FAIRFAX COUNTY HEALTH DEPARTMENT

COMMUNICABLE DISEASE SUMMARY

2022

DEAR COLLEAGUE:

This 9th edition of the Fairfax County Health Department's Communicable Disease Summary highlights the reportable diseases that most impacted the Fairfax Health District in 2022. Summaries were not completed during the COVID-19 pandemic years (2019-21) due to the large volume of work monitoring, responding to, and controlling infection. During this time, Communicable Disease staff led a team of over 250 contractors to perform case and contact investigations and provide prevention recommendations; investigated over 1,300 COVID-19 outbreaks, primarily at long-term care facilities, schools and businesses; contributed to delivery of more than 2.8 million COVID-19 vaccinations including over 200 vaccine equity clinics targeting disadvantaged populations; created disease and vaccination dashboards to publicly share the status of infection and prevention in the County; and collaborated in communications with Fairfax County's diverse populations and with healthcare providers. With the end of the pandemic, COVID-19 work continues as part of ongoing Health Department activities and remains an important priority.

Each year, the Communicable Disease Section in the Division of Epidemiology and Population Health investigates thousands of reports of suspected communicable diseases. Prompt investigation, prevention, and control depend on collaboration with healthcare providers, laboratories, and facilities (hospitals, clinics, long term care facilities) as well as public safety professionals, schools, institutions of higher education, the Virginia Department of Health, and others. Communicable disease surveillance and disease control are key 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 staff with information and practical guidance that will help mitigate the potential impacts of ongoing and emerging communicable disease threats in our community.

The effectiveness of public health communicable disease investigation and disease prevention often depends on the timeliness of notification. While many diseases are electronically reported by laboratories based on test results, prompt reporting by clinicians can dramatically impact the course of investigations and help to limit the spread of illness. This may include reporting a suspect measles or varicella case based on clinical findings and exposure history or suspect meningococcal meningitis based on a CSF Gram stain result, where vaccination or chemoprophylaxis must be provided within a short time among those who were exposed and susceptible. Health Department staff are also able to conduct timely epidemiologic investigations to determine the source of illness and implement measures to reduce the risk of exposure and further spread.

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,

Gloria Addo-Ayensu, MD, MPH
Director of Health
Fairfax County Health Department

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EXECUTIVE SUMMARY

Each year, the Fairfax County Health Department receives and investigates thousands of reports of communicable diseases for which reporting is required under the Code of Virginia. The Health Department's 2022 Communicable Disease Summary provides data from surveillance and investigation of confirmed cases, and offers insights into trends and public health implications for select diseases. The intended audience of this report is healthcare providers and public health partners in Fairfax County and Northern Virginia.

The diseases summarized in this report were selected due to a significant change in surveillance trends, to highlight diseases of public health concern, and/or to share important clinical updates and recommendations. Each section follows a similar structure, with a brief disease background, followed by local trends, often compared with state/national trends, demographic and risk factor data, and a "clinician pearl" section that provides relevant clinical guidance/updates. All data and recommendations in this report can be shared externally as confidential patient information is not included, however surveillance data and public health/clinical recommendations may be revised to reflect future changes.

The COVID-19 pandemic significantly reduced care-seeking and delivery, particularly in 2020, and this had a substantial impact on communicable disease diagnosis. For most diseases, numbers began to rebound in 2021 and have continued to increase in 2022. Notably, some diseases continued upward trends despite the pandemic, for example, gonococcal disease and infections with multi-drug resistant pathogens (e.g., carbapenem resistant pathogens and Candida auris). Because of pandemic-associated reductions in reports of most communicable diseases, it may be challenging for several years to determine long-term trends and make projections of disease incidence in our community.

A communicable disease highlight that occurred in 2022 was the global mpox (formerly monkeypox) outbreak, with cases occurring primarily among men who had sex with other men. In May 2022, the Health Department investigated the first identified mpox case in Virginia. A total of 91 cases were identified in the health district, 94% of whom identified as male. Investigation included the identification of close contacts and monitoring for signs and symptoms of illness for 21 days following last exposure. Altogether, 334 contacts were monitored. Prevention measures included pre- and post-exposure vaccination, with the health department administering 4,679 vaccinations and distributing additional doses to clinical partners who serve at risk populations, early diagnosis and treatment, and health education on approaches to reduce risk of infection. Ultimately, these approaches were successful with the last Fairfax Health District case occurring in fall 2022.

As a Fairfax County Health and Human Services agency, the Health Department works to protect, promote and improve health and quality of life for all who live, work and play in our community. The Communicable Disease Section within the Division of Epidemiology and Population Health achieves its core disease and outbreak prevention function through complete and timely surveillance, case and outbreak investigations, and communication with healthcare providers and patients regarding interventions to reduce the spread of disease. This report, sharing communicable disease data and providing guidance for clinicians, is a part of that effort. We rely on clinicians to detect and report disease as the essential first step toward prevention. The Health Department routinely posts communicable disease information for healthcare providers, including health advisories and the reportable disease reporting link, at the following website: www.fairfaxcounty.gov/health/professionals. Additionally, all requests or questions about communicable diseases or the Health Department surveillance data from healthcare providers and public health partners can be sent to hdcd@fairfaxcounty.gov.

Updated November 2023

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

Communicable Disease Reporting Guide for Clinicians

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/clinicians/disease-reporting-and-control-regulations/)

When reporting, include at least the patient's name, home address, phone number, date of birth, gender, diagnosis, and date of symptom onset.

REPORT IMMEDIATELY*

WITHIN 24 HRS OF DIAGNOSIS

- Anthrax (Bacillus anthracis)
- Botulism (Clostridium botulinum)
- Brucellosis (Brucella spp.)
- Cholera (Vibrio cholerae 01/0139)
- Coronavirus infection, severe (e.g., SARS-CoV, MERS-CoV)
- Diphtheria (Corynebacterium diphtheriae)
- Disease caused by an agent that may have been used as a weapon
- Haemophilus influenzae infection, invasive
- Hepatitis A
- Influenza-associated deaths if younger than 18 years of age
- Influenza A, novel virus
- Measles (Rubeola)
- Meningococcal disease (Neisseria meningitidis)
- Outbreaks, all (including foodborne, healthcare-associated, occupational, toxic substance-related, waterborne, and any other outbreak)
- Pertussis (Bordetella pertussis)
- Plague (Yersinia pestis)
- Poliovirus infection, including poliomyelitis
- Psittacosis (Chlamydophila psittaci)
- Q fever (Coxiella burnetti)
- Rabies, human and animal
- Rubella [a], including congenital rubella syndrome
- Smallpox (Variola virus)
- Syphilis (Treponema pallidum), congenital, primary, secondary, and other
- Tuberculosis, active disease (Mycobacterium tuberculosis complex)
- Tularemia (Francisella tularensis)
- Typhoid/Paratyphoid infection (Salmonella Typhi, Salmonella Paratyphi (all types))
- Unusual occurrence of disease of public health concern
- Vaccinia, disease or adverse event
- Vibriosis (Vibrio spp.)
- Viral hemorrhagic fever
- Yellow fever

REPORT WITHIN THREE DAYS

- Amebiasis (Entamoeba histolytica)
- Arboviral infections (e.g., CHIK, dengue, EEE, LAC, SLE, WNV, Zika)
- Babesiosis (Babesia spp.)
- Campylobacteriosis (Campylobacter spp.)
- Candida auris, infection or colonization b
- Carbapenemase-producing organism, infection or colonization
- Chancroid (Haemophilus ducreyi)
- Chickenpox (Varicella virus)
- Chlamydia trachomatis infection
- Coronavirus disease 2019 (COVID-19 or SARS-CoV-2)
- Cryptosporidiosis (Cryptosporidium spp.)
- Cyclosporiasis (Cyclospora spp.)
- Ehrlichiosis/Anaplasmosis (Ehrlichia spp., Anaplasma phagocytophilum)
- Giardiasis (Giardia spp.)
- Gonorrhea (Neisseria gonorrhoeae)
- Granuloma inguinale (Calymmatobacterium granulomatis)
- 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, confirmed e
- Lead, blood levels
- Legionellosis (Legionella spp.)
- Leprosy/Hansen's disease (Mycobacterium leprae)
- Leptospirosis (Leptospira interrogans)
- Listeriosis (Listeria monocytogenes)
- Lyme disease (Borrelia spp.)
- Lymphogranuloma venereum (Chlamydia trachomatis)
- Malaria (Plasmodium spp.)
- Mumps
- Neonatal abstinence syndrome (NAS)
- Ophthalmia neonatorum
- Rabies treatment, post-exposure
- Salmonellosis (Salmonella spp.)
- Shiga toxin-producing Escherichia coli infection c
- Shigellosis (Shigella spp.)
- Spotted fever rickettsiosis (Rickettsia spp.)
- Streptococcal disease, Group A, invasive or toxic shock
- Streptococcus pneumoniae infection, invasive and <5 years of age
- Syphilis (Treponema pallidum), if not primary, secondary, or congenital
- Tetanus (Clostridium tetani)
- Toxic substance-related illness
- Trichinosis (Trichinellosis) (Trichinella spiralis)
- Tuberculosis infection
- Vancomycin-intermediate or vancomycin-resistant
- Staphylococcus aureus infection
- Yersiniosis (Yersinia spp.)

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

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

fairfaxcounty.gov/health

For more information or to request this information in an alternate format, call the Fairfax County Health Department at 703-246-2411, TTY 711. A Fairfax County, Va., publication. November 2023.

Table 1. Reported cases of selected communicable diseases
Fairfax Health District- 2013-2022

Disease	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	5-year average (2018-2022)
Amebiasis	9	4	10	11	3	5	9	6	6	8	7
Botulism, infant	0	0	0	0	1	0	1	0	1	1	1
Brucellosis	2	0	1	0	1	0	0	0	0	0	0
Campylobacteriosis	108	118	282	264	249	266	262	137	197	268	226
Chikungunya Fever	2	17	7	3	3	2	3	0	0	1	1
Chlamydia trachomatis infection^	2062	2163	2535	2969	3472	3349	3851	2957	3305	3446	3382
Cholera	0	0	0	1	0	0	0	0	0	1	0
COVID-19	-	-	-	-	-	-	-	50007	82158	127226	86464
Cryptosporidiosis	33	29	48	44	43	66	78	25	45	46	52
Cyclosporiasis	0	2	0	4	2	5	47	1	3	14	14
Dengue fever	5	7	8	8	3	4	7	1	1	6	4
Escherichia coli infection, Shiga toxin-producing	13	14	8	30	27	92	91	33	56	73	69
Ehrlichiosis/Anaplasmosis	11	5	8	5	12	12	5	13	12	7	10
Giardiasis	69	61	54	64	77	66	62	26	46	55	51
Gonorrhea^	286	270	326	525	585	571	623	656	755	891	699
Haemophilus influenzae, invasive	11	8	13	13	19	18	12	4	2	15	10
Hepatitis A	8	6	12	27	9	15	16	12	8	4	11
Hepatitis B, acute	4	1	2	1	3	3	1	1	2	5	2
Hepatitis C, acute	0	0	0	0	1	3	11	0	1	0	3
HIV infection^	127	127	110	117	114	108	93	49	73	65	78
Hemolytic uremic syndrome (HUS)	2	0	0	1	3	2	2	1	5	0	2
Influenza-associated deaths (less than age 18)	0	1	0	0	0	2	2	0	0	0	2
Lead, elevated blood levels in children (0-15 years)	19	26	21	114	188	135	140	89	127	108	120
Legionellosis	13	7	15	9	12	21	18	9	11	11	14
Listeriosis	7	3	3	1	7	6	2	4	8	2	4
Lyme disease	260	284	202	214	171	106	98	79	104	171	112
Malaria	16	29	17	27	24	23	29	7	15	24	20
Measles	0	1	1	0	0	0	0	1	11	1	3
Meningococcal disease (*Neisseria meningitidis*)	2	0	0	0	2	0	1	2	1	1	1
Mpox	-	-	-	-	-	-	-	-	-	91	N/A
Mumps	0	2	4	5	9	6	7	0	2	2	3
Pertussis	33	46	25	16	19	37	28	6	4	3	16
Q fever	1	1	0	0	0	0	1	0	1	1	1
Rabies, human	0	0	0	0	0	0	0	0	0	0	0
Salmonellosis	127	152	150	144	179	213	183	124	170	166	171
Shigellosis	29	48	33	27	45	49	63	32	33	55	46
Spotted fever rickettsiosis	23	20	14	10	22	11	9	2	4	1	5
Streptococcal disease, Group A, invasive	16	30	25	22	32	36	33	25	7	20	24
Streptococcus pneumoniae, invasive (less than age 5)	6	3	3	6	6	3	3	3	1	4	3
Syphilis, early stage^	63	38	44	89	98	130	136	115	126	167	134
Toxic Substances Investigations α	24	24	27	112	41	5	28	23	30	28	23
Trichinellosis	0	1	0	0	0	0	0	0	0	0	0
Tuberculosis	59	61	66	67	74	69	65	50	54	43	56
Typhoid fever	6	4	4	4	3	4	9	2	0	7	4
Varicella (Chickenpox)	61	56	49	74	69	74	108	30	33	38	57
Vibrio infection (non-cholera)	3	7	3	1	5	13	12	12	9	12	12
West Nile Virus infection	3	0	8	0	5	9	3	0	1	0	3
Yersiniosis	1	2	3	3	9	4	7	10	12	21	11
Zika*	-	-	-	39	5	7	19	0	0	0	5
Total	**3524**	**3678**	**4141**	**5071**	**5652**	**5550**	**6178**	**54555**	**87445**	**103109**	**57367**

^ Surveillance data are updated retrospectively as reports are received by Fairfax County Health District (FCHD) and Virginia Department of Health. FCHD updated the 2018-2022 case counts for this table.
- Not a reportable illness during the year listed.
α Toxic substances investigations includes arsenic, asbestos, elevated levels of cadmium, elevated levels of carbon monoxide, elevated levels of mercury, and pesticide poisoning.
*** Includes Zika virus disease (congenital and non-congenital) and Zika virus infection (non-congenital)**

COVID-19

Background

In December 2019, a small cluster of patients in Wuhan, China began to experience symptoms of a respiratory illness that did not respond to standard treatments.[1] On January 10, 2020, the World Health Organization (WHO) announced that the outbreak in China was caused by the 2019 Novel Coronavirus, also known as COVID-19. Over the next several months, the virus spread throughout China and many countries across the world, including the U.S. On March 11, 2020, the WHO declared the COVID-19 outbreak a global pandemic.[2] Worldwide (to date), countries have reported a cumulative total of over 770 million cases of COVID-19 and over 6.9 million deaths.[3] To date, the US has reported over **one hundred million COVID-19 cases** and **over one million deaths** resulting from COVID-19 infection.

