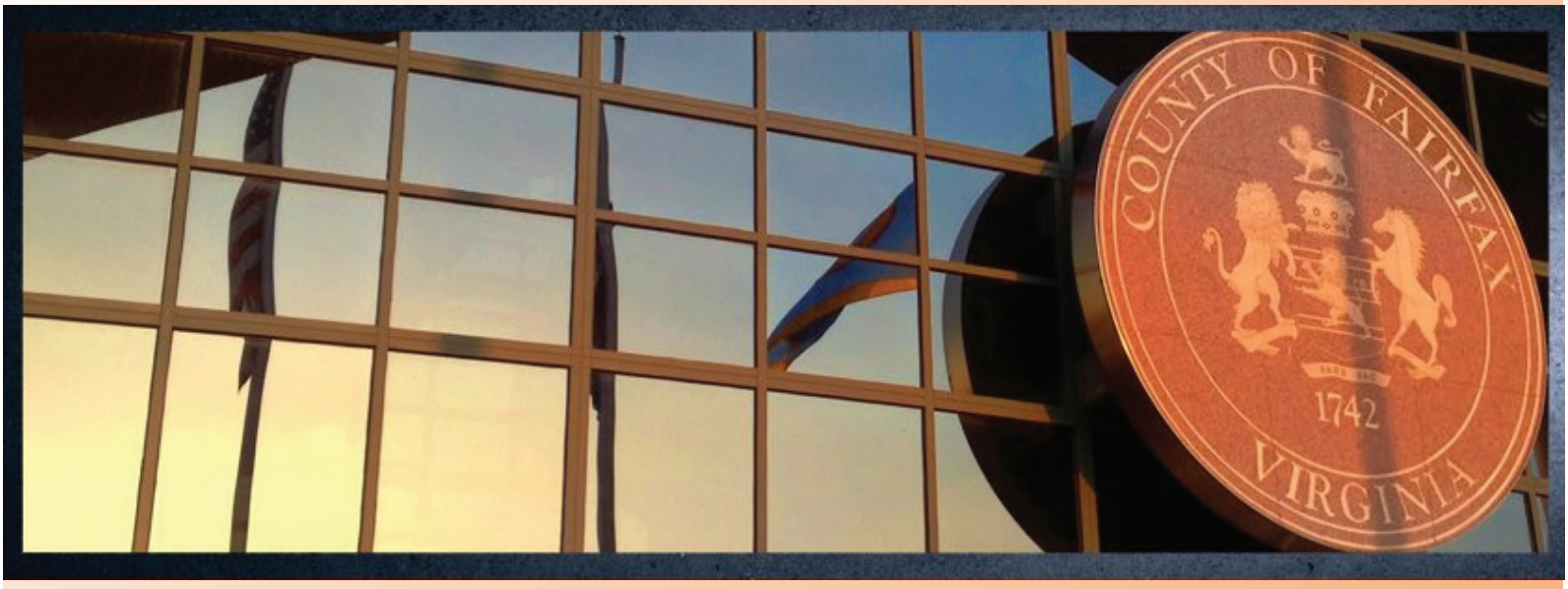
Communicable Disease Summary 2017



FAIRFAX COUNTY HEALTH DEPARTMENT
www.fairfaxcounty.gov/Health

Fairfax County Health Department
2017 Communicable Disease Summary

Dear Colleague:

This eight edition of the Fairfax County Health Department's Communicable Disease Summary highlights the reportable diseases that most impacted the Fairfax community in 2017. Each year, the Communicable Disease Section investigates thousands of reports of suspected communicable diseases, in partnership with local public health system partners such as the healthcare community, laboratories, public safety professionals, schools and institutions of higher education, the Virginia Department of Health, and other agencies to promptly identify, prevent, control and monitor diseases in the community.

Communicable disease surveillance, prevention, and control are core activities of the Fairfax County Health Department. As a critical partner and contributor to this core public health function, this report is intended to provide you and your clinical staff with information and practical guidance that we believe will help mitigate the potential impacts of ongoing and emerging communicable disease threats in our community.

The effectiveness of public health communicable disease investigations often depends on the timeliness of notification. Prompt reporting by clinicians can dramatically impact the course of these investigations and help to limit the spread of illness because Health Department staff are able to ensure the early implementation of appropriate infection control measures and facilitate laboratory testing. Staff are also able to conduct timely epidemiologic studies to determine the source of illness or perform contact tracing to identify exposed individuals when time-sensitive interventions such as antibiotic and vaccine prophylaxis are still indicated.

Fighting infectious diseases within our community requires a vigilant and strong local public health system. We thank you for your contributions and look forward to your continued partnership and support.

Sincerely,

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Director of Health

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The mission of the Fairfax County Health Department is to protect, promote and improve health and quality of life for all in our community.

Table 1. Reported cases of selected communicable diseases Fairfax County 2008-2017^

Disease	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	5-year average (2013-2017)
Amebiasis	17	7	5	4	12	9	4	10	11	3	7
Brucellosis	0	0	0	0	0	2	0	1	0	1	<1
Botulism, infant	0	1	0	1	0	0	0	0	0	1	<1
Campylobacteriosis	101	121	105	93	98	108	118	282	264	249	204
Chikungunya Fever	0	0	1	0	0	2	17	7	3	3	6
Chlamydia trachomatis infection^	1391	1293	1453	1652	1816	2062	2163	2535	2969	3472	2755
Cholera	0	0	1	0	0	0	0	0	1	0	<1
Cryptosporidiosis	13	19	17	24	26	33	29	48	44	43	39
Cyclosporiasis	0	0	0	0	0	0	2	0	4	2	2
Dengue fever	2	0	3	7	7	5	7	8	8	3	6
Escherichia coli infection, Shiga toxin-producing £	59	27	27	13	12	13	14	8	30	27	18
Ehrlichiosis/Anaplasmosis	11	1	7	17	6	11	5	8	5	12	8
Giardiasis	78	93	110	52	59	69	61	54	64	77	65
Gonorrhea^	197	170	190	189	219	286	270	326	525	594	411
Haemophilus influenzae, invasive	6	9	8	13	8	11	8	13	13	19	13
Hepatitis A	24	10	8	0	14	8	6	12	27	9	12
Hepatitis B, acute ±	10	5	1	4	1	4	1	2	1	3	2
Hepatitis C, acute	0	1	0	1	0	0	0	0	0	1	<1
HIV infection^	126	105	113	108	123	127	127	110	117	114	119
Hemolytic uremic syndrome (HUS)	0	0	0	1	0	2	0	0	1	3	1
Influenza-associated deaths (less than age 18)	0	1	0	1	0	0	1	0	0	0	<1
Lead, elevated blood levels in Children (0-15 years)	26	33	31	21	18	19	26	21	114	188	74
Legionellosis	9	7	7	9	5	13	7	15	9	12	11
Listeriosis	2	0	0	4	5	7	3	3	1	7	4
Lyme disease	191	260	256	146	149	260	284	202	214	171	226
Malaria	13	16	19	29	28	16	29	17	27	24	23
Measles	0	0	0	0	0	0	1	1	0	0	<1
Meningococcal disease (*Neisseria meningitidis*)	1	1	2	2	0	2	0	0	0	2	<1
Mumps	2	0	3	0	2	0	2	4	5	9	4
Pertussis	39	31	33	55	55	33	46	25	16	19	28
Q fever	0	0	1	0	0	1	1	0	0	0	<1
Rabies, human	0	1	0	0	0	0	0	0	0	0	0
Salmonellosis	165	111	147	123	106	127	152	150	144	179	150
Shigellosis	25	26	37	26	16	29	48	33	27	45	36
Spotted fever rickettsiosis	9	6	11	20	26	23	20	14	10	22	18
Streptococcal disease, Group A, invasive	11	14	15	34	14	16	30	25	22	32	25
Streptococcus pneumoniae, invasive (less than age 5)	6	3	8	5	6	6	3	3	6	6	5
Syphilis, early stage^	32	40	38	31	59	63	38	44	89	98	67
Toxic Substances Investigations α	17	21	26	20	19	24	24	27	112	41	46
Trichinellosis	0	0	0	0	2	0	1	0	0	0	<1
Tuberculosis	98	86	87	82	92	59	61	66	67	74	65
Typhoid fever	8	2	6	4	2	6	4	4	4	3	4
Varicella (Chickenpox)	155	64	59	56	87	61	56	49	74	69	62
Vibrio infection (non-cholera)	4	0	5	6	5	3	7	3	1	5	4
West Nile Virus infection	1	1	2	1	8	3	0	8	0	5	3
Yersiniosis	2	1	1	0	0	1	2	3	3	9	4
Zika disease, congenital	-	-	-	-	-	-	-	-	1	0	<1
Zika disease, non-congenital	-	-	-	-	-	-	-	-	28	3	15
Zika infection, non-congenital	-	-	-	-	-	-	-	-	9	2	5
Total	**3017**	**2704**	**2957**	**2997**	**3258**	**3668**	**3805**	**4280**	**5257**	**5433**	**4053**

^ Surveillance data are updated retrospectively as reports are received by Fairfax County Health District (FCHD) and Virginia Department of Health. FCHD only updates the previous three years for case counts in this table.
£ A more restrictive case definition for Escherichia coli infection, Shiga toxin-producing was implemented in 2011.
± Includes two case of perinatal Hepatitis B (2009, 2011, and 2013).
α Toxic substances investigations includes arsenic, asbestos, elevated levels of cadmium, elevated levels of carbon monoxide, elevated levels of mercury, and pesticide poisoning.
- Not a reportable illness during the year listed.

