

Wake County Human Services Public Health Report

Communicable Disease 2017



Regina Petteway, Human Services Director
Sue Lynn Ledford, Public Health Division Director
Editor-in chief: Edie Alfano–Sobsey, Public Health Epidemiologist
Content Editor: Ramsay Hoke, Human Services Program Specialist



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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 and to deliver the 10 public health essential services (see 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.

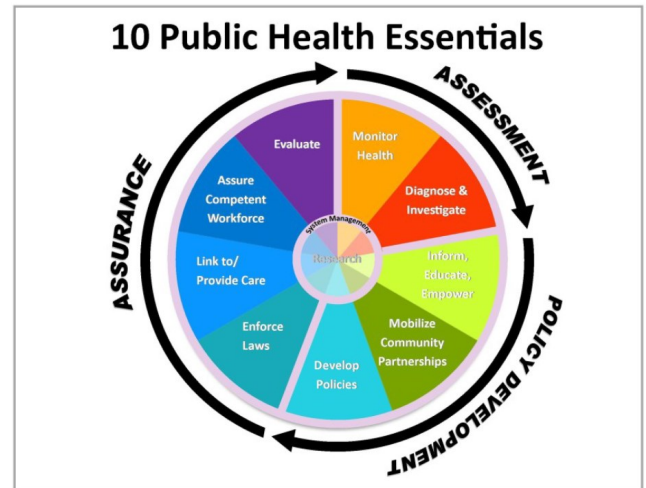
These reports help fulfill public health essential services:

- Number 1: Monitor health status to identify community health problems and
- Number 3: Inform, educate, and empower people about health issues

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



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 74 reportable diseases and conditions specified in the N.C. Administrative Code rule 10A NCAC 41A .0101 (<http://epi.publichealth.nc.gov/cd/index.html>).

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 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.

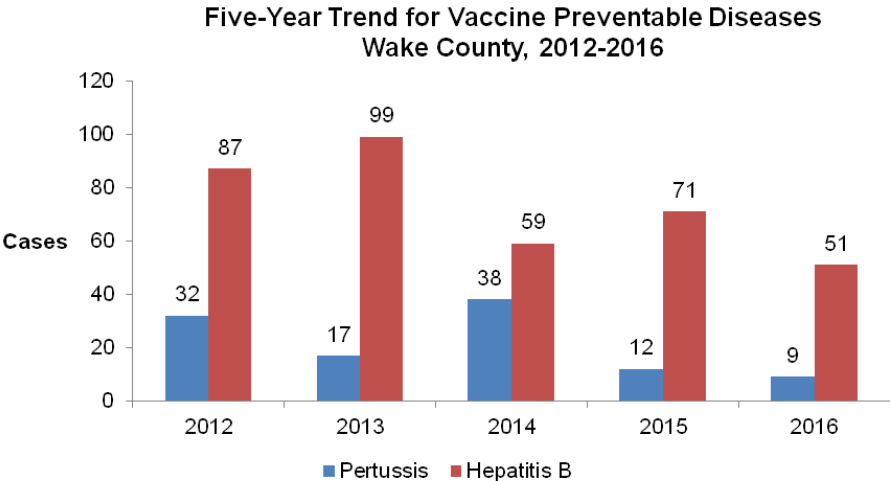
This report focuses on all diseases that have been reported in Wake County from 2012 through 2016 along with other information about selected communicable diseases of public health significance for Wake County. For a list of all reportable communicable diseases and conditions, see Table 10.

3.0 Vaccine Preventable Diseases

3.1 Pertussis and Hepatitis B

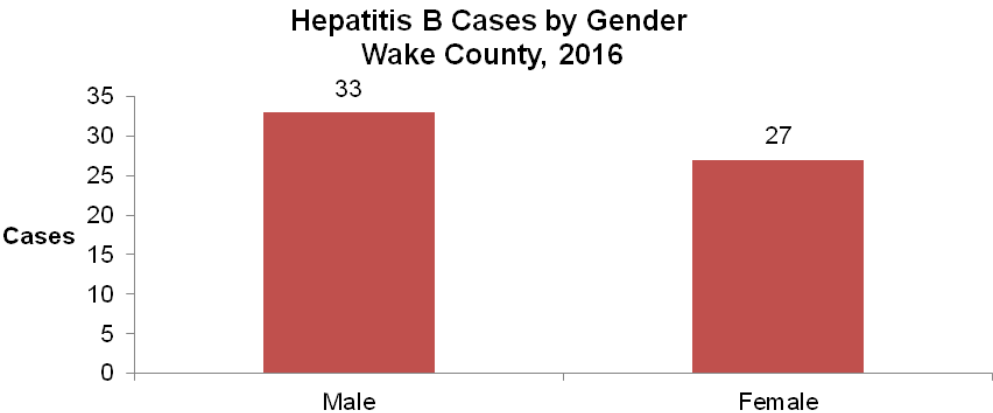
Over the last 5 years, the numbers of both pertussis (whooping cough) and hepatitis B cases have decreased in Wake County (see Figure 2).

Figure 2



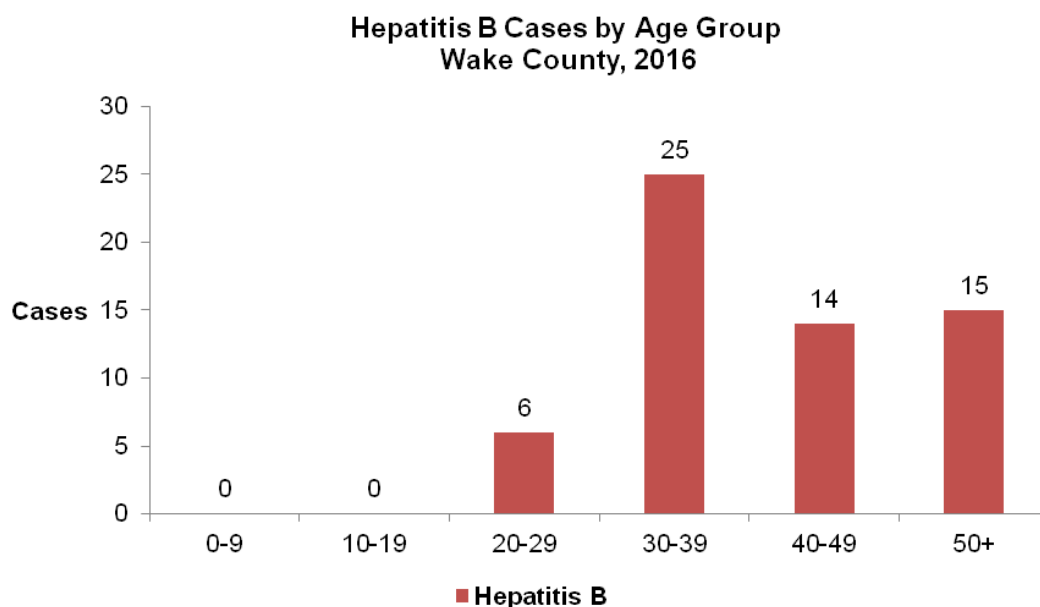
Source: NCEDSS, Technical Assistance and Training Program Case Count, accessed 3/20/17.

Figure 3



Source: NCEDSS, Technical Assistance and Training Program Demographic and Reporter –All Diseases Report, accessed 2/1/17.

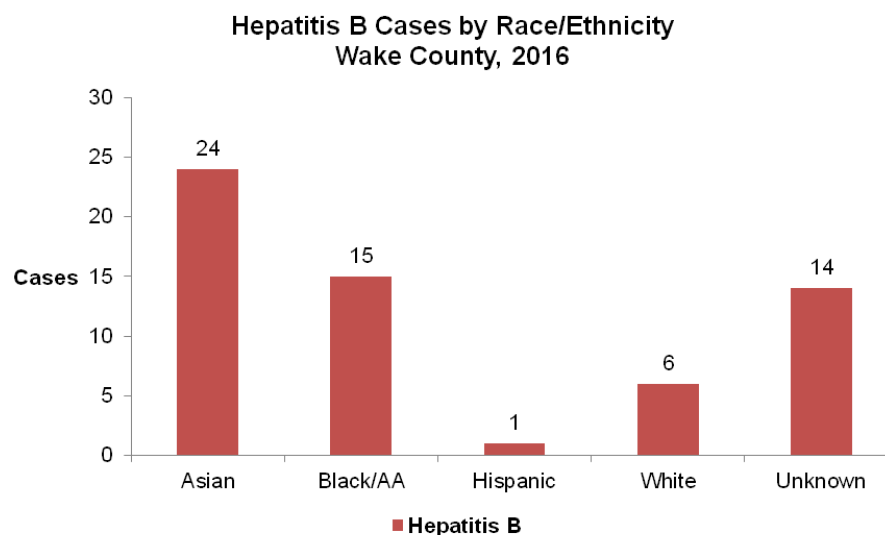
Figure 4



and Reporter - All Diseases Report, accessed 2/1/17.

Chronic hepatitis B cases and rates were at their lowest levels in the last 5 years. The demographic groups most affected by hepatitis B continued to be males, people ages 30-39 and Asians (see Figures 3, 4 and 5). One possible reason for the increase in cases in the Asian population is because the Asian percentage of Wake County's population increased from 5.4% in 2010 to 6.7% in 2015 [1].

Figure 5

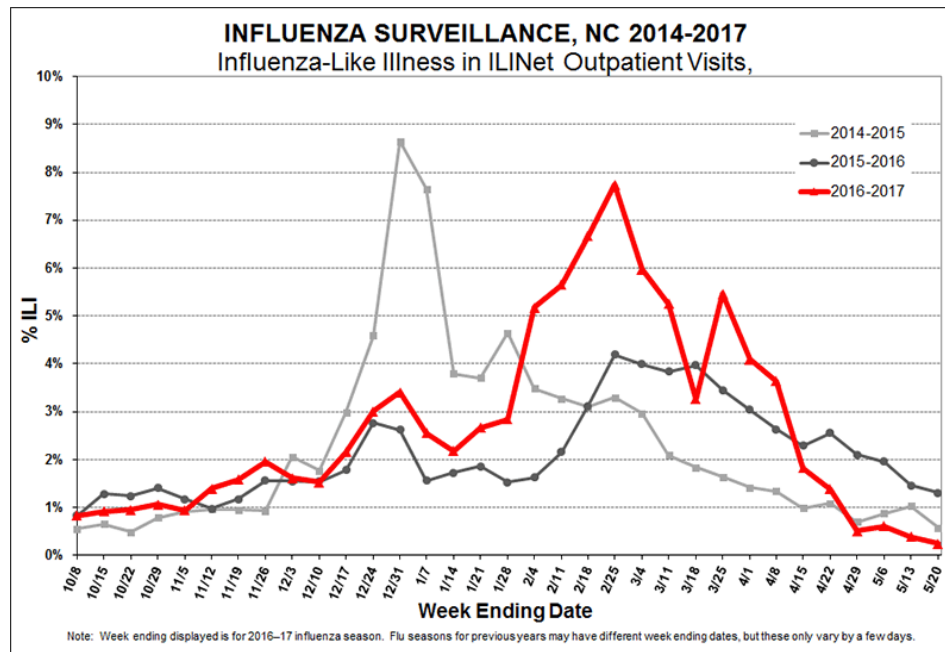


Source: NCEDSS, Technical Assistance and Training Program, Demographic and Reporter Report, accessed 2/1/17.