COVID-19 is an infectious respiratory disease caused by the SARS-CoV-2 virus which typically causes mild to moderate respiratory illness but can cause severe illness and death, particularly in older individuals and those with underlying medical conditions.[4] The COVID-19 virus is constantly changing its genetic code and over time, new variants have emerged. Several notable variants that became dominant during the pandemic were Alpha, Delta, and Omicron, each more highly transmissible than previous variants. Waves of disease across the U.S. followed the emergence of each new variant, at times overburdening healthcare systems (Figure 1). Disease mitigation efforts included isolation and quarantine of cases and contacts, large scale mask wearing, social distancing, limitations on gathering indoors, and large-scale public campaigns to reduce the spread of COVID-19. Many businesses transitioned to teleworking and many children did not attend school in person for portions of 2020 and 2021.

In December 2020, two mRNA 2-dose COVID-19 vaccines were authorized for emergency use by the FDA and later, single dose vaccines became available.[5] Initial vaccine efficacy against the original strain of the virus was high but waned as newer variants became dominant and with time since vaccination. In the fall of 2022, an updated bivalent booster was authorized targeting the circulating Omicron variant strain at that time and was recommended for everyone 6 months and older. As of May 11, 2023, in the U.S., **81% of the population received at least one dose of vaccine, 69.5% completed their primary series, and 17.0% received one bivalent booster dose**.[6]

Fairfax Data

- While disease levels increased year-to-year in the Fairfax Health District (FHD), hospitalization and deaths decreased. Case rates varied by race/ethnicity and age group. African American/Black and Hispanic residents reported higher rates of disease and hospitalizations compared to Non-Hispanic White residents for 2020-2022 (Figure 2). Residents aged 18-24 and 85+ reported the highest case rates for 2020, residents aged 18-24 and 25-34 reported the highest case rates in 2021, and residents 85 and older reported the highest case rates in 2022 (Figure 3). Hospitalization and death rates were highest each year in residents aged 85 and older. In 2021, there were 2 pediatric deaths due to COVID-19 in FHD.
- Case Data: From Mar 2020 to Dec 2022, **259,391** COVID-19 cases were reported in FHD. In 2020, 50,007 cases were reported, 82,158 cases were reported in 2021 (a 64.3% increase from the previous year), and 127,226 cases were reported in 2022 (a 54.9% increase from the previous year). Case counts are an under-representation of total disease activity due to wide scale use of at-home testing kits for which reporting is not required.
- Hospitalization Data: From Mar 2020 to Dec 2022, **5,295** residents who were hospitalized tested positive for COVID-19. In 2020, 3,170 cases were hospitalized, 1,185 in 2021 (a 62.6% decrease from the previous year), and 940 in 2022 (a 20.7% decrease from the previous year). Hospitalization data collected for 2022 show that only about 42% of COVID-19 hospitalizations were due to infection with COVID-19 vs. cases found incidentally through admission testing procedures.
- Death Data: From Mar 2020 to Dec 2022, **1,788** residents died due to COVID-19. In 2020, 939 residents died, 468 died in 2021 (50.2% decrease from the previous year), and 381 died in 2022 (18.6% decrease from the previous year).
- Outbreak Data: From Mar 2020 to Dec 2022, **1,290** outbreaks that occurred in FHD were reported to the Virginia Department of Health (VDH). 299 were reported in 2020, 390 in 2021, and 600 in 2022 (a 54% increase from the previous year). About 50% of all outbreaks reported took place in schools or daycares, 24% in congregate care settings, and 27% in other community locations.
- Vaccination Data: 86% of all FHD residents received at least one dose of vaccine, 80% completed their primary series, and 25% received an updated (bivalent) booster dose. About 14% of Hispanic and 21% of African American/Black residents received the updated dose compared to about 27% of Asian/PI and 29% of Non-Hispanic White residents.

[1]Centers for Disease Control and Prevention (CDC). CDC Museum COVID-19 Timeline. Retrieved from https://www.cdc.gov/museum/timeline/covid19.html
[2] World Health Organization (WHO). WHO Director-General's opening remarks at the media briefing on COVID-19-March 2020. Retrieved from https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020
[3] World Health Organization (WHO). WHO Coronavirus (COVID-19) Dashboard. Retrieved from https://covid19.who.int/
[4] World Health Organization (WHO). Coronavirus disease (COVID-10). Retrieved from https://www.who.int/health-topics/coronavirus#tab=tab_1
[5] U.S. Food & Drug (FDA). FDA Approves First COVID-19 Vaccine. Retrieved from https://www.fda.gov/news-events/press-announcements/fda-approves-first-covid-19-vaccine#:~:text=The%20first%20EUA%2C%20issued%20Dec,trial%20of%20thousands%20of%20individuals
[6] Centers for Disease Control and Prevention (CDC). COVID Data Tracker. Retrieved from https://covid.cdc.gov/covid-data-tracker/#vaccinations_vacc-people-booster-percent-total

Figure 1: COVID-19 Cases by Month and Year with Dominant COVID-19 Variants, Fairfax Health District, 2020-2022

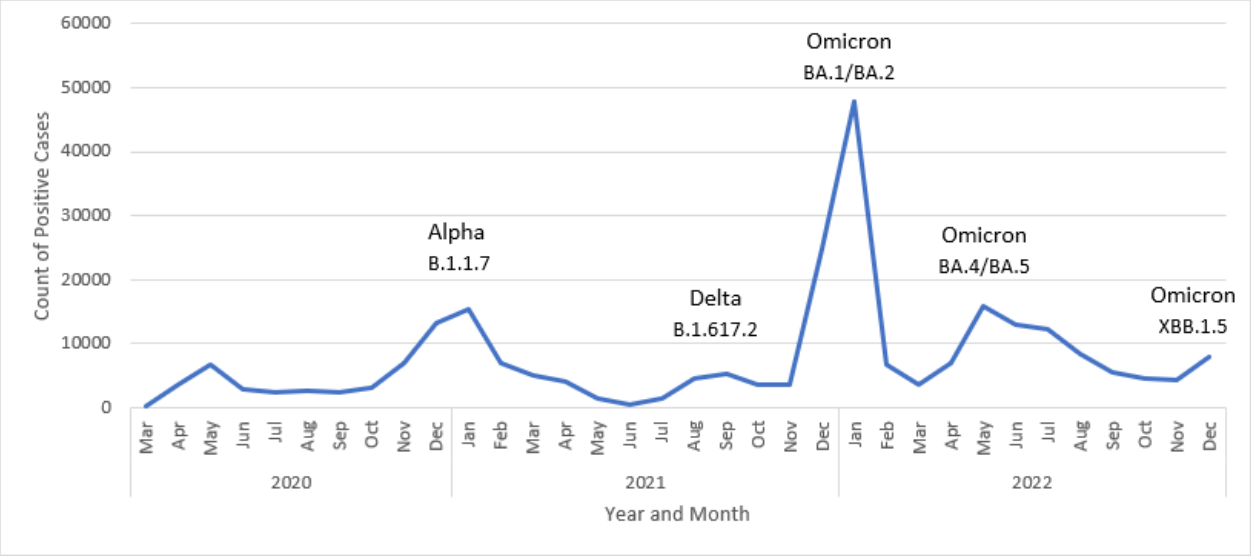


Figure 2: COVID-19 Case Rate per 100,000 Fairfax Health District, by Race/Ethnicity and Year

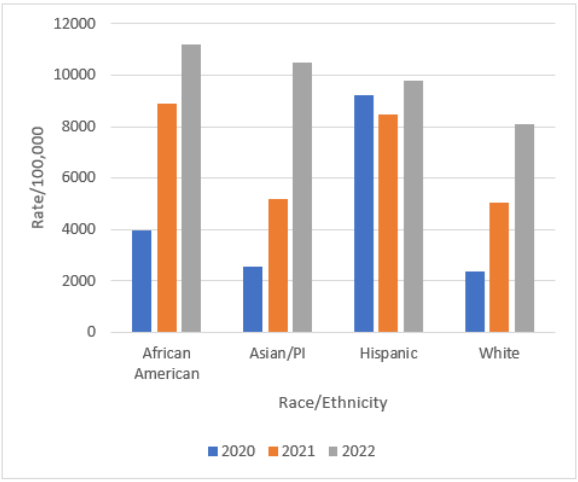
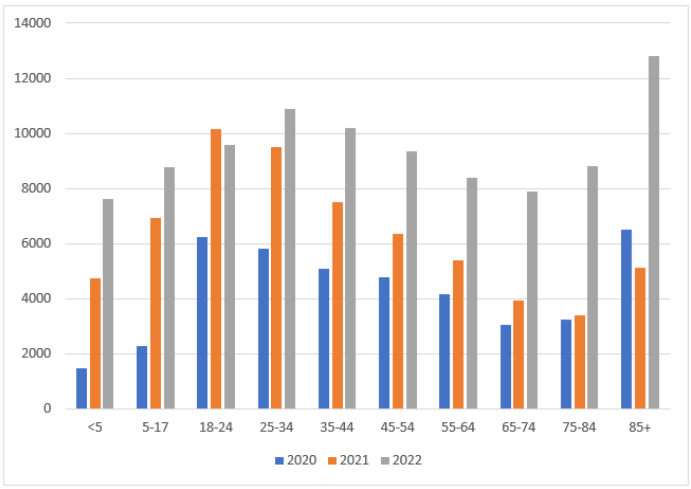


Figure 3: COVID-19 Case Rate per 100,000 Fairfax Health District, by Age Group and Year



Clinician Pearls

Prevention: Staying up to date on COVID-19 vaccines is an important tool in preventing severe disease outcomes including hospitalization and death. All individuals ages 6 months and older should get the updated 2023-2024 COVID-19 vaccine at least 2 months after receiving a dose of any COVID-19 vaccine. Individuals aged 6 months to 5 years and those who are immunocompromised may require additional doses.

Case Isolation:

- General population: Individuals who test positive for COVID-19 should stay home and away from others for five days following symptom onset (or test result, if asymptomatic). They may return to work/school on Day 6 if they wear a mask when around others if at least 24 hours have passed without fever reducing medication and symptoms have improved.
- Healthcare workers: Healthcare workers who test positive for COVID-19 must isolate and remain out of the facility for 7 days following symptom onset (or test result, if asymptomatic). They may return on Day 8 if a negative viral test is obtained within 48 hours prior to returning to work, at least 24 hours have passed without fever reducing medication, and symptoms have improved.

Treatments: There are several medications available for people at high-risk of getting a severe COVID-10 infection. Individuals at high risk include those with compromised immune systems, those ages 65+, and those with chronic diseases.

Medication (*=Preferred)	**Type**	**Eligibility**	**Administer Within**
*Paxlovid	Oral Antiviral	Age 12+ and must weigh at least 88 lbs	5 days of symptom onset
*Veklury (Remdesivir)	Intravenous Antiviral	Age 28 days+ and must weigh at least 6.6 lbs	7 days of symptom onset
Lagevrio (Molnupiravir)	Oral Antiviral	Age 18+	5 days of symptom onset

Measles

Background

Measles is highly contagious, vaccine-preventable, respiratory disease caused by a virus and remains prevalent in much of the world. Nationally, measles cases are primarily imported by unvaccinated U.S. residents traveling abroad (Figure 1)[1]. In 2019 the U.S. experienced the highest number of individual cases of measles since 1992, with 1,274 cases confirmed in 31 states.[2] With the return of increased international travel post-pandemic and concern with lapses in routine childhood vaccination that occurred during the pandemic, vigilance must be maintained by providers to prevent and limit disease transmission by ensuring adequate vaccination coverage.

