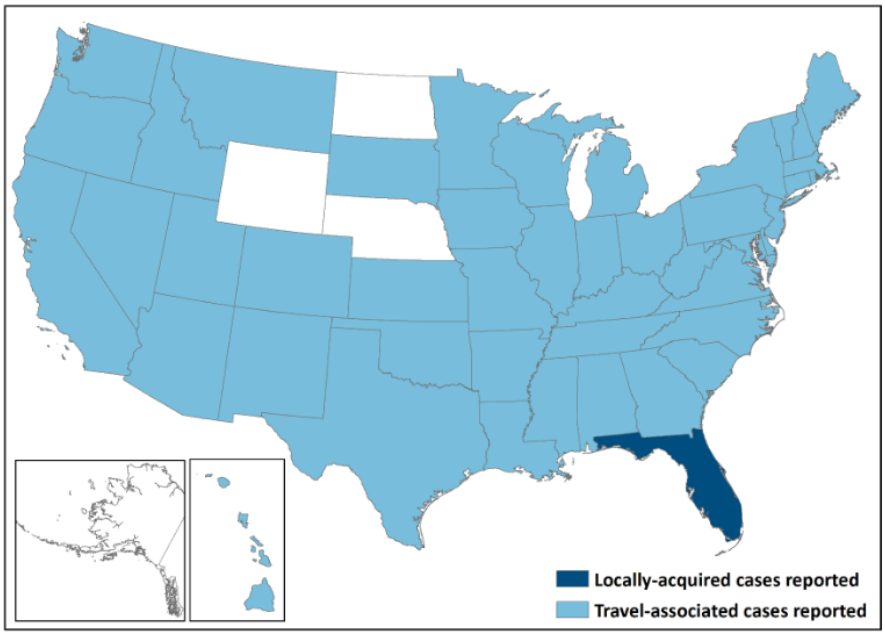
Emerging Pathogens

Chickungunya Fever

Chikungunya fever is cause by infection with the Chikungunya virus. It is spread from person-to-person or animal-to-person by infected mosquitoes. Chikungunya fever is primarily seen in Africa and Asia; it has emerged recently 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. 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 virus is present.

Epidemiology provided information to partners on February, 25 2014 and again on July 7, 2014 through an Emerging Infectious Disease Briefing. A total of 2,799 chikungunya virus cases were reported among US residents[12]. Eleven cases were transmitted locally in Florida; the remaining cases occurred in travelers returning from affected areas. Thirty six of the cases were Georgia residents with seven from the GNR district. The GNR cases traveled to Dominican Republic (2), Haiti (2), Jamaica (2) and Puerto Rico (1).

States reporting chikungunya virus disease cases – United States, 2014



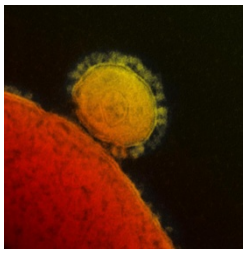
Mysterious Polio-like Illness among Children in California

Five cases of acute paralysis among children between August 2012 and July 2013 with a median age of 5. The cases are located sporadically throughout the state of California and additional potential cases are being investigated. California Department of Health (CA DPH) has not confirmed the number of additional potential cases. A physician speculated there may be as many as 20 but this number appears to vary in the media. The illness is characterized by paralysis occurring in one to all limbs within two days; and failure of limb function to return. Of the five cases, some experienced cold like symptoms prior to paralysis. Two cases tested positive for Enterovirus 68. Enterovirus 68 testing was not definitive for the other three. The two positive results may be incidental, and it may not be the cause. All cases were definitively negative for polio and all five had been vaccinated for polio.

Epidemiology provided information to partners on February, 25 2014 through an Emerging Infectious Disease Briefing.

[12] Chikungunya Virus 2014 Final Data for the United States. CDC: http://www.cdc.gov/chikungunya/geo/united-states-2014.html. Last updated August 5, 2015

Middle East Respiratory Syndrome (MERS)



