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Mobilizing for Action through Planning and Partnerships

Community Health Status Assessment

Technical Report

September 2011

www.fairfaxcounty.gov/hd/mapp

The Community Health Status Assessment and other MAPP reports are available on the website of the Partnership for a Healthier Fairfax:

http://www.fairfaxcounty.gov/hd/mapp

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Special thanks go to the invaluable support provided by numerous individuals from George Mason University, the Fairfax County Health Department, and other county and community agencies. The sharing of their time and expertise for research, content development, technical review, data provision and analysis made the production of this report possible.

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ACRONYMS

ACS: American Community Survey
ACSC: Ambulatory Care Sensitive Condition
ADAP: AIDS Drug Assistance Program
AIDS: Acquired Immune Deficiency Syndrome
ALF: Assisted Living Facility
ANHSI: Alexandria Neighborhood Health Services, Inc.
AOSS: Alternative Onsite Sewage System
BLS: Basic Life Support
BRFSS: Behavioral Risk Factor Surveillance System
CCAR: Child Care Assistance and Referral
CCRC: Continuing Care Retirement Community
CDC: Centers for Disease Control and Prevention
CDPC: Chronic Disease Prevention and Control
CHCN: Community Health Care Network
CHIP: Children's Health Insurance Program
CHSA: Community Health Status Assessment
CHSI: Community Health Status Indicators
CLCP: Computer Learning Centers Partnerships
COV-HIE: Commonwealth of Virginia Health Information Exchange
CSB: Fairfax-Falls Church Community Services Board
DEQ: Virginia Department of Environmental Quality
DFS: Department of Family Services
DMB: Fairfax County Department of Management and Budget
DNCS: Department of Neighborhood and Community Services
ECC: Environmental Coordinating Council
ED: Emergency Department
EMT: Emergency Medical Technician
EQAC: Environmental Quality Advisory Council
FCHD: Fairfax County Health Department
FCRHA: Fairfax County Redevelopment and Housing Authority
FIMR: Fetal and Infant Mortality Review
FPL: Federal Poverty Level
FQHC: Federally Qualified Health Center
FY: Fiscal Year
HAAT: Health Access Assistance Team
HCA: Hospital Corporation of America
HCAB: Health Care Advisory Board
HCD: Fairfax County Department of Housing and Community Development
HHP: Homeless Healthcare Program

HHS: U.S. Department of Health and Human Services
HIV: Human Immunodeficiency Virus
HRSA: Health Resources and Services Administration, U.S. Public Health Service
HSANV: Health Systems Agency of Northern Virginia
HUD: U.S. Department of Housing and Urban Development
IDU: Intravenous Drug Use
IHS: Inova Health System
LBW: Low Birth Weight
LPHS: Local Public Health System
MAC: Multicultural Advisory Council
MAPP: Mobilizing for Action through Planning and Partnerships
MCCP: Medical Care for Children Partnership
MMWR: Morbidity and Mortality Weekly Report
MSM: Men who have Sex with Men
NAAQS: National Ambient Air Quality Standard
NCAHD: National Center for the Analysis of Healthcare Data
NHIS: National Health Interview Survey
NIH: National Institutes of Health
NP: Nurse Practitioner
NSC: Nova Scripts Central
NSCH: National Survey of Children's Health
NVDC: Northern Virginia Dental Clinic
NVFS: Northern Virginia Family Service
NVHSC: Northern Virginia Health Services Coalition
NVSS: National Vital Statistics System
OTIS: Online Tuberculosis Information System
OWP: Office of Water Programs (VDH)
PACE: Program of All-Inclusive Care for the Elderly
PAP: Pharmacy Assistance Programs
PCP: Primary Care Provider
PD: Planning District
PHEV: Plug-in Hybrid Electric Vehicle
PHK: Partnership for Healthier Kids
PTSD: Post-Traumatic Stress Disorder
SACC: School Age Child Care
SDOH: Social Determinants of Health
SES: Socioeconomic Status
SSI: Supplemental Security Income
STD: Sexually Transmitted Disease
TB: Tuberculosis
TUCP: Virginia Tobacco Use Control Project
USBHP: U.S. Bureau of Health Professions

VDH: Virginia Department of Health
VDHP: Virginia Department of Health Professions
VDSS: Virginia Department of Social Services
VEC: Virginia Employment Commission
VHI: Virginia Health Information
VRE: Virginia Railway Express
WHO: World Health Organization
WIC: Women, Infants, and Children
WMA: Washington Metropolitan Area

EXECUTIVE SUMMARY

The Fairfax Community Health Status Assessment (CHSA) synthesizes the best available public health data to provide a broad overview of the health and well-being of the Fairfax Community, which includes Fairfax County, Fairfax City, and Falls Church City. The CHSA endeavors to answer the questions "How healthy are our residents?" and "What does the health status of our community look like?" Overall, the Fairfax Community is not only in good health, but is considered the healthiest in the state of Virginia and surpasses peer communities both in and outside the region. Yet challenges to achieving good health across the community remain.

Much of the data used in this assessment come from standard public health data systems and sources, including the U.S. Census, vital records, reportable illnesses, hospital discharges, occupational licensures, and health and behavioral surveys. The benefits of using these standard sources include representation across the Fairfax population; comparability with national, state, and peer community data; and availability of historical data to examine trends. However, these data are also limited for purposes of conducting detailed analyses in small groups, subpopulations, and neighborhoods. Data are not currently available for many health conditions and risk factors for all age, race, and income groups, or sub-county geographic areas.

Overall Health Conditions

The Fairfax Community is asset-rich, racially and ethnically diverse, well-educated, wealthy, and abundant in community resources (social, cultural, and intellectual); but these assets are not equally distributed. Segments of the population have low socioeconomic status, low educational attainment, high unemployment, poor health status, lower life expectancy, and lack health insurance coverage. These contrasts present challenges in planning and providing services to improve public health that meet the health and quality-of-life needs of all residents.

Fairfax can be considered a healthy community as many health status indicators show favorable health outcomes for those who live here.

- **Death rates are low.** Death rates across all age, race, and gender demographic groups from all diseases, conditions, homicides, and suicides in Fairfax County continue to be lower than those reported statewide.
- **Birth outcomes are favorable.** Infant mortality rates in Fairfax County, as well as Fairfax City and Falls Church City, are consistently lower than regional, state, and national rates.
- **Hospitalization use is low.** An analysis of inpatient hospital utilization for the region confirmed that patient days and discharge rates have decreased over the last decade. The rates of Ambulatory Care Sensitive Condition (ACSC) discharges – conditions that may be

effectively managed in a medical office or clinic (e.g., diabetes complications, hypertension, and adult asthma) – decreased 14.8 percent from 2000 to 2009.

- **Long-term nursing care use is low.** Nursing home utilization rates have decreased steadily for more than 25 years as a result of favorable demography, changes in treatment (diagnostic and preventative), and alternative care options (e.g., assisted living, adult day health care, etc.).

Despite the Fairfax Community's good health and relatively efficient use of healthcare facilities, there remain many challenges to improving health and resource use.

Important Health Status Indicators

- **There are substantial disparities in health status and access to health care services across racial, ethnic, age and income groups living in certain neighborhoods.** Although the region ranks high in overall health and wellness, the growing number of individuals and selected populations who carry a disproportionate share of poor health and disease is disconcerting.
- **Chronic diseases such as cancer, heart disease, stroke, and chronic lower respiratory diseases (including COPD, asthma, bronchitis, and emphysema), and unintentional injuries are the leading causes of death in Fairfax.** These conditions are expected to increase as our community continues to age and endemic environmental risks continue.
- **Risk factors, health conditions, and individual behavior contributing to chronic disease and premature death are common, costly and preventable.**
    - High blood pressure: 19.6 percent of the Fairfax County population
    - Smoking: 14.7 percent
    - No exercise: 14.6 percent
    - Few fruits and vegetables eaten daily: 71.5 percent
    - Obesity: 15.1 percent
- **The prevalence of individuals who are overweight and obese is increasing.** Obesity is viewed as a significant risk factor for the development of chronic illness and disease in both children and adults. Few residents are eating 5 fruits and vegetables a day or getting the recommended amount of exercise. Fairfax Health District has the highest number of physically inactive adults in the state.
- **Despite the Fairfax Community's wealth, more than 1 out of every 10 residents of the county lacked health insurance in 2009.**
- **The use of costly acute care services could be reduced.** Approximately 68,000 of the region's 257,000 ED visits (26 percent) in 2009 were found to have conditions that did not require emergency department care. Primary care offices or clinics are more appropriate and less costly settings to address non-acute medical conditions.

- **Fairfax County's primary care capacity may not be adequate to meet projected service demand.**
    - In 2010, 39 percent of all primary care physicians in the area were age 60 or older. New physicians entering the medical profession are less likely to elect primary care, and those who do choose a primary care practice are not entering at a rate fast enough to replace those who are leaving.
    - Half of all Virginia RNs are expected to reach age 65 by 2014; between 20-25 percent (18,248-22,810) are likely to reduce their work hours in preparation for retirement.
- **The capacity of certain specialty health providers may not be adequate.** Providers who serve children, the chronically ill, the elderly, and those with disabilities and/or mental disorders will be in greatest demand.

Health Disparities

Although good health outcomes are prevalent in our community, there are a growing number of individuals and selected populations who are in poor health. Gaps in health outcomes between segments of the population are commonly referred to as health disparities. Comparisons between Blacks and Whites, for example, reveal profound disparities across nearly all health status indicators. Similar outcomes are observed for Hispanic/Latino and Multiracial groups as well. There is also evidence of health disparities in particular age and income groups as well as certain geographic areas of the Fairfax Community.

Racial and Ethnic Disparities

The Fairfax Community is one of the most racially and ethnically diverse areas in Virginia. Whites comprise 62.7 percent of the population, followed by Asian/Pacific Islanders (17.6 percent), Other/Multiracial (10.2 percent), and Blacks (9.2 percent). The largest ethnic group in the area is Hispanic/Latino (17.6 percent). Fairfax is also identified as an immigrant gateway – a place that immigrants choose as their destination on entering the United States. Approximately 10 percent of area residents are foreign-born; almost 35 percent of households speak a language other than English at home (Spanish being the most common); and over 100 different languages are spoken in homes across the county, with 7.5 percent of households classified as linguistically-isolated.

- **Mortality:** Among the 3 leading causes of death in Fairfax County (heart disease, cancer, and stroke), Blacks had the highest age-adjusted mortality rates.
- **Birth Outcomes:** Teen pregnancy, low-weight birth and infant death rates were higher among Blacks than any other racial group.
- **Communicable Disease:** Blacks were disproportionately impacted by HIV/AIDS, gonorrhea, chlamydia, and syphilis.

- **Chronic Disease Risk Factors:** Black and Hispanic youth are less likely to eat 5 or more fruits and vegetables a day and more likely to drink sodas.
- **Mental Health:** Black, Hispanic, and Multiracial youth are more likely to report mental health issues.
- **Health Insurance and Access to Medical Care:** Hispanics/Latinos were the most likely to be uninsured, accounting for 30.2 percent of the county's total uninsured population, and immigrants are more likely than native-born residents to lack health insurance.
- **Poverty:** In Fairfax County those living in poverty are more likely to be children from a racial or ethnic minority group (primarily Blacks and Hispanics).

Age

The Fairfax Community is aging. By 2025, 1 out of every 8 residents will be 65 years or older. However, growth will occur across all age cohorts as the region's total population is increasing.

- **Health Insurance and Access to Medical Care:** Residents age 65 and older are the most likely to have health insurance and young adults age 18 to 34 are the least likely to have health insurance coverage. Health insurance coverage is also lacking for 6.4 percent of children under the age of 18.
- **Obesity:** The percentage of children and adolescents who are obese has risen significantly in the last 2 decades.
- **Mental Health:** The percentage of Fairfax County students who report being depressed is higher than the national rate. Suicide is identified as one of the leading causes of premature death for individuals age 15 to 44.
- **Poverty:** Among the county's children, 1 out of every 15 live in poverty.

Income

In 2009, Fairfax County had one of the highest per capita incomes ($47,103) in the country. This contrasts sharply with the growing number of residents living below poverty. In recent years, the geographic distribution of poverty has changed as individuals moved from urban to suburban areas following jobs. County households with gross family incomes at or below 200 percent of the federal poverty level increased 33 percent from 2000 to 2009. In total, nearly 58,000 county residents live in poverty, and an additional 14 percent of county residents have low incomes (200 percent of poverty).

- **Health Insurance and Access to Medical Care:** Persons living in low and moderate income households in Fairfax County are more likely to lack health insurance coverage than those persons at the same income levels nationally. Thirty-six percent of Fairfax County residents who live in poverty are uninsured, compared to 27.8 percent nationally. Among county

residents who live between 300 and 399 percent of FPL, 15.3 percent lack health insurance coverage (compared to 11.5 percent nationwide).

- **Quality of Life:** The high cost of living (e.g., housing, food, transportation) negatively impacts the quality of life for many living on low and fixed incomes.

Geography

Fairfax is a mature urban area with a diverse tapestry of cultural and economic resources. The highest concentrations of racial and ethnic minorities are found in the Bailey's Crossroads-Culmore area, the Reston-Herndon area, and the Route 1 Corridor. The highest concentration of poor community health indicators are also found in these areas.

- **Birth Outcomes:** Census tracts located in the Reston-Herndon area, Central and Eastern Fairfax (especially Bailey's Crossroads-Culmore area), and the Route 1 Corridor have the highest rates of low- birthweight infants.
- **Hospitalizations:** Zip code analysis shows higher emergency department and hospital use among residents living in Reston-Herndon, Bailey's Crossroads-Culmore, and the Route 1 Corridor.
- **Poverty:** The highest poverty rates in the county are found in the areas of Reston-Herndon, Bailey's Crossroads-Culmore, Central Fairfax, and the Route 1 Corridor.

The findings of the Fairfax CHSA have many implications for the local public health system, including the practice of public health, how we deliver services, and the policies that regulate these services. The data collected and analyzed in the CHSA along with the data and findings from 3 other MAPP assessments will be used to inform the development of a Community Health Improvement Plan for Fairfax.

INTRODUCTION

The Partnership for a Healthier Fairfax is a coalition of community members, community-based organizations, businesses, and government entities that work together to improve community health. The Partnership is conducting a community-wide strategic planning process called Mobilizing for Action through Planning and Partnerships (MAPP) to identify public health issues in the Fairfax community and develop goals and strategies to address them.

A comprehensive assessment process is critical to the success of the MAPP initiative. Four distinct assessments have been conducted to provide an overall picture of the health of the community. The Community Health Status Assessment (CHSA) presented in this document focuses on the identification and analysis of key indicators and data on health status, quality of life, and risk factors in the Fairfax Community (which includes the City of Fairfax, the City of Falls Church, the County of Fairfax and its incorporated towns of Herndon, Clifton, and Vienna).

Assessment Approach

The CHSA was performed by a diverse group of key community health stakeholders established as a subcommittee of the larger community coalition. The Community Health Status (CHS) Subcommittee was tasked with answering the questions "How healthy are our residents?" and "What does the health status of our community look like?" To address these questions, the subcommittee gathered and analyzed data for key community health indicators across a comprehensive set of categories. This work was conducted between May 2010 and April 2011 through various mechanisms including face-to-face meetings with remote participation, electronic ranking surveys, and independent research, analysis, and writing.

While conducting a CHSA is a daunting task under any circumstance, it was particularly challenging in the Fairfax Community where overall positive findings tend to mask areas of need and poor health outcomes. In the aggregate, the Fairfax Community is highly ranked across the region, state, and nation in health outcomes and health factors, according to the County Health Rankings (University of Wisconsin, 2010), and the Community Health Status Indicators Report (U.S. HHS, CHSI, 2009). It proved to be difficult to characterize the health status of underserved and vulnerable populations in a community with such high levels of favorable socioeconomic conditions and health outcomes. Nonetheless, considerable effort was made to acquire data to illustrate a complete picture of

CHSI includes 3,141 county health status profiles representing each county in the U.S. CHSI reports are updated annually by the Health Resources and Services Administration and its project partners (over 11 government, academic, and public health organizations).

community conditions and health status where differences across geographic areas and population subgroups could be observed.

Due to the compressed period of time and volunteer nature of this effort, reliable data from existing sources were utilized. Care was taken to obtain data from credible sources that will be reproducible in the future. Effort was taken to include data for all Fairfax Community jurisdictions, including Fairfax County and the cities of Fairfax and Falls Church where it existed. Data were compared to regional, state and national trends when available. The Virginia Department of Health (VDH) has divided the state into different geographic groupings for planning and data reporting purposes. VDH has defined 35 health districts and 5 health planning regions. Throughout this report data are presented across a variety of geographic spans (e.g., health district, planning region, county, census tract) due to the distinct data collection mechanisms utilized by numerous primary sources.

The findings of the subcommittee are documented in this comprehensive Fairfax CHSA Technical Report as well as a more concise CHSA Community Report. The Fairfax CHSA is a crucial component of the MAPP comprehensive community assessment and planning process. It is expected that CHSA findings will be used in conjunction with the results of the other 3 MAPP assessments to identify key strategic issues and priorities for community action and to develop a community health improvement plan.

Virginia Overview

The Commonwealth of Virginia is the thirty-fifth largest state by area. Virginia has a population of over 8 million residents, making the Commonwealth the twelfth most populous state in the country (U.S. Census, 2010). Virginia's 3 largest metropolitan areas, Northern Virginia, Richmond, and Hampton Roads, account for approximately 83 percent of state population growth from 2000 to 2007 (Commonwealth of Virginia Health Information Exchange (COV-HIE, 2010).

The areas of the state that are the most populated and developed include the Northern Region, with the largest number of housing units and people per square mile, followed closely by Hampton Roads (Davis, 2008). Most minority populations in Virginia reside in these 2 major metropolitan areas of the state (COV-HIE, 2010). The Northern Region of the state, composed of Loudoun, Fairfax, Alexandria, Arlington, and Prince William health districts, is located south and west of Washington, D.C., and includes 5 of the 25 highest income counties in the United States (U.S. Census, 2008).

The 2009 American Community Survey (ACS) estimated that 10.2 percent of Virginia's population was foreign-born, and that 37.6 percent of residents were born in a state other than Virginia. The 2009 ACS estimated the median household income in Virginia was $59,330, and the per capita income was $31,180.

Figure 1: Population Race/Ethnicity, Virginia, 2010

Race/Ethnicity	2010
White	64.8%
Black	19.0%
Asian/Pacific Islander	5.5%
American Indian/Alaska Native	0.3%
Other Race or Multiracial	2.5%
Hispanic or Latino*	7.9%

*Hispanic or Latino may be of any race.

Source: U.S. Census, 2010.

The Fairfax Community

The Fairfax Community is comprised of Fairfax City, Falls Church City, and Fairfax County (which includes the incorporated towns of Clifton, Herndon, and Vienna). The characteristics of these geographic areas and their governments are presented below.

Fairfax County

Fairfax County was formed in 1742 from the northern part of Prince William County. Fairfax County is situated on 395 square miles of land, comprising 252,828 acres. According to 2010 Decennial Census data, the population of the county was 1,081,726 with a population density of 2,739 people per square mile, making it the most populous jurisdiction in the Commonwealth of Virginia (13.5 percent of Virginia's population) and in the Washington Metropolitan Area (WMA). Since 2000 the population has increased by 11.5 percent and is expected to steadily increase over the next few decades (U.S. Census, 2010). As the county population has grown, the racial and ethnic diversity of the county has also increased as depicted in Figure 2.

Figure 2: Population Race/Ethnicity, Fairfax County, 1990, 2000, 2010

Race/Ethnicity	1990	2000	2010
White	81.3%	69.9%	62.7%
Black	7.7%	8.6%	9.2%
Asian/Pacific Islander	8.5%	13.1%	17.6%
American Indian/Alaska Native	0.2%	0.3%	0.4%
Other Race or Multiracial	2.3%	8.2%	10.2%
Hispanic or Latino*	6.3%	11.0%	15.1%

*Hispanic or Latino may be of any race.

Source: U.S. Census, 1990, 2000, 2010.

Fairfax was the first county in the United States to reach a 6-figure median household income and has one of the highest median household incomes of any county in the United States with a population of 250,000 or more (U.S. Census, 2009). It is home to an international airport and the headquarters of intelligence agencies such as the Central Intelligence Agency, the National Reconnaissance Office, the National Counterterrorism Center, and the Office of the Director of National Intelligence. The county is also home to half of the WMA's Fortune 500 companies.

Fairfax County has a county executive form of government. The county government is managed by an elected Board of Supervisors consisting of 10 members, each serving a 4-year term. Nine members are elected from the magisterial districts and 1 member is an elected chairman-at-large.

The Fairfax County Board of Supervisors establish county government policy, pass resolutions and ordinances within the limits of its authority established by the Virginia General Assembly, approve the budget, set local tax rates, approve land use plans, and make appointments to various positions. The Fairfax County government consistently exhibits high-quality performance. It is 1 of only 2 jurisdictions nationwide to receive top scores in measures of quality local government in the latest Government Performance Project by Pew Charitable Trust (Fairfax County Economic Development Authority, 2010). Fairfax County's adopted budget for fiscal year 2011 was $6.1 billion. Its budget is larger than the budgets of 4 states (North Dakota, South Dakota, Vermont, and Wyoming) (Fairfax County Department of Management and Budget, 2010).

The Board of Supervisors oversees efforts to ensure a high quality of life and health in the county utilizing a number of community advisory boards and councils towards this end. Important for matters relating to the health and safety of the county are the Health Care Advisory Board (HCAB) and Multicultural Advisory Council (MAC). The HCAB is responsible for conducting periodic reviews of the County's comprehensive health plan and initiating an ongoing health care information process in coordination with local, regional, state, and federal agencies. The MAC was established in FY 2008 to provide guidance to the health director on health issues that impact Fairfax County's ethnic communities. The MAC also serves as a sounding board to provide guidance to the county and its agencies and partners on the most effective ways to communicate information to the racial and ethnic communities. A number of other advisory boards and councils are used in other important areas affecting the county, including several related to environmental health and safety (Fairfax County, 2010).

Fairfax City

Fairfax City is an independent city of 6.3 square miles situated in the center of Fairfax County. The city was settled in the early 1700s. In 1874 the area became the Town of Fairfax, and in 1961 it was incorporated into the independent City of Fairfax. It has a Council-Manager form of government. The mayor and 6 council members are elected every 2 years on an at-large, nonpartisan basis. According to the 2010 Decennial Census, the city is home to 22,565 residents. Fairfax City is ranked number 3 on Forbes list of the top 25 places to live in the United States.

Figure 3: Population Race/Ethnicity, Fairfax City, 2010

Race/Ethnicity	2010
White	69.6%
Black	4.7%
Asian/Pacific Islander	15.3%
American Indian/Alaska Native	0.5%
Other Race or Multiracial	9.9%
Hispanic or Latino*	15.8%

*Hispanic or Latino may be of any race.

Source: U.S. Census, 2010.

Falls Church City

Falls Church City is an independent city located on the eastern edge of Fairfax County just 6 miles from the nation's capital. The City of Falls Church began as a Colonial settlement in the 1600s, gained township status within Fairfax County in 1875, and was incorporated as the City of Falls Church with county-level governance status in 1948. Falls Church is 1 of the 2 geographically smallest cities in Virginia, containing only 2.2 square miles of land area. The 2010 Decennial Census estimated that the city has 12,332 residents.

Figure 4: Population Race/Ethnicity, Falls Church City, 2010

Race/Ethnicity	2010
White	79.9%
Black	4.3%
Asian/Pacific Islander	9.5%
American Indian/Alaska Native	0.3%
Other Race or Multiracial	6.1%
Hispanic or Latino*	9.0%

*Hispanic or Latino may be of any race.

Source: U.S. Census, 2010.

Falls Church City operates under the Council-Manager form of government with a 7-member council, elected at-large for 4-year staggered terms within the provisions of the City Charter adopted by the Virginia General Assembly in 1950. The Mayor is elected by vote of the members of the council. The City operates with a city manager hired by the council to serve as the city's chief administrative officer. Candidates for city elections do not run under a nationally affiliated party nomination.

Fairfax Community Local Public Health System

The Local Public Health System (LPHS) in the Fairfax Community is a complex, diverse, multifaceted network of community health partners working to improve the health of its community. The Partnership for a Healthier Fairfax was formed to be inclusive of all of the organizations and entities in the community that contribute to the health of the people who live and work here. It includes public, private, and voluntary entities, individuals, and informal associations that provide public health services. The Fairfax County Health Department is a vital partner in the Fairfax Community LPHS.

The Fairfax County Health Department, under the direction Gloria Addo-Ayensu, MD, MPH (Health Director), is comprised of 15 offices and service sites located throughout the county and the cities of Fairfax and Falls Church. The Health Department serves the community as it strives to achieve its vision of "Healthy People in Healthy Communities." The mission of the Health Department is to promote and improve the health and quality of life of Fairfax residents and visitors, through making a difference, and providing excellent customer service with respect and integrity.

The Health Department pursues its mission in the community by preventing or minimizing the impact of communicable diseases and other public health threats, improving access to healthcare, employing a productive workforce that mirrors the diversity in the community, and utilizing technology to provide cost-effective services.

The Health Department, while critical to the health of the community, is only one part of the LPHS. Improving health cannot be achieved solely by health care providers and public health officials but must also draw on the expertise of a variety of other actors in the Fairfax Community who contribute to the well-being of its residents. As such, the Partnership for a Healthier Fairfax strives to include the full spectrum of organizations, entities, and individuals who together can create the social and physical environments that promote good health for all.

CHAPTER 1: SOCIO-DEMOGRAPHIC, ECONOMIC, AND EDUCATION CHARACTERISTICS

Area Characteristics and Demographics

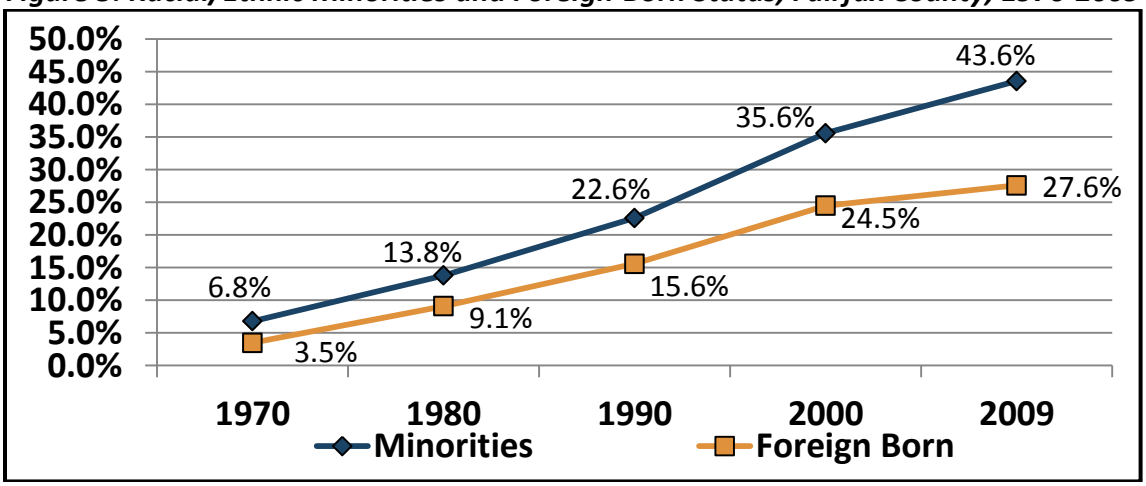
The Fairfax Community, comprised of Fairfax County and the cities of Fairfax and Falls Church, is a mature urban area with a diverse tapestry of cultural and economic resources. With an estimated 1,116,623 residents, the Fairfax Community is more populous than 8 states – Alaska, Delaware, Montana, North Dakota, Rhode Island, South Dakota, Vermont, and Wyoming (U.S. Census, 2010).

In terms of both population size and density, Fairfax County ranks among the top 2 percent of all counties in the nation (U.S. Census, 2010). Fairfax County is a major employment market in the WMA, with over 680,000 jobs (Metropolitan Washington Council of Governments, 2010). The average weekly wage for Fairfax County jobs is third highest among the jurisdictions in the area, trailing only Arlington County and Washington, D.C. (U.S. Department of Labor, 2011).

Race, Ethnicity, and Immigration

The Fairfax Community is one of the most ethnically diverse areas in Virginia. Although the United States' immigrant population is still geographically concentrated, immigrants today are more likely to settle in suburban locations than inner cities. The dispersion of jobs to the suburbs is partially responsible for this trend. Unlike many urban areas in the U.S., the Fairfax Community does not have a predominant country of origin among its foreign-born residents. County residents from the country of origin with the largest number of immigrants (El Salvador) comprise only one-tenth of the county's foreign-born population (U.S. Census, 2009).

Figure 5: Racial/Ethnic Minorities and Foreign-Born Status, Fairfax County, 1970-2009

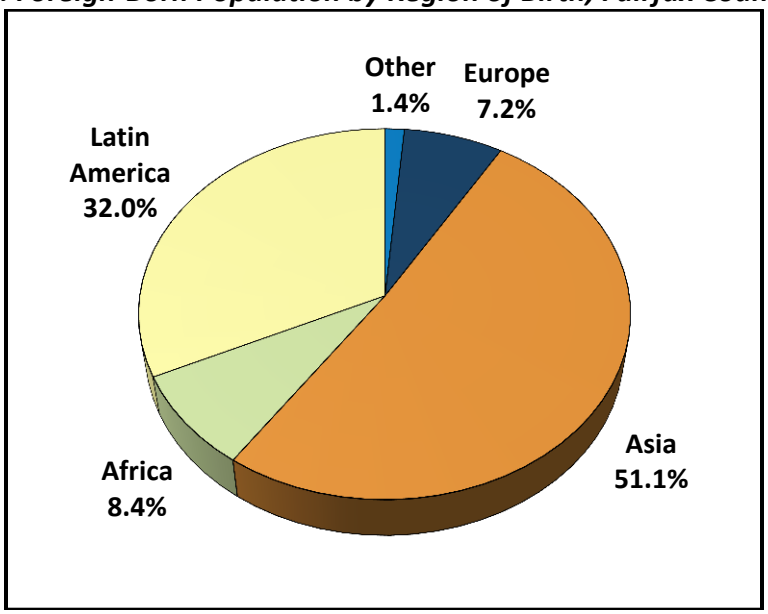


Source: U.S. Census, 1970, 1980, 1990, 2000; U.S. Census, 2009.

Over the past 4 decades, Fairfax County's population has rapidly diversified. The net population growth between 2000 and 2010 is attributable to racial or ethnic minorities (U.S. Census 2000, 2010). In 1970 racial and ethnic minorities comprised less than 7 percent of the population; today, racial and ethnic minorities comprise nearly half of the population (Census, 1970, 2010).

Immigration is also contributing to the county's diversification due to the emergence of Fairfax as an immigrant gateway. Fewer than 1 of 28 Fairfax County residents was foreign-born in 1970, but in 2009 about 28 percent of residents were foreign-born (U.S. Census, 1970, 2010; U.S. Census, 2009). The percent of foreign-born residents in the Fairfax Community is more than twice that found nationally. Moreover, immigrants residing in Fairfax County are a much more diverse group than that in most jurisdictions. Half of the county's immigrants were born on the continent of Asia, and nearly one-third were born in Central and South American countries. By country, the largest numbers of immigrants are from El Salvador, India, Korea, Vietnam, China/Taiwan, Peru, and Bolivia. However, immigrants from these 7 countries account for only half of the total immigrant population (U.S. Census, 2009).

Figure 6: Foreign-Born Population by Region of Birth, Fairfax County, 2009



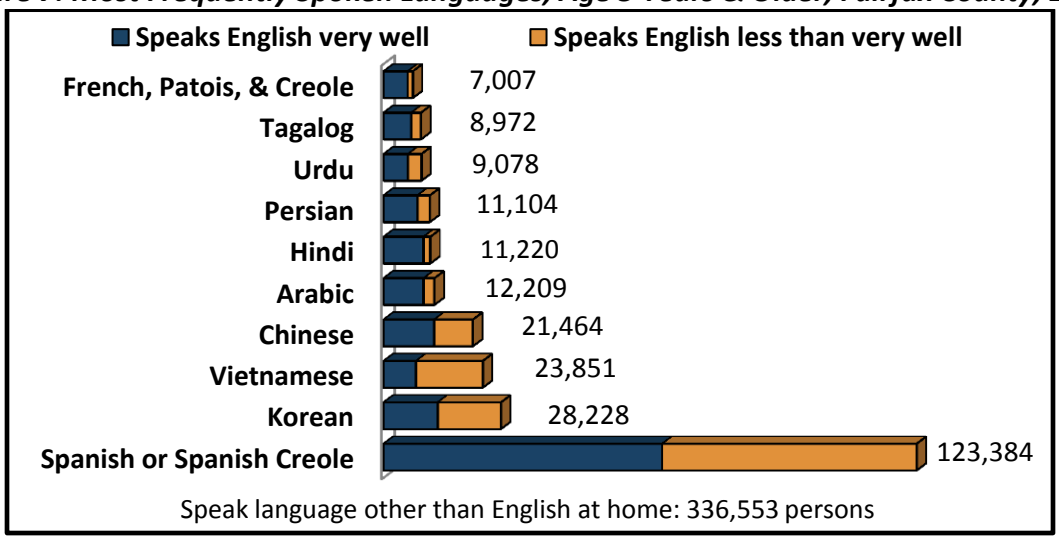
Source: U.S. Census, 2009.

In Fairfax City 26 percent of the population is foreign-born. As in Fairfax County, nearly half of Fairfax City's immigrants were born in Asia and one-third was born in a Latin American country. The City of Falls Church contains a smaller proportion of foreign-born residents, 18 percent. Thirty-nine percent of Falls Church's immigrants are from an Asian country, 27 percent from Latin America, 19 percent from Europe, and 12 percent from Africa (U.S. Census, 2005-2009).

Language

The U.S. Census defines linguistically-isolated households as those where no member of the household age 14 or older speaks English "very well." Among Fairfax County households, 34.9 percent speak a language other than English at home and 7.5 percent are linguistically-isolated (U.S. Census, 2009). In Fairfax City, 30 percent of households speak a language other than English at home and 4.4 percent are linguistically-isolated. In Falls Church City, 23 percent of households speak a language other than English, and 4.3 percent are linguistically-isolated (U.S. Census, 2005-2009). Across the Fairfax Community, Spanish is the most frequently spoken language among persons who speak a language other than English at home. In Fairfax County, 38.1 percent of persons age 5 or older who speak a language other than English at home speak Spanish (U.S. Census, 2009). Over 100 different languages are spoken at home by students enrolled in the Fairfax County Public Schools. This high level of linguistic and cultural diversity presents a challenge to the health planners and service providers who must determine how to reach and work with this very diverse population.

Figure 7: Most Frequently Spoken Languages, Age 5 Years & Older, Fairfax County, 2009



Source: U.S. Census, 2009.

