Georgia Department of Public Health

2017 GEORGIA TUBERCULOSIS REPORT

2017 Georgia Tuberculosis Data Report

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Table of Contents

Executive Summary

In 2017, a total of 293 new tuberculosis (TB) cases were reported in Georgia, representing a 3% decrease from 2016. The 2017 TB incidence (new cases) of 2.8 cases per 100,000 persons represents a slight decrease from 2.9 cases per 100,000 persons in 2016.

In 2017, TB incidence by Health District ranged from 0.7 cases per 100,000 persons in District 1-1 (Rome) to 8.8 cases per 100,000 persons in District 3-5 (DeKalb). Six Health Districts (Districts 3-2, 3-3, 3-4, 3-5, 7, and 8-2) reported a TB incidence higher than the overall state incidence. Three counties (DeKalb, Fulton, and Gwinnett) reported >40 TB cases each in 2017, accounting for 51% of reported cases statewide.

Among the 293 TB cases reported in Georgia in 2017, foreign-born persons accounted for 155 cases (53%); 138 cases (47%) occurred among U.S.-born persons (Figure 10). The top four countries of origin for foreign-born persons reported with TB disease in Georgia in 2017 were India, Mexico, Ethiopia, and Vietnam (Figure 11). TB cases among persons born in these four countries accounted for 48% of all cases among foreign-born persons.

HIV status was reported for 96% of Georgia TB cases in 2017; among these patients, 8% were HIV-positive (Figure 12). Persons living in congregate settings are at high risk for TB exposure. In 2017, 16 (5%) of Georgia's total TB cases were homeless in the year before diagnosis, 9 (3%) were correctional facility inmates at the time of diagnosis, and 2 (<1%) were long-term care facility residents (Figure 13).

In 2017, three cases of multidrug-resistant TB (MDR-TB or TB resistant to at least isoniazid and rifampin) infections were documented in Georgia. None of the MDR-TB cases had a previous episode of TB; one case was born in a country with a high burden of TB.

The latest year with completed TB contact investigation data was in 2016. Among 3,584 identified contacts of TB cases reported in 2016 in Georgia, 2,778 (78%) completed a medical evaluation for TB. Among 489 contacts diagnosed with latent TB infection (LTBI), 340 (70%) started LTBI treatment and of those, 270 (76%) completed LTBI treatment.

Although TB incidence is decreasing in Georgia, epidemiologic modeling by the U.S. Centers for Disease Control and Prevention (CDC) projects that the goal of TB elimination will not be attained in this century with the current rates of decline. Current program strategies such as early identification of TB cases, completion of TB treatment by directly observed therapy, and contact investigation should be maintained; but newer strategies such as targeted TB testing among high-risk individuals, i.e. persons born in countries with a high prevalence of TB and persons who live or work in high-risk congregate settings, and treating LTBI should be implemented to accelerate progress toward TB elimination.

Tuberculosis (TB) Surveillance in Georgia

TB is a reportable disease in Georgia. All Georgia physicians, laboratories, and other health care providers are required by law to immediately report clinical and laboratory- confirmed TB cases under their care to Georgia public health authorities. TB cases may be directly reported to a County Health Department, a District Health Office, or to the State TB Program and TB Epidemiology Section of the Georgia Department of Public Health (GDPH), which is responsible for the systematic collection of all reported TB cases in the state. Immediate reporting of TB cases enables public health staff to follow up with patients, administer directly observed therapy (DOT), monitor TB treatment until completion, evaluate and screen individuals exposed to a TB case, and control TB outbreaks.

TB cases in Georgia can be reported electronically through the State Electronic Notifiable Disease Surveillance System (SendSS), a secure web-based surveillance software developed by GDPH, or by calling, mailing, or faxing a report to public health authorities. Hospital infection control personnel, as well as public health nurses, outreach staff, epidemiologists, and communicable disease specialists involved in disease surveillance are encouraged to report TB through SendSS and register to become a SendSS user by logging into the system's Web site at: https://sendss.state.ga.us then selecting TB from the list of reportable diseases.

Public health authorities collect data about reported TB cases including demographic, clinical, risk factor, and contact information, which are analyzed to describe the distribution of the disease among Georgia's population, identify high risk groups and TB clusters, describe trends in morbidity, mortality, drug resistance patterns, treatment outcomes, and infection rates among contacts to TB cases. The data are used at state and local levels to guide policy and decision making, set priorities for program interventions, evaluate program performance for the prevention and control of TB in Georgia, and educate key stakeholders and the general public on TB. Georgia's TB surveillance data are transmitted electronically to the U.S. Centers for Disease Control and Prevention (CDC) and become part of the national TB surveillance database.

TB Case Definitions for Public Health Surveillance

GDPH utilizes the 2009 Council of State and Territorial Epidemiologists (CSTE) case definition for tuberculosis (Position Statement 09-ID-65) that can be accessed at: https://wwwn.cdc.gov/nndss/conditions/tuberculosis/case-definition/2009/.

Clinical case definition
A case that meets all of the following criteria:

- A positive tuberculin skin test or positive interferon gamma release assay for *M. tuberculosis*
- Signs and symptoms compatible with TB (abnormal chest imaging study or clinical evidence of current disease)
- Treatment with two or more anti-TB medications
- A completed diagnostic evaluation

Laboratory criteria for diagnosis

- Isolation of *M. tuberculosis* complex on a culture from a clinical specimen, or
- Demonstration of *M. tuberculosis* complex from a clinical specimen by nucleic acid amplification test

Confirmed case: A case that meets the clinical case definition or is laboratory confirmed

Current Epidemiology of Tuberculosis in Georgia

Georgia reported 293 new tuberculosis (TB) cases in 2017. This rate represents a 3% decrease from the 301 TB cases reported in 2016. TB case numbers in Georgia have decreased 68% since 1991 when the peak of a resurgent period of tuberculosis occurred (Figure 1). The TB case rate in Georgia decreased from 2.9 cases per 100,000 persons during 2016 to 2.8 cases per 100,000 in 2017, which is equal to the 2017 U.S. case rate (Figure 2). According to the CDC, during 2017, Georgia ranked sixth in the United States for the number of new TB cases and ranked 12th for the TB case rate (per 100,000 population) among the 50 reporting states.

Geographic Distribution

Among the 159 counties in Georgia, four counties in the metropolitan Atlanta area reported the highest number of TB cases in 2017: DeKalb (66 cases), Fulton (42), Gwinnett (42), and Cobb (18) (Table 1). These four counties accounted for 57% of all TB cases reported in Georgia in 2017.

Among Georgia's 18 Health Districts, which have oversight responsibility for public health in the state's 159 counties, the DeKalb Health District had the highest TB case rate in 2017 (8.8 per 100,000), followed by the Albany District (4.9 per 100,000) and the Columbus District (4.4 per 100,000) (Table 2).

Sex and Age Distribution

In 2017, TB cases in Georgia occurred predominantly among males (200 cases, 68%), compared to females (93 cases, 32%). The highest proportion of TB cases by age group occurred among persons 25-44 years old (102 cases, 35%). Among the 25-44 age group, (67 cases, 66%) were male and (35 cases, 34%) were female (Figure 5). This age group, along with the 65+ age group, has the highest TB case rate (3.6 per 100,000), while the lowest rate was among children 5-14 years old (0.6 per 100,000) (Figure 6). The TB case rate for children younger than 5 years of age, a group more likely to develop life-threatening forms of TB disease, increased from 1.4 per 100,000 in 2016 to 2.0 per 100,000 in Georgia in 2017. Young children are more likely than older children and adults to have TB spread through their bloodstream and cause complications and deadlier forms of TB, such as TB meningitis or disseminated TB.

Race/Ethnicity Distribution and TB Disparities

TB disproportionately affects racial/ethnic minorities in Georgia. In 2017, non-Hispanic Blacks, Asians and Hispanics accounted for 52%, 25%, and 14% of TB cases in Georgia, respectively, but

only represented 31%, 4%, and 10% of Georgia's population, respectively (Figure 7). Non-Hispanic whites constituted 9% of TB cases in 2017. The highest TB case rate among race/ethnic groups was among non-Hispanic Asians (16.7 per 100,000), followed by non-Hispanic blacks (4.7 per 100,000) and Hispanics (4.1 per 100,000) (Figure 8). The black non-Hispanic TB case rate in 2017 represents an 85% decrease from the TB case rate in 1993 (30.6 per 100,000) in this population. The black non-Hispanic TB case rate, however, was still more than nine times higher than the white non-Hispanic TB case rate (0.5 per 100,000) in Georgia during 2017 (Figure 9).

High-Risk Populations

Foreign-Born Persons

TB infections among persons born outside of the United States accounted for 53% of TB cases in Georgia in 2017. Most foreign-born cases reported in 2017 came from India (16%), Mexico (15%), and Ethiopia (10%) - countries where TB is an endemic disease (Figures 10-11). Among 155 foreign-born cases in 2017, 63 (41%) were diagnosed in the first five years of their arrival in the U.S. This represents an increase from 51 (36%) of foreign-born cases being diagnosed within first five years in 2016.

In 2017, four Health Districts reported 70% of the total number of foreign-born TB cases in Georgia: DeKalb (51 cases), Gwinnett (28), Cobb (14) and Fulton (16). Among these Health Districts, foreign-born TB cases accounted for more than half of the TB cases in Gwinnett (67%), Cobb (78%) and DeKalb (77%). Foreign-born TB cases in the Fulton Health District accounted for 38% of their reported TB cases.

Persons with HIV Co-Infection

All TB patients need to be tested for HIV infection because TB treatment may change when antiretroviral therapy for HIV is given, and active TB often accelerates the natural progression of HIV infection. In 2017 in Georgia, among 277 TB cases with known HIV status, 8% were HIV-positive, compared to 11% in 2016 (Figure 12). Among the 23 TB cases with HIV co-infection in 2017, 78% were non-Hispanic blacks, 57% were male, and 52% were 45-64 years old.

HIV status was reported for 96% of TB cases in 2017. In the high-risk age group of adults 25-44 years of age, the percentage of TB cases for which HIV was reported was 98% in 2017, compared to 94% in 2016. Among 13 TB cases whose HIV status was not reported, HIV testing was not offered to 10 cases (77%) (two were children, and two were dead at diagnosis), the HIV test result was unknown in two cases (15%), and one (8%) refused testing. The proportion by age group among the TB cases that were not offered the HIV test was highest among adults 65 years and older (5 cases, 50%).

Persons in Congregate Settings and Persons with Substance Abuse

Persons residing in crowded congregate settings such as homeless shelters, prisons, and nursing homes are at risk for acquiring TB. In 2017, 16 (5%) TB cases in Georgia were homeless, 9 (3%) were residents of correctional facilities, and 2 (<1%) were residents of long-term care facilities.

Of the 9 TB cases incarcerated in correctional facilities, five (44%) were inmates in county jails, and four were inmates of the U.S. Immigration and Customs Enforcement (ICE) facilities.

Substance abuse is the most commonly reported behavioral risk factor among patients with TB in the United States. TB patients who abuse substances often experience treatment failure and remain infectious longer because treatment failure presumably extends periods of infectiousness. In Georgia, abuse of either illicit drugs or alcohol was reported among
56 (19%) of TB cases in 2017 (Table 3, Figure 13).

TB Infections in Children

TB in children is considered a sentinel public health event because it often indicates recent transmission from an infectious adult case. Additionally, potentially lethal forms of TB, such as TB meningitis or disseminated TB, can develop in very young children. In 2017, children younger than 15 years old comprised 8% of Georgia TB cases; 13 cases (2.0 per 100,000) were reported in children younger than 5 years old, 9 cases (0.6 per 100,000) were reported in children 5-14 years old. There were no cases of TB meningitis among children younger than 15 years old in 2017 in Georgia.

Latent tuberculosis infection (LTBI) is a state of infection by the TB bacteria without evidence of clinically manifested active TB. LTBI in children younger than five years old is also a reportable disease in Georgia. When LTBI in a child less than five years of age is reported, public health personnel will initiate contact investigations to identify the source of the infection, recommend treatment for latent TB infection, follow up with the child to ensure completion of treatment and monitor for development of active TB disease. Early identification of TB infection and treatment in children can prevent progression to active disease and identify a previously undiagnosed and untreated case of active TB.