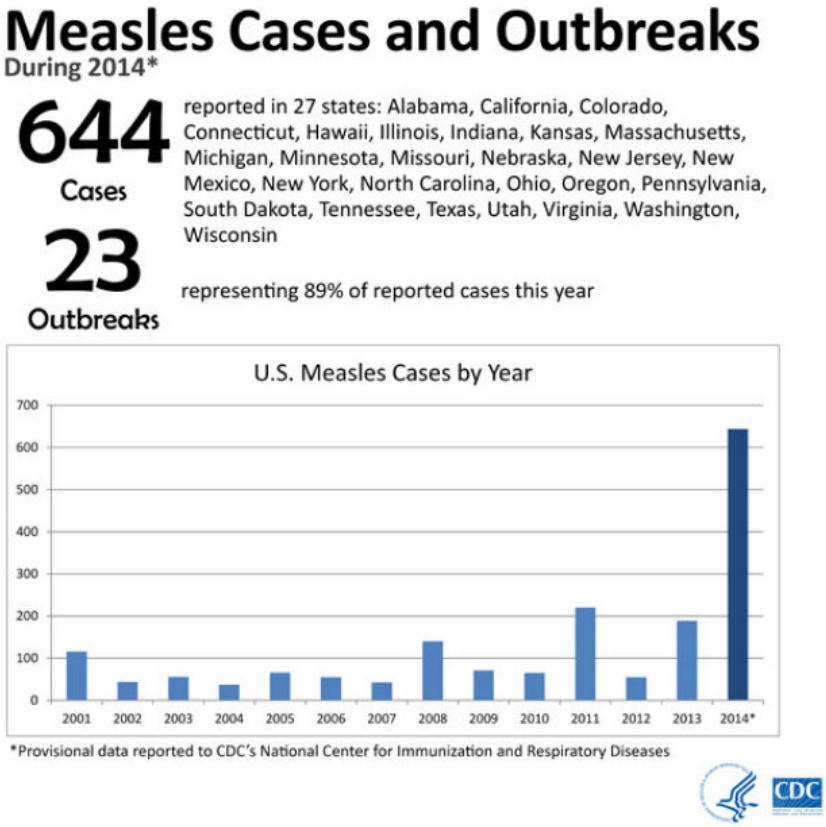
[13]MERS is caused by a coronavirus: MERS-CoV. It emerged in Jordan and Saudi Arabia in April of 2012. CDC has confirmed two cases of travel-associated MERS in the US. Both cases reside in Saudi Arabia and acquired the disease while abroad. They are both healthcare workers in Saudi Arabia. Camels are suspected to be the primary source of infection for humans. Although the case-fatality rate is high (27%), the efficiency of person-to-person transmission appears low. In one study, 554 household contacts were screened and only 7 (1.3%) tested positive. There is no evidence of sustained spread in communities. Healthcare workers caring for MERS cases appear to have the greatest risk for secondary infection.

Epidemiology provided information to partners on May 13, 2014 through an Emerging Infectious Disease Briefing.

Measles

Measles is caused by a virus, and is also known as rubeola. Measles causes respiratory illness with fever and rash. Symptoms may start with a moderate fever followed by a rash that typically spreads from the hairline down the neck, trunk, and extremities. Complications include pneumonia, encephalitis, miscarriage, and death. Measles is highly contagious. Measles is preventable with vaccination. Anyone who is not protected against the disease is at risk. US case counts have reached a 20-year high. Nearly all of the cases have been associated with international travel or contact with international travelers by unvaccinated people. A very large outbreak resulting in 110 cases was linked to a large California theme park in 2014, the outbreak started in December 2014 and lasted through February 2015.

Epidemiology provided information to partners on June 3, 2014 through an Emerging Infectious Disease Briefing.



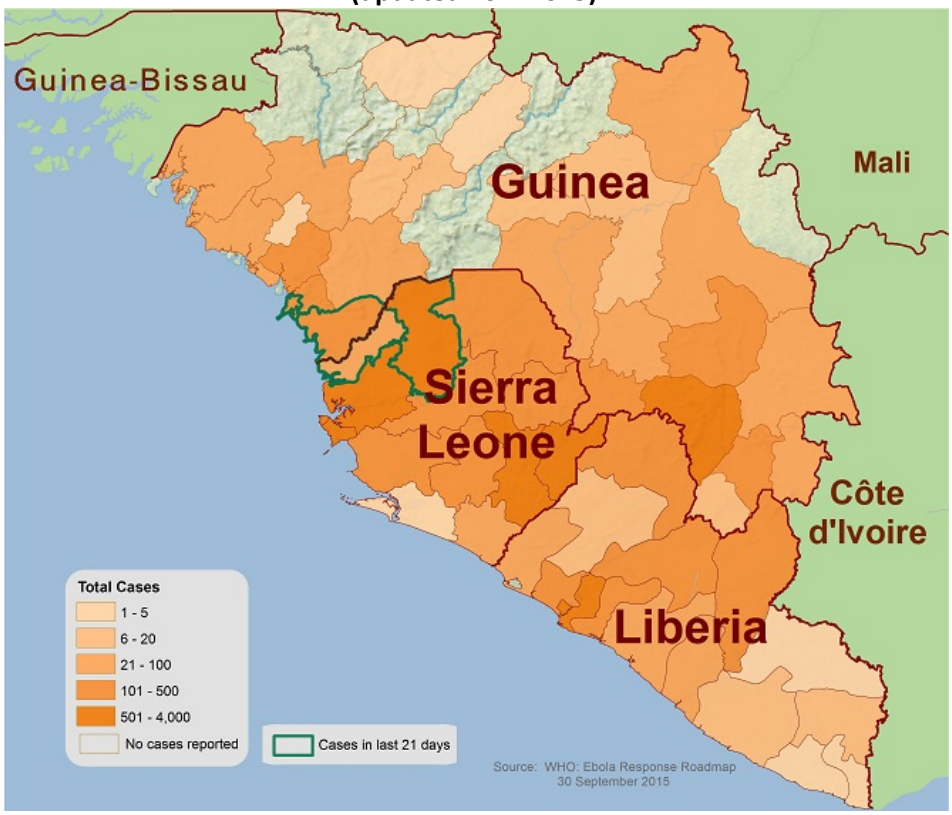
[13] National Institute of Allergy and Infectious Diseases (NIAID)