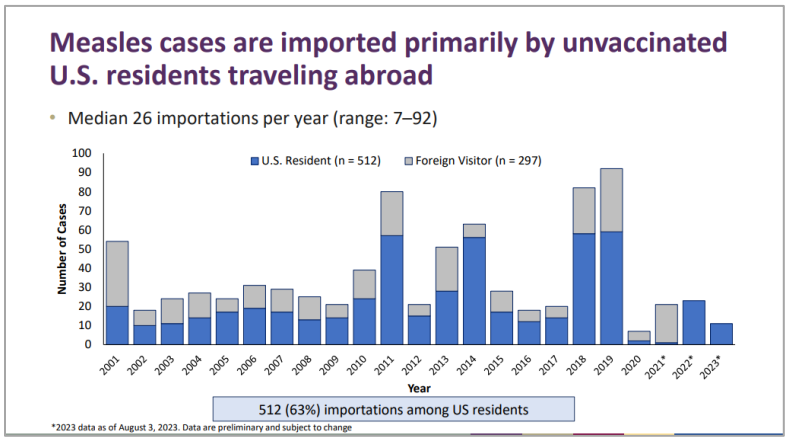
Fairfax Data

- Fairfax Health District experienced the highest number of measles cases documented in the past 20 years in 2021. All cases were associated with Operations Allies Welcome (OAW), a federal government initiative to support vulnerable Afghans as they safely resettled in the United States from September-October 2021[3]. A total of 47 cases were related to OAW with 22/47 (47%) cases occurring in Virginia and 11/47 (23%) cases in the Fairfax Health District. Over 2,000 close contacts were identified and assessed for immunity with 79 infants receiving IG and over 100 doses of MMR vaccination provided through public health and healthcare partners.
- In February 2022, Fairfax Health District led the investigation of a measles case in an unvaccinated school-aged child with recent travel to Pakistan. Over 500 contacts were identified and assessed. In May 2022, Fairfax supported a neighboring health district investigating a case in an unvaccinated toddler with recent travel to Pakistan (unrelated to February 2022 case) with FCHD identifying 593 close contacts. For this response 8 doses of IG and 12 doses of MMR were administered by the health department.

Clinician Pearls

- All persons traveling internationally should be fully vaccinated against measles. Before international travel[4]:
  - Infants 6 –11 months old need 1 dose of measles vaccine. Infants who get one dose of MMR vaccine before their first birthday should get two more doses according to the routinely recommended schedule
  - Children 12 months and older need 2 doses separated by at least 28 days
  - Teenagers and adults who do not have evidence of immunity against measles should get 2 doses separated by at least 28 days.
- Clinical, epidemiologic, and laboratory data should all be considered when diagnosing measles infection. Healthcare providers should consider measles as a diagnosis in anyone with fever (≥101°F or 38.3°C) **and** a generalized maculopapular rash **and** cough, coryza, or conjunctivitis (the 3 C's), particularly those who have recently been abroad, especially in countries with ongoing outbreaks.
- Immediately report suspected cases of measles to FCHD. FCHD can assist with expeditated confirmatory laboratory testing through public health laboratories, initiate the contact investigation, coordinate prophylaxis for susceptible contacts, and provide infection prevention and control guidance. Do not order serology testing through a commercial laboratory. Using serology (IgM) alone to test patients with low pre-test probability of having measles will result primarily in false positive results.
- Ensure that ALL employees in healthcare facilities have documentation of immunity for measles (documentation of two-doses of MMR or titer on record), and the records are easily accessible.

Figure 1: Measles cases are imported primarily by unvaccinated U.S. residents traveling abroad (Figure courtesy of CDC)



Resources for Clinicians:

MMR Vaccine Information for Parents | CDC – https://www.cdc.gov/vaccines/parents/diseases/measles.html

Healthcare Professionals Patient Education | CDC – https://www.cdc.gov/vaccines/hcp/patient-ed/index.html

Measles Outbreak Toolkit for Healthcare Providers | CDC – https://www.cdc.gov/measles/toolkit/healthcare-providers.html

Vaccinate with Confidence | CDC – https://www.cdc.gov/vaccines/covid-19/vaccinate-with-confidence/community.htm |

[1]CDC COCA Call: Webinar Thursday, August 17, 2023 - We Must Maintain Measles Elimination in the United States: Measles Clinical Presentation, Diagnosis, and Prevention (cdc.gov)

[2]CDC. Measles cases and outbreaks: https://www.cdc.gov/measles/cases-outbreaks.html

[3] Department of Homeland Security: https://www.dhs.gov/allieswelcome and VDH https://www.vdh.virginia.gov/measles/#outbreak-data

[4] Masters NB, Mathis AD, Leung J, et al. Public Health Actions to Control Measles Among Afghan Evacuees During Operation Allies Welcome — United States, September–November 2021. MMWR Morb Mortal Wkly Rep 2022;71:592–596. DOI: http://dx.doi.org/10.15585/mmwr.mm7117a2external icon.

Mpox

Background

Mpox, previously referred to as monkeypox, is a disease caused by a virus that is spread through close, skin-to-skin contact. A global outbreak of mpox began in May 2022 and spread rapidly across much of the world, disproportionately affecting gay and bisexual men, other men who have sex with men (MSM), and transgender people.[1] Most patients with mpox have mild disease, although those with advanced or untreated HIV infection, may experience severe outcomes. Virginia reported 566 cases in 2022, with the majority of cases occurring in the Northern Virginia region.[2] Disease transmission slowed considerably by late 2022 in the US and across the world. Vaccination continues to be one of the most important prevention measures.

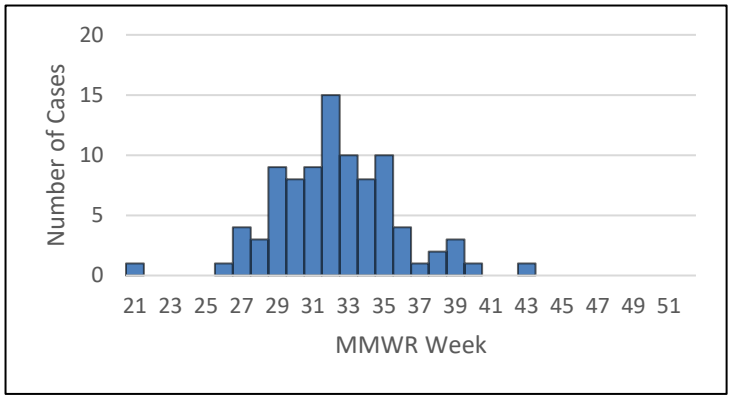
Fairfax Data

- The Fairfax Health District investigated the first identified case of mpox in Virginia in May 2022. This case occurred in a resident with recent international travel.[3] Disease transmission continued to increase over the summer of 2022, with cases tapering off in late 2022 (Figure 1).
- 91 cases of mpox were identified in the Fairfax Health District in 2022, 94.5% (86/91) of cases identified as male and cases ranged in age from 19-64 years, with a median age of 32.
- 334 contacts met the criteria to monitor for signs and symptoms of illness for 21 days from last exposure.
    - 87% (290/334) of contacts were healthcare workers.
- Vaccine administration was limited to those who met the Virginia risk criteria; a total of 4,679 doses (including 1st and 2nd dose) were administered by FCHD, with additional vaccination of high-risk individuals by healthcare partners in Northern Virginia.

Clinician Pearls

- Consider mpox when determining the cause of a diffuse or localized rash, including in patients who were previously infected with mpox or vaccinated against mpox. Differential diagnosis includes herpes simplex virus (HSV) infection, syphilis, herpes zoster (shingles), disseminated varicella-zoster virus infection (chickenpox), molluscum contagiosum, scabies, lymphogranuloma venereum, allergic skin rashes, and drug eruptions. Specimens should be obtained from lesions (including those inside the mouth, anus, or vagina), if accessible, and tested for mpox and other sexually transmitted infections (STI), including HIV, as indicated.
- The diagnosis of an STI does not exclude mpox, as a concurrent infection may be present.
- Patients with mpox benefit from supportive care and pain control. Mpox can commonly cause severe pain and can affect anatomic sites, including the anus, genitals, and oropharynx, which can lead to other complications. Tecovirimat is considered first-line among options. If a clinician intends to prescribe, stockpiled oral tecovirimat is available upon request for mpox patients who meet treatment eligibility under CDC's Expanded Access Investigational New Drug (IND) protocol. More information about evaluating and treating patients can be found on the CDC mpox Clinical Guidance web pages (https://www.cdc.gov/poxvirus/mpox/clinicians/obtaining-tecovirimat.html).[4]

Figure 1: Mpox cases reported by MMWR Week, Fairfax Health District 2022



Mpox Vaccine

- The two-dose mpox vaccine is recommended for individuals who have been exposed, or are at high risk of exposure to the mpox virus. Full eligibility can be found here: https://www.fairfaxcounty.gov/health/monkeypox.
- Vaccines are available to eligible individuals by appointment at FCHD clinics. To schedule an appointment, clients should call 703-246-2433.Minors 17 years old and under must have a parent, guardian, or adult aged 18 or older designated by the parent or guardian present on-site to receive the vaccine.

References:

1 Centers for Disease Control and Prevention (CDC) https://www.cdc.gov/poxvirus/mpox/index.html

2 Virginia Department of Health: https://www.vdh.virginia.gov/monkeypox/data-in-virginia/

3 Minhaj FS, Ogale YP, Whitehill F, et al. Monkeypox Outbreak — Nine States, May 2022. MMWR Morb Mortal Wkly Rep 2022;71:764–769. DOI: http://dx.doi.org/10.15585/mmwr.mm7123e1.

4 Centers for Disease Control and Prevention (CDC) Tecovirimat (TPOXX) IND Information https://www.cdc.gov/poxvirus/mpox/clinicians/obtaining-tecovirimat.html

Influenza (2021–22 Season)

Background

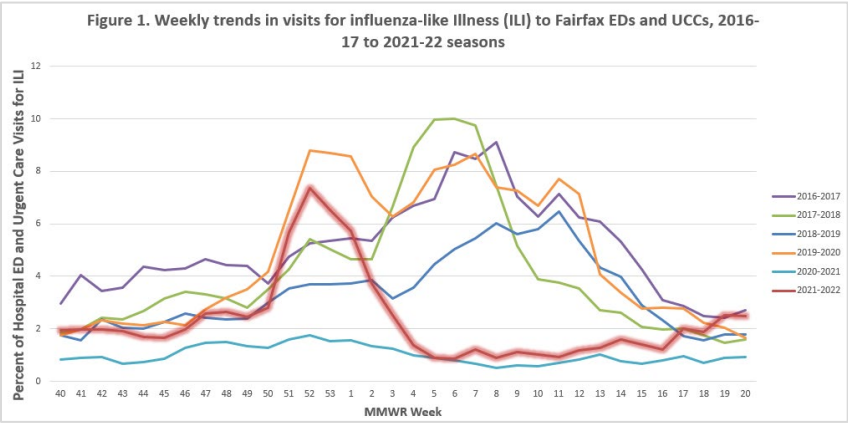
The 2021-22 influenza season saw higher levels of influenza-like illness (ILI) activity than the previous season (2020-21), but was milder overall than most flu seasons occurring before the start of the COVID-19 pandemic. Based on ILI activity in outpatient clinics, and rates of influenza-associated hospitalizations and deaths, the Centers for Disease Control and Prevention (CDC) classified the 2021-2022 flu season as low severity for all age groups.[1] In both Virginia and nationally, influenza A virus was the predominant strain circulating, as it was during the previous five flu seasons, with the subtype A(H3N2) viruses most commonly detected. The overall vaccine effectiveness of the 2021-2022 flu vaccine against both influenza A and B viruses was estimated to be 36%, although it varied by age group: the highest protection was seen in children ages 6 months to 4 years (77%) and lowest in adults ages 50-64 years (8%), an age group with approximately 50% vaccine coverage and for whom vaccine effectiveness was lowest for the A(H3N2) strain.[2]

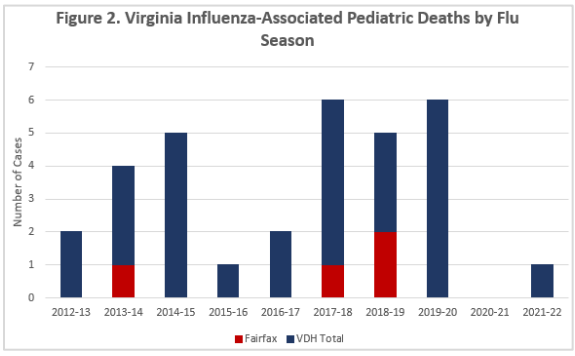
Fairfax Data

- In Fairfax, influenza activity peaked at the end of December with 7.3% of emergency department (ED) and urgent care center (UCC) visits for influenza-like illness (Figure 1), which was higher compared with national activity which peaked the same week at 4.9%. Fairfax ILI activity also had an unusual increase in late May, but only to around baseline levels of 2.5%.
- The Health Department investigated six outbreaks of suspected or confirmed influenza this influenza season. Of the six outbreaks investigated by FCHD, five (83%) were confirmed influenza by laboratory testing. Three outbreaks occurred in assisted living facilities and the other three occurred in elementary schools. Only one outbreak coincided with the season's peak ILI activity levels in December; four of the outbreaks occurred after the peak of ILI activity, in March and April 2022, and one suspected outbreak occurred in a K-12 setting in September 2022.
- For the 2021-22 flu season, 45 influenza-associated pediatric deaths were reported to CDC[3], with one reported from Virginia (Figure 2).[4] No pediatric deaths were identified in Fairfax for the flu season. This represents an increase in flu-associated deaths since the start of the COVID-19 pandemic, when one pediatric death was reported nationally for the 2020-21 season[5], but was lower than the number of pediatric deaths reported for the 2016-2019 seasons.

Clinician Pearls

- The Advisory Committee on Immunization Practices recommends routine influenza vaccination for all persons aged 6 months and older. Vaccination 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 outbreaks of influenza should be immediately reported to the FCHD Communicable Diseases Section at 703-246-2433 (703-409-8449 for after-hours reporting of pediatric influenza-associated deaths) or HDCD@fairfaxcounty.gov.