In 2017, 14 children younger than five years old were reported to have LTBI in Georgia; 1 (7%) was identified by TB screening by a non-public health provider and 13 (93%) were identified by contact investigations performed by county health department staff.

TB Drug Resistance

Among 141 culture-positive TB cases in Georgia during 2017, 100% were tested for initial drug susceptibility to the three first-line anti-TB medications: isoniazid (INH), rifampin (RIF), and ethambutol (EMB). Of 162 tested isolates from Georgia cases with no previous history of TB, 13 (8%) had primary resistance to INH, three (2%) to RIF, and one to EMB (<1%) (Table 4). There were three reported cases of multidrug-resistant TB (MDR-TB, i.e. TB resistant to at least INH and RIF) in 2017, as in 2016. The percentage of TB cases with primary INH resistance (INH-R) in Georgia ranged from 7% to 20% in the past five years, while an average of two MDR-TB cases per year was reported in Georgia over that same period (Figure 14).

Indicators of TB Infectiousness: Pulmonary TB

Persons with pulmonary or laryngeal TB have a greater potential to infect others with TB, and infectiousness is higher if their sputum smears are positive for acid-fast bacilli (AFB), sputum cultures are positive for *Mycobacterium tuberculosis*, or cavitary lesions are present on chest radiography. In 2017, 78% of all Georgia TB cases had pulmonary TB. Of the pulmonary TB cases, 60% had sputum cultures that were positive for *Mycobacterium tuberculosis*, 44% were sputum AFB smear-positive, and 24% showed cavitary lesions on chest radiography.

TB Initial Diagnosis, Healthcare Settings, and Directly Observed Therapy

In Georgia, the majority of TB cases are initially diagnosed in a hospital or clinic and are followed up by county health departments after discharge to continue their TB treatment. In 2017, 157 (54%) of the 293 TB cases in Georgia were diagnosed (and reported) initially by a hospital or clinic. Seven hospitals in Georgia reported five or more TB cases in 2017.

Among TB cases with available data on type of outpatient healthcare provider, county health departments provided case management for 87% of all Georgia TB cases; 7% of cases were treated by health department and private physician, 5% of cases were cared for solely by a private physician and managed solely as in-patients, and 1% were treated at correctional facilities. County health department staff provides directly observed therapy (DOT) to TB patients, which entails watching a patient swallow every dose of their TB treatment medications for at least 6 months. Among 277 Georgia TB cases reported in 2017 with available case completion data, 88% received TB treatment entirely by DOT and 8% were treated by a combination of DOT and self-administered therapy.

TB Mortality

Twelve persons died of TB in Georgia in 2017, where the age-adjusted TB mortality rate in 2017 was 0.1 per 100,000. From 2013 to 2017, a mean of 12 people died of TB in Georgia each year. Within these years, the highest number of deaths from TB was reported in 2016 with 18 deaths.

TB Treatment Outcomes

Among 267 TB cases in Georgia who started treatment for TB in 2016, (the most recent year with completed treatment outcome data), 250 (94%) completed treatment (Table 5). Ten patients (4%) were lost to follow-up, 2 had an adverse event (1%), and 5 cases (2%) had other or unknown treatment outcomes as of this report. Eligible TB patients exclude patients who died within one year of initiating treatment or who left the U.S. while on TB treatment.

TB Contact Investigations and Latent TB Infection

Public health authorities routinely conduct contact investigations among persons exposed to a TB case to identify any secondary TB cases and contacts with latent TB infection (LTBI). Index TB cases (first case identified in an investigation) with positive acid-fast bacillus (AFB) sputum-smear

results or pulmonary cavities have the highest priority for investigation. During a contact investigation, public health staff conduct in-person interviews and ask recent contacts to a TB case whether they have TB-like symptoms, administer a TB skin test (TST) or interferon gamma release assay (IGRA), repeat the TST or IGRA 8-10 weeks after the last exposure to the index case if the initial TST or IGRA is negative, and have a chest radiology exam performed if the TST or IGRA is positive. Persons with LTBI have a positive TST or IGRA, but are asymptomatic and have a normal chest radiology exam. They are not contagious but have a 10% chance of developing TB disease if they do not receive treatment for LTBI.

Among 3,584 identified contacts of Georgia TB cases reported in 2016 (the latest year with completed contact investigation data), 2,778 (78%) were completely evaluated for TB. Of the completely evaluated contacts, 489 (18%) had LTBI and 33 (1%) had TB disease. Among the 489 contacts with LTBI, 340 (70%) started LTBI treatment and of those, 260 (76%) completed LTBI treatment, 28 (8%) chose to stop LTBI treatment on their own, 19 (6%) were lost to follow-up, 7 (2%) had adverse side effects, 10 (3%) moved elsewhere, and 10 (3%) discontinued treatment due to a provider's decision. In 2019, efforts will be made to improve data quality about contact elicitation, examination, and LTBI treatment completion.

Currently, LTBI is not a reportable disease in Georgia but is expected to be declared so in the coming year.

TB Genotyping

TB genotyping is a laboratory method that determines the genetic relatedness of TB strains among different patients with culture-positive TB disease. Identical genotypes among persons with TB disease suggest recent person-to-person transmission. The state TB program routinely analyzes TB genotype clusters, which are comprised of two or more TB cases with identical genotypes, to identify recent TB transmission, to describe risk factors for transmission, to identify possible sources of transmission, and to determine ways to stop transmission.

From 2013-2017, 87 small (2-3 TB cases), 26 medium (4-9 cases), and seven large (≥ 10 cases) TB genotype clusters were identified in Georgia. Figure 17 displays the proportion of small, medium, and large TB genotype clusters per year from 2013-2017. Table 6 summarizes the distribution of selected medium TB genotype clusters and large TB genotype clusters across several counties in Georgia in 2017. TB cases associated with these clusters were predominantly reported from DeKalb, Fulton, and Gwinnett Counties.

Table 1. Number of TB Cases and TB Case Rates per 100,000 population by County, Georgia, 2016-2017.

COUNTY	2016		2017	
	Cases	Rate	Cases	Rate
Appling	0	0	< 5	--
Atkinson	0	0	0	0
Bacon	0	0	0	0
Baker	0	0	0	0
Baldwin	0	0	0	0
Banks	0	0	0	0
Barrow	< 5	--	< 5	--
Bartow	< 5	--	< 5	--
Ben Hill	0	0	0	0
Berrien	< 5	--	0	0
Bibb	7	4.6	< 5	--
Bleckley	0	0	0	0
Brantley	0	0	0	0
Brooks	< 5	--	0	0
Bryan	0	0	< 5	--
Bulloch	0	0	< 5	--
Burke	0	0	0	0
Butts	< 5	--	0	0
Calhoun	0	0	0	0
Camden	0	0	< 5	--
Candler	0	0	0	0
Carroll	0	0	< 5	--
Catoosa	< 5	--	0	0
Charlton	0	0	0	0
Chatham	7	2.4	< 5	--
Chattahoochee	0	0	0	0
Chattooga	0	0	0	0
Cherokee	0	0	< 5	--
Clarke	< 5	--	< 5	--
Clay	< 5	--	< 5	--
Clayton	12	4.3	9	3.2
Clinch	0	0	0	0
Cobb	24	3.2	15	2.0
Coffee	0	0	0	0
Colquitt	< 5	--	0	0
Columbia*	< 5	--	< 5	--
Augusta State Medical Prison	0	0	< 5	--
Cook	0	0	0	0
Coweta	< 5	--	< 5	--
Crawford	0	0	0	0
Crisp	0	0	< 5	--

COUNTY	2016		2017	
	Cases	Rate	Cases	Rate
Dade	0	0	0	0
Dawson	0	0	0	0
Decatur	< 5	--	< 5	--
DeKalb	58	7.8	66	8.8
Dodge	0	0	0	0
Dooly	0	0	< 5	--
Dougherty	5	5.6	< 5	--
Douglas	5	3.5	< 5	--
Early	0	0	0	0
Echols	0	0	0	0
Effingham	< 5	--	< 5	--
Elbert	0	0	0	0
Emanuel	< 5	--	0	0
Evans	0	0	0	0
Fannin	< 5	--	0	0
Fayette	< 5	--	< 5	--
Floyd	< 5	--	< 5	--
Forsyth	< 5	--	6	2.6
Franklin	< 5	--	0	0
Fulton	44	4.3	42	4.0
Gilmer	0	0	0	0
Glascock	0	0	0	0
Glynn	< 5	--	< 5	--
Gordon	0	0	0	0
Grady	< 5	--	< 5	--
Greene	0	0	0	0
Gwinnett	33	3.6	39	4.2
Habersham	0	0	0	0
Hall	< 5	--	7	3.5
Hancock	0	0	0	0
Haralson	0	0	0	0
Harris	0	0	0	0
Hart	< 5	--	< 5	--
Heard	0	0	0	0
Henry	< 5	--	< 5	--
Houston	< 5	--	< 5	--
Irwin* Irwin County Detention Center	0 < 5	0 --	0 < 5	0 --
Jackson	0	0	0	0
Jasper	0	0	0	0
Jeff Davis	0	0	< 5	--
Jefferson	5	31.4	< 5	--
Jenkins	0	0	0	0
Johnson	0	0	0	0

COUNTY	2016		2017	
	Cases	Rate	Cases	Rate
Jones	0	0	0	0
Lamar	< 5	--	< 5	--
Lanier	0	0	0	0
Laurens	0	0	< 5	--
Lee	0	0	0	0
Liberty	0	0	< 5	--
Lincoln	0	0	0	0
Long	0	0	0	0
Lowndes	< 5	--	< 5	--
Lumpkin	0	0	0	0
Macon	< 5	--	< 5	--
Madison	0	0	0	0
Marion	0	0	< 5	--
McDuffie	0	0	0	0
McIntosh	0	0	0	0
Meriwether	0	0	0	0
Miller	0	0	< 5	--
Mitchell	0	0	6	26.9
Monroe	0	0	0	0
Montgomery	0	0	0	0
Morgan	0	0	0	0
Murray	0	0	0	0
Muscogee	11	5.6	6	3.1
Newton	< 5	--	< 5	--
Oconee	0	0	< 5	--
Oglethorpe	0	0	0	0
Paulding	< 5	--	< 5	--
Peach	0	0	< 5	--
Pickens	0	0	0	0
Pierce	< 5	--	< 5	--
Pike	0	0	0	0
Polk	0	0	0	0
Pulaski	0	0	0	0
Putnam	0	0	0	0
Quitman	0	0	< 5	--
Rabun	0	0	0	0
Randolph	0	0	0	0
Richmond	8	4.0	7	3.5
Rockdale	< 5	--	< 5	--
Schley	0	0	0	0
Screven	< 5	--	0	0
Seminole	0	0	< 5	--
Spalding	< 5	--	< 5	--

COUNTY	2016		2017	
	Cases	Rate	Cases	Rate
Stephens	0	0	< 5	--
Stewart*	0	0	0	0
Stewart Detention Center	0	0	< 5	--
Sumter	< 5	--	< 5	--
Talbot	< 5	--	0	0
Taliaferro	0	0	0	0
Tattnall	< 5	--	0	0
Taylor	0	0	0	0
Telfair	0	0	0	0
Terrell	< 5	--	< 5	--
Thomas	0	0	< 5	--
Tift	< 5	--	0	0
Toombs	0	0	0	0
Towns	0	0	0	0
Treutlen	0	0	0	0
Troup	< 5	--	< 5	--
Turner	0	0	< 5	--
Twiggs	0	0	0	0
Union	0	0	0	0
Upson	0	0	< 5	--
Walker	0	0	0	0
Walton	< 5	--	0	0
Ware	0	0	0	0
Warren	0	0	0	0
Washington	0	0	0	0
Wayne	< 5	--	0	0
Webster	0	0	0	0
Wheeler	< 5	--	0	0
White	0	0	0	0
Whitfield	< 5	--	< 5	--
Wilcox	0	0	0	0
Wilkes	0	0	0	0
Wilkinson	0	0	0	0
Worth	0	0	0	0
GEORGIA	**301**	**2.9**	**293**	**2.8**

*Reported cases and calculated case rates in these counties exclude cases from corresponding prisons and detentions centers

Note: In counties where one to four cases were reported, "< 5" is used to represent the number of reported cases, and the case rate is not calculated.

Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

Table 2. Number of TB Cases and TB Case Rates per 100,000 population by Health District, Georgia, 2016 – 2017.

Health District	2016		2017	
	Cases	Rate	Cases	Rate
1.1 Rome	5	0.8	5	0.7
1.2 Dalton	5	1.1	5	1.0
2.0 Gainesville	9	1.3	16	2.3
3.1 Cobb	29	3.3	18	2.0
3.2 Fulton	44	4.3	42	4.0
3.3 Clayton	12	4.3	9	3.2
3.4 Lawrenceville	37	3.4	42	3.8
3.5 DeKalb	58	7.8	66	8.8
4.0 LaGrange	13	1.5	11	1.3
5.1 Dublin	< 5	--	< 5	--
5.2 Macon	9	1.7	5	0.9
6.0 Augusta*	18	3.7	11	2.3
Augusta State Medical Prison	0	0	< 5	--
7.0 Columbus*	17	4.6	16	4.4
Stewart Detention Center	0	0	< 5	--
8.1 Valdosta*	7	2.7	< 5	--
Irwin County Detention Center	< 5	--	< 5	--
8.2 Albany	13	3.7	17	4.9
9.1 Coastal	10	1.6	11	1.8
9.2 Waycross	5	1.4	5	1.4
10.0 Athens	8	1.6	< 5	--
Total	**301**	**2.9**	**293**	**2.8**

*Reported cases and calculated case rates in these health districts exclude cases from corresponding prisons and detentions centers

Note: In districts where one to four cases were reported, "< 5" is used to represent the number of reported cases, and the case rate is not calculated.

Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

Table 3. Percentage of TB Cases with Known Risk Factors for TB, by Health District, Georgia, 2017.

Health District	Foreign-born %	Known HIV Infected %	Homeless %	Inmate %	Nursing Home %	Substance Abuse %
1.1 Rome	40	0	0	0	0	0
1.2 Dalton	40	0	0	0	0	0
2.0 Gainesville	31	6	6	0	0	19
3.1 Cobb	78	17	11	0	0	17
3.2 Fulton	38	14	14	2	0	24
3.3 Clayton	67	0	0	0	0	11
3.4 Lawrenceville	67	12	7	0	0	17
3.5 DeKalb	77	3	2	2	2	9
4.0 LaGrange	55	0	9	9	0	45
5.1 Dublin	0	50	50	0	0	100
5.2 Macon	40	20	11	20	0	40
6.0 Augusta	9	9	0	0	0	27
ASMP only	0	0	0	100	0	0
7.0 Columbus	31	13	6	0	0	38
ICE only	100	0	0	100	0	0
8.1 Valdosta	50	50	0	25	0	25
8.2 Albany	18	0	0	0	0	24
9.1 Coastal	45	0	0	0	0	17
9.2 Waycross	40	0	0	0	0	40
10 Athens	100	0	0	0	0	0
Georgia	**53**	**8**	**5**	**3**	**0.3**	**19**

Table 4. Primary Resistance to First-line Anti-TB Medications, Georgia, 2017.

TB Drug	Isoniazid		Rifampin		Ethambutol	
	Cases	Percent*	Cases	Percent*	Cases	Percent*
Georgia Total	**13**	**7**	**3**	**2**	**1**	**1**

*Denominator equals the cases with completed drug susceptibility testing

Table 5. Completion of TB Treatment and Completion of TB Treatment within 12 months by Health District, Georgia, 2015-2016.

Health District	2015		2016	
	Completion of TB Treatment* (%)	Completion of TB Treatment within 12 months† (%)	Completion of TB Treatment* (%)	Completion of TB Treatment within 12 months† (%)
1.1 Rome	100	100	100	100
1.2 Dalton	100	100	100	100
2.0 Gainesville	100	94	88	100
3.1 Cobb	100	79	89	76
3.2 Fulton	98	94	100	100
3.3 Clayton	100	100	100	88
3.4 Lawrenceville	93	93	90	81
3.5 DeKalb	94	89	91	88
4.0 LaGrange	100	100	92	92
5.1 Dublin	100	100	100	100
5.2 Macon	100	100	89	89
6.0 Augusta	100	50	100	81
ASMP	100	100	--	--
7.0 Columbus**	93	69	92	67
8.1 Valdosta	100	100	80	100
8.2 Albany	100	100	92	83
9.1 Coastal	100	100	100	100
9.2 Waycross	100	100	100	100
10 Athens	100	100	100	83
Georgia Total	**98**	**90**	**94**	**88**

*Cases who died or who left the U.S. while on TB treatment are excluded

†Cases who died or who left the U.S. during TB treatment, rifampin-resistant cases, meningeal TB, TB of the bone, joint or central nervous system, and children < 15 years old with miliary TB are excluded

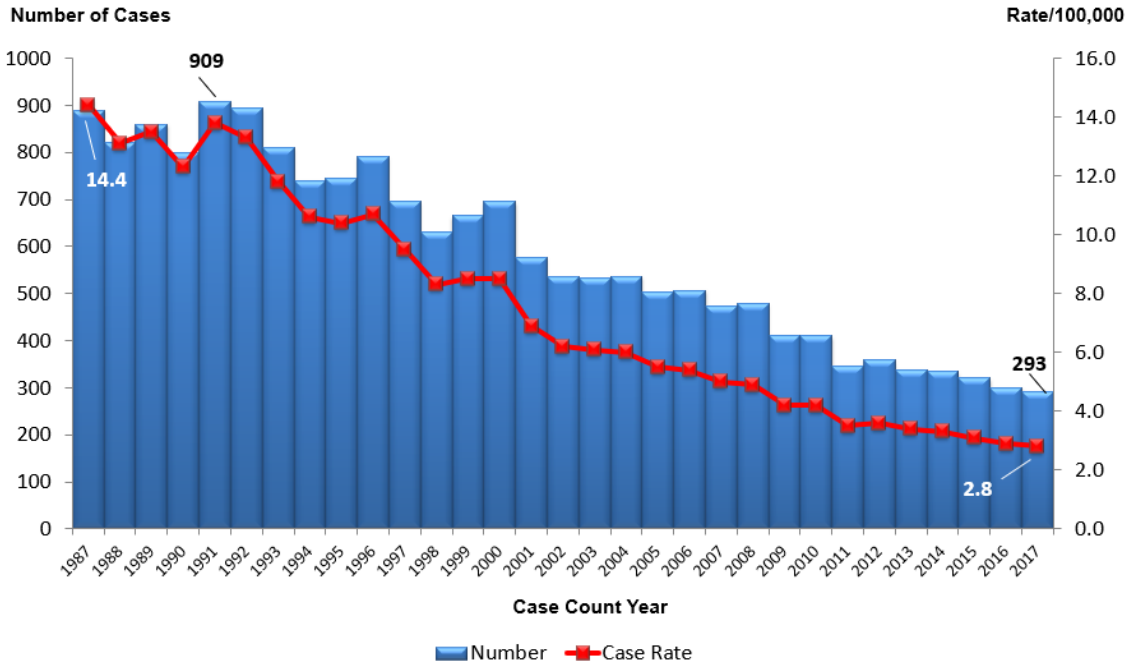
**Treatment completion data from Columbus are missing for three cases at the time of this report and are excluded from this table

Table 6. Medium and Large TB Genotype Clusters, by County, Georgia, 2013-2017.

GENType (counties)	Total Cases in Cluster
Medium Clusters (4-9 cases*)	
G00012	**6**
Chatham, Cobb, DeKalb, Fulton	
G15085	**6**
Fulton, Macon	
G30478	**6**
DeKalb, Fulton, Gwinnett	
G05614	**8**
Cobb, DeKalb, Fulton, Spalding	
G10773	**8**
DeKalb, Fulton, Muscogee, Richmond	
G16216	**8**
Bibb, Columbia, Houston, Laurens	
G00010	**9**
Clayton, Cobb, Effingham, Fulton, Terrell	
G15727	**9**
Bibb, Fulton	
G00518	**8**
DeKalb, Gwinnett, Muscogee	
Large Clusters (>10 cases)	
G10462	**10**
Douglas, Fulton, Gwinnett, Hall	
G10063	**13**
Muscogee, Talbot	
G10763	**15**
Franklin, Gwinnett, Hart, Houston, Newton, Richmond	
G12352	**19**
Clarke, Columbia, Hall, Jackson, Stephens	
G00013	**21**
Appling, Clayton, Coweta, Dawson, DeKalb, Douglas, Fulton, Glynn, Gwinnett, Spalding	
G10265	**21**
Carroll, Clayton, Dougherty, Laurens, Lee, Miller, Mitchell, Troup, Upson	
G05625	**55**
Chatham, Cobb, DeKalb, Fulton, Paulding, Rockdale	

***Of the medium-sized genotype clusters, only clusters with 6-9 cases per cluster are reported in this table**

Figure 1. TB Cases and Case Rates, Georgia, 1987-2017



Note: The most current year and the highest case and case rate in the graphed time frame are labeled.

Figure 2. TB Case Rates, Georgia and U.S., 1987-2017

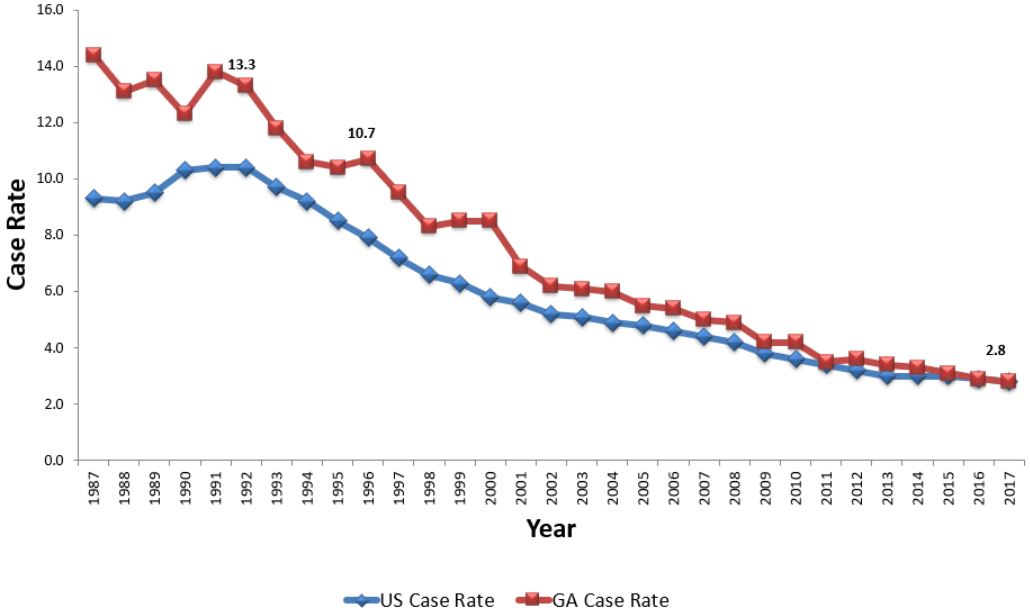


Figure 3. Number of TB Cases by Health Districts, Georgia, 2017 (N=293)

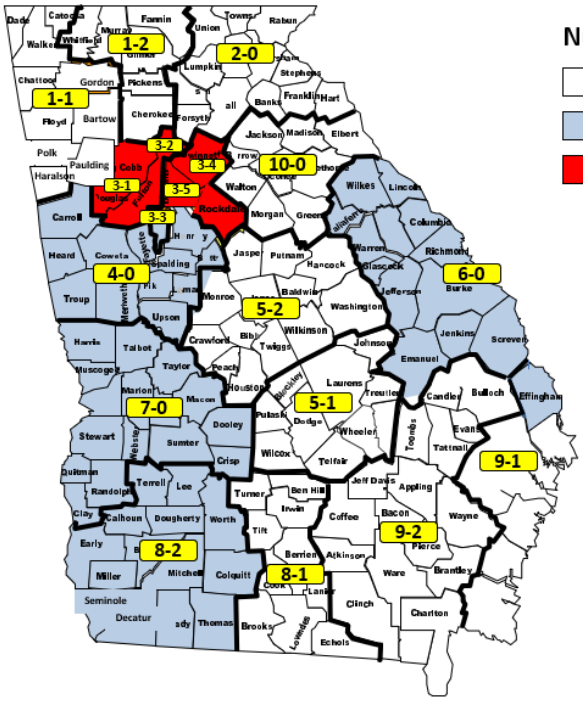


Figure 4. TB Case Rates by Health Districts, Georgia, 2017 (N=293)