3.2 Influenza

The 2016-2017 flu vaccine formula was reported by CDC to be a good match for the circulating strains [2]. For 2016-17, nasal flu vaccines were not recommended by the CDC because of concerns about the vaccines' effectiveness. The peak of flu season for 2016-2017 was in late February, due to a late surge of illness during late February and early March (see Figure 6). There have been 219 deaths in North Carolina this flu season [3] and 22 deaths in Wake County [4].

Figure 6



Source: <http://www.flu.nc.gov/>, accessed 5/31/17.



Public Health employee
Kristen McHugh gets her
annual flu shot.

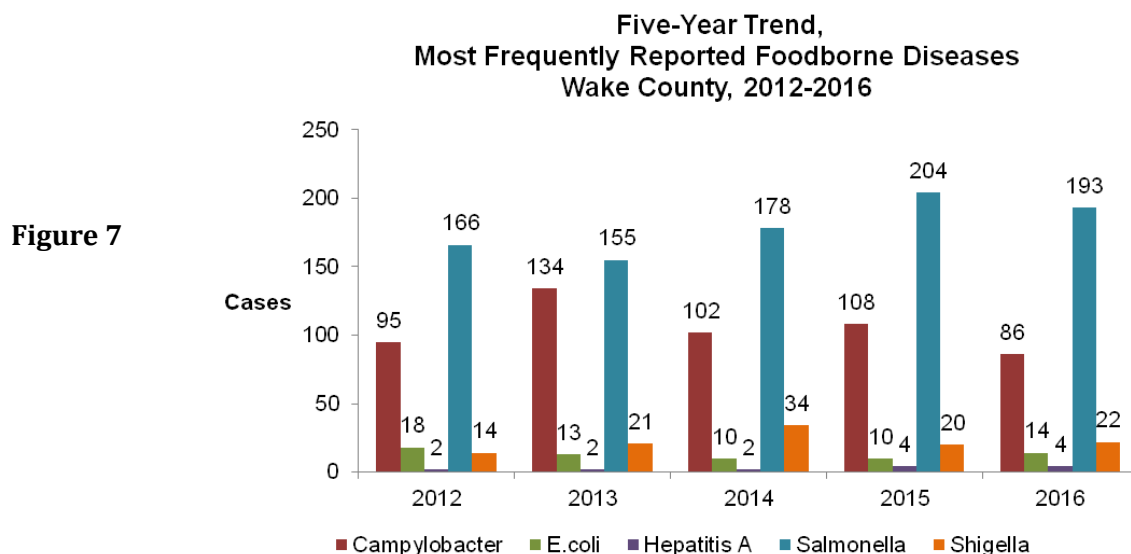
Table 1 shows the number of flu vaccine doses by age administered by Wake County Human Services between September 15, 2016 and March 1, 2017.

Table 1

Flu Vaccine Doses Administered by Wake County Human Services September 15, 2016 to March 1, 2017	
Total	7,131
Children ages 6 months through 18 years	4,088
Adults 19 years of age and older	3,043
The numbers above include 1,267 flu vaccine doses administered to Wake County employees. This number includes all staff, not just those covered by the Public Health Division's flu vaccine mandate.	

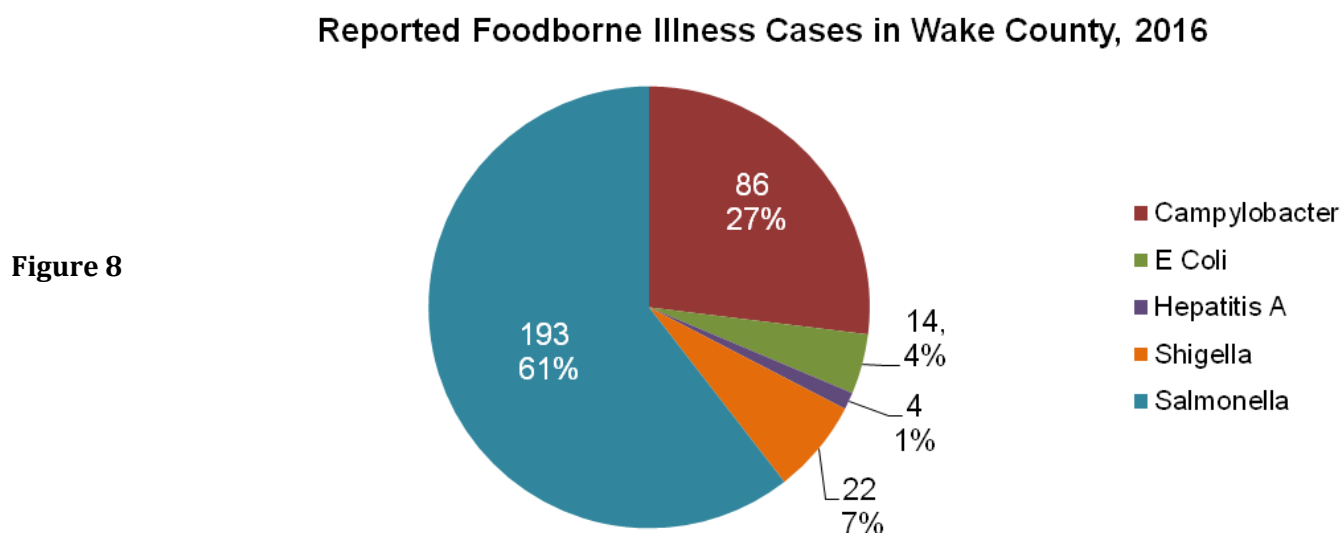
4.0 Foodborne Diseases

Figure 7 shows the five-year trend for the most frequently reported foodborne diseases in Wake County.



Source: NCEDSS, Technical Assistance and Training Program, Case Count, accessed 3/20/17.

Compared to 2015, *Salmonella*, *Shigella* and *Campylobacter* cases dropped in 2016. *E.coli* rose slightly and hepatitis A remained stable (See Figure 7). *Salmonella* and *Campylobacter* accounted for 88% of foodborne disease cases in 2016 (See Figure 8). Further demographic analysis of the two most commonly reported foodborne diseases shows that they were most prevalent among children and older adults, whites and race/ethnicity unknown, and evenly split between males and females (See Figures 9 -11).



Source: NCEDSS, Technical Assistance and Training Program, CD Demographic and Reporter Information Report, accessed 3/20/17.

Figure 9

Source: NCEDSS, Technical Assistance and Training Program, CD Demographic and Reporter Information Report, accessed 3/20/17.

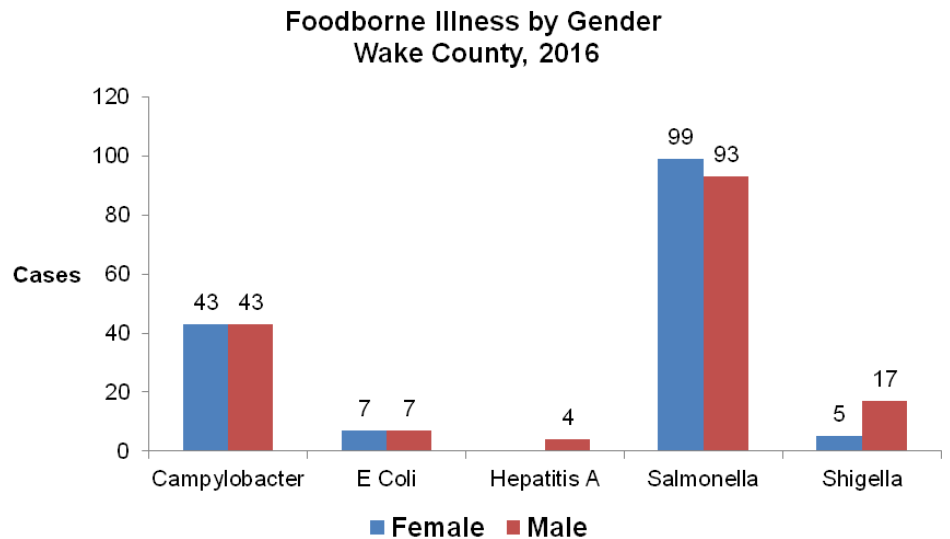


Figure 10

Source: NCEDSS, Technical Assistance and Training Program, CD Demographic and Reporter Information Report, accessed 3/20/17.

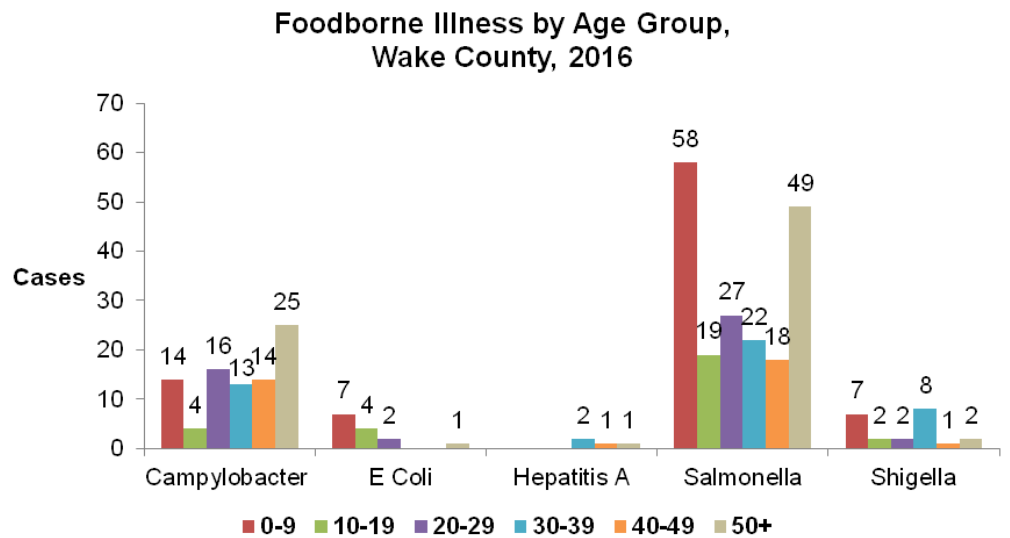
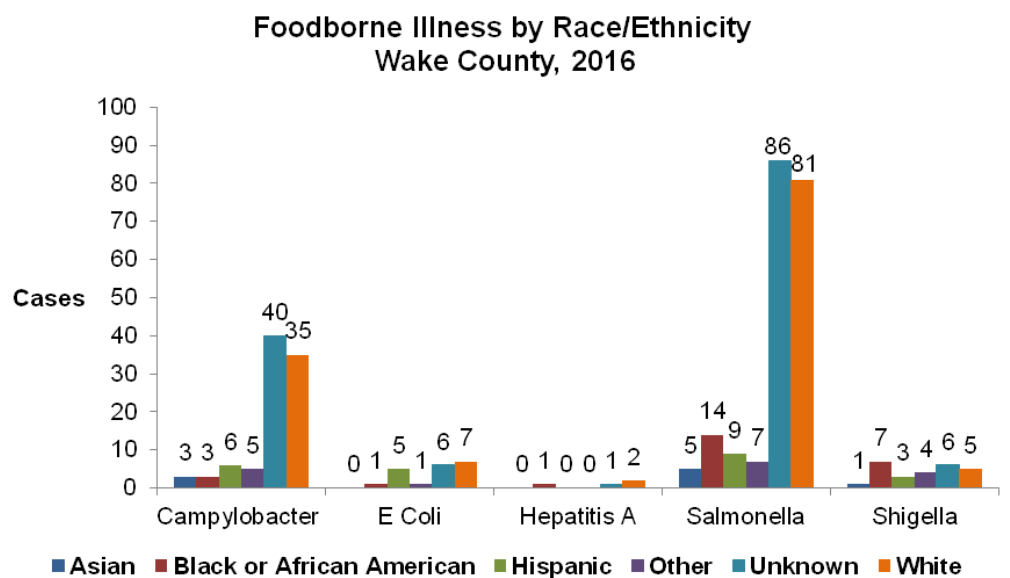


Figure 11

Source: NCEDSS, Technical Assistance and Training Program, CD Demographic and Reporter Information Report, accessed 3/20/17.



