Communicable Disease 2020

Wake County Human Services Public Health Report

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NORTH CAROLINA Accredited Health Department 2019-2024 Local Health Department Accreditation Board

WAKE COUNTY NORTH CAROLINA

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Cover image: Wake County COVID-19 drive-thru test site

1.0 Introduction

Wake County Human Services (WCHS), an accredited health department, strives to perform the three core public health functions of assessment, policy development and assurance to deliver the 10 essential public health services (Figure 1). Reports are provided on a quarterly basis about health and safety trends for Wake County residents, providers, policy makers and the community to better inform decision making.

These reports help fulfill public health essential services:

- Number 1: Assess and monitor population health status, factors that influence health, and community health needs and assets
- Number 3: Communicate effectively to inform and educate people about health, factors that influence it, and how to improve it

This report also fulfills, in part, North Carolina Public Health Accreditation requirements including:

- Analysis and tracking of reportable events occurring in the community and reporting unusual occurrences to the NC Division of Public Health and local board of health (Benchmark activity 2.4)
- Provision of reports on the health of the community to the local board of health (Benchmark activity 38.1)

Figure 1: 10 Essential Public Health Services

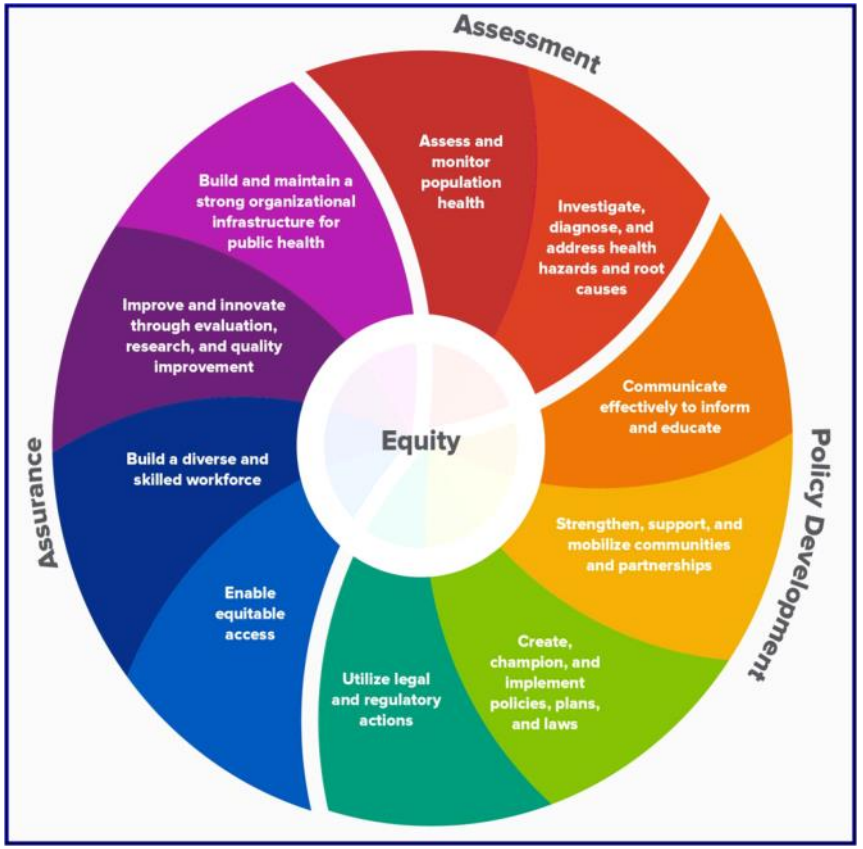


Image source: [Centers for Disease Control and Prevention.]

2.0 Surveillance

Communicable diseases are illnesses caused by infectious agents (bacteria, viruses, parasites, fungi and prions) or their toxins that are transmitted from an infected person, animal, plant or from the environment. Because communicable diseases can have so much impact on populations, they are tracked and the information analyzed (called surveillance) so that measures can be put in place for protecting the public's health. Certain communicable diseases are required by law to be reported to local health departments by:

- physicians
- school administrators
- child care center operators
- medical facilities
- operators of restaurants and other food or drink establishments and
- persons in charge of laboratories (G.S. § 130A-135 through 130A-139)

There are over 70 reportable diseases and conditions specified in the N.C. Administrative Code rule *10A NCAC 41A .0101.*

After initial notification about a case or cases of a communicable disease, an investigation begins to collect details such as demographic, clinical, and epidemiological information.

A case, meeting the reporting requirements in the standardized case definitions, is reported electronically to the N.C. Division of Public Health (NC DPH) via the North Carolina Electronic Disease Surveillance System (NCEDSS) and then to the Centers for Disease Control and Prevention's (CDC) National Notifiable Diseases Surveillance System.

This report focuses on selected communicable diseases of public health significance. To achieve consistency with the state's counts and rates, as well as to be able to monitor significant trends appropriately, the WCHS Epidemiology Program counts probable and suspect cases as appropriate, in addition to confirmed cases, for all figures and tables in this report. (It is also worth noting that surveillance, investigation, and control measures are applied to all reported cases regardless of classification.)