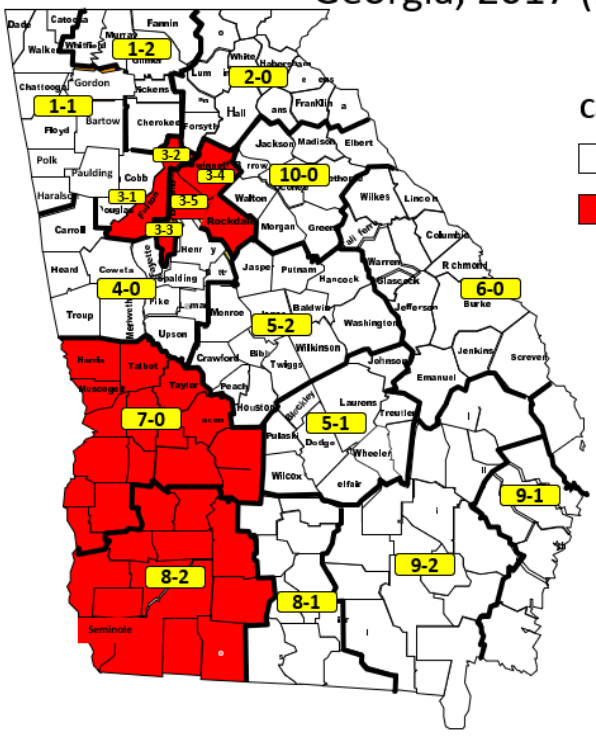


Figure 5. TB Cases by Age Group and Sex, Georgia, 2017 (N=293)

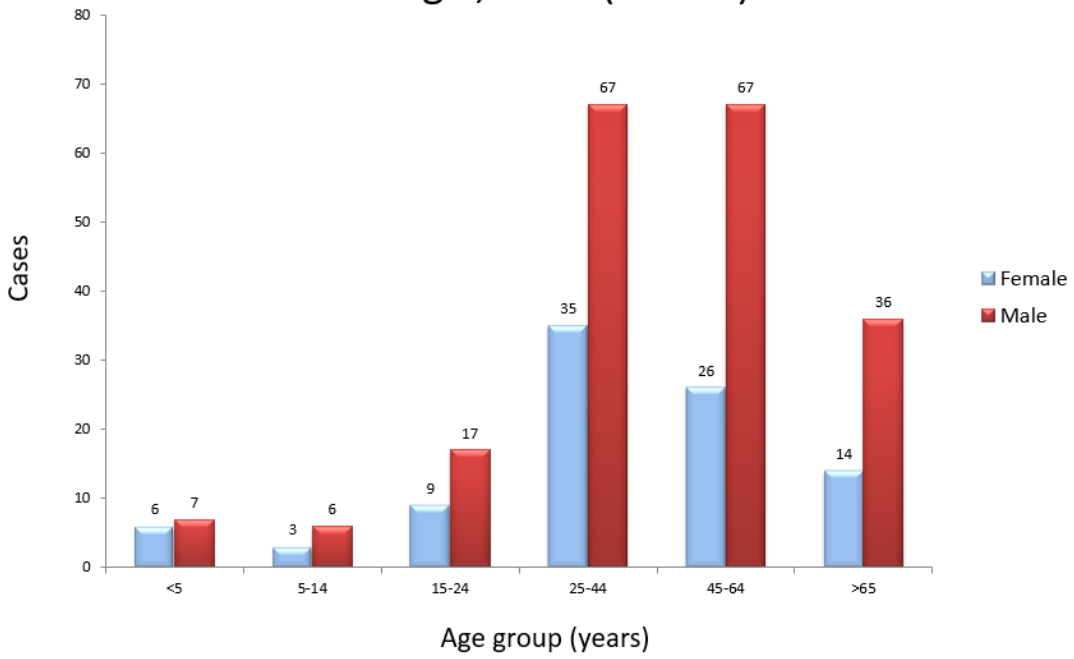


Figure 6. TB Case Rates* by Age Group, 2013-2017, Georgia

Age Group	2013 (N=339)	2014 (N=335)	2015 (N=321)	2016 (N=301)	2017 (N=293)
< 5 yrs.	1.5	2.3	2.1	1.4	2.0
5-14 yrs.	1.2	0.8	0.2	0.7	0.6
15-24 yrs.	1.6	1.5	1.7	1.7	1.8
25-44 yrs.	4.5	4.4	4.0	3.2	3.6
45-64 yrs.	4.5	4.3	4.7	4.2	3.5
65+ yrs.	4.3	4.5	3.6	4.1	3.6

***Rates are per 100,000 population**

Figure 7. Percentage of TB Cases by Race/Ethnicity, Georgia, 2017 (N=293)

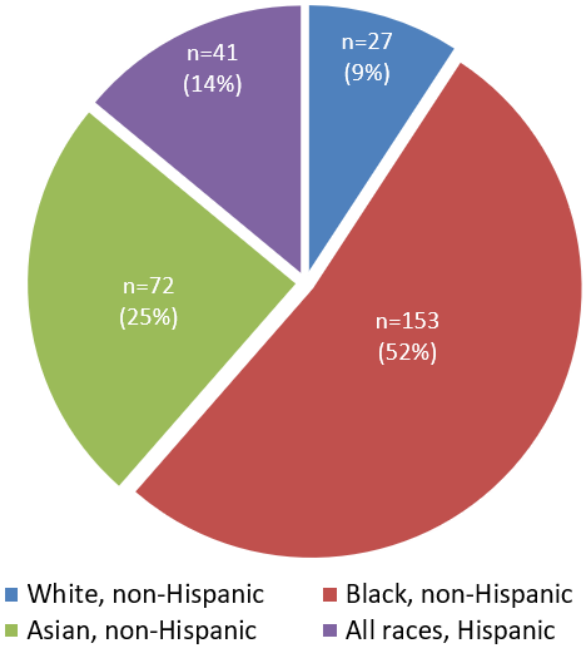


Figure 8. TB Case Rates* by Race/Ethnicity, Georgia, 2013-2017

Race/ Ethnicity	2013 (N=339)	2014 (N=335)	2015 (N=321)	2016 (N=301)	2017 (N=293)
Asian, non-Hispanic	19.5	19.3	20.2	17.0	16.7
All races, Hispanic	6.2	6.2	4.1	4.5	4.1
Black, non-Hispanic	5.5	5.1	5.0	4.6	4.7
White, non-Hispanic	0.7	0.8	0.8	0.7	0.5

***Rates are per 100,000 population**

Figure 9. TB Case Rates Among non-Hispanic Black (N=153) and White Persons (N=27), Georgia, 1997-2017

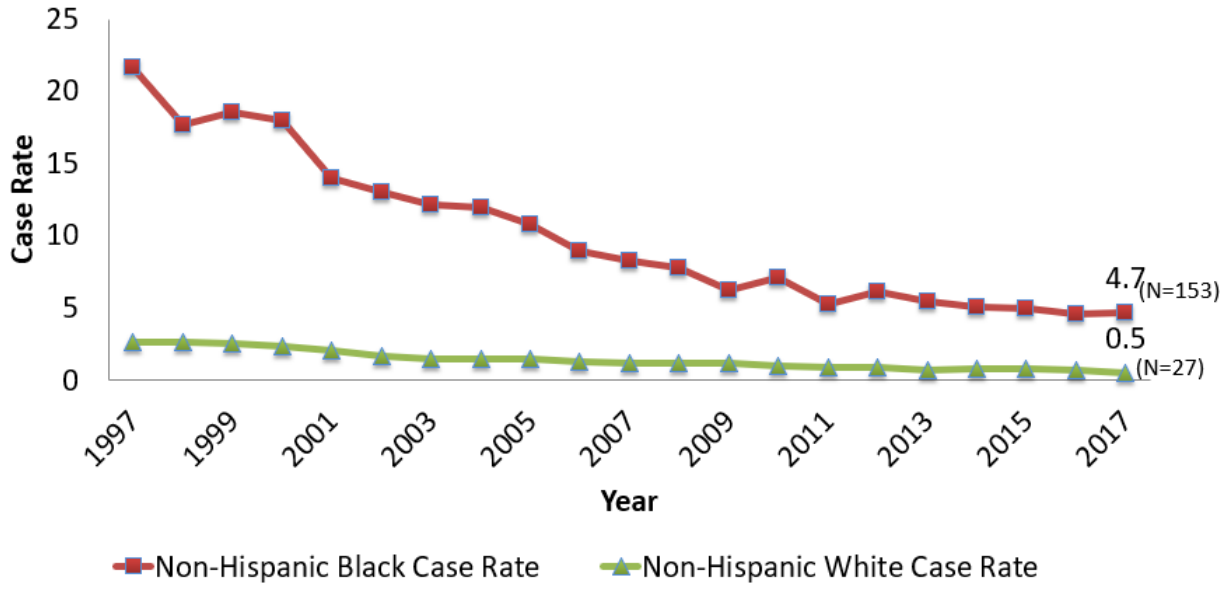


Figure 10. US-born and Foreign-born TB Cases, Georgia, 1997-2017 (N=293)

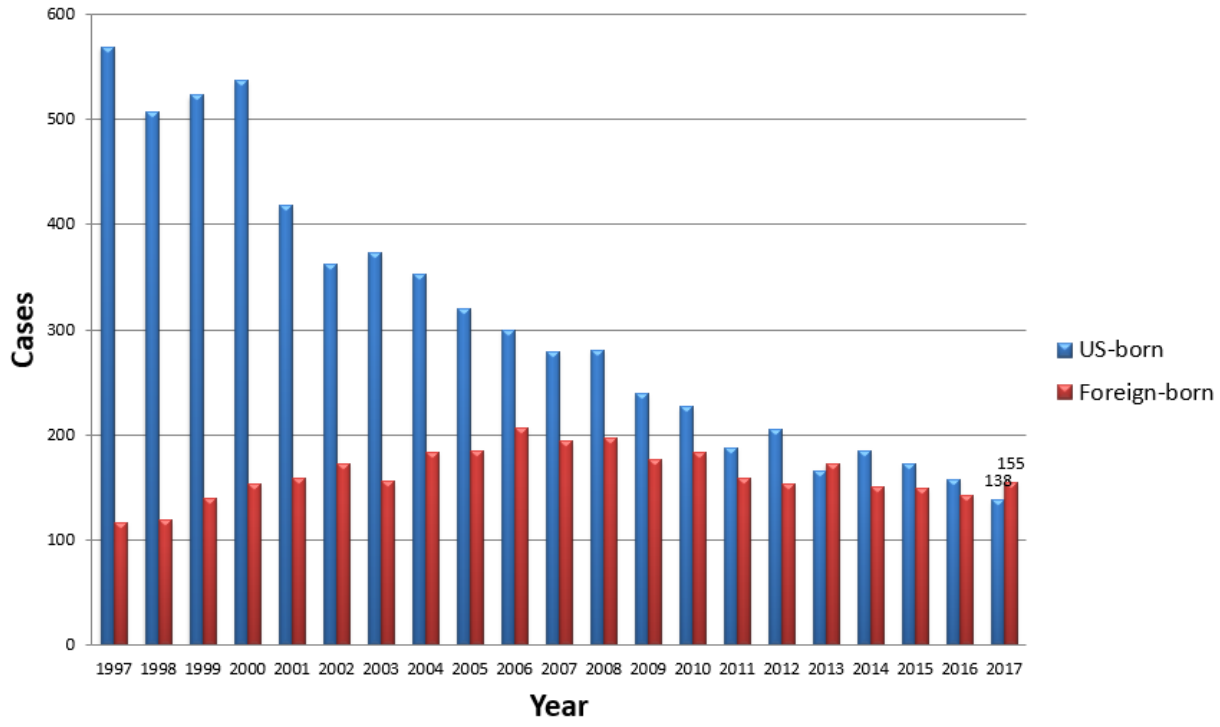


Figure 11. Percent of Foreign-born TB Cases by Country of Origin, Georgia, 2017 (N=155)