4.1 Foodborne Outbreaks

All foodborne outbreaks are required to be reported to the local health department and the NC Division of Public Health. In 2016, the Communicable Disease Nursing Team investigated six suspected (non-laboratory confirmed) norovirus outbreaks with 143 sick individuals and 3 lab-confirmed norovirus outbreaks with 138 sick individuals [5].

4.2 Food Safety

In a 2015 study of risk factors associated with foodborne illness, the Wake County Environmental Health and Safety Division (EH&S) evaluated 447 randomly selected food service establishments representing nine different types of facilities. The study evaluated the Centers for Disease Control and Prevention (CDC) risk factors that contribute to foodborne illness outbreaks:

- Food from unsafe sources (ex. USDA approved meats)
- Inadequate cooking (foods fully cooked (not served raw))
- Improper holding/time and temperature
- Contaminated equipment/prevention of contamination
- Poor personal hygiene (no sick employees, hand washing, etc.)

Compared to the 2010 study there was improvement in each category (see Table 2). Improvements stemmed from a significantly strengthened FDA food code in 2012.

Table 2

CDC Risk Factor Observations	Average in Compliance	
	2010	2015
Food Source	95% compliant	96% compliant
Inadequate Cooking	91% compliant	94% compliant
Improper Holding	57% compliant	66% compliant
Contamination	87% compliant	88% compliant
Personal Hygiene	82% compliant	90% compliant
Other Observations		
Certified Food Protection Manager Present	42% compliant	72% compliant
Employee Health Policy Compliance	10% compliant	66% compliant
Cold Holding (Foods held at 41° F)	48% compliant	56% compliant

Source: Wake County Environmental Health and Safety Division, 3/28/17.

5.0 Vector-borne Diseases

Vector-borne diseases are caused by microbes that are spread to people by arthropods like ticks and mosquitoes that feed on human blood. The vector-borne diseases that occur most often in Wake County are transmitted by ticks.

Table 3 shows confirmed as well as suspect and probable cases of tickborne disease (ehrlichiosis, Lyme disease and Rocky Mountain spotted fever). For tickborne diseases, 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 3

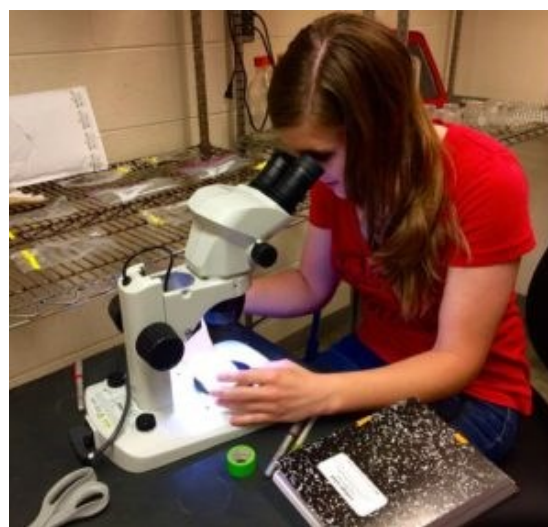
Tickborne Diseases in Wake County, 2012 - 2016										
	2012		2013		2014		2015		2016	
	Confirmed	Suspect/ Probable/ Confirmed	Confirmed	Suspect/ Probable/ Confirmed	Confirmed	Suspect/ Probable/ Confirmed	Confirmed	Suspect/ Probable/ Confirmed	Confirmed	Suspect/ Probable/ Confirmed
Ehrlichia	0	1	0	0	0	0	0	0	0	0
Ehrlichia, HGE	0	10	0	11	0	8	0	4	0	1
Ehrlichia, HME	1	61	2	17	1	11	1	7	1	10
Rocky Mountain Spotted Fever	0	169	0	72	0	100	1	47	2	35
Lyme disease	2	32	7	58	7	53	3	27	4	30

Source: NCEDSS, Technical Assistance and Training Program CD Case Counts, accessed 1/10/2017.

5.1 Zika Virus and the North Carolina Mosquito Survey

Zika virus disease (Zika) is spread primarily by the bite of an infected *Aedes* species mosquito (*Ae. aegypti* and *Ae. albopictus*). Zika is also spread through unprotected sex, from mother to baby or blood transfusions. Most people with Zika experience only a mild viral illness that lasts for a few days, but having Zika during pregnancy can cause serious birth outcomes.

North Carolina reported 98 cases of travel-associated Zika and 0 cases of locally acquired Zika in 2016 [6]. Wake County reported 18 cases of travel associated Zika and 0 cases of locally acquired Zika in 2016. As of April 19, an additional 217 suspected Zika cases have been reported to, then investigated by the Wake County Communicable Disease Program. The suspected cases were primarily pregnant women who had traveled to areas of the world where Zika is widespread [7].

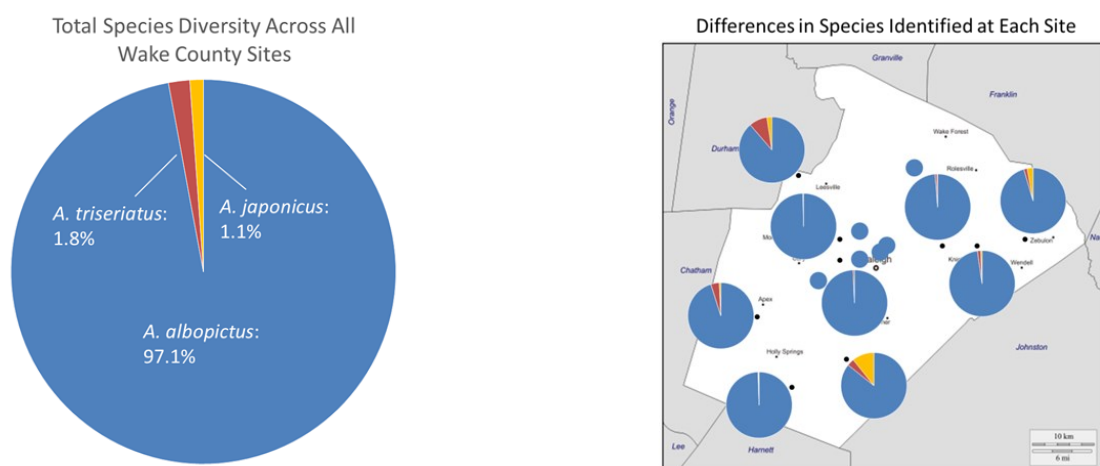


Anastasia Figurskey, Wake County Environmental Services, examines mosquito eggs under a microscope. Photo credit: Catherine Clabby, NC Health News

While it is known that Zika is spread mainly by bites from infected mosquitoes, recent data has not been available on the predominant mosquito in Wake County since a mosquito surveillance survey has not been conducted in over 20 years [8]. As a result, Wake County joined 16 other local health departments, 3 military bases, Western Carolina University, East Carolina University and North Carolina State University in participating in the North Carolina Mosquito Survey from May—October 2016. The focus was to identify the types of container-breeding mosquitoes in North Carolina. Information from the survey will provide valuable information about the potential for mosquito-borne disease transmission. The study involved trapping mosquitoes, counting eggs, and identifying larvae. Figures 12 and 13 show the predominant species identified, as well as spatial and temporal variation of the eggs. *No Aedes aegypti* (the species that is the most effective transmitter of Zika) was identified in Wake County.

Figure 12

Average Diversity of Container-breeding Mosquitoes in Wake County and Variation Among Sites Sampled within Wake County



Source: Figurskey, A., C. Loop, M. Reiskind, and E. Reed (2016). Container-breeding mosquito species survey in Wake County, NC. Presented at the 51st annual meeting of the North Carolina Mosquito and Vector Control Association, November 14-16, 2016, Carolina Beach, NC.

Figure 13 shows the seasonal dynamics of the number of *A. Albopictus* eggs collected in Wake County per week.

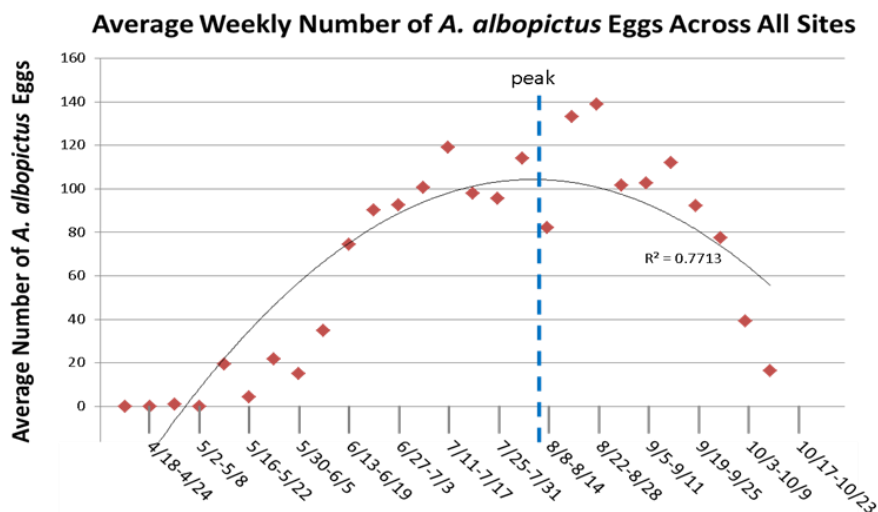


Figure 13

Source: Figurskey, A., C. Loop, M. Reiskind, and E. Reed (2016). Container-breeding mosquito species survey in Wake County, NC. Presented at the 51st annual meeting of the North Carolina Mosquito and Vector Control Association, November 14-16, 2016, Carolina Beach, NC.