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[3] CDC. Influenza-Associated Pediatric Mortality. Retrieved from https://gis.cdc.gov/GRASP/Fluview/PedFluDeath.html
[4] Virginia Department of Health (VDH). Influenza Surveillance. Retrieved from https://www.vdh.virginia.gov/epidemiology/influenza-flu-in-virginia/influenza-surveillance/
[5] According to CDC, a possible explanation for the single reported pediatric influenza-associated death during the 2020-21 flu season is likely due to COVID-19 mitigation measures contributing to low flu incidence, hospitalizations, and deaths.

Multi-drug Resistant Organisms (MDROs)

Background

Multi-drug resistant organisms (MDROs) are an increasing health threat in the Fairfax Health District and nationally. Carbapenem resistant organisms (CROs) and *Candida auris* (*C. auris*) are leading concerns because of increasing prevalence, limited treatment options, significant health impacts associated with infection, and ability of the organisms to spread in healthcare settings from persons who are asymptomatically colonized. Transmission occurs by direct contact with the organism from the person who is colonized or their environment. Each year, more than 2.8 million antibiotic-resistant infections occur in the United States, and more than 35,000 people die as a result.[1]

Fairfax Data

- FCHD has documented a 131% increase in carbapenem resistant organisms (CROs) since 2018 (the year when these pathogens first became reportable in Virginia), with 37 cases reported in 2022 (figure 1). In 2019, FCHD investigated the second reported case of *Candida auris* in the state, and since then have investigated an additional 17 cases, with 12 cases identified in 2022.
- In 2022, the median age of cases was 71 years old (range of 43 to 99 years). Among case-patients, 27% identified as multi-Race, 24 % identified as Black or African American, 18% identified as White, 14% Other, and 12% identified as Asian (5% of cases were missing a selection or marked as unknown). Four percent of cases self-identified as being Hispanic or Latino.
- Organisms expressing newer carbapenemases (e.g., NDM, OXA-48) have also increased, with some of these cases in 2021 and 2022 not reporting recent international travel, international healthcare, or long stays in hospitals or nursing homes (previously identified risk factors). The majority (82%) of CRO and *C.auris* specimens were collected at acute care hospitals in 2022, followed by skilled nursing facilities (13%), and an increase in outpatient settings collecting specimens was observed, up 6% from 3% the previous year (figure 2).

Clinician Pearls

- The State Board of Health updated the Virginia Regulations for Disease Reporting and Control (12 VAC 5-90-80) effective November 14, 2018. Carbapenemase-producing organisms (CPOs) and *Candida auris* were added to the reportable disease list and list of conditions reportable by directors of laboratories. Thus, the responsibility for reporting the presence of these organisms rests with physicians, directors of medical care facilities, and directors of laboratories[3].
- Upon confirmation of CPO or C. auris laboratory result, FCHD will work with the facility/provider to implement the CDC Containment Strategy for Novel or Targeted Multidrug-resistant Organisms (https://www.cdc.gov/hai/containment/guidelines.html) by[2,3]:
  - Identifying that transmission is occurring;
  - Identifying affected patients, such as roommates and high-risk healthcare contacts;
  - Ensuring appropriate control measures are promptly initiated/implemented to contain potential spread; and working with the state public health lab and AR laboratory network to characterize the organism or resistance mechanism in order to guide additional response actions, patient management, and future responses.

Figure 1: Cases of CROs and *C. auris*, Fairfax Health District, 2018-2022

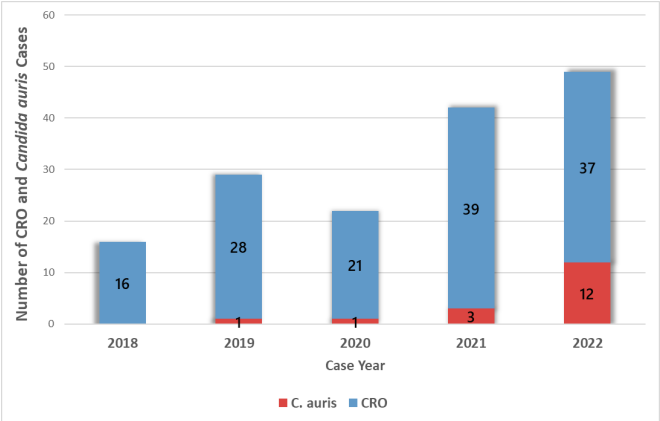
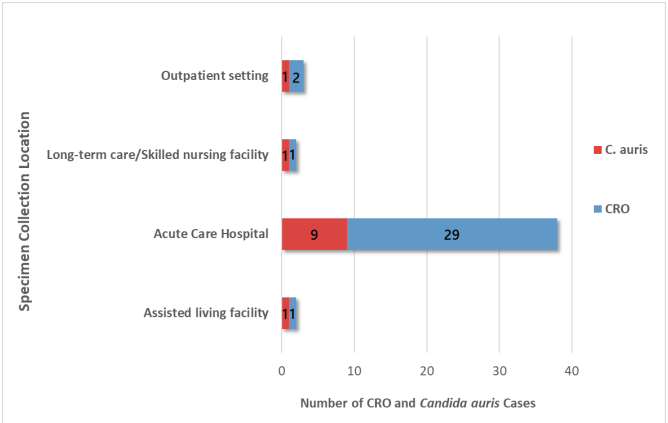


Figure 2: Cases of CRO and C. auris by Specimen Collection Location in Fairfax Health District, 2022



[1]Centers for Disease Control and Prevention (CDC) 2019 AR Threats Report: https://www.cdc.gov/drugresistance/pdf/threats-report/2019-ar-threats-report-508.pdf
[2]Centers for Disease Control and Prevention, Multi-drug resistant organisms: https://www.cdc.gov/hai/mdro-guides/index.html
[3]Virginia Department of Health, HAI AR, Carbapenem Resistant Organisms: https://www.vdh.virginia.gov/haiar/diseases-organisms/carbapenem-resistant-organisms-cro/

Typhoid Fever

Background

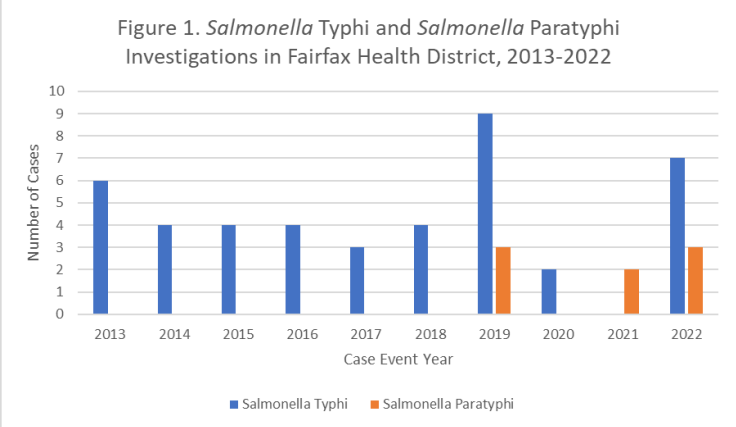
Typhoid fever is caused by the *Salmonella typhi* bacteria and results in more serious illness than infection from other *Salmonella* strains. It is diagnosed in approximately 350 people each year in the U.S.; however, CDC estimates that is only a fraction (approximately 6%) of the likely 5,700 people that are sickened with typhoid fever annually. Paratyphoid fever, a similar, but generally less severe disease (and also less common), accounts for approximately 90 diagnosed cases each year in the US. Typhoid and paratyphoid fever are most common in areas where food and water may be unsafe for consumption and sanitation is poor. Travelers to South Asian countries, particularly India, Pakistan, and Bangladesh, are at greater risk of infection and should take precautions to prevent getting sick.[1]

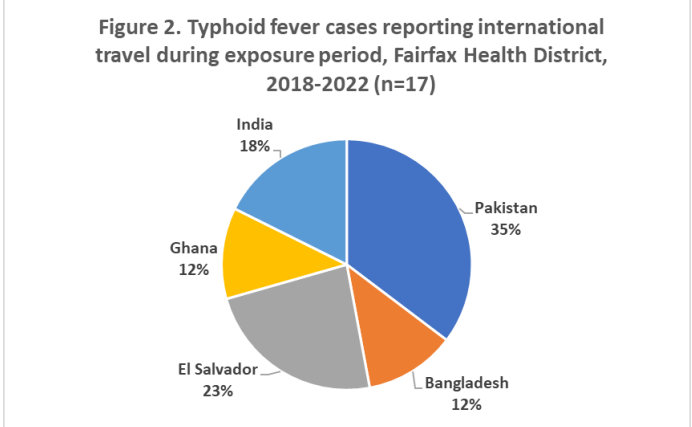
Fairfax Data

- In 2022, the Fairfax County Health Department investigated seven confirmed cases of *Salmonella typhi* (typhoid fever) and three confirmed cases of *Salmonella paratyphi* (paratyphoid fever). This represents a 150% increase from 2020-2021, when case rates were low due to the COVID-19 pandemic and travel restrictions (see Figure 1).
- The five-year average for typhoid fever cases in Fairfax Health District (FHD) from 2018-2022 was 4.4. For the entire state, Virginia averaged 14 cases per year during the same time frame. Prior to the pandemic, FHD averaged 4.8 cases of typhoid fever annually from 2015-2019.
- From 2018-22, 17 of 22 cases (77%) were hospitalized for their illness.
- All typhoid fever cases investigated in 2022 were associated with international travel to Pakistan (3 cases), El Salvador (2 cases), and Ghana (2 cases). For 2018-2022, the majority of cases reported international travel during the exposure period prior to becoming ill (77%) (see Figure 2). No typhoid cases reported receiving the vaccine prior to travel.

Clinician Pearls

- Typhoid and paratyphoid fever are generally diagnosed via a blood culture as opposed to most other diarrheal diseases tested using a stool specimen.[2]
- Typhoid and paratyphoid fever should be on the differential diagnosis list (along with malaria and other diseases associated with travel to less developed regions) for travelers returning from high-risk locations who present with high fever and gastrointestinal symptoms.[3]
- Antibiotics are an effective treatment for typhoid fever, but increased resistance makes it essential to conduct susceptibility testing. Follow-up clearance cultures (3) must be completed to ensure the individual is not an asymptomatic carrier.[2]
- Two types of vaccines are available in the U.S. for typhoid fever: an oral vaccine and an injectable vaccine. There is currently no approved vaccine for paratyphoid. Vaccination should be considered before traveling to high-risk countries. Both types of vaccines lose effectiveness over time and boosters are needed every two years (for injection vaccines) and every five years for oral vaccines.[4]





[1] The Centers for Disease Control and Prevention (CDC): Typhoid Fever and Paratyphoid Fever Questions and Answers (2020). Retrieved from https:// www.cdc.gov/typhoid-fever/sources.html
[2] CDC: Typhoid Fever and Paratyphoid Fever. Information for Healthcare Professionals (2021). Retrieved from https://www.cdc.gov/typhoid-fever/health-professional.html
[3] CDC: The Yellow Book 2020, Chap. 4. Typhoid and Paratyphoid Fever. Retrieved from: https://wwwnc.cdc.gov/travel/yellowbook/2024/infections-diseases/typhoid-and-paratyphoid-fever
[4] CDC: Typhoid Fever and Paratyphoid Fever. Vaccination. Retrieved from: https://www.cdc.gov/typhoid-fever/typhoid-vaccination.html

Yersiniosis

Background

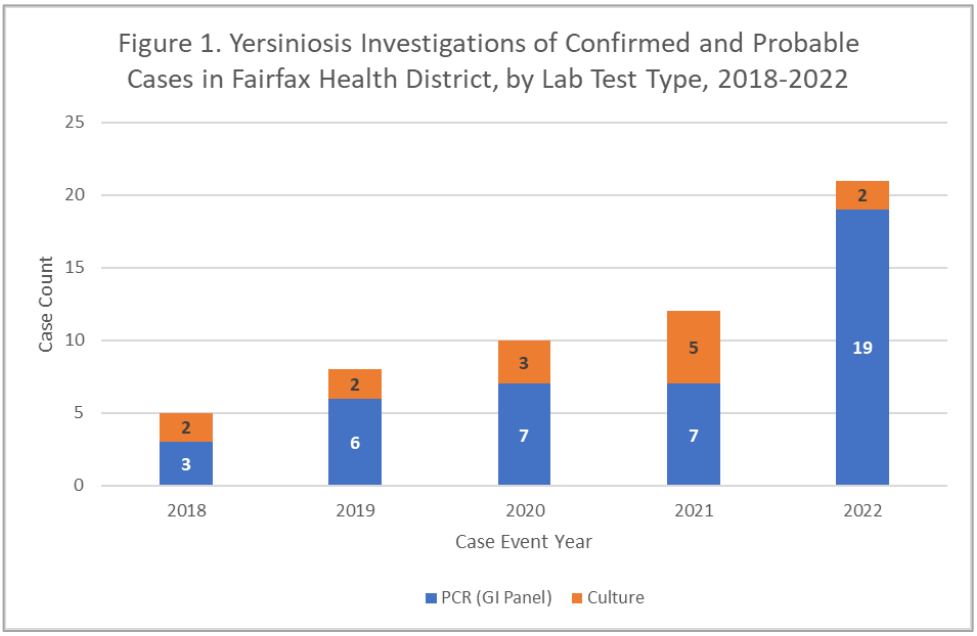
Yersiniosis is an infection caused by the *Yersinia* bacteria, with the primary *Yersinia* species causing illness in humans *Y. enterolitica*. Pigs are a major animal reservoir of *Yersinia* bacteria, and yersiniosis has historically been associated with consuming raw or undercooked pork products. Dairy and other products from unpasteurized milk can also carry these bacteria and cause human illness.[1] Symptoms vary depending on age group. In young children, the symptoms are primarily fever, abdominal pain, and diarrhea, whereas older children and adults generally have fever and right-sided abdominal pain.[1] Yersinia causes approximately 117,000 illnesses annually in the U.S. Of those, there are about 640 hospitalizations and 35 deaths according to CDC estimates.[1] Nationally, there was a 144% increase from baseline case counts reported in 2016-2018.[2]

Fairfax Data

- A total of 21 cases of yersiniosis were reported to the Fairfax County Health Department in 2022. This was a 75% increase from the number of cases reported in 2021 (n=12). This is also more than double the five-year average for 2017-2021, which was 8.8 cases per year. This increase is comparable across the state, where Virginia reported 136 cases statewide in 2022, nearly doubling the five-year average of 77 cases per year.
- Individuals infected with yersiniosis often recover on their own without serious complications; since 2018, only three Fairfax Health District cases were hospitalized, including one case in 2022.
- The age of cases in 2022 ranged from 4 years to 94 years, with the average age of cases at 47 years old.
- While CDC reports *Yersinia* infection is more common in the winter, only one case in 2022 reported an illness onset between November and February. The most common month for illness onset was August (n=4).
- Seven cases (33%) reported eating pork products prior to their illness, while two cases (14%) denied consuming any pork products during their exposure period prior to illness onset. Pork consumption is unknown for the remaining 11 cases (52%). No cases reported consuming unpasteurized dairy products.
- Only two cases (9.5%) reported international travel during the exposure period prior to illness onset.