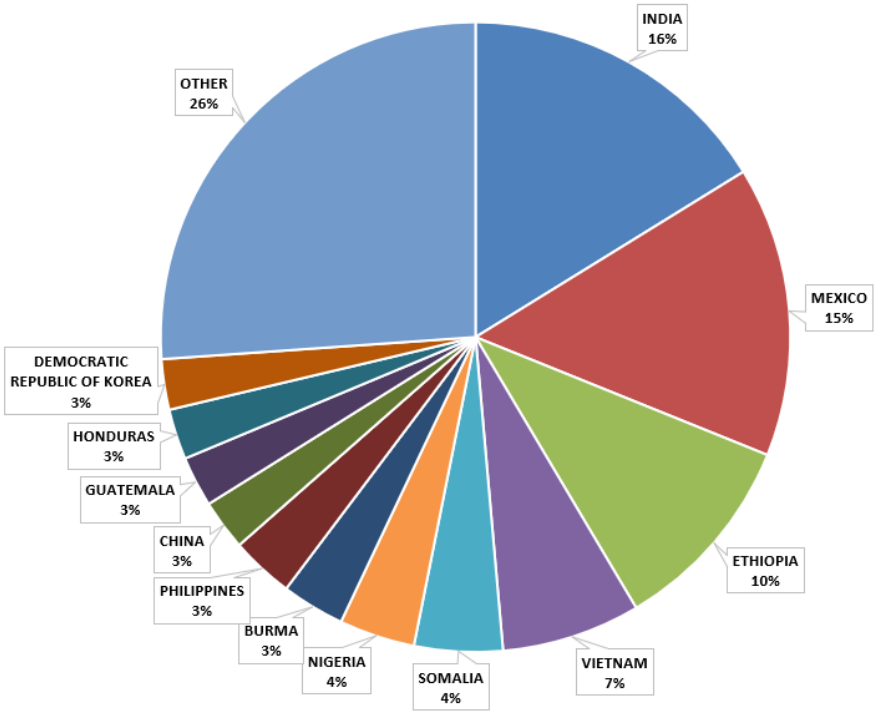


Figure 12. HIV Status of TB Cases, Georgia, 1997-2017 (N=293)

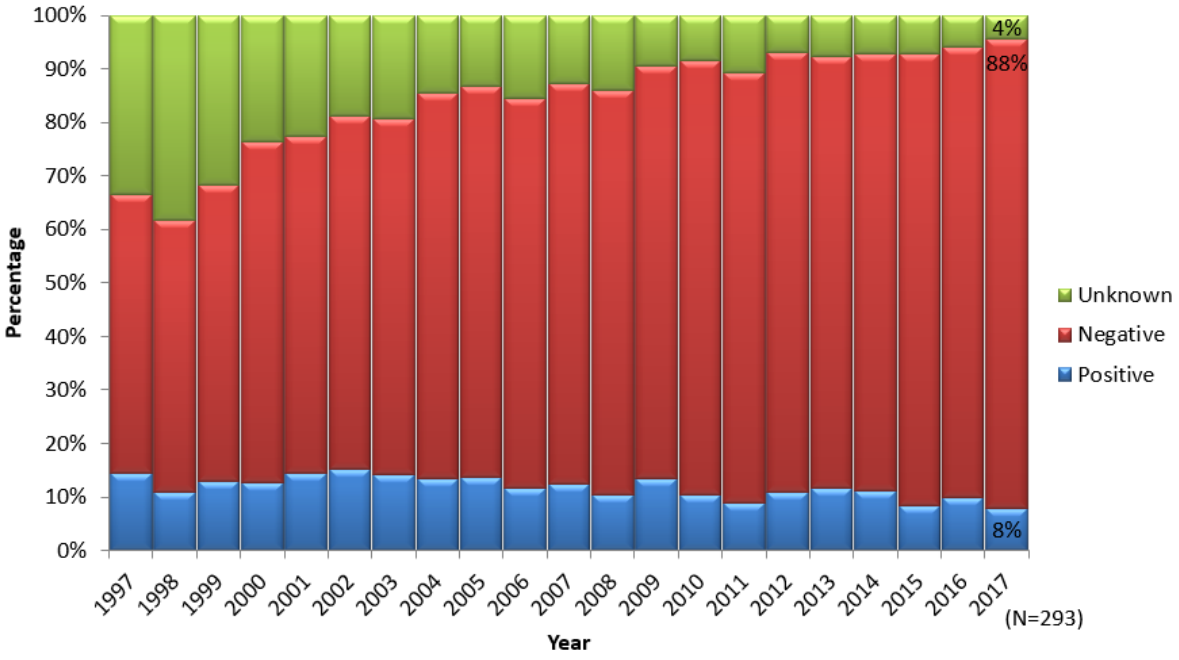


Figure 13. TB in High-Risk Populations, Georgia, 2013-2017 (N=293)

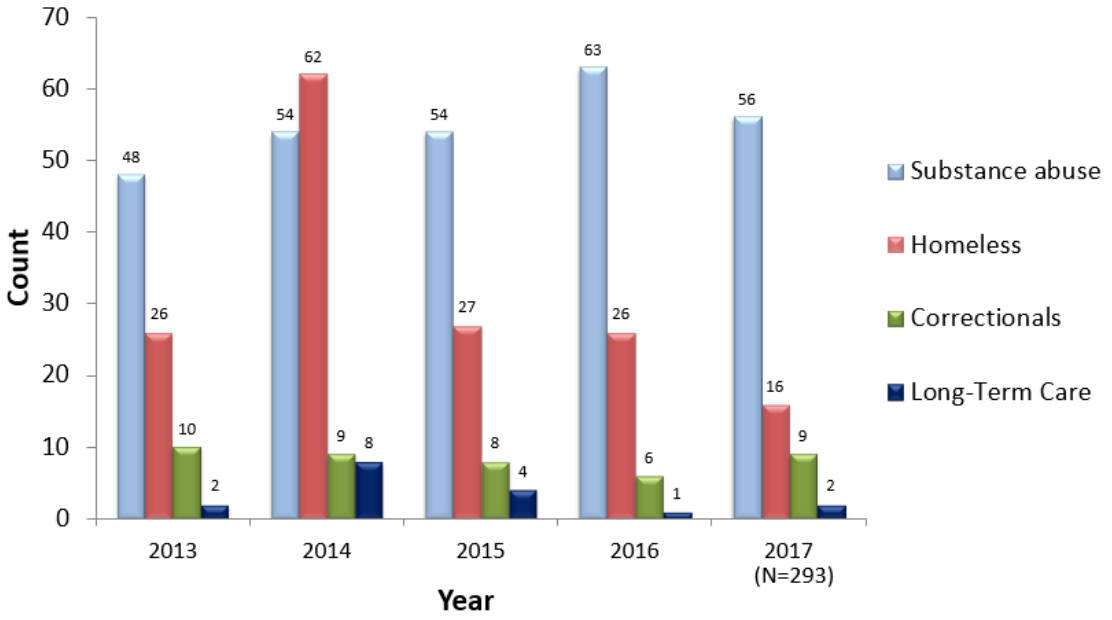
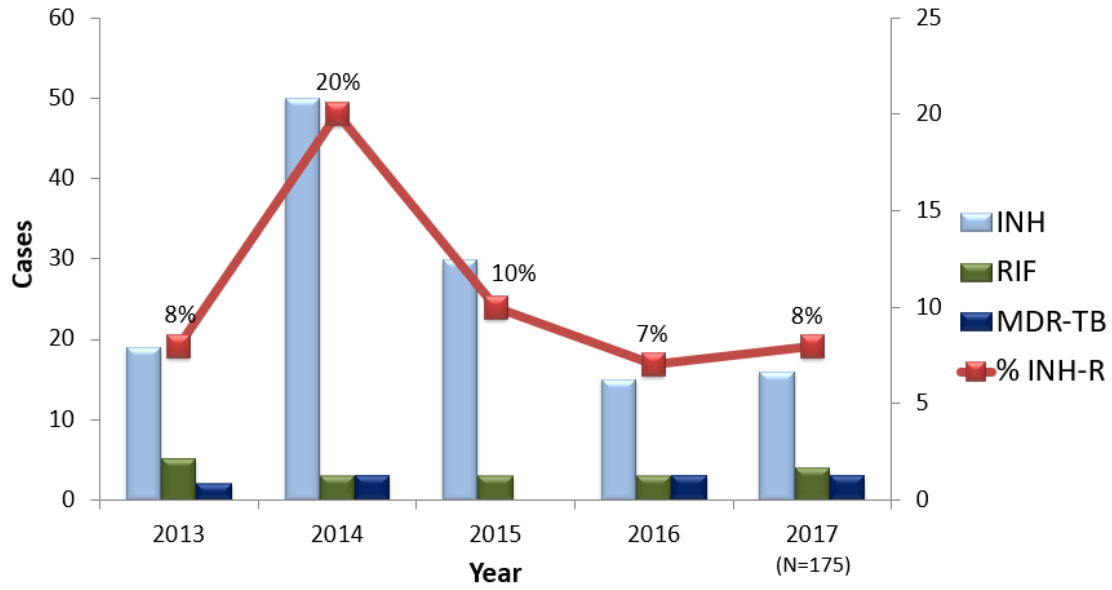
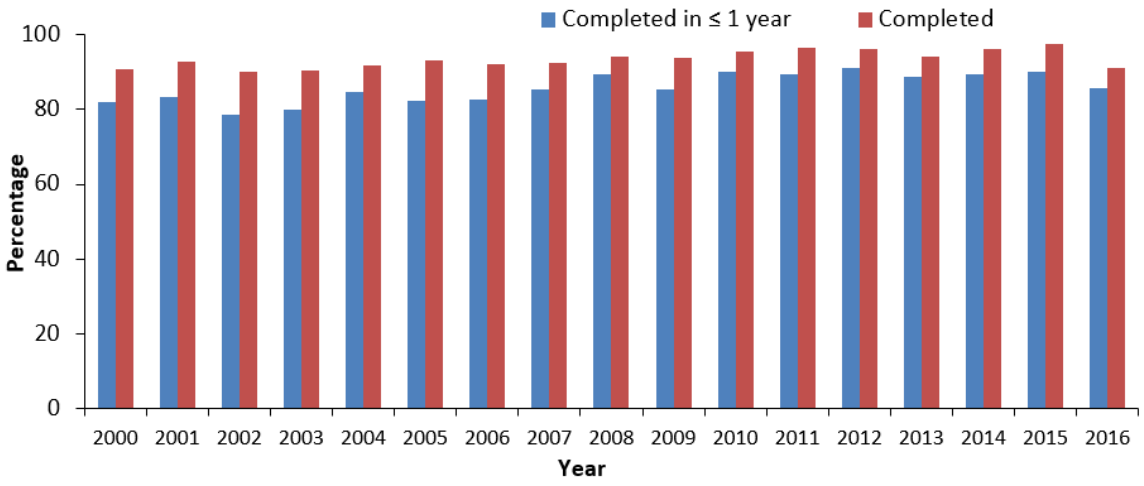


Figure 14. Primary Drug Resistance (INH-R)* and Multi-drug Resistant TB (MDR-TB)**, Georgia, 2013-2017 (N=175)



*Defined as having no previous diagnosis of TB and having the first occurrence of TB INH-resistant
**Defined as having resistance to at least INH and RIF

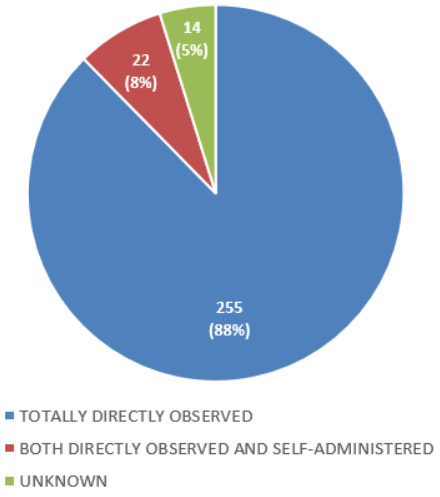
Figure 15. Completion of TB Treatment Therapy, Georgia, 2000-2016* (N=267)



*As of August 31, 2018; data available through 2016 only.