Hepatitis B & C

Background

Hepatitis B virus (HBV) and Hepatitis C virus (HCV) are serious public health concerns with an estimated 2.2 and 3.5 million infected people in the United States, respectively. HCV alone was the cause of an estimated 18,153 reported deaths in 2016, surpassing the total combined number of deaths from 60 other infectious diseases reported to CDC, including HIV, pneumococcal disease, and tuberculosis. [1] Most acute infections of HBV and HCV have few symptoms and are not recognized, yet a substantial proportion will become lifelong chronic infections with significant medial consequences such as liver damage, cirrhosis, liver failure, or liver cancer. Chronic infection leads to increased healthcare costs, decreased productivity, reduced quality of life, and premature death. Sexual partners of infected persons, men who have sex with men, and persons who inject drugs are at higher risk of having or acquiring HBV infections while baby boomers (born 1945–1965) and persons who inject drugs are at higher risk of having or acquiring HCV infection. [2]

Fairfax Data

- While recent surveillance biases (case definition changes, increased case reporting, and increased data entry at Virginia Department of Health (VDH)) limit the amount of temporal analysis that can be done at the local and state level, general trends can be interpreted from the last ten years (2008-2017) of HBV and HCV data.
- Over the last ten years, the vast majority of reported cases of HBV and HCV to FCHD are chronic cases rather than acute cases (>99% for both). Increased emphasis on case investigation at FCHD in the upcoming years should increase the number of acute cases identified.
- While rates of chronic HBV and HCV fluctuated from year to year, rates of chronic HBV in the Fairfax Health District (FHD) were consistently higher than the rate in the rest of VA, while rates of chronic HCV where consistently lower (Figure 1). The rate of chronic HBV in 2017 was 70.1 per 100,000 population while the rate in the rest of VA was 20.1 per 100,000 population. Inversely, the rate of chronic HCV in 2017 was 75.1 per 100,000 population while the rate in the rest of VA was 145.4 per 100,000 population.
- From 2008-2017, 50% of chronic HBV cases were female while 43% of chronic HCV cases were female. It should be noted that although the number of cases from 2008-2017 was small (n=30), 80% of acute HBV cases were male.
- Chronic HBV and HCV rates by age from 2008-2017 show that the highest risk age groups of chronic HBV infection are found in those aged 30-59 while those aged 50-69 are at highest risk of chronic HCV infection (Table 1).
- With the support of VDH's Perinatal Hepatitis B Program, perinatal HBV infections are rare in VA, but unfortunately small numbers of cases do occur. Over the last ten years, three cases of perinatal HBV have been identified in FHD, with the most recent case occurring in 2013.

Figure 1. Chronic HBV and HCV incidence rates by year, Fairfax Health District and rest of Virginia, 2008-2017

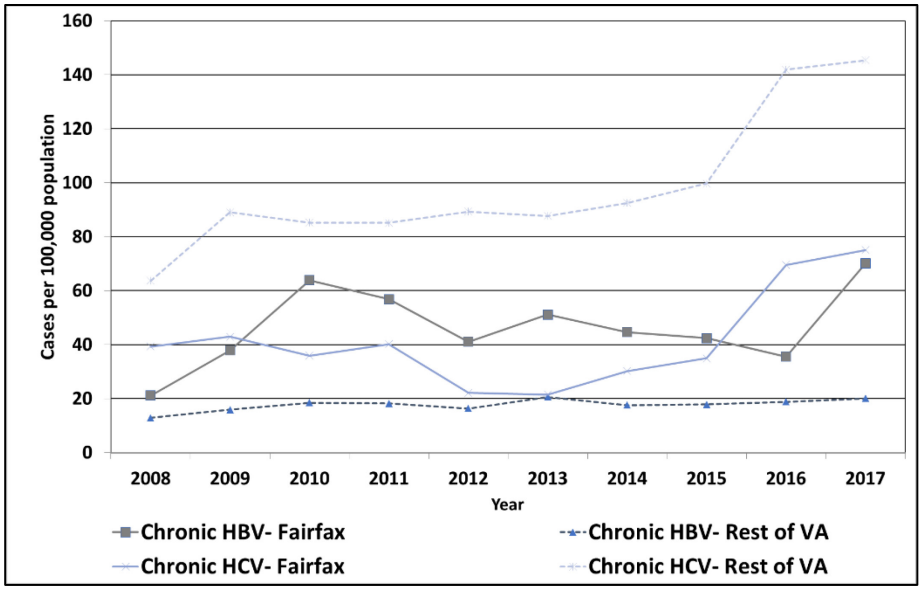


Table 1. Rates (per 100,000 population) of chronic HBV and HCV by age group, Fairfax Health District, 2008-2017

Age Group	HBV	HCV
0-9	2.5	1.3
10-19	5.2	3.7
20-29	36.8	29.1
30-39	78.5	28.9
40-49	82.8	47.2
50-59	70.4	99.6
60-69	49.2	80.9
≥70	31.3	40.4

Hepatitis B & C *(Continued)*

Clinician Pearls

- Providers should report to FCHD at 703-246-2433 or hdcd@fairfaxcounty.gov if they become aware of an:
  - **Infected HBV or HCV patient is/becomes pregnant, or,**
  - **Infected HBV or HCV patient is co-infected with HIV**
- Guidance for the interpretation of results of tests for HBV and HCV infection and further actions can be found on the Health Professionals section of the hepatitis disease specific CDC webpage (https://www.cdc.gov/hepatitis/index.htm).

What public health topics should be discussed with patients who have HBV and HCV infection?[3]

- To prevent or reduce the risk for transmission to others, patients should be advised on transmission methods and high-risk situations to avoid transmission to household contacts, sexual contacts, and others.
- Patients should be informed about the risk of liver damage and the importance of protecting liver function. This includes avoiding or limiting alcohol consumption because of the effects of alcohol on the liver, with referral to care provided for persons needing evaluation or treatment for alcohol abuse.
- CDC's recommendations for prevention and control of HBV and HCV infection specify that people should not be excluded from work, school, play, childcare, or other settings on the basis of their infection status.
- Patients should be aware of the availability and effectiveness of new direct acting antivirals (DAAs) and referred for prompt assessment and treatment, if indicated (see below for more information).

Vaccination and Treatment Options [4]

Hepatitis B

Vaccination

- The Advisory Committee on Immunization Practices (ACIP) recommends all children get their first dose of Hepatitis B vaccine at birth and should have completed the vaccine series by 6 through 18 months.
- Children and adolescents through 18 years of age who did not get the vaccine when they were younger should also be vaccinated.
- Adult vaccination is determined by factors such as age, lifestyle, health and risk conditions, type and locations of travel, and previous immunizations.
- Adult schedule and recommendations: https://www.cdc.gov/vaccines/schedules/hcp/adult.html

Treatment

- There are several antiviral medications for persons with chronic infection. Persons with chronic HBV infection require linkage to care with regular monitoring to prevent liver damage and/or hepatocellular carcinoma.
- American Association for the Study of Liver Diseases (AASLD) Practice guidelines are available for the treatment of Chronic Hepatitis B are found at: http://www.aasld.org/publications/practice-guidelines-0

Hepatitis C

Vaccination

- Although research into the development of a vaccine for HCV is under way, no vaccine is currently available.

Treatment

- The treatment for HCV infection has evolved substantially since the introduction of highly effective HCV protease inhibitor therapies in 2011. Since that time new drugs with different mechanisms of action have become and continue to become available.
- Currently available therapies can achieve sustained virologic response (SVR) defined as the absence of detectable virus after completion of treatment; an SVR is indicative of a cure of HCV infection.
- Over 90% of HCV infected persons can be cured of HCV infection regardless of HCV genotype, with 8-12 weeks of oral therapy. Recommendations for managing and treating HCV infection from the Infectious Diseases Society of America and the American Association for the Study of Liver Diseases are found at: https://www.hcvguidelines.org/.

[1] American Academy of Pediatrics (2015). *Red Book: 2015 Report of the Committee on Infectious Disease.* (30th edition)
[2] Centers for Disease Control and Prevention (CDC). Guidelines for Viral Hepatitis Surveillance and Case Management. Retrieved from http://www.cdc.gov/hepatitis/Statistics/SurveillanceGuidelines.htm#hepa
[3] Centers for Disease Control and Prevention (CDC). Surveillance for Viral Hepatitis – United States, 2013. Retrieved from http://www.cdc.gov/hepatitis/Statistics/2013Surveillance/Commentary.htm#hepA
[4] Centers for Disease Control and Prevention (CDC). Prevention of hepatitis A through active or passive immunization. Recommendations of the ACIP. MMWR 2006; 55(No. RR-7).

Streptococcal disease, Group A, invasive

Background

CDC estimates approximately 11,000 to 13,000 cases of invasive group A strep (GAS) disease occur each year in the United States, with almost 10% resulting in death (between 1,100 and 1,600). The frequency of severe, invasive GAS infections appears to be increasing in Virginia (Figure 1) and strains of streptococci with increased pathogenic potential are appearing. Factors responsible for the emergence of these more virulent strains of *S. pyogenes* are not clearly defined, yet invasive GAS disease can include: cellulitis with blood infection, necrotizing fasciitis, pneumonia and streptococcal toxic shock syndrome.[1,2] The two most severe clinical manifestations of GAS are streptococcal toxic shock syndrome and necrotizing fasciitis.[3]

Fairfax Data

- Thirty-two cases of invasive GAS were reported to Fairfax Health District during 2017, a 45.5% increase from the previous year (22 cases in 2016) and significantly higher than the annual average of 25 cases from the previous five years (2013-2017). 97% of reported FCHD 2017 cases were hospitalized and 6 cases were found to be Streptococcal toxic shock syndrome (STSS).
- GAS rates in FCHD have been consistent with rates seen across the rest of Virginia over the past ten years, with a slight increase in case rates in 2011 and 2014 (Figure 1).
- The majority of invasive GAS cases were found in older adults, with 61% of cases among those ≥55 years of age.
- Case fatality rates in Fairfax Health District were similar to national averages; 5.7% of those infected with invasive GAS and 14.3% of those who progressed to STSS died between 2007-2017.
- The highest percentage of cases were reported in the winter months, correlating with influenza season (Figure 2).

Clinician Pearls

- Local health departments evaluate household contacts when invasive GAS is reported; antibiotics might be recommended for individuals in households where someone has a condition that puts them at risk of a severe group A, strep disease. [4]
- Administering IVIg as adjunctive therapy in STSS and/or necrotizing fasciitis, in addition to clindamycin and penicillin, should be considered in cases where conventional therapy has failed.[3]
- Notifying your local health department of ill patients with non-sterile isolates positive for GAS (such as wounds) can assist with identification of cases that have traditionally not been reported.
- Local health departments investigate clusters or outbreaks of invasive GAS. The most common clusters investigated in the United States are those occurring in long-term care or skilled nursing facilities. Other situations where outbreaks can occur are places where high risk individuals are in close contact (i.e. homeless shelters/encampments, jails/detention centers, etc.) The FCHD works with community partners to ensure proper infection prevention practices are in place and provide guidance for prophylaxis.