Clinician Pearls

- Historically the primary means of testing for *Yersinia* infection was through a culture test. The rise in use of multiplex PCR tests for gastrointestinal illness is the likely cause for the recent increase in cases identified and reported to public health.[2] The majority of 2022 cases tested PCR positive via a gastrointestinal panel (90%), an increase from 2018-2021 where 65% tested positive by GI panel on average per year (see Figure 1).
- While culture-independent diagnostic tests, like the GI panel, have more than doubled the detection rate of *Yersinia* in the U.S., they typically only target *Y. enterocolitica* and culture testing is still required to determine the species and conduct antimicrobial susceptibility testing.[3]
- Older children and adults may present with fever and right-sided abdominal pain (mesenteric adenitis), which may cause an incorrect diagnosis of appendicitis.[1]



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[3] CDC: The Yellow Book 2024, Yersiniosis. https://wwwnc.cdc.gov/travel/yellowbook/2024/infections-diseases/yersiniosis

Tuberculosis

Background

Globally in 2021, tuberculosis (TB) was the second leading cause of death from a single infectious agent, surpassed only by COVID-19. In 2021, the number of reported U.S. TB cases increased by 5.4% (from 7,874 to 8,300)*. Although the U.S. TB incidence rate rose slightly between 2021 and 2022 (from 2.4 to 2.5 cases per 100,000 persons*), the 2022 rate was 7.4% lower than that reported during 2019. The partial rebound in 2022 TB incidence may reflect the lessening effects of factors associated with the COVID-19 pandemic as well as delayed detection of TB cases.

Fairfax Data

- In 2022, the Fairfax Health District's (FHD) TB incidence rate was 4.6 cases per 100,000 persons (55 total cases), with geographic distribution across most of FHD (Figure 1). The 2022 FHD rate was double that for the rest of Virginia (2.3 per 100,000) and nearly double the U.S. rate (2.5 per 100,000), but 14.8% lower than its pre-pandemic (2019) rate of 5.4 per 100,00 persons.
- In 2022, no FHD TB cases exhibited multi-drug resistance (MDR), defined as no previous history of TB and resistance to at least isoniazid and rifampin. During 2013-2022, a total of 8 MDR-TB cases and no extensively drug-resistant (XDR) cases were identified in FHD.
- No cases of TB/HIV co-infection were reported for FHD in 2022. Diabetes mellitus is consistently the most frequently observed medical risk factor among FHD TB cases. In 2022, diabetes was reported for 16 (29.1%) of FHD TB cases.
- Between 2018 and 2022, a large majority (93.7%) of TB cases identified in FHD were among non-U.S.-born persons. The most common countries of birth, for these non-U.S.-born TB cases, were Vietnam (16.3%), India (14.4%), and Ethiopia (13.3%).
- Of the non-U.S.-born TB cases reported by FHD in 2022, 66.7% occurred among individuals residing in the U.S. for 10 or more years, and 45.1% were among individuals residing in the U.S. for 20 or more years (Figure 2).
- According to CDC estimates, 80% of US TB cases are attributable to reactivation of untreated LTBI.[1] In 2022, 2,685 LTBI cases were reported by FHD (2,618 suspect and 65 confirmed cases), representing 28.1% of the statewide total.

Clinician Pearls

- Suspect TB cases can be referred to the Fairfax County Health Department (FCHD) for evaluation to determine if they have active TB disease. **Report all suspect TB cases, and persons started on TB treatment, to 703-246-2433.**
- Latent TB Infection (LTBI), among persons of any age, is reportable by all healthcare providers and laboratories in Virginia. Submit report: https://www.fairfaxcounty.gov/health/tuberculosis/providers.
- Persons with any of the following risk factors should be tested for TB: 1) born in areas with elevated TB rates (High Burden TB Country List 2023), or lived in or traveled to these areas for longer than 3 months; 2) conditions (e.g., HIV, cancer, diabetes), or medical treatments (e.g., TNF-alpha inhibitors), that weaken or suppress the immune system; or 3) ever in close contact with someone who has active TB disease.
- Without treatment, 1 in 10 people with LTBI will develop TB disease. The CDC and the National TB Controllers Association preferentially recommend short-course, rifamycin-based, 3- or 4-month LTBI treatment regimens preferentially over 6- or 9-month based isoniazid therapy. More information can be found in the Virginia Department of Health's LTBI Provider Toolkit: TB Infection (LTBI) - Tuberculosis (virginia.gov).

Figure 1. Rate (per 100,000 population) of reported TB cases by zip code, Fairfax Health District 2018-2022

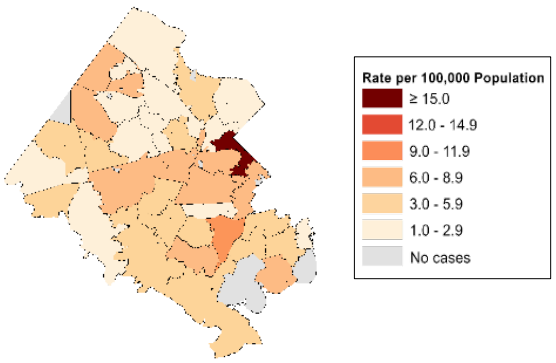
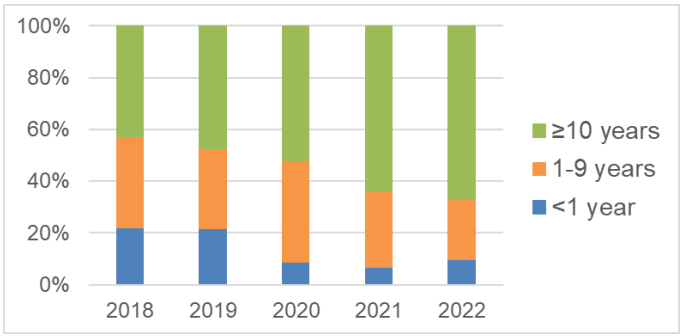


Figure 2. TB cases among non-US-born persons by time of residence in US, Fairfax Health District 2018-2022



*Data as of March 6, 2023.

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Human Immunodeficiency Virus (HIV)

Background

In 2020, the rate of newly diagnosed HIV infections in the United States was 9.2 per 100,000 population (n=30,692); which continues a gradual decline during the previous 5 years from a high point of 12.3 per 100,000 population (n=40,102) in 2016.[1] Males are diagnosed with HIV at 4.8 times the rate of females, with 71% of new HIV infections occurring among gay, bisexual, and other men who have sex with men (MSM).[1] Black, indigenous, and other communities of color bear a disproportionate burden of new HIV infection. Increasing access to HIV Pre Exposure Prophylaxis (PrEP) for those who are HIV negative and higher risk of infection, and continued linkage to care and achieving viral suppression for those living with HIV are key to reducing further disease transmission.

Fairfax Data

- 65 cases of HIV were identified in Fairfax Health District (FHD) in 2022; a rate of 5.5 per 100,000 population (Figure 1). This represents a decrease of 24% from 2017 (7.2 per 100,000 population) and is less than the 2022 Virginia statewide incidence rate of 9.7 per 100,000 population.[2]
- 86% (n=56) of new HIV cases were among males in FHD, 6.3 times the rate of new HIV among females. 43% of newly diagnosed HIV cases are among MSM.
- In 2022, new HIV cases ranged in age from 19 to 79 years with a median of 36 years. The highest incidence of disease in FHD was among persons aged 25–34 years (12.2 per 100,000 population).
- Persons identifying as black, non-Hispanic, continue to bear a disproportionate burden of newly diagnosed HIV compared with all other racial and ethnic groups in FHD (Figure 2). Black non-Hispanic women have rates of newly diagnosed HIV that are 21 times the rate of white, non-Hispanic women in FHD.
- Among new HIV cases with a reported or identified risk group (n=33, 51%), 30 (91%) cases were attributed to male-to-male sexual (MSM) contact (28 MSM; 2 MSM & injection drug use (IDU)). 2 (6%) HIV cases were solely attributed to IDU.

Clinician Pearls

- The Centers for Disease Control and Prevention (CDC) recommends routine annual HIV screening for all patients aged 13-64 years. Annual 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) should be screened every 3 to 6 months.
- Confidential HIV testing is available at each of the five Fairfax County Health Department District Offices. Appointments can be made by calling (703) 246-2411. Virginia Department of Health (VDH) also provides confidential at-home testing by calling (800) 533-4148.
- HIV PrEP reduces the risk of contracting HIV through sex by 99%.[3] You can find more information about HIV and STIs, including where to find PrEP, on VDH's Resource Connections: https://vadoh.myresourcedirectory.com.

Figure 1. Yearly HIV Infection Case Counts and Rates per 100,000 population, Fairfax Health District, 2017–2022

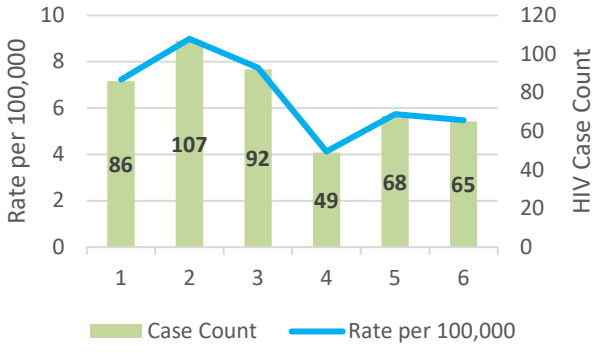
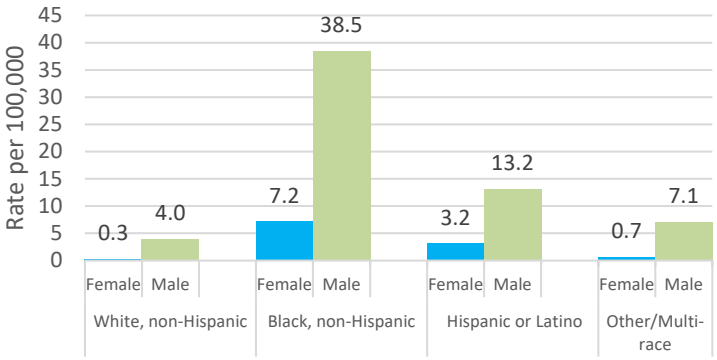


Figure 2. New HIV Infection Rates per 100,000 population, by Race/Ethnicity and Sex, Fairfax Health District, 2022



[1] Centers for Disease Control and Prevention (CDC). HIV Surveillance Report, 2020; vol. 33: 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-2020-updated-vol-33.pdf.
[2] Virginia Department of Health (VDH). Virginia Monthly Morbidity Surveillance Reports, 2023. Retrieved from https://www.vdh.virginia.gov/surveillance-and-investigation/virginia-reportable-disease-surveillance-data/virginia-monthly-morbidity-surveillance-report-2018/
[3] Centers for Disease Control and Prevention (CDC). PrEP Effectiveness; Retrieved from https://www.cdc.gov/hiv/basics/prep/prep-effectiveness.html

Gonorrhea

Background

Gonorrhea is a highly contagious but treatable sexually transmitted infection (STI) caused by the bacterium *Neisseria Gonorrhoeae* that can result in genital, rectal, and oropharyngeal infection. If left untreated, gonorrhea infection can spread to other parts of the body and increases the risk of pelvic inflammatory disease (PID) among females. Gonorrhea is the second most prevalent STI in the U.S. with 710,151 gonorrhea cases reported in 2021, a 28% increase from 2017.[1] Gonorrhea rates have increased every year since 2017. Gonorrhea has developed resistance to nearly all antibiotics used for treatment. Cephalosporins are now the last recommended and effective class of antibiotics.