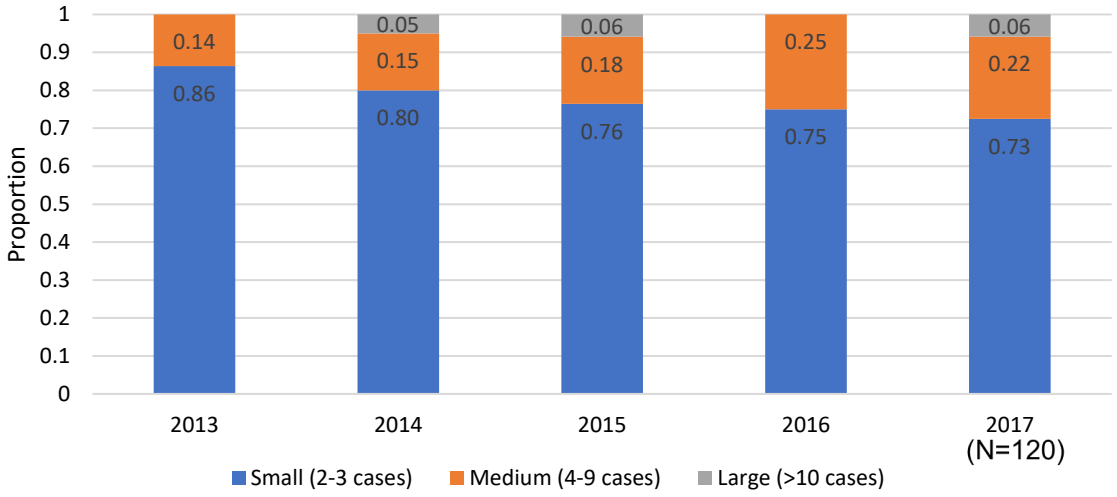
Note: Includes persons alive at diagnosis, with initial drug regimen of one or more drugs prescribed, who did not die within one year of initiating treatment; excludes persons with initial rifampin-resistant isolate, patients with bone and joint disease, meningeal disease, or disease of the central nervous system, or pediatric patients (ages 0–14 years) with miliary disease or positive blood culture or a positive nucleic acid amplification test on a blood specimen, and those who moved out of the country within one year of initiating treatment.

Figure 16. Mode of Treatment Administration Among Persons Reported with TB, Georgia, 2016* (N=291)



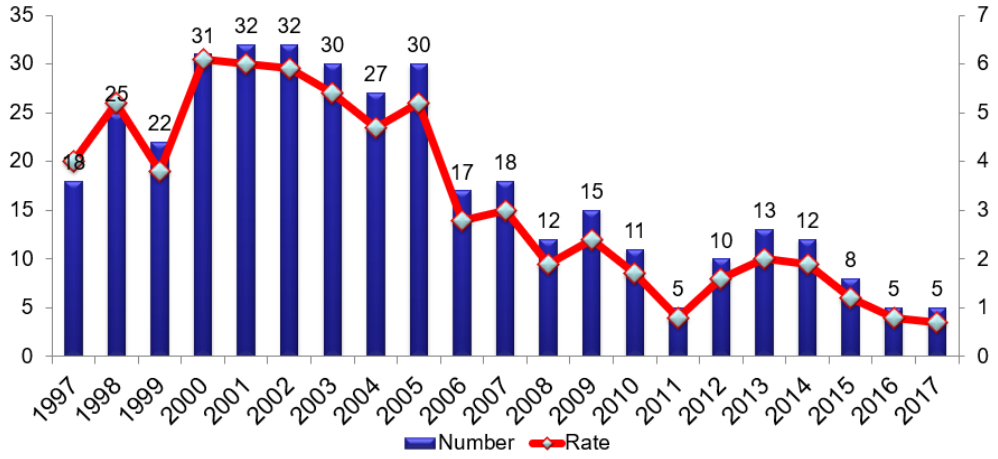
*As of August 30, 2018; data available through 2016 only.
Note: Percentage of total cases among persons alive at diagnosis, with an initial regimen of one or more drugs prescribed and excluding cases with unknown mode of treatment administration.

Figure 17. Proportion of Small, Medium, and Large TB Genotype Clusters, Georgia, 2013-2017 (N=120)



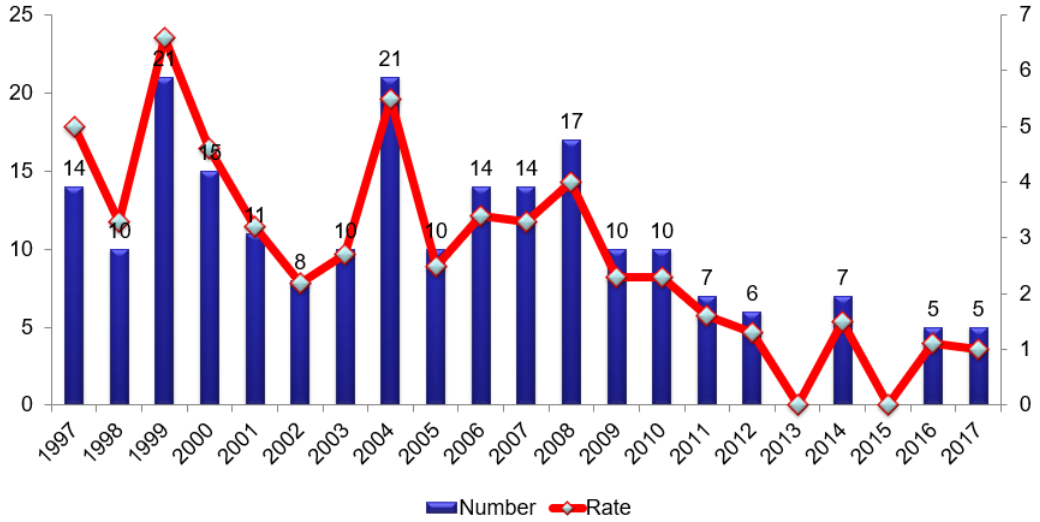
Tuberculosis Morbidity Trends by Health District, Georgia, 1997-2017

TB Case Numbers and Rates, District 1-1 (Rome),1997-2017

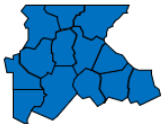


Note: Rates are per 100,000 population
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

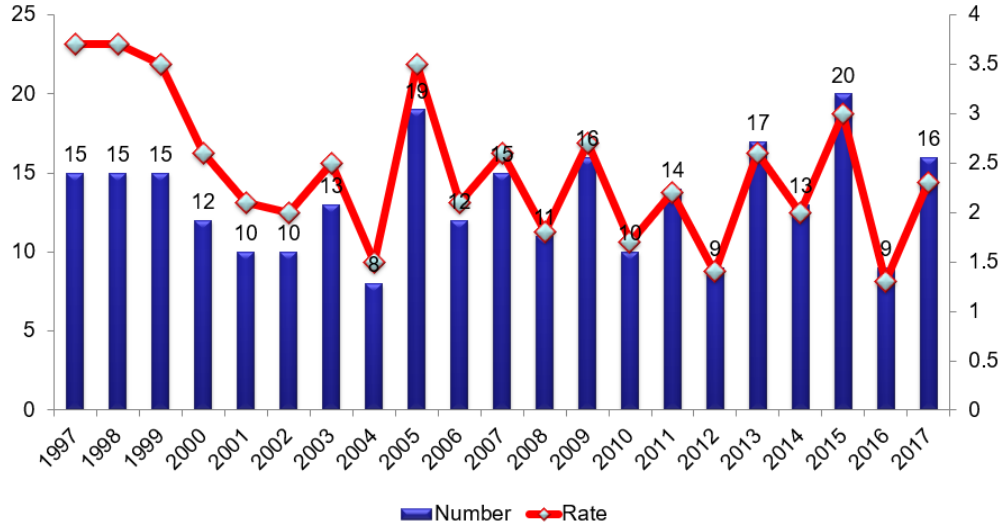
TB Case Numbers and Rates, District 1-2 (Dalton),1997-2017



Note: Rates are per 100,000 population; Counts < 5 and their corresponding rates are not displayed
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

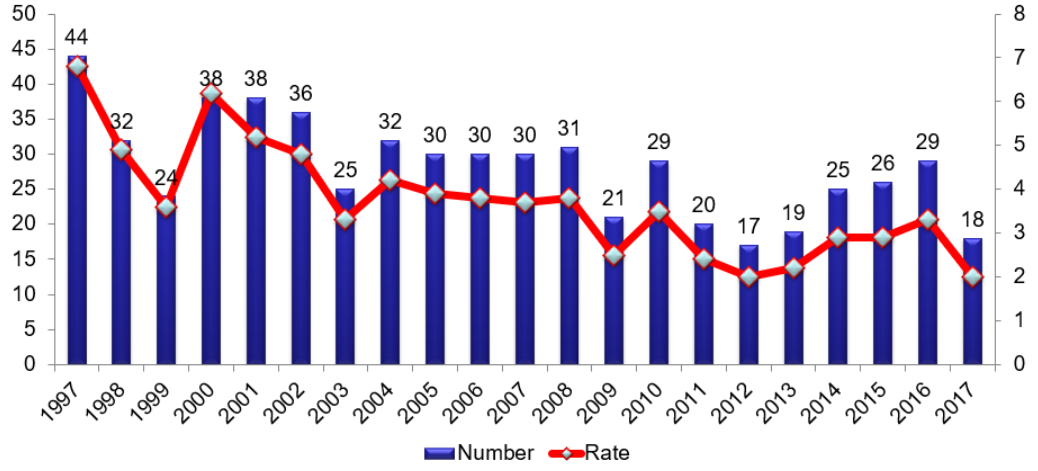


TB Case Numbers and Rates, District 2 (Gainesville),1997-2017



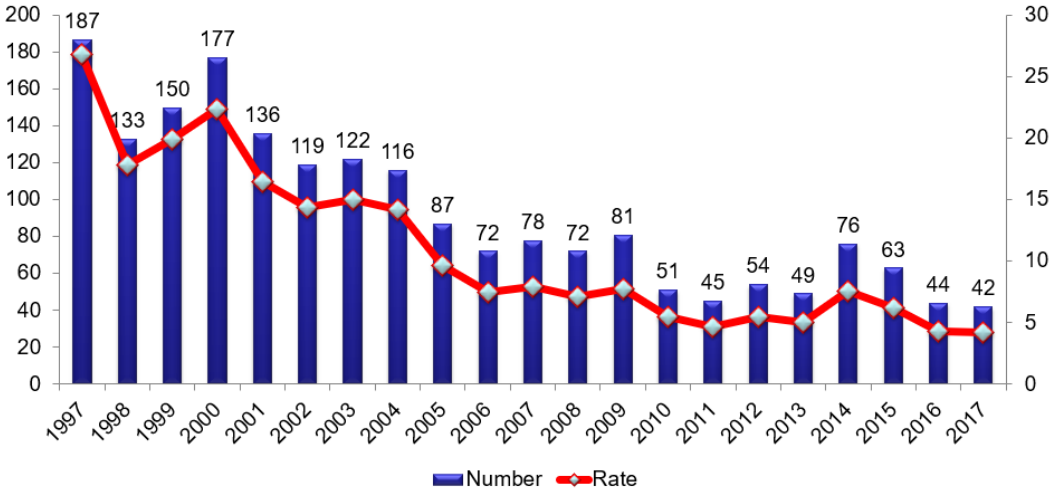
Note: Rates are per 100,000 population
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