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 contact with objects contaminated by blood or body fluids. There is no licensed EVD vaccine. A large outbreak in West Africa began in March in Guinea and has continued to spread to other countries in west Africa. This is the largest outbreak in documented history. Total cases as of this report date includes 28,617 cases, 15,246 laboratory confirmed cases and 11,314 deaths[14].

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 with internal staff collaborated and external partners to develop, implement and updated patient screening algorithm.

2014 Ebola Outbreak in West Africa – Outbreak Distribution Map
(updated 10.1.2015)



[14] 2014 Ebola Outbreak in West Africa – Case Counts. CDC: http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html. Updated: November 5, 2015.

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. The program has associates working two different one year assignments. GNR was fortunate to be chosen as a host site both in 2012 and 2013. At GNR our associates have worked their first year in Tuberculosis Control and their second year in the Communicable Disease Unit. GNR is hosting two 2015 associates working in two year assignments in both Tuberculosis Control and Communicable Disease. The associates GNR has received thus far have been great addition to our staff and provided much needed assistance in areas of low staffing and high need. Our 2012 associate is attending graduate school at the University Of Georgia School Of Public Health. Our 2013 associate will be heading to New York to work with Tuberculosis Control at a local health department after completion of an Ebola assignment in Liberia. The associate that started working with us in 2014 left the assignment early to pursue other opportunities at CDC.

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.

Public Health Accreditation Board (PHAB)

GNR Health District is in the process of applying for national accreditation through the Public Health Acceditation Board (PHAB). 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.

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)

Gwinnett, Newton, & Rockdale County Health Departments
Phone: (770) 339-4260
Fax: (770) 339-5971

- 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#
- 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 Division 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)

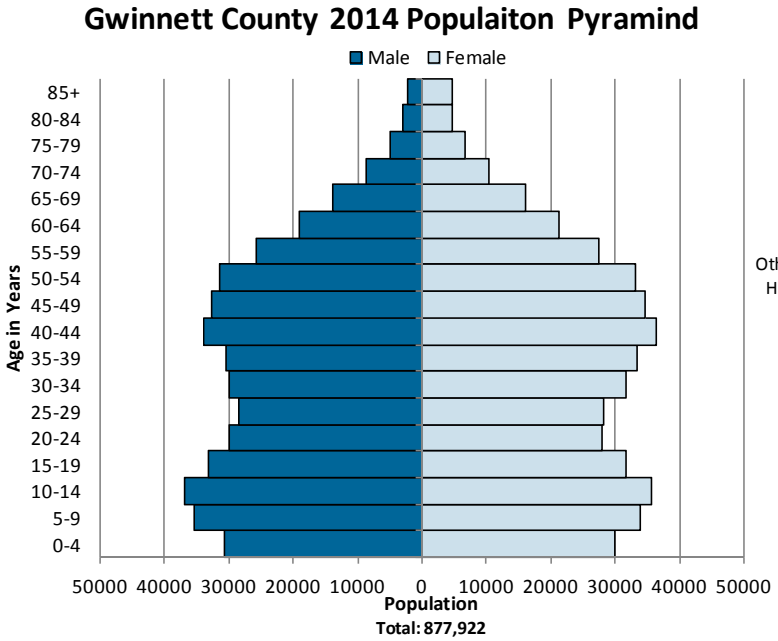
Report forms and reporting information for **birth defects and maternal deaths** available at http://health.state.ga.us/epi/mch/publications.asp