Age

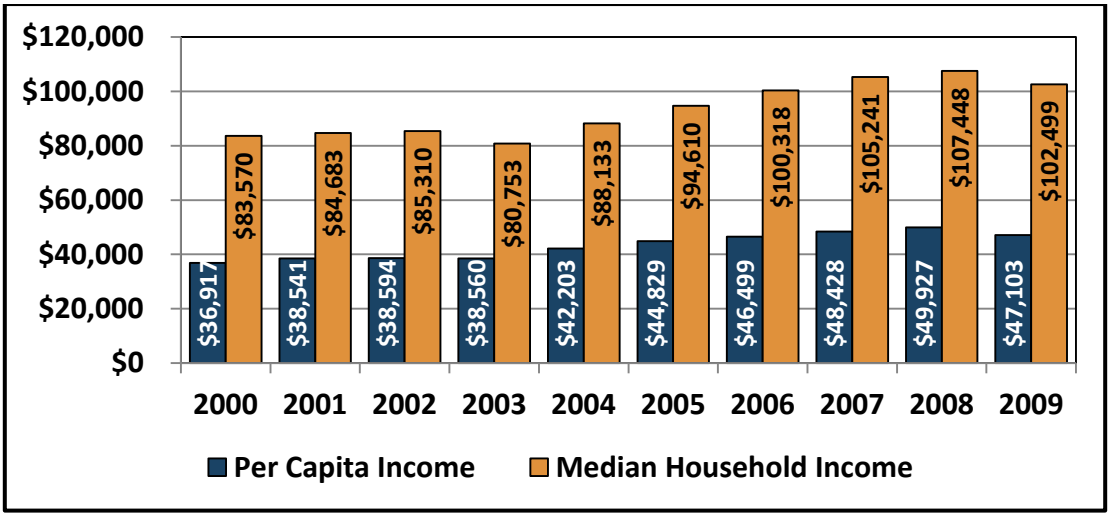
The Fairfax Community's population is growing older as is that of the nation. Since 1970 the median age of Fairfax County residents has increased from 25.2 years to 37.3 years (U.S. Census, 2010). By 2025 greater than 1 of every 8 residents will be 65 years or older. The aging of the baby boomers and increase in life expectancy are fueling this trend. Although the age group including persons 65 years and older will grow the most rapidly over the next 15 years, growth is expected in most age cohorts because the total population of Fairfax County is increasing (Fairfax County, DNCS, Population Forecasts, 2010).

Currently, the median age of residents in both Fairfax City and Falls Church City is older than in the county. The median age of Fairfax City residents is 39.6 years and 13.8 percent of its population is 65 years or older. Persons under age 18 years represent 20.3 percent of Fairfax City's population. In the City of Falls Church, the median age is slightly older – 41.0 years. Persons age 65 years and older comprise 13.3 percent of Falls Church's population and persons under the age of 18 years 23.0 percent (U.S. Census, 2009).

Income

Personal and household incomes depict the economic vitality of a community by indicating the spending power of individuals, including their ability to provide for basic needs, such as housing and healthcare. The Fairfax Community is one of the wealthiest areas in the nation, but income growth in the area has been affected by the recession beginning in 2008. In Fairfax County the estimated median household income declined from $107,448 in 2008 to $102,499 in 2009. Per capita income also declined from $49,927 in 2008 to $47,103 in 2009 (U.S. Census, 2008).

Figure 8: Median Household and Per Capita Income, Fairfax County, 2000-2009



Source: U.S. Census, Supplementary Survey, 2000, 2001; U.S. Census, ACS, 2002-2009.

Employment

A prosperous community has an adequate supply of jobs that generate income sufficient to pay for basic needs. The unemployment rate represents one piece of a complex puzzle that helps to determine whether or not Fairfax is achieving this goal. The Virginia Employment Commission (VEC) reports the unemployment rate for December 2010 was 4.4 percent for Fairfax County, 5.7 percent in Falls Church City, and 5.1 percent in Fairfax City. The rate in all 3 of these communities was lower than both the national unemployment rate of 9.1 percent and the Virginia unemployment rate of 6.4 percent for the same period. Fairfax County's unemployment rate was the third best among

localities in Virginia, after Arlington (3.7 percent) and Loudoun County (4.2 percent) (Virginia Employment Commission, 2010).

Figure 9: Employment and Unemployment Rate, Fairfax Community, 2001-2010

Year	Total Employment	Unemployment Rate
December 2001	559,874	3.1 percent
December 2010	601,605	4.4 percent

*Fairfax Community is defined as Fairfax County and the Cities of Fairfax and Falls Church.

Source: Virginia Employment Commission, 2010.

Poverty

There are 2 slightly different poverty measures used by the federal government. Poverty thresholds are based upon a study in the 1950s that indicated that low-income families spent about a third of their income on food. The cost for an emergency food diet for a family was determined and then multiplied by 3 to arrive at the yearly minimum income a family would need to meet their needs. These poverty thresholds are updated each year by the U.S. Census Bureau for calculating official poverty population statistics.

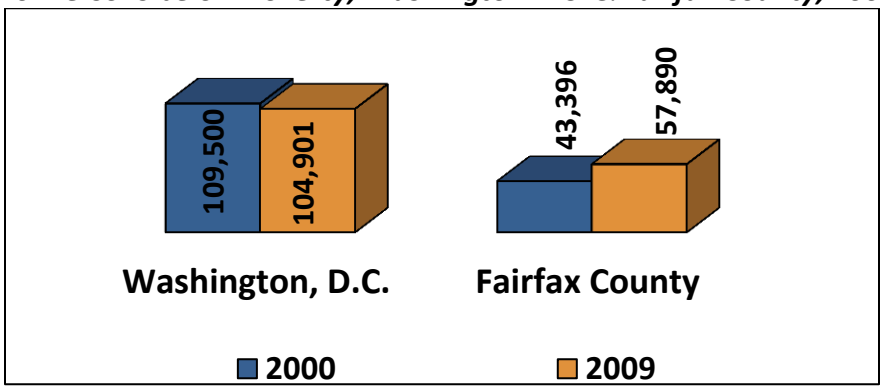
A simplified version of the federal poverty thresholds is the poverty guidelines that are issued each year by the Department of Health and Human Services to determine eligibility for many public assistance programs. These guidelines are often referred to as the Federal Poverty Level (FPL) and are meant to represent the minimum amount of income that a family needs for food, clothing, transportation, shelter, and other necessities. The population living at or below 100 percent of the FPL is considered to be in poverty. Poverty for a family of 4 in Fairfax County in 2009 is defined by the federal government as a family annual income of less than or equal to $22,050 (U.S. HHS, HHS Poverty Guidelines, 2009). Because the FPL does not consider expenses other than food that add to the cost of living, an income of less than 300 percent of the FPL is considered insufficient for a high cost of living area such as the Fairfax Community.

Poverty levels have been adjusted over time to reflect family size, whether the person was over 65, and changes in the U.S. Consumer Price Index. Many suggestions have been made to revise policies to reflect current spending patterns. In particular, increased housing or healthcare expenses have not been accounted for. Nonetheless, poverty levels are used in planning and eligibility determination for many human service programs, and many data sets use it as a proxy for poverty.

Since 2000 the WMA has been experiencing the suburbanization of poverty. The number of persons below poverty in Washington, D.C. has decreased while the number of persons

below poverty in the surrounding suburbs has increased. One factor that has fueled this trend has been the dispersion of jobs to the suburbs. The number of residents below poverty in Fairfax County increased 33 percent from 2000 to 2009 (U.S. Census, 2000; U.S. Census, 2009). Historically, providing services for the poor in the suburbs is difficult because suburban residents are more widely dispersed than urban, centralized poor, even within areas where poverty is concentrated across the geographic area.

Figure 10: Persons below Poverty, Washington D.C. & Fairfax County, 2000, 2009



Source: U.S. Census, 2000; U.S. Census 2009.

According to the 2009 American Community Survey, 3.5 percent of Fairfax County families and 5.6 percent of individuals reported incomes below the poverty level. Countywide, 13.3 percent of Blacks live in poverty; 12.2 percent of Hispanics; and 16.4 percent of families with a female head of household—no father present and children under 18 years of age. In total nearly 58,000 county residents live below poverty (U.S. Census, 2009). Some 13.8 percent of county residents have incomes at or below 200 percent of poverty.

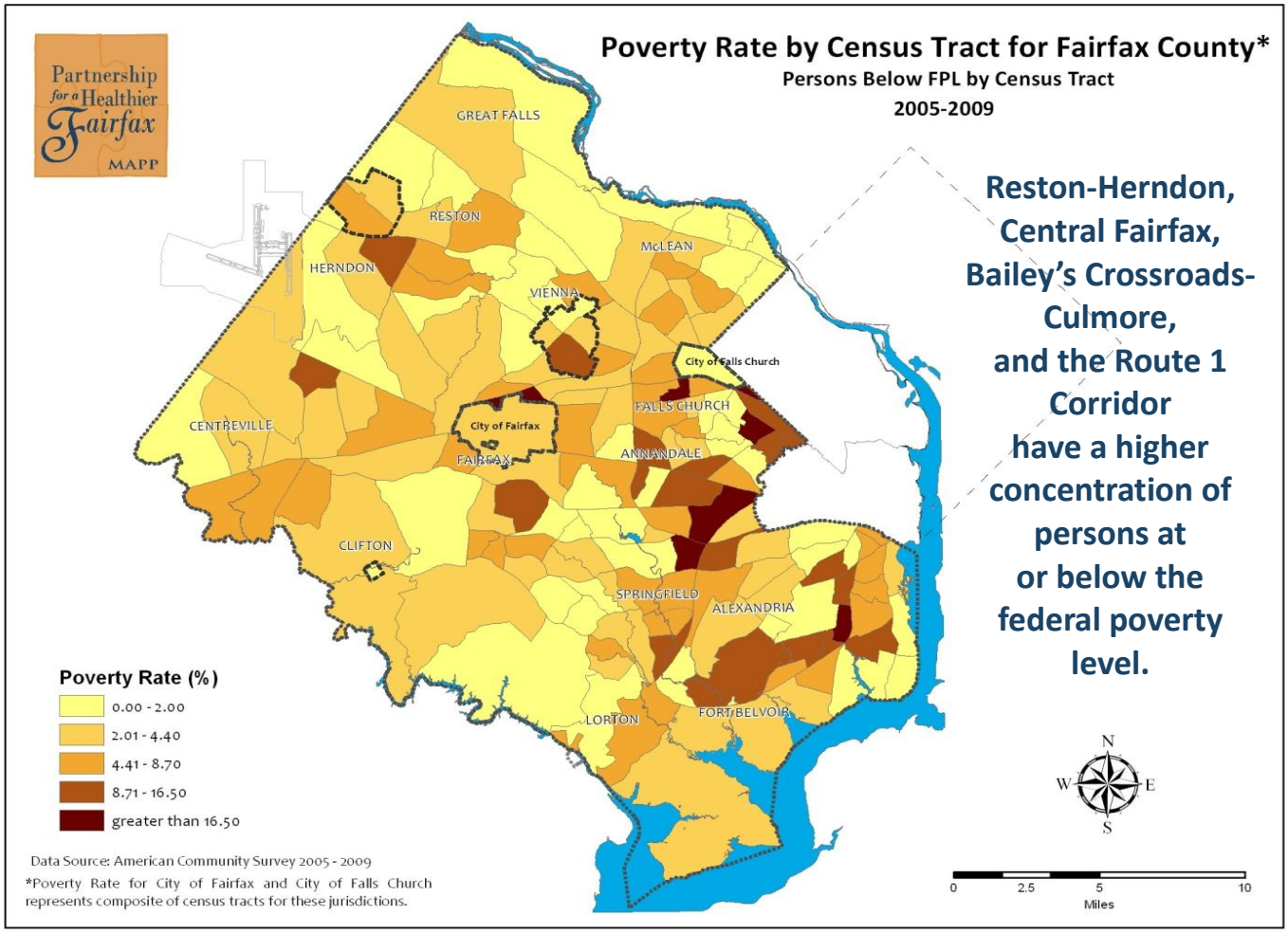
Food insecurity, lack of affordable housing, and other hardships affect millions of American children, and many poor children lack health insurance (Cauthen, & Fass, 2007). In Fairfax County, children are more likely than adults to live in poverty; 1 out of every 15 of the county's children (6.6 percent) lives below poverty. Among county children age 5 and under, 8.2 percent live in poverty (U.S. Census, 2009).

Seniors (age 65 and over) are also impacted by poverty. Nationally, 9.5 percent of seniors are living at or below the federal poverty level (FPL). In Virginia, 8.2 percent of seniors are living at or below 100 percent of FPL and in Fairfax County, 4.6 percent of seniors do so (U.S. Census, 2009).

The geographic areas of the Fairfax Community where poverty rates are highest are also some of the most racially and ethnically diverse census tracts in the community. Census tracts located in the Reston-Herndon area, Central and Eastern Fairfax (especially Bailey's Crossroads-Culmore area), and

the Route 1 Corridor are the most diverse areas of the community. As illustrated by the map below, these areas also have the highest concentration of families living at or below the FPL.

Figure 11: Poverty Rate by Census Tract, Fairfax County, 2005-2009

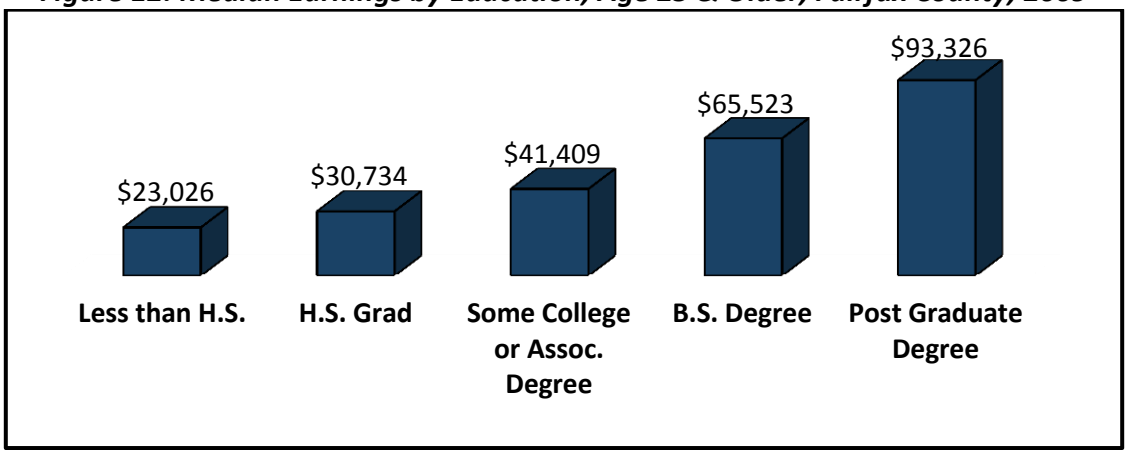


Source: U.S. Census, 2005-2009.

Education

In the U.S., only 27.9 percent of adults age 25 years and older have a bachelor's degree or higher education; in Fairfax County, this figure is 58.1 percent (U.S. Census, 2009). The American Community Survey 2009 data show that, among adults countywide age 25 and over 91.8 percent have attained at least a high school education.

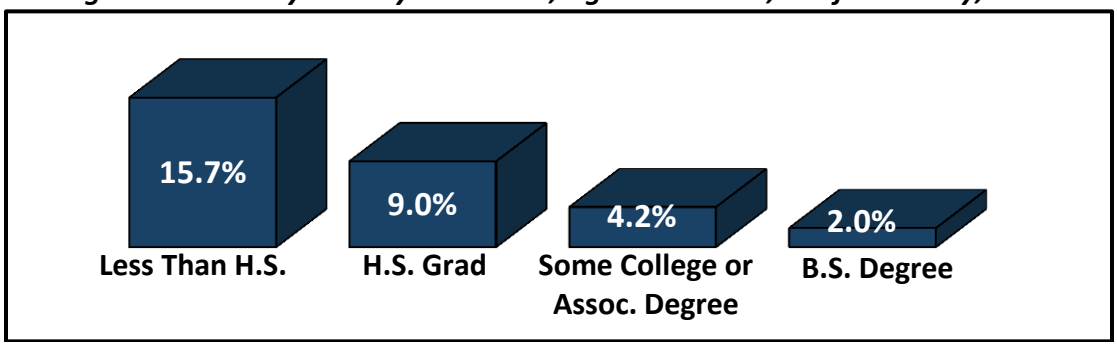
Figure 12: Median Earnings by Education, Age 25 & Older, Fairfax County, 2009



Source: U.S. Census, 2009.

These high educational attainment levels are one of the primary reasons for the high incomes enjoyed by residents in Fairfax County. The significance of education in determining income is very clear when median earnings by educational attainment are compared. In Fairfax County, adults with bachelor's degrees have median earnings more than twice that of adults with only a high school diploma, $65,523 compared to $30,734 (U.S. Census, 2009). In addition, adults with higher levels of education are less likely to live below the FPL. Only 2 percent of Fairfax County adults with a bachelor's degree or higher education live in poverty, while 9 percent of those with only a high school diploma live in poverty, and 15.7 percent of those with less than a high school diploma do so (U.S. Census, 2009).

Figure 13: Poverty Rate by Education, Age 25 & Older, Fairfax County, 2009

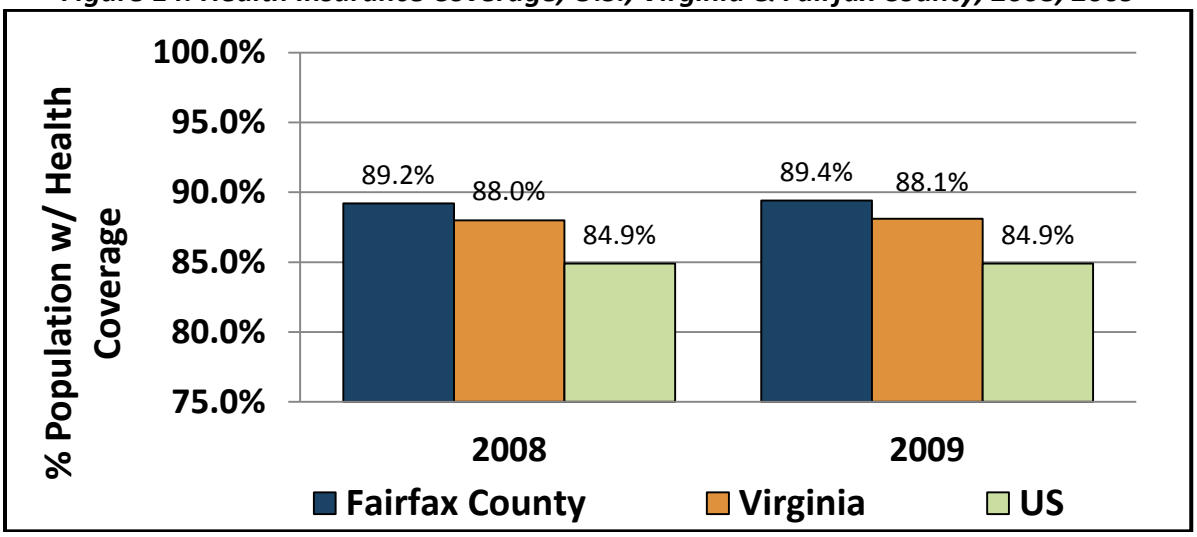


Source: U.S. Census, 2009.

Health Insurance Coverage

Despite the Fairfax Community's wealth, more than 1 out of every 10County residents lacked health insurance in 2009. Residents age 65 and older were the most likely to have health insurance (Medicare) with only 2.7 percent lacking health insurance coverage (U.S. Census, 2009).

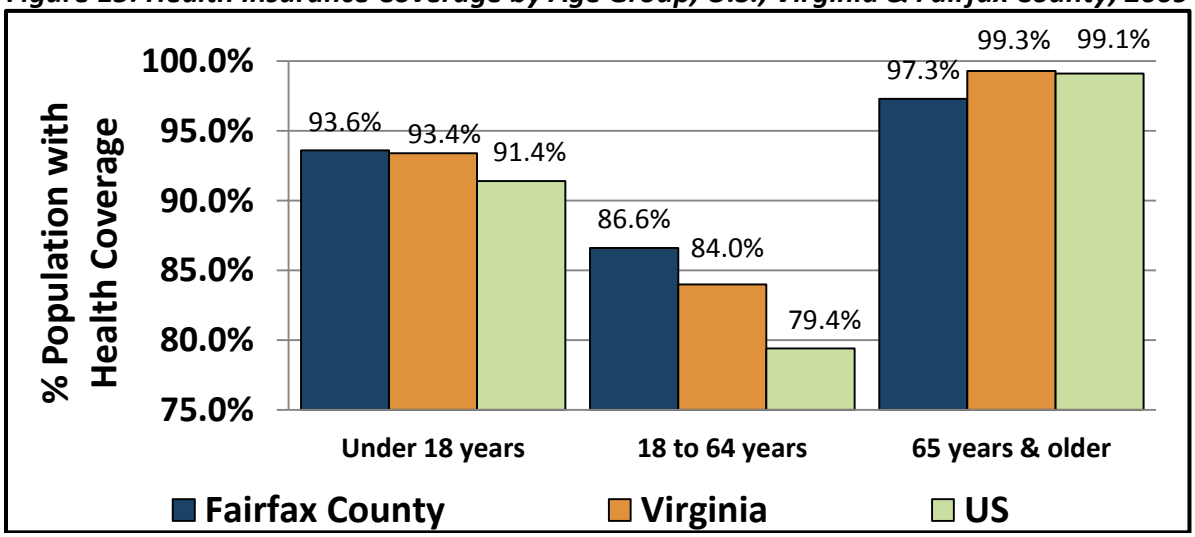
Figure 14: Health Insurance Coverage, U.S., Virginia & Fairfax County, 2008, 2009



Source: U.S. Census, 2008, 2009.

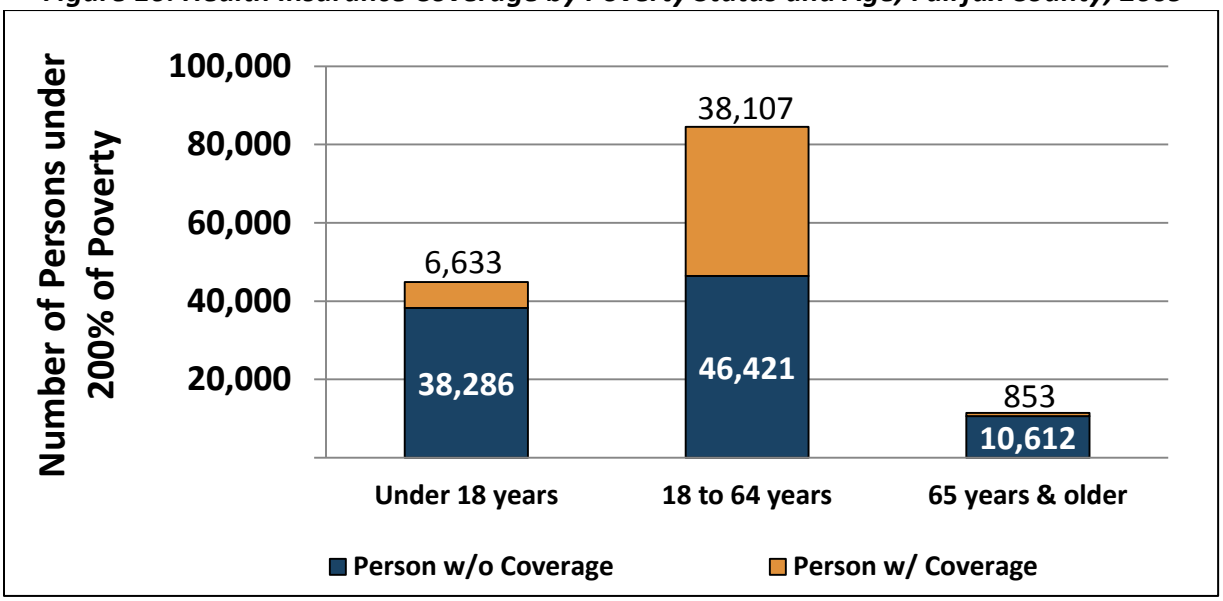
According to the American Community Survey (2009) in Fairfax County young adults age 18 to 34 were the age group most likely to lack health insurance coverage. Among this age group, males (22.7 percent) were more likely to lack coverage than females (17.8 percent). Health insurance coverage was also lacking for 6.4 percent of children under the age of 18.

Figure 15: Health Insurance Coverage by Age Group, U.S., Virginia & Fairfax County, 2009



Source: U.S. Census, 2009.

Figure 16: Health Insurance Coverage by Poverty Status and Age, Fairfax County, 2009

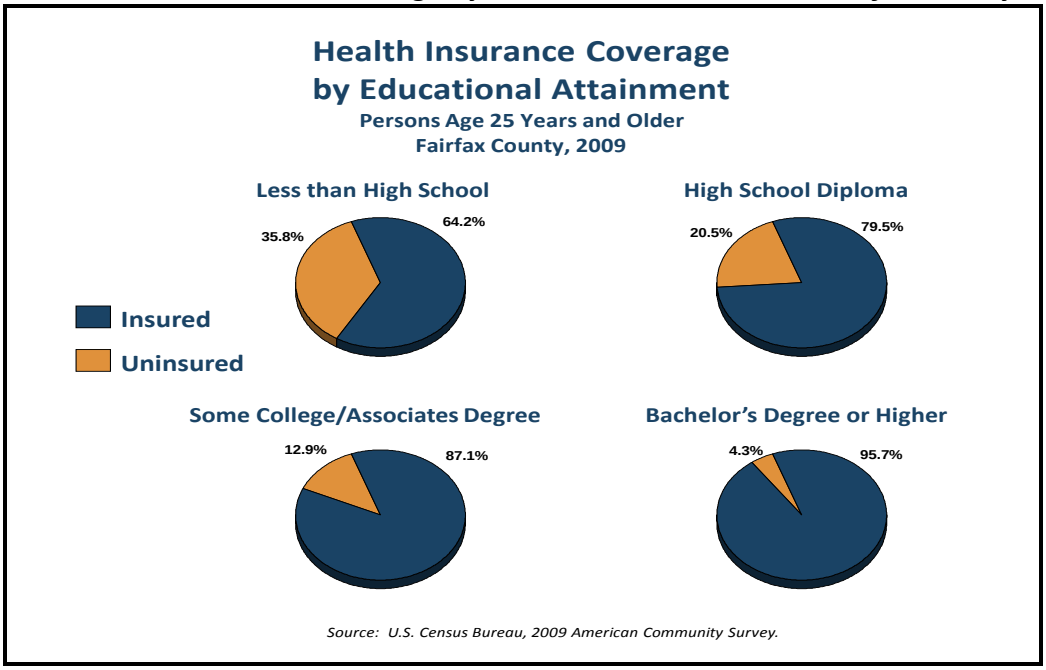


Source: U.S. Census, 2009.

Of adults 18 and older who reported not having health insurance, three-quarters had worked in the past 12 months. Those who worked less than full-time, year-round were the most likely to lack insurance (20.3 percent). Even those who did not work at all were more likely to have health insurance than these less-than-full-time workers (13.3 percent of nonworking adults lacked coverage). Workers who lacked coverage tended to have lower educational attainment and low-paying jobs. In Fairfax County only one-fifth of adults age 25 and older have an educational attainment level of "high school diploma or less," but these adults account for over half (52.4 percent) of individuals who lack coverage (Census, ACS, 2009). Overall, residents of Fairfax County (89.4 percent) are slightly more likely to have coverage than U.S. residents (84.9 percent). This does not hold true for Fairfax County's poorer and less-educated residents who are more likely to lack health insurance than those nationwide (U.S. Census, 2009).

Adults with less educational attainment fare less well than those with higher levels of educational attainment when it comes to health insurance. This is because those with lower educational attainment tend to work in lower skilled jobs that are less likely to offer benefits such as health insurance. In the "less than a high school" group, 35.8 percent of Fairfax County adults age 25 and over lacked health insurance coverage, and for those with an educational attainment of high school, 20.5 percent of Fairfax County residents lacked health insurance coverage. Nationwide these same groups fared slightly better; 30.1 percent of adults nationwide with "less than high school" educational attainment and 18.6 percent of those with an educational attainment of high school lacked health insurance coverage (U.S. Census, 2009).

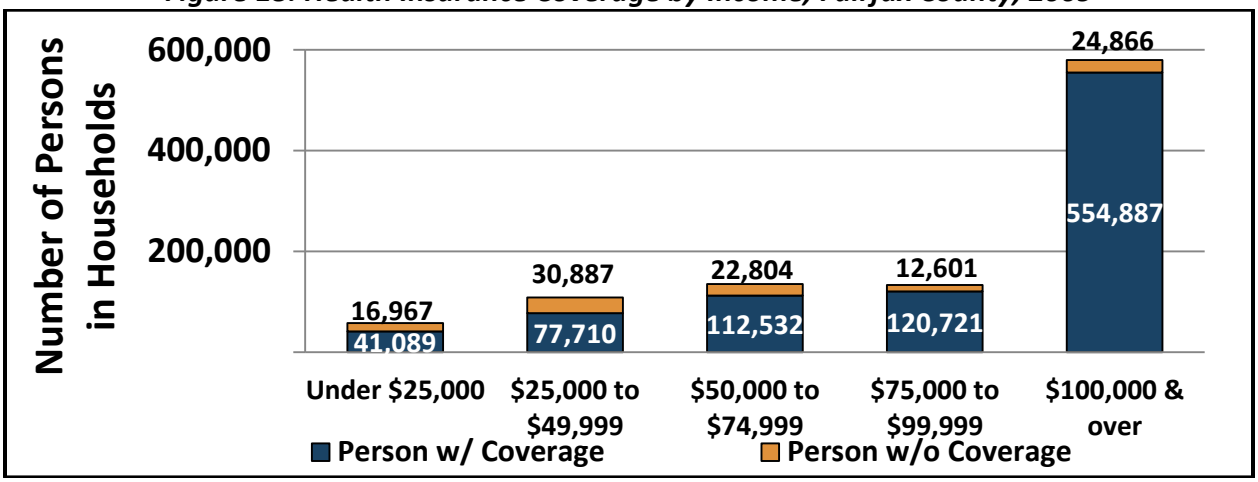
Figure 17: Health Insurance Coverage by Educational Attainment, Fairfax County, 2009



Source: U.S. Census, 2009.

Persons living in low and moderate income households in Fairfax County are more likely to lack coverage than those persons at the same income levels nationally. The percent of uninsured persons is higher in Fairfax County than nationally at each household income bracket up to $75,000 and for persons living below 400 percent of the FPL. Thirty-six percent of Fairfax County residents who live in poverty are uninsured compared to 27.8 percent nationally. Among residents who are between 300 and 399 percent of the FPL, 15.3 percent of Fairfax County residents lack health insurance coverage compared to 11.5 percent nationwide (U.S. Census, 2009).

Figure 18: Health Insurance Coverage by Income, Fairfax County, 2009



Source: U.S. Census, 2009.

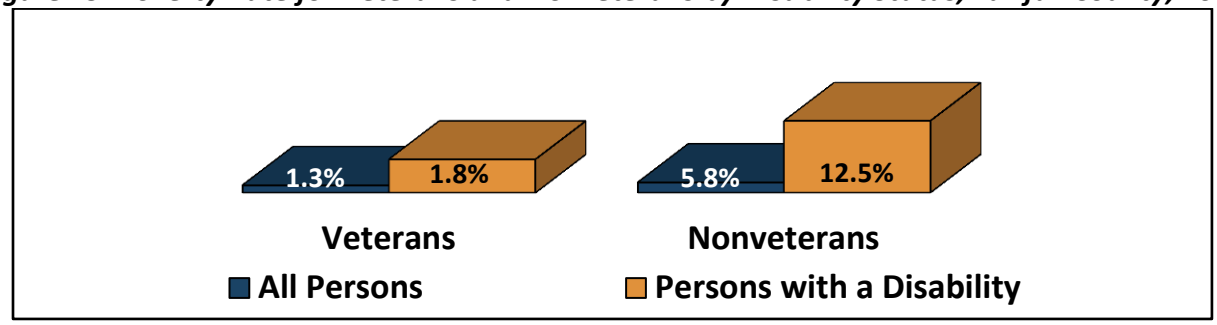
In Fairfax County, Whites are more likely to have health insurance coverage than other races or ethnicities. According to the American Community Survey (2009), only 7.9 percent of Whites were uninsured compared to 12.9 percent of Blacks and 14.4 percent of Asians. Hispanics/Latinos were the most likely to be uninsured, accounting for 30.2 percent of the county's total uninsured population.

Fairfax County's immigrants are more likely than native-born residents to lack health insurance. Only 5.4 percent of the county's native-born residents lack health insurance coverage, whereas nearly a quarter of the county's immigrants do so. Among immigrants who are citizens, 11.1 percent are uninsured compared to an estimated 36.1 percent of noncitizens (U.S. Census, 2009). The lack of health insurance coverage among immigrants may be driven by both economic and cultural factors. Immigrants disproportionately fill jobs that lack benefits and many immigrants come from countries where healthcare is provided and obtained differently than in the U.S.

Veterans

In Fairfax County 83,354 persons are veterans. One out of 5 has a service-connected disability, and 4.6 percent have a service-connected disability rating of 50 percent or more disabled. Thirteen percent (10,800 veterans) are female. Fairfax County's veterans are better educated than nonveterans. Two-thirds of the county's veterans have a 4-year college degree or more education compared to 56.7 percent of nonveterans (U.S. Census, 2009).

Figure 19: Poverty Rate for Veterans and Nonveterans by Disability Status, Fairfax County, 2009



Source: U.S. Census, 2009.

The county's veterans have higher incomes, are less likely to live below poverty, and are less likely to be unemployed than nonveterans. Male veterans had a 2009 median income of $93,641 compared to $51,794 for male nonveterans. Among females, veterans had a median income of $63,307 compared to $36,076 for nonveterans. The 2009 poverty rate among nonveterans age 18 years and older was 5.8 percent; among veterans, the poverty rate was 1.3 percent. The 2009 poverty rate for disabled veterans (1.8 percent) also was lower than that for nonveterans with a disability (12.5 percent). The 2009 unemployment rate for veterans was 3.2 percent compared to 4.8 percent among nonveterans age 18 to 64 years (U.S. Census, 2009).

CHAPTER 2: QUALITY OF LIFE

A comprehensive community health assessment must include a description of the conditions and resources that affect health both directly and indirectly. Factors and conditions that impact health and influence quality of life include: the physical environment, transportation, recreation, the social environment (including the level of social and emotional support people receive from friends and/or family), and other factors that shorten or decrease enjoyment of life and can adversely influence individual behavior and lifestyle.

Parks and Recreation

Parks and recreational facilities are widely available across the entire Fairfax Community. Falls Church City houses 11 parks where residents and visitors can walk, run, bike, hike on trails, and many have playground equipment. Some city parks also offer lighted basketball, volleyball, tennis courts as well as picnic tables and grill equipment for cookouts. Within the City of Fairfax's 6 square miles there are 23 parks with pavilions, play equipment, sports fields, and trails.

Fairfax County Park Authority operates 9 recreation and fitness centers that serve over 1 million visitors annually. Fairfax County is home to 10 county-operated community centers, 19 senior centers, and 14 teen centers. Fairfax County has 10 major parks, 10 nature and historical sites, 8 golf courses, and several lakes and aquatic playgrounds. With over 22,500 acres in 416 parks, the Fairfax County park system is well-used and highly regarded. Parks provide a wide variety of activities for the residents and visitors of Fairfax County including: fishing and boating, hiking, swimming, camping, historic sites, trails, sports, fitness, aquatics, programs, classes, events, and more. The county is also home to a variety of outdoor trails including 27 bike trails (11 major and 16 additional trails), 32 nature trails, 9 equestrian trails, and numerous cross-country trails. In total, green space and parks account for 9.5 percent of the county's land area (Fairfax County, 2011).

Each May to November, 14 farmers markets operate throughout Fairfax County. Fairfax County farmers markets are local, producer-only markets (all products sold are produced by vendors within 125 miles of Fairfax County). The farmers markets are supervised by the Fairfax County Park Authority through the Community Horticulture Office (Fairfax County, 2011).