TB Case Numbers and Rates, District 3-1 (Cobb),1997-2017



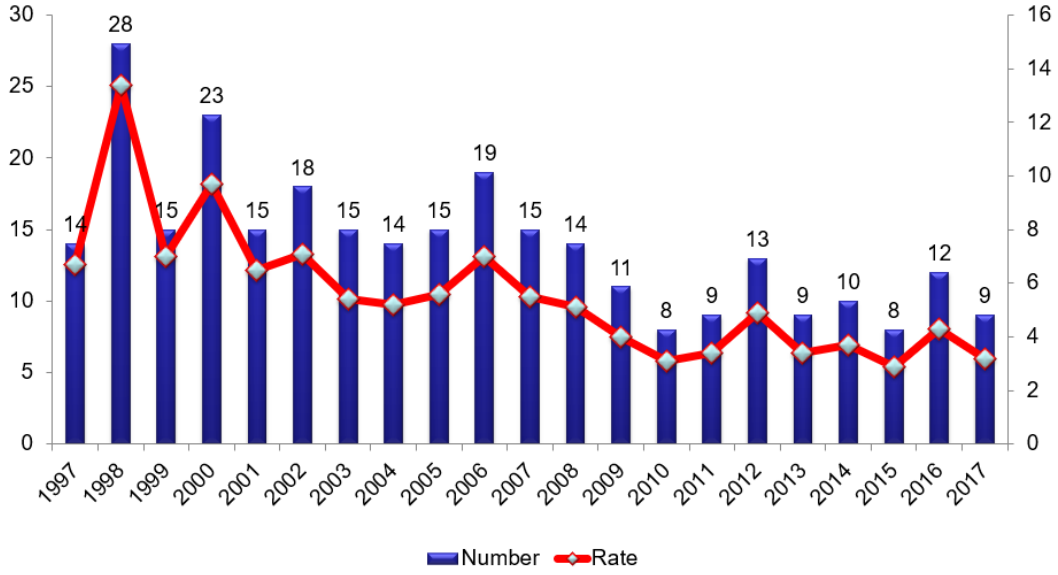
Note: Rates are per 100,000 population
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

TB Case Numbers and Rates, District 3-2 (Fulton),1997-2017

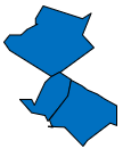


Note: Rates are per 100,000 population
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

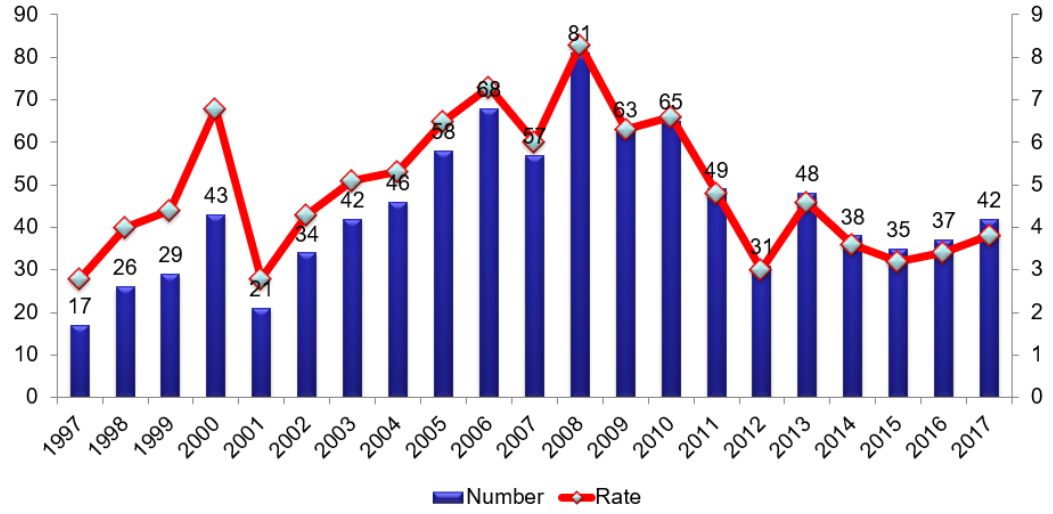
TB Case Numbers and Rates, District 3-3 (Clayton),1997-2017



Note: Rates are per 100,000 population
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

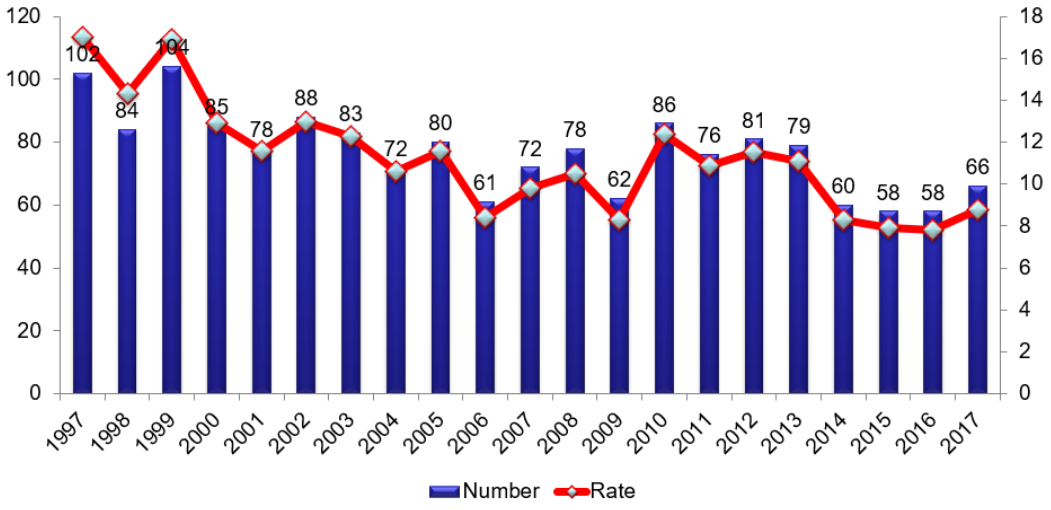


TB Case Numbers and Rates, District 3-4 (Lawrenceville),1997-2017

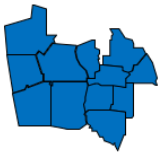


Note: Rates are per 100,000 population
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

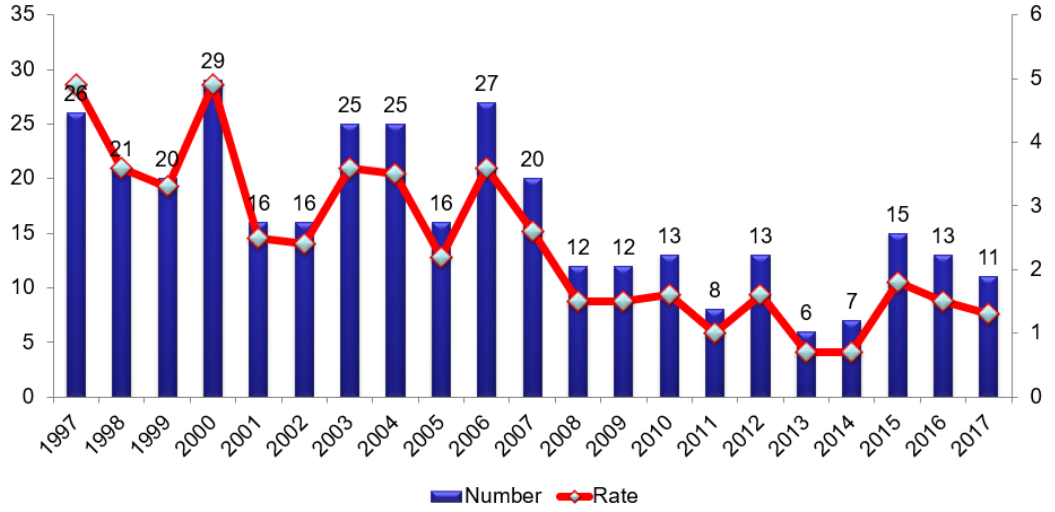
TB Case Numbers and Rates, District 3-5 (DeKalb),1997-2017



Note: Rates are per 100,000 population
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

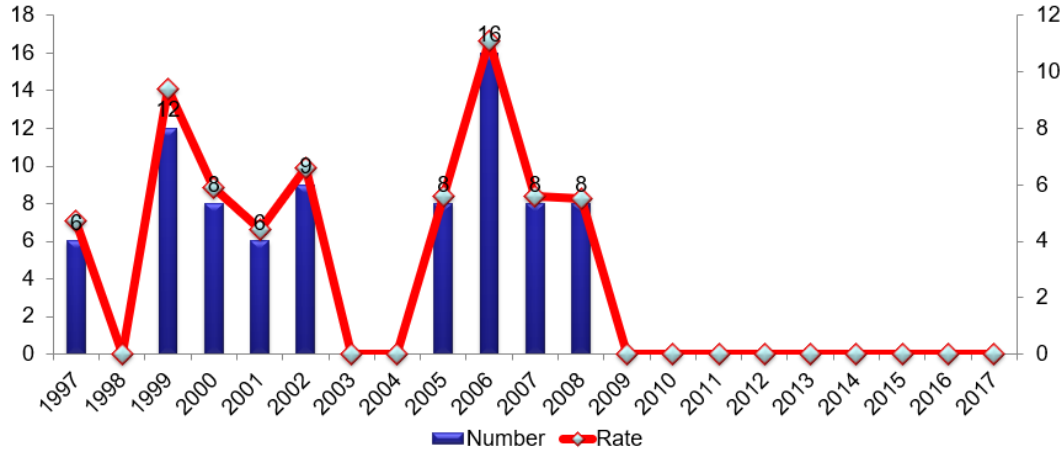


TB Case Numbers and Rates, District 4 (LaGrange),1997-2017



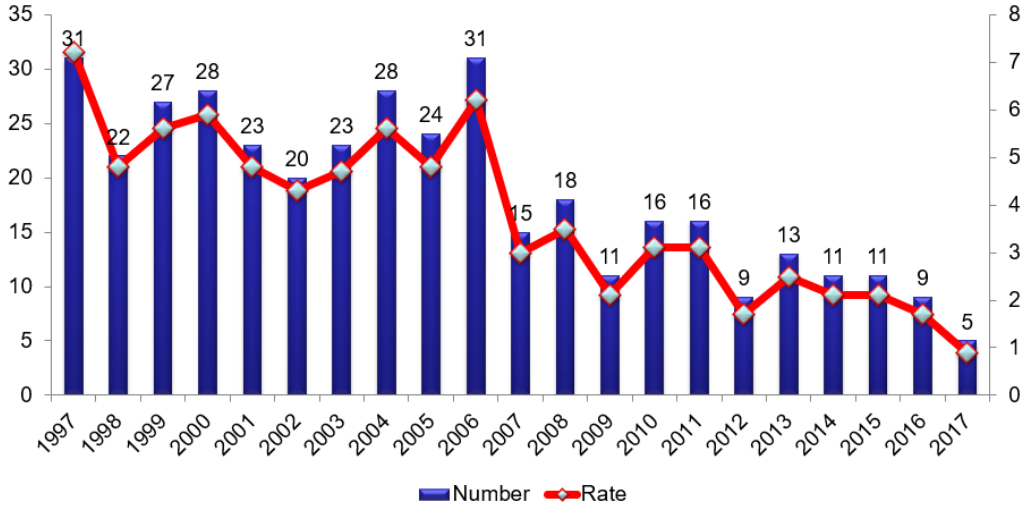
Note: Rates are per 100,000 population
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

TB Case Numbers and Rates, District 5-1 (Dublin),1997-2017



Note: Rates are per 100,000 population; Counts < 5 and their corresponding rates are not displayed
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

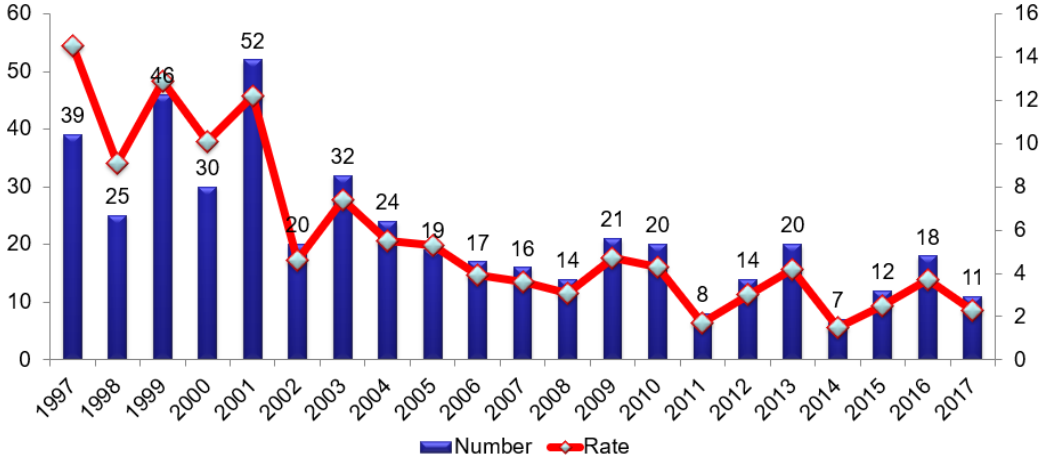
TB Case Numbers and Rates, District 5-2 (Macon),1997-2017