6.0 Waterborne Diseases

Pathogens and chemicals can contaminate water we swim in (pools, hot tubs, water parks, water play areas, decorative water fountains, lakes, rivers and oceans).

Pathogens can cause illness when people:

- Have contact with contaminated water
- Breathe in mists from contaminated water
- Swallow contaminated water

People can also get sick when chemicals in the water or chemicals that evaporate from the water cause problems with air quality, particularly with indoor pools.

These kinds of illnesses are called recreational water illnesses. Recreational water illnesses represent a wide variety of infections including gastrointestinal, skin, ear, respiratory, eye, neurologic and wound infections. Diarrheal illnesses are the most commonly reported group of recreational water illnesses [9].

Over the summer of 2016, 62 Wake County residents had symptoms of cryptosporidiosis (crypto) severe enough to go to the doctor for testing. Many others were most likely infected, but they had only mild symptoms or their symptoms resolved before they were tested. A crypto outbreak investigation revealed that those infected had been swimming in pools. Thirty-nine pools at 17 different locations were affected and several pools had to be closed temporarily [10].

To prevent similar outbreaks in the future, Wake County Environmental Services and Wake County Human Services are jointly launching an education campaign in the summer of 2017 that will include:

- Prevention messaging through traditional and social media
- Prevention posters for pools in English and Spanish (see Figure 14)
- Emails to swim team parents
- *Cryptosporidium* testing information for medical providers
- Recommendations for the regular hyperchlorination of pools

Figure 14



Poster for use at pools to educate swimmers how to prevent Crypto and other illnesses that can be spread in pool water.

7.0 Sexually Transmitted Diseases

Five of the largest six counties in NC saw decreases or only a slight increase in early syphilis from 2015 to 2016; only Mecklenburg County experienced a significant increase (see Table 4). Wake County's rates for other STDs (HIV, chlamydia and gonorrhea) continue to be lower than the other largest counties in NC (see Tables 5, 6 and 7). Wake County has increased STD prevention efforts, going beyond the traditional clinic model to reduce the numbers of new cases (see section 9.3, the HIV/STD Community program).

Table 4

Early Syphilis										
	2012		2013		2014		2015		2016	
	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*
Cumberland	30	9.3	47	14.4	75	23	116	35.8	82	25.1
Durham	24	8.5	46	16	73	24.7	134	44.5	117	38.2
Forsyth	43	12	51	14.1	51	14	81	22	85	22.9
Guilford	58	11.6	51	10	89	17.4	198	38.3	163	31.3
Mecklenburg	127	13.1	149	15	274	27.1	405	39.2	471	44.7
Wake	82	8.6	110	11.3	170	18	248	24.3	246	23.5
NC	565	5.8	688	7	1137	11.5	1866	18.6	1855	18.3

*Rate per 100,000 population

Source: For 2012-2015 data, http://epi.publichealth.nc.gov/cd/stds/figures/std15rpt_rev10112016.pdf, accessed 3/1/17. For 2016 data, <http://epi.publichealth.nc.gov/cd/stds/figures/vol16no4.pdf>, accessed 3/1/17.

Table 5

HIV										
	2012		2013		2014		2015		2016	
	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*
Cumberland	63	19.5	73	22.4	76	23.3	83	25.6	70	21.4
Durham	67	23.7	70	24.3	64	21.7	61	20.3	84	27.4
Forsyth	53	14.8	65	18	50	13.7	55	14.9	84	22.6
Guilford	95	19	116	22.9	97	18.9	121	23.4	144	27.6
Mecklenburg	256	26.4	237	23.9	311	30.7	289	27.9	280	26.5
Wake	137	14.4	165	16.9	152	15.2	135	13.2	180	17.2
NC	1266	13	1320	13.4	1323	13.3	1345	13.4	1452	14.3

*Rate per 100,000 population

Source: For 2012-2015 data, http://epi.publichealth.nc.gov/cd/stds/figures/std15rpt_rev10112016.pdf, accessed 3/1/17. For 2016 data, <http://epi.publichealth.nc.gov/cd/stds/figures/vol16no4.pdf>, accessed 3/1/17.

Table 6

Chlamydia										
	2012		2013		2014		2015		2016	
	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*
Cumberland	3,578	1,107.2	3,648	1,117.8	3,131	961.0	3,131	966.8	2,815	860.5
Durham	1,859	657.8	2,185	757.0	2,160	731.4	2,284	758.9	2,154	703.4
Forsyth	2,802	782.9	2,418	669.1	2,422	662.5	2,484	673.1	2,123	571.5
Guilford	3,801	758.6	3,879	764.9	3,563	694.6	4,138	799.5	4,140	794.1
Mecklenburg	5,986	618.1	6,243	629.4	6,939	685.7	7,893	763.3	7,183	681
Wake	4,615	484.5	4,255	436.5	4,558	456.1	4,966	484.9	4,884	466.6
NC	49,478	507.6	49,220	499.9	49,956	502.6	54,383	541.5	51,106	503.7

*Rate per 100,000 population

Source: For 2012-2015 data, http://epi.publichealth.nc.gov/cd/stds/figures/std15rpt_rev10112016.pdf, accessed 3/1/17. For 2016 data, <http://epi.publichealth.nc.gov/cd/stds/figures/vol16no4.pdf>, accessed 3/1/17.

Table 7

Gonorrhea										
	2012		2013		2014		2015		2016	
	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*
Cumberland	1,090	337.3	1,252	383.6	1,116	342.5	1,016	313.7	1,092	333.8
Durham	640	226.5	798	276.5	752	254.6	738	245.2	857	279.9
Forsyth	721	201.4	751	207.8	936	256.0	1,044	282.9	855	230.1
Guilford	1,371	273.6	1,382	272.5	1,271	247.8	1,655	319.7	1,656	317.6
Mecklenburg	1,783	184.1	1,857	187.2	2,392	236.4	2,575	249.0	2,534	240.2
Wake	1,336	140.3	1,215	124.7	1,264	126.5	1,452	141.8	1,443	137.8
NC	13,740	141.0	14,114	143.4	14,970	150.6	17,047	169.7	17,533	172.8

*Rate per 100,000 population

Source: For 2012-2015 data, http://epi.publichealth.nc.gov/cd/stds/figures/std15rpt_rev10112016.pdf, accessed 3/1/17. For 2016 data, <http://epi.publichealth.nc.gov/cd/stds/figures/vol16no4.pdf>, accessed 3/1/17.

7.1 Syphilis Outbreak

After three straight years of huge increases in cases and rates, preliminary 2016 data shows that the syphilis outbreak in Wake County may have leveled off (see Figure 15). In October 2016, the North Carolina Communicable Disease Branch held a “syphilis summit” in conjunction with program staff from the state’s largest six counties. These six counties are responsible for over 62% of the entire state’s syphilis morbidity (see Table 4). Each county developed strategies and action plans to slow the syphilis outbreak. Wake County’s summit participants adopted three key strategies as part of their overall action plan:

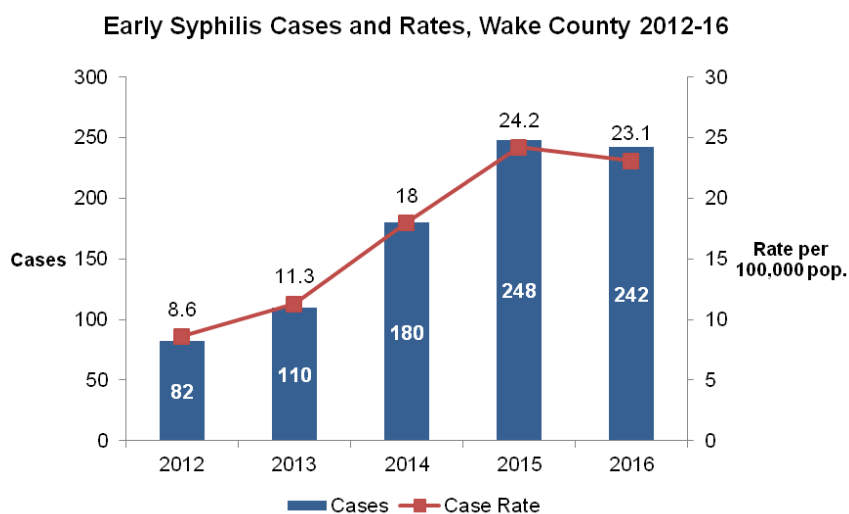
- Developing and using technology-based health services (e.g, partner notification through social media) in order to reach cases and contacts
- Increasing timely syphilis testing and treatment, across the entire spectrum of Wake County’s medical community
- Targeting syphilis education to community providers who diagnose the highest number of cases

As in previous years, those at highest risk for early syphilis continue to be:

- People with HIV infection
- People who meet partners on the internet
- People ages 25-34
- Men (particularly men who have sex with men, or MSM)
- Black/African-Americans

Figure 15

Source: For 2012-15 data, http://epi.publichealth.nc.gov/cd/stds/figures/std15rpt_rev10112016.pdf, accessed 2/24/17. For 2016, case data obtained via the LHD Syphilis Case & Risk Report in NCEDSS, 2/23/17.



7.2 Human Papilloma Virus (HPV)

The HPV vaccine helps prevent cervical, vaginal and vulvar cancer in females and throat and penile cancer in males. The vaccine is recommended for people 9—26 years of age and can be administered as a 2 or 3 dose series. For maximum benefit, HPV vaccine should be administered before the onset of sexual activity. WCHS provides HPV immunizations at its regional centers and Sunnybrook clinics.

WCHS experienced an increase in demand for HPV immunization during fiscal year 2017 (see Table 8) and direct-to-consumer marketing may have been a factor. The fiscal year 2017 total is a 27% *increase* in the number of doses administered over the same period of the previous year [11].

Table 8

Wake County HPV Immunizations, FY 2016 and 2017		
Fiscal Year	Number of Clients Receiving HPV Vaccine	Percentage of clients 13-18 years of age
2016 July 1, 2015 to February 1, 2016	1,360 clients	39% (531)
2017 July 1, 2016 to February 1, 2017	1,726 clients	46% (790)

Source: WCHS Immunization Tracking Team, 2/22/17

Figure 16 shows that HPV is attributable to the vast majority of U.S. cancer cases across certain body sites, particularly in the cervix for women and the oropharynx for men. Significantly, the available vaccines target the HPV types that cause these cancers. Figure 17 shows the substantial positive impact that Australia's HPV vaccination efforts had in reducing genital warts over a seven year period.

Estimated HPV-associated and -attributable Cancer Cases per Year in the US, 2008-12.