The Arts

Fairfax County is home to a wide variety of cultural events, exhibitions, and community programs with support from the Arts Council of Fairfax County. Venues such as Wolf Trap National Park for the Performing Arts and George Mason University's Center for the Arts sponsor full seasons of professional performing arts events from around the globe. The Fairfax Symphony Orchestra

presents a 6-concert series and reaches out to county residents through school programs and other community outlets.

The Lorton Arts Foundation supports the Workhouse Arts Center, which houses more than 150 professional and emerging artists, cooperative studios, performance and theatre venues, dedicated gallery space, and event facilities. In addition to providing exhibition and studio space, the Workhouse also offers educational programs for people of all ages and artistic abilities. The Workhouse is located on the 55-acre grounds of the Historic D.C. Workhouse and Reformatory.

Transportation

Traffic congestion is a significant problem in Fairfax County and across the WMA. Although efforts are being made to increase availability, use, and funding of public transportation, these initiatives lag behind current needs. Nevertheless, Fairfax County residents have a variety of public transportation options. The Fairfax County Connector has 4,061 bus stops and 66 routes within the county. Metrobus offers transportation from bus stops around the county to area Metrorail stations, 8 of which are in Fairfax County. The Virginia Railway Express (VRE) is a commuter rail service with 2 major lines and 5 stations in Fairfax County that provides transportation into Washington, D.C.

The City of Fairfax offers its own mode of transportation, the CUE, which provides regularly scheduled, low-cost bus service to George Mason University, shopping centers and other locations within the City of Fairfax. The CUE serves as a feeder network to the Vienna/Fairfax-GMU Metrorail Station. The town of Reston also offers a bus service, LINK, which facilitates travel around the communities of Reston and Herndon.

Across Fairfax County there are over 30 roadway segments to accommodate bicyclists. In 2006 a comprehensive bicycle initiative, "Bike Ride," was approved by the Fairfax County Board of Supervisors to make Fairfax County more bicycle-friendly. In 2007 all of the Fairfax Connector bus fleet was equipped with front mounted bike racks, each capable of carrying 2 bicycles.

Education

The public education systems in the Fairfax Community are consistently among the highest-rated school systems in America. There are numerous private schools, foreign-language academies, and other academic courses available to both children and adults. Employment and training resources and services are also available.

The Fairfax Community is also a leader in higher education. The campuses of 5 major colleges and universities, including the main campus of George Mason University, are located within Fairfax

County. The largest community college in the Commonwealth of Virginia, Northern Virginia Community College, has 2 campuses in Fairfax County.

In addition to library resources in schools, colleges and universities, the county has 24 public libraries located throughout the community. In addition to books, the library system provides access to an array of educational materials, audiovisual media, meeting space, programs across all ages, and internet access.

Housing

An important dimension of quality of life in any community is the availability and adequacy of affordable housing. A home is shelter from the weather, an environment to sustain a family and a place to feel safe. The type, quality, and suitability of housing are important to health and therefore included in the report.

Approximately 49 percent of Fairfax County housing is single-family detached units (191,640 units), 25 percent is single-family attached units (98,789 units), and 26 percent is multifamily units (104,127 units). About three-quarters of the county's housing units were built prior to 1991 when the first ADA Standards for Accessible Design were issued. Thus, the majority of the county's housing does not meet current accessibility standards. Overall the county has an average household size of 2.69 per occupied housing unit (U.S. Census, 2009).

Figure 20: Housing Units, Fairfax County, 2009

Type Unit	# Units
Single Family Detached Units	191,640
Single Family Attached Units	98,789
Multifamily Units	104,127
Total Units	**394,556**

Source: Fairfax County, DNCS, 2010.

The median market value of all styles of owned housing units in Fairfax County was $441,679, which is considerably higher than the national median value of $185,200. Data from the 2005-2009 ACS suggest that owned housing costs in the cities of Fairfax and Falls Church are higher than found across most communities in the U.S.: $493,800 and $655,600, respectively.

Data from the 2005-2009 ACS are not comparable to data from the 2009 ACS because these data sets measure different periods of time.

According to DNCS, the average rent for a unit in a nonsubsidized rental complex in Fairfax County was $1,375 per month in 2009. As of

January 1, 2009, there were 65,571 rental complex housing units in Fairfax County; the number of units located in wholly subsidized rental complexes was 4,838 units. These subsidized complexes include both public and nonprofit ownership (Fairfax County, DNCS, 2010).

Figure 21: Median Market Value of Owned Homes, U.S. & Fairfax Community, 2009

Type Housing Unit	Fairfax County	Fairfax City	Falls Church City	All U.S.
Single Family Detached Units	$550,167	N/A	N/A	N/A
Single Family Attached Units	$341,626	N/A	N/A	N/A
Multifamily Units	$239,338	N/A	N/A	N/A
All Units	$441,679	$493,800	$655,600	$185,200

N/A = Not Available

Source: Fairfax County DNCS, 2010 (Fairfax County values); U.S. Census, 2005-2009 (Fairfax City and Falls Church City values); U.S. Census, 2009 (U.S. values).

Fairfax County's Department of Housing and Community Development (HCD) provides housing opportunities for low- and moderate-income residents in Fairfax County. It also assists in the renovation and improvement of neighborhoods through the Fairfax County Redevelopment and Housing Authority (FCRHA), whose mission is to provide residents with "safe, affordable, housing and the opportunity to develop, preserve and revitalize communities" (Fairfax County, FCRHA, 2010). The HCD administers a wide variety of programs including: rental housing and tenant subsidies, specialized housing, the foreclosure "Silver Lining" Initiative, loans for home ownership and home improvement, affordable housing finance, and community development.

The U.S. Department of Housing and Urban Development (HUD) considers families who pay more than 30 percent of their income for housing as "cost burdened"; these families may have difficulty affording necessities such as food, clothing, transportation, and medical care. Housing costs include mortgage or rent, taxes, insurance, and utilities. The Fairfax Community is one of the wealthiest areas in the nation but also one of the most expensive with regard to housing. The proportion of Fairfax County homeowners spending more than 30 percent of income on housing has fluctuated over time. As of the 1990 Census, 26 percent of homeowners spent 30 percent or more of their income on housing. By 2000 income growth had exceeded the rise in housing prices and less than 20 percent of homeowners were spending 30 percent or more of their income on housing. There was a rapid escalation of housing prices between 2000 and 2006 followed by a recession that saw both housing prices and incomes fall. As of 2009, 29 percent of homeowners were spending 30 percent or more of their income on housing. Renters were even more likely than homeowners to spend 30 percent or more of their income on rent. In 2009, 47 percent of renters were spending 30 percent or more of their income on housing costs.

Data on income spent on housing for the cities of Fairfax and Falls Church are not directly comparable to the data cited above because the data come from the 2005-2009 American Community Survey data set, which measures a different time period. However, these data suggest that similar proportions of homeowners and renters in the cities are spending more than 30 percent of their income on housing costs. In Fairfax City, 32 percent of homeowners and 47 percent of renters spent 30 percent or more of income on housing costs; in Falls Church City, 27 percent of homeowners and 46 percent of renters spent 30 percent or more of income on housing costs.

Seniors (individuals age 65 years and older) living on fixed incomes are particularly vulnerable to fluctuations in housing costs. Nationally, 28.5 percent seniors pay more than 30 percent of their income on home ownership; for renters the figure is 53.6 percent. In Virginia, 26.9 percent of home-owning seniors spend more than 30 percent of their income on housing and renting seniors spend 54.4 percent of their income on housing. In Fairfax County 83.2 percent of seniors are homeowners and 16.8 percent are renters. Of those Fairfax County seniors who are homeowners, 28.1 percent spend 30 percent or more of their income on housing, while 62.9 percent of senior renters do so (U.S. Census, 2009).

According to the 2009 ACS, the median monthly housing cost for Fairfax County seniors who are homeowners with a mortgage is $2,096; this figure is $708 for homeowners without a mortgage. For seniors who rent in Fairfax County, the median monthly cost is $1,129. High housing costs will continue to challenge individuals on fixed incomes who wish to age in place.

Homelessness

In Fairfax County, the lack of affordable housing is one of the primary causes of homelessness. Federal funding to prevent and end homelessness increased over the last 2 years and much work was done in the community to successfully reduce homelessness. However, that funding has now expired, and it is unclear what impact this will have.

The number of homeless in the Fairfax Community decreased 11 percent from 2009 to 2010 to 1,544 persons. The characteristics of the homeless were as follows: 892 persons were in families (58 percent) and 652 were single adults (42 percent). Thirty-six percent of all persons who were homeless were children under the age of 18. More than 60 percent of adults in homeless families were employed. Sixty percent of single individuals who were homeless suffered from serious mental health and/or substance abuse issues, and many had chronic health problems and/or physical disabilities (Fairfax County Preventing and Ending Homelessness Fairfax-Falls Church Community Partnership, 2010).

Nationwide as well as in the Fairfax Community, families and children constitute an ever-increasing proportion of the homeless population. Children are especially adversely affected by homelessness. Children who are homeless are twice as likely to suffer from an ear infection, have 4 times the rate of asthma, and have 5 times more diarrhea and stomach problems. Homeless children have twice the rate of learning disabilities and 3 times the rate of emotional and behavioral problems as their non-homeless peers. These problems tend to be compounded as the child becomes older (National Center on Family Homelessness, 2007).

Crime

The public health community is mindful of the chilling effect crime has on individuals and neighborhoods, as well as economic development and the quality of life. It is one of the most important social factors influencing health directly (causing stress and depression) and indirectly (reducing community participation and economic development). Fairfax County reported crime statistics from 2004-2008 as depicted in the figure below.

Figure 22: Index Crimes, Fairfax County, 2004-2008

	2004	2005	2006	2007	2008	% Change 2007- 2008
Murder	10	22	19	13	22	69.23%
Rape	47	94	73	95	95	0.00%
Robbery	548	484	572	597	450	-24.62%
Aggravated Assault	375	379	334	339	386	13.86%
Burglary	1,514	1,345	1,580	1,409	1,438	2.06%
Larceny	14,737	14,488	13,075	14,244	16,244	14.04%
Motor Vehicle Theft	1,930	1,599	1,455	1,459	1,288	-11.72%
Violent Crimes[1]	980	979	998	1,044	953	-8.72%
Property Crimes[2]	18,181	17,432	16,110	17,112	18,970	10.86%
TOTAL	19,161	18,411	17,108	18,156	19,923	9.73%

[1]Violent Crimes Include Murder, Rape, Robbery, and Aggravated Assault.

[2]Property Crimes Include Burglary, Larceny, and Motor Vehicle Theft.

Source: Fairfax County, Index Crimes in Fairfax County, 2008.

Crime rates in Northern Virginia are substantially lower than those found in urban and metropolitan areas nationwide. The area has been successful in not only sustaining low-rates of violent crime, but also in deterring youth street gangs (Northern Virginia Comprehensive Gang Task Force, 2009). According to the Northern Virginia Comprehensive Gang Assessment Report (2009), the Northern

Virginia area had only a third as many violent crimes (homicides, rapes, robberies and aggravated assaults) as the national average. According to the FBI's *Crime in the United States* series, the violent crime rate in the Northern Virginia area was 141 per 100,000 population. In Fairfax County, the violent crime rate was 103 per 100,000, roughly one-fifth the national average. With few minor variations, this is the basic pattern that can be observed when comparing violent crime rates in Northern Virginia with national statistics over the past five years (Northern Virginia Regional Gang Taskforce, 2009).

Differences exist between youth street gangs and the general population in the types of crime they commit. The latter are more likely to engage in property crimes; the former commit violent crimes where drugs or weapons are involved. Review of gang-related crime statistics in Northern Virginia mirrors the commonly observed gang pattern, with graffiti (which includes destruction of property and vandalism) accounting for almost half of all reported gang-related crime in Northern Virginia, drug offenses and simple assaults accounting for about 9 percent each of the total, and aggravated assaults and weapons violations accounting for 6 percent each of the total. Eighty percent of reported gang-related crimes in Northern Virginia involve 1 of these 5 offenses (Northern Virginia Regional Gang Taskforce, 2009).

Gang-related crime is an area of particular concern to public health. The presence of active street gangs is a serious public safety threat, particularly due to the violent nature of crimes they commit. Violence is integral to gang culture and is reflected in Northern Virginia's gang crime statistics. Half of all gang-related offenses are violent crimes against people (homicide, rape, robbery, and aggravated assault). Based on the 15 offenses for which gang-crime statistics are tabulated, gangs are responsible for approximately 2 percent of overall crime in Northern Virginia and 5 percent of all violent crimes (Northern Virginia Regional Gang Taskforce, 2009).

Family Services and Child Care

A variety of social services are available through the county's programs serving children, youth, and families. These social support services are critically important to ensure the overall health of a community, especially for low-income or disadvantaged children, youth and families. Programs and services are available to protect children from harm, prevent child abuse and neglect, support families and help them remain together safely for the long-term emotional and physical health of children.

Fairfax County's Department of Family Services' Child Care Division provides a variety of services to help low income working families meet their childcare and early education needs. The cost of full-time preschool childcare in Fairfax County ranges from $8,000 to $12,000 per year per child. The Child Care Assistance and Referral (CCAR) program provides subsidized childcare to those who meet eligibility criteria. The number of children is determined by available funding from federal, state, and

local governments, as well as each child's age, family income and length of stay in the program. During FY 2009, 65,883 children in 40,955 families received subsidized childcare in Fairfax County. During FY 2010, 59,726 children in 37,463 families received subsidized childcare, a reduction in service of nearly 9 percent over the prior year. There were 3,186 children on the waiting list for subsidized childcare in Fairfax County as of November 2010 (Fairfax County Office of Family and Children, 2011).

Fairfax County provides quality after-school programs so that school age children spend non-school hours in a safe, nurturing environment. Children can attend the programs in a variety of settings including 4 Community Centers, 14 Teen Centers, 5 Computer Clubhouses, 6 Computer Learning Centers Partnerships (CLCP), 9 types of Therapeutic Recreation Services, 17 clubs for 4-H Youth Development, and 19 sports programs ranging from baseball to wrestling (Fairfax County Office of Family and Children, 2011).

School Age Child Care (SACC) programs provide care before school, after school, and during most school vacations in most county elementary schools, using sliding scale fees based upon household income (Fairfax County Office of Family and Children, 2011). Fairfax County also offers free after school programming in every middle school in the county. These programs provide recreational activities, academic support, and programs to support community involvement and youth development (Fairfax County, 2011).

Fairfax County Public School System provides a variety of summer programs with an array of educational and entertainment activities. Educational and extended school year programs provide supplemental support for students with special needs. Fairfax County Park Authority's summer camps are held throughout the county at recreational centers, lakefront parks, nature centers, historic sites, golf courses, and schools. Fairfax County Public Library has a summer reading program and includes reading incentives, free programs, and book recommendations (Fairfax County Office of Family and Children, 2011).

Aging Services

Given the aging of the population in Fairfax County, services for seniors are an important component of quality of life. The advantage of aging in place in Fairfax is that the community has relatively low levels of poverty and crime, high home values and individual ownership, and many senior-centric education and civic engagement programs. In addition, the county offers high quality healthcare, community resources that support aging in place, and a variety of senior housing options. However, as seniors age in this area, many delay full retirement or work part time in retirement because of the high cost of living.

In 2007 Fairfax County issued a "Fairfax 50+ Action Plan" that identified broad goals of planning for an aging-friendly community. The plan includes providing affordable housing options, transportation options, programs that engage older adults, support for caregivers, enabling senior technology, senior health planning, and mental health services. A brief description of some of the available programs and services follows.

Alzheimer's Family Day Center: Employment and volunteer program opportunities, older adult employment resources, Senior Community Service Employment Program, and Skill Source Centers.

Disability Support Services/Programs: Access Services, Senior+ Program (for older adults with minor cognitive and physical disabilities operating at area Senior Centers), legal resources, therapeutic recreation, tax relief, and transportation.

Health and Human Services: Adult Day Health Care, Alcohol and Drug Services, Community Health Care Centers, Senior Centers, Medicaid, Mental Health, Virginia Insurance Counseling and Assistance Program, Ombudsman Program for Long-Term Care, and assistance in choosing a long term care facility.

Housing Services: Assisted Living, Continuing Care Retirement Communities and Nursing Homes, home repair, housing programs, and Program for All-Inclusive Care for the Elderly (PACE).

Leisure Activities: Golden Gazette-Newsletter, recreation and fitness centers, Senior Centers for Active Adults, adult educational programs at the libraries.

Nutrition Services and Programs: Home delivered meals, congregate meals program, Meals on Wheels, and Nutritional Supplement Program.

No data were available to determine the adequacy of available programs and their capacity limitations. This is an important planning consideration given the forecasted growth in seniors in the area. In the future, waiting lists and service delays should be tracked.

Faith-Based Organizations

According to the Urban Institute National Center for Charitable Statistics, there are 574 religious congregations located in Fairfax County spanning a very wide variety of faiths (2011). Within the Fairfax County Government, the Department of Neighborhood and Community Services supports countywide interfaith coordination through the Community Interfaith Coordination (CIC) unit. The CIC facilitates communications, networking, service access, coordination, and collaboration between faith communities, the Fairfax County Government, and nonprofit organizations. The CIC also provides consultation, and fosters capacity building and partnership development.

The CIC supports Faith Communities in Action (FCIA) and the Fairfax County Clergy and Leadership Council (FCCLC). The FCIA is a consortium of various faith community representatives who meet bi-monthly to identify and discuss initiatives to address various needs and issues in the local community and promote prevention strategies. The FCCLC includes one representative from each major religion and each major denomination or association within a religion in Fairfax County. The Council meets 3 times a year to strengthen communications and coordination between faith communities and government.

FCIA and the FCCLC support 7 subcommittees which address various community initiatives to strengthen community wellbeing: Interfaith Emergency Planning; Fairfax County Community Chaplain Corps; Youth Prevention Initiatives; Older Adult Ministries; Domestic Violence Prevention; Housing Opportunities; and Community Interfaith Dialogue. The CIC also supports the FCHD's Northern Virginia Clergy Council for the Prevention of HIV/AIDS.

In the Fairfax Community, faith-based organizations and their communities are an important resource. Many provide their own programs or partner with public and private entities to support or offer a variety of services, including many to improve or enhance community health and wellbeing. These initiatives often target underserved populations, including low-income families, language minorities, older adults and their caregivers, and the homeless.

CHAPTER 3: HEALTHCARE RESOURCES & UTILIZATION

Understanding the infrastructure, capacity, and utilization of the area's healthcare system is important since the availability of these resources directly impact the health of the community and the opportunities for improving health in the future. The Fairfax Community is fortunate to have a wide array of high-quality health care facilities and well-educated providers of primary and specialized health care, psychological, and social services. It has a wide array of safety net providers and services (although data are not readily available to assess their individual contributions and impacts in the community).

Across the area, there are abundant resources but also areas that are underserved. There are concerns about sustaining service levels while addressing the increased demands expected as a result of population aging, the challenge of managing chronic illness, and increased access to health insurance under health reform. The adequacy of the primary care workforce (physicians, nurse practitioners, physician assistants, and mental health professionals) to meet the demands of low-income residents and those on public insurance plans (Medicaid and Medicare) is not known.

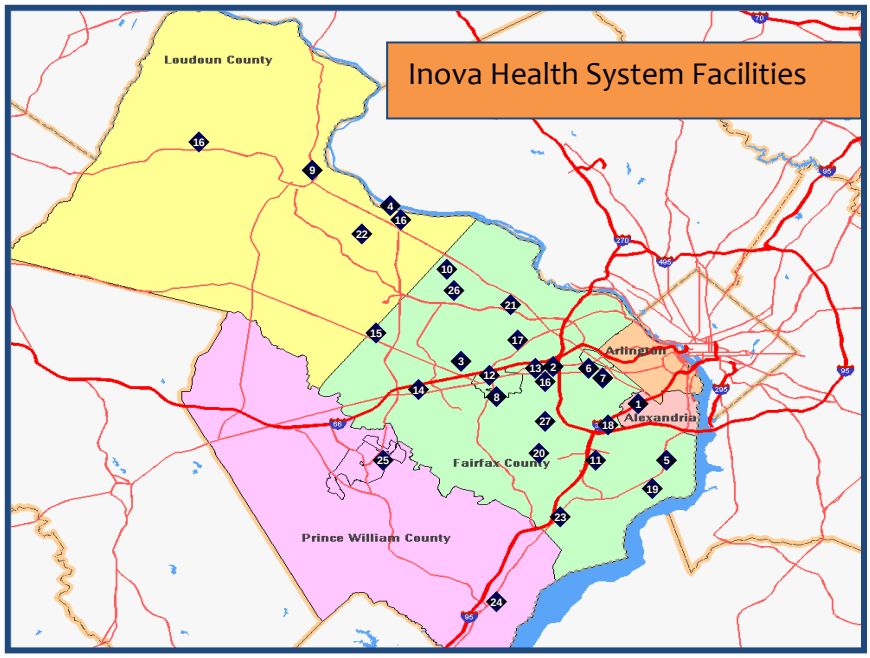
Of particular concern is the ability of the workforce to address current and future healthcare demand for primary care health services and other specialties including generalists and specialists. Increased demand is expected in the entire WMA for health and mental health professionals who will be available to provide primary and specialized care, provide medical homes, and coordinate care and services for individuals across the community. This is especially important in underserved populations such as adults and children with multiple chronic diseases, the disabled and mentally ill, and those who are aging and choosing to remain in their community (aging in place).

Information on safety net resources coupled with data on service utilization in the next section helps to illustrate how providers and various programs function today as a disjointed system. There is an opportunity for planning to leverage resources to improve health care costs and outcomes and especially to improve access to primary care and care coordination from cradle to grave.

Part I: Healthcare Resources

Area Hospitals/Health Systems

Inova Health System



Inova Health System is the largest private, nonprofit healthcare system in the WMA. Since 1956 Inova Health System has been providing healthcare services to Northern Virginia. It is comprised of 5 acute care hospitals, inpatient psychiatric and substance abuse units, freestanding outpatient mental health and substance abuse services, physician practices, community outreach education and wellness classes and programs, safety net clinics (for pediatrics, prenatal care, and HIV services), emergency and urgent care centers, outpatient physical therapy centers, outpatient surgery centers as well as home health services.

A number of Inova services such as heart and vascular, orthopedics, women's, pediatrics and cancer are recognized with distinction. Inova Fairfax Hospital is the only Level 1 Trauma Center in Northern Virginia. Four of the 5 Inova hospitals are designated by the Joint Commission as Primary Stroke Centers. Several Inova Hospitals are Magnet hospitals (a designation of nursing excellence awarded by the American Nurses Credentialing Center). In 2010 Inova Health System had 1,753 licensed beds, 95,616 hospital admissions, 369,264 ED visits, 549,000 outpatient visits, and 82,340 home care visits (Inova Health System, About Inova, 2011).

Reston Hospital Center

Reston Hospital Center is an expanding full-service medical and surgical hospital located in Reston Town Center, serving western Fairfax and eastern Loudoun Counties since 1986. Part of the Hospital Corporation of America (HCA) Virginia Health System, the hospital offers a full range of medical services, including 24-hour emergency care, maternal and child health, surgical services on both an inpatient and extensive outpatient basis, urological services including lithotripsy, cancer care with state-of-the-art radiation therapy, rehabilitation therapy programs, and a wide array of diagnostic

imaging capabilities. HCA also operates 2 freestanding outpatient surgical centers, located in Fairfax and Reston Town Center (Reston Hospital Center, 2011). In 2009 Reston had 187 licensed beds, 40 bassinets, 10, 935 admissions, and 43,439 patient days (Virginia Health Information, 2011).

Fort Belvoir Community Hospital

Fort Belvoir Community Hospital serves primarily active duty military. Fort Belvoir's original hospital opened in 1957 with 46 beds and was the only military inpatient facility in Northern Virginia. The Base Closure and Realignment Act of 2005 included the decision to close the Walter Reed Army Medical Center and expand the DeWitt Medical Center. The new 1.3 million square foot, 120-bed hospital opened in August of 2011. The facility was designed to consist of 4 ambulatory clinical centers, a 7-story inpatient tower, and 2 parking garages. The facility will feature single-patient rooms, an intensive care unit, state-of-the-art operating rooms, a cancer care center, a center for the treatment of musculoskeletal disorders, and a full range of primary care, medical and surgical subspecialties. It also has a new 12-bed inpatient behavioral health center (U.S. Army Medical Department DeWitt Health Care Network, 2011).

Mental Health, Substance Use and Intellectual Disability Services

Fairfax-Falls Church Community Services Board (CSB)

Established in 1969, the Fairfax-Falls Church CSB is the lead public agency for planning, organizing and providing services to persons who have a mental illness, intellectual disability, or a substance use disorder. Many individuals in the community use their own resources including insurance to obtain mental health services from private practice psychiatrists, licensed mental health providers, primary care physicians, private hospitals, and/or religious organizations. While the CSB accepts and depends on third-party and patient pay resources, it is generally the provider for those with a lower ability to pay. The CSB fee structure uses a sliding scale to determine the consumer's ability to pay (Fairfax County DMB, 2011).

CSB programs and services are directly operated or provided by private organizations licensed by the Virginia Department of Behavioral Health and Developmental Services. Service delivery is provided at 6 community outpatient mental health sites, more than 10 residential treatment facilities, and a 24-hour emergency services program. Recovery-oriented community-based services include: day support, residential, individual and group treatment, case management, and assertive community treatment (Fairfax County DMB, 2011).

Emergency mental health and substance services are provided to ensure the short-term safety for both the individual and the community, to assess and stabilize crisis situations, and to link individuals to services that address ongoing needs. These services are provided 24/7 at the Woodburn Center

and through the Mobile Crisis Unit. Emergency services were provided to 7,849 persons in FY 2010 (Fairfax-Falls Church CSB, 2011).

Figure 23: Characteristics of Persons Served, Fairfax-Falls Church CSB, FY 2009

		Alcohol & Drug Services	Mental Health Services	Intellectual Disability Services	Infant & Toddler Connection
Service Recipients (unduplicated)		5,136	11,318	2,685	2,374
Age	0-3				100%
	0-17	15%	19%	19%	
	18-22	18%	10%	17%	
	23-59	66%	63%	60%	
	60+	2%	8%	3%	
Gender	M	76%	53%	59%	67%
	F	24%	47%	41%	33%
Income	$0-9,999	46%	59%	89%	
	$10,000-24,999	28%	26%	7%	
	$25,000+	26%	15%	4%	
Race	Asian	6%	7%	13%	17%
	Black	19%	22%	13%	9%
	White	46%	48%	65%	64%
	Other	30%	23%	9%	9%
	Hispanic	28%	19%	14%	29%

Source: Fairfax-Falls Church CSB, 2011.

CSB Mental Health Services served 11,447 persons in FY 2010; their Alcohol and Drug Services program served 5,115 persons. The CSB has been serving an increasing number of individuals with co-occurring and intensive mental health and medical needs (Fairfax County DMB, 2011). In FY 2009, the majority of the services provided by the CSB were mental health services, provided to low-income individuals (less than $25,000 annually), between the ages of 23 and 59 (Fairfax-Falls Church CSB, 2011).

Dominion Hospital

Part of HCA Virginia Health System, Dominion Hospital is a specialized facility for the treatment of children, adolescents, and adults who suffer from debilitating mental health and substance use disorders (Dominion Hospital, 2011). Located in Falls Church, it had 100 licensed beds (70 staffed), 2,162 admissions, and 17,162 patient days in 2009 (VHI, 2011).

Area Health Workforce

The aging and growth of the U.S. population is expected to generate a 22 percent increase in new demand for physician services between 2005 and 2020. Growth in physician demand will be highest among specialties that predominantly serve those with chronic disease and the elderly (e.g., cardiology, internal medicine, and most surgical specialties). Demand could also increase even more with growing public expectations and the ability to pay for higher levels of care. Factors that may offset the growth in demand include improvements in physician productivity enabling physicians to care for a larger population, scientific advances that may contribute to improved health, and increased use of non-physician clinicians (i.e., Nurse Practitioners, Physician Assistants) (U.S. HHS, HRSA, Bureau of Health Professions, 2008).

As a result of national health reform legislation (the Patient Protection and Affordable Care Act), Medicaid enrollment is expected to grow by 16 million people across the U.S. by 2019, an increase of more than 25 percent. Given the current unwillingness of many primary care physicians (PCPs) to treat new Medicaid patients, policy makers are concerned that primary care capacity will not be adequate to meet projected increased demand (Cunningham, 2011).

Figure 24: Licensed Providers, Fairfax Community & Northern Virginia, 2010

Providers Licensed in Virginia	# in Fairfax Community	# in Northern Virginia*
Physicians (all specialties)	3,710	5,220
Audiologists	49	75
Nurse Practitioners	499	734
Clinical Nurse Specialists	70	99
Certified Nurse Anesthetists	154	211
Dental Hygienists	608	4,844
Dentists	1,136	1,561
Midwives	32	56
Podiatrists	54	90
Pharmacists	1,084	1,539
Physical Therapists	721	1,111
Physician Assistants	198	333
Psychologists	493	757
Optometrists	219	300
Speech Language Pathologists	326	566

*Northern Virginia in this table refers to Fairfax County, Falls Church City, Fairfax City, Prince William County, Manassas Park, Manassas City, Arlington County and Alexandria City.

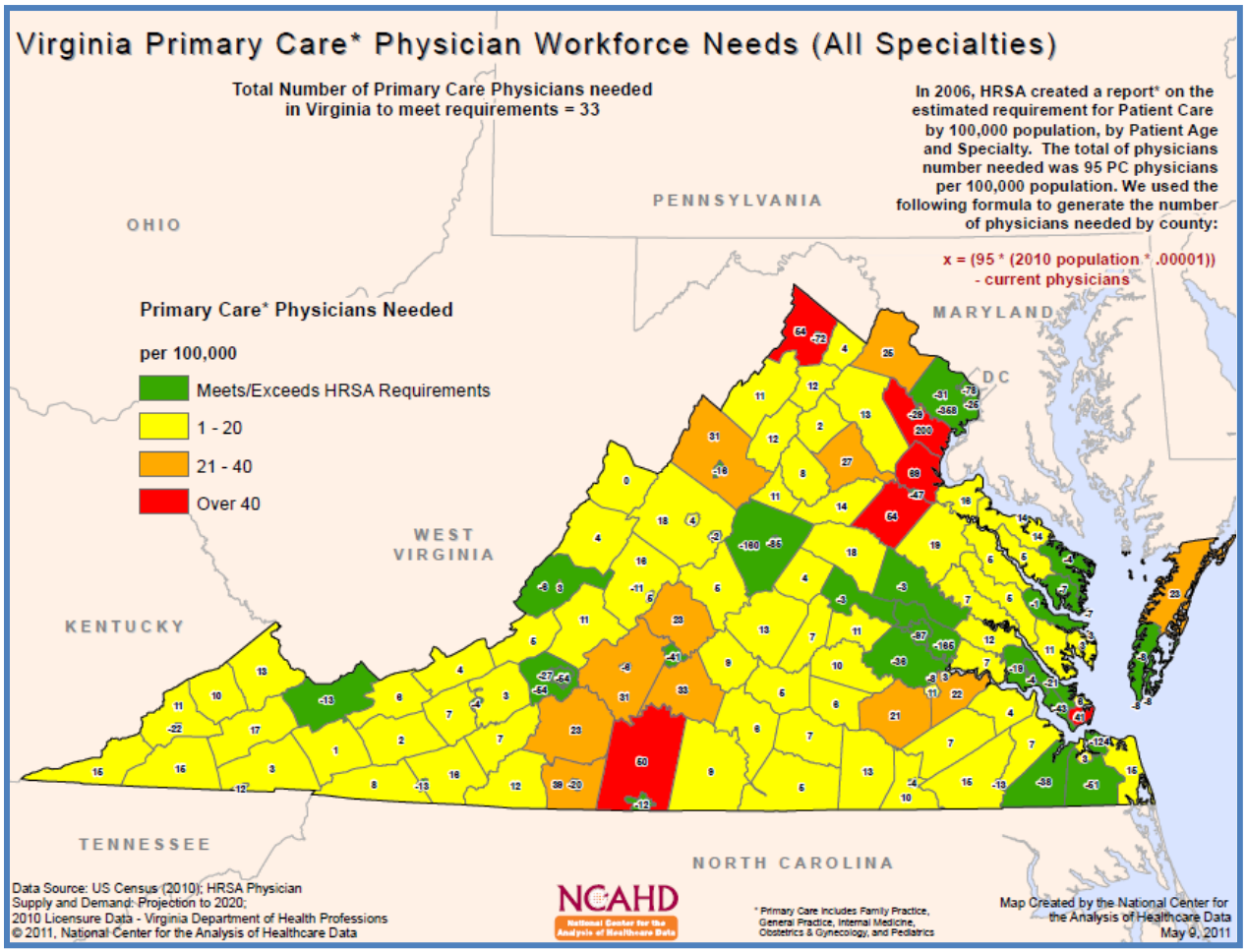
Source: NCAHD, 2010.

Through the National Center for the Analysis of Healthcare Data (NCAHD), the Virginia Department of Health Professions (VDHP) database of licensed professionals in Virginia was queried for this assessment. As a proxy for supply, the number of health-related licenses was analyzed for 15 categories of professionals listed in the previous figure. Note that licensure databases are not fully adequate to understand actual workforce participation and may have accuracy problems (deceased and retired licensees), but they do provide a baseline inventory that serves as a proxy measure for the supply of licensed professionals and as such are useful for planning considerations. Geospatial maps were developed to show the location of licensees in Fairfax County and the cities of Fairfax and Falls Church, as well as adjacent counties and municipalities in Virginia, the District of Columbia and Montgomery County, Maryland. Additional information on the Virginia Registered Nurse workforce was obtained from the VDHP Bi-Annual RN License Renewal Survey.

In 2010 the supply of health professionals in the region including Fairfax County, Fairfax City, and Falls Church City is comparable across the Washington Metropolitan Area. The region has a per-population ratio of physicians and mid-level providers similar to 2 other metropolitan areas in the state (Richmond and Hampton Roads areas). For primary care providers (PCPs), including physicians, nurse practitioners and physician assistants, the distribution by population and area is not as favorable as for physicians alone. This said, Northern Virginia fares better in having a more adequate supply of other licensed health professionals (e.g., nurses, occupational therapists, speech pathologists) than is found in most areas in the state, especially rural (NCAHD, 2010).

In 2010 the distribution of Virginia PCPs (family practice, general practice, pediatrics, and internal medicine) ranged from 0 - 8.71 PCPs per 2,000 population, with a mean of 1.42 per 2,000 population. The Fairfax Community had 1.71 - 2.86 PCPs per 2,000 population (NCAHD, 2008). The following figure illustrates the geographic distribution.