Also, since summary data is available publicly on the North Carolina Disease Data Dashboard (NCD3) this report does not include five-year summary tables for communicable diseases. State and County case counts and incidence rates for all reportable infectious diseases dating back to 2005 are available at this website: https://public.tableau.com/profile/nc.cdb#!/vizhome/NCD3NorthCarolinaDiseaseDataDashboard/DiseaseMapsandTrends

3.0 Vaccine Preventable Disease

3.1 Pertussis and *Haemophilus influenzae* type b

During the last five years, Wake County had an average of 35.8 pertussis (whooping cough) and 21.2 *Haemophilus influenzae* type b (Hib) cases each year (Figure 2).

3.2 Hepatitis B

The number of hepatitis B cases in Wake County over the last three years has remained very stable; there were 176 cases in 2017, 168 in 2018, and 169 in 2019. Figures 3-5 show that in all three years, most hepatitis B cases were found in adults over age 30, Asians, and men.

Figure 2: Pertussis and *Haemophilis influenzae* type B Cases, Wake County, 2015-19

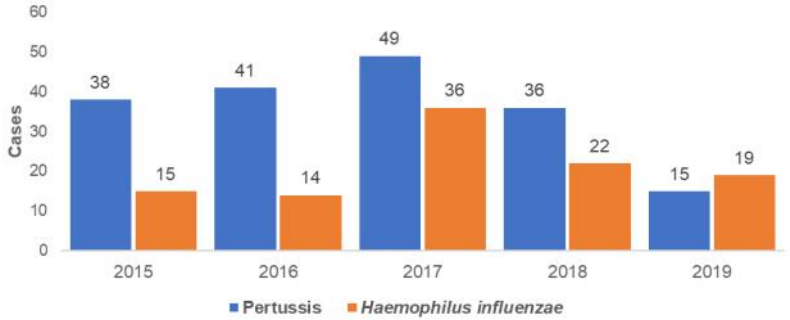


Figure 3: Hepatitis B Cases by Age Group, Wake County, 2017-19

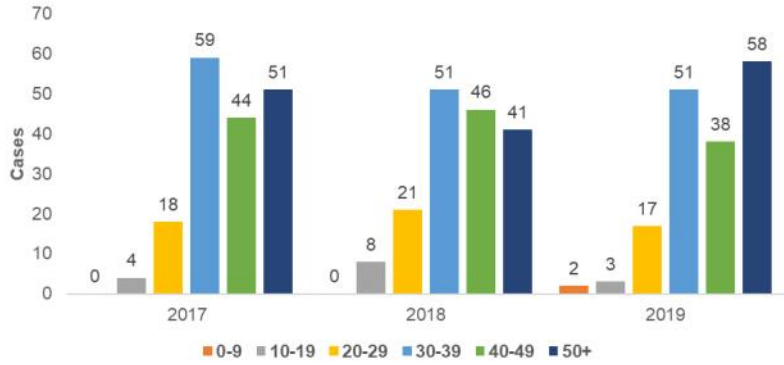


Figure 4: Hepatitis B Cases by Race/Ethnicity, Wake County, 2017-19

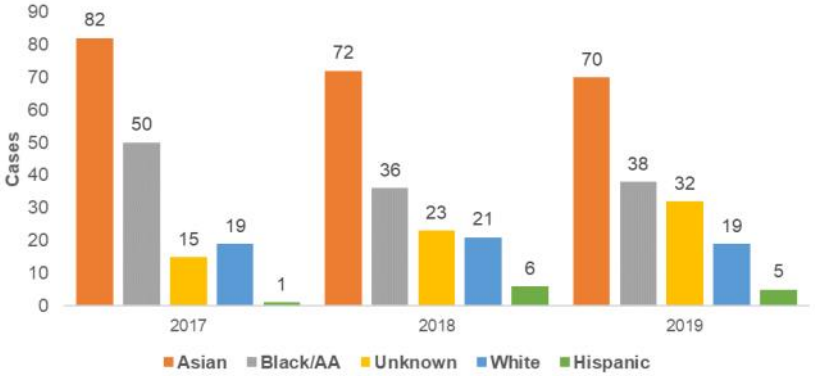


Figure 2 Source: North Carolina Disease Data Dashboard, at https://public.tableau.com/profile/nc.cdb#!/ and NCEDSS. 5/14/20.

Figure 3 Source: NCEDSS, VPD Demographic and Reporting Source Line List by MMWR date, 5/14/20.

Figure 4 Source: NCEDSS, VPD Demographic and Reporting Source Line List by MMWR date, 5/14/20.