Figure 1.Streptococcal disease, Group A incidence rates by year, Fairfax Health District and rest of Virginia (VA), 2008-2017

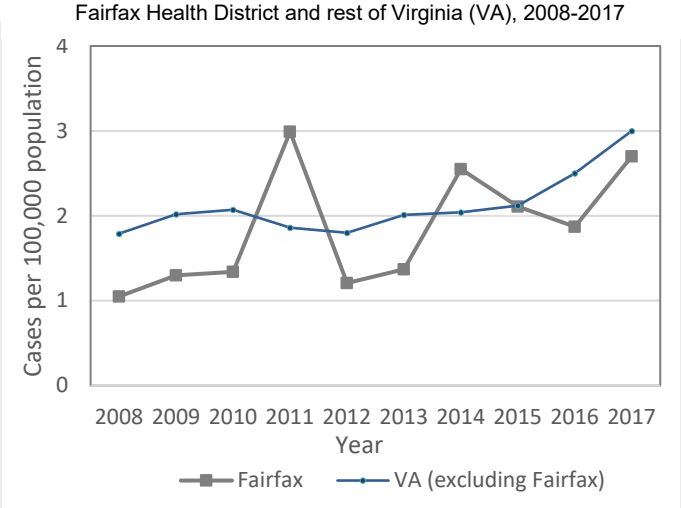
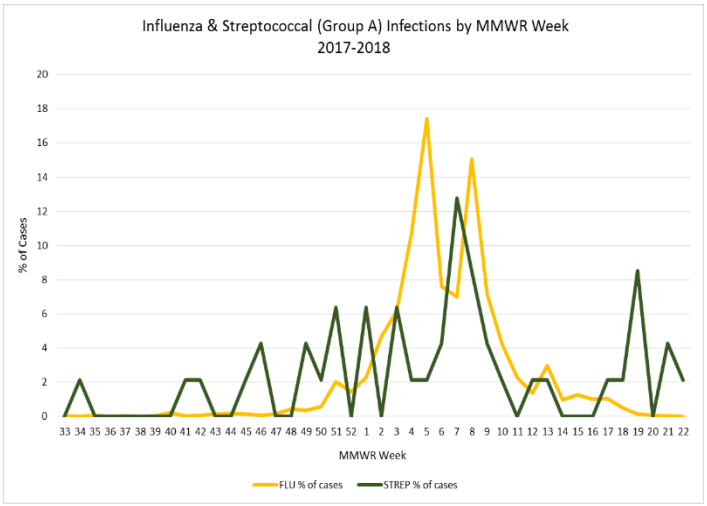


Figure 2. Influenza and Group A Streptococcal Infection by MMWR Week, Fairfax Health District 2017-2018



[1] Centers for Disease Control and Prevention (CDC). Group A Streptococcal Disease: Surveillance. Retrieved from, https://www.cdc.gov/groupastrep/surveillance.html.

[2] Virginia Department of Health (VDH). (2012, December 20). Disease control manual: Streptococcal disease, group A, invasive.

[3] Raithatha, A. H., & Bryden, D. C. (2012). Use of intravenous immunoglobulin therapy in the treatment of septic shock, in particular severe invasive group A streptococcal disease. *Indian journal of critical care medicine: Peer-reviewed, official publication of Indian Society of Critical Care Medicine*, 16(1), 37-40.

[4] Virginia Department of Health (VDH). (2018). Epidemiology Fact Sheets: Streptococcal Disease (Group A). Retrieved from, http://www.vdh.virginia.gov/epidemiology/epidemiology-fact-sheets/streptococcus-disease-group-a/

Varicella

Background

Prior to the introduction of varicella vaccine in 1995, nearly everyone in the U.S. contracted chickenpox, with 90% of cases occurring before 15 years of age. Between 1997 and 2009, national varicella vaccine coverage among children aged 19 to 35 months increased from 27% to 90%, resulting in a >85% decline in varicella incidence, hospitalizations, and deaths.[1] Nationwide, the epidemiology of varicella has changed following the widespread use of vaccine. Older children, adolescents and adults currently account for a greater proportion of U.S. cases compared to the pre-vaccine era and the majority of varicella cases now occur among vaccinated persons.[2]

Fairfax Data

- In Fairfax Health District, varicella incidence declined since the implementation of the two-dose immunization schedule in 2009, with incidence reaching a nadir of 49 reported cases in 2015. However, the last few years has seen an increase in case reports, with 74 and 69 cases reported in 2016 and 2017, respectively. Recent incidence rates have also been greater than rates seen throughout the rest of VA (Figure 1).
- Breakthrough chickenpox among vaccinated individuals comprises the majority of cases; of the 60 Fairfax Health District 2017 cases with known vaccination status, 50% were fully vaccinated (age appropriate) and 62.5% had at least one dose of vaccine.
- Racial and ethnic disparities have also become more apparent in recent years. Of cases with a known racial or ethnic status from 2013-2017, 27.7% of cases reported race as Asian and almost one-third reported Hispanic ethnicity (32.2%), significantly disproportionate to Fairfax Health District's population.

Clinician Pearls

- Contact the Health Department's Acute Communicable and Emerging Disease Program at 703-246-2433 to report suspected varicella cases and for further infection control and prophylaxis guidance. As most varicella cases are diagnosed clinically without laboratory evidence, healthcare provider reporting is vital. Shingles is NOT a reportable condition in Virginia.
- Breakthrough chickenpox among vaccinated individuals is increasingly common and may have a modified presentation. Nevertheless, breakthrough varicella is infectious and appropriate infection control recommendations should be implemented. Rash is typically mild, with <50 lesions and more likely to be predominantly maculopapular than vesicular. Fever is less common, and duration of illness is shorter. [1]
- FCHD recommends the following measures for suspect varicella cases:
  - Immediately triage the patient and do not allow the patient to remain in your waiting area;
  - Place a surgical mask on the patient as soon as possible and place the masked patient in a private, negative pressure room if available, or a room with a closed door;
  - Use standard and airborne precautions, if possible;
  - Only health care workers with documented immunity to varicella should work with the patient.
- For people exposed to varicella or herpes zoster who cannot receive varicella vaccine, varicella zoster immune globulin can prevent varicella from developing or lessen the severity of the disease. It is only recommended for people who cannot receive the vaccine and 1) who lack evidence of immunity to varicella, 2) whose exposure is likely to result in infection, and 3) are at high risk for severe varicella.

Figure 1. Varicella incidence rates by year, Fairfax Health District and rest of Virginia (VA), 2008-2017

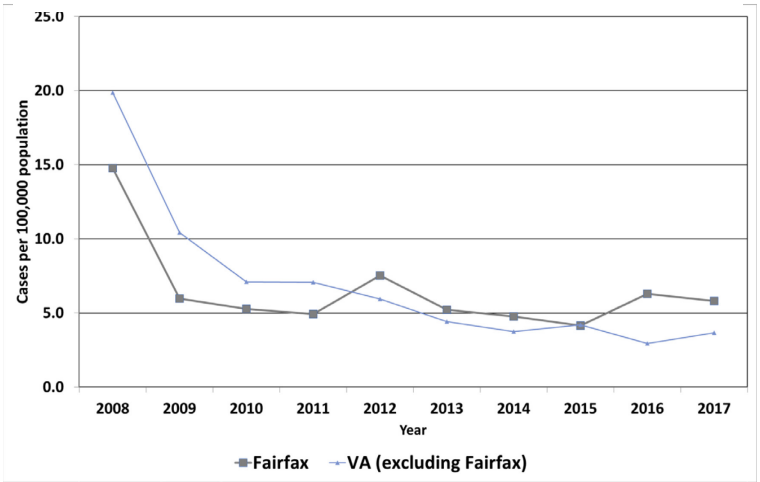


Table 1. Varicella cases by age, Fairfax Health District, 2013-2017

	Age Group			
Year	0-5	6-17	18-54	≥55
2013	24.6%	54.1%	21.3%	0.0%
2014	41.1%	41.1%	16.1%	1.8%
2015	28.6%	44.9%	26.5%	0.0%
2016	32.4%	40.5%	24.3%	2.7%
2017	31.9%	30.4%	36.2%	1.4%

[1] Centers for Disease Control and Prevention (CDC). Immunization of health-care personnel: Recommendations of the ACIP. MMWR 2011; 60(No. RR-7).

[2] Centers for Disease Control and Prevention (CDC). Manual for the surveillance of vaccine-preventable diseases. Centers for Disease Control and Prevention, Atlanta, GA, 2008.

Shigellosis

Background

Shigellosis causes approximately 500,000 cases of diarrhea in the Unites States annually.[1] There are four different species of *Shigella*. The two most common species found in the United States are *Shigella sonnei* and *Shigella flexneri; Shigella dysenteriae* and *Shigella boydii* are rare in the United States, though they continue to be important causes of disease in the developing world. While anyone is at risk of contracting *Shigella*, it is most commonly found in young children. Those at greater risk for infection include children in childcare centers and persons living in institutions. Outbreaks are most often associated with poor hygiene, crowded living conditions, and contaminated food or water. Travelers to developing countries and men who have sex with men are at increased risk of exposure.[2]

Fairfax Data

- Forty-five Shigellosis cases were reported to Fairfax Health District during 2017, a 66.7% increase from the previous year (27 cases in 2016), and significantly higher than the annual average of 36 cases from the previous five years (2013-2017).
- Shigellosis rates in FCHD have been consistent with rates seen across the rest of Virginia over the past ten years, with a slight decrease in case rates in 2015 and 2016 (Figure 1).
- Differing from national trends, only 11% of FCHD Shigellosis cases were 0 to 4 years of age in 2017. 29% of cases were 5 to 9 years old, 33% 20 to 54 years old and 27% ≥55 years old.
- 28.9% of reported FCHD cases were hospitalized in 2017.
- In 2017, no outbreaks were associated with Shigellosis, with the last one occurring in FHD in 2014.

Clinician Pearls

- *Shigella* bacteria are highly infectious and are present in the stools of infected individuals while they have diarrhea and for up to a few weeks after the diarrhea has gone, therefore public health guidance on handwashing and self-isolation is crucial to limit the spread of disease.
- Shigellosis can be a mild, self-limited illness. When treatment is indicated, selection of antimicrobial agents should be based on the susceptibility profile of the individual isolate, or during a local outbreak, on that of the outbreak strain.
  - Amoxicillin is absorbed rapidly from the intestines and, therefore, is not a good treatment for shigellosis.
  - Ampicillin is preferred if the isolate is susceptible to penicillin.[3]
- CDC remains concerned about potential clinical failures with fluoroquinolone treatment. Clinicians should carefully monitor patients with *Shigella* infections who require fluoroquinolone treatment and report any possible treatment failures. If treatment failure is suspected, clinicians should submit a stool specimen for antimicrobial susceptibility testing and consider consulting an infectious disease specialist to identify best treatment options.[4]
- Food handlers, childcare staff or attendees, and health care workers cannot return to work until two stool specimens are obtained and do not grow *Shigella* bacteria. The health department is responsible for this clearance process and will help determine when people in these settings may return to work.