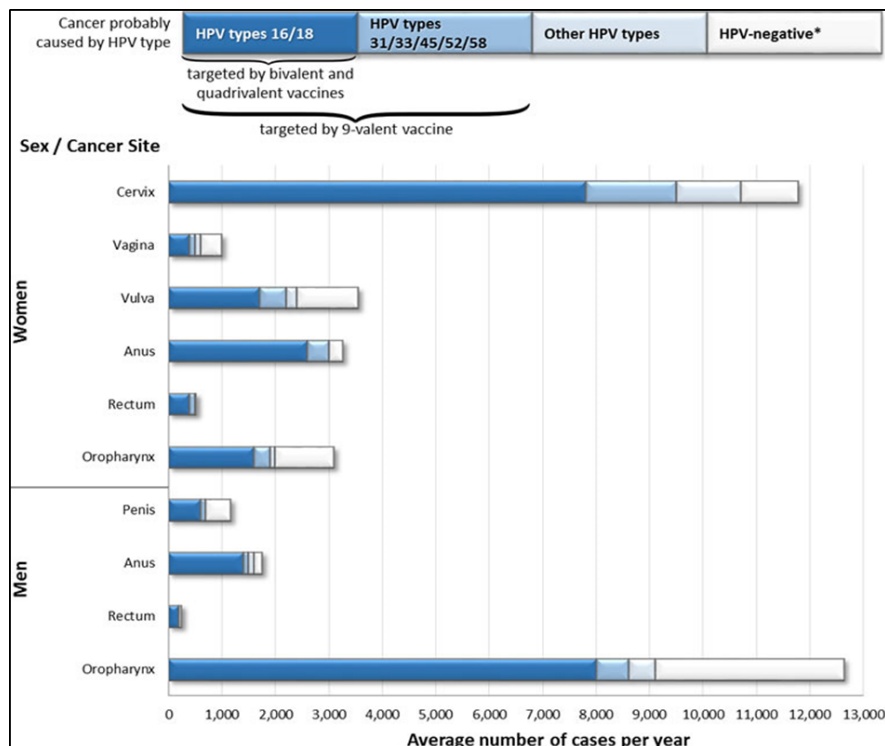
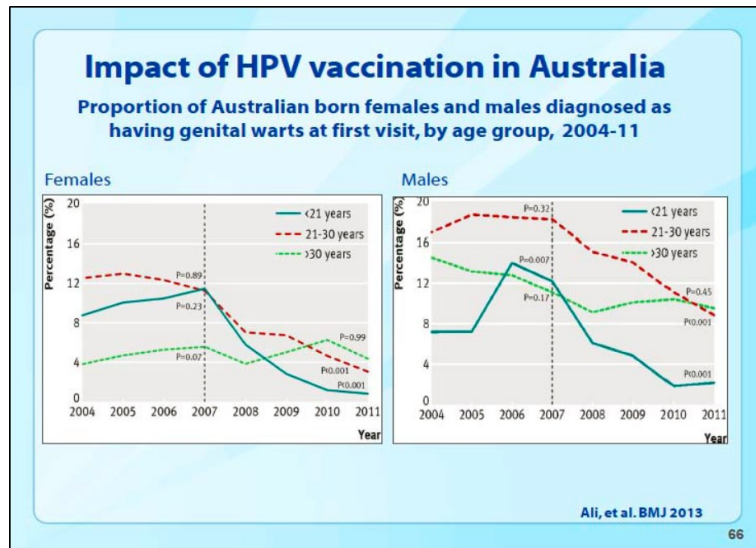


Figure 16

Source: <https://www.cdc.gov/cancer/hpv/statistics/cases.htm>
accessed 3/21/17.

Figure 17



Source: Power point presentation by Dr. Peter Leone, NC Annual STD Update, 3/8/17.

7.3 Immediate Access to HIV Care and Treatment—CDC SPNS Grant

In July 2016, WCHS's HIV/STD Community Program in conjunction with the University of North Carolina received a grant award from CDC's Special Projects of National Significance (SPNS) to implement the *Transitional Care Coordination—From Jail Intake to Community HIV Primary Care* model. The central aim of the TCC model is to link incarcerated HIV-positive clients to community-based care and treatment services after incarceration.

WCHS now has two HIV Bridge Counselors (Transitional Care Coordinators) who work to identify then engage people living with HIV during a jail stay. The Transitional Care Coordinators (TCC) provide health education, discharge planning and collaboration with both jail based health staff and "right fit" community resources in order to facilitate continuity of care after incarceration. Since January 1, 2017, the Transitional Care Coordinators have identified 26 HIV-positive, TCC-eligible individuals in jail, and 21 have agreed to receive TCC services [12].

7.4 Hepatitis C Screening Initiative

An estimated 4 million Americans are currently living with chronic hepatitis C infection. Hepatitis C is also a leading cause of liver cancer and the number-one cause of liver transplants in the US. People often do not know they are infected with hepatitis C and over 75 percent of those infected in the United States were born from 1945 to 1965.

In July 2016, WCHS was awarded a Gilead FOCUS (On the Frontlines of Communities in the United States) grant, titled "Integrating Routine HCV Screening at a Local Health Department". Since July 2015, WCHS has implemented routine, opt-out (offer screening to everyone unless they refuse) HIV screening with success in identifying people infected with HIV. Based on this model, the purpose of the FOCUS grant is to reduce the number of undiagnosed individuals with hepatitis C and decrease the number of those who are diagnosed late. The grant also ensures strong linkage to care and treatment by:

- Implementing hepatitis C virus screening into normal clinic flow according to the new CDC guidelines to test those born between 1945-1965 (baby boomers) in addition to the current targeted approach to only test those with certain risk factors

- Incorporating modifications to the Electronic Medical Records (EMR) to alert providers to order the tests
- Linking individuals to care who test positive for HCV through the current WCHS Bridge Counseling Program with the addition of a Bridge Counselor.
- Implementing Continuous Quality Improvement (CQI) processes for HCV screening and linkage to care procedures

Table 9

People Screened by WCHS for HIV and Hepatitis C April 1, 2016 — March 31, 2017													
	Baseline						FOCUS Project Start						
HIV	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016	Sep 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	TOTAL
Number HIV tests performed*	1680	1700	1655	1685	1760	1691	1711	1184	366	1809	1625	1115	18981
Number HIV + patients identified through testing	11	12	21	7	9	17	11	8	8	13	9	7	126
Number diagnosed acute HIV infections	0	0	0	3	0	0	0	0	0	0	0	7	10
Hepatitis C	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016	Sep 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	TOTAL
Number HCV Ab tests performed	260	253	264	162	157	137	372	414	398	442	420	585	3864
Number HCV Ab positive patients identified through testing	11	17	17	12	15	16	19	16	11	25	19	21	199
Number HCV RNA tests performed	11	16	17	11	11	16	19	16	11	25	18	21	192
HCV RNA positive patients identified through testing	10	11	10	8	11	16	19	12	7	17	14	13	148
HCV RNA positive patients (identified through testing) attended first appointment for clinical services	0	0	0	0	0	0	5	0	5	13	4	36	63

Source: WCHS Centricity Electronic Medical Record.

*Note: The FOCUS project has not modified the WCHS universal opt-out HIV testing which had been implemented prior to the start of the FOCUS grant.

The goal is to continue to provide screening for HIV and to provide hepatitis C screening to 5,000 individuals during the grant year. Table 9 (page 17) shows the number of patients between April 2016 and February 2017 who received HIV and HCV screening by month. Since the initiation of the project in October 2016, the number of HCV tests performed among eligible patients based on risk factors and the birth cohort (born from 1945-1965) for WCHS has increased. More importantly, linkage to care processes for those positive for HCV were put in place where previously there were none.

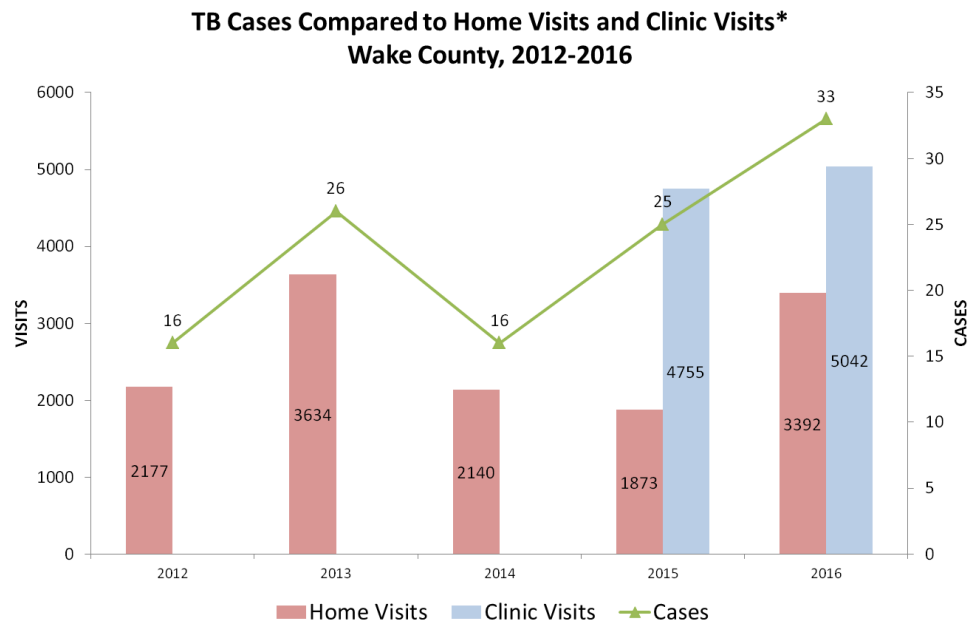
8.0 Tuberculosis (TB)

The number of tuberculosis (TB) cases in Wake County has risen dramatically in the last three years, more than doubling from 16 cases in 2014 to 33 cases in 2016 (see Table 10). The number of TB home visits in 2016 rose sharply compared to 2015 (see Figure 18). Home visits must be done because TB Directly Observed Therapy (DOT) is mandated by NC Public Health Law (*10A NCAC 41A .0205(g)*). In a DOT home visit, a TB nurse:

- observes the patient take their medicine
- assesses the patient for adverse medication side effects
- administers monthly vision and liver function tests

If a test is abnormal, DOT is discontinued and the patient is referred to the TB clinic for follow-up with the TB physician.

Figure 18



*Clinic visit data prior to 2015 not available due to a change in patient management systems.
Source: WCHS TB Program, 3/7/17 and 5/19/17.

As in previous years, the 2016 percentage of foreign-born TB cases was much higher than for US-born cases (see Figure 19). Of the foreign-born cases (N=25), the countries of origin were as follows: Mexico (6), India (4), Philippines (2), Honduras (2), China (2), Nigeria (2), Guatemala (1), Gambia (1). Burma (1), Korea (1), Ethiopia (1), Kenya (1) and Bangladesh (1).