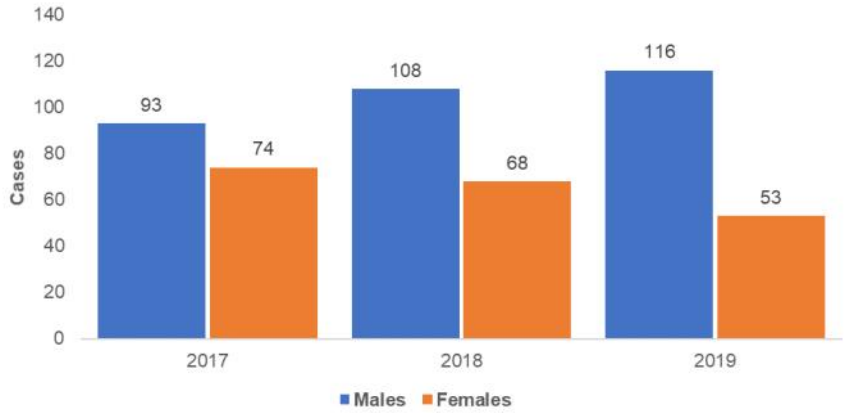
3.3 Influenza

The 2019-20 influenza season has been the mildest in recent years. Between September 29, 2019 and May 9, 2020, there were nine flu deaths in Wake County and 186 flu deaths in North Carolina, compared to nine and 208, respectively, in 2018-19. According to the interim flu vaccine effectiveness (VE) report released by CDC on February 21, 2020, the VE was 45% effective overall against 2019-20 seasonal influenza A and B viruses. Additionally, the CDC emphasized that the VE among children (ages 6 months to 17 years) was even higher, at 55%. Specifically, this year's VE against the H1N1 strain was 37%. [1] In North Carolina, the influenza A(H1N1)pdm09 strain predominated in the 2019-20 season. [2]

Figure 6 shows the percentage of total outpatient visits with ILI (influenza-like illness) in North Carolina over the last three flu seasons. The percentage increase in March 2020 correlates with the presence of COVID-19 (coronavirus disease of 2019) across the state, since symptoms of COVID-19 and influenza are very similar.

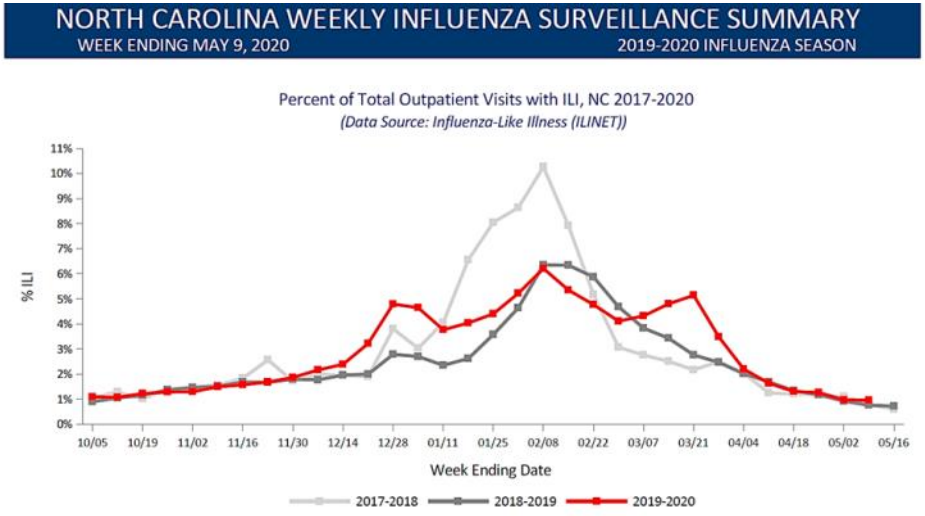
From September 15, 2019 to May 15, 2020, WCHS administered a total of 9,140 flu vaccine doses: 7,736 doses to the community and an additional 1,404 doses to Wake County employees. [3]

Figure 5: Hepatitis B Cases by Gender, Wake County, 2017-19



Source: NCEDSS, VPD Demographic and Reporting Source Line List by MMWR date, 5/14/20.

Figure 6

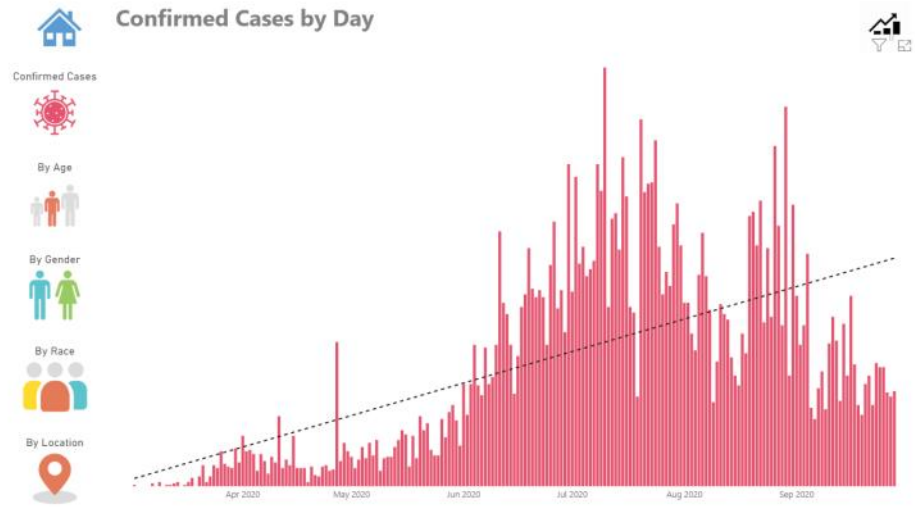


Source: https://flu.ncdhhs.gov/data/documents/flu1920.pdf, accessed 5/14/20.