Figure 25: Distribution of Primary Care Physicians, Virginia, 2010

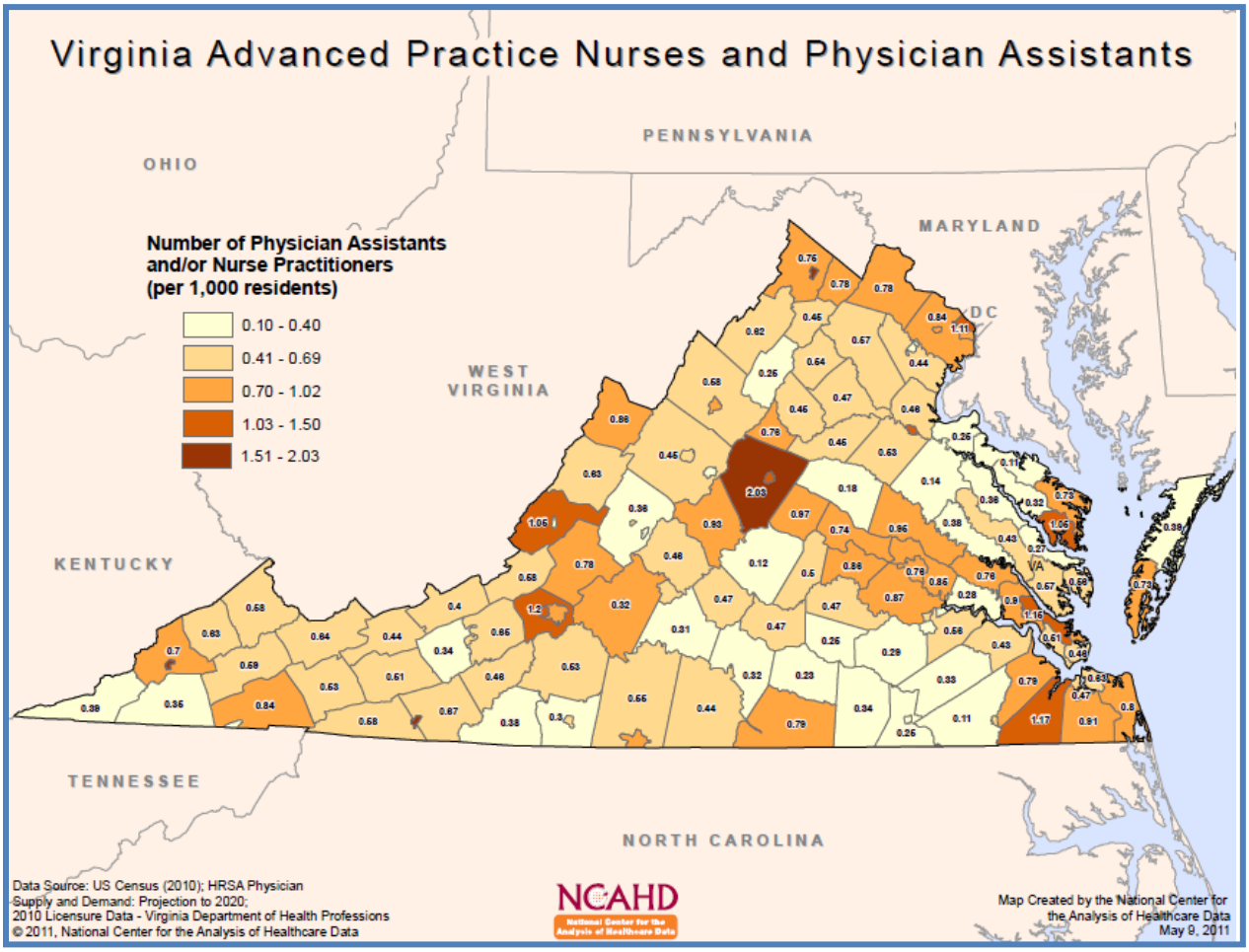


Source: NCAHD, 2011.

In 2010, 39 percent of all primary care physicians in the area were age 60 or older. This finding is troublesome as an aging physician workforce increases the requirement for new entrants to backfill losses from the workforce due to age-related work slowdown (individuals who go from full-time to part-time work) and retirement. Both healthcare reform and the growth in the aged population are anticipated to increase the demand for primary and selected specialty health care services (Cunningham, 2011).

The ratio of advanced practice nurses and physician assistants per 1,000 population in Virginia varied from 0.11 - 2.47 per 1,000 population, with the area ratio at 0.70 – 1.02, just above the state average of 0.67 per 1,000 residents (NCAHD, 2010). The following figure illustrates the geographic distribution.

Figure 26: Distribution of Advanced Practice Registered Nurses and Physician Assistants, Virginia, 2010

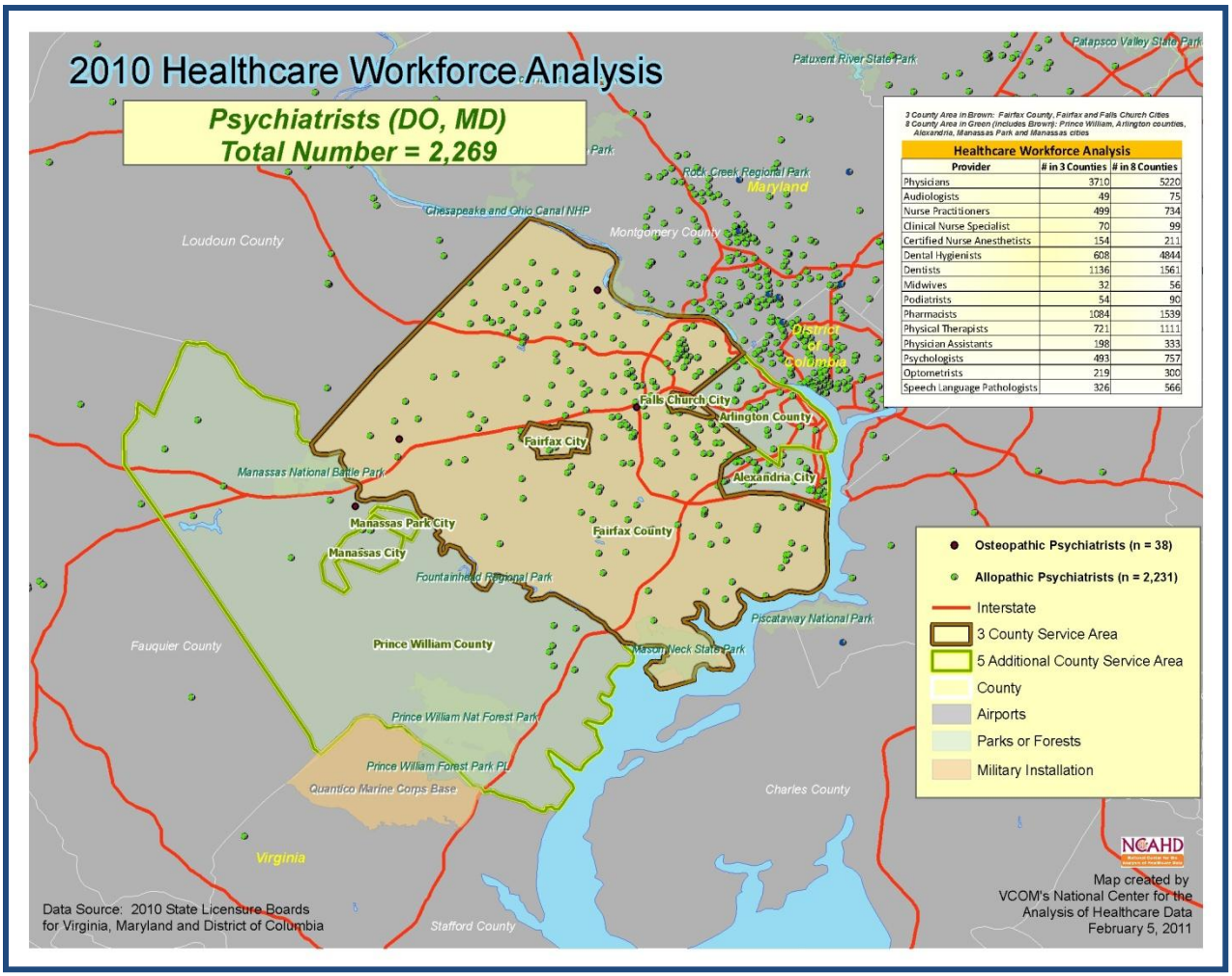


Source: NCAHD, 2011.

Dentists and dental hygienists, pharmacists, physical therapists and speech language pathologists are also distributed across the Fairfax Community, as well as the adjacent municipalities. There is no data to demonstrate the adequacy of this workforce given current population needs or future demand changes. Anecdotally, there are concerns about the adequacy of dentists and dental practices that provide services to low-income clients, as reported by safety net referral sources.

Likewise, the adequacy of the availability of mental health professionals (psychiatrists and psychologists) is concerning, even though objective data on supply adequacy is not known. The distribution of psychiatrists across the WMA is presented in the figure that follows (NCAHD, 2010).

Figure 27: Location of Psychiatrists, WMA, 2010



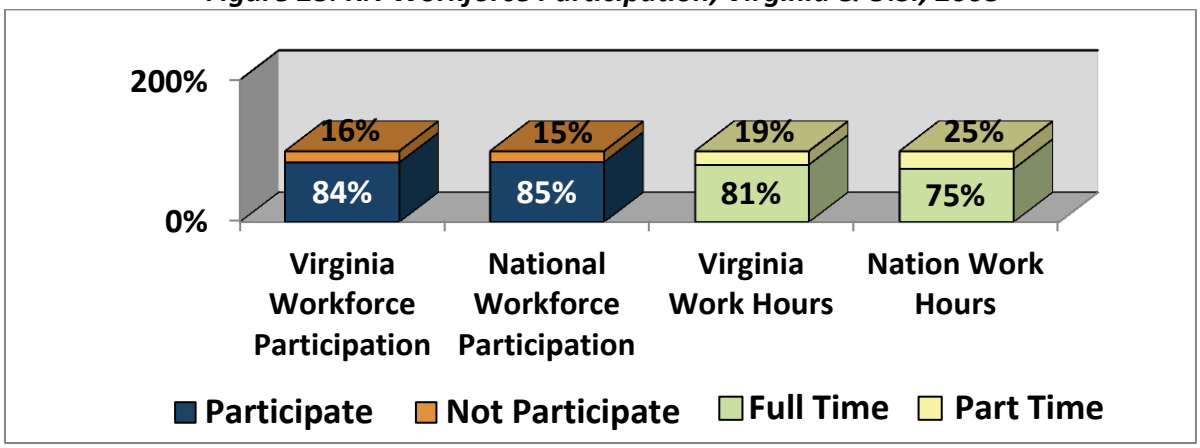
Source: NCAHD, 2011.

Key findings from the Bi-Annual RN License Renewal Survey indicate modest growth in both the supply and aging of Virginia's RN workforce. There were 88,846 RNs licensed in the Commonwealth of Virginia in 2008. Statewide, 80 percent of RNs were employed in nursing jobs, earning an average annual income of $56,960. The supply increase was influenced by modest increases in nursing school enrollment and graduations, more new licensees, and increased workforce participation from a high rate of full-time employment and retirement deferrals (VDHP, 2010).

The average age of RNs in Virginia is 47 years, similar to national trends (U.S. HHS, HRSA, Bureau of Health Professions, 2008). Half of all Virginia RNs are expected to reach age 65 by 2014, and 20 - 25 percent (18,248 - 22,810) are likely to reduce their work hours in preparation for future retirement. Beginning in 2015, a severe shortage in RN supply is expected to rapidly increase over time due to a higher demand for health services in Virginia as the population grows and ages (VDHP, 2010).

In 2008 the RNs with active Virginia licenses participated in the workforce at a rate slightly lower than national trends. However, RNs in Virginia's workforce were more likely to be employed full-time. Whether this trend continues after local economic conditions improve remains to be seen (VDHP, 2010).

Figure 28: RN Workforce Participation, Virginia & U.S., 2008



Source: VDHP, 2010; U.S HHS, HRSA, 2008.

Growth in the number of aged in Fairfax County suggests that there will be increased demand for health professionals, including those in specialty areas. Increased demand is also likely for providers who serve populations such as children, the chronically ill, and those with disabilities and/or mental disorders, in all settings (i.e., healthcare, social service, home, and community-based).

Community Safety Net Resources and Programs

An assortment of free and reduced-cost health services and resources are provided by a variety of public and private Northern Virginia healthcare entities. This section will highlight many programs serving as part of the community safety net. In addition to the "recognized" safety net, other local healthcare providers (e.g., private physicians) make substantial contributions to direct and subsidized care for area residents.

The current safety net system in Fairfax closely mirrors the one that was summed up well in *An Assessment of the Safety Net in Fairfax County, Virginia* (Nolan et al., 2004). Relevant findings from the study include:

- "Safety net providers in Fairfax County have successfully collaborated to improve the continuum of care offered to uninsured and underserved populations. Some organizations will operate independently, with no formal linkages to other providers."

- "Fairfax County funds and operates primary care clinics that provide comprehensive primary care services exclusively to uninsured county residents." However, only a portion of the need is met through this program.
- "Specialty care services are in very short supply for low-income and uninsured residents of Fairfax County."
- "Fairfax County residents who are either uninsured or covered by Medicaid have a particularly hard time obtaining dental services."

In 2010, the Community Health Care Network enrolled 26,197 adults. Primary care visits totaled 51,447.

Key areas of change from the health safety net landscape described in the 2004 *Assessment* are the addition of an active free clinic for adults and children (Jeanie Schmidt Free Clinic); greater integration of behavioral health care in most primary care settings; improved access to behavioral health care services; and greater collaboration among providers. Furthermore, there has been a growing recognition that the safety net programs and services operate within the larger context of social determinants of health.

The Homeless Healthcare Program (HHP) is an outstanding example of the type of collaboration and integrated service delivery that has grown in the Fairfax. The HHP provides outreach to the unsheltered homeless. Four mobile medical teams, comprised of nurse practitioners (medical and psychiatric), outreach workers, and mental health/substance abuse outreach workers, in addition to a part-time psychiatrist, are dispatched to areas of the county where the unsheltered homeless live. After assessing each client, teams provide physical and behavioral healthcare, as well as referral and transportation to medical care, mental health and alcohol and drug services, and dental resources.

In general most safety net providers, with the exception of the federally qualified health centers in neighboring jurisdictions, must limit service to people who have incomes at or below 200 percent of the federal poverty level. In contrast, Medicaid limits its maximum income to 80 to 133 percent of poverty maximum (depending on the program) and the State Children's Health Insurance Program to 185 percent of poverty.

Health Care Services and Pharmaceutical Assistance Programs

Fairfax County provides several programs for uninsured residents funded through a combination of federal, state, and local government sources. The FCHD provides direct clinical services for communicable disease (e.g., TB) and maternity services. Established in 1989, the Community Health Care Network (CHCN) delivers comprehensive primary care and facilitates access to specialty services for uninsured and low-income individuals and families (at or below 200 percent of FPL). Services are provided through a contract provider at 3 centers operating in the southern, eastern, and northern

areas of the county. Approximately $13.5 million in medications are obtained from pharmaceutical companies on behalf of the CHCN clients.

Fairfax County Department of Family Services, in collaboration with the non-profit Northern Virginia Family Service, manages the Medical Care for Children Partnership (MCCP), which arranges for healthcare for children by enrolling them in Kaiser-Permanente or at a private doctor's office. DFS also manages the Kaiser-Bridge program, enrolling adults and their families in Kaiser-Permanente for a nominal monthly premium.

Inova Health System (IHS) is the largest provider of direct care for HIV (through its Juniper Program) and obstetrics and gynecology services (InovaCares Clinic for Women) for uninsured residents at or below 300 percent of the federal poverty level. IHS also provides pediatric services for children with Medicaid (99 percent) and uninsured (1 percent) at the InovaCares Clinic for Children. In 2010, Inova hospitals in Fairfax County provided approximately $118 million in charity care (Inova Health System, Annual Community Benefit Report, 2010).

In neighboring jurisdictions, federally qualified health centers (FQHC), which have no income, insurance, or resident restrictions, provide care to some residents of the Fairfax community. Of the 3 FQHCs, the Greater Prince William Community Health Center serves very few people who live in the Fairfax Community. However, the Loudoun Community Health Center estimates that 20 percent of its clients live in the Fairfax Community, while Alexandria Neighborhood Health Services, Inc. (ANHSI) estimates that 30 percent of its clients live in the Fairfax Community (Northern Virginia Health Service Coalition, 2011). The mission of FQHCs is to provide comprehensive primary health care services through a coordinated and affordable community-based, culturally competent health and human services model. FQHC services also include medical management of chronic illnesses, mental health counseling, dental services, free or discounted medications.

In addition to the pharmaceuticals that are provided by the safety net clinics, several pharmacy safety net services assist Northern Virginia residents in obtaining prescription medications. Founded in 2006, NOVA Scripts Central, Inc. (NSC) is a nonprofit, collaborative pharmacy, whose mission is to provide life-saving medications and quality pharmaceutical care for the uninsured in Northern Virginia. NSC collaborates with safety net clinic partners to provide both medication and pharmacist counseling. NSC's model is unique in Virginia and in the metropolitan region. Currently, access to the program is restricted to patients receiving care at safety net clinics (NSC, 2011).

The Fairfax Accessible Medication Program, operated by Northern Virginia Family Service (NVFS), provides low-income, uninsured adults taking medications for chronic illnesses with assistance in applying to pharmaceutical companies' patient assistance programs. Through participation in a

patient assistance program, individuals can obtain their chronic medications either free or at a greatly reduced cost from the drug manufacturer (NVFS, 2011).

For patients with HIV, the Virginia AIDS Drug Assistance Program (ADAP) is available. ADAP pays the Medicare Part D drug costs. To be eligible, participants must be diagnosed with HIV/AIDS, be Medicare eligible, and enrolled in both ADAP and a Medicare Part D plan.

During 2010 and 2011, a new pharmacy resource for county residents was made available through the Fairfax-Falls Church Community Services Board (CSB) pharmacies located at their Gartlan and Woodburn Centers. These programs are made possible by various Pharmacy Assistance Programs and through Medicare Part D for eligible CSB clients. Also through the CSB, intellectual disability, mental health, and substance abuse services are financed through a combination of fees and third party reimbursement as well as federal, state, and local funds.

On the horizon is a new, non-governmental program entitled Program of All-Inclusive Care for the Elderly (PACE). This program will be available to persons who are at least 55 years old that meet a nursing facility level of care, are Medicare and Medicaid eligible, and living in the community. PACE services include: primary care, medications, occupational /physical therapy, personal care, durable medical equipment, hospitalization, companion care, and transportation to services.

A key focus of the Fairfax Community's safety net system is assisting eligible individuals and families to access available services. The Partnership for Healthier Kids program (PHK) is one of several community health-improvement initiatives of the Community Health Division of IHS. PHK has two main school-based programs: an Access to Care program and a Prevention program. The Access to Care program is designed to identify uninsured children and connect them to an appropriate and affordable source of quality healthcare services. The Prevention program objectives are to provide a variety of health education programs designed to increase the knowledge and improve skills to make healthy choices in the areas of nutrition and physical activity (Inova, PHK, 2011).

The mission of the DFS Health Access Assistance Team (HAAT) is to ensure that people without health insurance have access to and use the most appropriate healthcare resources available to them, with a focus on connections to and optimal utilization of a "medical home." This is achieved by simplifying access to federal, state, and local health care services through coordinated points of entry in safety net settings.

Dental Safety Net Resources

Although relatively few in number, private dental care providers and clinics provide a variety of dental services for low-income residents in particular. The Dental Health Care program at the Fairfax County

Health Department was established to provide dental services to children whose families are income eligible and/or when treatment is not available in the private sector.

The Medical Education Campus Restorative Dental Clinic at Northern Virginia Community College focuses on encouraging patients to know and understand their oral health status and dental care needs. This clinic partners with Northern Virginia Family Service (NVFS) and the Northern Virginia Dental Society Dental Clinic.

The Northern Virginia Dental Clinic provides comprehensive oral health care services throughout the Northern Virginia region. The program goal is restoring an individual to an infection-free and functional state of oral health, as well as educating each individual about the importance of maintaining good oral health. This clinic partners with local government jurisdictions and social service agencies designated by each jurisdiction. Referrals are through a designated social service agency. The program operates two clinic sites, one located in Fairfax County. The residents served are age 18 and over with annual incomes at or below 200 percent of the FPL. Services are offered at a flat rate of $40 per visit with an additional charge for prosthetics and biopsies. In FY 2010 the clinic provided care to 453 new patients, in addition to 1,970 return visits and 134 emergency visits. The Oral Health Access Services Program by NVFS provides residents with access to reduced cost dental services.

Emergency Medical System

The Fairfax County Fire and Rescue Department (FRD) is an all-hazards combination career and volunteer organization that has been recognized internationally for its rescue and disaster response team capabilities and contributions. The department provides fire suppression, emergency medical, technical rescue, hazardous materials, water rescue, life safety education, fire prevention, and arson investigation services. Emergency medical services include advanced life support response by paramedic engines and medic transport units, as well as first responder services by an all EMT workforce and a fleet of all response vehicles. The organization participates in mutual aid agreements with surrounding jurisdictions in the District of Columbia, Maryland, and Virginia.

Fairfax County Fire and Rescue is divided into seven geographical battalions, with field personnel deployed 24 hours/day. Its staffing is comprised of approximately 1,383 career staff, 333 full-time and seasonal civilians, and 265 operational volunteers, based in 37 fire stations across the county. FRD operates 37 Advanced Life Support (ALS) transport units, and 4 Basic Life Support (BLS) transport units within the Operations Bureau, as well as 37 ALS-staffed Engine Companies, 14 Truck Companies and 8 Rescue Companies. Of the 1,648 uniformed personnel, 1,236 are certified as BLS Emergency Medical Technician (EMT-B) providers, and 412 are certified as ALS Emergency Medical Technician providers (EMT-Intermediate or EMT-Paramedic) (M. Ardike, personal communication, 2010).

Fairfax County Fire and Rescue is the largest of the agencies licensed by the Commonwealth of Virginia to run emergency medical services. The 911 system is the primary source of emergency transport requests. The number of transports varies with call volume but is expected to increase with regional population growth and changing demographics. From 2009 to 2010, it provided between 46,000 and 48,000 emergency transports per year. While FRD garners high marks for the quality of its services, transit and response times are adversely affected by traffic congestion, particularly at certain times (M. Ardike, personal communication, 2010).

In the future, analysis of data on system utilization (primarily non-emergent uses of the EMS system) is important for public health planning considerations. This additional data on emergency services utilization could identify gaps in areas of transportation and education among underserved communities and populations.

Part II: Health Service Utilization

The data in this section regarding the utilization of hospitals, nursing homes, and emergency departments were provided by the Health Systems Agency of Northern Virginia (HSANV, 2011).

Acute Care Hospitals: Inpatient Hospital Use

As described earlier in this report, Northern Virginia has 10 licensed acute care hospitals; 9 operational and 1 under development (Stone Springs Medical Center in Loudoun County). These facilities are licensed to operate 2,840 beds. Fairfax County is home to 5 of these acute care community hospitals (excludes psychiatric facilities) operating 1,496 beds. Of the 10 hospitals, 8 are nonprofit facilities; 2 (Reston Hospital Center and Stone Springs Medical Center) are for-profit operated by Hospital Corporation of America (HCA).

Hospitalization Rates

Hospital use levels in Northern Virginia and Fairfax County have been low for decades and are expected to remain low for many years. An analysis of inpatient hospital utilization for the region was conducted using patient day and discharge figures from 2000 and 2009. The differences in those rates from 2000 to 2009 confirmed that both patient days and discharge rates have decreased over the last decade. This is largely the result of favorable demography and the shift in recent years to outpatient care in lieu of inpatient services.

Decreases in discharge rates over the last decade in the Fairfax Community have been more substantial than national and statewide declines. As a result, the discharge rate (59.3 per 1,000 persons) is far below rates for the nation (117.0 per 1,000 persons) and the state (102.0 per 1,000 persons). In addition, the number of patient days (days of hospital care) per 1,000 persons used by residents of the Fairfax Community was less than half the state and national rate in 2009.

Hospital Bed-to-Population Ratio

In 2010 Fairfax County had an acute care hospital bed-to-population ratio of 1.4 beds per 1,000 persons, compared to 2.3 per 1,000 persons in Virginia and 2.6 per 1,000 persons in the U.S. The county ratio is about 39.1 percent below the state ratio and about 46.2 percent below the national ratio. Although the ratio is comparatively low, occupancy trends indicate that there is adequate capacity.

Hospital capacity for 2010 and utilization for 2009 is presented for all hospitals in Northern Virginia in the table that follows. As demonstrated by bed use levels, average occupancy levels in Northern Virginia and Fairfax County are well below the usual planning targets of 80 to 85 percent occupancy.

Figure 29: Hospital Capacity (2010) and Use (2009,) Northern Virginia

Northern Virginia Acute Care Community Hospitals, 2009				
Hospital	**Licensed Beds**	**Patient Days**	**Discharges**	**Occupancy**
Inova Alexandria Hospital	318	69,493	14,396	59.9%
Inova Fair Oaks Hospital[1]	182	45,703	12,527	68.8%
Inova Fairfax Hospital[1]	833	265,588	50,993	87.4%
Inova Loudoun Hospital	183	42,108	10,355	63.0%
Inova Mount Vernon Hospital[1]	237	56,954	8,234	65.8%
Prince William Hospital	170	40,523	9,723	70.3%
Prince William Hospital-Haymarket[2]	N/A	N/A	N/A	N/A
Reston Hospital Center[1]	187	43,439	10,981	63.6%
Sentara Potomac Hospital	183	41,660	10,895	62.4%
Stone Spring Medical Center	164	N/A	N/A	N/A
Virginia Hospital Center	342	79,716	17,050	67.8%
Northern Virginia Total	2,799	685,184	145,154	72.1%
Fairfax County Total	1,439	411,684	82,735	75.2%
Fairfax County Facilities % of Region	51.4%	60.1%	57%	-

[1] Located in Fairfax County.
[2] Authorized in 2010; to open with 60 beds in 2015.
Source: VHI, 2010.

Ambulatory Care Sensitive Conditions

An Ambulatory Care Sensitive Condition (ACSC) refers to a medical problem that may be preventable or at least manageable with appropriate, timely care in a clinic or medical office. Some examples include some diabetes complications, hypertension, and adult asthma. In most cases, behavior change or timely intervention permits the condition to be managed effectively on an outpatient basis and thus avoid hospitalization. It is thought that ACSCs may be an indication of limited access to primary care; health care delivery problems; and/or other problems related to system utilization. High ACSC hospitalization rates are generally considered to be an indication of community healthcare system failure. Because of its importance to understanding system efficiencies and adequacy, an analysis of hospitalization and ACSCs was conducted.

Hospitalization for the standard ACSCs among residents in the Fairfax Community is comparatively low and decreasing. As with all hospital admissions, hospitalization for ACSC conditions increases sharply with age. Unlike admissions in the aggregate, ACSC admissions are typically higher among males than females.

Figure 30: Hospital Discharges for Ambulatory Care Sensitive Conditions, Northern Virginia Residents by Jurisdiction, 2000, 2009

Jurisdiction	2000			2009			% Change 2000-2009
	Pop.	Discharges	Rate per 1,000	Pop.	Discharges	Rate per 1,000	
Alexandria	129,424	1,623	12.5	150,006	1,475	9.8	-21.6%
Arlington	189,527	1,614	8.5	217,483	1,174	5.4	-36.6%
Fairfax/Falls Church/ Fairfax City	1,006,803	8,067	8	1,074,227	7,920	7.4	-8.0%
Loudoun	173,897	1,506	8.7	301,171	2,020	6.7	-22.6%
Prince William/Manassas/ Manassas Park	329,524	3,437	10.4	427,722	3,840	9	-13.9%
Total ACSC Discharges	1,829,175	16,247	8.9	2,170,609	16,429	7.6	-14.8%
All Discharges	1,829,175	122,713	67.1			59.6	-11.2%
All Medical/Surgical Discharges (Excludes Maternity or Psychiatric)	1,829,175	86,639	47.4			41.3	-12.9%
ACSC as Percent of Total Discharges		13.2%			12.7%		-4.0%
ACSC as Percent of Medical/Surgical Discharges		18.8%			18.3%		-2.2%

Source: HSANV, 2010.

In the table above, the number and rate of ACSC discharges from Virginia hospitals for Northern Virginia residents are shown for 2000 and 2009. Collectively, these data indicate that ACSCs accounted for 13.2 percent of total discharges and 18.8 percent of medical-surgical discharges in 2000. The percentages decreased to 12.7 percent of total discharges and 18.3 percent of medical-surgical discharges in 2009.

ACSC discharges for residents of Northern Virginia and the Fairfax Community were comparatively low. The area rate was marginally lower than the regional rate in both 2000 (8.0 per 1,000 persons) and 2009 (7.4 per 1,000 persons). Across Northern Virginia, the decrease in ACSC discharges was greater than the overall decrease in total discharges between 2000 and 2009.

Overall, the hospital resource utilization data may be an indication that residents of the Fairfax Community are generally healthier than persons of comparable age, requiring substantially less inpatient hospital care than most populations. The shift to outpatient care in lieu of inpatient care has advanced more rapidly in this region than in many other communities.

Emergency Department Utilization

The following data describe hospital emergency department (ED) use by Fairfax County residents. Data are from Inova emergency facilities (within and outside Fairfax County), Virginia Hospital Center (Arlington), and Prince William Health System. Data from Reston Hospital Center (northwestern Fairfax County) were requested but not provided at the time of publication.

During the last decade, hospital emergency department use rates increased by more than 10 percent nationally and more than 14 percent statewide. Throughout Northern Virginia, there were about 550,000 emergency department visits in 2008, about half of which were by Fairfax County residents. The use rate was about 258 visits per 1,000 residents. This compares with 397 visits per 1,000 persons statewide and 404 visits per 1,000 nationally. Overall, the Fairfax County emergency service use rate is comparatively low, about 36 percent less than Virginia and U.S. visit rates.

The emergency department is the single largest source of hospital admissions at all local hospitals.

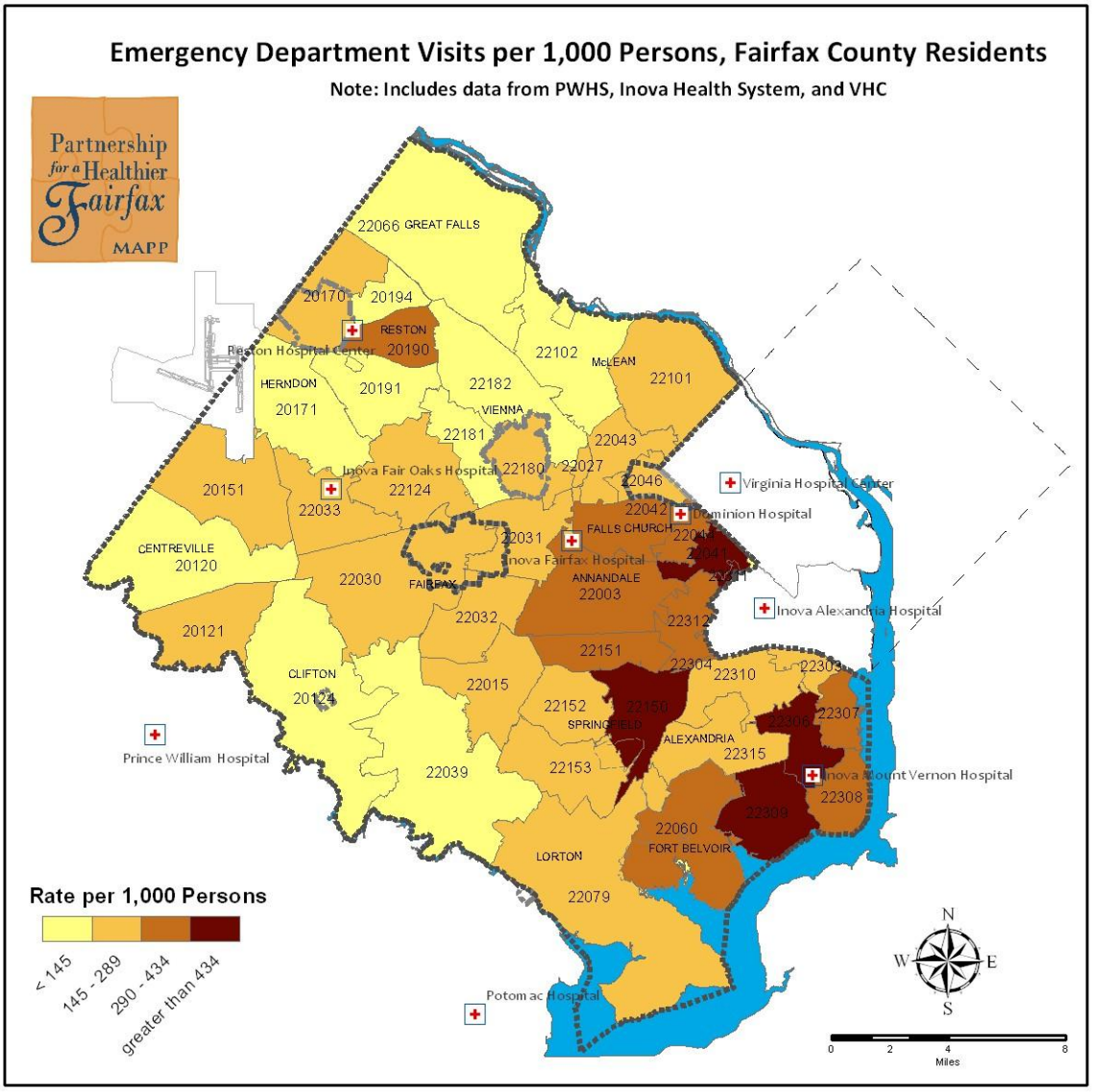
The percentage of hospitalized patients who are admitted through emergency departments has increased steadily for about 2 decades. Nationwide about 45 percent of those admitted to acute care hospitals are first seen in the emergency department (Ryan et al., 2010). Locally, the percentage has increased from about 35 percent to nearly 60 percent.

Utilization by Zip Code

Use of hospital emergency medical services varies widely within the Fairfax Community. Use rates by zip code range from fewer than 100 visits per 1,000 residents to more than 500. Use rates are much higher along the Route 1 corridor, in communities inside the Capital Beltway in central Fairfax, and in the Reston-Herndon area. Among those, 4 zip codes in the Route 1 corridor and Bailey's Crossroads areas (areas with a larger number of low-income and uninsured households) had use rates comparable to national and statewide rates.

This analysis excludes three small population zip codes with unusually low rates, identified as "outliers." The 2009 rates ranged from 31 visits per 1,000 persons to 579 visits per 1,000 persons.

