

Health Department

LOB #149:

COMMUNICABLE DISEASE

Purpose

The Communicable Disease (CD) Program is responsible for the investigation of outbreaks of communicable diseases, the surveillance of reportable diseases, and the provision of educational materials and services to assist communities in reducing the incidence of infectious diseases by preventing their spread. Communicable diseases of public health significance in the community include foodborne illnesses, tuberculosis (TB), sexually transmitted diseases (STD), HIV, vaccine preventable diseases, zoonoses (Lyme disease, West Nile Virus and rabies) and emerging/re-emerging infectious threats such as Middle East Respiratory Syndrome-MERS, Ebola Virus Disease and Enterovirus D68.

Description

The Communicable Disease Unit works around the clock to receive and respond to communicable disease reports, with the goal of preventing or reducing infectious disease in the community through prompt identification of illness, and by providing timely intervention and quality care to those affected. Each year, the Unit investigates thousands of reports of suspected communicable diseases, in collaboration with local public health system partners such as the healthcare community, laboratories, the Virginia Department of Health (VDH) and other local, state and federal agencies. In FY 2015, the number of investigations, screenings, or treatment services for selected communicable diseases was 32,485.

Communicable disease surveillance, prevention and control are core Public Health activities that are provided through a number of services within the Health Department by a diverse team of providers (physicians, nurses, laboratory technicians, epidemiologists, community health specialists and others). Clinical services are offered on a walk-in or appointment basis during the workday and extended evening hours at all clinic locations. Community services are offered 24/7 to ensure timely follow up on any reportable communicable disease.

The Unit offers seven overarching services:

- **Surveillance and Investigation:** The Health Department receives notification of the diagnosis of diseases required by state law to be reported by providers, clinics, or laboratories. In addition, outbreaks and health conditions of concern are monitored through the Virginia Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE), a web-based system through which the hospitals share emergency department data. Disease Intervention Specialists provide person-centered interviews and active investigation to prevent and reduce the spread of disease.
- **Tuberculosis (TB) Control:** The Health Department prevents the spread of tuberculosis in the community by identifying illness, providing treatment, and taking control measures. Public Health Nurses provide screenings to identify individuals at risk of developing tuberculosis in the five clinic locations. Physicians diagnose and treat TB, providing chest x-rays, medications, and respiratory diagnostics, and oversight of disease treatment. In order to ensure compliance with treatment, nurses provide Directly Observed Therapy (DOT) and case management to affected individuals.
- **Sexually Transmitted Diseases (STD)/HIV/AIDS:** In order to prevent the spread of sexually transmitted diseases, public health physicians, nurses, and their clinic team provide testing, counseling, diagnosis and treatment, partner notification, referral services, epidemiological investigation, and preventative education. Services are available to the public at all clinic locations. Additionally, the Health Department administers the AIDS Drug Assistance Program (ADAP), providing medication to individuals infected with HIV that meet federal requirements for program enrollment.

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- **Newcomer Health Screening:** This collaborative effort between VDH and Local Health Departments assures that all new refugees and other qualified individuals receive an initial health screening by a Public Health Nurse within 45 days of their arrival in the United States. Services for adults and children are provided at all five clinic locations and include an initial health assessment, provision of vaccinations, screening for communicable disease, and referrals to appropriate services.
- **Adult and International Travel Immunizations:** The Health Department provides recommended adult vaccines, and vaccinations recommended for international travel, as a fee-based service at all five clinic locations.
- **Zoonotic Diseases:** Also called zoonoses, zoonotic diseases are infectious diseases that can be spread from animals to humans. In collaboration with the Health Department's Disease Carrying Insect Program and the Police Department, the Unit educates residents about prevention and control of vector-borne diseases (such as Lyme disease and West Nile Virus) and rabies. Program staff also consults with veterinarians and medical providers on potential cases of exposure and disease in both humans and animals; investigates animal cases or outbreaks; integrates human and vector surveillance to inform interventions associated with a human case; and provides community-based prevention education. As part of investigations, the Unit also works with pet shops to prevent disease transmission.
- **Homeless Program:** Prevention of communicable disease; health promotion; provision of acute care; and linkage to primary, dental and specialty care are the core of the three services (Medical, Homeless Healthcare and Medical Respite) provided by public health nurses and nurse practitioners at the County's five homeless shelters. Services are provided to both sheltered and unsheltered homeless residents associated with the shelters, in collaboration with staff from the Department of Family Services and the Community Services Board. In FY 2015, the number of unduplicated clients in the program served by Nurse Practitioners was 518.