4.0 COVID-19

On December 31, 2019 the Wuhan Municipal Health Commission in China reported a cluster of cases of pneumonia of unknown etiology in Wuhan City, Hubei Province. At that time the causal agent had not been identified in the people that were reported to WHO (the World Health Organization). On January 7, 2020 the causal agent was identified as new type of coronavirus (novel coronavirus, nCOV). On January 30, 2020 the WHO declared the novel coronavirus outbreak (2019-nCOV) a Public Health Emergency of International Concern (PHEIC). On February 11, 2020 the WHO announced the official name as coronavirus disease 2019 (COVID-19). Following research, the continual spread and the severity of the virus on March 11, 2020 the WHO declared that COVID-19 would be characterized as a pandemic.

The first case of COVID-19 in North Carolina and Wake County arrived just a week earlier on March 3, 2020. From early March 2020 to the date of this publication in September 2020, there has been a tremendous impact on the lives of Wake County residents with every facet of life being impacted. The State of North Carolina has had over 178,635 confirmed cases with 2,909 COVID-19 deaths. Wake County has seen over 15,887 confirmed cases with 210 COVID-19 deaths at the time of this publication. The pandemic continues to evolve, and a further analysis of the cases and the impact will be evaluated with the 2021 Communicable Disease Report.



Daily case data for Wake County provided to the public on WakeGOV.com (data reported as of 9/28/20)

Information about COVID-19 testing for the public posted on WakeGOV.com

5.0 Foodborne Diseases

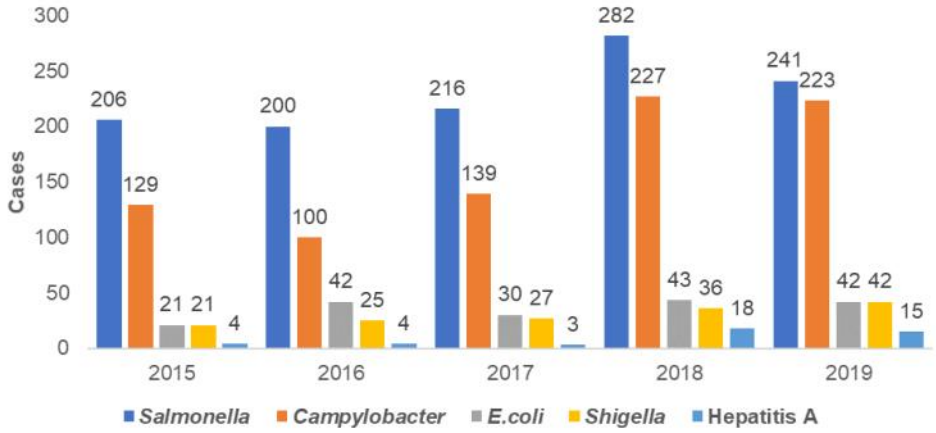
Figure 7 shows the five-year trend for the most frequently reported foodborne diseases in Wake County. The overall number of cases for these five diseases (*Salmonella, Campylobacter, E.coli, Shigella* and hepatitis A) increased almost 48% between 2015 and 2019. Consistent with prior years, *Salmonella* and *Campylobacter* accounted for over 80% of the reported foodborne cases.

Table 1 shows further demographic analysis of the four most commonly reported foodborne diseases in Wake County in 2019. *Salmonella* was mostly reported in the 0-9 and 50+ age groups as well as white non-Hispanics, with cases evenly split for gender. *Campylobacter* was reported mostly among people over age 50, was more frequent among females and largely affected white non-Hispanics. Almost half of the *E.coli* cases were diagnosed among children ages 0-19; males and white non-Hispanics were most affected. *Shigella* was most commonly reported among adults ages 30-39 and 50+, males, and white non-Hispanics. Hepatitis A was distributed throughout all age groups and was more common in males and white non-Hispanics.

5.1 Foodborne Outbreaks

All foodborne outbreaks must be reported to the local health department and NC DPH. In 2019, the CD Nursing Team investigated 1 norovirus outbreak with 166 sick individuals.

Figure 7: 5-Year Trend, Most Frequently Reported Foodborne Diseases, Wake County, 2015-19



Source: NCEDSS, All Models Demographic and Reporting Source Line List by Date Marked for Report to CDC, 5/14/20.

Table 1: Demographic Analysis of Foodborne Diseases, Wake County, 2019

		Salmonellosis	*Campylobacter* Infection	Shigellosis	*E. coli*	Hepatitis A
AGE GROUP	0-9	99	18	8	11	1
	10-19	13	14	2	8	1
	20-29	17	32	11	3	2
	30-39	21	28	7	9	4
	40-49	17	23	1	5	3
	50+	74	108	13	6	4
GENDER	Female	119	119	18	18	4
	Male	122	104	24	23	11
RACE/ ETHNICITY	White NH	106	120	19	16	11
	Unknown	68	46	5	13	0
	Black NH	32	30	11	3	1
	Hispanic (any race)	17	14	7	5	2
	Other NH	10	10	0	2	0
	Asian NH	8	3	0	3	1

Source: NCEDSS, All Models Demographic and Reporting Source Line List by Date Marked for Report to CDC, 5/14/20.