Figure 1.Shigellosis incidence rates by year, Fairfax Health District and rest of Virginia (VA 2008-2017

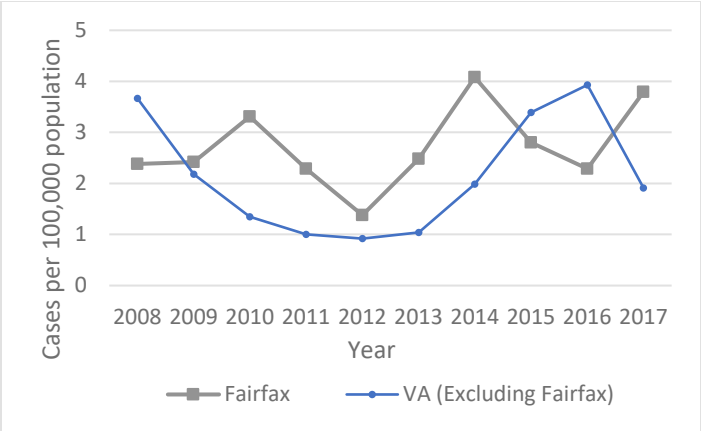
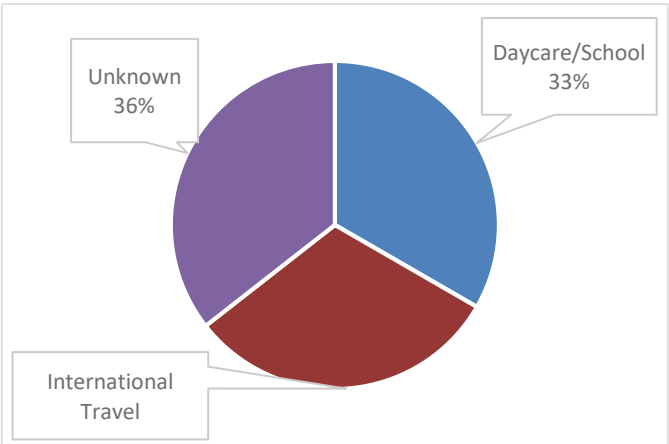


Figure 2. Shigellosis cases by risk factor behavior, Fairfax Health District 2017



[1] Centers for Disease Control and Prevention (CDC).Shigella:Questions & Answers. (2017, October 12). Retrieved from https://www.cdc.gov/shigella/general-information.html.
[2] Virginia Department of Health (VDH). (2018, September). Epidemiology Fact Sheets: Shigellosis. Retrieved from http://www.vdh.virginia.gov/epidemiology/epidemiology-fact-sheets/shigellosis/
[3] Centers for Disease Control and Prevention (CDC). Shigella: Information for Healthcare Professionals. Retrieved from https://www.cdc.gov/shigella/audience-medical-professionals.html
[4] Centers for Disease Control and Prevention (CDC). Emergency Preparedness and Response. Retrieved from https://emergency.cdc.gov/han/han00411.asp

Shiga Toxin-producing Escherichia coli

Background

Shiga toxin–producing E. coli (STEC) cause approximately 265,000 illnesses, 3,600 hospitalizations, and 30 deaths annually in the United States, according to the latest estimate in 2006.[1] Most reported STEC infections in the United States are caused by E. coli O157:H7, yet non-O157 STEC bacteria also are substantial causes of diarrheal illness in the United States. At least 150 STEC serotypes have been associated with outbreaks and sporadic illness.[2] Although historically associated with ground beef consumption, STEC transmission occurs through consumption of a wide variety of contaminated foods, including undercooked ground beef, unpasteurized juice, raw milk, and raw produce (e.g., lettuce, spinach, and alfalfa sprouts); as well as direct contact with infected animals and humans.[2]

Fairfax Data

- Twenty-six STEC cases were reported to FCHD during 2017, a small decrease from the previous year (30 cases in 2016) but significantly higher than the approximately 12 case annual average from the previous five years (2011-2015).
- STEC rates in Fairfax Health District have been consistent with rates seen across the rest of Virginia (VA) over the past ten years, with a slight increase in case rates over the past two years (Figure 1).
- As with the rest of VA and nationally, the majority of FHD STEC cases are reported amongst younger populations, with 65% of cases reported from 2008-2017 in those less than 20 years of age. Over one quarter of cases (26%) are reported amongst those aged 0-4 years.
- 20.2% of reported FCHD cases over the last five years have been hospitalized and 6.6% have developed hemolytic uremic syndrome (HUS).

Clinician Pearls

- Bloody stool and severity of illness clinically indicate STEC from other diarrheal illnesses.
- Prompt and accurate diagnosis of STEC infection is important because appropriate treatment early in the course of infection might decrease renal damage and improve patient outcomes.[3]
- **Antibiotics are not recommended for patients with suspected STEC infections until complete diagnostic testing can be performed and STEC infection is ruled out.** Some studies have shown that administering antibiotics to patients with STEC infections might increase their risk of developing HUS, and a benefit of treatment has not been clearly demonstrated. Features of HUS include low platelet count, anemia due to broken blood cells, and kidney failure. Approximately 8% of persons who receive a diagnosis of O157 STEC develop HUS. Studies have also indicated that some antidiarrheal medications might worsen the illness.[4]
- Prompt laboratory identification of STEC strains is also essential for implementation of control measures, for effective and timely outbreak responses, to detect new and emerging serotypes, and to monitor trends in disease epidemiology.
- Diagnostic approaches should be applied that detect Shiga toxin (or the genes that encode them) and distinguish Escherichia coli O157:H7 from other Shiga toxin–producing E. coli (STEC) in stool. If available, diagnostic approaches that can distinguish between Shiga toxin 1 and Shiga toxin 2, which is typically more potent, should be used.[3]

Figure 1. STEC incidence rates by year, Fairfax Health District and rest of Virginia, 2008-2017

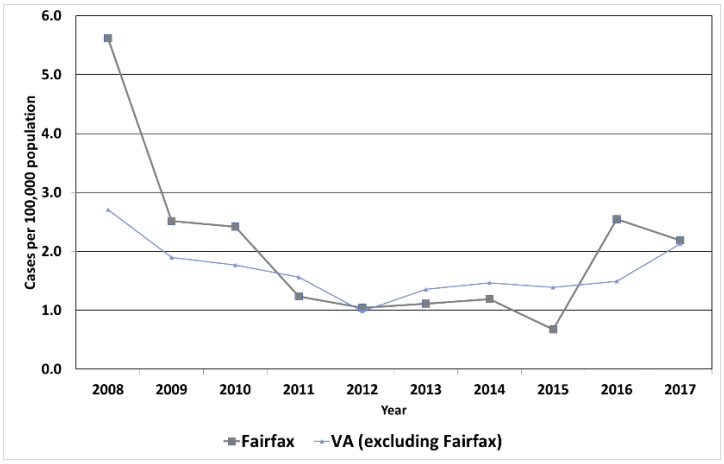
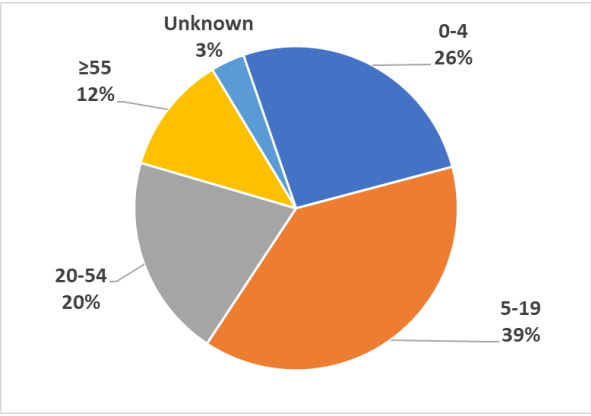


Figure 2. Frequency of STEC cases by age group, Fairfax Health District, 2008-2017 (n=237)



[1] Centers for Disease Control and Prevention (CDC). (2016, September). Fact sheet: Escherichia coli (E. coli). Retrieved from https://www.cdc.gov/ecoli/pdfs/cdc-e.-coli-factsheet.pdf
[2] Centers for Disease Control and Prevention (CDC). Recommendations for Diagnosis of Shia Toxin. MMWR 2006; 55(No. RR-12). Retrieved from https://www.cdc.gov/mmwr/pdf/rr/rr5812.pdf
[3] Oxford University Press for the Infectious Diseases Society of America. (2017, October 19). 2017 Infectious Diseases Society of America Clinical Practice Guidelines for the Diagnosis and Management of Infectious Diarrhea. *Clinical Infectious Diseases*, 65(12), e45–e80. Retrieved from https://academic.oup.com/cid/article-abstract/65/12/e45/4557073
[4] Centers for Disease Control and Prevention (CDC). (2014, December 1). Escherichia coli: Resources for Clinicians and Laboratories. Retrieved from https://www.cdc.gov/ecoli/clinicians.html

2017-2018 Influenza Season

Background

The 2017-2018 influenza (flu) season was the most severe non-pandemic influenza season on record, with high numbers of influenza-related hospitalizations and extended widespread influenza activity across the United States (U.S.). The predominant circulating strain was Influenza A(H3N2). Historically, H3N2 predominant seasons have been associated with more severe illness and higher mortality. The Centers for Disease Control and Prevention (CDC) track influenza activity nationwide, estimated 48.8 million people were sick with influenza, the highest since the 2009 H1N1 pandemic (when an estimated 60 million people were sick with influenza).[2] The overall vaccine effectiveness (VE) of the 2017-2018 flu vaccine against both influenza A and B viruses was estimated to be 40%.[1]

Fairfax Data

- In Fairfax Health District, influenza activity peaked in early February 2018 with 13.7% of emergency department (ED) and urgent care center (UCC) visits for influenza-like illness (Figure 1), which was significantly higher than the peak of national activity (7.5%).
- Virginia reported widespread activity level for 18 consecutive weeks whereas during the past 5 flu seasons, Virginia remained at the widespread activity level for an average of 12 weeks.
- The Health Department investigated 19 outbreaks of suspected or confirmed influenza, also higher than in prior seasons. The outbreaks occurred in skilled nursing facilities (26%), assisted living facilities (26%), elementary schools (26%), child care centers/daycares (16%) and an adult day health center (5%).
- As of November 2018, CDC reported 185 pediatric deaths, with five occurring in Virginia and one in Fairfax. This number exceeds the previously highest number of flu-associated deaths in children reported during a regular flu season (171 during the 2012-2013 season)[1].
  - The six deaths reported in the 2017-18 season match the 2009-10 pandemic season as the highest mortality burden since the Virginia Department of Health (VDH) began collecting data on influenza-associated pediatric deaths (Figure 2)[3].
  - Approximately 80% of these deaths occurred in children who had not received a flu vaccination that season.[1]
  - The six cases reported in Virginia were geographically dispersed throughout the Commonwealth with three (50%) in the Southwest region, and one (17%) each in the Northwest, Central, and Northern regions.[3]

Clinician Pearls

- The Advisory Committee on Immunization Practices recommend routine influenza vaccination for all persons aged 6 months and older. Vaccination efforts should continue throughout the influenza season as the duration of the influenza season varies and disease activity might not peak until February or March.
- All healthcare facilities should have a comprehensive, evidence-based healthcare worker immunization policy for influenza. This policy should include all employees and volunteers who may come into contact (within 6 feet) with patients. Any unvaccinated personnel should take measures to reduce the risk of transmitting influenza to a patient such as wearing a facemask throughout the influenza season. To assist in ensuring appropriate documentation of immunity, a one-page summary of the Advisory Committee on Immunization Practices recommendations for healthcare worker immunization is available at http://www.immunize.org/catg.d/p2017.pdf.
- Influenza-associated deaths in children < 18 years of age and all suspected institutional outbreaks of influenza should be immediately reported to the FCHD. The prompt reporting of outbreaks allows FCHD to provide healthcare facilities prophylaxis recommendations to high risk individuals.
- Information on vaccination, antiviral use, diagnostic testing, infection control and patient education can be found on the Centers for Disease Control and Prevention's (CDC) "Seasonal Influenza" website: www.cdc.gov/flu.