**Wake County TB Cases
Percentage of Foreign Born Compared to US Born, 2012-16**

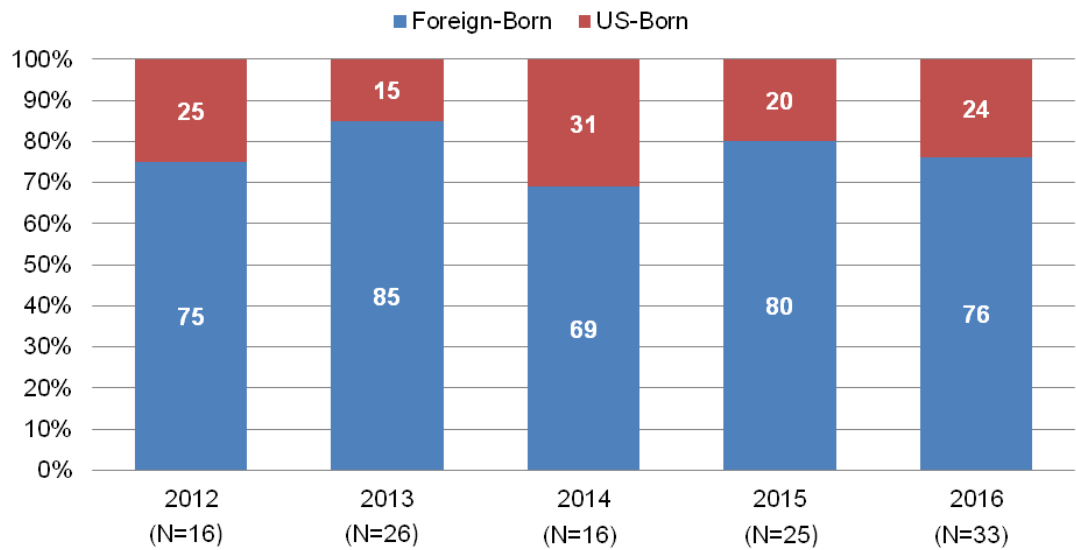


Figure 19

Source: WCHS TB Program, 3/7/17.

In 2016, TB cases predominated among those ages 25-54 and males, and were equally distributed among Blacks, Asians and Hispanics (see Figures 20, 21 and 22).

**TB Cases by Age Group, Wake County, 2016
(N=33)**

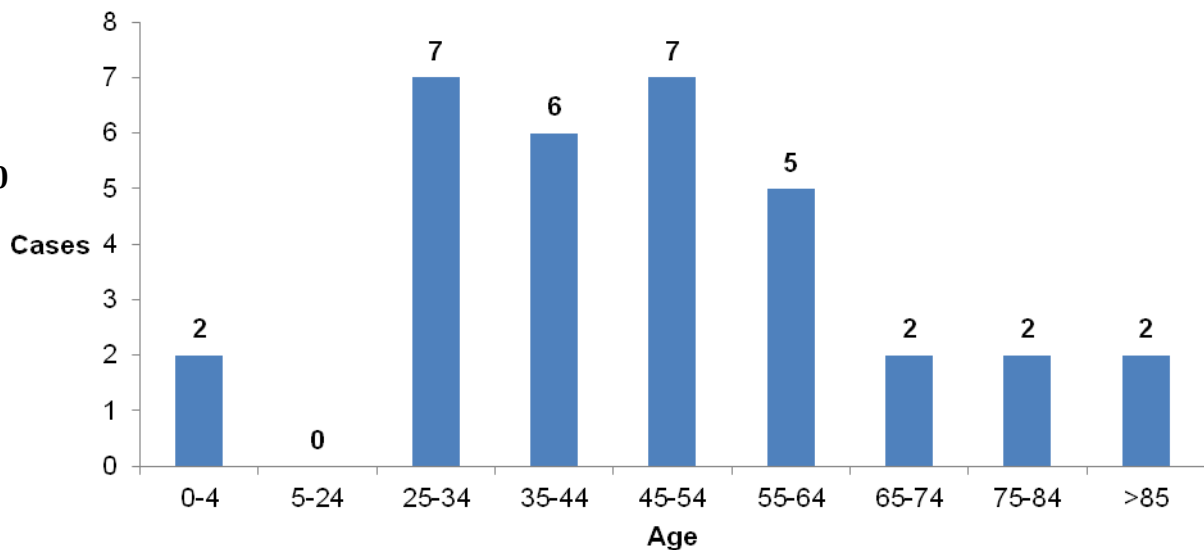
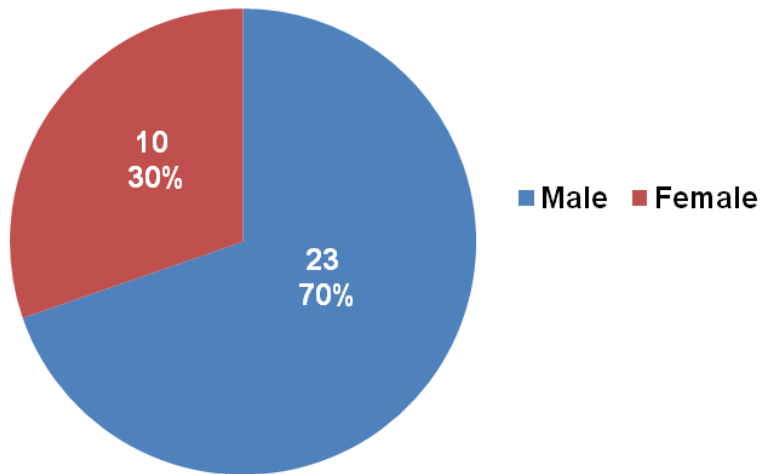


Figure 20

Source: WCHS TB Program, 3/7/17.

**TB Cases by Gender, Wake County, 2016
(N=33)**

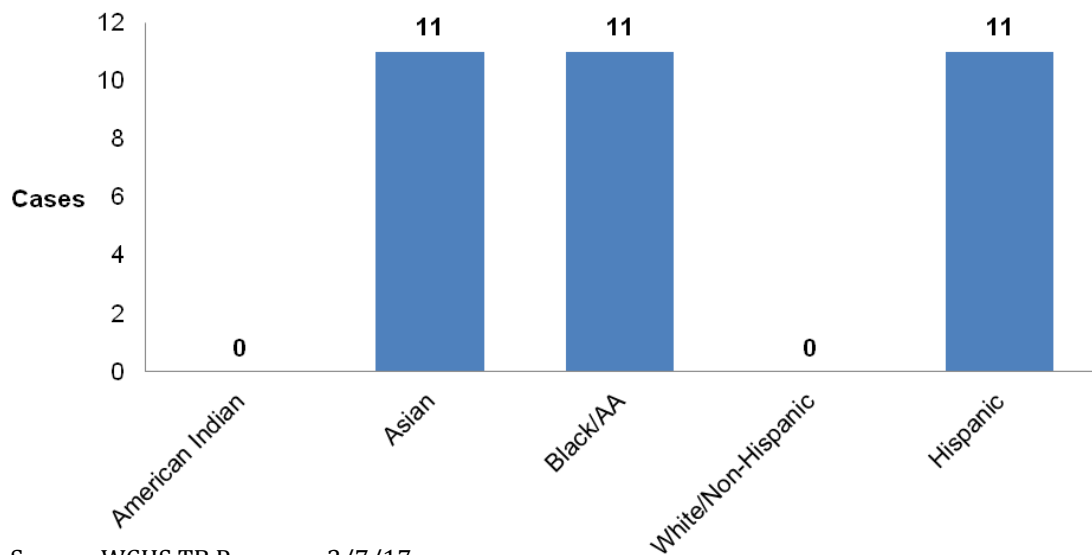
Figure 21



Source: WCHS TB Program, 3/7/17.

**TB Cases by Race/Ethnicity, Wake County, 2016
(N=33)**

Figure 22



Source: WCHS TB Program, 3/7/17.

9.0 Program Profiles

This section describes:

- Public Health programs, services and activities that assess, identify, treat, follow up and prevent reportable (and some non-reportable) communicable diseases and conditions in Wake County
- The number of employees dedicated to those activities
- Program outputs

9.1 The Wake County Immunization Tracking Team

The Immunization Tracking Team's mission is to ensure that children and adults living in Wake County are age-appropriately immunized per North Carolina law.

Staff: County Funded – 4 FTE

Program/Service	Description	Program Outputs 7/1/16-3/1/17 (unless otherwise noted)
Tracking for Compliance	Ensure Wake County children are age appropriately immunized; focus on 19-35 month old children with medical home at Wake County Human Services	<ul style="list-style-type: none"> 81% compliant at 24 months 91% compliant at 35 months (N=3,150 on October 2, 2016 audit)
North Carolina Immunization Registry (NCIR)	Provide system administration, training and support to Wake County staff	<ul style="list-style-type: none"> 435 Active Users 25 New Users
Immunization Program Management	Provide vaccine supply and inventory management to support 12 clinic and program areas	<ul style="list-style-type: none"> 32,500 doses received 29,687 doses administered 12,095 clients immunized
Middle School Immunization Compliance	Provide project management and professional nursing services for immunization initiative in collaboration with Wake County Public School System	<ul style="list-style-type: none"> 11,500 students in 7th grade cohort 81 students immunized with 149 vaccine doses at "Exclusion Day" clinic events for school year 2016-17
Outreach Immunization Clinics	Provide access to immunization services to Wake County employees and the public	<ul style="list-style-type: none"> 200 Flu doses - clients 522 Flu doses – Wake County employees
Child Care Center Immunization Compliance Reporting	Provide data collection and file management for child care centers located in Wake County	<ul style="list-style-type: none"> 244 of 522 centers reporting in calendar year 2016
National Association of Counties (NACo) Prescription Discount Card Program	Provide project administration for Wake County.	<ul style="list-style-type: none"> Periodic reporting utilization Annual reporting
Supports Public Health Division	Provide clinical and/or administrative support and services for special projects and emergency response.	<ul style="list-style-type: none"> In calendar year 2016, staff participated in measles and DSNAP response

9.2 The Wake County Communicable Disease (CD) Program

The Wake County Communicable Disease (CD) Program investigates and follows up on diseases and conditions required to be reported by NC law to the local health departments. The program reports disease data to the NC Division of Public Health through the NC Electronic Disease Surveillance System (NCEDSS) and responds to public health emergencies.

Staff: County Funded – 16.75 FTE

State Grant funded - 2 FTE

Program/ Service	Description	Program Outputs for CY 2016
General CD	<ul style="list-style-type: none"> Conduct investigations for 74 reportable diseases and conditions as well as animal exposures Report disease data to NC Division of Public Health through NCEDSS 	<ul style="list-style-type: none"> 777 total CD cases 730 animal exposure cases
TB	<ul style="list-style-type: none"> Conduct investigations for all TB cases in Wake County (both county and out-of-area residents) Provide clinical care and Directly Observed Therapy (DOT) home visits Report TB data to NC Division of Public Health through NCEDSS 	<ul style="list-style-type: none"> 33 TB cases 5,042 clinic visits 3,376 DOT visits
DIS (Disease Intervention Specialists)	<ul style="list-style-type: none"> Conduct investigations for HIV, syphilis and gonorrhea cases Reports HIV/STD data to NC Division of Public Health through NCEDSS 	<ul style="list-style-type: none"> 43 HIV investigations 190 syphilis investigations 35 Gonorrhea investigations
Health Education	Provide support to CD program by: <ul style="list-style-type: none"> Assessing, developing and evaluating written educational materials and curricula for use with staff, clients and the community Creating and maintaining educational content for WakeGOV.com, media and social media Serving as media liaison to Communications Office for Spanish language media Representing the CD program and Public Health on agency and county wide committees and special initiatives Responding to public health emergencies 	<ul style="list-style-type: none"> 13 Educational Outreach (health fairs, farmer's markets etc.) (772 people reached) 5 Presentations- (125 people reached) 5 Spanish TV interviews/programs- (400,000 potential viewers) 4 Spanish print media (potential readers unknown) 2 Spanish radio (interviews/programs (different stations; potential listeners 10,000 and over 69,000) Social Media <ul style="list-style-type: none"> 10 Facebook posts (average reach 682) 6 Twitter "Tweets" (potential reach 39,000 followers) 6 Human Services broadcast Emails (potential reach 2000 employees) 4 Preparedness and response events
NCEDSS Surveillance	Ensures all chlamydia, gonorrhea, non-gonococcal urethritis (NGU) and pelvic inflammatory disease (PID) cases are reported to the NC Division of Public Health	Cases reported: <ul style="list-style-type: none"> 5,969 Chlamydia 1,691 Gonorrhea 550 NGU 140 PID

9.3 The HIV/STD Community Program

The HIV/STD Community Program provides HIV/STD health/outreach education services, HIV/STD counseling/testing services and HIV/AIDS Case Management services to populations at highest risk for HIV/STD in Wake County. These services are focused on the principle of Teach, Test and Treat. We provide prevention services by utilizing health education and outreach best practices, identification of new cases by through testing in community settings, and connecting people with HIV/STD treatment and care.