6.0 Vectorborne Diseases

Vectorborne diseases are caused by microbes that are spread to people by arthropods like ticks and mosquitoes that feed on human blood. The vectorborne diseases that occur most often in Wake County are transmitted by ticks, but there are instances of diseases transmitted by mosquitoes as well. Table 2 shows confirmed, suspect, and probable cases of tickborne (Ehrlichiosis, Lyme disease and Rocky Mountain spotted fever) and mosquito-borne (Chikungunya virus, Malaria, West Nile virus, and Zika virus) disease over the last five years. For tickborne diseases in particular, many more cases are suspected and investigated than can be confirmed. This is due to the difficulty in getting clinical and/or laboratory information needed to meet the confirmed case definition.

Table 2: Vectorborne Diseases in Wake County, 5-Year Trend, 2015 - 2019

		2015		2016		2017		2018		2019	
		Confirmed	Confirmed/ Suspect/ Probable	Confirmed	Confirmed/ Suspect/ Probable	Confirmed	Confirmed/ Suspect/ Probable	Confirmed	Confirmed/ Suspect/ Probable	Confirmed	Confirmed/ Suspect/ Probable
Tickborne	Ehrlichioisis, HGE	0	4	0	1	0	2	0	0	1	2
	Ehrlichioisis, HME	1	7	1	10	0	10	0	11	1	15
	Rocky Mountain spotted fever	0	47	2	36	0	31	1	48	2	62
	Lyme disease	1	27	3	30	4	46	1	29	5	35
Mosquito-borne	Chikungunya virus	0	2	0	1	0	2	0	2	1	2
	Dengue	1	2	1	2	0	1	2	3	5	6
	Malaria	7	7	7	7	9	9	6	6	12	13
	West Nile virus	0	0	0	0	0	0	0	1	0	0
	Zika virus	0	0	14	14	1	1	0	2	0	1

Source: NCEDSS, All Models Demographic and Reporting Source Line List by Date Marked for Report to CDC, 5/20.

7.0 Sexually Transmitted Diseases

Figures 8-11 show cases and rates for the four most commonly reported STDs in Wake County: HIV/AIDS, early syphilis, gonorrhea, and chlamydia. Figure 8 shows HIV/AIDS cases and rates remained stable over the last five years, with the number of 2019 cases (135) very nearly equally the average case number over the last five years (135.2). Figure 9 indicates that after four consecutive years of early syphilis case numbers plateauing around 250, there were 310 in 2019. This represents a 23% increase in early syphilis between 2018 and 2019. Figures 10 and 11 show that gonorrhea and chlamydia cases and rates increased only slightly in 2019 in Wake County.

Figure 8: HIV/AIDS Cases and Rates, Wake County, 2015-19

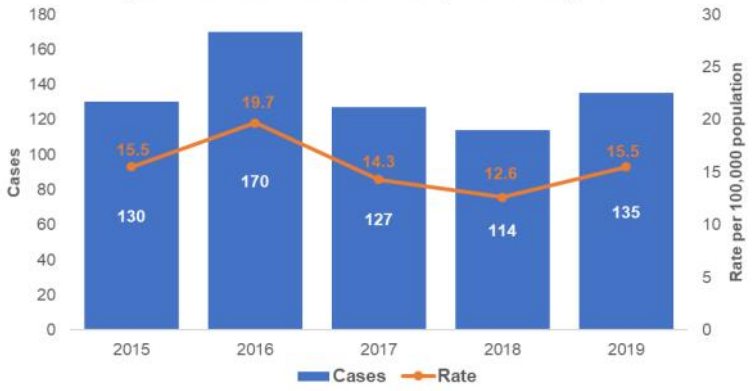


Figure 8 Source: 2015-18 data obtained at https://epi.dph.ncdhhs.gov/cd/stds/figures/hiv18rpt_02042020.pdf, 5/20/20. 2019 data obtained from NC DPH on 5/18/20. Rates for HIV/AIDS are calculated using age-specific population estimates (age 13 or over).

Figures 9,10, & 11 Source: 2015-18 data obtained at https://epi.dph.ncdhhs.gov/cd/stds/figures/std18rpt_02102020.pdf, 5/20/20. 2019 case data obtained from NCEDSS on 5/14/20, and 2019 rate calculated using population estimate found at https://www.census.gov/quickfacts/fact/table/wakecountynorthcarolina/PST045219, 5/20/20.