Figure 1. Weekly trends in visits for influenza-like Illness (ILI) to Fairfax EDs and UCCs, 2012-2018

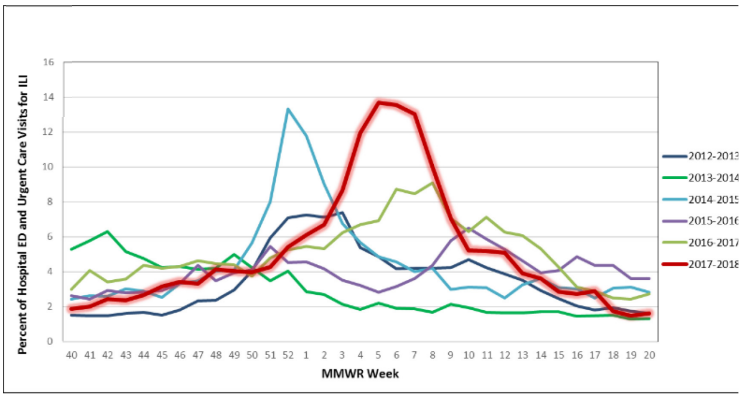
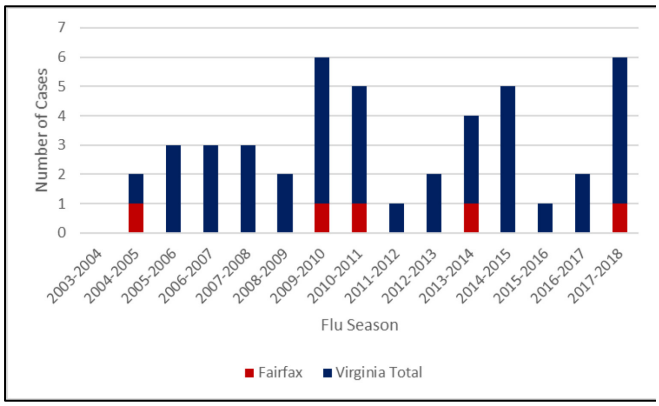


Figure 2. Virginia Influenza-Associated Pediatric Deaths by Influenza Season, 2003-2018



[1] Centers for Disease Control and Prevention (CDC). Summary of 2017-2018 Influenza Season. Retrieved from https://www.cdc.gov/flu/about/season/flu-season-2017-2018.htm

[2] Centers for Disease Control and Prevention (CDC). Estimated Influenza Illnesses, Medical Visits, Hospitalizations and Deaths in the United States—2017-2018 influenza season. Retrieved from https://www.cdc.gov/flu/about/burden/2017-2018.htm?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fflu%2Fabout%2Fburden%2Festimates.htm

[3] Virginia Department of Health (VDH). 2017-2018 Influenza Season Report. Retrieved from http://www.vdh.virginia.gov/epidemiology/influenza-flu-in-virginia/influenza-surveillance/

Tuberculosis

Background

In 2017, the number of reported U.S. tuberculosis (TB) cases decreased by 1.6% (from 9,253 to 9,105), marking the nation's lowest recorded annual case count. Similarly, a 2.3% decline in the U.S. TB incidence rate to 2.8 cases per 100,000 persons was observed. Although these 2017 figures represent historic lows, the pace of decline in TB case number and rate remains too slow to achieve the national TB elimination goal (less than one case per one million persons) in this century. New approaches, including efforts focused on addressing latent TB infection, are needed to accelerate progress toward TB elimination in the United States given at least 80% of genotyped TB cases reported during 2016-2017 were attributed to reactivated latent TB infection[1]

Fairfax Data

- In 2017, the Fairfax Health District (FHD) reported a total of 74 TB cases. The Health District's TB incidence rate, for 2017, was 6.3 cases per 100,000 persons, 3.5 times higher than the rate for the rest of Virginia (1.8 per 100,000), and more than double the U.S. rate (2.8 per 100,000).
- As is observed nationally, non-U.S.-born individuals comprise the majority of local TB cases. Approximately 94% of incident TB cases identified in the FHD between 2013 and 2017 were among non-U.S.-born persons. The most common countries of birth, for non-U.S.-born TB cases reported during this 5-year period, were Vietnam (14.3%), India (12.7%), Ethiopia (10.4%), Philippines (7.8%), and Republic of Korea (6.2%) (Table 1).
- Of the non-U.S.-born TB cases reported by the FHD in 2017, 52% occurred among individuals residing in the U.S. for 10 or more years, and 21% were among individuals residing in the U.S. for 20 or more years.
- In 2017, one FHD TB case exhibited multi-drug resistance (MDR), defined as no previous history of TB and resistance to at least isoniazid and rifampin. During 2008-2017, a total of nine MDR-TB cases were identified in the Health District. No extensively drug-resistant (XDR) TB cases were reported by the FHD in 2017.
- Four cases of TB/HIV co-infection were reported between 2016 and 2017 in the FHD. Diabetes mellitus is consistently the most frequently observed medical risk factor among the Health District's TB cases. In 2017, diabetes was reported in 11 (15.3%) of FHD TB cases (individuals with diabetes are more likely to develop TB disease if they have latent TB infection due to weakened immune systems).

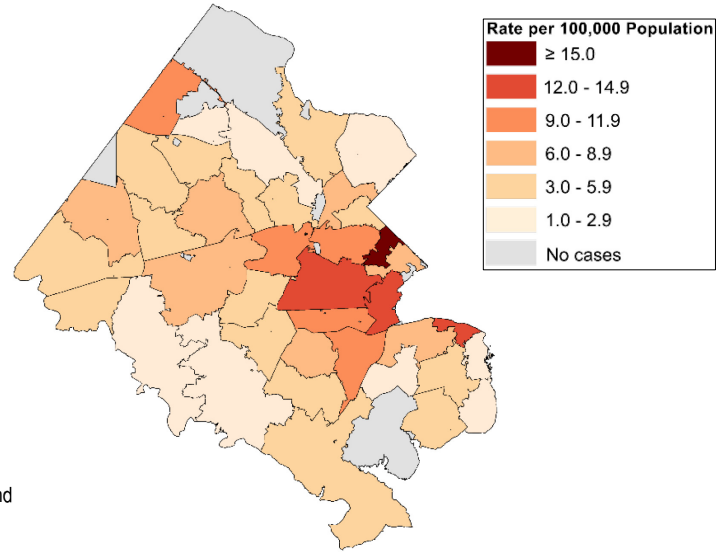
Clinician Pearls

- Consider TB in the differential diagnosis for non-U.S.-born individuals presenting with compatible signs and symptoms (e.g., prolonged cough of ≥ 3 weeks, hemoptysis, weight loss, night sweats, shortness of breath, fever).
- Suspect TB cases can be referred to the Fairfax County Health Department (FCHD) for evaluation to determine if they have active TB disease. Any patients who are started on TB treatment should be reported to the Health Department, regardless of whether TB has yet to be confirmed. **Report all suspect TB cases, and persons treated for TB, to FCHD by calling 703-246-2433.**
- **TB infection (also referred to as Latent TB Infection [LTBI])** is now reportable among persons of any age in Virginia. The preferred method of reporting is online (https://www.fairfaxcounty.gov/health/tuberculosis/providers), where a direct link to the Virginia Department of Health reporting portal is provided.
- Treatment for active TB is provided through FCHD without cost to Fairfax Health District residents. Three LTBI treatment options are available: 12 weeks of Isoniazid-Rifapentine (3HP) given once weekly (for patients aged 2 years or older), usually by directly observed therapy; four months of Rifampin given daily; or nine months of Isoniazid given daily. Active TB disease should be excluded prior to starting treatment for latent TB infection.

Table 1. Tuberculosis cases by country of birth, Fairfax Health District 2013-2017

Country	No. of cases	Percent
Vietnam	51	14.8%
India	39	11.3%
Ethiopia	27	7.8%
Philippines	26	7.5%
United States	20	5.8%
Republic of Korea	19	5.5%
Remaining 38 countries	163	47.2%

Figure 1. Rate (per 100,000 population) of reported TB cases by zip code, Fairfax Health District 2013-2017



[1] CDC. *Reported Tuberculosis in the United States, 2017*. Atlanta, GA: US Department of Health and Human Services, CDC; 2018.