Fairfax Data

- 891 new gonorrhea cases were reported in Fairfax Health District (FHD) in 2022 (75.2 infections per 100,000 population), representing a 52% increase from 2017 (n=585; 49.2 infections per 100,000 population). Gonorrhea case counts have increased nearly every year since 2017 in FHD, including during the COVID-19 pandemic when testing declined (Figure 1). These mirror state-wide and national trends.[1,2]
- 1 in 3 new gonorrhea infections in 2022 were among adolescents and young adults aged 15–24 years.
- 76% (n=679) of gonorrhea cases were among males in FHD in 2022. Overall, males are diagnosed with gonorrhea at nearly 3.3 times the rate of females. However, among adolescents and young adults aged 15–24, males and females have more similar rates of gonorrhea infection (male to female rate ratio = 1.6) compared with adults over age 24 (male to female rate ratio = 5.2).
- Black, non-Hispanic communities bear a disproportionate burden of gonorrhea infections compared with other racial and ethnic groups (Figure 2). Among reported cases in 2022 where race and ethnicity are known, 37% (n=205) were among residents identifying as black, non-Hispanic. These same racial and ethnic disparities are consistent with trends seen in statewide and national STI surveillance, and have persisted over time.[1,2]

Clinician Pearls

- Gonorrhea infections are often asymptomatic. Laboratory screening for STIs should be the standard of care for all patients with screening being done for:
  - Sexually active females and pregnant patients <25 years screen annually regardless of risk; extend to sexually active and pregnant females >25 years if at increased risk;
  - Sexually active MSM screen annually at sites of contact (urethra, rectum, pharynx), screen every 3 to 6 months if at increased risk;
  - Transgender and gender diverse persons, screening should be adapted based on anatomy. Annual, routine screening should be extended to all people with a cervix;
  - Persons living with HIV who are sexually active should be screened at initial HIV screen and annually thereafter or more frequently if at increased risk;
  - All other persons considered at risk should be tested at least annually.[3]
- Consult the CDC Sexual Transmitted Diseases Treatment Guidelines for management and treatment of gonorrhea and other STI infections at https://www.cdc.gov/std/treatment-guidelines . [3]

Figure 1. Gonorrhea Case Counts and Rates per 100,000 population, Fairfax Health District 2017–2022

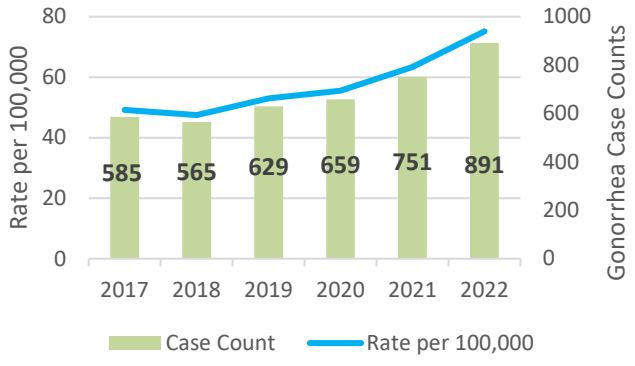
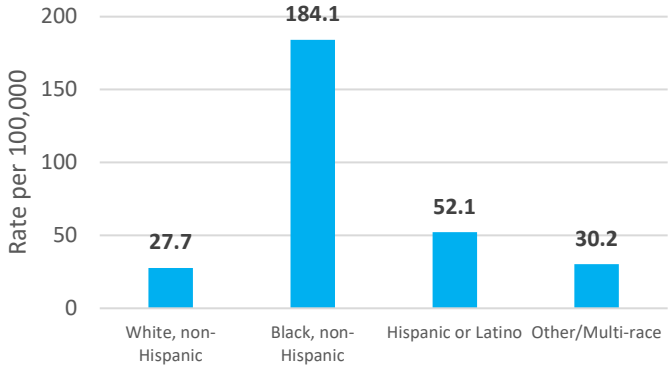


Figure 2. Gonorrhea Infection Rates per 100,000 population, by Known Race and Ethnicity, Fairfax Health District 2022



[1] CDC. Sexually Transmitted Disease Surveillance 2021. Retrieved fromhttps://www.cdc.gov/std/statistics/2021/default.htm accessed on April 11, 2023.

[2] VDH. Virginia Monthly Morbidity Surveillance Report, 2023. Retrieved from https://www.vdh.virginia.gov/surveillance-and-investigation/virginia-reportable-disease-surveillance-data/virginia-monthly-morbidity-surveillance-report-2018/ accessed on April 4, 2023

[3] CDC. Sexually transmitted diseases treatment guidelines, 2021. MMWR 2021; 64 (1–137). Retrieved from https://www.cdc.gov/std/treatment-guidelines/toc.htm.

Syphilis

Background

Syphilis is a sexually transmitted infection (STI) caused by the bacterium *Treponema pallidum* that can lead to serious permanent health consequences if not adequately treated. Patients are most infectious in the primary and secondary stages of disease. In 2021, there were 53,767 primary and secondary syphilis cases in the U.S., a 75% increase from 2017.[1] Most syphilis infections occur among gay, bisexual, and other men who have sex with men (MSM). However, rates of syphilis have increased recently among reproductive age females (15–44 years), leading to an alarming increase in the rates of congenital syphilis in the U.S. from 24.4 per 100,000 live births in 2017 to 77.9 in 2021.[1] Black, indigenous, and other communities of color bear a disproportionate burden of syphilis infection, including congenital syphilis.

Fairfax Data

- 167 (14.1 infections per 100,000 population) new early syphilis cases (i.e., primary, secondary, and early asymptomatic disease stages) were identified in Fairfax Health District (FHD) in 2022, a 72% rate increase from 2017 (n=98; 8.2 infections per 100,000 population; Figure 1). Early syphilis case counts have remained above 100 since 2018, including during the COVID-19 pandemic when testing declined. These mirror state-wide and national trends. [1,2]
- 92% (n=154) of early syphilis cases were among males in FHD in 2022. Males are diagnosed with early syphilis at nearly 13 times the rate of females, which is higher than the state male-to-female rate ratio of 6.3 in 2021.[2] Residents aged 25–34 years have the highest incidence of early syphilis infection in FHD.
- Among female early syphilis cases, 92% were of reproductive age (15–44 years). The rates of syphilis among females aged 15–44 years have more than doubled from 2017 to 2022 (Figure 2). Since 2018, there have been cases of congenital syphilis reported every year in FHD, after having had no cases reported in the prior 10-year span.
- Residents identifying as Black, non-Hispanic bear a disproportionate burden of syphilis infections compared with other racial and ethnic groups. These same racial and ethnic disparities are consistent with trends seen in statewide and national STI surveillance.[1,2]

Clinician Pearls

- Syphilis infections are often asymptomatic; therefore, laboratory screening should be the standard of care for all patients. Screening guidance should be applied to the following patients:
  - All pregnant patients should have a documented STI screening at the first prenatal visit with additional screening throughout a pregnancy for at-risk populations (multiple or new partners, substance use, STs in pregnancy);
  - Sexually active MSM should have an STI screening annually and every 3 to 6 months if at risk (younger than 29 years, transactional sex work, history of incarceration);
  - Persons who are living with HIV and are sexually active should be tested at least annually;
  - All other persons considered at risk should be tested at least annually.[3]
- The CDC Sexual Transmitted Diseases Treatment Guidelines provide detailed information on the appropriate management and treatment of syphilis and other STI infections at https://www.cdc.gov/std/treatment-guidelines. Guidelines are reviewed and updated regularly.
- FHD Disease Investigation Specialists (DIS) investigate all cases of syphilis reported in Fairfax Health District, and work with providers to get patients and their partners tested and treated.

Figure 1. Early Syphilis Infection Case Counts and Rates per 100,000 population, Fairfax Health District 2017–2022

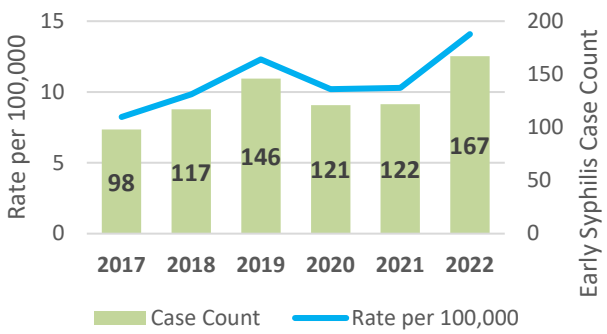
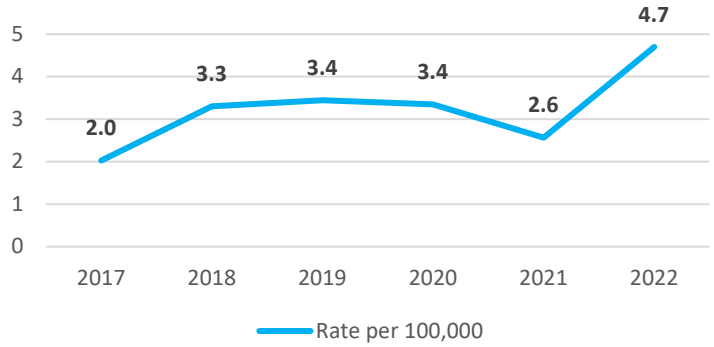


Figure 2. Early Syphilis Infection Rates per 100,000 population, among women 15–44, Fairfax Health District 2017-2022



[1] CDC. Sexually Transmitted Disease Surveillance 2021. Retrieved from: https://www.cdc.gov/std/statistics/2021/tables/14.htm Accessed on April 11, 2023.
[2] VDH. STD Annual Reports, 2021. Richmond: Virginia Department of Health; 2021. Retrieved from https://www.vdh.virginia.gov/content/uploads/sites/10/2022/07/Virginia-2021-Annual-Morbidity-Report-Early-Syphilis.pdf
[3] CDC. Sexually transmitted diseases treatment guidelines, 2021. MMWR 2021; 64 (1–137). Retrieved from https://www.cdc.gov/std/treatment-guidelines/toc.htm.

Hepatitis B

Background

Hepatitis B is a vaccine-preventable liver infection caused by the hepatitis B virus (HBV). Transmission occurs through sexual contact, sharing needles, syringes, other drug equipment, or from parent to infant during pregnancy or birth. If left untreated, it can cause liver damage, cirrhosis, liver failure, or liver cancer. In the United States during 2020, decreases in acute and chronic HBV cases were likely a result of fewer people seeking testing during the pandemic. New acute and chronic HBV cases were primarily among adults aged 30 years and older. Hepatitis B infection can be managed, but there is no cure. The best way to prevent hepatitis B virus infection is to be vaccinated, which is recommended for everyone aged 0-59 years.

Fairfax Data

- In 2022, 5 acute HBV cases were reported among Fairfax Health District (FHD) residents.
- Rates of chronic Hepatitis B virus (HBV) in the FHD are consistently higher than the rate in the rest of Virginia (Figure 1). Since 2018, chronic HBV rates have been decreasing and were likely suppressed further in 2020 with fewer persons seeking testing during the pandemic. The increase in 2021 is likely a result of increased screening as healthcare access and uptake improved.
- Like state and national trends, newly reported chronic HBV cases primarily occurred in FHD residents aged 30 years and older in 2022 (Table 1).
- 55.4% of newly reported chronic HBV cases were male in 2022. Compared to females, males using injection drugs more frequently along with and a greater transmission risk among men who have sex with men likely contributed to the increased rate.
- Perinatal HBV infections are rare in Virginia. During the past 15 years, three cases of perinatal HBV have been identified in Fairfax Health District, with the most recent case occurring in 2013.

Clinician Pearls

- **IMPORTANT UPDATE:** In 2022, the Advisory Committee on Immunization Practices now recommends universal hepatitis B vaccination of all persons aged 19-59 years.[1] With this update, all persons aged 0-59 years should be vaccinated for Hepatitis B.
- To prevent or reduce the risk for transmission to others, advise Hepatitis B virus (HBV) infected patients on transmission methods and high-risk situations to household contacts, sexual contacts, and others. This includes not sharing razors, toothbrushes, glucose monitoring equipment, or any other object that might become contaminated with blood.
- Inform HBV infected patients about the risk of liver damage and the importance of avoiding or limiting alcohol consumption because of the effects of alcohol on the liver. Clients with chronic HBV infection should be linked to care to actively manage their infection.
- Virginia Department of Health Perinatal Hepatitis B Program tracks all HBsAg pregnant people to ensure the infant receives HBIG at birth and is immunized. Fairfax supports the program by reaching out to provide guidance, offer testing, and vaccination to household/sexual contacts.
- Provider practice guidelines on Hepatitis B are available here: https://www.aasld.org/practice-guidelines/chronic-hepatitis-b.

Figure 1. Chronic HBV incidence rates by year, Fairfax Health District and rest of VA 2018-2022

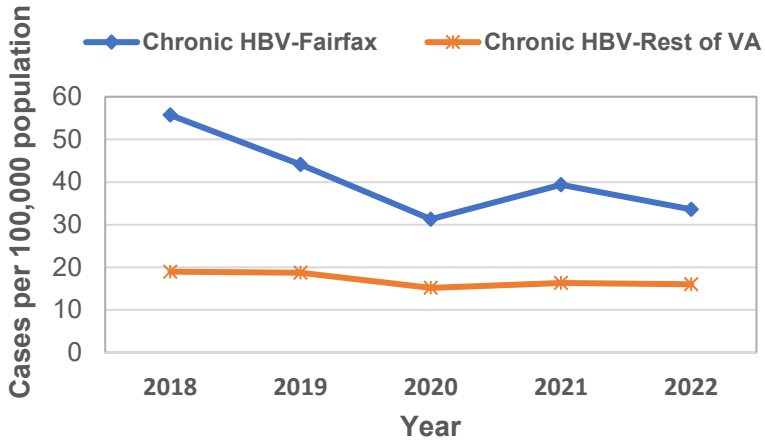


Table 1. Rate (per 100,000 population) of chronic HBV, by age group & sex, Fairfax Health District 2022

Age Group (years)	Female	Male	Total
0-9	0.0	0.0	0.0
10-19	2.7	2.5	2.6
20-29	21.9	15.4	18.6
30-39	53.2	65.4	59.2
40-49	42.9	68.2	55.7
50-59	35.3	47.7	41.9
60-69	49.0	51.2	50.0
≥70	29.5	45.8	36.9

[1] Weng MK, Doshani M, Khan MA, et al. Universal Hepatitis B Vaccination in Adults Aged 19-59 Years: Updated Recommendations of the Advisory Committee on Immunization Practices: United States, 2022. MMWR Morb Mortal Wkly Rep 2022; 71:477-483.