Staff:

County Funded - 16 FTE
FOCUS Grant – 1 FTE

State Grant funded - 10 FTE

HRSA Grant - 2 FTE

Health Education and Outreach

Program and Services	Description	Program Outputs for FY 2015- 2016 (unless otherwise noted)
Jail classes	Provide educational sessions (multiple classes per session) at Wake County jail about HIV/STD prevention (in English and Spanish)	<ul style="list-style-type: none"> 42 sessions (142 classes) 165 participants
Juvenile Detention Center classes	Provide HIV/STD educational sessions to juveniles at the Wake Regional Juvenile Detention Center	<ul style="list-style-type: none"> 9 classes 20 participants
Classes at Clinic A and Regional Centers	Provide HIV/STD prevention classes for patients in STD waiting room	<ul style="list-style-type: none"> 82 classes 763 participants
Substance abuse centers	Provide HIV/STD prevention classes for substance users	<ul style="list-style-type: none"> 11 classes 615 participants
Community response	Respond to community requests for health education classes such as colleges and churches	<ul style="list-style-type: none"> 21 classes 287 participants
Outreach services	Provide one-on-one education to high risk populations (e.g. homeless, sex workers, substance users, individual clients at health fairs)	<ul style="list-style-type: none"> 7,595 contacts with community members
Condom Distribution Sites (CDS)	Establish and maintain 44 sites throughout Wake County	<ul style="list-style-type: none"> 99,530 condoms distributed among all CDS
<i>Making Proud Choices</i> Classes	Provide Making Proud Choices curriculum to foster care youth served by Wake County Human Service Child Welfare's LINKS program. Making Proud Choices is a ten-module evidence-based curriculum that provides adolescents with the knowledge, confidence, and skills necessary to reduce their risk of sexually transmitted diseases (STDs), HIV, and pregnancy.	<ul style="list-style-type: none"> 16 classes 39 participants

9.3 The HIV/STD Community Program Continued

Counseling and Testing

Program and Services	Description	Program Outputs for FY 2015- 2016 (unless otherwise noted)
Community testing sites (29 sites)	Provide regularly scheduled HIV, STD and hepatitis C testing at shelters, substance abuse centers, colleges/universities, County jails, LGBT Center, community based organizations, pregnancy centers, Regional Centers and local events.	# persons tested for: <ul style="list-style-type: none"> HIV- 4,086 Syphilis- 4,025 Chlamydia- 3,796 Gonorrhea- 3,796 Hepatitis C- 2,048
Field Delivered Therapy (FDT)	Deliver medication to clients that test positive for chlamydia at community testing sites	<ul style="list-style-type: none"> 86 patients received FDT

HIV/AIDS Case Management and Bridge Counselors

Program and Services	Description	Program Outputs for FY 2015- 2016 (unless otherwise noted)
Services for HIV /AIDS patients	Social Workers (Bridge Counselors and AIDS Case Managers) connect HIV-positive patients to medical care and other support services such as food, housing, emergencies financial assistance, support groups, and education	<ul style="list-style-type: none"> 132 newly diagnosed clients connected to HIV medical care 117 received ongoing HIV/ AIDS case management
HIV/AIDS housing	Provide <i>Housing Opportunities for Persons With AIDS</i> (HOPWA) vouchers to HIV-positive clients	# of HOPWA Vouchers: <ul style="list-style-type: none"> 39 vouchers- Wake County 1 voucher-Franklin County 5-vouchers-Johnston County
Assistance: walk-ins and/or by appointments	Provide walk-in assistance to clients at Under One Roof center (emergency financial, educational, emotional, housing)	<ul style="list-style-type: none"> 2500 clients served
Services for hepatitis C patients	Through the FOCUS grant, social worker (hepatitis C Bridge Counselor) counsels newly diagnosed hepatitis C positive patients and connects them with medical care and other support services	From October 2016 (FOCUS grant start date) through March 2017: <ul style="list-style-type: none"> 75 positive Hepatitis C referrals 33 connected to treatment

9.4 Wake County Epidemiology Program

The Wake County Epidemiology (Epi) Program provides support to WCHS programs as well as external partners through data analysis, outbreak management, community presentations and research inquiries. The Epi Program is the key conduit to the Human Services Board for regularly required reporting on public health, including quarterly reports on communicable diseases, chronic diseases, injury prevention and State of the County's Health (SOTCH) reports.

Staff: County Funded – 2 FTE

FOCUS Grant funded – 2.1 FTE

Program and Services	Description	Program Outputs for CY 2016
Surveillance	Monitors and analyzes case data for all reportable communicable diseases in Wake County	<ul style="list-style-type: none"> Annual communicable disease report Database for ongoing surveillance (Zika)
Outbreak/Public Health Incident Support	Provides direction and support for outbreaks and other public health incidents	<ul style="list-style-type: none"> <i>Cryptosporidium</i>, norovirus, outbreak of unknown etiology, measles case
Data Requests	Respond to internal and external data requests	<ul style="list-style-type: none"> 106 data requests with average response turnaround time of 4.7 days
Special Data Report Requests	Development of special reports as requested by the Human Service Director or other senior leadership	<ul style="list-style-type: none"> 2016 Indicator Report
Community Health Needs Assessment	Provides direction and assistance to the development and accomplishment of the Community Health Needs Assessment and Action Plans	<ul style="list-style-type: none"> 2016 Community Health Assessment (CHNA) Facilitated Action Planning meetings for the Substance Use Disorder and Mental Health CHNA Priority
Grant Support	Provides development, coordination and assistance for grants and acquisition of funds from other sources	<ul style="list-style-type: none"> WCHS Public Health Division awarded \$261,000 through the FOCUS (On the Frontlines of Communities in the United States) Program of Gilead Sciences Inc. to enhance HCV testing and linkage to care Epidemiology Program directs the FOCUS grant with assistance from the HIV/STD Program and the WCHS Laboratory Coordination and assistance writing the proposal that led to awarding of ABC funding for \$950,142 to develop an integrated Program for Prevention of Drug Overdose and Tobacco Use
Overdose Prevention Coalition	Data support and facilitation of the Wake County Drug Overdose Prevention Coalition	<ul style="list-style-type: none"> Planned and facilitated quarterly meetings (February, April, June and September) of the Coalition
Evaluation Services	Data support and analysis for laboratory services and quality assurance practices	<ul style="list-style-type: none"> Developed the Wake County Human Services Laboratory System Evaluation report published November 10, 2016

10.0 All Reportable Diseases and Conditions

Table 10

All Notifiable Diseases and Conditions*** Wake County 2012-2016										
Rates per 100,000 population	2012		2013		2014		2015		2016	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
AIDS**	71	7.5	76	7.8	60	6	69	6.7	65	6.2
Anthrax	0	*	0	*	0	*	0	*	0	*
Arboviral Other	0	*	0	*	0	*	0	*	0	*
Botulism - food-borne/wound	0	*	0	*	0	*	0	*	0	*
Botulism - infant	0	*	0	*	0	*	1	*	0	*
Brucellosis	1	*	0	*	0	*	0	*	0	*
C. perfringens	0	*	1	*	0	*	0	*	0	*
Campylobacter Infection	95	10.0	134	13.8	102	10.2	108	10.5	84	8
Chancroid	0	*	0	*	0	*	0	*	0	*
Chikungunya	0	*	0	*	1	*	2	*	1	*
Chlamydia**	4,615	484.5	4,255	436.5	4,558	456.1	4,966	484.9	4,884	466.6
Cholera	0	*	0	*	0	*	0	*	0	*
Congenital Syphilis	0	*	0	*	1	*	0	*	0	*
Creutzfeldt-Jakob Disease	2	*	1	*	0	*	1	*	1	*
Cryptosporidiosis	4	*	7	*	9	*	13	*	52	*
Cyclosporiasis	0	*	0	*	1	*	0	*	0	*
Dengue	0	*	1	*	0	*	2	*	1	*

* Rates not calculated for diseases/conditions with case counts less than 20.

Source: NCEDSS--Technical Assistance and Training Program Case Counts for all diseases except the following:

** HIV, AIDS, Gonorrhea, Chlamydia: 2012-15 data is <http://epi.publichealth.nc.gov/cd/stds/annualrpts.html>, accessed 3/21/17. Source for 2016 data is <http://epi.publichealth.nc.gov/cd/stds/figures/vol16no4.pdf>, accessed 3/21/17.

*** The case numbers in this table represent only the number of confirmed cases and therefore may differ from numbers of certain diseases found elsewhere in this report. The reason is that "suspect" and "probable" case classifications for some diseases are both investigated by the CD team as well as reportable to CDC.

Table 10 continued

All Notifiable Diseases and Conditions*** Wake County 2012-2016										
Rates per 100,000 population	2012		2013		2014		2015		2016	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Diphtheria	0	*	0	*	0	*	0	*	0	*
E Coli	18	*	13	*	10	*	10	*	13	*
Early Latent Syphilis	27	2.8	43	4.4	71	7.1	105	10.3	117	11.2
Eastern Equine Encephalitis	0	*	0	*	0	*	0	*	0	*
Ehrlichia	0	*	0	*	0	*	0	*	0	*
Ehrlichia, HGE	0	*	0	*	0	*	0	*	0	*
Ehrlichia, HME	1	*	2	*	1	*	1	*	1	*
Foodborne Hypothesis	0	*	0	*	0	*	0	*	0	*
Foodborne Other	0	*	0	*	0	*	0	*	0	*
Foodborne Poison	0	*	0	*	0	*	0	*	0	*
Gonorrhea**	1,336	140.3	1,215	124.7	1,264	126.5	1,452	141.8	1,443	137.8
Granuloma Inguinale	0	*	0	*	0	*	0	*	0	*
Haemophilus influenzae	12	*	19	*	11	*	14	*	13	*
Hantavirus	0	*	0	*	0	*	0	*	0	*
Hemorrhagic Fever Virus infection	0	*	0	*	0	*	0	*	0	*
Hepatitis A	2	*	2	*	2	*	4	*	4	*
Hepatitis B - Acute	4	*	5	*	6	*	2	*	1	*

* Rates not calculated for diseases/conditions with case counts less than 20.