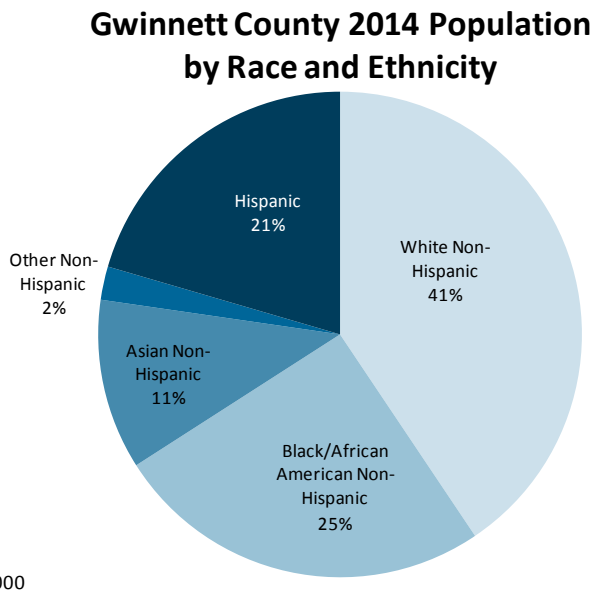
REPORT WITHIN 6 MONTHS

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

Gwinnett County Population at a Glance





Top 10 Causes of Hospitalizations in Gwinnett County for 2013 by Age-Adjusted Deduplicated Hospital Discharge Rate

Total: 48,451

(per 100,000 population)

1	Bone & Muscle Diseases	404.4
2	Blood Poisoning	220.2
3	Obstructive Heart Disease (Heart Attack)	207.2
4	Falls	199.3
5	Pneumonia	178.0
6	Stroke	153.6
7	Kidney Diseases	103.4
8	Bronchitis	90.0
9	Asthma	87.3
10	Diabetes	82.4

Select Population Based Statistics:

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

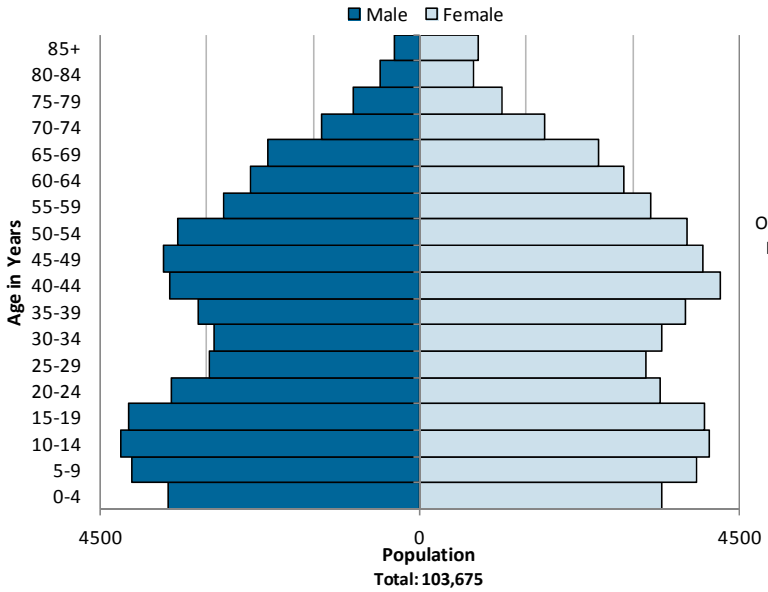
2014 Birth Rate: 39.0 per 1,000 females

2013 Infant Mortality Rate: 5.4 per 1,000 births

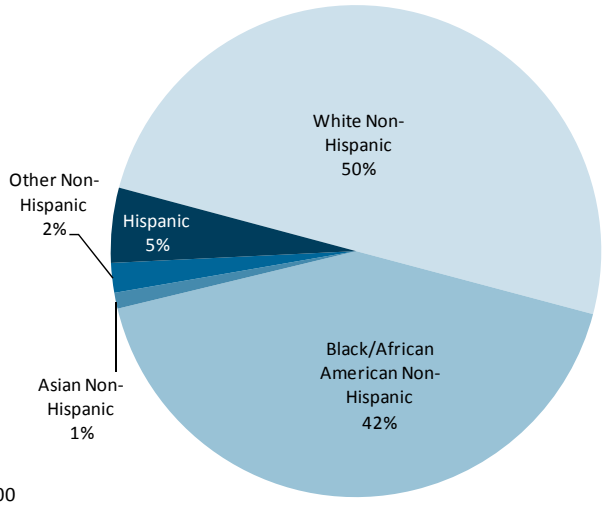
Source: www.oasis.state.ga.us

Newton County Population at a Glance

Newton County 2014 Populaiton Pyramind



Newton County 2014 Population by Race and Ethnicity



Top 10 Causes of Hospitalizations in Newton County for 2013 by Age-Adjusted Deduplicated Hospital Discharge Rate