Hepatitis C

Background

Hepatitis C virus (HCV) is al liver infection transmitted through contact with blood from an infected person. Transmission most commonly occurs through sharing needles, syringes, or other drug injection equipment, and from parent to infant during pregnancy or at birth. Long term effects of hepatitis C include cirrhosis and liver cancer. Deaths associated with hepatitis C increased 4% during 2020 (3.45 deaths per 100,000 people) compared to 2019 (3.33 deaths per 100,000 people). There is no vaccine to prevent hepatitis C infection, however, direct acting antivirals cure 95% of infected persons. Persons that spontaneously clear the virus or are successfully treated, can be reinfected.

Fairfax Data

- In 2022, no cases of acute HCV were reported among Fairfax Health District (FHD) residents.
- Compared to the rest of Virginia (69.9 per 100,000 in 2022), rates of chronic HCV are consistently lower in FHD (17.9 per 100,000 in 2022) (Figure 1). Decreases across the state and in FHD were observed in 2020-21, likely in part due to reduced testing during the COVID-19 pandemic.
- During 2022, the Fairfax County Health Department implemented a new practice to follow up on all positive antibody tests with no electronically reported confirmatory PCR result. This effort resulted in over 150 persons that would have been counted as a probable chronic case being determined by unreported negative PCR result to not be infected and were therefore not counted. Compared to previous years, chronic HCV cases in 2022 should be viewed as a more accurate measure of the disease burden in FHD.
- In 2022, 43.9% of chronic HCV cases were female. Persons aged 60-69 years were in the highest risk age group for infection (Table 1).
- Since 2017, the only reported case of perinatal HCV in a FHD resident occurred in 2021.

Clinician Pearls

- **IMPORTANT UPDATE:** In 2020, new universal hepatitis C screening guidance recommends every person aged 18 to 79 years to be tested at least once and to test during every pregnancy.
- Direct Acting Antivirals (DAAs) cure 95% of persons infected with hepatitis C (HCV) in 8-12 weeks.
- Treating HCV is relatively simple. For information and consultative help to start providing HCV treatment in your practice visit: https://virginiahepc.com/ or https://www.hcvguidelines.org/
- Active or recent drug use or a concern for reinfection is not a contraindication to HCV treatment.
- Children born to mothers infected with Hepatitis C should be tested within the first 2 to 18 months of life. Providers should report to the Fairfax County Health Department when a person with active HCV delivers as infants are followed to ensure proper testing. Reports should be made to 703-246-2433, hdcd@fairfaxcounty.gov or reported online at: https://www.fairfaxcounty.gov/health/diseases-conditions/reporting.

Figure 1. Chronic HCV incidence rates by year, Fairfax Health District and rest of VA 2018-2022

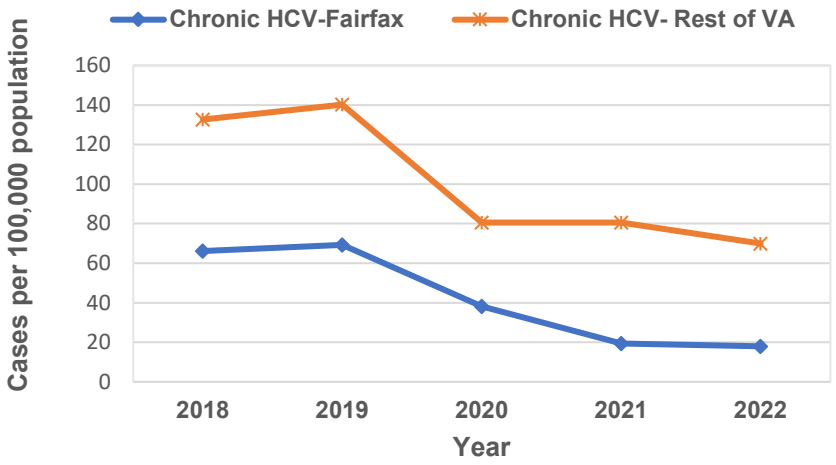


Table 1. Rate (per 100,000 population) of chronic HCV, by age group & sex, Fairfax Health District 2022

Age Group (years)	Female	Male	Total
0-9	0.0	0.0	0.0
10-19	2.7	0.0	1.3
20-29	14.6	15.4	15.0
30-39	16.0	26.4	21.2
40-49	17.7	26.0	21.9
50-59	20.9	27.8	24.7
60-69	34.8	44.8	39.8
≥70	21.5	25.9	23.4

Rabies

Background

Rabies is a preventable disease caused by a virus that is nearly 100 percent fatal in mammals, including humans. Today, rabies mostly occurs in wildlife. Along the entire east coast, including the Fairfax Health District, terrestrial carnivores, such as raccoons, are the primary reservoir for rabies virus. In the U.S., contact with infected bats is the leading cause of human rabies deaths. While rabies is rare in people in the U.S., with only 1 to 3 cases reported annually, approximately 60,000 people receive rabies post-exposure prophylaxis (PEP) each year to prevent rabies infection after potential exposure.[1] Administration of rabies PEP is a medical urgency, not a medical emergency, but decisions must not be delayed.[2]

Fairfax Data

- In 2022, 2,619 human exposures (bites and scratches) to domestic animals were reported to the Fairfax County Animal Protection Police (APP), a four percent decrease from 2021.
- The Fairfax County Health Department (FCHD) Public Health Laboratory conducted direct fluorescent antibody testing for rabies virus on 275 animals, of which 37 (13%) tested positive in 2022. Among wild animals testing positive for rabies, the most common species were raccoons (65%), foxes (14%), and skunks (14%) (Figure 1). The first rabid coyote in the county's history was also identified in a local park this year.
- Among the 245 Fairfax District residents that started rabies PEP in 2022, 89 (36%) 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 (65%, n=58) (Figure 2).

Clinician Pearls

- 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 requests require FCHD approval and results are usually available within 24 hours once the specimen is received by the FCHD Public Health Laboratory.
- All animal bites, scratches or other potential rabies exposures must be reported immediately to APP using the following link (https://redcap.vdh.virginia.gov/redcap/surveys/?s=RFJ9XF9NJE) or by calling 703-691-2131.
  - 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

Figure 1. Count of animals tested for rabies, by species and result (n=275), Fairfax Health District 2022.

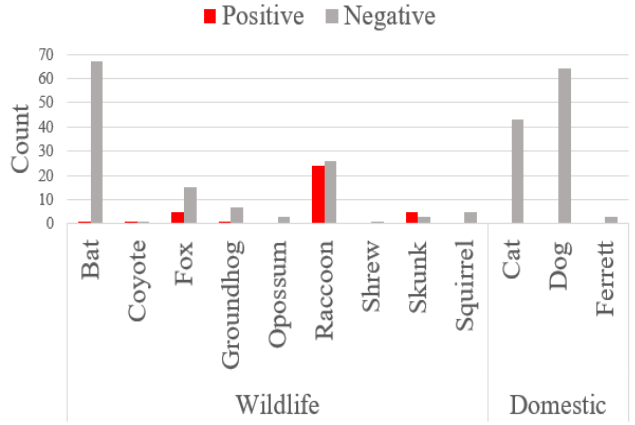
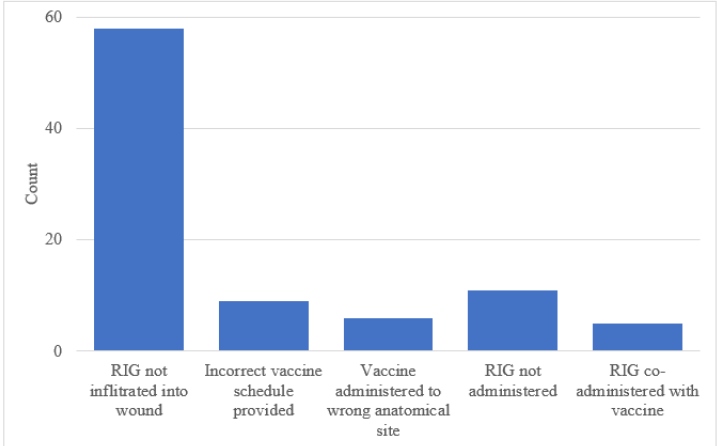


Figure 2. Distinct count of rabies PEP misadministration errors, by type (n=89), Fairfax Health District 2022.



[1] Centers for Disease Control and Prevention (CDC). Animals and Rabies. Retrieved from: https://www.cdc.gov/rabies/animals/index.html. Accessed December 1, 2023.
[2] Centers for Disease Control and Prevention (CDC). Human Rabies Prevention- United States, 2008. Recommendations of the Advisory Committee on Immunization Practices. Retrieved from https://www.cdc.gov/mmwr/pdf/rr/rr57e507.pdf . Accessed December 1, 2023.

Tickborne Diseases

Background

In the Fairfax Health District (FHD), ticks that commonly bite and cause disease in humans are the blacklegged tick (*Ixodes scapularis*), lone star tick (*Amblyomma americanum*), and dog tick (*Dermacentor variabilis*). Over the last two decades in the United States, the incidence of tickborne diseases has steadily increased due to geographical range expansion and population increase of ticks, improved diagnostics and clinical recognition of infections, and lack of effective prevention strategies.[1] In Virginia, as well as the United States, the most commonly reported tickborne disease is Lyme disease, followed distantly by Rocky Mountain Spotted Fever, ehrlichiosis, and anaplasmosis.[1,2] In 2021, 24,610 cases of Lyme disease were reported in the United States; an increase of 37% from 2020 (national data for 2022 are not yet available).[3]

Fairfax Data

- Tickborne disease cases are reported geographically throughout FHD; therefore, all residents should be considered at risk of infection.
- In 2022, 171 cases of Lyme disease were identified in FHD, yielding a rate of 14.8 per 100,000 population; a 64% rate increase from 2021 (n=104; 9.0 per 100,000 population). State-wide case counts also increased from 648 in 2021 to 1,386 in 2022 (114%).[4]
- Lyme disease incidence has a seasonal trend with the peak being typically observed in July (Figure 1). This trend is directly related to tick activity and humans spending more time outside, which are both positively influenced by increasing temperature.
- Virginia is classified as a high-incidence Lyme jurisdiction by the Centers for Disease Control and Prevention. Exposure (travel) in high-incidence jurisdictions (shown in blue), should be considered in individuals with symptoms of Lyme disease with or without a known tick bite. (Figure 2).
- In 2022, one case of spotted fever rickettsiosis was reported in Fairfax County, a decrease from four cases in 2021, and still below the pre-pandemic five-year average of 13 cases (2015-2019). Seven cases of ehrlichiosis/anaplasmosis were reported in Fairfax District in 2022, a decrease from 12 cases in 2021.

Clinician Pearls

- Avoiding tick bites and promptly removing attached ticks remain the best disease prevention strategies. How to remove a tick: https://www.cdc.gov/ticks/removing_a_tick.html.
- Maintain a high index of suspicion for Lyme and other tickborne diseases in all patients presenting with clinically compatible signs and symptoms. Note that some patients with Lyme disease never develop an erythema migrans rash. The Tickborne Diseases of the United States-A Reference Manual for Health Care Providers can be found online at https://www.cdc.gov/ticks/tickbornediseases/index.html.
- Laboratory testing can be an important aid in diagnosing a tickborne disease. However, Lyme disease patients tested within the first few weeks of illness may not have developed antibodies and may test negative.