Human Immunodeficiency Virus

Background

In 2017, the estimated rate of newly diagnosed HIV infections was 11.8 per 100,000 population (n=38,281) in the United States; which continues a gradual decline during the previous 5-years from a high point of 13.1 per 100,000 population (n=41,180) in 2012. The national male to female rate ratio for new HIV infection was 4.4 in 2017. Historical trends continued in 2017 with persons identifying as black had the highest burden of new HIV infection at 41.1 per 100,000 population. 67% of new HIV infections were attributed male-to-male sexual contact. The rate of death among persons diagnosed with HIV decreased from 2012 through 2016; continued linkage to care and achieving viral suppression is key to reducing further disease transmission, but additional investigation is needed to determine the impact on death rates. [1]

Fairfax Data

- 114 cases of HIV were identified in Fairfax Health District (FHD) in 2017; equivalent to a rate of 9.6 per 100,000 population and decrease of 3% from 2016 (9.9 per 100,000 population). This was less than the 2017 Virginia statewide incidence rate of 10.5 per 100,000 population. [2]
- In 2017, new infections were identified in most areas throughout FHD; however, areas with higher rates of HIV infections include parts of Alexandria, Merrifield, and Seven Corners (Figure 1).
- 72.8% (n=83) of new HIV cases were male in FHD, yielding a HIV rate ratio of male to female of 3.0 in 2017. The HIV case male-to-female rate ratio in Virginia in 2017 was 3.8. [2]
- In 2017, new HIV cases ranged in age from 2 to 76 years with a median of 36 years. During 2017, five pediatric cases of HIV were identified in Virginia [2], of which one was a FHD resident and a newcomer from overseas. The highest incidence of disease in FHD was among persons aged 25-34 years (19.1 per 100,000 population).
- Persons identifying as black, regardless of sex, had the highest incidence of HIV among all other racial and ethnic groups in FHD during 2017 (Figure 2). Stratifying by age group highlights additional disparities where new cases of HIV were identified in all age groups among persons identifying as black; however, no cases among persons identifying as white, non-Hispanic, the largest racial and ethnic group in Fairfax District, were in the 18-24 age group.
- Among new HIV cases with a reported or identified risk group (n=57, 50%), 41 (72%) cases were attributed to male-to-male sexual (MSM) contact (40 MSM; 1 MSM & injection drug use (IDU)). Only one (2%) HIV case was solely attributed to IDU.

Clinician Pearls

- The Centers for Disease Control and Prevention (CDC) recommends routine HIV screening for all patients aged 13-64 years in all health care settings. Screening should be performed regardless of risks for infection.
  - Persons at increased risk for HIV infection (e.g., multiple sex partners, any unprotected sex, sex with known HIV positive person, diagnosed with other STI) should be screened every 3 to 6 months.
  - Confidential HIV testing is available at each of the five Fairfax County Health Department District Offices. Harm reduction counseling before and after testing is included. Appointments can be made by calling 703-246-2411.
- In December 2018, the HHS Panel on Treatment of Pregnant Women with HIV Infection and Prevention of Perinatal Transmission updated guidance on Recommendations for the Use of Antiretroviral Drugs in Pregnant Women with HIV Infection and Interventions to Reduce Perinatal HIV Transmission in the United States (available at: https://aidsinfo.nih.gov/guidelines/html/3/perinatal/0).

Figure 1. Newly Identified HIV Case Rate per 100,000 Population, by Zip Code, Fairfax Health District, 2017 (n=113).

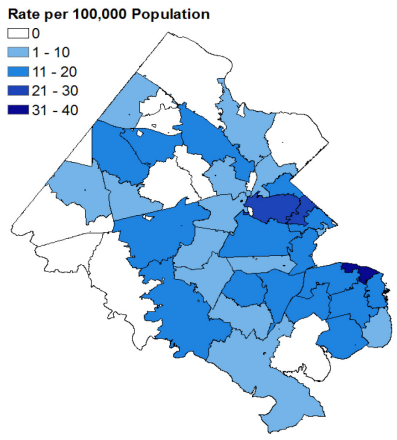
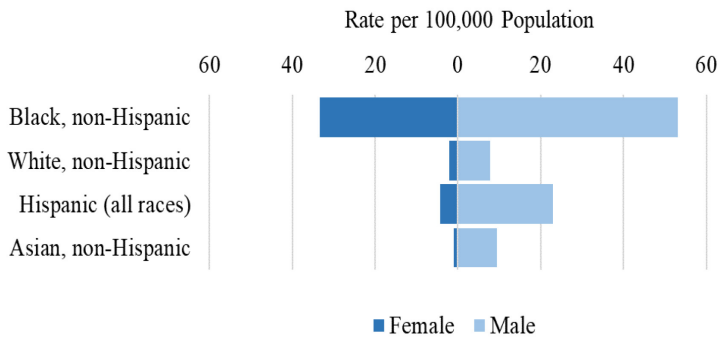


Figure 2. HIV Infection Rate per 100,000 Population, by Race/Ethnicity and Sex, Fairfax Health District, 2017 (n=112).



[1] Centers for Disease Control and Prevention (CDC). HIV Surveillance Report, 2017; vol. 29: Diagnoses of HIV Infection in the United States and Dependent Areas. Retrieved from https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2017-vol-29.pdf.
[2] Virginia Department of Health (VDH). Tables of Selected Reportable Diseases in Virginia, 2017. Retrieved from http://www.vdh.virginia.gov/content/uploads/sites/10/2018/08/Annual_Report_2017.pdf

Syphilis

Background

Syphilis, a sexually transmitted infection (STI) caused by the bacterium *Treponema pallidum*, can lead to serious permanent health consequences, including death, if not adequately treated. Patients are most infectious in the primary and secondary stage of disease. In the United States during 2017, there were 30,644 primary and secondary syphilis cases, which was a 10.5% increase from 2016. The majority of syphilis cases occur among gay, bisexual, and other men who have sex with men (MSM); however, recently, rates of syphilis have also been increasing among heterosexual men and women. [1]

Fairfax Data

- In 2017, 98 new early syphilis (i.e., primary, secondary, and early latent disease stages) cases were identified in Fairfax Health District (FHD) (8.26 infections per 100,000 population), a 10% increase from 2016 (n=89; 7.56 infections per 100,000 population). This is the third consecutive year of increases in new early syphilis total annual case counts in FHD. These case count increases are mirrored in state-wide and national trends. [1,2]
- 94.9% (n=93) of new early syphilis cases were male in FHD. The new early syphilis rate ratio of male to female was 21.0 in 2017, which was significantly higher than the new early syphilis case male-to-female rate ratio of 6.8 in Virginia during 2017. [2]
- The highest incidence rate of infection in FHD and statewide was found among persons aged 25-29 years (Figure 1).
- In 2017, the highest rate of infection for syphilis was among persons identifying as Non-Hispanic, Black (20.8 per 100,000) (Figure 2). These same racial/ethnic disparities are apparent in both statewide and national STI surveillance.[1,2]
- Twelve congenital cases of syphilis were born in Virginia in 2017. This represents the third consecutive year annual congenital case totals increased in Virginia from a low of 2 cases in 2014. [2] One case of congenital syphilis was identified in Fairfax District in 2017.

Clinician Pearls

- Syphilis infections can be asymptomatic, making laboratory screening for STIs the standard of care for all patients (i.e., ruling out infection based only on clinical assessment is not advised). Standard screening guidance should be applied to the following populations:
  - All pregnant women should have a documented STI screening with additional screenings throughout a pregnancy for at risk populations;
  - All sexually active men who have sex with men (MSM) should have a STI screening annually and more frequently if at risk (every 3 to 6 months);
  - All persons living with HIV and are sexually active at least annually;
  - All other persons considered at risk at least annually.[3]
- Once infection is confirmed, accurate identification of the stage of syphilis infection is necessary as recommended treatments vary. Healthcare providers should reference the CDC Sexual Transmitted Diseases Treatment Guidelines for the appropriate management and treatment of syphilis and other STI infections at http://www.cdc.gov/std/tg2015/default.htm.[3]

Figure 1. New Early Syphilis Infection Case Count and Rate per 100,000 Population, by 5-year age groups, Fairfax Health District, 2017 (n=98).

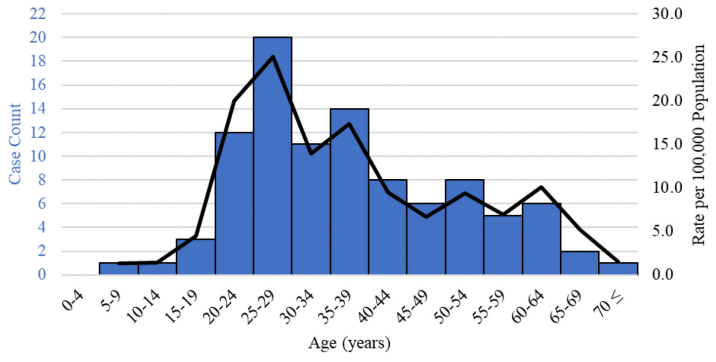
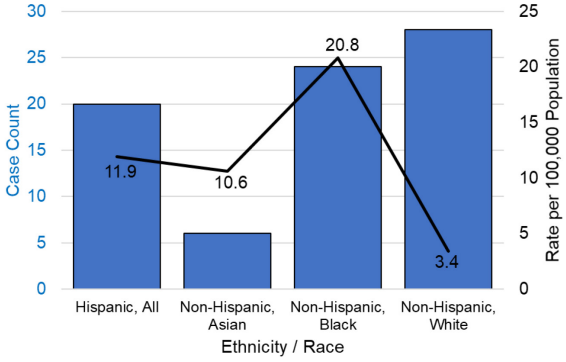


Figure 2. New Early Syphilis Infection Case Count and Rate per 100,000 Population, by Ethnicity/Race, Fairfax Health District, 2017 (n=78).



[1] CDC. Syphilis - CDC Fact Sheet (Detailed). Retrieved from: https://www.cdc.gov/std/syphilis/stdfact-syphilis-detailed.htm accessed on December 31, 2018.
[2] VDH. STD Annual Reports, 2017. Richmond: Virginia Department of Health; 2017. Retrieved from http://www.vdh.virginia.gov/content/uploads/sites/10/2018/09/ES_2017.pdf.
[3] CDC. Sexually transmitted diseases treatment guidelines, 2015. MMWR 2015; 64 (1-137). Retrieved from https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6403a1.htm.

Mosquito-Borne Diseases

Background

In Fairfax Health District (FHD), West Nile virus (WNV), a serious life threating infection, is endemic and primarily transmitted by *Culex* mosquitoes. In the United States, 2,097 WNV cases, including 146 deaths, occurred during 2017. During the same period, Virginia reported 13 WNV cases, including one death. [1] While mosquitoes that can transmit other mosquito-borne diseases, such as dengue, malaria, and Zika, are present in FHD (e.g., *Aedes albopictus, Anopheles quadrimaculatus*), the pathogens (e.g., dengue & Zika viruses, malaria plasmodium) are not. One major concern with climate change is that the mosquito life cycle is highly dependent on the weather. A warmer and wetter climate will make environmental conditions more favorable for faster mosquito reproduction cycles, increasing the risk of transmission.