Figure 31: Emergency Department Visits, Fairfax County Residents by Zip Code, 2009



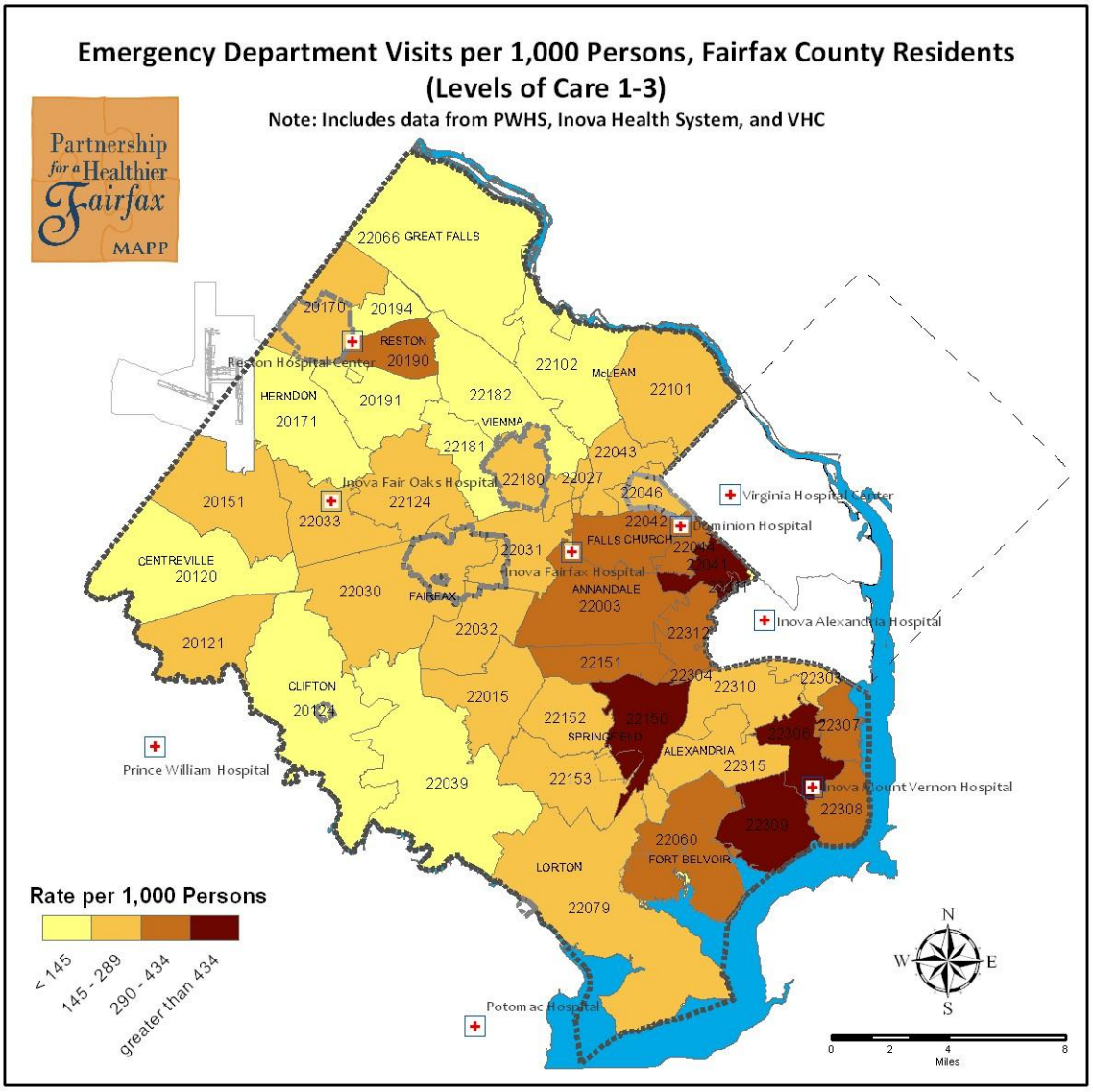
Source: HSANV, 2010.

Unnecessary Use

There is much concern about unnecessary or inappropriate emergency department use. Many argue that increased emergency department usage reflects a reliance on hospital emergency services for non-emergent or basic care services that would be more appropriately delivered in other service settings such as primary care offices or clinics. The evidence suggests that inappropriate use in Northern Virginia and the Fairfax Community is significant, but is not as substantial as might be perceived.

Between one-fourth and one-third of Fairfax County residents who visit emergency departments do not require emergency care and could have their medical problem or concern resolved in a less intensive setting. Approximately 68,000 of the 257,000 ED visits (26 percent) in 2009 (for which data are available), were found to have conditions that did not require emergency department care.

Figure 32: Emergency Department Visits, Levels of Care 1-3, Fairfax County Residents by Zip Code, 2009



Source: HSANV, 2010.

There is wide geographic variation in the use of hospital emergency departments by those with basic medical problems and concerns. As with emergency department use generally, the substantially

higher use rates for basic medical services was seen for residents from communities along the Route 1 corridor and in communities within the Capital Beltway in central and southeastern Fairfax County.

Overall, available data indicate that use in the Fairfax Community is relatively low as compared to other communities. The geographic variation in use is substantial, with higher use rates in zip code areas with a greater percentage of low-income residents. Although the percentage of emergency department visits that are deemed "inappropriate" is only about 26 percent, about 70,000 Fairfax County resident hospital emergency department visits annually could be accommodated in a more appropriate and less costly setting, under optimal circumstances.

Long-Term Nursing Care: Nursing Home Use

Northern Virginia has 34 licensed long-term care nursing facilities; 33 operational and 1 under development (a 60-bed nursing unit authorized for Ashby Ponds Retirement Community in Loudoun County). Commercial nursing homes account for 24 of these facilities, while the other 10 are nursing facilities in continuing care retirement communities (CCRC). Overall, these facilities are licensed to operate 4,462 beds.

Of these 34 facilities, 10 nursing homes and 5 nursing facilities in CCRCs operate a total of 1,964 beds in Fairfax County. Fairfax County has about 44 percent of the region's nursing homes and licensed beds which is fully adequate to meet demand. Average regional occupancy in 2009 was about 86 percent; average occupancy of Fairfax County facilities was about 82 percent. Average occupancy of CCRC nursing homes is much lower.

The expressed need, actual demand, and use of nursing homes in Northern Virginia and Fairfax County have been low for decades and are expected to remain comparatively low for many years. The Fairfax County nursing home use rate (days of nursing home care) is 17.5 per 1,000 persons, which is substantially lower than state (31.7 per 1,000) and national (35.7 per 1,000) rates. Use rates have been decreasing steadily for more than 25 years. Low use rates are largely, but not entirely, a function of favorable demography and the availability of alternative sources of care, such as homes for adults, assisted living, home health care, and respite care.

Figure 33: Nursing Home Bed to Population Ratios, 2008-2009

Jurisdiction	Population (65 years & older)	Licensed Beds	Beds per 1,000 (65 Years & older)	Fairfax County Ratio Comparison
Fairfax County	97,733	1,964	20.1	-
Northern Virginia	174,580	4,462	25.6	0.785
Virginia	896,747	32,126	35.8	0.561
U.S.	39,238,573	1,666,797	42.5	0.473

Source: HSANV, 2010.

As illustrated in the table above, nursing home bed-to-population ratios in the region are comparatively low. The Fairfax County ratio is about half the ratios for Virginia and the U.S. Although the bed-to-population is comparatively low, occupancy trends indicate there is adequate capacity.

Admission to Nursing Homes

Hospitalization and age are increasingly important factors for nursing home admissions. The percentage of patients admitted directly from acute care hospitals into nursing homes grew from 53 percent in 1998 to 68 percent in 2006. Trends also indicate the average age at admission has been increasing steadily for more than 2 decades. For example, from 2002 to 2006, the average age at admission increased from 76.4 years to 78.2 years, an increase of about 2.4 percent. In Northern Virginia, the rate of nursing home admissions per 1,000 persons more than doubles for those age 80 or older.

These changes in source and age of admission are likely the result of a shift of potential nursing home patients with fewer and less severe limitations and disabilities to other service settings. As a result of this shift, current and prospective nursing home patients are older, more debilitated, and have a larger number of chronic conditions than was seen in prior years.

Overall, the analysis of nursing home utilization may be an indicator that residents of the Fairfax Community have a wider array of alternatives to nursing home care than do residents of most other communities. The region has a more attractive mix of long-term care services, especially CCRCs and other adult care residences, than most other communities.

Assisted Living Facilities

The Virginia Department of Social Services (VDSS) defines Assisted Living Facilities (ALFs) as "non-medical residential settings that provide or coordinate personal and health care services, 24-hour supervision, and assistance for the care of four or more adults who are aged, infirm or disabled." ALFs are different from nursing homes. A nursing home, defined by VDSS, is "a facility in which the primary function is the provision, on a continuing basis, of nursing services and health-related services for the treatment and inpatient care of two or more non-related individuals." ALFs are regulated by the VDSS while VDH regulates nursing homes.

Fairfax has 51 assisted living facilities (ALFs): 46 in Fairfax County; 2 in Falls Church; and 3 in the City of Fairfax. The licensed capacity (essentially equivalent to beds in nursing homes) is 3,674 units in Fairfax County, 117 in Falls Church and 140 in Fairfax City. Combined, the 51 ALFs have a licensed capacity of 3,931 residents. Compared with the jurisdiction's 15 nursing homes and 1,964 nursing home beds, the ratio of licensed assisted living beds to licensed nursing home beds is about 2.0 to 1.0. This represents an increase from a ratio of 1.3 to 1.0 a couple of decades ago.

Overall use/demand for ALFs has increased by more than 50 percent over the last two decades, whereas aggregate nursing home use/demand has changed very little. One explanation for the change in ALF capacity is the movement of "intermediate care" residents from nursing homes into assisted living facilities or other residential settings. Historical data to measure the magnitude or characteristics of this shift are unavailable, as are reliable usage and demographic information for ALF residents.

Anecdotally, there appears to be a shortage of affordable assisted living facilities within the region, and there is no payment program similar to Medicaid or Medicare for ALF services. Regionally, VDSS administers the Auxiliary Grant (AG) Program. The AG provides financial assistance to recipients of Supplemental Security Income (SSI) and/or aged, blind, or disabled individuals residing in a licensed assisted living facility or an approved adult foster care home. However, objective data on ALF use or the number and distribution of Auxiliary Grants is unknown. Given the lack of data, it is difficult to quantify the adequacy and availability of assisted living facilities for low-income populations.

CHAPTER 4: CAUSES OF DEATH AND INJURY

Examining causes of death can provide information about the health of the community. Attention can be paid to the conditions that have the highest mortality rates when planning for program development. The 2009 Community Health Status Indicators (CHSI) presented state, county, and selected city data on a variety of health indicators, including causes of death. Fairfax County data (with comparisons to peer counties), and limited data with comparisons for Fairfax City and Falls Church City were reviewed for this report. State-level data on causes of death were obtained from the Virginia Department of Health (VDH Summary, 2010).

Leading Causes of Death

The leading causes of death for adults in Fairfax County as reported in the 2009 CHSI are found in the figure below. Findings indicate differences by age group and some differences by race and ethnicity. The leading causes of death for all age groups followed national trends and were consistent with those seen in CHSI-identified peer counties.

Figure 34: Leading Causes of Death by Age and Race, Fairfax County, 2009

Age 15-24	White	Black	Other	Hispanic
Injuries	21%	13%	*	22%
Homicide	*	17%	*	22%
Suicide	17%	17%	*	*
Cancer	11%	*	*	11%
Age 25-44	**White**	**Black**	**Other**	**Hispanic**
Cancer	15%	*	*	17%
Injuries	25%	25%	33%	23%
Heart Disease	*	11%	14%	13%
Suicide	13%	*	20%	*
Age 45-64	**White**	**Black**	**Other**	**Hispanic**
Cancer	47%	37%	45%	37%
Health Disease	18%	17%	18%	17%
Age 65+	**White**	**Black**	**Other**	**Hispanic**
Heart Disease	26%	22%	22%	21%
Cancer	24%	29%	27%	31%

Source: U.S. HHS, CHSI, 2009.

* = no report: fewer than 20 deaths in race/ethnicity and age group or less than 10% of the deaths.

According to VDH, the total number of deaths in Fairfax County (all ages) in 2009 was 4,577, comprising 7.8 percent of all deaths in Virginia. The unadjusted death rate in Fairfax County for all

ages was 441.1 per 100,000 population, significantly lower than the statewide unadjusted rate of 740.6 per 100,000 population. Between 2000 and 2009, the total unadjusted death rate in Fairfax County increased by 2.5 percent, while the total unadjusted death rate in Virginia decreased (VDH, Health Statistics, 2009). While unadjusted death rates are presented in order to compare across years, age-adjusted death rates provide more relevant information for planning considerations.

Figure 35: Unadjusted Death Rate by Causes of Death, All Ages, Virginia & Fairfax County, 1999, 2005, 2009

Causes of Death	Virginia			Fairfax County		
	1999	2005	2009	1999	2005	2009
Total Deaths per 100,000 pop	808.2	761.7	740.6	430.2	431.5	441.1
Malignant Neoplasm rate	195.2	182.7	178.5	125	119.2	118.2
Diseases of Heart	223.8	186.7	169.1	99.8	95.3	90.6
Cerebrovascular Diseases	60.1	48.4	41.0	28.1	24.8	25.6
Chronic Lower Respiratory Diseases	39.6	38.3	38.1	18	17.6	16.3
Primary Hypertension & Renal Disease	6.3	7.5	7.0	2.7	3.0	5.0
Unintentional Injury	32	34.5	32.8	15.2	18.6	17.4
Suicide	11.9	11.4	12.2	6.6	8.1	10.5
Alzheimer's Disease	13.4	20.5	21.9	6.6	9.2	10.6
Chronic Liver Disease	7.6	7.5	8.3	3.8	3.0	4.2
Diabetes Mellitus	21.7	21.6	19.7	11.5	10.2	10.3
Nephritis and Nephrosis	15.2	16.7	19.3	7.9	10.2	10.4
Septicemia	16.0	15.8	17.2	8.8	10.5	12.0
Influenza and Pneumonia	23.4	19.3	15.6	13.6	10.4	8.6

Source: VDH, Health Statistics, 2009.

Annual death data are somewhat useful for comparing health outcomes for particular reference groups, but publicly reported death rates are not necessarily very useful for understanding opportunities for improving health. In this area, regional differences in the causes of death are less helpful than other indicators in understanding the health of the community. The annual age-adjusted death rates for Northern Virginia and the surrounding areas are typically lower than the death rates seen at the state level.

In 2009, the top 5 leading causes of death (age-adjusted) for adults in Fairfax County were malignant neoplasms/cancer, cardiovascular heart disease, cerebrovascular disease (such as stroke), chronic lower respiratory diseases, and unintentional injuries. Chronic lower respiratory diseases included asthma, allergies, chronic obstructive pulmonary disorder, bronchitis, and emphysema. Findings for Fairfax County and the cities of Falls Church and Fairfax (where data were available) appear in figure below (VDH, Vital Health Statistics, 2009).

Rates are per 100,000 population. Age-adjusted rates are adjusted to the U.S. Census 2000 population, and are only for comparison with other sources of death data standardized to the same population.

Figure 36: Age-Adjusted Death Rate by Causes of Death, Fairfax Community, 2009

Cause	Fairfax County	Falls Church City	Fairfax City
Total Deaths per 100,000 pop	539.5	444.8	687
Malignant Neoplasm	138.7	130.9	161.1
Diseases of Heart	113.2	128.3	154.2
Cerebrovascular Diseases	33.2	21.9	48.3
Chronic Lower Respiratory Diseases	21.3	19.1	6.8
Primary Hypertension & Renal Disease Deaths	6.1	6.1	0
Unintentional Injury	20.0	0	37
Suicide	10.7	9.5	22.5
Alzheimer's Disease	14.6	12.4	20.9
Chronic Liver disease	4.2	0	3.8
Diabetes Mellitus	10.3	4.1	21.9
Nephritis and Nephrosis	13.4	0	21.9
Septicemia	15.2	12.5	29.7
Influenza and Pneumonia	11.4	9.5	28.3

Source: VDH, Vital Health Statistics, 2009.

The death rate for individuals age 65 and over was markedly lower in the county than the state. The expected death ratio for Northern Virginia and Fairfax County was low across all age, race and gender demographic groups (VDH, Vital Health Statistics, 2009).

For all years from 1999-2008 the 3 leading causes of death in Virginia were: diseases of the heart, malignant neoplasm/cancer, cerebrovascular diseases. Among these leading causes of death, the burden of deaths was disproportionally higher in Blacks. Additionally, Blacks in Virginia had the highest rates of deaths for 5 other health conditions (diabetes, nephritis, nephrosis, septicemia, and HIV/AIDS), as well as for homicides. Whites had the highest rates of death for the following 5 causes of death: unintentional injury, chronic lower respiratory disease, Alzheimer's disease, influenza/pneumonia, and suicide (VDH, Vital Health Statistics, 2009).

Among Virginians age 35 and older, Blacks had a higher rate of death from malignant neoplasm than Whites. Among 55-64 year old residents, Blacks had close to twice the death rate per 100,000 for diabetes mellitus (59.6) and diseases of the heart (331.4) compared to Whites. Among those age 65-74, Blacks had higher rates of death from heart disease (40 percent higher), cerebrovascular disease (57 percent higher), and diabetes (74 percent higher) when compared to Whites. When considering all causes of death for those 25-64 years of age, Blacks had significantly higher death rates than Whites in Virginia (VDH, Vital Health Statistics, 2009).

Injury

Unintentional injuries are injuries that can be classified as accidents. They may result from car accidents, falls, and unintentional poisonings among others. In many cases, these types of injuries—and the deaths resulting from them—are preventable.

In Virginia injuries are the leading cause of death for residents between the age of 1 and 40. There were 3,798 deaths from intentional and unintentional injuries in Virginia. There were 49,503 injury-related hospital discharges in 2009, resulting in Virginians spending a total of 255,543 days in the hospital. Injuries in the Commonwealth resulted in substantial healthcare costs with hospitals billing over $ 1.5 billion for related services (VDH, Virginia injury and violence data, 2011).

The 2009 CHSI report found the death rate per 100,000 from unintentional injury for Fairfax County favorable compared to peer counties (15.6). However, the rates for Fairfax and Falls Church Cities were less favorable compared to peers: 36.9 and 43.1 respectively (U.S. HHS, CHSI, 2009). While having data on the local community is useful, it should be noted that there are concerns about the accuracy of this finding due to the source of data and statistical methods to produce the estimates for small areas.

Motor Vehicle Deaths

The death rate per 100,000 by motor vehicle injuries in Fairfax County (6.1) and Fairfax City (25.4) was lower than observed in peer counties. The Falls Church City death rate (31.1) was higher than in peer counties (U.S. HHS, CHSI, 2009). While unfavorable findings indicate an opportunity to examine the issue further, as noted earlier, the sample size for Falls Church City was small and therefore potentially less reliable.

Homicide and Assault

The 2009 CHSI report found that the death rate per 100,000 by homicide in Fairfax County (2.3) to be lower when compared with peer counties. No data were reported for Falls Church City. The Fairfax City homicide death rate (9.5) was less favorable when compared to peer counties. While unfavorable findings indicate an opportunity to examine the issue further, as noted earlier, the sample size for Fairfax City was small and therefore potentially less reliable.

CHAPTER 5: HEALTH BEHAVIORS AND CHRONIC DISEASE

Risk factors, such as tobacco use, obesity, and poor nutrition, as well as chronic diseases, such as heart disease, stroke, cancer, diabetes, and arthritis, are among the most common, costly, and preventable of all health problems in Virginia and the Fairfax Community. The nation's leading killers are heart disease and cancer, and persons with particular risk factors are at increased risk of disease and mortality. According to the 2009 CHSI, the leading contributors to premature death in Fairfax County include:

- Obesity: 15.1 percent of the population
- Few fruits and vegetables eaten daily: 71.5 percent
- No exercise: 14.6 percent
- Smoking: 14.7 percent
- High blood pressure: 19.6 percent

These conditions may negatively influence the development and trajectory of disease as well as increase health care costs, especially in vulnerable populations. As such, each of these risk areas is analyzed further below, where additional data were available.

Historically, obesity and tobacco have been framed as personal responsibility issues (e.g., Personal Responsibility in Food Consumption Act of 2005). This historical approach has targeted personal education and individual behavior change. However, new prevention and control strategies are focusing on environmental and policy factors with some success.

Obesity

The obesity epidemic continues to be one of the most urgent health problems facing Virginia today. The prevalence of individuals who are overweight or obese in the Commonwealth has increased steadily over the past 2 decades; 61.7 percent of adult Virginians (3,464,900) are overweight or obese. Among adults in the Fairfax Health District, 58.1 percent or 445,100 individuals identified themselves as overweight or obese in 2006-2008. Fairfax ranks seventh out of 35 health districts in Virginia on this indicator (VDH, CDPC, 2010).

The percentage of children and adolescents who are obese has also risen significantly in the last 2 decades. Research indicates that obesity is associated with significant health problems in children and is an early risk factor for adult morbidity and mortality (NIH, National Heart, Lung and Blood Institute, 1998). The 2007 National Survey of Children's Health (NSCH) found that nearly 31 percent of Virginia's youth age 10 - 17 are overweight or obese; 15.7 percent were classified as overweight; and 15.2 percent were classified as obese.

Obesity is viewed as a significant risk factor for the development of a number of chronic illnesses, resulting in excess individual medical costs of approximately $1,429 per year (CDC, VitalSigns, 2010).

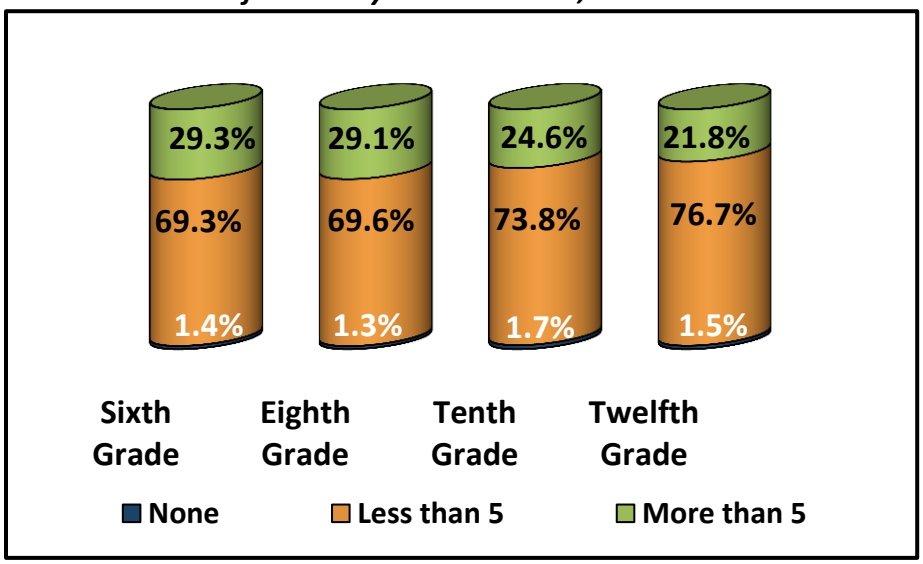
The National Institutes of Health (1998) has linked obesity to the following diseases and conditions: cancer, coronary heart disease, dyslipidemia, gynecological problems, hypertension, liver and gallbladder disease, osteoarthritis, sleep apnea, respiratory problems, stroke, and type 2 diabetes.

The continued increase in childhood and adult obesity highlight the limitations of current education and individual behavior change strategies. Research is focusing on and demonstrating that obesity prevention and control efforts are limited by a number of external forces that have substantial impact on individual behavior. For example, lack of access to full-service grocery stores, the high cost of healthy foods, and lack of access to safe places to exercise and play could reduce the likelihood of healthy eating and active lifestyles. To effectively reduce the incidence of obesity, both behavioral and environmental factors must be addressed (Khan et al., 2009).

Nutrition

Eating few fruits and vegetables each day has been identified as one of the risk factors for premature death. In Fairfax County, 71.5 percent of residents report eating few fruits/vegetables each day (U.S. HHS, CHSI, 2009). This finding is corroborated by VDH's Division of Chronic Disease Prevention and Control (CDPC), which found that 509,800 adults, or 74.6 (68.7-79.8) percent of residents reported eating fewer than 5 fruits and vegetables per day. This is a higher percentage and less favorable finding than that reported for the state of Virginia, and places the Fairfax District sixteenth among Virginia's 35 health districts (VDH, CDPC, 2010).

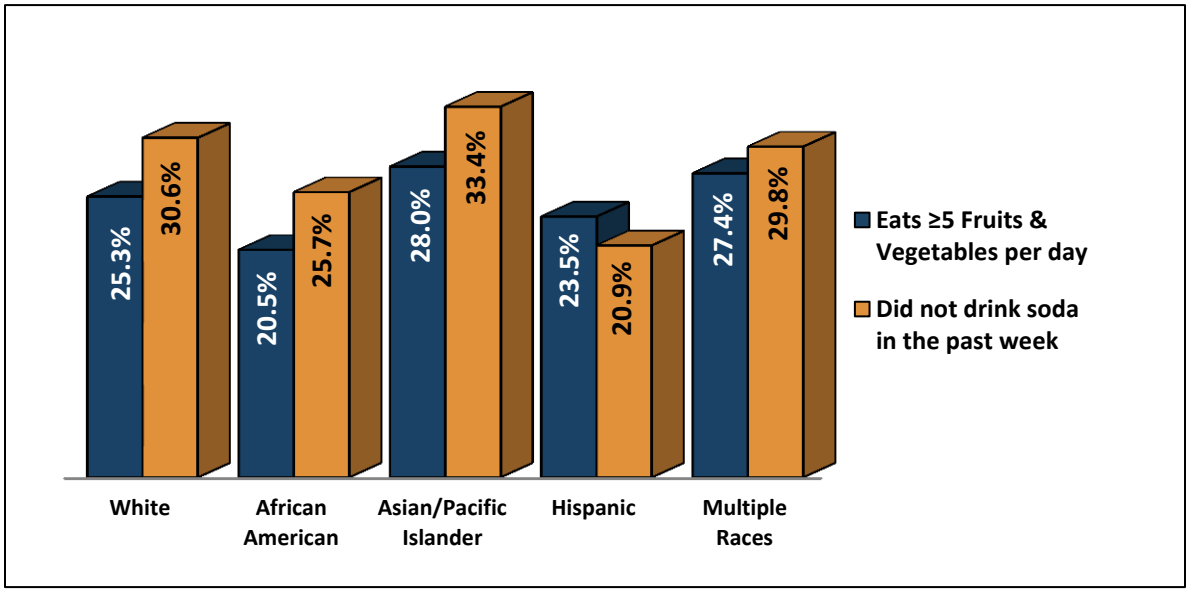
Figure 37: Fruits & Vegetables Eaten Daily by Student Grade, Fairfax County Public Schools, 2009



Source: Fairfax County DNCS, 2010.

Healthy eating behaviors as reported on the *2009 Fairfax County Youth Survey* varied by grade, sex, and race/ethnicity. The percent of students who eat 5 or more fruits and vegetables per day decreases as grade level increases: 29.3 percent for sixth graders, 29.1 percent for eighth graders, 24.6 percent for tenth graders and 21.8 percent for twelfth graders. High school seniors (69.0 percent) and sixth graders (67.9 percent) are less likely than eighth (73.5 percent) or tenth (70.5 percent) graders to drink sodas. With regard to gender, female students were more likely to be trying to lose weight, less likely to eat fruits and vegetables, and less likely to drink sodas than male students (Fairfax County DNCS, 2010).

Figure 38: Fruits and Vegetables Eaten Daily by Race/Ethnicity, Fairfax County Public Schools, 2009



Source: Fairfax County DNCS, 2010.

With regard to race and ethnicity, African American and Hispanic students are more likely to consume sodas and are less likely to eat 5 or more fruits and vegetables a day than their White and Asian/Pacific Islander peers (Fairfax County DNCS, 2010).

School Nutrition

In accordance with the Child Nutrition and Woman, Infants, and Children (WIC) Reauthorization Act of 2004, the wellness policy for Fairfax County Public Schools promotes student health and aims to help reduce childhood obesity. Registered dietitians plan FCPS meals to provide one-third of the students' Recommended Dietary Allowances, containing no more than 30 percent of the calories from fat and 10 percent of the calories from saturated fat when averaged over a week. In addition, FCPS food regulations have never allowed the sale of soft drinks and candy during the school day.

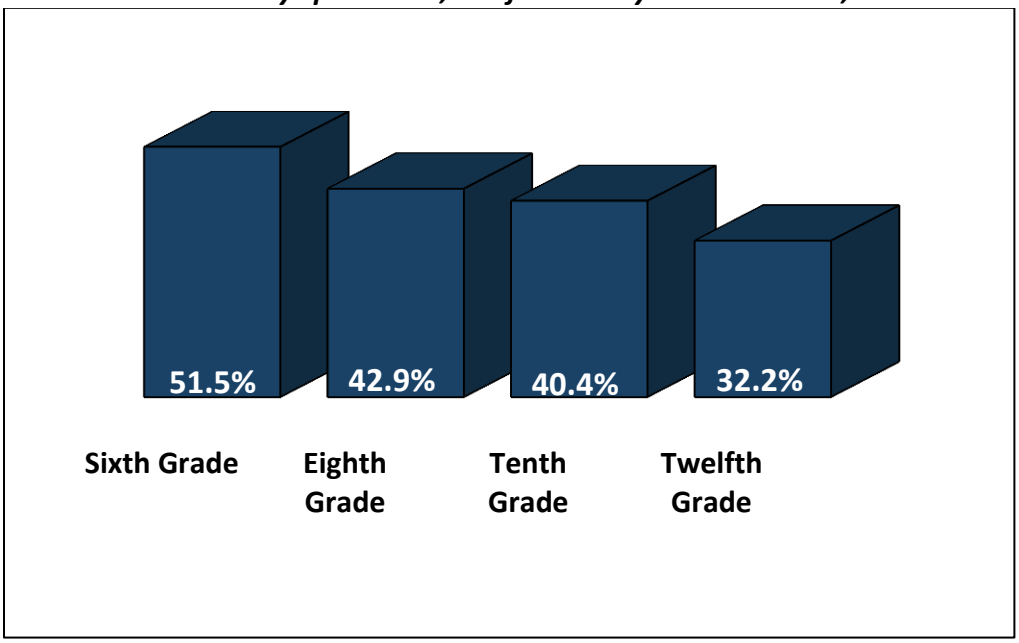
However, these items are offered from vending machines during after-school activities on high school campuses (FCPS, Frequently asked questions, 2010).

Physical Activity

The relationship between physical activity, obesity, and health is well documented. Virginia mirrors the rest of the nation with regard to its residents not getting enough physical activity. In the Fairfax Health District in 2005-2007, there were approximately 348,500 adults who were physically inactive, representing 53.6 percent of the population. Although this figure is comparable to the rate of physical inactivity reported overall in Virginia (49.8 percent), it is notable that the Fairfax Health District ranked unfavorably in this category, twenty-ninth out of the 35 health districts (VDH, CDPC, 2010).

The *2007 National Survey of Children's Health* (NSCH) indicates about 35 percent of Virginia's youth ages 6 - 17 have limited physical activity during the week (3 days or fewer of physical activity). Of those, 9.8 percent of youth report no physical activity, and 25.6 percent report 1 to 3 days of physical activity during the week.

Figure 39: Students Physically Active for at Least 60 Minutes 5 or More Days per Week, Fairfax County Public Schools, 2009



Source: Fairfax County DNCS, 2010.

The *2009 Fairfax County Youth Survey* finds that county students have higher levels of physical activity than students nationally. While positive, it also finds that the percentage of students who report being physically active (at least 60 minutes per day on 5 or more days during the past week)

decreases with grade level. About half of sixth grade students reported being physically active as compared to 42.9 percent of eighth graders, 40.4 percent of tenth graders, and 32.2 percent of twelfth. Males students are more likely to be physically active, 48.1 percent of male and 29.1 percent of female eighth, tenth, and twelfth graders are physically active at least 60 minutes per day 5 or more days per week. Sixth graders are more active than their older peers with 55.6 percent of males and 47.2 percent of females being physically active (Fairfax County DNCS, 2010).

Use of TV, computers, electronic gaming, and communication devices can contribute to decreased physical activity. Fairfax County youth watch less television than their peers nationally but engage in significantly more non-academic "screen-time," which includes the use of computers, electronic games, and communication devices. Only 24.4 percent of Fairfax County youth watch 3 or more hours of television per day compared with 32.8 percent of youth nationwide. However, 32.1 percent of Fairfax County youth play video games or use the computer for something other than schoolwork for 3 or more hours per day compared to 24.9 percent of youth nationwide. When time spent either watching television, playing video games or using the computer for something other than schoolwork is considered together, 53.3 percent of Fairfax County eighth, tenth, and twelfth graders spend at least 3 hours per school day doing these activities, and 22.5 percent spend 5 or more hours (Fairfax County DNCS, 2010).

Time spent watching television, playing video games, and using the computer for non-academic purposes increases between sixth and eighth grade and then decreases in tenth and twelfth grade. Forty-eight percent of sixth grade students spend 3 or more hours watching television, playing video games and using the computer for non-academic purposes compared to 56.9 percent of eighth graders, 52.7 percent of tenth graders and 50.2 percent of twelfth graders. Males spend more time doing these activities than females, but the largest variation occurs between racial/ethnic groups. Nearly two-thirds of African-American (65.6 percent) and Hispanic (64.6 percent) youth in grades 8, 10, and 12 spend 3 or more hours per school day watching television, playing video games, and using the computer for non-academic reasons. In comparison, less than half of White (48.5 percent) and Asian (48.4 percent) youth in grades 8, 10, and 12 spend this much time engaged in these activities (Fairfax County DNCS, 2010).

Tobacco Use

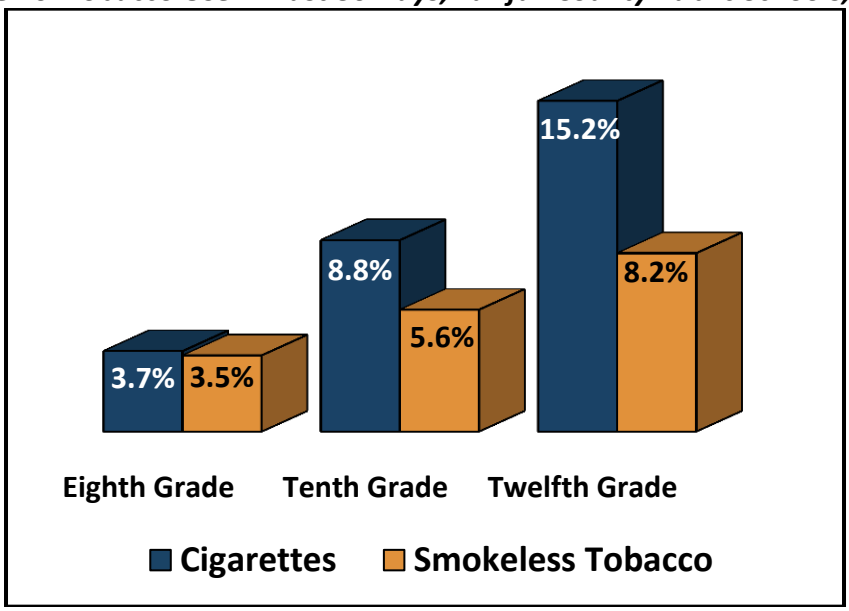
Tobacco use is well recognized as a leading contributor to premature death and disease and, therefore, is an important community health indicator. The HHS 2009 CHSI identified 14.7 percent of Fairfax County residents as smokers. The *2007 National Survey of Child Health* (NSCH) identified 25.8 percent of Virginia's children as living in a household where someone smokes.

The percent of adult residents who have ever smoked, currently smoke, and those that are allowed to smoke at home and/or at work are available for the years 2006-2008. During that time period, the Fairfax Health District had 258,400 adult residents who had ever smoked, or 32.2 percent of the population, as compared to 42.3 percent in Virginia. Adults who smoked at that time represented 9.3 percent of Fairfax Health District residents (74,500 individuals) and 18.1 percent of the state population. These favorable findings rank Fairfax as number 1 among all Virginia health districts on the lowest percent of residents who ever smoked and currently smoke (VDH, CDPC, 2010).

The number of Fairfax Health District residents who report being allowed to smoke at home is 90,700, or 13.0 percent of the population. This is compared to 1,304,600 statewide, or 24.1 percent of Virginians. In Fairfax Health District, 64,200 individuals report being allowed to smoke at work, or 15.9 percent of residents; Virginia has 684,700 persons, or 25.1 percent. These relatively low levels of smoking rank Fairfax Health District second across health districts for those allowed to smoke at home and at work (VDH, CDPC, 2010).

According to BRFSS 2004-2005 data, 3.4 percent of Virginia adults used smokeless tobacco (e.g., chew, snuff, dip). A greater percentage of men (6.8 percent) than women (0.3 percent) used smokeless tobacco during this time period. Over one- third (38.1 percent) of smokeless tobacco users had tried to quit unsuccessfully in the 12 months prior to the survey. An additional 12 percent of Virginians were former users of smokeless tobacco (VDH, Virginia Tobacco Use Control Project, 2010).

Figure 40: Tobacco Use in Past 30 Days, Fairfax County Public Schools, 2009



Source: Fairfax County DNCS, 2010.