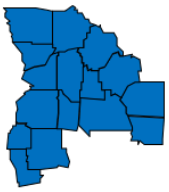
Note: Rates are per 100,000 population
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

TB Case Numbers and Rates, District 6 (Augusta)*,1997-2017

*Augusta State Medical Prison cases not included

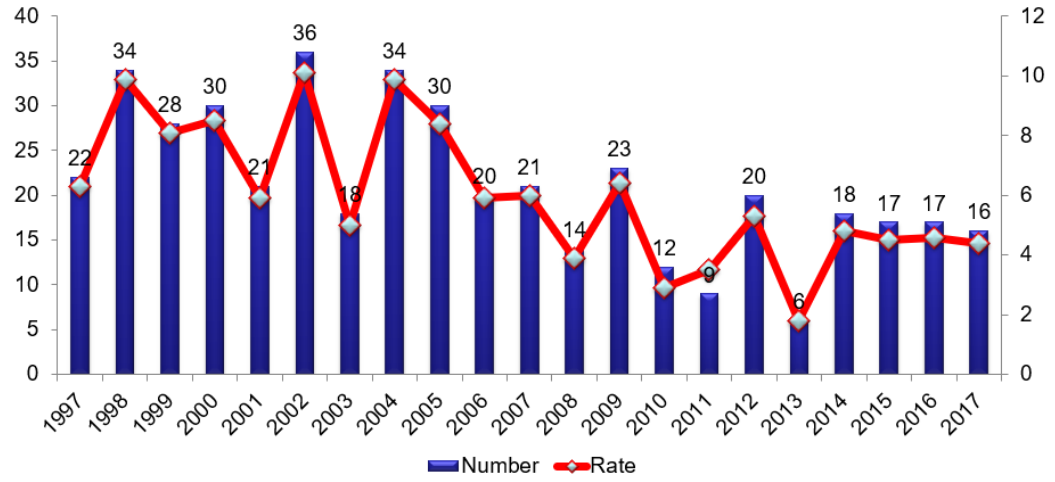


Note: Rates are per 100,000 population
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.



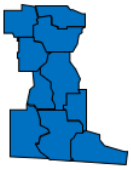
TB Case Numbers and Rates, District 7 (Columbus)*,1997-2017

*Stewart Detention Center cases not included



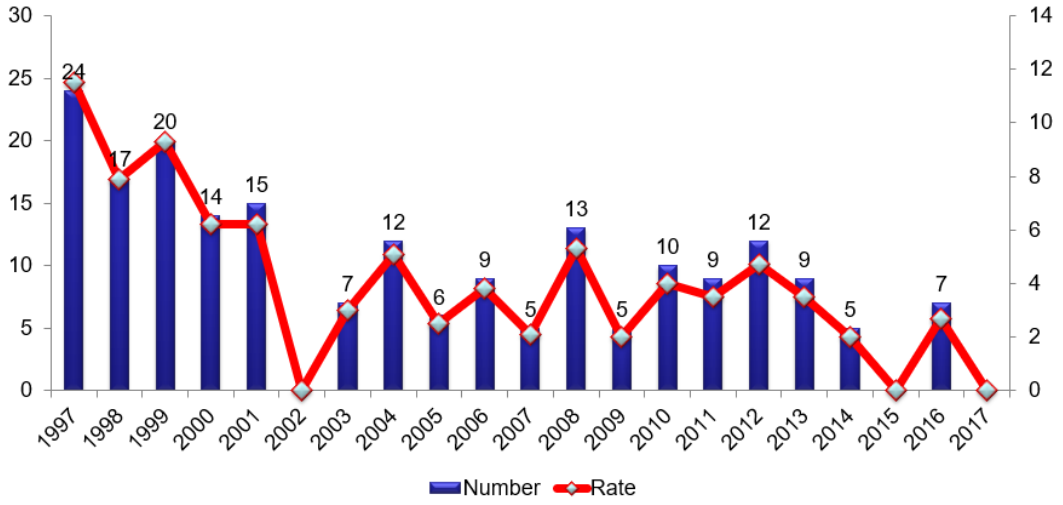
Note: Rates are per 100,000 population

Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.



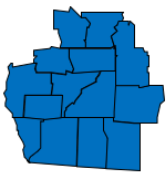
TB Case Numbers and Rates, District 8-1 (Valdosta)*,1997-2017

*Irwin County Detention Center cases not included

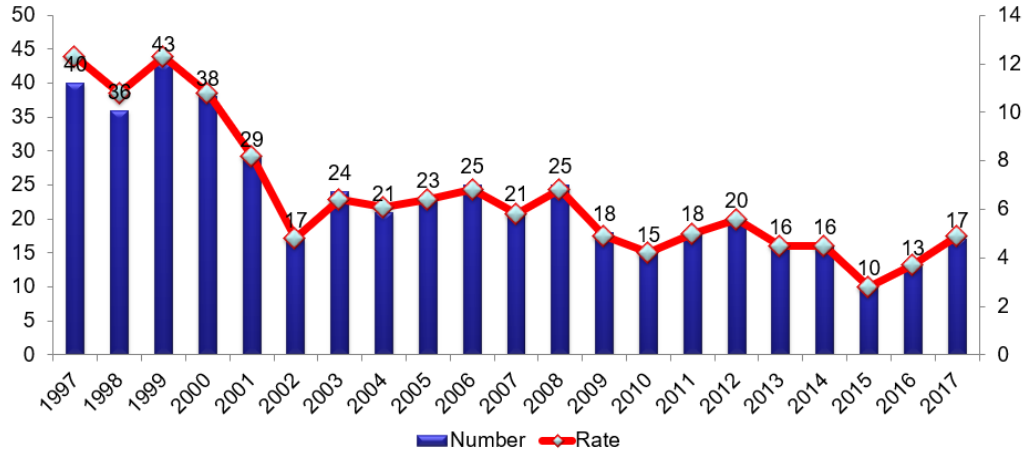


Note: Rates are per 100,000 population; Counts < 5 and their corresponding rates are not displayed

Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

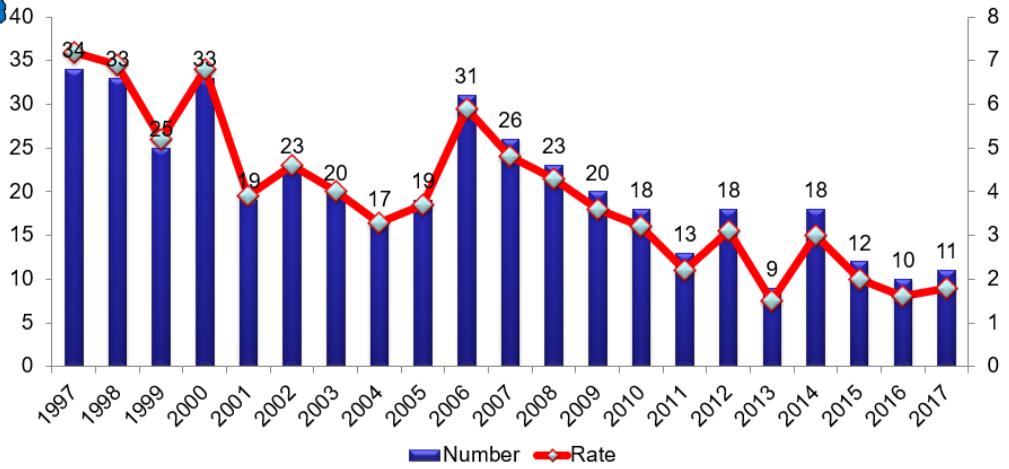


TB Case Numbers and Rates, District 8-2 (Albany),1997-2017

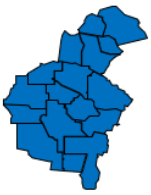


Note: Rates are per 100,000 population
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

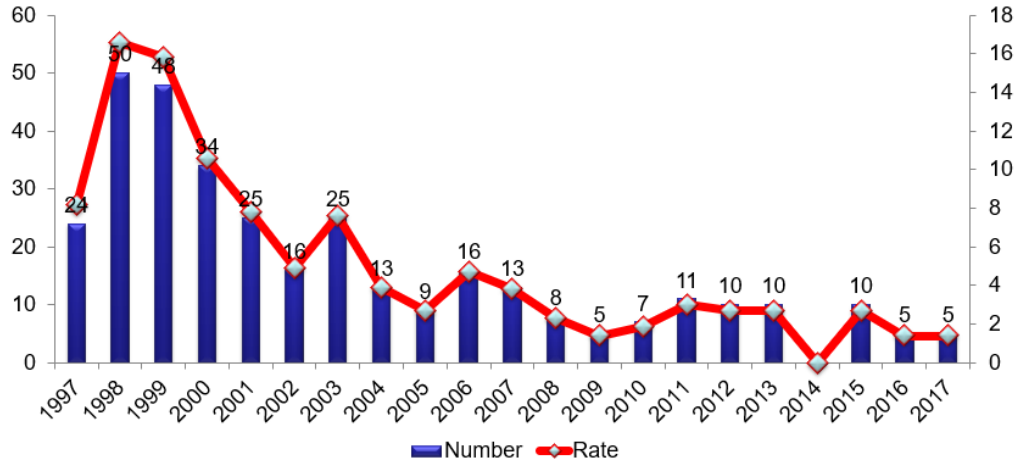
TB Case Numbers and Rates, District 9-1 (Coastal),1997-2017



Note: Rates are per 100,000 population
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

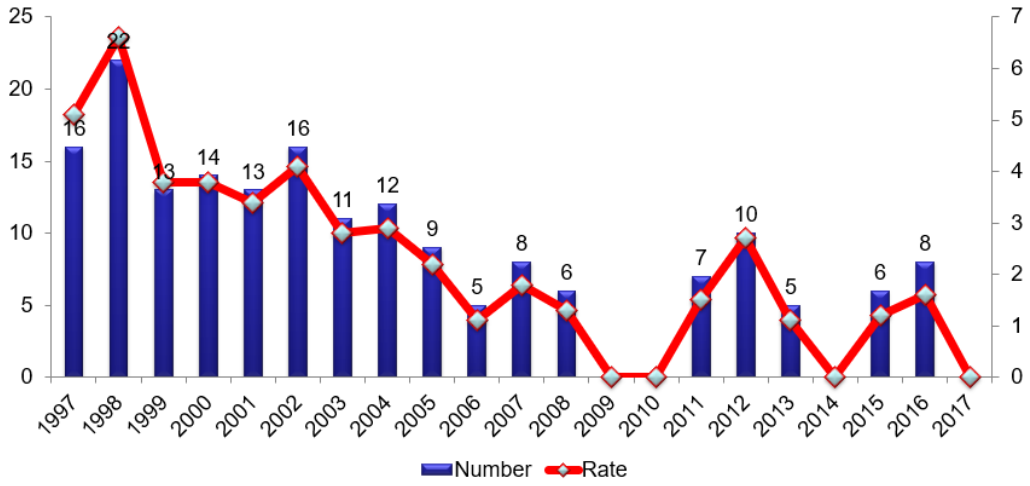


TB Case Numbers and Rates, District 9-2 (Waycross),1997-2017



Note: Rates are per 100,000 population; Counts < 5 and their corresponding rates are not displayed
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.

TB Case Numbers and Rates, District 10 (Athens),1997-2017



Note: Rates are per 100,000 population; Counts < 5 and their corresponding rates are not displayed
Data Sources: 1) Case counts from State Electronic Notifiable Disease Surveillance System (SendSS) data as of July 17th, 2018; 2) Rates calculated using population estimates obtained from the U.S. Census Bureau via https://oasis.state.ga.us/oasis/webquery/qryPopulation.aspx.