Benefits

Communicable disease prevention and control is a critical Health Department function because communicable diseases present an ever-changing threat to public health and safety. They significantly impact the health of the community and pose a substantial economic burden. A community's economic vitality and social opportunities cannot grow and thrive in an environment that is hampered by rampant health hazards and disease, thus the activity of a health department to control and prevent disease bring substantial value beyond health outcomes alone. Communities with effective communicable disease investigations and controls have healthy residents who can be productive; healthy places of business that attract and grow customer bases; healthy children that learn effectively and enhance a community's educational achievement; and healthy neighborhoods for social, spiritual, and service enhancement.

The Health Department provides direct care to individuals with Tuberculosis (TB) and Sexually Transmitted Disease (STD) due to the critical importance of controlling these diseases. TB is a difficult infectious disease to treat, and requires specialized services following national guidelines to be considered adequate. Ensuring adherence to treatment is critical to prevent drug resistance. Many clients with STDs are afraid to seek care from their providers, or are uninsured and have no affordable options for care. The Health Department provides a safe environment to get free, confidential, quality care.

Often the first encounter that new arrivals have with the U.S. healthcare system is at the Health Department for a Newcomer Health Screening. The screening provides the opportunity to identify and intervene on diseases and conditions of public health concern, and address health issues that may impact the successful resettlement of newly arrived refugees and other qualified individuals.

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Adult immunization is a national priority to protect not only those immunized, but to protect community members who are vulnerable to disease. Access to adult immunization remains a challenge, as some providers in the community do not offer vaccines for logistical and financial reasons. Therefore, the Health Department is key to providing access to affordable adult immunizations.

The Homeless Program provides transitional care to some of the County's most vulnerable individuals and families. This healthcare program is one aspect of a comprehensive approach to addressing homelessness, as it gives individuals the health security they need to begin reestablishing their lives. This service is not only a key component of the County's strategy to end homelessness, but also a critical piece of the Health Department's communicable disease control efforts.

Mandates

Communicable Disease is a core public health function and the provision of services is defined in accordance with the Virginia State Board of Health. With the exception of the homeless program, Adult and International Travel services, all of the programs in this LOB are mandated. However, even those programs and services that are non-mandated programs promote the control of communicable and chronic diseases in the community.

- Surveillance and investigation of reportable diseases are mandated to the Board of Health, and delegated to the local authority, per Virginia Code §§32.1-35, 32.1-39.
- Local health departments should have the capacity to provide screening, diagnosis, treatment, and surveillance of tuberculosis, according to Virginia Code § 32.1-49 et seq.
- Local health departments must have the knowledge and expertise to approve treatment plans for TB patients according to Virginia Code § 32.1-50.1.
- Local health departments must have the capacity to assure surveillance of STDs, according to Virginia Code § 32.1-57.
- Local health departments should have the capacity to provide no-cost STD diagnosis and treatment according to Virginia Code § 32.1-57 et seq.
- Local health departments must have the capacity to investigate reported incidence of HIV, according to Virginia Code §§ 32.1-36, 32.1-36.1, 32.1-39.
- Local health departments must have the capacity to provide surveillance data on HIV, according to Public Health Service Act, Virginia Code §§ 3101 (A), 311, 317 (K) (3).
- Local health departments must have the capacity to provide ADAP medications, according to PHS Act, Public Law (P.L.) 101-381, 104-146, 106-345, 111-87 (Ryan White).
- United States Federal Refugee Act of 1980 entitles all newly arriving refugees to a variety of services including initial health screenings provided at local health departments.
- Adult and International Travel Immunizations, and the Homeless Program are not mandated services.