Fairfax County students are less likely to smoke cigarettes than students nationally. Among students, 3.7 percent of eighth graders, 8.8 percent of tenth graders, and 15.2 percent of twelfth graders had smoked cigarettes in the past 30 days. Although the use of smokeless tobacco products during the past 30 days is slightly lower for Fairfax County students than with peers nationally, smokeless tobacco product use has increased among Fairfax County students since 2001. In 2001, 3.2 percent of eighth, tenth and twelfth grade students had used a smokeless tobacco product during the past 30 days, compared to 5.8 percent in 2009 (Fairfax County DNCS, 2010).

Smoking is a difficult public health concern to address; there are many influencing forces, including home, work, school, neighborhood environments, policies, media, culture, food and beverage industry practices, agriculture, and healthcare trends. Current prevention and control strategies focus on external forces including public policy and environmental health interventions, which can shape individual behavior and possibly reduce smoking (Chang et al., 2004; Frieden et al., 2005).

Chronic Disease

The social and economic cost and consequences of chronic disease on quality of life, productivity, healthcare expenses, and life expectancy are a growing concern among public policy makers, community members and employers. According to the American Diabetes Association Cost Calculator, diabetes alone was estimated to cost Virginia about $4.4 billion in 2006. These costs include excess medical costs and lost worker productivity.

For this assessment, chronic disease rates for diabetes, asthma, high blood pressure, high cholesterol and arthritis were obtained from the *Chronic Disease in Fairfax Health District 2010* report (based on BRFSS data from 2005-2008).

Figure 41: Chronic Disease Rates, Fairfax Health District & Virginia, 2005-2008

Chronic Condition	Fairfax Health District	Virginia	Health District Rank (1-35)
Adults with diabetes	4.6%	7.8%	3
	36,800	454,800	(Lower than state average)
Adults with asthma	8.4%	8.6%	17
	67,000	498,500	(Not significantly different)
Adults with high blood pressure	22.9%	28.0%	4
	161,600	1,576,400	(Not significantly different)
Adults with high cholesterol	40.1%	38.1%	23
	248,300	1,716,100	(Not significantly different)
Adults with arthritis	23.5%	27.2%	10
	160,600	1,539,200	(Not significantly different)

Source: VDH, CDPC, 2010.

CDC estimates that 1 in 3 people in the U.S. could develop diabetes during their lifetime (2004) based on assumptions about population aging and diversification. This forecast is important to consider because the estimates indicate the county's population will continue to age and diversify following national trends.

Although chronic disease indicators in the Fairfax Community are generally more favorable than found across the state, when considered in conjunction with the leading causes of death and the cross-cutting conditions related to obesity and smoking, these findings indicate a need for targeted behavior change and health-improvement strategies for a number of sub-populations.

Alzheimer's, Dementia, and Parkinson's Diseases

Because of the aging population, information on selected age-related diseases was considered, especially trends related to Alzheimer's disease. It is the leading cause of dementia in older populations. An estimated 5.4 million Americans of all ages have Alzheimer's disease, including 5.2 million people age 65 and older (Herbert et al., 2003), and 200,000 individuals under age 65 who have younger-onset Alzheimer's (Alzheimer's Association, 2011). While a source of data on the burden of this disease locally is not available, the Alzheimer's Association reports that nationally 1 in 8 people age 65 and older (13 percent) has Alzheimer's disease, and nearly half of people age 85 and older (43 percent) have the disease. Of those with the disease, an estimated 4 percent are younger than 65, 6 percent are between 65 and 74, 45 percent are 75 to 84, and 45 percent are 85 or older (Alzheimer's Association, 2011).

According to the *Environmental Threats to Healthy Aging* report (Stein et al., 2008), the risks for Alzheimer's and Parkinson's in particular may be reduced if environmental contributors are addressed. The lifetime influences of environmental factors on 2 of the most common degenerative diseases of the brain include common diet, toxic chemical exposures, inadequate exercise, and socioeconomic stress. The report draws attention to several specific environmental risk factors in the development of dementia, Alzheimer's disease, and Parkinson's disease. It noted particular concern about environmental exposures to lead, air pollution, and pesticides as possible contributors to the incidence of these diseases as well as the trajectory of the disease after diagnosis.

In April 2011 an NIH Consensus Panel released new guidelines on the diagnosis and care of Alzheimer's disease dementia (the first in 27 years) with revised clinical diagnostic criteria and care guidelines (NIH, 2011). These guidelines are important for improving the quality of care and quality of life for a growing number of individuals and families living with the disease at early, middle, and late stages.

CHAPTER 6: BEHAVIORAL HEALTH AND DISABILITIES

Mental health problems include broad categories, such as mood disorders, anxiety disorders, developmental disorders, personality disorders, and thought disorders. Accessing quality mental health services is difficult for many people but often more so for people with low incomes. Compared with coverage for the treatment of physical health conditions, private insurance has generally been more restrictive in coverage of mental health services.

Adult Mental Health

While Virginia does not track mental health conditions other than suicides, the annual Behavioral Risk Factor Surveillance System (BRFSS) reports the percentage of adults who have frequent poor mental health days (defined as 14 or more "poor mental health" days within the past month). From 2006-2008, 9.3 percent of adults in Virginia reported having frequent poor mental health days, while in Fairfax Health District the figure was 3.8 percent, the most favorable percentage among Virginia health districts (VDH, CDPC, 2010).

Youth Mental Health

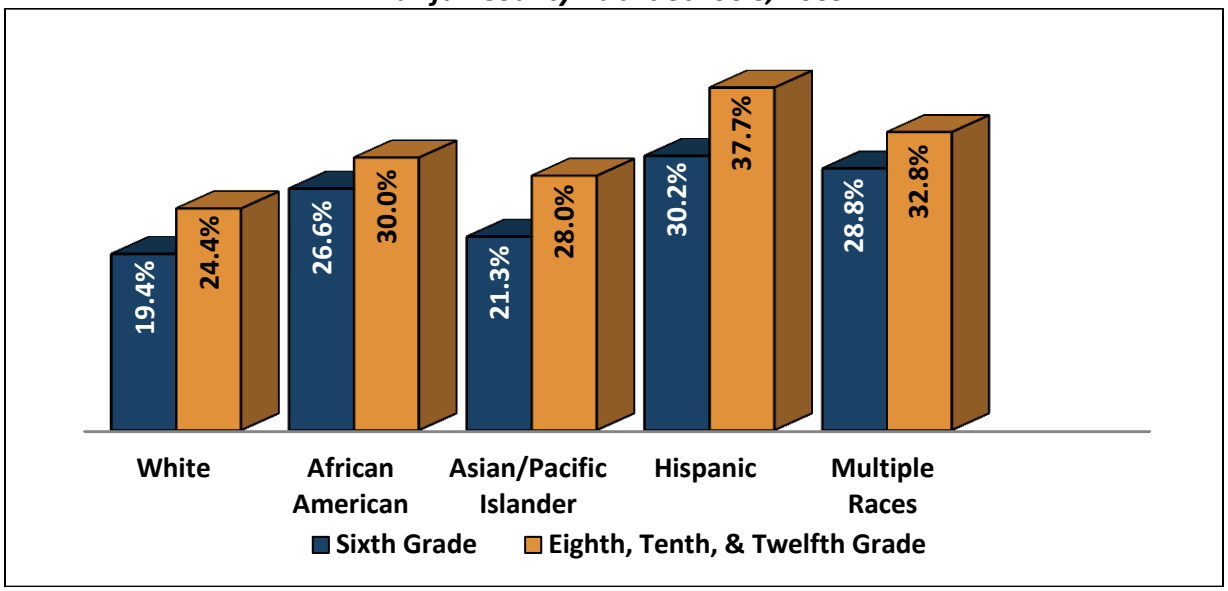
The annual *Fairfax County Youth Survey* includes a number of assessments relating to mental health (including depression) and its effects on the county's young people. Overall, the rate of students reporting depression and suicide consideration was lower in 2009 than in previous survey years. However, this rate is higher than the national rate. Nearly 3 out of every 11 respondents reported feeling "so sad or hopeless almost every day for 2 weeks or more in a row that they stopped doing some usual activities." Older students were more likely to report being depressed than younger students; 23.0 percent of sixth graders, 25.2 percent of eighth graders, 29.2 percent of tenth graders and 30.2 percent of twelfth graders reported feeling sad or hopeless for 2 weeks or more (Fairfax County DNCS, 2010).

Consistent with national trends, females and racial/ethnic groups other than Whites are more likely to report mental health issues. In sixth grade, there are small differences between the percent of female (23.6 percent) and male (22.4 percent) students reporting depression. Among eighth, tenth and twelfth grade students these differences were more marked. Nearly a third of eighth, tenth, and twelfth grade females reported being depressed, compared to 23.4 percent of the males (Fairfax County DNCS, 2010).

Hispanic or Latino students were the most likely to report feeling depressed; nearly 38 percent of eighth, tenth and twelfth graders and 30.2 percent of sixth graders. White students were the least likely to report feeling depressed. Among White students, fewer than a quarter of eighth , tenth and

twelfth graders and 19.4 percent of sixth graders reported feeling depressed (Fairfax County, DNCS, 2010).

Figure 42: Students Who Reported Feeling "Sad and Hopeless" by Race/Ethnicity, Fairfax County Public Schools, 2009



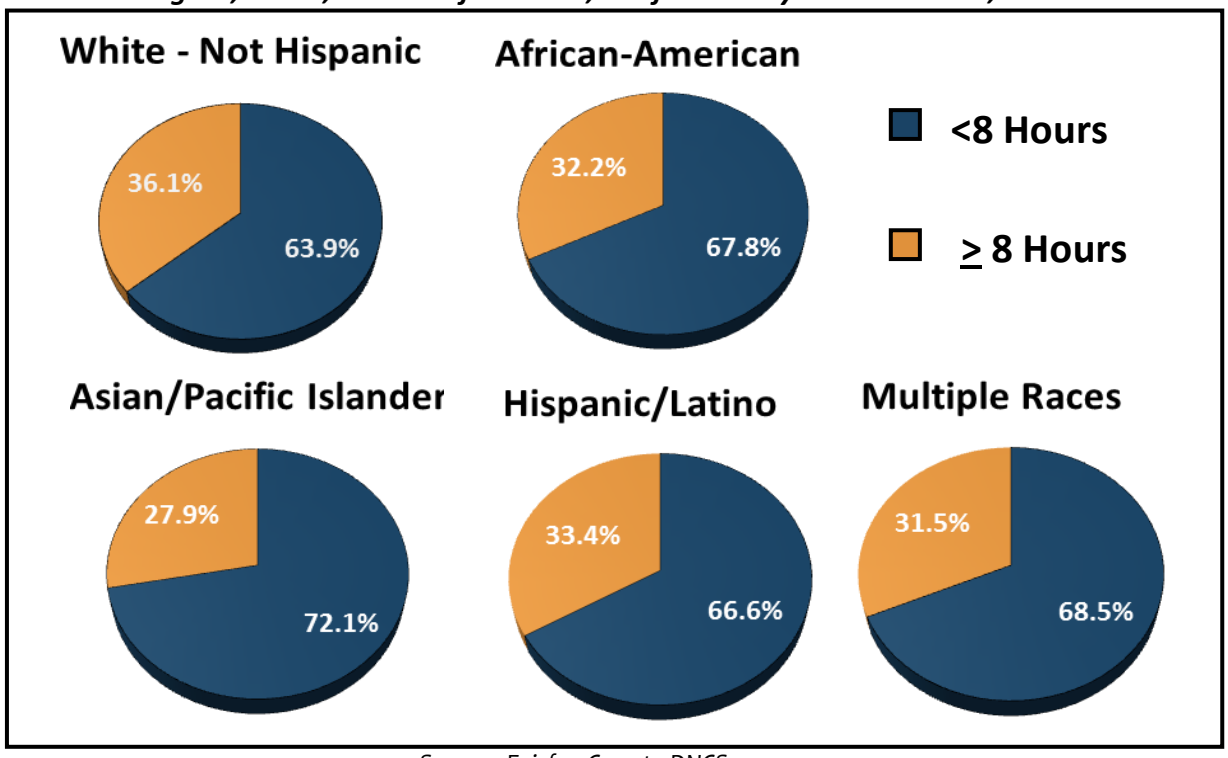
Source: Fairfax County DNCS, 2010.

Youth Sleep

Research suggests a link between depression and sleep. Past studies suggested depression resulted in sleep disorders, but more recent research suggests that lack of sleep may either be an early marker for depression or may even lead to depression. The eighth, tenth, and twelfth grade students in Fairfax County who reported getting 9 hours of sleep per day were the least likely to report feeling depressed (19.0 percent), seriously thinking about suicide (8.0 percent), or attempting suicide (1.7 percent). In contrast, among students reporting less than 4 hours of sleep per night, 51.8 percent reported feeling depressed, 31.2 percent seriously considered suicide, and 13.6 percent attempted suicide (Fairfax County, DNCS, 2010).

The percent of Fairfax youth reporting that they get 8 or more hours of sleep on a school night declines dramatically with age. Among eighth graders, 56.2 percent report getting 8 or more hours of sleep, but by twelfth grade only 17.3 percent do so. Female students (31.1 percent) are less likely than male students (36.1 percent) to report getting 8 or more hours. White students (36.1 percent) are the most likely to get 8 or more hours whereas Asian/Pacific Islander students (27.9 percent) are the least likely (Fairfax County, DNCS, 2010).

Figure 43: Hours of Sleep by Race/Ethnicity, Eighth, Tenth, and Twelfth Grade, Fairfax County Public Schools, 2009



Source: Fairfax County DNCS, 2010.

As with sleep, an association between physical activity level and depression was found in 2009; however, the association between physical activity and depression was not as strong as that found between sleep and depression. A third of the students who indicated that they were not physically active for at least 60 minutes per day on at least 1 day per week said they felt depressed (Fairfax County, DNCS, 2010).

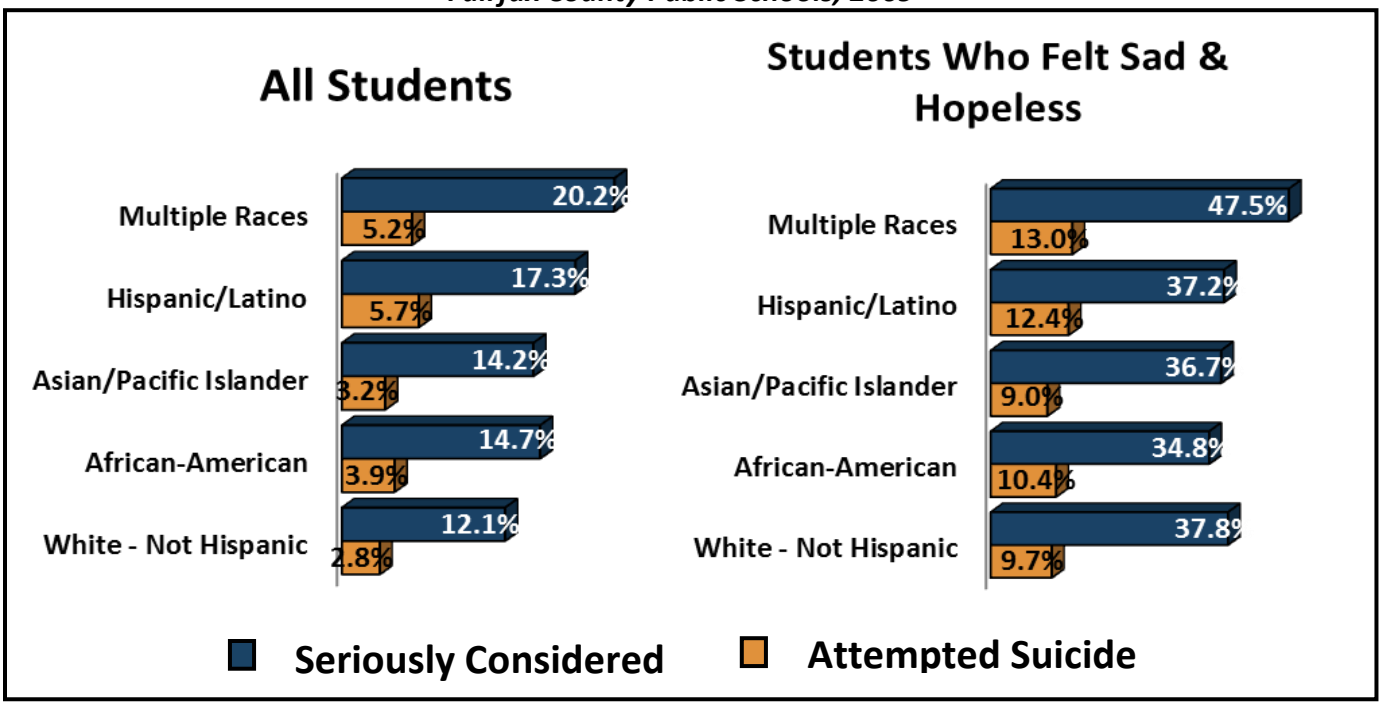
Suicide

Suicide is intentional self-harm resulting in death. Suicidal actions are often indicative of serious mental health problems and may signal other traumatic issues such as social isolation, discrimination, and physical or substance abuse. Suicide and suicide attempts burden families and communities with loss of life, medical costs, and accompanying grief and suffering. Suicide prevention can be difficult because there are many influencing factors, including physical illness or significant personal loss, family and individual history of mental disorders, suicides, abuse, addiction, aggression, social isolation, religious beliefs, and access to lethal weapons (Council on Virginia's Future, Suicide, 2011).

In Fairfax County, as with national trends, youths of races and ethnicities other than Whites were more likely to consider suicide. Among eighth, tenth, and twelfth grade students in Fairfax County who reported depression, 37.6 percent thought seriously about attempting suicide and 10.4 percent

attempted suicide. Hispanic and other/Multiracial students who reported depression were more likely than their peers to attempt suicide, 12.4 percent and 13.0, respectively. Of students who reported depression, female students (10.9 percent) were more likely to attempt suicide than males (9.7 percent). While reported youth depression and suicide contemplation were lower in 2009 than in 2008 in Fairfax County, there was a slight increase among twelfth graders who reported considering suicide (Fairfax County DNCS, 2010).

Figure 44: Suicide Contemplation by Race/Ethnicity, Eighth, Tenth, and Twelfth Grade, Fairfax County Public Schools, 2009

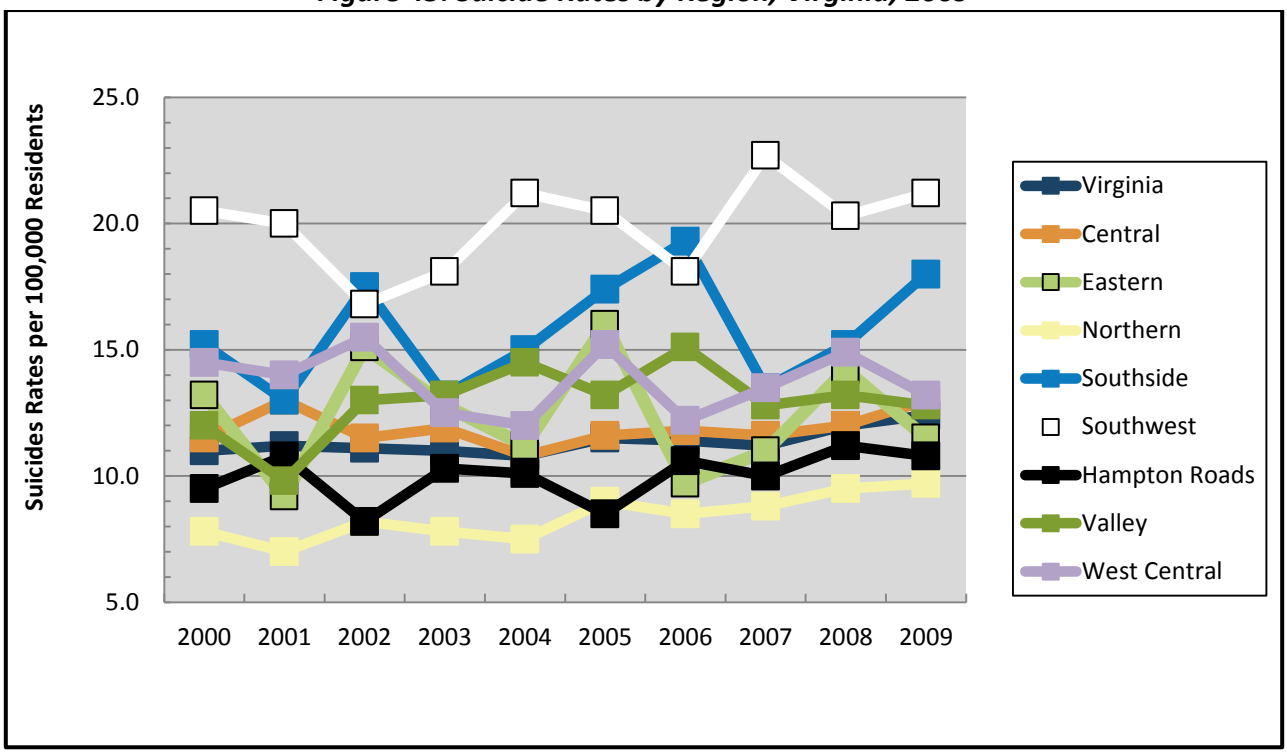


Source: Fairfax County DNCS, 2010.

In Virginia suicide ranked eleventh for cause of death among all residents and was the third leading cause of death among those age 10 to 24 (Council on Virginia's Future, Suicide, 2011). In Fairfax County, suicide was identified as a leading cause of premature death for individuals age 15 to 44 (U.S. HHS, 2009).

In 2009, the Northern Region of the state had the lowest rate of suicide in Virginia at 9.7 deaths per 100,000 (Council on Virginia's Future, Suicide, 2011). Between 2004 and 2008, there was a nearly 12 percent increase in the suicide rate. During those 5 years, there were 4,344 suicide deaths reported in Virginia, with a 5-year suicide rate of 11.4 per 100,000 population. The primary methods of suicide were firearms (57.3 percent), followed by suffocation (18.6 percent), poisoning (17.7 percent), cut/pierce and fall, (1.7 percent each), and drowning (1.4 percent) (VDH, 2010).

Figure 45: Suicide Rates by Region, Virginia, 2009



Source: Council on Virginia's Future, Suicide, 2011.

The 2 age groups that are particularly at risk for suicide are youth and the elderly. Although the rate of suicide is higher for adults age 65 or older (16.2 per 100,000 population) than for youth age 10-24 (6.86 per 100,000 population), suicide is a leading cause of death among those in the younger age group (VDH, *Suicide in Virginia*, 2010). Adolescents and young adults can perceive suicide as a "solution" when they experience overwhelming feelings as a result of stress, confusion, and depression. Most elderly suicide victims in the weeks prior to their deaths are diagnosed by their primary care provider with mild to moderate depression and are more likely to be physically ill and divorced or widowed (Council on Virginia's Future, Suicide, 2011).

Between 2004 and 2008 there were 540 suicide deaths reported in Virginia among youth age 10 to 24 years old, making it the third leading cause of death for this age group. This amounts to a 5-year suicide rate of 6.9 per 100,000 population. During that 5-year time span, there was a 37 percent increase in the rate of suicide deaths among youth. The primary methods of suicide were firearms (53.9 percent) followed by suffocation (30.4 percent), poisoning (8.3 percent), fall (2.8 percent), and other means (4.6 percent) (VDH, *Suicide in Virginia*, 2010).

In regards to gender, from 2004-2008 the suicide rate for males was 17.9 per 100,000, 3.6 times higher than the rate for females (5.0 per 100,000). While the rates of female suicide were fairly stable

across that time span, the male suicide rates fluctuated between 17.5 – 19.2 per 100,000. For males, the suicide method was most often by firearms (63.5 percent) or suffocation (19.0 percent). Females were most likely to commit suicide by poisoning, 38.8 percent, or by firearms, 36.1 percent (VDH, *Suicide in Virginia*, 2010).

In regards to differences among racial and ethnic groups, non-Hispanic Whites had the highest suicide rate from 2004-2008 in Virginia. The suicide rate of non-Hispanic Whites was 2.4 times higher than Blacks and 3.6 times higher than Hispanics. The suicide rate for non-Hispanic Whites increased by 12.5 percent from 2004-2008, while the suicide rate for non-Hispanic Blacks increased by 17.7 percent. Hispanics had the lowest suicide rates of all groups. Both Whites and Blacks were most likely to use a firearm to complete a suicide (VDH, *Suicide in Virginia*, 2010).

Veterans who served in Vietnam, Iraq, and/or Afghanistan have emerged as a group at a higher risk of suicide due to increased incidence of post-traumatic stress disorder (PTSD). From 2004 through 2007, there were 803 veterans who committed suicide in Virginia, for an average of 1 suicide every 2 days. During that time period, veterans accounted for 23.0 percent of all suicides that occurred in Virginia (VDH, *Suicide in Virginia*, 2010).

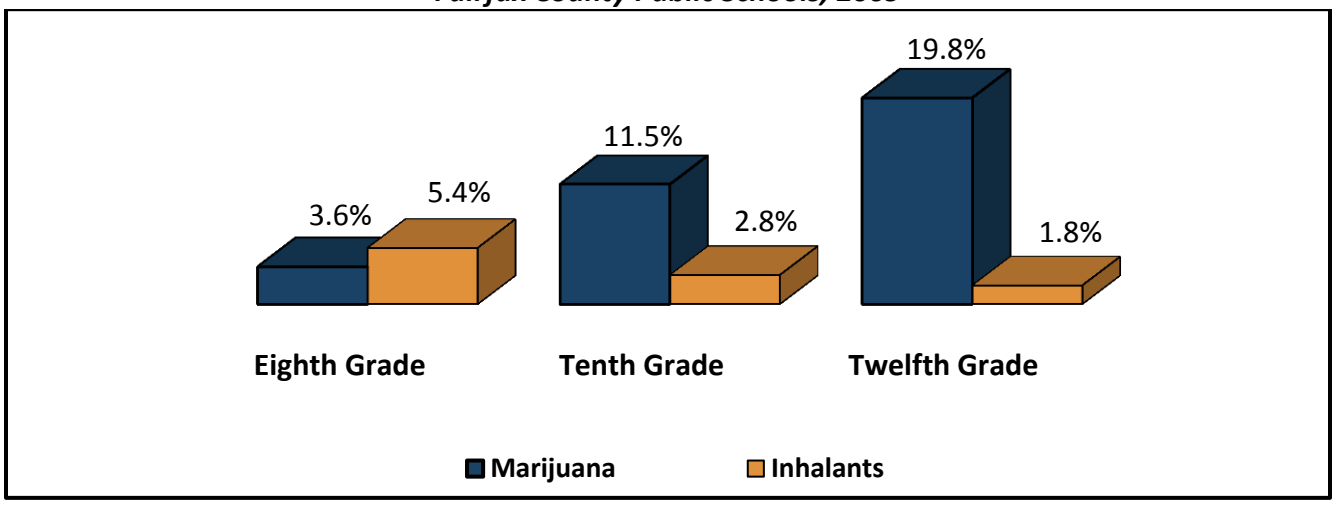
Youth Substance Use

As reported by the 2009 *Fairfax County Youth Survey*, substance use rates for alcohol, cigarettes and marijuana in Fairfax County were lower in 2009 than 2001 and were more favorable than national use rates. Fairfax youth are far less likely to participate in risky behaviors and are more likely to thrive when they reported at least 3 of the following positive assets: good grades, involvement in decision-making, having adults they can talk to, parents that notice when they do a good job, involvement in extracurricular activities, and involvement in community service (Fairfax County, DNCS, 2010).

Of the Fairfax County eighth, tenth, and twelfth grade students surveyed, 18 percent reported some drug use in the past 30 days. Among high school seniors, a quarter of the students had some drug use in the past 30 days. The most prevalent drug used was marijuana with 3.6 percent of eighth graders, 11.5 percent of tenth graders, and 19.8 percent of twelfth graders reporting using the drug in the past 30 days (Fairfax County DNCS, 2010).

Inhalant use is slightly above the national average for students in eighth (5.4 percent), tenth (2.8 percent), and twelfth grade (1.8 percent). The use of "other drugs" is lower than the national average. Prescription and over-the-counter medications are the most frequently abused other drugs reported in Fairfax County. Fairfax County sixth graders are more likely to have used an inhalant in the last 30 days (3.3 percent) than alcohol (2.7 percent), cigarettes (0.4 percent), or marijuana (0.3 percent) (Fairfax County, DNCS, 2010).

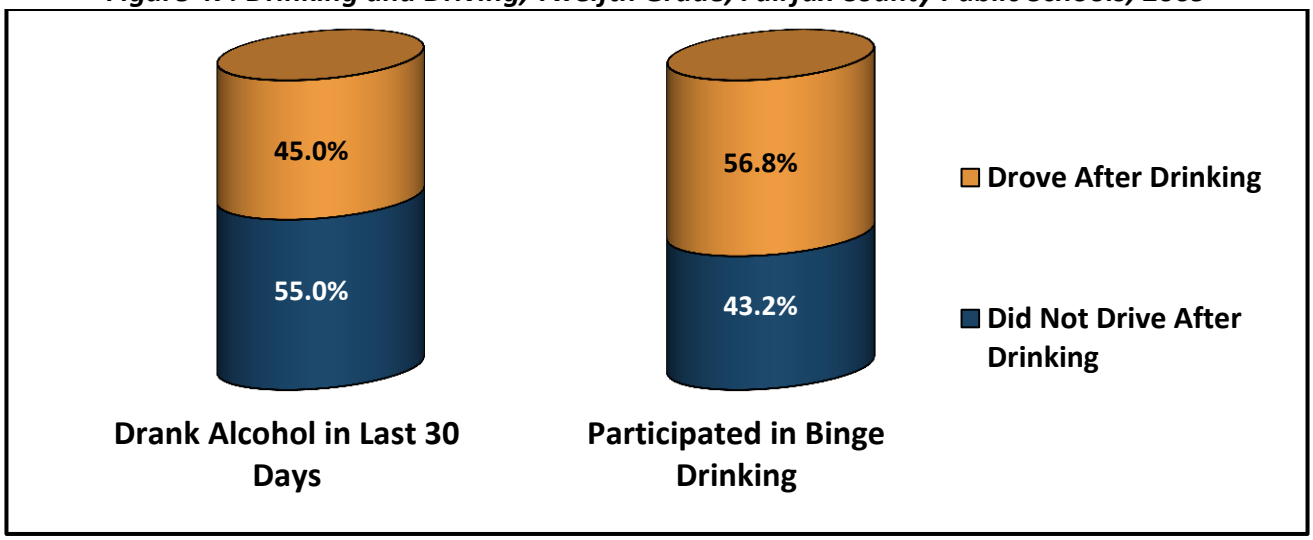
Figure 46: Past 30 Day Marijuana and Inhalant Use, Fairfax County Public Schools, 2009



Source: Fairfax County DNCS, 2010.

Alcohol was the most frequently used substance by eighth, tenth and twelfth grade students in Fairfax County, with over 10 percent of county eighth graders and 38.5 percent of twelfth graders having drunk alcohol in the past 30 days. In addition, nearly 23.0 percent of all twelfth graders indicated that they had participated in binge drinking defined as having 5 or more drinks in a row in the last 2 weeks. Among twelfth graders who had drunk alcohol within the past 30 days, 45.0 percent had driven a car after drinking. Twelfth graders who participated in binge drinking were the most likely to have driven after drinking alcohol (56.8 percent) (Fairfax County, DNCS, 2010).

Figure 47: Drinking and Driving, Twelfth Grade, Fairfax County Public Schools, 2009



Note: Binge Drinking is defined as ≥5 drink in a row in the last 2 weeks.

Source: Fairfax County DNCS, 2010.

Domestic Violence

Domestic violence (DV) is any act committed against a family or household member involving violence, force, or threat that results in bodily injury or the fear of bodily injury, including physical, sexual, and emotional or psychological abuse. Intimate partner violence (IPV) is characterized by a pattern of abusive behaviors used by someone who is, was, or wishes to be involved in an intimate or dating relationship to dominate over and control another person. For both children and adults, exposure to this type of violence impacts many facets of a survivor's life, including potential behavioral and physical health problems (Fairfax County DNCS, 2011).

Among Virginia adults, nearly a quarter of females (23.3 percent) and 12 percent of males have experienced IPV at some point in their life. Perpetrators of IPV were male 73.7 percent of the time. Rates of IPV were higher among multiracial people than among any other individual racial group. Compared to Virginians without a history of IPV, residents who had experienced IPV in their lifetime were about twice as likely to report poor mental health, heavy drinking (7.4 percent as compared to 4.7 percent), and smoking (34.5 percent as compared to 15.9 percent). They were also more likely to report that their physical health was not good, and their general health status was either fair or poor (Fairfax County DNCS, 2011).

Among youth in Fairfax County Public Schools, approximately 1 in 4 teens report experiencing either emotional or physical abuse by a dating partner. According to the *2009 Fairfax County Youth Survey*, teens who reported experiencing dating abuse were also more likely to report being sexually active, using drugs or alcohol, being depressed, considering and/or attempting suicide, carrying a weapon, being chronically bullied, and having poor grades (Fairfax County DNCS, 2011).

There are county efforts underway to create an effective, coordinated, and community-wide response to DV to promote safety for survivors and ensure accountability for offenders. In Fairfax County, police responded to 2,251 DV incident calls in 2009, and made 1,685 DV arrests. That same year, there were 1,939 emergency family abuse protective orders issued, and over 2,000 criminal misdemeanor DV cases adjudicated. In FY 2009, the Anger and Domestic Abuse Prevention and Treatment Program (ADAPT) served 364 individuals. Also in FY 2009, the Victim Assistance Network (VAN) responded to 1,628 crisis hotline calls, and provided counseling to 120 adults and 28 children; emergency shelter was provided to 289 women, 5 men, and 346 children by Artemis House (Fairfax County DNCS, 2011).

Disabilities

There are more than 36 million people with disabilities in the U.S. comprising 12 percent of the civilian population that are not institutionalized. Nationally, 5 percent of children age 5 to 17 years, 10 percent of adults 18 to 64 years of age, and 38 percent of adults 65 years and older have disabilities.

Additionally, 12.3 percent of females and 11.6 percent of males have a disability. In Fairfax County there are more than 67,000 civilian residents with disabilities, representing 6.6 percent of the county's total population. Three percent of children age 5 to 17 years, 5.1 percent of adults age 18 to 64 years, and 28.2 percent of residents age 65 and older have disabilities. Of Fairfax County residents, 7 percent of females and 6.3 percent of males are disabled (U.S. Census, 2009).

Of children age 5 to 17 years living in Fairfax County, 0.8 percent have impaired hearing, 0.4 percent have visual impairments, 1.8 percent have cognitive limitations, 0.3 percent have ambulatory difficulties, and 0.9 percent have self-care challenges (U.S. Census, 2009). Many of the children with disabilities receive special education services through the Fairfax County Public School (FCPS) system. Those individuals receiving special education services make up 14 percent of the total FCPS enrollment. The FCPS system, serving more than 24,000 students with disabilities, provides a wide array of services addressing vision, hearing, intellectual, learning, emotional, and physical challenges that affect educational attainment (Fairfax County, *System of Care Developmental Disabilities Report and Recommendations*, 2010).

Of special concern is the increasing number of children diagnosed with Autism Spectrum Disorder (ASD). It is estimated that more than 1 percent of the children in the U.S. have ASD, with an incidence rate of 1 in 110 births. With an annual growth of 10-17 percent, ASD has been identified as one of the fastest growing medical conditions (Autism Society, 2003, 2006). This trend has been mirrored at the local level with the number of FCPS students with a diagnosis of Autism increasing from 501 children in 2001 to 1,988 students in 2008 (Fairfax County, *System of Care Developmental Disabilities Report and Recommendations*, 2010).