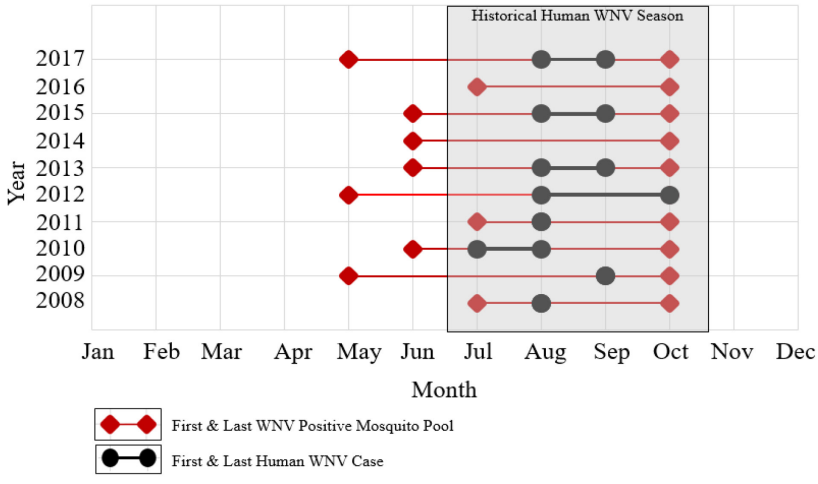
Fairfax Data

- Human cases of WNV have historically occurred in FHD from July to October each year (Figure 1). However, in the past ten years' mosquito surveillance has identified WNV infected mosquitoes as early as May, meaning the risk for human WNV infection exists earlier in the year than when cases have historically been observed.
- In 2017, 5 cases of WNV were identified in FHD. No cases of WNV were reported in FHD during 2016. The 2017 cases ranged in age from 36 to 66 years with a median age of 50 years. All cases were hospitalized, with a range in duration of hospital stay of 2 to 7 days (n=3). Four (80%) cases were classified as neuroinvasive.
- Among the mosquito-borne diseases imported into FHD during 2017, the most frequent was malaria with 24 cases. These cases were predominantly imported from Africa (Figure 2). Among laboratory results received with species information (n=8), *Plasmodium falciparum* (n=7) and *Plasmodium vivax* (n=1) were reported. Eleven (46%) of cases were hospitalized, with a range in duration of hospital stay from 2 to 6 days (n=6).
- In 2017, there were three imported cases of both chikungunya and dengue in FHD. Cases of chikungunya were imported from Bangladesh, El Salvador, and Pakistan; whereas, dengue cases were imported from India (n=2) and Pakistan. None of the chikungunya cases and one of the dengue cases was hospitalized for their infection.
- In 2017, there were five imported cases of Zika to FHD; none of the cases were congenital.

Clinician Pearls

- WNV disease should be considered in any person with a febrile or acute neurologic illness who has had recent exposure to mosquitoes, blood transfusion, or organ transplantation, especially during the summer months in areas where virus activity has been reported. The diagnosis should also be considered in any infant born to a mother infected with WNV during pregnancy or while breastfeeding.
  - Other arboviruses (e.g., La Crosse, St. Louis encephalitis, Eastern equine encephalitis, and Powassan viruses) should also be considered in the differential etiology of suspected WNV illness.
- Travel history, both domestic and international, is important to understand to appropriately diagnosis mosquito-borne diseases.
- The most effective way to avoid arboviral diseases is to prevent mosquito bites (e.g., mosquito repellant, long sleeves).
- Disease reporting from healthcare providers is crucial as public health epidemiologists and environmental health specialists work together to make sure that diseases imported from other areas do not become established in FHD (e.g., a sick traveler is bitten by mosquitoes here in Fairfax District). More information on the Fairfax County Health Department Disease Carrying Insects Program, including mosquito surveillance data, can be found here: https://www.fairfaxcounty.gov/health/fightthebite.

Figure 1. Human & Mosquito West Nile Virus (WNV) Surveillance, by Annual First & Last Case/Pool Identified, Fairfax Health District, 2008-2017.



[1] Centers for Disease Control and Prevention. West Nile Virus Disease Cases* and Presumptive Viremic Blood Donors by State –United States, 2017. Accessed January 10, 2019.Retrieved from: https://www.cdc.gov/westnile/resources/pdfs/data/WNV-Disease-Cases-and-PVDs-by-State-2017_08082018-P.pdf.

Rabies

Background

Following World War II, improved rabies vaccination programs and stray animal control resulted in a marked decrease in domestic animal rabies in the United States. Today, rabies mostly occurs in wildlife, most commonly in terrestrial carnivores. Along the entire east coast, including Fairfax Health District (FHD), raccoons are the primary reservoir for rabies virus. Healthcare providers, veterinarians, public health professionals, and animal control officers work together to help prevent rabies from infecting FHD residents, visitors, and their pets.

Fairfax Data

- 1,888 human exposures to animals were reported to the Fairfax County Animal Protection Police (APP) in 2017, a six percent decrease from 2016. The vast majority of these exposures were a dog bite that did not require PEP.
- In 2017, the Fairfax County Health Department (FCHD) Public Health Laboratory conducted direct fluorescent antibody testing for rabies virus on 301 animals, of which 27 (9%) tested positive. Among wild animals testing positive for rabies the most common species were raccoons (81%), foxes (8%), skunks (8%), and bats (4%) (Table 1). While no dogs tested positive for rabies, one (1%) cat did test positive.
- Among the 324 FHD residents that started rabies PEP in 2017, 100 (31%) had at least one error in physician administered PEP identified and corrected by the FCHD Rabies Program. The most frequently identified error was Rabies Immunoglobulin (RIG) not being infiltrated into the wound (63%, n=63) (Graph 1).

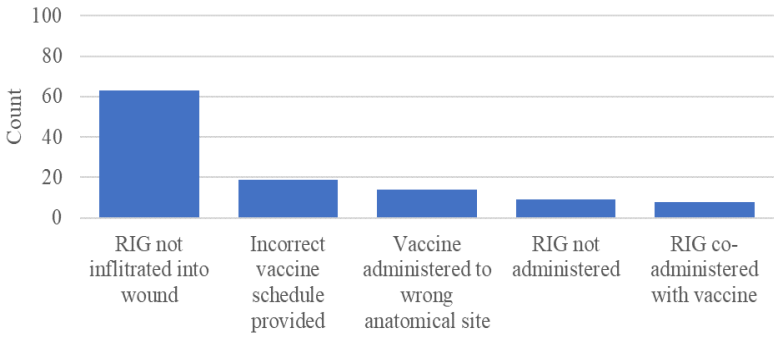
Clinician Pearls

- Administration of rabies post-exposure prophylaxis (PEP) is a medical urgency, not a medical emergency, but decisions must not be delayed. [1]
- Few individuals exposed to a potentially rabid animal will require PEP. If the offending animal can be located, PEP administration should be delayed pending the outcome of animal confinement or testing.
  - Animal rabies testing results are usually available within 24 hours once the specimen is received by the FCHD Public Health Laboratory.
- All animal bites or other potential rabies exposures must be reported immediately to APP by calling 703-691-2131 or faxing an animal bite report to 703-830-7806. If needed, APP staff can assist with locating the attacking animal.
- Accurate rabies exposure assessment and correct administration of PEP are critical for preventing disease and ensuring that vaccine remains available for truly exposed individuals.
  - FCHD rabies staff are available for consultation regarding rabies exposure assessment and PEP administration at 703-246-2433 (business hours) or 571-274-2296 (evenings, weekends, and holidays).
  - An online course with CME credits is available to provide further information about rabies exposure assessment and PEP administration at https://phpa.health.maryland.gov/training/Pages/rabies.aspx

Table 1. Animals tested for rabies, by species and result (n=301).

Animal		Total (n)	Positive (n) %
Wildlife	Raccoon	39	21 (54)
	Fox	19	2 (11)
	Skunk	9	2 (22)
	Bat	67	1 (1)
	Groundhog	10	0 (0)
	Opossum	4	0 (0)
	Rabbit	1	0 (0)
	Squirrel	7	0 (0)
Domestic	Cat	63	1 (2)
	Dog	75	0 (0)

Graph 1. Distinct count of rabies PEP misadministration errors, by type (n=100).



[1] Centers for Disease Control and Prevention. Human Rabies Prevention- United States, 2008. Recommendations of the Advisory Committee on Immunization Practices. (2008, May 7). Retrieved from https://www.cdc.gov/mmwr/pdf/rr/rr57e507.pdf

Outbreak Summary, 2017

Background

One of public health's primary responsibilities is to investigate all outbreaks to limit the spread of disease in our community. Outbreaks are defined by an illness that is clustered in time or place, with case numbers above expected for a specified population, location (e.g., school, hospital, business, or other facility), or exposure (e.g., surgery, ingestion of a food or medication). Once notification of an outbreak has been made to the local health department (LHD), public health works to ensure that appropriate infection prevention practices are put into place. Examples of recommendations that may be made are to exclude those who are ill from certain activities or to close a facility to limit spread. Additionally, the LHD works closely with facilities or individuals to have specimens collected for testing and recommend prophylaxis if indicated.

Fairfax Data

- In 2017, FCHD investigated 56 outbreaks in collaboration with the Virginia Department of Health and the CDC, which originated within Fairfax County. FCHD was also involved in numerous outbreak investigations that originated in nearby jurisdictions.
- 2,105 individual cases of illness were attributed to the fifty-six outbreaks reported in Fairfax County in 2017. This is comparable to previous years.
- Of the 56 outbreaks originating in Fairfax County in 2017; 44.6% were gastrointestinal illness, 26.8% were respiratory illness and 28.6% were rash illness; the breakdown of the outbreaks by suspected or confirmed etiologic agents (Figure 1).
- Agents causing outbreaks in FCHD include influenza viruses, noroviruses, enteroviruses, *Sarcoptes scabiei* var. *hominis*, *Legionella* bacteria, streptococcal bacteria, staphylococcal bacteria, and fungal infections.
- The most common outbreak investigation settings were schools (37.5%), long-term care facilities (35.7%) and childcare centers (17.9%).

Clinician Pearls

- Immediately report suspected outbreaks of any disease to FCHD by calling 703-246-2433. Outbreaks are not limited to diseases on the reportable disease list and suspected outbreaks of any disease should be reported to FCHD.
- By Virginia regulation, outbreak reporting is required by the person in charge of any residential or day program, school, summer camp, or service or facility licensed or operated by any agency of the Commonwealth. This includes childcare facilities, assisted living facilities, detention facilities, mental health programs, and other group settings. Licensed healthcare facilities (hospitals, skilled nursing facilities), physicians and laboratory directors also must report outbreaks.[1]
- Confirming the etiology of all outbreaks is crucial because infection control guidance, prophylaxis, and treatment are dependent on the causative agent. Laboratory testing for all outbreaks is available free of charge at Virginia's State Lab. Lab testing approval and submission is completed through the outbreaks location's local health department.