Figure 9: Early Syphilis Cases and Rates, Wake County, 2015-19

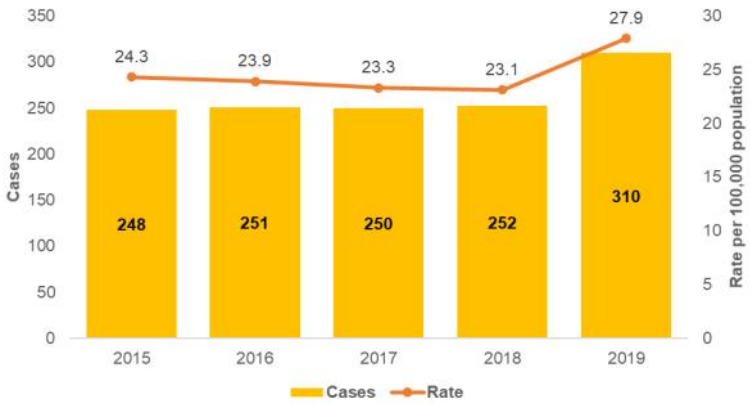


Figure 10: Chlamydia Cases and Rates, Wake County, 2015-19

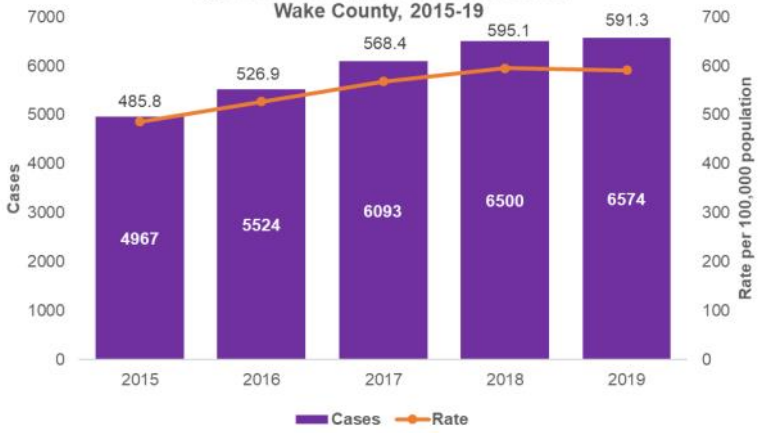
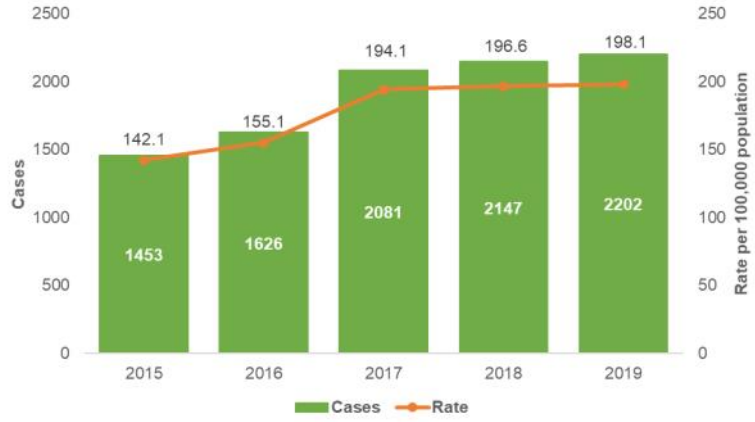


Figure 11: Gonorrhea Cases and Rates, Wake County, 2015-19



8.0 Tuberculosis

The number of tuberculosis (TB) cases decreased again in 2019 in Wake County, a trend that has continued since 2016 (Figure 12). Figure 13 is a demographic dashboard of 2019 TB cases.

Figures 14-19 show TB case data by demographic and clinical category.

Figure 12: TB Cases Compared to Clinic and Field Visits, Wake County, 2015-19

Source: WCHS TB Program, 5/22/20. * Clinic and field visit data not available for 2019.

Figure 13: Wake County TB Cases 2019	
24 TB cases	29% Cases ages 30-39
79% Cases born outside US	38% Cases with Hispanic ethnicity
75% Cases among males	75% Pulmonary TB cases

Figure 14: TB Cases by Age Group, 2019 (N=24)

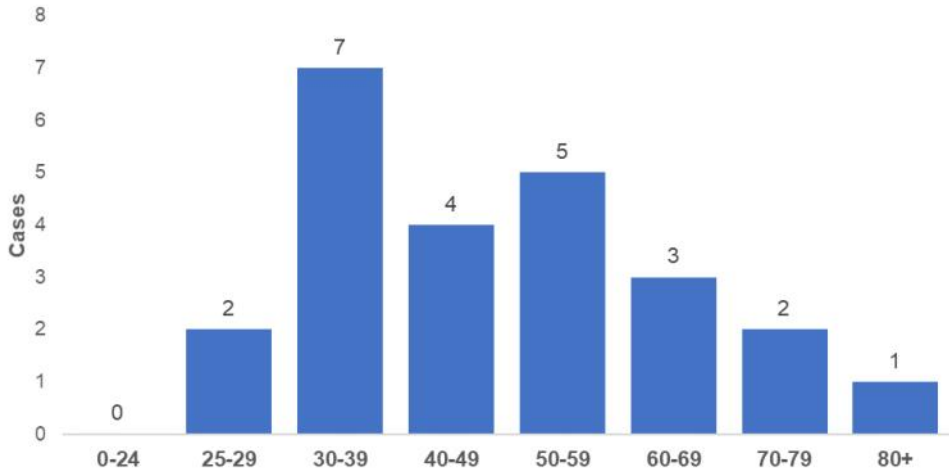
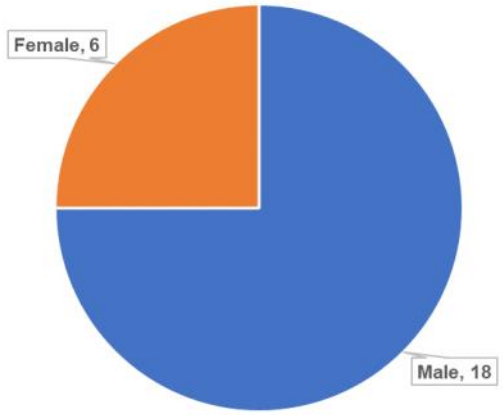


Figure 15: TB Cases by Gender, 2019 (N=24)



Figures 13, 14, & 15 Source: WCHS TB Program, 5/22/20.