Fairfax County adults 18-64 years of age are most affected by ambulatory (2.1 percent), independent living (1.6 percent) and hearing (1.4 percent) difficulties. Individuals age 65 years and older are most challenged in the areas of ambulation (16.6 percent), living independently (13.2 percent), hearing (11.7 percent) and cognition (7.6 percent) (U.S. Census, 2009).

Individuals with disabilities age 16 and over are employed to a lesser extent than those who are not disabled. This is seen nationally, with 72 percent not in the labor force compared to 27 percent of people without a disability, as well as locally where 60.8 percent are not in the Fairfax County labor force compared to 25.6 percent of those residents who are non-disabled (U.S. Census, 2009).

People with disabilities are also more likely to live in poverty. Nationally, 21 percent of the population 16 years and older with a disability live below the poverty level. Of Fairfax County residents 16 years and older with a disability, 10.5 percent are below 100 percent of the poverty level, 4.4 percent are between 100 and 149 percent, and 85.1 percent are at or above 150 percent of the poverty level (U.S. Census, 2009).

CHAPTER 7: MATERNAL, CHILD, AND ADOLESCENT HEALTH

Measures to improve fetal and infant health are usually focused on improving the health of the mother before and during pregnancy, and on encouraging infant safe sleep practices. It is widely recognized that a mother's behaviors directly affect the fetus or infant. Key personal risk factors that impact newborn health include: maternal smoking; substance abuse; poor nutrition; stress; and lack of access to healthcare. Other than prevention of accidents and injuries, opportunities to improve child and adolescent health are more difficult to identify, in part because of a lack of data.

The selected indicators in the area of maternal, child, and adolescent health included: births to women by age, race, and marital status, onset or absence of prenatal care, birth outcomes (prematurity and low-birthweight), neonatal and infant mortality, teenage pregnancy, and early childhood vaccinations. Early childhood health indicators from the National Survey of Children's Health (U.S. HHS HRSA, Maternal and Child Health Bureau, 2009) are also presented. Those findings indicate state trends on the overall health of Virginia's children.

Maternal and Live Birth Characteristics

The HHS CHSI (2009) reported birth outcomes and characteristics for women under 18 in Fairfax County that were more favorable than those seen in peer counties. Fairfax County had fewer premature (10.7 percent) and low-weight births (6.7 percent) than peer jurisdictions, but the opportunity for improvement remains. The medical and health problems associated with low birth weight (LBW) increase healthcare costs, especially for extremely small and/or very early (premature) births. Additionally there are considerable health risks and long-term problems from neurological and developmental delays that are well-documented (Behrman & Stith Butler, 2006).

In Virginia annual data are reported for a wide variety of birth outcomes and characteristics statewide, by Planning District (PD), county, and sub-county areas. PD8 is comprised of Fairfax County, Fairfax City, Falls Church City, along with 6 other localities (Alexandria City, Arlington County, Loudoun County, Manassas City, Manassas Park City, and Prince William County). Most vital and other public health statistics are reported for each locality and the planning district overall. Caution should be exercised when interpreting the data for smaller localities (i.e., Fairfax City and Falls Church City), as inaccuracies may exist because of the small number of cases reported.

The figure that follows illustrates the changes in maternal and live birth characteristics from 2000 to 2008 for each of the PD8 localities. Nearly all of the localities (8 of 9) had an increase in non-marital births, and 6 of the 9 showed an increase in low-weight infant births (including a marginal increase in Fairfax County). From 2000-2008, LBW in Fairfax County ranged from 5.5 to 6.8 percent of resident total live births, which were lower and more favorable than state LBW rates and nearly equivalent to

the PD8 rates. During this same period, most of the PD8 jurisdictions declined in the use of early prenatal care (i.e., fewer women seeking care beginning in the first 13 weeks of pregnancy), and all showed an increase in live births to "Other" races (VDH, Low Birthweight, 2010).

Figure 48: Maternal and Live Birth Characteristics, Planning District 8, 2000 – 2008

Planning District 8	*% Change Non-Marital Births*	*% Change LBW*	*% Change Early Prenatal Care*	*% Change Live Births to "Other" Races*
Alexandria City	0.6	-0.9	**6**	6.2
Arlington County	-1.5	0.4	**2.9**	17
Fairfax County	7.7	0.2	-0.9	5.1
Fairfax City	8.6	-2.2	-4.2	17
Falls Church City	**17.9**	0	**-12.3**	9.7
Loudoun County	4.5	1.2	-3.9	12.3
Manassas City	**13.6**	0.3	**-18.1**	13.7
Manassas Park	**14.5**	1	**-17.1**	16.8
Prince William	3.5	1	-7.5	14.5

Source: VDH, Health Statistics, 2009; VDH, Low Birthweight, 2010.

Birth Outcomes for Fairfax County Health Department Service Recipients

In FY 2010, low birthweight among Fairfax County Health Department (FCHD) clients increased to 5.6 percent up from 4.7 percent in FY 2009; this rate was still lower than in Fairfax County overall, as well as the state. The increase was seen in low birth weight babies (less than 2,500 grams) rather than the very low birth weight (VLBW) under 1,500 grams category. The proportion of FCHD clients with VLBW babies remained static at 1 percent. While more analysis is needed to fully understand the increase in low birth weight, recent economic hardships may have contributed to an increase in risk factors for premature birth, low birth weight, and other negative birth outcomes (FCHD, Maternal and child health characteristics, 2010).

Low Birth Weight = less than 2,500 grams.

Very Low Birth Weight = 1,499 grams or less.

LBW among FCHD clients was primarily found among women age 20-34 years old (70 percent). Fifty-five percent began prenatal care within the first trimester, with another 22 percent receiving services by 15 weeks gestation. Fifty-one percent of mothers who had a LBW baby had at least some high school education; 26 percent had an eighth grade education or lower (FCHD, Maternal and child health characteristics, 2010).

Low birthweight and less favorable birth outcomes were found to be more likely among Blacks and Asians, a disparity that exists at all levels (county, regional, state, and national). In FY 2010, among Black FCHD maternity clients, 10.2 percent had LBW babies, which is consistent with the overall county percentages and lower than state and national percentages. Statewide from 2004-2008, LBW among Blacks hovered between 12.8 and 13.8 percent. Because the FCHD sees relatively few Blacks for maternity services (fewer than 5 percent of total clients), changes from year to year may be attributable to only 1 to 2 people (Suzuki, 2010).

Figure 49: Low-Birthweight by Race, U.S., Virginia, & Local Area, 2005-2008

	2005		2006		2007		2008	
	% White	% Black	% White	% Black	% White	% Black	% White	% Black
U.S.	7.16	13.59	7.21	13.59	7.3	13.9		
Virginia	7	12.8	7	12.9	7.1	13.8	7.1	13
Regional	6	10.9	6.7	10	6.5	10.8	6.7	10
Fairfax County	6	10.5	6.1	8.4	6.8	11.2	6.1	10.2
Fairfax City	5.6	28.6	7	15.8	7.7	12.5	7.9	8.3
Falls Church City	12	0	6.7	0	7.1	50	5.1	0
Health Dept.*	—	—	6.53	9.86	4.56	8.72	5.4	4.09

*= Fiscal year; Gray = Not yet available.

Source: FCHD, Maternal child health data and characteristics, 2010.

Low-birthweight among Asian FCHD maternity clients was also higher than the overall LBW percentage for all FCHD maternity clients (7.3 percent in FY 2010). This represented an increase from FY 2009 when the LBW among Asian clients was 5.8 percent. However, it is reduced from FY 2005 when 9.4 percent was reported in FY 2008. As with Blacks, the percentage of FCHD maternity clients who are Asian is small (about 7.0 percent), so the percentage of LBW babies born to Asian clients may vary widely from year to year. In FY 2010, 7.3 percent of Asian FCHD clients had LBW babies, which was less than the percentage seen among Blacks and higher than the overall percentage for FCHD maternity clients (FCHD, Maternal and child health characteristics, 2010).

Teenage Pregnancies and Births

Nationwide, in 2009 a total of 409,840 infants were born to 15–19 year olds, for a live-birth rate of 39.1 per 1,000 women in this age group (CDC, NHIS, 2009). The CHSI (2009) reported that teenage pregnancies account for 3.4 percent of births. Teenage births in Fairfax County (1.2 percent) were lower in comparison with the nation and peer counties (peers ranged from 1.2 to 2.9 percent). Teen

pregnancies in Fairfax City (1.5 percent) and Falls Church City (1.0 percent) compared favorably to peers (ranged from 1.0 to 4.2 percent) (U.S. HHS, CHSI, 2009).

Data on teenage pregnancies and births are reported annually by VDH as part of its vital statistics report. While data are available for Fairfax County, fewer than 10 cases were identified in the cities of Fairfax and Falls Church and therefore were not reported. Teenage pregnancy demographics are reported by age and race in the figure below.

Figure 50: Teenage Pregnancies and Live Births by Age and Race, Fairfax Community & Virginia, 2009

	Age				Race		
Fairfax County	**<15**	**15-17**	**18-19**	**Total**	**White**	**Black**	**Other**
Total Pregnancies	10	183	509	702	508	130	64
Teenage Pregnancy Rate per 1,000 females	NA	NA	NA	10.7	11	16.5	5.8
Live Births	6	141	344	491	365	88	38
Live Teenage Birth Rate per 1,000 females age 10-19	NA	NA	NA	7.5	7.9	11.2	3.4
Fairfax City	**<15**	**15-17**	**18-19**	**Total**	**White**	**Black**	**Other**
Total Pregnancies	*	*	28	36	25	*	*
Live Births	*	*	*	12	*	*	*
Falls Church City	**<15**	**15-17**	**18-19**	**Total**	**White**	**Black**	**Other**
Total Pregnancies	*	*	6	21	19	*	*
Live Births	*	*	*	*	*	*	*
Virginia	218	3,369	8,696	12,283	6,560	5,107	616

* = too few to report (<10), NA = not available

Source: VDH, Health Statistics, 2009.

In Virginia, PD 8 had both the second highest number of total teenage pregnancies (1,973), and teenage pregnancy live births (1,239). Fairfax County had the highest number of teenage live births (491) followed by Prince William County (404) and Loudoun (110). The majority of teenage live births in Planning District 8 (845 births) were to women age 18-19 years (VDH, City/Council Profiles, 2011). White females had the highest number of pregnancies; however Blacks had the highest teenage pregnancy rate per 1,000 females, as well as the highest live teenage birth rate per 1,000 females age 10 to 19 (VDH, Health Statistics, 2009). While the total number of teenage pregnancies for PD 8 was high, they account for only 15.3 percent of all teenage pregnancies, which was the lowest percentage in the Commonwealth (VDH, Division of Health Statistics, 2011).

Due to the overall size of the population in Fairfax County, the number of teen pregnancies was large, but the rate of teen pregnancies (especially younger teen pregnancies) was low, relative to other planning districts in the state, and among CHSI peer counties. Nonetheless, prevention of teen pregnancies and early prenatal care remains an important public health concern.

Infant Mortality

Infant mortality is defined as the rate of deaths per 1,000 live births for children age 1 or under and is an established measure of population health (Walsh et al., 2007). Infant mortality rates are used worldwide as an important indicator of community health status (World Health Organization, 2010). Infant mortality rates in Fairfax County, as compared to peer counties, were favorable: 4.5 neonatal deaths per 1,000 live births and 1.1 postnatal deaths per 1,000 live births (U.S. HHS, CHSI, 2009). Compared to peer jurisdictions, the cities of Fairfax and Falls Church appeared to have less than favorable neonatal and postnatal mortality rates (however the numbers are small).

For the analysis that follows, vital statistics data from VDH were primarily utilized. While data on the local community were useful, caution is needed due to limitations on the source of data and the statistical methods used to produce the estimates for these smaller geographic areas, particularly for demographic groups.

Figure 51: Infant Deaths and Death Rate per 1,000, Fairfax County & Virginia, 2000-2009

Year	# Fairfax County	Deaths per 1,000 births	# Virginia	Deaths per 1,000 births
2000	60	4.1	676	6.8
2001	67	4.5	730	7.4
2002	68	4.6	725	7.3
2003	76	5.2	766	7.6
2004	65	4.3	768	7.4
2005	61	4.1	777	7.4
2006	70	4.8	760	7.1
2007	83	5.4	839	7.7
2008	57	3.7	716	6.7
2009	87	5.6	740	7

Source: VDH, Vital Health Statistics, 2009.

Analysis of VDH data from 2000-2009 revealed (with the exception of 2002) that infant mortality rates in Fairfax County, as well as Fairfax City and Falls Church City, were consistently below regional, state, and national infant mortality rates and were, therefore, more favorable. Between 2000 and 2009 the infant mortality rate in Fairfax County has varied between 3.7 and 5.6 per 1,000 live births.

In 2009 total infant deaths were 5.6 per 1,000 live births. This rate has been relatively stable over the last several years (VDH, Division of Health Statistics, 2011).

Since 1982, Virginia's infant mortality rate has dropped from 12.9 per 1,000 live births to 7.0 per 1,000 live births in 2009. Since 2000, total infant deaths in Virginia have ranged from 6.7 per 1,000 live resident births to 7.6 per 1,000 live resident births in 2008 (VDH, Division of Health Statistics, 2011). While Virginia and Fairfax County's infant mortality rate was favorable overall, it was disproportionately higher (unfavorable) in selected racial and ethnic groups, especially Blacks. Neonatal deaths, early infant deaths, and total infant deaths were higher among Blacks than for the population overall, for Whites, and for other racial groups.

Figure 52: Fetal, Neonatal, and Infant Deaths by Race, Fairfax County, 2009

Deaths	Count				Per Population			
	White	Black	Other	Total	White	Black	Other	Total
					Per 1,000 Females Ages 15-44			
Natural Fetal Deaths	668	76	147	891	4.69	2.99	3.39	4.22
					Per 1,000 Resident Live births			
Neonatal Deaths (<28 days old)	43	12	9	64	4.1	7.7	2.6	4.1
Early Infant Deaths (<1 day old)	28	9	6	43	2.7	5.8	1.8	2.8
Total Infant Deaths	56	20	11	87	5.3	12.8	3.3	5.6

Source: VDH, Division of Health Statistics, 2011.

Fetal Deaths

From 2000 to 2009 the number of natural fetal deaths in the state has remained relatively constant at approximately 3.0 per 1,000 resident live births annually (3.0 per 1,000 in 2009; 2.8 per 1,000 in 2000). The state has undertaken efforts in recent years to understand and improve fetal death rates, the establishment of regional perinatal councils and local Fetal Infant Mortality Review (FIMR) groups (VDH, Vital Health Statistics, 2009).

Fetal deaths are defined as a natural spontaneous death prior to expulsion or extraction from mother, excluding induced terminations. Natural fetal deaths are also known as miscarriages before 20 weeks of gestation, or spontaneous abortions at 20 or more weeks of gestation, that do not produce a viable fetus. Induced terminations are deaths in which the pregnancy was purposefully terminated, including for medical indications.

Figure 53: Natural Fetal Deaths, Fairfax County & Virginia, 2000-2009

Year	# Fairfax County	Rate per 1,000 Females Age 15-44	# Virginia	Rate per 1,000 Live Births
2000	820	3.73	7,248	4.56
2001	986	4.49	7,572	4.77
2002	1,051	4.86	7,888	4.9
2003	1,191	5.71	7,793	4.87
2004	1,223	5.91	7,409	4.63
2005	1,130	5.6	7,095	4.42
2006	981	4.95	6,918	4.26
2007	774	3.9	7,362	4.53
2008	929	4.76	7,437	4.6
2009	891	4.22	6,585	4.03

Source: VDH, Vital Health Statistics, 2009.

Fetal and Infant Mortality Review

In 1997 VDH contracted with 7 regional Perinatal Councils to establish statewide reporting through Fetal and Infant Mortality Reviews (FIMRs). Supported by VDH, regional FIMR groups interpret clinical findings from local fetal and infant death reviews and develop community action goals to reduce infant mortality in their areas (including Northern Virginia). The objective of this initiative is to address local factors such as socioeconomic conditions, public-health practices, as well as quality and access to medical care that impact the infant mortality rate (MacDorman et al, 1994). FIMR groups cultivate a better understanding of local community birth outcomes, including gestational prematurity and post-maturity deaths.

In Northern Virginia in FY 2010, 136 mothers who experienced fetal or infant loss (twenty weeks gestation through age 1) were provided with bereavement resources by the local FIMR group. Mothers were also asked to participate in a voluntary home interview. Thirty-eight mothers shared their stories with trained home interviewers. The Clinical Case Review Team used findings from these interviews and medical chart abstractions to recommend community action and system changes to reduce the risk of infant death. In 2010 the local FIMR Community Action Team, including local health departments and multiple organizational partners, developed public and professional educational campaigns to promote early prenatal care, reduce preterm birth, and increase best practices for infant safe sleep (A. Reiger & L. Cooper, personal communication, February 22, 2010).

Children's Health Status

Only state-level data were available on children's health overall; findings from the National Survey of Children's Health for Virginia were utilized. Virginia's children compared more favorably to children in the U.S. on most health status indicators. Regardless, a large number of Virginia's children have health issues that could be improved, especially access to health-related care and services.

Figure 54: Children's Health Status, U.S. & Virginia, 2007

Indicator	Explanation	U.S. %	VA %
Child Health Status	% children in excellent or very good health	84.4%	88.0%*
Oral Health Status	% children with excellent or very good oral health	70.7%	75.2%
Injury	% children age 0-5 with injuries requiring medical attention in past year	10.4%	10.5%*
Breastfeeding	% children age 0-4 months who were ever breastfed	75.5%	74.6%
Risk of Developmental or Behavior Problems	% children age 4 months to 5 years determined to be at moderate or high risk based on parents concerns	26.4%	25.7%
Social Skills	% children age 6-17 who exhibit two or more positive social behaviors	93.6%	94.9%
Missed School Days	% children age 6-17 who missed 11 or more days of school in past year	5.8%	4.2%
Preventative Health Care	% children with a preventative medical visit in past year	88.5%	88.1%
Preventative Dental Care	% children with a preventative dental visit in past year	78.4%	79.0%
Developmental Screening	% children age 10 months to 5 years receiving a standardized screening for developmental or behavioral problems	19.5%	18.2%*
Mental Health Care	% children age 2-17 with problems requiring counseling who received mental health care	60.0%	72.2%*
Medical Home	% children who received care within a medical home	57.0%	58.8%

*=less favorable than U.S.

Source: U.S. HHS, HRSA, Maternal and Child Health Bureau, 2009.

Virginia's children fared well for a large number of health status and healthcare indicators. The following findings had merit for ongoing public health planning: 88 percent of Virginia children were in excellent or very good health, and 75.2 percent have excellent or very good oral health, which compared favorably to children nationwide (84.4 percent and 70.7 percent respectively). Still 25.7

percent of children 4 months to 5 years of age were reported to be at moderate or high risk for developmental or behavioral problems. Statewide, 88.1 percent of all children had a preventive medical visit in the past year; 79 percent had a preventative dental visit in the past year of concern; and 72.2 percent of children age 2-17 were reported by their parents to have problems requiring counseling or mental health care. Among children age 1-5, 53.6 percent watched more than 1 hour of TV or videos during the weekday, and only 55.9 percent age 0-5 were in families who read to them every day. Only 44.9 percent of children lived in neighborhoods with a park, sidewalk, library, and a community center; and 11.9 percent lived in neighborhoods with poorly kept or dilapidated housing.

Childhood Immunizations

Routine childhood immunizations have helped control many serious infectious diseases that were once common in the U.S., including: diphtheria, tetanus, pertussis, measles, mumps, rubella, *Haemophilus influenzae* type b (Hib), hepatitis B, poliomyelitis, varicella, and pneumococcal disease. It is recommended that children begin the vaccination series for these diseases at birth which is usually completed by their second birthday.

According to the National Immunization Survey, 82.2 percent of Fairfax County children age 19-25 months had received the recommended vaccines (4:3:1:3:3:1)* during the 2007-2008 sampling period. This compared favorably with the aggregate coverage level for the other 257 counties sampled (76.8 percent) and the nationwide coverage level (76.7 percent) but was well below the U.S. Healthy People 2010 goal of 90 percent coverage.

** 4:3:1:3:3:1 = number of vaccine doses: 4 doses of diphtheria, tetanus, and pertussis vaccine, 3 doses of hepatitis B vaccine, 1 dose of measles, mumps, and rubella vaccine, 3 doses of Polio vaccine, 3 doses of H. influenzae vaccine, and 1 dose of varicella.*

Like other states, Virginia state law requires that children provide documentation of adequate immunization before attending a public or private school, child care center, nursery school, family day care home or developmental center. However, parents may claim religious or medical exemptions from vaccination for their children. In some regions of the U.S., an increase in the number of such exemptions has been noted. However, in Fairfax County Public Schools, the percentage of children with an exemption to at least one vaccine has remained low since 2007 (0.2 percent at kindergarten entry and 0.1 percent at sixth grade entry). Most exemptions in Fairfax County were for medical reasons rather than religious or other reasons (FCHD, Communicable Disease Surveillance Data, 2010).

When vaccine-preventable diseases do occur, they can be costly, resulting in doctor's visits, hospitalizations, premature deaths, and the need for significant public health action to limit the spread of disease. Unvaccinated children also pose a risk for other individuals who are not able to

receive vaccine for medical reasons. Although most vaccine-preventable diseases are uncommon in Fairfax County, residents may still be exposed to these diseases. Some diseases still circulate in the county (e.g., 31 cases of pertussis were reported in 2009) and others are increasingly imported from regions with lower vaccination rates, (e.g., measles in returning international travelers) (FCHD, Communicable Disease Surveillance Data, 2010).

CHAPTER 8: COMMUNICABLE DISEASE

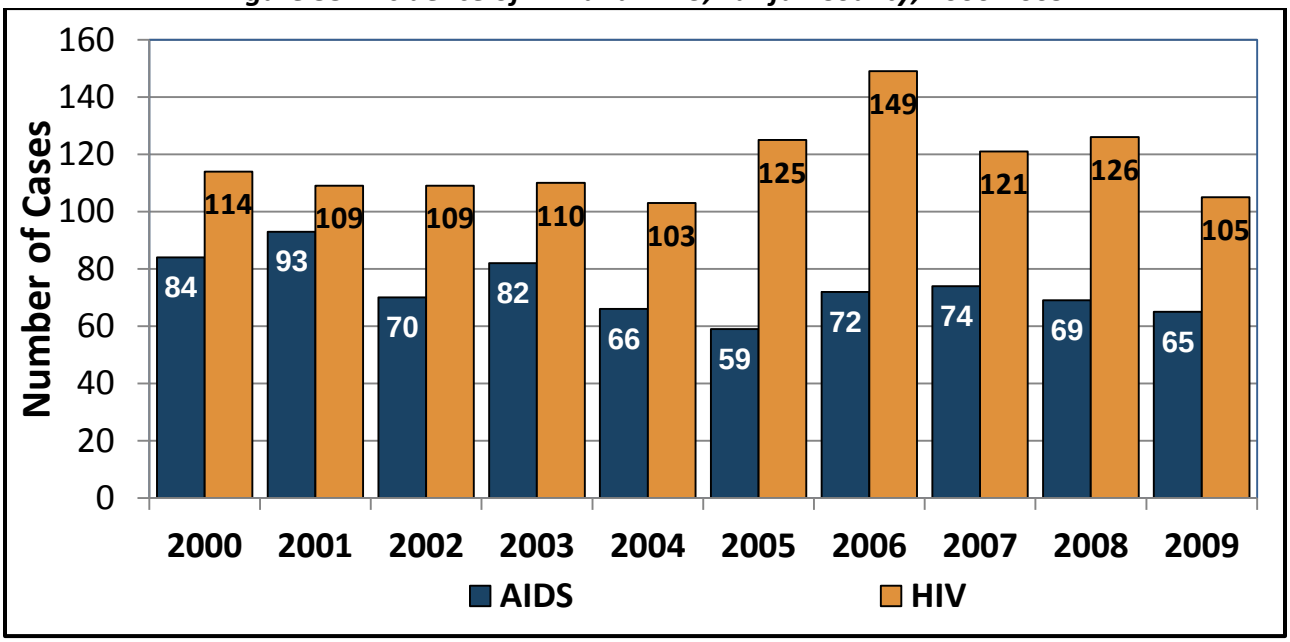
Communicable diseases remain a significant cause of illness, disability, and death in Fairfax County and considerable health system resources are allocated to the prevention and control of these diseases. Substantial and well-developed infrastructure must be maintained to enable the on-going collaborative work of local, state, and federal health system partners necessary to limit the spread of communicable diseases in the community.

Childhood immunizations (reported in Chapter 7), HIV/AIDS, chlamydia, gonorrhea, tuberculosis, rabies, Lyme disease, and foodborne illnesses were identified as particularly relevant for this assessment and report. This information was provided by the Fairfax County Health Department Communicable Disease Epidemiology Unit using primary surveillance data from the Fairfax County Communicable Diseases Unit (local data) and the Virginia Department of Health (state level data). As with many other aspects of community health, the number of reported infectious diseases was found to be low when Fairfax County is compared to peer counties.

HIV/AIDS

Between 2000 and 2009, the numbers of new cases of HIV and AIDS in Fairfax County has varied significantly from year to year, but no overall increase or decrease in disease incidence rates can be identified. These annual changes in HIV and AIDS incidence match closely with the trends seen at the Virginia state level.

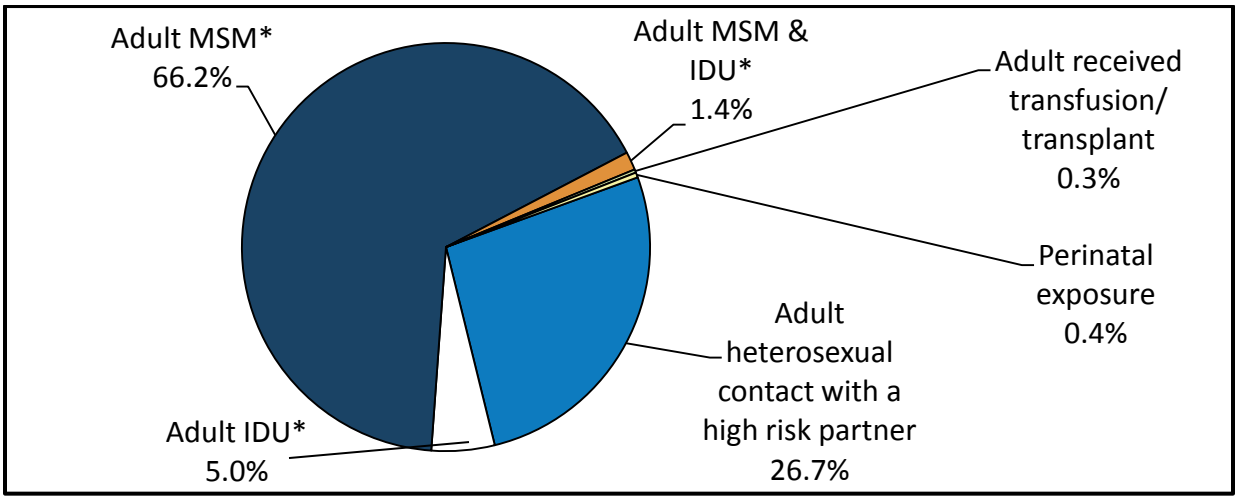
Figure 55: Incidence of HIV and AIDS, Fairfax County, 2000-2009



Source: FCHD, Communicable Disease Surveillance Data, 2010.

Although all racial and ethnic groups in Fairfax County are affected, HIV/AIDS disproportionately impacts particular segments of the population. Between 2000 and 2009, non-Hispanic Blacks accounted for 44 percent of all HIV cases reported in Fairfax County, despite the fact that this demographic group makes up only 9 percent of Fairfax County's population. This corresponds to a disease incidence rate that is nearly 9 times greater than that seen among White residents. Although less dramatic, Hispanics are also disproportionately affected, with a rate almost 3 times that seen among Whites. These disparities have remained relatively constant over the last 10 years.

Figure 56: Risk Factors Reported Among Newly Diagnosed HIV Cases, Fairfax County, 2000-2009



**MSM=Men who have sex with men; IDU=Intravenous drug use*

Source: FCHD, Communicable Disease Surveillance Data, 2010.

In Fairfax County, men having sex with men was the most commonly reported risk factor among individuals diagnosed with HIV, followed by adult heterosexual contact with a high risk partner. About 75 percent of HIV and AIDS cases identified between 2000 and 2009 were male. The most common age of infection for both HIV and AIDS was 30-39, with about 95 percent of HIV and AIDS cases occurring among those 20-59 years old.

Chlamydia

Chlamydia is the most commonly reported communicable disease in Fairfax County and there has been a clear increase in disease incidence over the last 10 years. Despite this increase, the incidence rate of chlamydia in Fairfax County remains comparatively low. The 2009 Fairfax County incidence rate for chlamydia (150 per 100,000) was lower than the Virginia rate (400.7 per 100,000), and the national rate (402.9 per 100,000) (CDC STD, 2010).

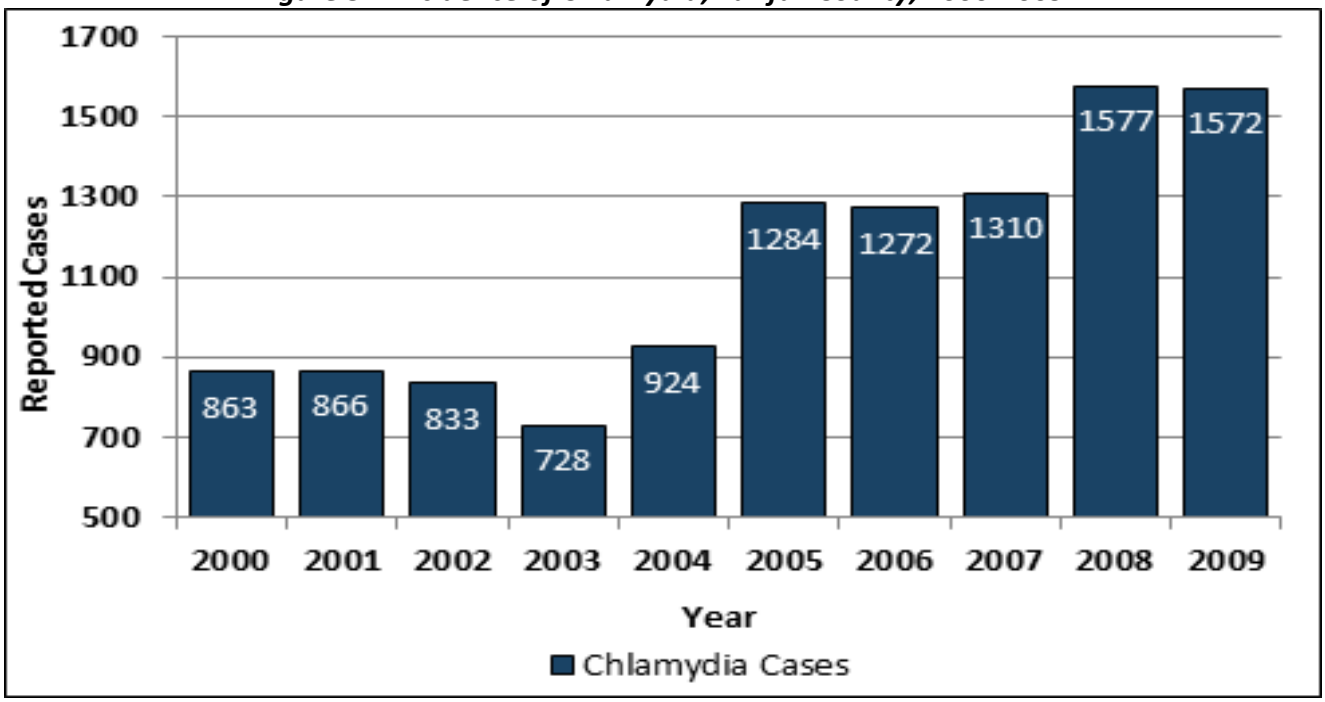
As with other sexually-transmitted diseases, the burden of illness is not uniformly distributed among racial and ethnic groups. Between 2000 and 2009, the rate of infection among non-Hispanic Blacks in

Fairfax County was nearly 7 times the rate of infection seen in Whites. The rate among Hispanics was about 3.5 times the rate for Whites. This is consistent with the national pattern (CDC STD, 2010).

In 2000-2009, approximately 70 percent of chlamydia cases were female. Eighty percent of new cases occurred among individuals between the ages of 15-29.

A testing bias towards females exists due to routine chlamydia testing during pregnancy and likelihood of screening during routine gynecological exams.

Figure 57: Incidence of Chlamydia, Fairfax County, 2000-2009



Source: FCHD, Communicable Disease Surveillance Data, 2010.

Gonorrhea

In the U.S., gonorrhea rates have fallen since the 1970s but have not fallen significantly in the past 10 years (CDC STD, 2010). Between 2000 and 2009, the incidence of gonorrhea in Fairfax County has varied from year to year with no discernable overall increase or decrease in disease rates. While the incidence of gonorrhea is comparatively low, the fluctuations in gonorrhea incidence have matched closely with those seen at the state and national level. The 2009 gonorrhea incidence rate for Fairfax County (20.6 per 100,000) was about one-fifth the Virginia state rate (100 per 100,000) and the national rate (99.1 per 100,000) (CDC STD, 2010).

The burden of disease caused by gonorrhea is not uniformly distributed across racial and ethnic groups. Between 2000 and 2009, Non-Hispanic Blacks accounted for 54 percent of all gonorrhea cases reported in Fairfax County, despite the fact that this demographic group makes up only 9

percent of Fairfax County's population. This is similar to national data, which shows most cases of gonorrhea occur in non-Hispanic Blacks (CDC STD, 2010).

In Fairfax County, about 45 percent of gonorrhea cases in 2000-2009 were female; this is somewhat lower than the national figure, which is over 50 percent female (CDC STD, 2010). The most common age of diagnosis is 20-24 years in Fairfax County, accounting for about 30 percent of the cases from 2000-2009.

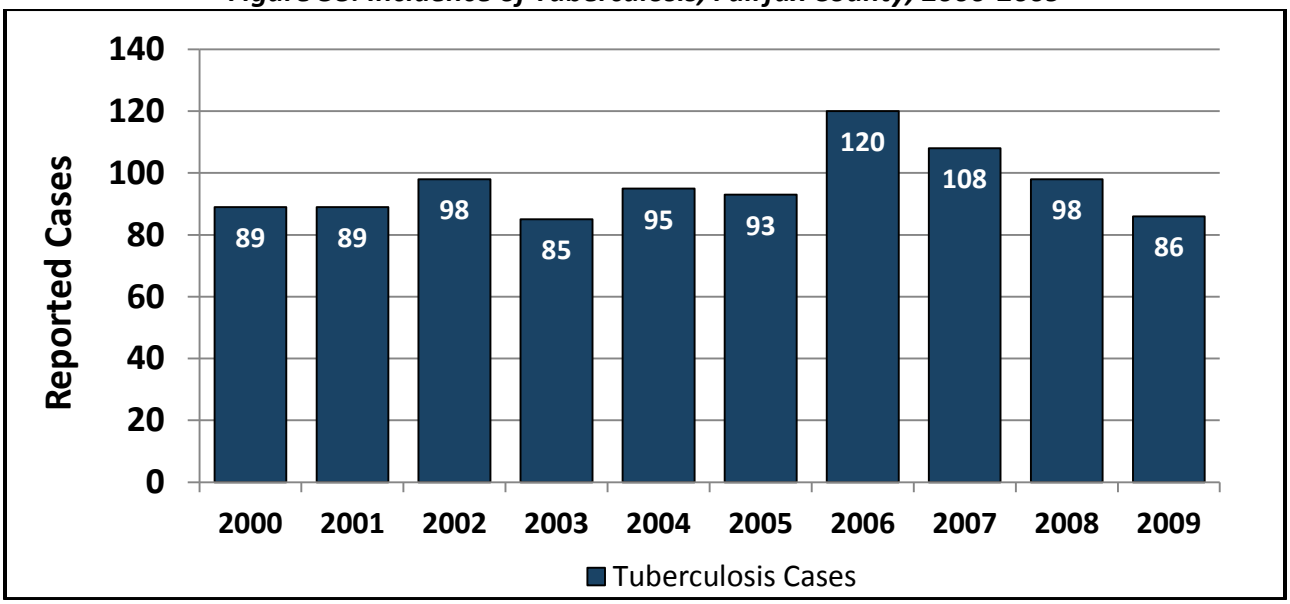
Syphilis

When compared to Chlamydia and gonorrhea, the burden of disease caused by syphilis in Fairfax County is low. In 2009, 37 cases of syphilis were reported in Fairfax County (rate of 3.5 per 100,000). Statewide, the syphilis rate among non-Hispanic Blacks was 11 times that seen among non-Hispanic Whites in 2009 (VHD). By risk group, men who have sex with men are the most severely affected by syphilis in Fairfax County.