Source: NCEDSS--Technical Assistance and Training Program Case Counts for all diseases except the following:

** HIV, AIDS, Gonorrhea, Chlamydia: 2012-15 data is <http://epi.publichealth.nc.gov/cd/stds/annualrpts.html>, accessed 3/21/17. Source for 2016 data is <http://epi.publichealth.nc.gov/cd/stds/figures/vol16no4.pdf>, accessed 3/21/17.

*** The case numbers in this table represent only the number of confirmed cases and therefore may differ from numbers of certain diseases found elsewhere in this report. The reason is that “suspect” and “probable” case classifications for some diseases are both investigated by the CD team as well as reportable to CDC.

Table 10 continued

All Notifiable Diseases and Conditions*** Wake County 2012-2016										
Rates per 100,000 population	2012		2013		2014		2015		2016	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Hepatitis B - Chronic	87	9.1	99	10.2	59	5.9	71	6.9	51	4.9
Hepatitis B - Perinatal	0	*	0	*	0	*	0	*	0	*
Hepatitis C - Acute	3	*	5	*	5	*	5	*	1	*
HEPB Unknown	0	*	0	*	0	*	0	*	0	*
HIV**	137	14.4	165	16.9	152	15.2	135	13.2	180	17.2
HUS	0	*	0	*	0	*	0	*	0	*
Influenza death (<18 years old)	0	*	0	*	1	*	0	*	0	*
Influenza, Adult Death (18 years of age or more)	3	*	2	*	8	*	10	*	3	*
Influenza, NOVEL virus infection	0	*	0	*	0	*	0	*	0	*
Lacrosse Encephalitis (California)	0	*	0	*	0	*	0	*	0	*
Late Latent Syphilis	41	4.3	55	5.6	105	10.5	115	11.2	81	7.7
Late Syphilis with Clinical Manifesta- tions	0	*	0	*	2	*	1	*	3	*
Legionellosis	3	*	9	*	8	*	13	*	7	*
Leprosy (Hansen's Disease)	0	*	0	*	0	*	0	*	0	*
Leptospirosis	0	*	0	*	0	*	0	*	0	*
Listeriosis	0	*	3	*	1	*	0	*	2	*
Lyme disease	2	*	7	*	7	*	3	*	4	*

* Rates not calculated for diseases/conditions with case counts less than 20.

Source: NCEDSS--Technical Assistance and Training Program Case Counts for all diseases except the following:

** HIV, AIDS, Gonorrhea, Chlamydia: 2012-15 data is <http://epi.publichealth.nc.gov/cd/stds/annualrpts.html>, accessed 3/21/17. Source for 2016 data is <http://epi.publichealth.nc.gov/cd/stds/figures/vol16no4.pdf>, accessed 3/21/17.

*** The case numbers in this table represent only the number of confirmed cases and therefore may differ from numbers of certain diseases found elsewhere in this report. The reason is that "suspect" and "probable" case classifications for some diseases are both investigated by the CD team as well as reportable to CDC.

Table 10 continued

All Notifiable Diseases and Conditions*** Wake County 2012-2016										
Rates per 100,000 population	2012		2013		2014		2015		2016	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Lymphogranuloma Venereum	0	*	0	*	0	*	0	*	0	*
Malaria	5	*	8	*	10	*	7	*	7	*
Measles	0	*	0	*	0	*	0	*	1	*
Meningococcal	1	*	1	*	1	*	1	*	0	*
Middle East Respiratory Syndrome (MERS)	0	*	0	*	0	*	0	*	0	*
Monkeypox	0	*	0	*	0	*	0	*	0	*
Mumps	0	*	0	*	0	*	0	*	1	*
Non-gonococcal urethritis	741	77.8	703	72.2	633	63.4	556	54.3	502	48
Ophthalmia Neonatorum	0	*	0	*	0	*	0	*	0	*
Pelvic Inflammatory Disease	245	25.7	266	27.3	314	31.4	174	17	86	8.2
Pertussis	32	3.4	17	*	38	3.8	12	*	9	*
Plague	0	*	0	*	0	*	0	*	0	*
Pneumococcal meningitis	4	*	0	*	2	*	2	*	1	*
Polio	0	*	0	*	0	*	0	*	0	*
Primary Syphilis	8	*	17	*	42	4.2	30	2.9	39	3.7
Psittacosis	0	*	0	*	0	*	0	*	0	*
Q Fever	0	*	0	*	0	*	0	*	0	*

* Rates not calculated for diseases/conditions with case counts less than 20.

Source: NCEDSS--Technical Assistance and Training Program Case Counts for all diseases except the following:

** HIV, AIDS, Gonorrhea, Chlamydia: 2012-15 data is <http://epi.publichealth.nc.gov/cd/stds/annualrpts.html>, accessed 3/21/17. Source for 2016 data is <http://epi.publichealth.nc.gov/cd/stds/figures/vol16no4.pdf>, accessed 3/21/17.

*** The case numbers in this table represent only the number of confirmed cases and therefore may differ from numbers of certain diseases found elsewhere in this report. The reason is that "suspect" and "probable" case classifications for some diseases are both investigated by the CD team as well as reportable to CDC.

Table 11 continued

All Notifiable Diseases and Conditions*** Wake County 2012-2016										
Rates per 100,000 population	2012		2013		2014		2015		2016	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Rabies - Human	0	*	0	*	0	*	0	*	0	*
Rocky Mountain Spotted Fever	0	*	0	*	0	*	1	*	2	*
Rubella	0	*	0	*	0	*	0	*	0	*
Rubella - congenital	0	*	0	*	0	*	0	*	0	*
Salmonellosis	166	17.4	155	15.9	178	17.8	204	19.9	160	15.3
SARS	0	*	0	*	0	*	0	*	0	*
Secondary Syphilis	43	4.5	53	5.4	80	8	115	11.2	76	7.3
Shigellosis	14	*	21	2.2	34	3.4	20	2.0	17	*
Smallpox	0	*	0	*	0	*	0	*	0	*
Staphylococcal	0	*	0	*	2	*	0	*	0	*
Staphylococcus aureus - VRSA	1	*	0	*	0	*	0	*	1	*
Streptococcal infection Group A, Invasive	15	*	13	*	26	2.6	16	*	15	*
Tetanus	0	*	0	*	0	*	0	*	0	*
Toxic Shock Syndrome, non- streptococcal	0	*	0	*	0	*	0	*	0	*
Toxic Shock Syndrome, streptococcal	0	*	0	*	0	*	1	*	0	*
Trichinosis	0	*	0	*	0	*	0	*	0	*
Tuberculosis****	16	*	26	2.7	16	*	25	2.4	33	3.2

* Rates not calculated for diseases/conditions with case counts less than 20.

Source: NCEDSS--Technical Assistance and Training Program Case Counts for all diseases except the following:

** HIV, AIDS, Gonorrhea, Chlamydia: 2012-15 data is <http://epi.publichealth.nc.gov/cd/stds/annualrpts.html>, accessed 3/21/17. Source for 2016 data is <http://epi.publichealth.nc.gov/cd/stds/figures/vol16no4.pdf>, accessed 3/21/17.

*** The case numbers in this table represent only the number of confirmed cases and therefore may differ from numbers of certain diseases found elsewhere in this report. The reason is that "suspect" and "probable" case classifications for some diseases are both investigated by the CD team as well as reportable to CDC.

****Tuberculosis: NCEDSS, 3/27/17.

Table 10 continued

All Notifiable Diseases and Conditions*** Wake County 2012-2016										
Rates per 100,000 population	2012		2013		2014		2015		2016	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Tularemia	0	*	0	*	0	*	0	*	0	*
Typhoid acute	1	*	0	*	3	*	3	*	0	*
Typhoid carrier	0	*	0	*	0	*	0	*	0	*
Typhus	0	*	0	*	0	*	0	*	0	*
Vaccinia	0	*	0	*	0	*	0	*	0	*
Vibrio Infection, Other	2	*	4	*	2	*	6	*	5	*
Vibrio Vulnificus	1	*	0	*	0	*	2	*	1	*
West Nile Infection	0	*	0	*	0	*	0	*	0	*
Yellow Fever Virus	0	*	0	*	0	*	0	*	0	*
Zika	0	*	0	*	0	*	0	*	13	*

* Rates not calculated for diseases/conditions with case counts less than 20.

Source: NCEDSS--Technical Assistance and Training Program Case Counts for all diseases except the following:

** HIV, AIDS, Gonorrhea, Chlamydia: 2012-15 data is <http://epi.publichealth.nc.gov/cd/stds/annualrpts.html>, accessed 3/21/17. Source for 2016 data is <http://epi.publichealth.nc.gov/cd/stds/figures/vol16no4.pdf>, accessed 3/21/17.

*** The case numbers in this table represent only the number of confirmed cases and therefore may differ from numbers of certain diseases found elsewhere in this report. The reason is that "suspect" and "probable" case classifications for some diseases are both investigated by the CD team as well as reportable to CDC.

11.0 References

1. “Quick Facts Wake County North Carolina”. *Census.gov*. United States Census Bureau. No date. Web 5/8/2017. <https://www.census.gov/quickfacts/table/PST045216/37183,00>.
2. “Frequently Asked Flu Questions 2016-2017 Influenza Season”. *CDC.gov*. Centers for Disease Control and Prevention, March 23, 2017. Web. 4/3/17. www.cdc.gov/flu/about/season/flu-season-2016-2017.htm.
3. “About Influenza Viruses”. *flu.nc.gov*. The North Carolina Department of Health and Human Services. No date. Web. 5/8/17. <http://www.flu.nc.gov/>.
4. Wake County Human Services Communicable Disease Program. 5/8/17.
5. Wake County Human Services. Communicable Disease Program. 3/21/17.
6. “Zika Virus”. North Carolina Division of Public Health. May 3, 2017. Web 4/19/27. <http://epi.publichealth.nc.gov/zika/>.
7. Wake County Human Services. Communicable Disease Program. 3/24/17.
8. Stewart, Jennifer. “Mosquito Survey 2016”. NC Environmental Health Brief. Volume 1, Issue II. *ehs.nc.cpublichealth.com*. North Carolina Health and Human Services. 2/ 10/17. Web. 4/3/17. <http://ehs.ncpublichealth.com/docs/newsletters/NewsletterQuarter2-2016.pdf>.
9. “Recreational Water Illnesses” *CDC.gov*. Centers for Disease Control and Prevention, January 25, 2017. Web. 3/31/17. <https://www.cdc.gov/healthywater/swimming/swimmers/rwi.html>.
10. Wake County Human Services. Wake County Environmental Services. 6/22/16.
11. Wake County Human Services. Immunization Tracking Team. 2/22/17.
12. Wake County Human Services. HIV/STD Community Outreach Program. 3/17/17.

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