Figure 16: TB Cases by US Compared to Foreign-Born, 2019 (N=24)

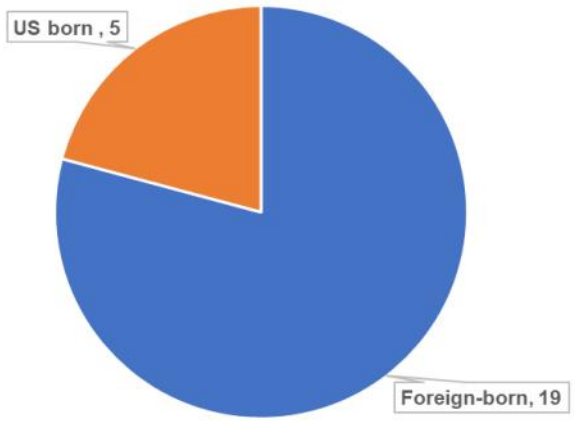


Figure 17: Foreign-born TB Cases by Country, 2019 (N=19)

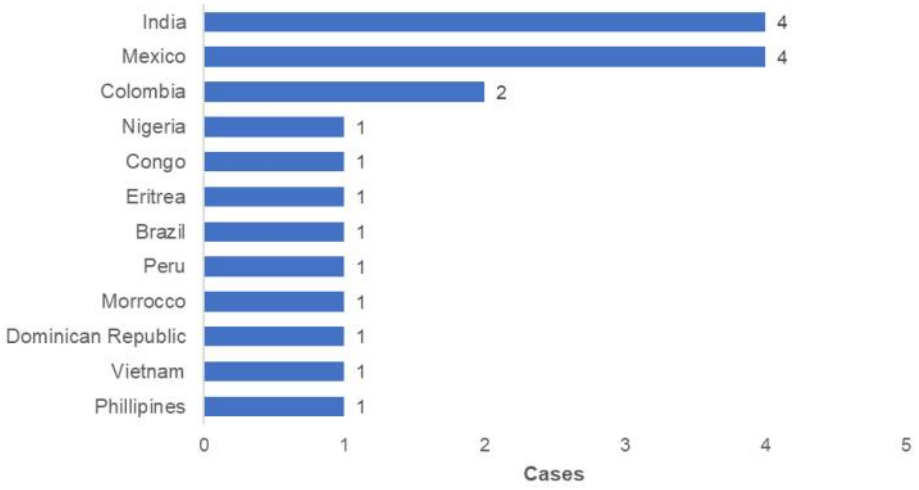


Figure 18: TB Cases by Site, 2019 (N=24)

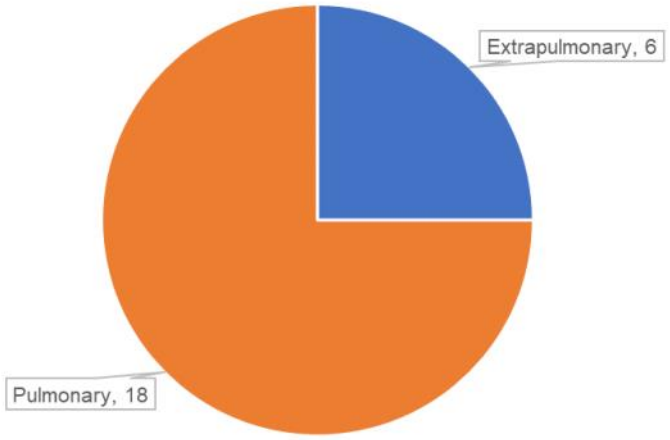
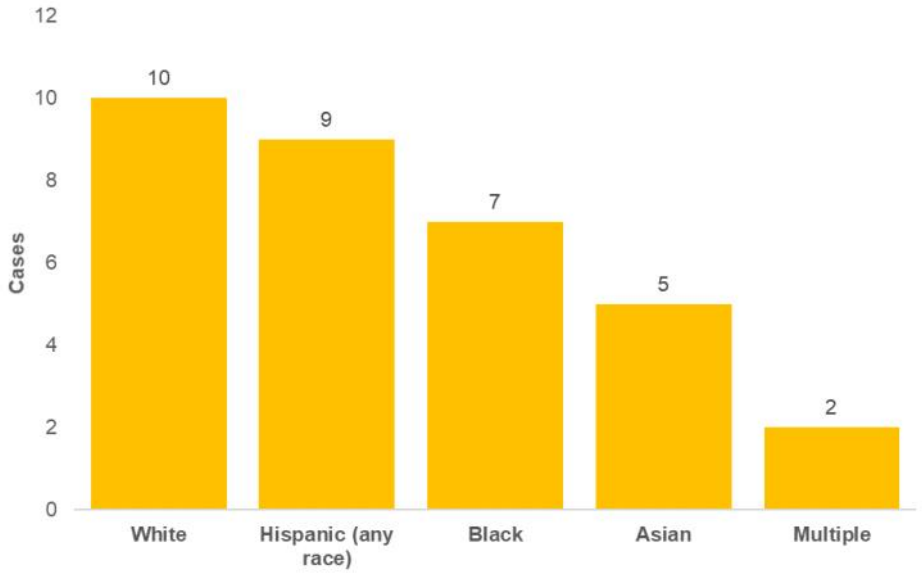


Figure 19: TB Cases by Race/Ethnicity, 2019



Figures 16, 17, 18 & 19 Source: WCHS TB Program, 5/22/20.