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Trends and Challenges

In recent years, there have been increasing numbers of reports of communicable diseases and outbreaks that the Health Department must investigate. In addition, today's communicable diseases challenges are more complex because of:

- The speed and scale of international travel. As increased international travel brings the world closer together, the high prevalence of disease around the world presents a challenge. The unique opportunities for exposure that arise as a result of the County's diversity and high frequency of international travel within the community, require jurisdictions in metropolitan areas, such as Fairfax County, to maintain constant alert and preparedness for disease outbreaks.
- Rising antibiotic resistant bacterial infections. The development of drug resistance is rendering first line antibiotic treatments ineffective. The spread of drug-resistant TB presents a continued challenge for the Health Department's TB program.
- Increasing rates of vaccine preventable diseases (such as measles and pertussis) and other infectious diseases (such as foodborne illness, Norovirus and influenza). Increasing rates of disease affect the most vulnerable individuals within the community who are susceptible because of a wide-range of chronic disease conditions and treatments. As adults choose not to vaccinate themselves or their children, community immunity wanes, which creates the environment for community outbreaks. Adult vaccination is a population health improvement strategy because when adults are vaccinated, they cannot transmit dangerous diseases to those who are most vulnerable – infants, frail elderly, and anyone who is immunocompromised.
- Increasing frequency and scope of new and emerging infectious disease outbreaks (such as MERS-CoV and Ebola Virus Disease) and new strains of influenza with pandemic potential (such as avian influenza H5N1). While Fairfax County has not had a case of Ebola, preparedness for rapid public health action is a priority, and the Health Department has engaged many partners to assure a state of readiness. The 21-day traveler monitoring program which started in the fall of 2014 is labor intensive and has required over 9,602 staff hours to monitor more than 801 hundred individuals.

Communicable disease is also impacted by global trends. The threat of zoonotic diseases to human health is also growing due to increasing global movement of people and animals and the effects of human populations expanding into previously undeveloped wildlife habitats. Climatic change may also lead to greater zoonotic diseases threats. The numbers of refugees worldwide continues to increase drastically, and as a result the need for Newcomer Health Screenings is likely rise. According to the United Nations High Commission on Refugees, there are 59.5 million individuals worldwide forcibly displaced from their homes or countries. There were 14.2 million new displaced individuals in 2014 alone, representing an unprecedented increase in the number of individuals and families fleeing war, violence, and/or persecution.

Rates of active disease of Tuberculosis (TB) remain high in Fairfax County – 5.3 cases per 100,000 people compared to the state rate of 2.4 cases per 100,000 and the national rate of 3.0 cases per 100,000. This is attributable to the diversity of the community, as many cases of TB occur in individuals from high-incidence countries. Outreach to communities with high rates of latent infection and their healthcare providers requires time and resources to build effective community partnerships that promote timely identification of illness and treatment.

Maintaining a state of readiness remains a challenge for the Department as it struggles to meet the surge capacity demands required to simultaneously control ongoing outbreaks; detect and respond to new outbreaks; and monitor for potential threats. Although significant improvements in the Department's emergency preparedness and response capabilities have been achieved through service redesign, cross training and the leveraging of the Fairfax Medical Reserve Corps (MRC), serious infrastructure gaps remain. As was the case with the Robert E. Lee High School tuberculosis investigation, the H1N1 pandemic and most recently the Ebola response, the Department has had to temporarily suspend some services and reassign staff to ensure continuation of critical operations.

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Resources

Category	FY 2014 Actual	FY 2015 Actual	FY 2016 Adopted
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FUNDING			
<u>Expenditures:</u>			
Compensation	\$6,564,402	\$6,579,385	\$6,957,976
Operating Expenses	1,120,170	1,005,969	887,266
Total Expenditures	\$7,684,572	\$7,602,417	\$7,845,242
General Fund Revenue	\$3,180,470	\$3,168,115	\$3,139,669
Net Cost/(Savings) to General Fund	\$4,504,102	\$4,434,302	\$4,705,573
POSITIONS			
Authorized Positions/Full-Time Equivalents (FTEs)			
<u>Positions:</u>			
Regular	97 / 97	104 / 104	100 / 100
Total Positions	97 / 97	104 / 104	100 / 100

Metrics

Metric Indicator	FY 2013 Actual	FY 2014 Actual	FY 2015 Actual	FY 2016 Estimate	FY 2017 Estimate
Number of screenings, investigations and treatment for selected communicable diseases	28,032	34,550	27,000/ 32,485	27,000	29,000
CD program cost per capita	NA	\$5	\$7 / \$6	\$6	\$6
Percent of selected reportable communicable disease investigations for which initial public health control measures were initiated within the appropriate timeframe	NA	85%	90%	85%	85%
Rate of TB Disease/100,000 population*	8	5.1	5.9 / 5.3	5.9	5.9
Percent of clients who report that the services they received at a public health clinic addressed their health need	91%	93%	90% / 91%	90%	90%

*Rates are calculated by calendar year which is reflective of how state and national tuberculosis rates are calculated and reported.