Total: 8,129

(per 100,000 population)

1	Bone & Muscle Diseases	486.3
2	Pneumonia	278.2
3	Kidney Diseases	276.0
4	Obstructive Heart Disease (Heart Attack)	267.0
5	Stroke	230.4
6	Falls	203.4
7	Bronchitis	180.0
8	Blood Poisoning	161.1
9	Diabetes	126.3
10	Motor Vehicle Crashes	87.1

Select Population Based Statistics:

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

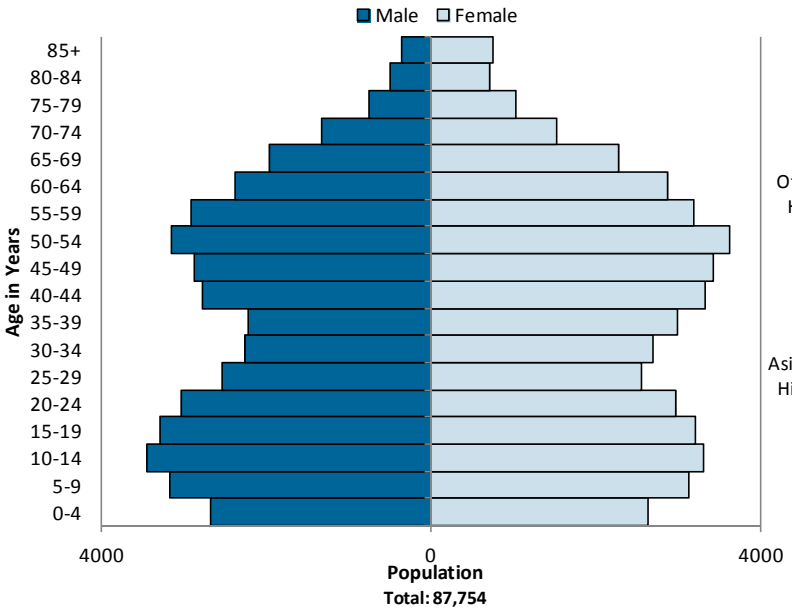
2014 Birth Rate: 37.4 per 1,000 females

2013 Infant Mortality Rate: 9.5 per 1,000 births

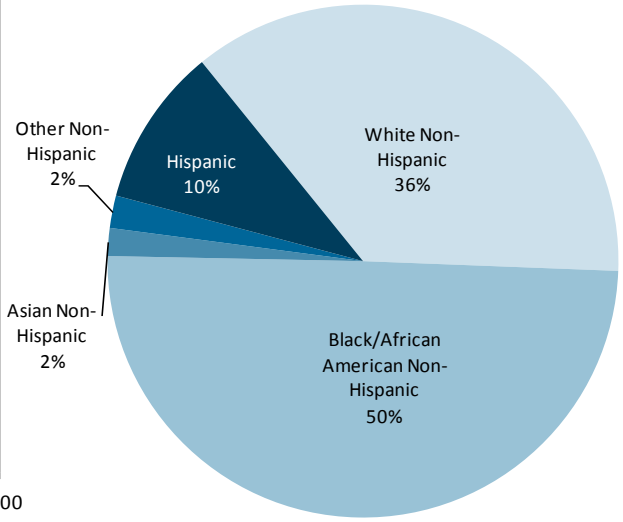
Source: www.oasis.state.ga.us

Rockdale County Population at a Glance

Rockdale County 2014 Populaiton Pyramind



Rockdale County 2014 Population by Race and Ethnicity



Top 10 Causes of Hospitalizations in Rockdale County for 2013 by Age-Adjusted Deduplicated Hospital Discharge Rate

Total: 6,880
(per 100,000 population)

1	Bone & Muscle Diseases	507.7
2	Kidney Disease	292.7
3	Pneumonia	230.0
4	Falls	214.9
5	Obstructive Heart Disease (Heart Attack)	211.8
6	Stroke	183.7
7	Bronchitis	167.3
8	Blood Poisoning	184.5
9	Diabetes	137.7
10	Asthma	99.6

Select Population Based Statistics:

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

2014 Birth Rate: 34.2 per 1,000 females

2013 Infant Mortality Rate: 19.4 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