9.0 Program Updates

NOTE: Data customarily provided by WCHS' Communicable Disease, Epidemiology, and HIV/STD Community programs for this section of the report are not available this year as program resources are re-directed to the ongoing COVID-19 pandemic response.

Immunization Tracking Team		
Mission: Ensure that children and adults living in Wake County are age-appropriately immunized per NC Law		
Staff: Staffing / 4 FTE's: 1 Administrative Supervisor – 1 Registered Nurse – 2 Human Services Technicians		
Activity	**Description**	**Outcomes/Outputs**
Tracking for Compliance	Tracking to ensure Wake County children are age appropriately immunized, focus on 19-35 month-old children with medical home at WCHS.	For 741 clients with medical home at WCHS • 89% compliant at 24 months • 94% compliant at 35 months Exceeded NC statewide average in all categories
North Carolina Immunization Registry (NCIR)	Provide system administration, training and support to Wake County staff	• 400+ Active Users • 41 New Users added during this period of FY19
Immunization Program Management	Provides vaccine supply and inventory management to support 12 clinic and program areas.	71,140 doses received • 31,815 doses administered • 12,623 clients immunized during FY20
Middle School Immunization Compliance	Provides project management and professional nursing services for immunization initiative in collaboration with Wake County Public Schools system	7th grade cohort: 12,909 students • 108 students immunized with 192 vaccine doses at 'Exclusion Day' clinic event for school year 2019-2020
Outreach Immunization Clinics	Team provides access to immunization services for Wake County employees and the public at 'walk-in' clinics.	FY20 • 822 flu doses to clients • 780 flu doses to Wake County employees

Immunization Tracking Team

Activity	Description	Outcomes/Outputs
Stamaril Yellow Fever Vaccine Expanded Access Program	FY20 • Project management for time-limited program. One of 250 clinics in the U.S. selected for this project	• 394 Clients immunized (no services April -May-June) • Contract reimbursement $94,645
Supports Public Health Division	Provides clinical and/or administrative support and services for special projects and emergency response.	Team hosted 2 educational events for upcoming immunization law change and included community medical practice staff and WCPSS high school data managers

HIV/STD Community Program Highlights

AIDS United: Dissemination of Evidence-Informed Intervention- First to Meet Enrollment Goals Award

- On June 6, 2019, the HIV/STD Community Program received an award for the establishment of a Transitional Care Coordination (TCC) model. TCC supports the continuity of healthcare for HIV positive incarcerated individuals by linking clients living with HIV to community-based care and treatment services after incarceration. This model was developed with CDC grant funding as a SPNS (Special Project of National Significance) project. At the conclusion of time-limited SPNS funding , the HIV/STD Community Program was awarded funds to provide training on the TCC model so it can be replicated in other locations across the nation. Program staff are partnering with AIDS United to deliver TCC training.

National Association of Counties (NACo) 2019 Achievement Award

- On July 14, 2019, the WCHS HIV/STD Community Program's Hepatitis C (HCV) outreach received a National Association of Counties (NACo) 2019 Achievement Award for developing an innovative program. In year 2 of this dedicated hepatitis C education and screening effort, 12,480 residents were screened for HCV. Of those, 408 were identified as HCV positive and 278 (68 percent) were linked to care. Forty-three are currently in treatment and 69 have been cured. The 69 patients cured represent a savings of $39,819,900 in potential medical costs to the healthcare system.

North Carolina AIDS Action Network: 2019 Local Health Department of the Year Award

- On November 15, 2019 the North Carolina AIDS Action Network (NCAAN) awarded Wake County Human Services the Local Health Department of the Year Award at its statewide conference in Charlotte, NC. NCAAN recognized the work that WCHS has done to prevent HIV transmission and support people living with HIV. Wake County has been a statewide leader in providing PrEP (pre-exposure prophylaxis, a biomedical intervention that reduces the risk of getting HIV) to high-risk clients. WCHS has also been a critical partner in the education and advocacy work at the North Carolina General Assembly for many years.

10.0 References

[1] Crawford, Chris. “CDC Releases Interim Flu Vaccine Effectiveness Report.” American Academy of Family Physicians. February 26, 2020. Web. 5/14/20. https://www.aafp.org/news/health-of-the-public/20200226interimfluve.html.

[2] National, Regional and State Level Outpatient Illness and Viral Surveillance. Centers for Disease Control and Prevention. Web. 5/14/20. https://gis.cdc.gov/grasp/fluview/fluportaldashboard.html.

[3] WCHS Immunization Tracking Team, 5/15/20.

11.0 Acknowledgements

For contributions to this report:

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