In FY 2014 and FY 2015, the number of screenings, investigations, and treatment for selected communicable diseases was higher than in prior years. The Health Department has seen a steady increase in reports of suspected or confirmed communicable diseases, potentially as a result of outreach efforts aimed at increasing awareness of the requirement to report. While the number in FY 2015 (32,485) is lower than FY 2014 (34,550), the intensity of the screenings and investigations has risen. For example, more than 800 individuals have been screened as part of the Ebola Virus Disease monitoring program since October 2014, and more than 500 were screened in response to a measles case in May 2015. Although this represents about 3 percent of the total metric, the acuity of these events necessitated intense resources; reports indicate that staff invested more than 10,600 work hours in these two incidents alone.

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In FY 2015, the reported rate of tuberculosis (61 cases, or 5.3 per 100,000) is higher than in FY 2014 (59 cases, or 5.1 per 100,000), but is lower than prior years (8.0 per 100,000 in FY 2013 and 7.2 per 100,000 in FY 2012). The decrease seen in Fairfax County is consistent with the decrease in tuberculosis rates at the state and national levels. However, the number of suspected cases in the County has increased, and resources are needed to provide the clinical and diagnostic care, treatment, and care coordination necessary to maintain the lower rate. While this is a positive sign that the morbidity of tuberculosis is lower, it still falls short of the national goal of decreasing tuberculosis disease to 1 case per 100,000.

The Health Department maintains a commitment to high quality service and cost effectiveness, reflected in the metrics demonstrating expediency of initiating public health actions, cost per capita, and customer satisfaction. Maintaining this level of quality and service to the public requires sustained resources. Despite the acuity and intensity of some of the communicable disease events over the past year, staff performed at a high quality level in providing public health interventions to protect the community. Additional limitations in positions and resources could pose a threat to that sustainability, and ultimately inhibit the Department's ability to protect the public's health.

Resource limitations are a major factor in the Health Department's ability to maintain communicable disease control programs at a high quality level, and to keep pace with the increases in communicable disease reports, investigation, and diagnosis. The Health Department must maintain an adaptable, flexible system to handle surges in communicable diseases that require investigation and control. Mitigating major public health events, or even surges of diseases such as influenza or Norovirus, requires an expanded operation. A significant challenge to maintaining this level of surveillance is the limited epidemiology capacity to work on investigations of an immediate, time sensitive nature such as food-borne or infectious disease outbreaks. Epidemiologists maintain the scientific integrity of the departments work by remaining rigorous yet adaptable to the challenges of new and reemerging public health threats. The Health Department has worked to reallocate resources to rapidly respond when required and mobilize staff from other programs and services. However, these staff do not have the requisite epi knowledge, skill and ability, and most other programs and services are at a minimum staffing level due to vacancy management strategies, and so pulling staff from other areas often limits the ability to provide a full range of services during a surge event.

Grant Support

FY 2016 Grant Total Funding: Federal and state funding of \$437,305 and 4/4.0 FTE grant positions support the Communicable Disease LOB. There is no Local Cash Match associated with these grants.

The Centers for Disease Control (CDC) and Prevention Tuberculosis Control Program, administered by the Virginia Department of Health (VDH) Tuberculosis Control Division, provides funding to coordinate tuberculosis case investigation, case management, and reporting activity for Fairfax County. These efforts include timely reporting of newly diagnosed cases, monitoring the follow-up of tuberculosis suspects to ensure timely diagnosis and treatment, outreach to monitor client adherence to their treatment regime (Direct-Observed Therapy) and assisting nursing staff with investigation of contacts with active cases of tuberculosis in the County.

The Health Department also receives funding from the VDH to support the purchase of supplies and reagent associated with laboratory testing to control and prevent sexually transmitted diseases. In addition, a limited amount of pass through funding is received from CDC through VDH for Public Health Preparedness and Response (PHEP&R) activities. These funds support an epidemiologist who in the Communicable Disease Unit. The activities of this position are critical to the investigation of suspected communicable diseases in the community.