Figure 1. Lyme Disease Case Count and Average Temperature (F), by Month, Fairfax Health District 2022 (n=171).[5]

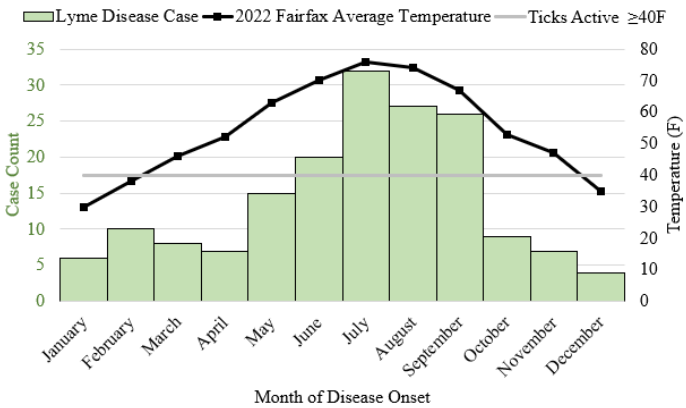
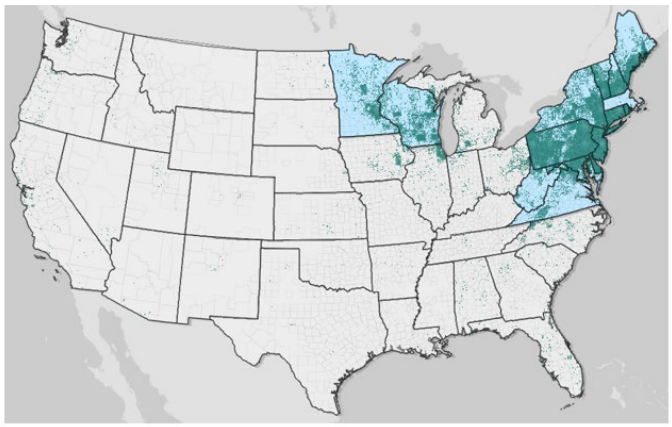


Figure 2. Lyme Disease in the U.S. by High and Low Incidence Jurisdictions 2019.[3]



[1] Centers for Disease Control and Prevention (CDC). Tickborne Disease Surveillance Data Summary. Retrieved from: https://www.cdc.gov/ticks/data-summary/index.html. Accessed January 10, 2023.
[2] Virginia Department of Health (VDH). Tick-borne Diseases & Conditions. Retrieved from: https://www.vdh.virginia.gov/environmental-epidemiology/bugs-human-health/?tab=3. Accessed January 10, 2023.
[3] Centers for Disease Control and Prevention (CDC). Lyme Disease Surveillance Data. Retrieved from: https://www.cdc.gov/lyme/datasurveillance/surveillance-data.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Flyme%2Fdatasurveillance%2Frecent-surveillance-data.html. Accessed August 3, 2032.
[4] Virginia Department of Health. Reportable Disease Monthly Surveillance Report, Case Counts, Total for Past 5 Years (2018-2022), by Condition. Retrieved from: https://www.vdh.virginia.gov/surveillance-and-investigation/virginia-reportable-disease-surveillance-data/virginia-monthly-morbidity-surveillance-report-2018/. Accessed August 3, 2023.
[5] National Weather Service Vienna Station 2022 Data. Retrieved from: https://www.weather.gov/wrh/Climate?wfo=lwx. Accessed January 10, 2023.

Mosquito-Borne Diseases

Background

Mosquito-borne diseases are transmitted when an infected mosquito bites a human and mosquito species have different geographical regions where they are found. In the Fairfax Health District (FHD), West Nile virus (WNV) is endemic and primarily transmitted by *Culex* mosquitoes. 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. 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. In the United States, 1,126 WNV cases, including 90 deaths, occurred during 2022. During the same period, Virginia reported 6 WNV cases.[1]

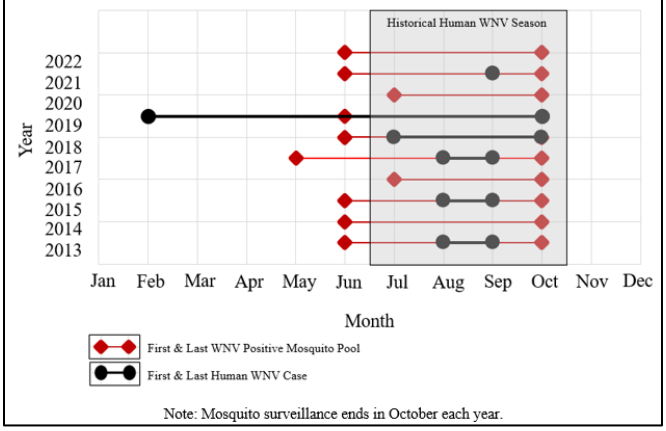
Fairfax Data

- 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 2022, no cases of WNV were identified in FHD. One case of WNV was reported in Fairfax District during 2021 and was classified as non-neuroinvasive.
- Malaria was the most frequent mosquito-borne disease imported into FCHD during 2022, with 24 cases. These cases were predominantly imported from Africa (Figure 2). Among laboratory results received with species information, *Plasmodium falciparum* was reported in all (n=17). Cases ranged in age from 11 to 66 years with a median of 35 years and 58% were male. Eighteen (75%) of cases were hospitalized, with a range in duration of hospital stay from 1 to 8 days (n=18).
- In 2022, there was one imported case of chikungunya and five cases of dengue to FHD. All cases (n=6) were imported from India. Dengue cases ranged in age from 11 to 45 and 60% were male. 80% of the dengue cases were hospitalized for their infection.

Clinician Pearls

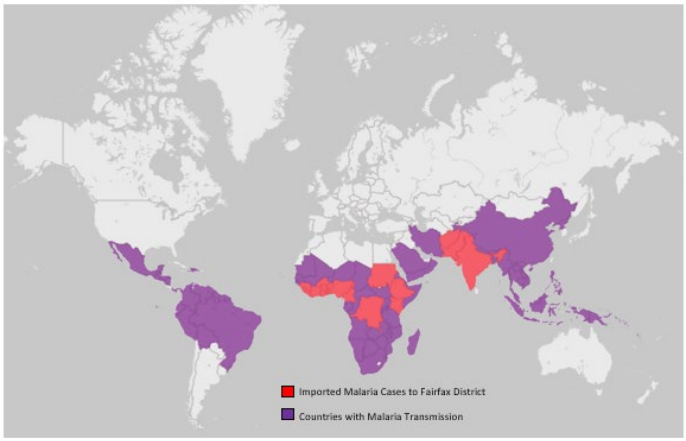
- WNV disease should be considered in any person with a febrile or acute neurologic illness who has had recent exposure to mosquitoes, blood transfusion, or organ transplantation, especially during the summer months in areas where virus activity has been reported. The diagnosis should also be considered 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 diagnosis of suspected WNV illness.
- Travel history, both domestic and international, is important to appropriately diagnosis mosquito-borne diseases.
- The most effective way to avoid arboviral diseases is to prevent mosquito bites (e.g., use mosquito repellant, long sleeves).

Figure 1. Human & Mosquito West Nile Virus (WNV) Surveillance, by Annual First & Last Case/Pool Identified, Fairfax Health District 2013-2022.



Note: Mosquito surveillance ends in October each year.

Figure 2. Imported Malaria Cases, by Country, Fairfax Health District 2017-2022 (n=119).



[1] Centers for Disease Control and Prevention. West Nile Virus Disease Cases* and Presumptive Viremic Blood Donors by State – United States, 2022 (as of June 13, 2023). Retrieved from: https://www.cdc.gov/westnile/statsmaps/preliminarymapsdata2022/disease-cases-state-2022.html. Accessed August 3, 2023.

School Outbreak Summary

Background

Outbreaks occur when more cases of an illness are observed than is expected or normal. The *Code of Virginia* requires certain facilities, such as schools and child care facilities, to report the presence or suspected presence of an outbreak to the local health department.[1] It is the responsibility of FCHD to investigate all reported outbreaks. Fairfax Health District has a large student population and schools are the most common setting for outbreak investigations. Outbreaks in school and child care facilities comprised 70% of all outbreaks investigated by FCHD in 2022. During these outbreak investigations, FCHD assessed the situation to determine the potential etiology of the outbreak, identified cases and contacts, and recommended interventions to prevent additional spread throughout the affected area.

Fairfax Data

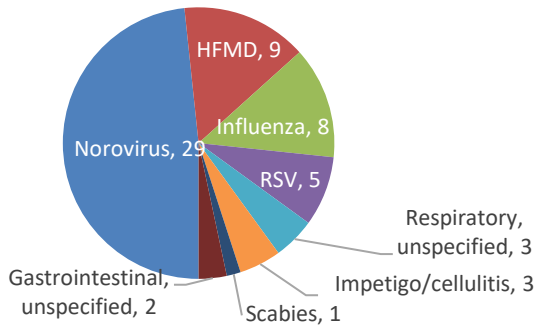
- In 2022, Fairfax Health Department investigated 493 outbreaks in school settings, with 433 (88%) of those attributed to SARS-CoV-2. Of those outbreaks due to SARS-CoV-2, 325 (75%) were in K-12 schools and 108 (25%) were in child care facilities.
- The return to in-person learning in 2022, with ongoing transmission of COVID-19, resulted in the highest annual number of outbreaks investigated by FCHD to date. The number of school and child care facility outbreaks investigated by FCHD in 2022 was over 2.5 times more than were investigated in 2021 (n=180) and over 4 times more than in 2018, 2019, and 2020 combined (n=109).
- For non-COVID outbreaks in school and childcare settings, the most common causes were norovirus (29 outbreaks), Hand, Foot, and Mouth Disease (HFMD) (9 outbreaks), and influenza (8 outbreaks). The most common cause of outbreaks in K-12 settings was norovirus (23 outbreaks), and in child care facilities was HFMD (7 outbreaks).
- 4,925 students and staff were defined cases with COVID-19 outbreaks in 2022, and 880 staff and students with outbreaks of other etiologies.
- Student athletics were a group with higher risk for outbreaks of skin infections; all three group A streptococcal skin infection outbreaks (two impetigo, one cellulitis) investigated in 2022 occurred in high school wrestling and football

Clinician Pearls

- Clinicians should advise caregivers to exclude children from school or childcare based on disease etiology and without the use of medication to suppress them. The table below provides general guidance based on symptoms; exclusion guidance for specific diseases may be found on the Virginia Department of Health's website.[2]
- If a child tests positive for COVID-19, they should follow COVID isolation policy and isolate for 5 days from symptom onset or the date of the test if asymptomatic.

Symptoms	Exclusion of Student
Fever	Exclude until fever-free for at least 24 hours (without use of fever-reducing medication)
Cough and/or sore throat	Exclude until fever-free for at least 24 hours (without medication) and symptoms have improved
Vomiting and/or diarrhea	Exclude until at least 24 hours symptom-free (without medication)
Rash	For oozing/raised rashes, exclude until lesions have scabbed over/are dry unless they can be covered with clothing/bandages.

Figure 1. Outbreaks by Etiological Agent, Excluding COVID-19, K-12 Schools and Child Care Facilities, Fairfax Health District, 2022



[1] Code of Virginia. Disease Prevention and Control. Article 1. Reporting of Diseases. Retrieved from https://law.lis.virginia.gov/vacodefull/title32.1/chapter2/article1/
[2] Communicable Disease Reference Chart for School and Child Care Facility Personnel. Retrieved from https://www.vdh.virginia.gov/content/uploads/sites/13/2016/03/Communicable_Disease_Chart.pdf

FAIRFAX COUNTY HEALTH DEPARTMENT

Health Clinic Services

ALL SERVICES ARE BY APPOINTMENT ONLY.

Services at all locations unless otherwise noted. Fees and eligibility vary.

IMMUNIZATIONS

For children and adults, including immunizations required for school and international travel.

MATERNAL AND CHILD HEALTH

Services for pregnant people and new mothers including prenatal care, dental care, nutrition services, safety seat distribution, and home visits.

HIV SERVICES

HIV testing, prevention education and counseling, and HIV/AIDS care and treatment support.

STI SERVICES

Screening, testing, treatment and counseling.

TUBERCULOSIS (TB) SERVICES

Testing and treatment.

PREGNANCY TESTING

Testing, counseling and links to resources.

VITAL RECORDS

Get certified copies of vital records including birth, death, marriage, and divorce certificates.

$12 per certificate

Offered at: Joseph Willard, Annandale, Mount Vernon, Herndon-Reston

NUTRITION

Services offered through Woman, Infants, and Children (WIC) nutrition program are provided to people who are breastfeeding, infants, and children under 5. Services include supplemental nutritious food, counseling and education, and breastfeeding support.

Contact a WIC site for eligibility requirements.

WIC Locations and Phone Number: 703-246-5599

- Annandale District Office
- Mount Vernon Office
- Herndon-Reston Office
- Inova Cares Clinic for Women
- Springfield Office
- Joseph Willard
- HealthWorks at Sully Community Center
- Fort Belvoir* (Military community only)
- HealthWorks for Northern Virginia

SPEECH AND HEARING

Speech, hearing, and reading services for children and adults. Services include screening and evaluation, speech therapy, a reading program for children, and a stroke club support group.

Services are offered on a sliding fee scale.

Offered at: Joseph Willard, Mount Vernon, Herndon-Reston

EYE CARE

Basic eye exam and glasses offered to Fairfax County residents who meet income eligibility.

Contact the Health Department Family Assistance Worker at 703-246-7127 to learn more about eye care services.

FOR APPOINTMENTS, CALL: 703.246.7100

Joseph Willard
3750 Blenheim Boulevard
Fairfax, VA, 22030

Annandale
7611 Little River Turnpike, Suite 400E
Annandale, VA, 22003

Springfield
8136 Old Keene Mill Road
The Cary Building - Suite A100
Springfield, VA, 22152

Mount Vernon
8350 Richmond Highway, Suite 233
Alexandria, VA, 22309

Herndon-Reston
1850 Cameron Glen Drive, Suite 100
Reston, VA, 20190-3310

fairfaxcounty.gov/health/clinics

fairfaxcountyhealth

fairfaxhealth

To request this information in an alternate format, contact the Fairfax County Health Department 703-246-2411 TTY 711 . A Fairfax County, Va., publication. March 2023

Communicable Disease Programs

(for all communicable disease reports & guidance during business hours)

703.246.2433 • TTY 711
FAX 703.653.1347
hdcd@fairfaxcounty.gov

Communicable Disease Hotline

Evenings & weekends

703-409-8449

Rabies

(for all rabies reports & guidance during business hours)

703.246.2433 • TTY 711
FAX 703.653.6648
hdrabies@fairfaxcounty.gov

Rabies Hotline

Evenings & weekends

571-274-2296

fairfaxcounty.gov/health/diseases-conditions

To request this information in an alternate format, contact the Fairfax County Health Department 703-246-2411 TTY 711 . A Fairfax County, Va., publication. January 2024