Figure 1.Outbreak by suspected or confirmed etiologic agent, Fairfax Health District, 2017

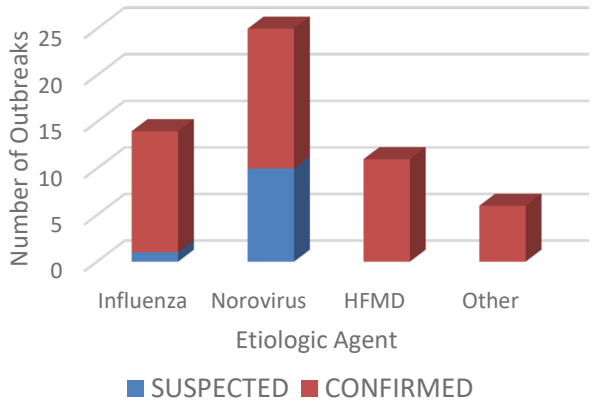
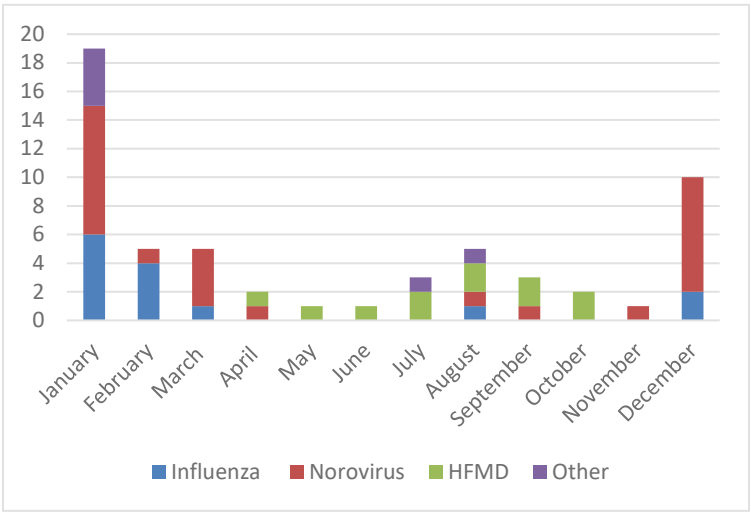


Figure 2.Outbreaks by date reported, Fairfax Health District, 2017



[1] Commonwealth of Virginia. Regulations for disease reporting and control. Retrieved from http://www.vdh.virginia.gov/content/uploads/sites/13/2018/11/Regulations_for_Disease_Reporting_and_Control.pdf

Fairfax County Health Department
Division of Epidemiology & Population Health

Contact Information

Communicable Disease Program
(for all communicable disease reports & guidance during business hours)
703.246.2433 • TTY 711
FAX 703.653.1347

Communicable Disease Hotline
Evenings & weekends
703-409-8449

Fairfax County Public Health Laboratory
703.246.3218 • TTY 711
FAX 703.653.9469

Rabies Program
(for all rabies reports & guidance during business hours)
703.246.2433 • TTY 711
FAX 703.653.6648

Rabies Hotline
Evenings &weekends
571-274-2296

FCHD Communicable Disease Services

Communicable Disease Surveillance and Investigation	• FCHD conducts communicable disease surveillance and investigation with the goal of reducing morbidity and mortality within the community. When cases or outbreaks of disease are reported or identified, FCHD staff: ○ Provide infection control guidance to clinicians, facilities, and infected individuals; ○ Identify exposed individuals and provide guidance regarding disease prevention, including recommendations for the administration of prophylaxis (if appropriate). ○ Visit www.fairfaxcounty.gov/health/diseases-conditions/reporting.
Rabies	• Rabies program staff are available to provide guidance regarding rabies exposure assessment and post-exposure prophylaxis (PEP) administration 24 hours a day. • FCHD Laboratory provides animal rabies testing for human or domestic animal exposures. • For more information on rabies visit www.fairfaxcounty.gov/health.rabies.
Tuberculosis (TB)	• TB program staff provides clinical guidance regarding TB diagnosis and treatment. • Free laboratory testing, chest x-rays, medications, and case management services are provided for all Fairfax District residents. • Reporting to FCHD is required for all TB cases. www.fairfaxcounty.gov/health/tuberculosis/providers ○ Latent Tuberculosis Infection (LBTI) is a reportable condition in the Commonwealth of Va.
Human Immunodeficiency Virus (HIV)	• HIV testing and HIV harm-reduction counseling is available through FCHD clinics. Clients may visit https://www.fairfaxcounty.gov/health/hiv-aids or call 703-246-2411 for service hours. • HIV program staff coordinates HIV/AIDS care, including medications obtained through the AIDS Drug Assistance Program and partner notification services.
Sexually Transmitted Infections (STI)	• STI testing and treatment are available at each of the five FCHD district offices on a sliding scale fee. Clients may visit https://www.fairfaxcounty.gov/health/sexually-transmitted-infections or call 703-246-2411 to confirm service hours. • STI program staff provides linkage to care and partner notification services for STI cases.
Laboratory	• FCHD laboratory conducts testing in support of communicable disease investigations including testing for TB, HIV, STIs, enteric pathogens, and rabies virus.
Outreach	• FCHD provides educational outreach regarding communicable disease prevention and control throughout the Fairfax Community.

Virginia Reportable Disease List

Updated Nov. 2018

Communicable Disease Reporting Guide for Clinicians

Disease reporting requirements for clinicians practicing in the Commonwealth of Virginia.

By law, Virginia clinicians must report diagnoses of the specified infections, diseases, and conditions listed on this poster. Both lab-confirmed and clinically suspect cases are reportable. The parallel system of lab reporting does not obviate the clinician's obligation to report. Some conditions (e.g., uncommon illness of public health significance, animal bites, HUS, pesticide poisoning, disease outbreaks) are rarely, if ever, identified by labs. We depend on clinicians to report.

Reports should be made to the patient's local health department (based on patient's home address) and include at least the patient's name, home address, phone number, date of birth, gender, diagnosis, and date of symptom onset. Reports should be made within one day of the diagnosis — please refer to the list below for reporting time frames by condition.

Disease reporting enables appropriate public health follow up for your patients, helps identify outbreaks, provides a better understanding of morbidity patterns, and may even save lives. Remember that HIPAA does not prohibit you from reporting protected health information to public health authorities for the purpose of preventing or controlling diseases, including public health surveillance and investigations; see 45 CFR 164.512(b)(1)(i).3.

COMPLIANCE

Reporting of the following diseases is required by state law (Sections 32.1-36 and 32.1-37 of the Code of Virginia and 12 VAC 5-90-80 and 12 VAC 5-90-90 of the Board of Health Regulations for Disease Reporting and Control:

www.vdh.virginia.gov/surveillance-and-investigation/division-of-surveillance-and-investigation/commonwealth-of-virginiastate-board-of-health/).

REPORT IMMEDIATELY*

- ☎ Anthrax
- ☎ Botulism
- ☎ Brucellosis
- ☎ Cholera
- ☎ Coronavirus infection, severe (SARS-CoV, MERS-CoV)
- ☎ Diphtheria
- ☎ Disease caused by an agent that may have been used as a weapon
- ☎ *Haemophilus Influenzae* Infection, Invasive
- ☎ Hepatitis A
- ☎ Influenza, Novel Virus
- ☎ Influenza –Associated Deaths in Children < 18 Years of Age
- ☎ Measles
- ☎ Meningococcal Disease
- ☎ Outbreaks, All
- ☎ Pertussis
- ☎ Plague
- ☎ Poliovirus Infection
- ☎ Psittacosis
- ☎ Q Fever
- ☎ Rabies, Human and Animal
- ☎ Rubella
- ☎ Smallpox (Variola)
- ☎ Syphilis, congenital, primary and secondary
- ☎ Tuberculosis, active disease
- ☎ Tularemia
- ☎ Typhoid/Paratyphoid fever
- ☎ Unusual occurrence of disease of public health concern
- ☎ Vaccinia, disease or adverse event
- ☎ *Vibrio* infection
- ☎ Viral hemorrhagic fever
- ☎ Yellow Fever

**within 24 hours of diagnosis*

REPORT WITHIN THREE DAYS

- Amebiasis
- Arboviral infections (e.g. CHIK, dengue, EEE, LAC, SLE, WNV, ZIKA)
- Babesiosis
- Campylobacteriosis
- *Candida auris*, infection or colonization
- Carbapenemase-producing organism, infection or colonization
- Chancroid
- Chickenpox (Varicella)
- *Chlamydia trachomatis* infection
- Cryptosporidiosis
- Cyclosporiasis
- Ehrlichiosis/Anaplasmosis
- *Escherichia coli* infection, Shiga toxin-producing
- Giardiasis
- Gonorrhea
- Granuloma inguinale
- Hantavirus pulmonary syndrome
- Hemolytic uremic syndrome (HUS)
- Hepatitis B (acute and chronic)
- Hepatitis C (acute and chronic)
- Hepatitis, other acute viral
- Human immunodeficiency virus (HIV) infection
- Influenza
- Lead, blood levels
- Legionellosis
- Leprosy
- Leptospirosis
- Listeriosis
- Lyme disease
- Lymphogranuloma venereum
- Malaria
- Mumps
- Neonatal Abstinence Syndrome (NAS)
- Ophthalmia neonatorum
- Rabies treatment, post-exposure
- Salmonellosis
- Shigellosis
- Spotted fever rickettsiosis
- *Staphylococcus aureus* infection, vancomycin-intermediate or vancomycin-resistant
- Streptococcal disease, Group A, invasive or toxic shock
- *Streptococcus pneumoniae* infection, invasive, in children <5 years of age
- Syphilis, if not primary, secondary, or congenital
- Tetanus
- Toxic substance-related illness
- Trichinosis (Trichinellosis)
- Tuberculosis infection
- Yersiniosis

A Fairfax County, Va., publication. Jan. 2019. For more information or to request this information in an alternate format, call the Fairfax County Health Department at 703-246-2411, TTY 711.

703-246-2433, TTY 711
www.fairfaxcounty.gov/health

Fairfax County Health Department
Communicable Disease/Epidemiology Unit
10777 Main Street, Suite 211
Fairfax, VA 22030

Fairfax County Health Department
2017 Communicable Disease Summary

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To request additional copies or request information in an alternate format, call the Fairfax County Health Department Communicable Disease/Epidemiology Unit 703.246.2433, TTY 711.