Tuberculosis

Over the last decade, the number of tuberculosis cases reported in the U.S. has decreased by approximately 30 percent (CDC OTIS, 2010). This trend has been driven primarily by a decrease in cases among U.S.-born persons, while the number of cases among foreign-born persons has remained relatively stable.

Figure 58: Incidence of Tuberculosis, Fairfax County, 2000-2009



Source: FCHD, Communicable Disease Surveillance Data, 2010.

Approximately 91 percent of tuberculosis cases reported in Fairfax County between 2005 and 2009 were among individuals who were born in a country other than the U.S. This is much higher than the national percentage of 55-59 percent over the same period (CDC OTIS, 2010). About one-quarter of these foreign-born cases had been in the U.S. for less than 3 years, and one-half of foreign-born cases had been in the U.S. for less than 5 years. Given the extremely high percentage of foreign-born cases in Fairfax County, the local trend in tuberculosis incidence over the last decade has not mirrored the national decrease described above. Instead, the incidence of tuberculosis in Fairfax County has shown annual variation but no clear increase or decrease in disease incidence can be identified.

Each year between one-quarter and one-third of the tuberculosis cases identified in Virginia are Fairfax County residents (in contrast, Fairfax County accounts for only one-seventh of Virginia's population). Not surprisingly, the 2009 tuberculosis incidence rate for Fairfax County (8.2 per 100,000) was more than double the statewide rate (3.5 per 100,000) and U.S. rate (3.8 per 100,000) (CDC OTIS, 2010).

About 41 percent of Fairfax County cases in 2007-2009 were female, which was similar to the national percentage. From 2005-2009, approximately two-thirds of cases occurred among individuals 25-44 years of age. Nationally, during the same period, only one-third of cases were in that age group (CDC OTIS, 2010).

In terms of race and ethnicity, the tuberculosis incidence rate in Fairfax County in 2009 was highest among Asian and Pacific Islanders (32.9 per 100,000), followed by Hispanics (18.4 per 100,000), and non-Hispanic Blacks (16.0 per 100,000). The incidence rate among Whites was relatively insignificant (less than 1 per 100,000). This pattern was similar to that seen nationwide (CDC OTIS, 2010).

Tuberculosis bacteria can become resistant to the medicines used to treat the disease. Between 2005 and 2009, approximately 9 percent of Fairfax County tuberculosis cases exhibited isoniazid resistance and 7 cases of multidrug resistant tuberculosis were identified. Fifteen cases of tuberculosis/HIV co-infection were reported between 2005 and 2009.

Rabies

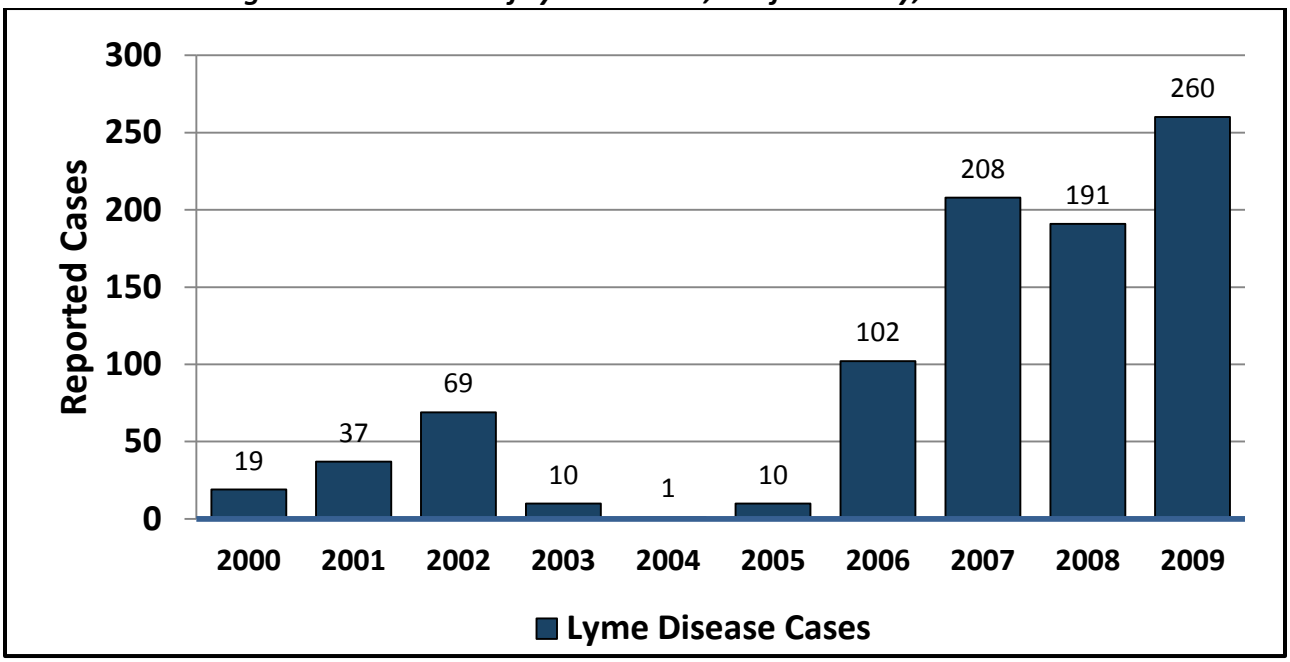
In Fairfax County, rabies primarily affects wild mammals, with human and domestic animal disease occurring much less frequently. From 2000-2009, an average of 60 laboratory-confirmed rabid animals were identified each year in Fairfax County. Raccoons tested positive most often, followed by skunks, foxes, and bats. Domestic cats represented a very small proportion of the cases, and most of the rabid cats identified were feral. Very few domestic dogs tested positive for rabies during this 10 year timeframe.

Only two human rabies cases were diagnosed in Fairfax County between 2000 and 2009, (1 in 2003 and 1 in 2009), both resulting in death. The human and resource impact of rabies in Fairfax County, however, is greater than the number of diagnosed cases among residents. Annually, there are large numbers of human exposures to rabies by animal bites. From 2000-2009, the Fairfax Animal Service Division received on average nearly 1,000 reports of humans who were bitten or otherwise exposed to potentially rabid animals. Each of these reports required large resource expenditures to find, quarantine, and/or test the offending animal. Additionally, a large number of the people exposed to potentially rabid animals required time-consuming and costly post-exposure prophylaxis. Over 900 courses of rabies post-exposure prophylaxis were given in Fairfax County between 2000 and 2009.

Lyme Disease

Lyme disease is the most commonly reported vector-borne disease in the United States. The geographic distribution of this disease is highly focused, with the majority of reported cases occurring in the northeastern and north central states. In recent years, the northeastern zone of disease activity has expanded southward and westward to include Northern Virginia. As a result, the incidence of Lyme has increase substantially since the early 2000s.

Figure 59: Incidence of Lyme Disease, Fairfax County, 2000-2009



Source: FCHD, Communicable Disease Surveillance Data, 2010.

Between 2000 and 2009, Fairfax County experienced a 13-fold increase in the number of reported cases of Lyme disease, from 19 cases in 2000 to 260 cases in 2009. This increase was consistent with trends seen in neighboring jurisdictions and suggests that Lyme disease is now endemic in Northern

Virginia. The 2009 Fairfax County Lyme disease rate of 24.8 per 100,000 persons, although slightly lower than the rate for the Northern Virginia Region (26.4 percent), was more than double the statewide rate (11.7 percent).

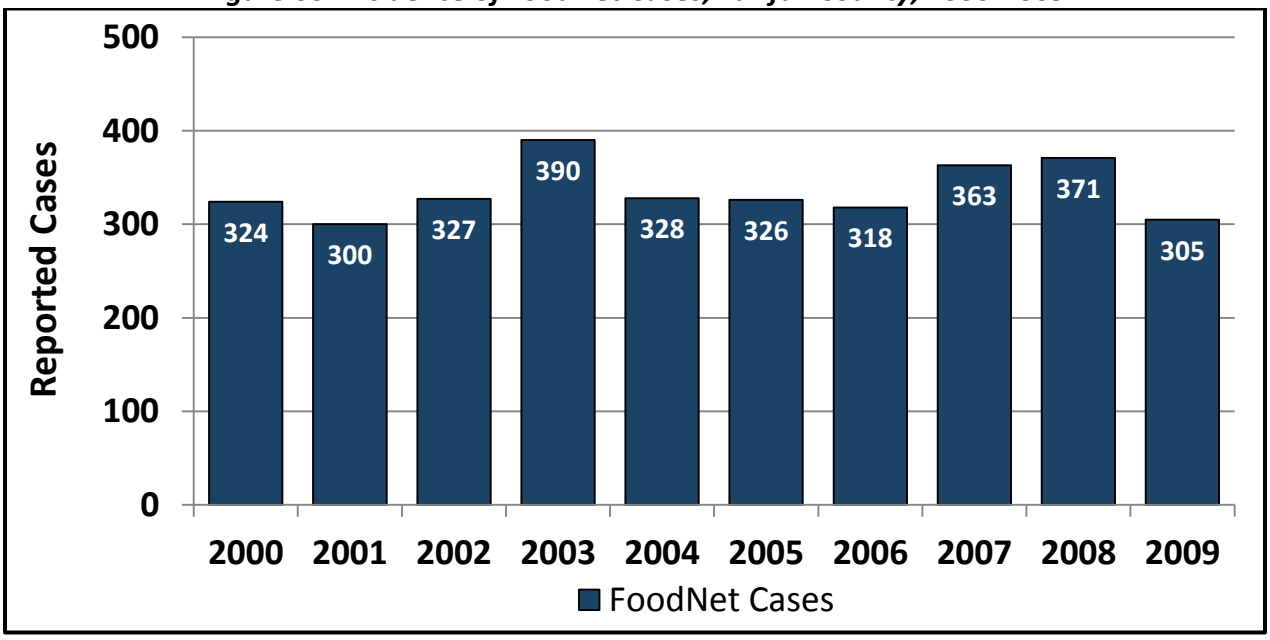
Lyme disease cases are not spread equally over all parts of the county. The highest rates of disease are found in the less densely-populated western portions of the county. However, cases are reported from all areas of the county and all Fairfax County residents are at risk. Lyme disease occurs throughout the year in Fairfax County. However, disease incidence is highest during the early summer months when the activity of nymphal *Ixodes scapularis* ticks (which pass the disease to humans) is highest.

Foodborne Illness

In Fairfax County, individual foodborne pathogens showed yearly variation and longer-term increases or decreases in incidence over the last decade (e.g., annual *Campylobacter* incidence increased steadily). However, the aggregate trend for the incidence of the 10 Centers for Disease Control and Prevention FoodNet pathogens in Fairfax County between 2000 and 2009 was cyclical, relatively stable, and without a clear trend.

The CDC FoodNet pathogens are Campylobacter, Cryptosporidium, Cyclospora, Listeria, Salmonella, Shiga toxin-producing Escherichia coli (STEC) O157, Shigella, Vibrio, and Yersinia.

Figure 60: Incidence of FoodNet Cases, Fairfax County, 2000-2009



Source: FCHD, Communicable Disease Surveillance Data, 2010.

In Fairfax County, as in the United States as a whole, S*almonella* and C*ampylobacter* were the most commonly reported causes of foodborne illness over the last 10 years. The 2009 Fairfax County incidence rates for C*ampylobacter* and *Salmonella* were comparable to the statewide and national rates (CDC, Preliminary FoodNet, 2010).

CHAPTER 9: ENVIRONMENTAL HEALTH AND CONDITIONS

A number of factors affect environmental health conditions. Especially important are factors related to pollution and sanitation. For purposes of the CHSA, 8 environmental health indicators were selected as the most relevant for the health assessment of the Fairfax Community. They include a variety of indicators related to quality and safety of air, water, and sewage management, as well as toxin exposures. The data in this section were provided by the Fairfax County Health Department's Environmental Health Division.

County Oversight for Environmental Health

In Fairfax County, the Environmental Committee of the Board of Supervisors periodically convenes special working meetings to consider environmental issues that affect the county. It also relies on the Environmental Quality Advisory Council (EQAC) and Environmental Coordinating Council (ECC) on matters pertaining to environmental health and safety. The EQAC is responsible for the ongoing review of the quality of the county's physical environment and for advocating and promoting environmental preservation, protection, and enhancement. The ECC is responsible for implementing the Board's environmental agenda regarding policy for growth and land use; air quality and transportation; water quality; solid waste; parks, trails and open space; environmental stewardship; and trees and climate change.

In the Fairfax County Health Department, the Division of Environmental Health Services (DEH) protects the public health through a variety of regulatory activities. These activities include permitting, regulating, and inspecting: onsite sewage disposal systems, private water supplies, food service establishments, milk plants, swimming pool facilities, tourist establishments, summer camps, campgrounds, tattoo parlors, and religiously exempt childcare centers. Also under FCHD purview are the elimination of public health or safety menaces caused by rats, trash, insect infestations, and mosquito and tick surveillance activities. The DEH also conducts an active public education program through local community events and its Environmental Health Ambassador program.

Air Quality

The National Ambient Air Quality Standard (NAAQS) for a maximum 8-hour average for ozone was reduced from 0.08 ppm to 0.075 ppm effective May 27, 2008. EPA has designated the WMA (which includes Fairfax County) as a moderate non-attainment area for the 8-hour NAAQS for ozone. Significant progress in reducing the 8-hour ozone concentration has been made in the last 10 years, reducing the maximum 8-hour ozone concentration from 0.125 in 2000 to 0.083 in 2010. The number of ozone exceeding days has decreased since 1998, from 24 to 8, and the overall levels of ozone are

decreasing. In spite of this progress, Northern Virginia continues to have the highest ozone levels in the state (University of Wisconsin, 2010).

Figure 61: Maximum 8-Hour Ozone Concentration, Fairfax County, 2008-2010

Year	Maximum Concentration *
2008	0.103
2009	0.080
2010	0.083

* Value represents the highest 8-hour value recorded from any monitor in the county.
Source: Virginia Department of Environmental Quality (DEQ), 2008.

The University of Wisconsin (2010) identified Fairfax County as last (out of 132 jurisdictions) statewide for overall physical environment. That low ranking was due to Fairfax County's air quality, which was rated as the poorest in the state (due to noncompliance with particulate and ozone standards). Since that report, Fairfax County has come into compliance with the particulate standard but continues to be noncompliant with the ozone standard. The major causes of ozone in Fairfax County are transportation related:

- Residents driving more miles, in part because of sprawling development;
- More vehicles on the road, due to population increases, interstate transit, greater affluence (families owning more vehicles), and limited mass-transit options;
- Residents driving more high-pollution-emission vehicles (i.e., sport utility vehicles, pickups, and minivans);
- Industrial emissions produced elsewhere blown into the area.

Figure 62: Average Ozone Concentration, Fairfax County, 2006-2008

Monitor Location	2006	2007	2008	3-Year Average
Lee Park (State owned monitor)	0.087	0.085	0.085	0.085
McLean (County owned monitor; taken off line July 1, 2010)	0.088	0.083	0.08	0.083
Chantilly (County owned monitor; taken off line July 1, 2010)	0.081	0.078	0.078	0.079
Annandale (County owned monitor; taken off line July 1, 2010)	0.085	0.084	0.082	0.083
Mt. Vernon (County owned monitor; taken off line July 1, 2010)	0.088	0.088	0.085	0.087

Source: DEQ, 2008.

Studies conducted by the Maryland Department of Environmental Protection and the University of Maryland have estimated that approximately 40-60 percent of the ozone measured in the region comes from outside the WMA. Addressing these issues in the future will require the concerted efforts of regional governments and national policy changes. The steps the county has taken through the Clean Counties Initiative will be helpful, but the full resolution of the problem is clearly beyond the ability of local efforts to correct.

Motor Vehicle Emissions

Fairfax County Government is participating in several regional initiatives in attempt to reduce motor vehicle emissions, including increasing teleworking and utilization of more fuel-efficient vehicles. As of August 2010, the county achieved the regional goal of having at least 20 percent of the eligible workforce teleworking at least 1 day per week. The percentage of the county vehicle fleet that uses either alternative or advanced technology (hybrid) fuels has been increased to: 53 Toyota Priuses, 55 Ford Escape Hybrids, 3 Ford Fusion Hybrids, and 1 Freightliner M2-106 dry cargo van. The county operates 1 plug-in hybrid electric vehicle (PHEV), a modified Toyota Prius. As other prototype or early-production vehicles become available, the county will consider whether to conduct demonstrations for future acquisition consideration.

Through FY 2007 the county was able to fund the incremental cost of hybrid drive vehicles in the fleet through the Vehicle Replacement Fund. However budgets adopted subsequent to FY 2007 have severely limited the county's ability to meet the higher cost of hybrid vehicles. Committed to improving the county's fleet, Energy Efficiency and Conservation Block Grants are being explored to finance part of the cost of purchasing hybrid school buses and refuse collection trucks.

Alternative Onsite Sewage Systems (AOSS)

The county is moving to increase the percentage of Alternative Onsite Sewage Systems (AOSS) operating as designed based on annual inspection reports. On April 7, 2010, Emergency Regulations for AOSS became effective. These regulations establish performance, operation and monitoring requirements and horizontal setbacks for alternative onsite sewage systems necessary to protect public health and the environment. All owners of an AOSS were required to have operation and maintenance agreements in place and a preliminary inspection completed by April 6, 2011. The FCHD worked with homeowners to establish operation and maintenance agreements as required and is establishing a system to track compliance.

Fairfax monitors the number of AOSS repair permits issued. A total of 775 repair permits were issued during the period of July 1, 2009 through June 30, 2010, in line with prior years.

Water Quality

The quality of groundwater sources for drinking is regulated by the Office of Water Programs (OWP) in the Virginia Department of Health. OWP receives monitoring information from 1,281 community waterworks throughout indicated that no violations were reported for that year.

Surface water systems are regulated by the Virginia Department of Environmental Quality. A summary of selected contaminants seen in the Potomac River Basin is provided in the following table.

Figure 63: Concentrations of Selected Contaminants, Potomac River Basin, 2006

Contaminant Type	Contaminant	Concentration (ppb)
Metals	Mercury	0.00057
	Arsenic	0.75
	Lead	0
Pesticides (All Sediment Samples)	Toxaphene	3.41
	DDT	4
	Heptachlor	4.04
	Chlordane	4.04
	Endrine	4.04
	Aldrin	4.04
	Dieldrin	4.04

Source: DEQ, 2010.

Most of the marine and freshwater recreational waters in Fairfax County fail to meet water quality regulations and guidelines. The county has adopted a public education approach that notifies the public of the limitations of the county's recreational waters, which includes focused public messages at certain times of the year when recreational water usage peaks.

Lead Exposure

Fewer than 1 percent of all children under the age of 6 years were found to have elevated blood lead levels. The percentage of children with elevated blood lead levels in Fairfax County is in line with what is observed statewide.

Figure 64: Elevated Blood Lead Levels, Children Under 6 Years of Age, 2009

	Pop. <72 Months	Number Tested	Number Elevated Blood Lead	Percent Elevated	UG/DL*				
					10-14	15-19	20-44	45-69	>70
Fairfax	81,675	12,036	31	0.3	23	3	5	0	0
Virginia	557,454	102,532	417	0.4	287	62	61	7	0

*microgram per deciliter

Source: VDH, Lead Safe Program, 2009.

CHAPTER 10: HEALTH DISPARITIES

Most of the community health status indicators of the Fairfax Community are favorable on the aggregate. However, the disaggregated data illustrate that segments of the community are not faring as well as the general population. The data featured in this section are pulled from the previous chapters in order to highlight the population groups and health areas where there are evident differences in health outcomes. Where local data were unavailable, state level data on health disparities is presented.

These gaps in health outcomes between segments of the population are commonly referred to as health disparities by the Centers for Disease Control and Prevention (CDC), U.S. public health literature, and U.S. federal laws (Patient Protection and Affordable Care Act, 2010; Health Care and Education Reconciliation Act, 2010). Health disparities include the differences in health status among distinct groups that occur by social, demographic, environmental, and geographic attributes (Carter & Baquet, 2002). These attributes are often referred to as the social determinants of health (SDOH), those interrelated social and economic factors that impact health (e.g., socioeconomic status, child development, culture, social support, and housing).

Health inequalities, a term that is sometimes used interchangeably with health disparities, is more often used in the scientific and economic literature to refer to summary measures of population health associated with individual or group-specific attributes (e.g., income, education, race, ethnicity) (Asada, 2010). Health inequities are a subset of health inequalities that are modifiable, associated with social disadvantage, and considered ethically unfair (Braveman & Gruskin, 2003). Eliminating health inequities requires addressing the unequal distribution of the SDOH across the community, which is why understanding health disparities is essential when planning initiatives, developing policy, and implementing public health interventions.

The CDC issued the first U.S. Health Disparities and Inequalities Report as an important "milestone in CDC's long history of working to eliminate disparities" (Truman et al, 2011). The report provides the most recent national data on mortality, morbidity, behavioral risk factors, healthcare access, preventative health services, and social determinants of health. The report outlines substantial evidence for the persistence of disparities in life expectancy, morbidity, risk factors, and quality of life among segments of the U.S. population. Specifically, it reports inequalities in income, morbidity, mortality and self-reported health days that indicate considerable and persistent gaps between the most and least healthy in the U.S. It also suggests that awareness of the problem is insufficient for making changes and calls for targeted interventions to eliminate disparities (CDC, April 2011).

Virginia Health Disparities

The Virginia Department of Health issued the *Virginia Health Equity Report 2008: Unequal Health Across the Commonwealth* (VDH Office of Minority Health and Public Policy, 2008) to draw attention to the inequities in health experienced by particular racial and ethnic minorities and individuals with low incomes. The report identified inequities in birth outcomes, life expectancy, and mortality when comparing more and less socially-advantaged populations in Virginia. The findings included:

- Lesser-educated individuals and communities with higher concentrations of poverty consistently experienced poorer health status across almost all health indicators;
- Blacks had shorter life expectancies and higher age-adjusted mortality rates for most of the major causes of death compared to other racial and ethnic groups;
- Hispanic/Latino and Asian populations, on average, experienced lower age-adjusted mortality rates than Whites and Blacks;
- Teenage pregnancy rates were highest among Black and Hispanic/Latino youth;
- Black and Hispanic/Latino infants were more likely to be born to unwed mothers;
- A higher percentage of Hispanic/Latino mothers had less than 7 years of education than mothers from other racial/ethnic groups;
- The percentage of low-weight births among the least-educated women was twice that of the most-educated women; and
- The percentage of Black low-weight births was over twice that of any other racial and ethnic group.

According to VDH, a gradient in health follows the socioeconomic gradient, such that Virginians of high socioeconomic status (SES) live longer and healthier lives than Virginians of middle SES. They in turn live longer and healthier lives than Virginians of lower SES. The association between individual and neighborhood-level socioeconomic status and poor health extends across several health outcomes (e.g., heart disease, HIV/AIDS, lead poisoning, asthma), each with differing causes and associated risk factors. As a result, many of the SDOH discussed previously have been recognized as root causes of disease (VDH Office of Minority Health and Public Policy, 2008).

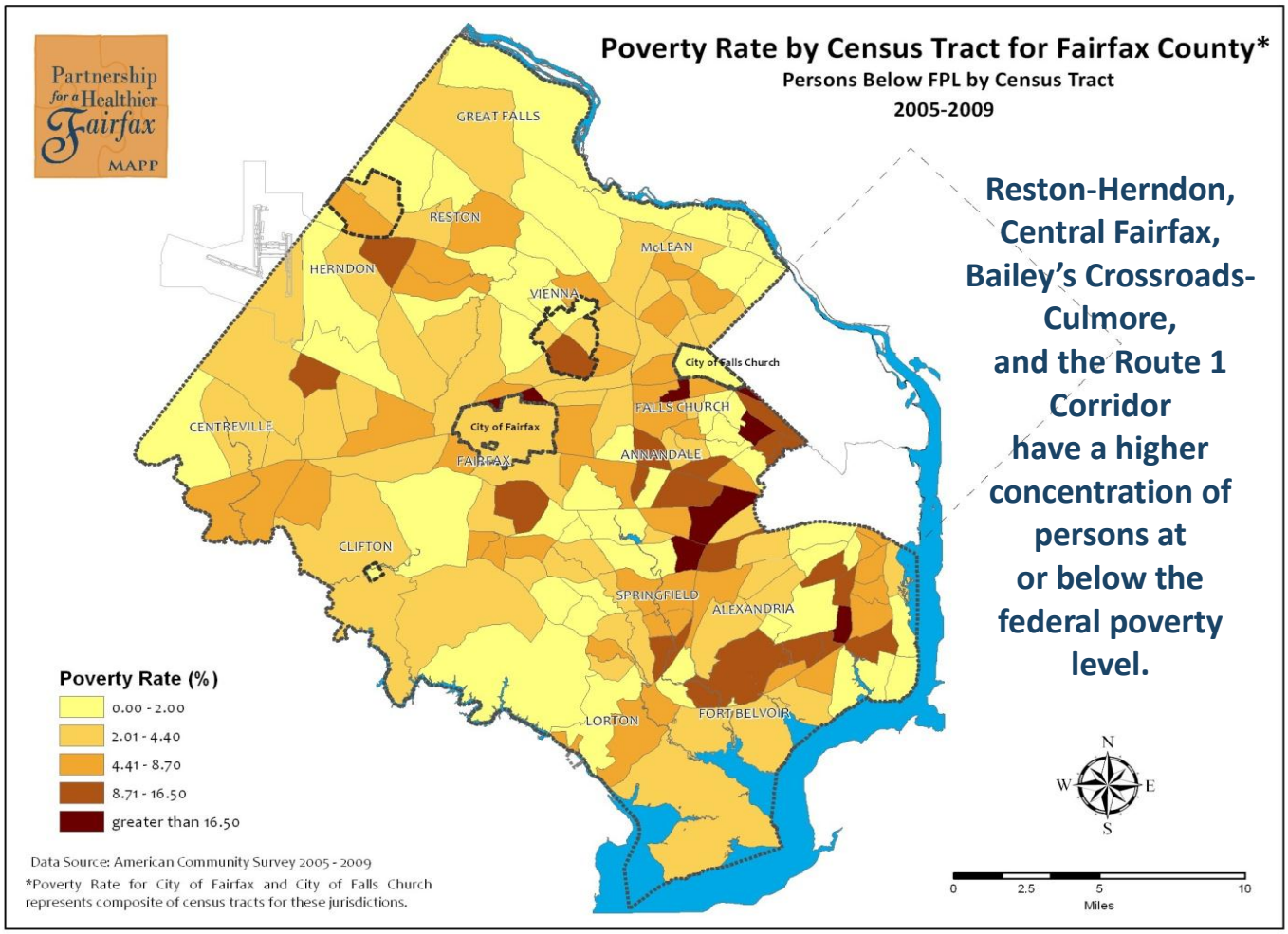
Fairfax Community Health Disparities

To gain a better understanding of the burden of disease and health outcomes in specific groups, mortality, maternal and child health, and communicable disease indicators were examined with particular sensitivity to race/ethnicity, geographic location, and socioeconomic conditions. While many favorable findings related to health were found, there was also evidence that segments of the Fairfax Community are subject to higher risks and excessive disease burden (especially specific racial groups, low-income residents, and those with low levels of educational attainment).

Poverty

As reported in Chapter 1, since 2000 the WMA has been experiencing the suburbanization of poverty. Between 2000 and 2009, the number of residents in Fairfax County living below the poverty level increased 33 percent. In 2009, 3.5 percent of families in the county and 5.6 percent of individuals reported incomes below the poverty level. The poverty rate in Fairfax County is 5.2 percent of the population (51,491 people) (U.S. Census, 2009).

Figure 65: Poverty Rate by Census Tract, Fairfax County, 2005-2009



Source: U.S. Census, 2005-2009.

Countywide, 11.8 percent of Blacks live in poverty; 10.0 percent of Hispanics; and 16.5 percent of families with a female head of household (no father present and children under 8). Among all county residents, 12.4 percent have incomes under 200 percent of poverty ($44,100 per year for a family of

4). Among Fairfax children, 6.8 percent of those 18 or younger live in poverty, as do 8.4 percent of children age 5 and under (U.S. Census, 2009).

In Fairfax, adults with higher levels of education are less likely to live below poverty. Only 2.0 percent of Fairfax County adults with a bachelor's degree or more education live below poverty compared to 9.0 percent of those with only a high school diploma, and 15.7 percent of those with less than a high school education. Not surprisingly, residents with higher education have higher income levels (U.S. Census, 2009).

Geography

The geographic areas of the Fairfax Community where poverty rates are highest are also some of the most racially and ethnically diverse census tracts in the community. Census tracts located in the Reston-Herndon area, Central and Eastern Fairfax (especially Bailey's Crossroads-Culmore area), and the Route 1 Corridor have the highest levels of diversity. As illustrated by the prior map, these areas also have the highest concentration of families living in poverty. Analysis of hospital and emergency department utilization indicates that those living in these areas are more likely to be among those who use the emergency department for non-emergent care (HSANV, 2010).

Maternal and Child Health

With regard to maternal and child health indicators, racial and ethnic minorities and individuals living in poverty had the poorest outcomes. Rates for pregnancy, low-weight births, and infant deaths were higher among Blacks than any other racial group.

Figure 66: Fetal, Neonatal, and Infant Deaths by Race, Fairfax County, 2009

Deaths	Count				Per Population			
	White	Black	Other	Total	White	Black	Other	Total
					Per 1,000 Females Ages 15-44			
Natural Fetal Deaths	668	76	147	891	4.69	2.99	3.39	4.22
					Per 1,000 Resident Live births			
Neonatal Deaths (<28 days old)	43	12	9	64	4.1	7.7	2.6	4.1
Early Infant Deaths (<1 day old)	28	9	6	43	2.7	5.8	1.8	2.8
Total Infant Deaths	56	20	11	87	5.3	12.8	3.3	5.6

Source: VDH, Division of Health Statistics, 2011.

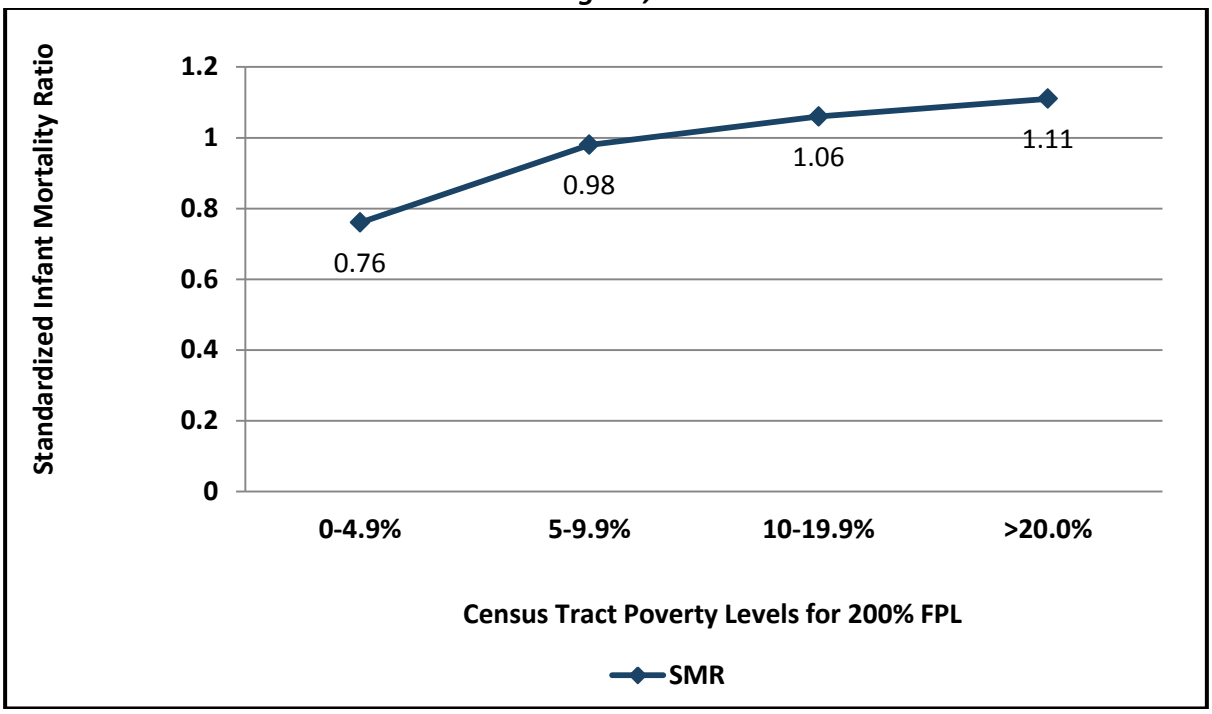
LBW and infant deaths also occurred disproportionately among Blacks; in 2009, 9.1 percent of Black births were low-birthweight, compared to 7.4 percent of all births, 6.8 percent of White births, and

8.7 percent of "Other" racial group births. The rate of neonatal deaths was also higher among Blacks: 7.7 per 1,000 for Blacks, 4.1 per 1,000 for Whites, and 2.6 per 1,000 for "Other" races. In addition, Blacks experienced higher early infant death rates as well: 5.8 per 1,000 for Blacks compared with 2.7 per 1,000 for Whites, and 1.8 per 1,000 for "Other" races. Finally, total infant death rates were also higher in Blacks: 12.8 per 1,000 compared with 5.3 per 1,000 Whites, and 3.3 per 1,000 "Other" races (VDH, Division of Health Statistics, 2011).

The teenage pregnancy and birth rates for the region were low when compared to other districts in the state, and peer communities nationwide. However, racial and ethnic disparities were apparent. The rate of teen pregnancies in Blacks was 16.5 per 1,000 females, compared to 11.0 per 1,000 Whites and 5.8 per 1,000 for "Other" racial groups. The rate of live births to Black teens is 11.2 per 1,000, compared to 7.9 and 3.4 for Whites and "Other" racial groups respectively.

As part of the *2008 Health Disparities Report*, VDH analyzed infant mortality by poverty (2001-2005) and found higher mortality ratios among those living in poverty in Northern Virginia and statewide. The figure below illustrates that the census tracts with higher levels of poverty also had higher infant mortality ratios (VDH Office of Minority Health and Public Policy, 2008).

Figure 67: Standardized Infant Mortality Ratio by Census Tract Poverty Level, Northern Virginia, 2001-2005



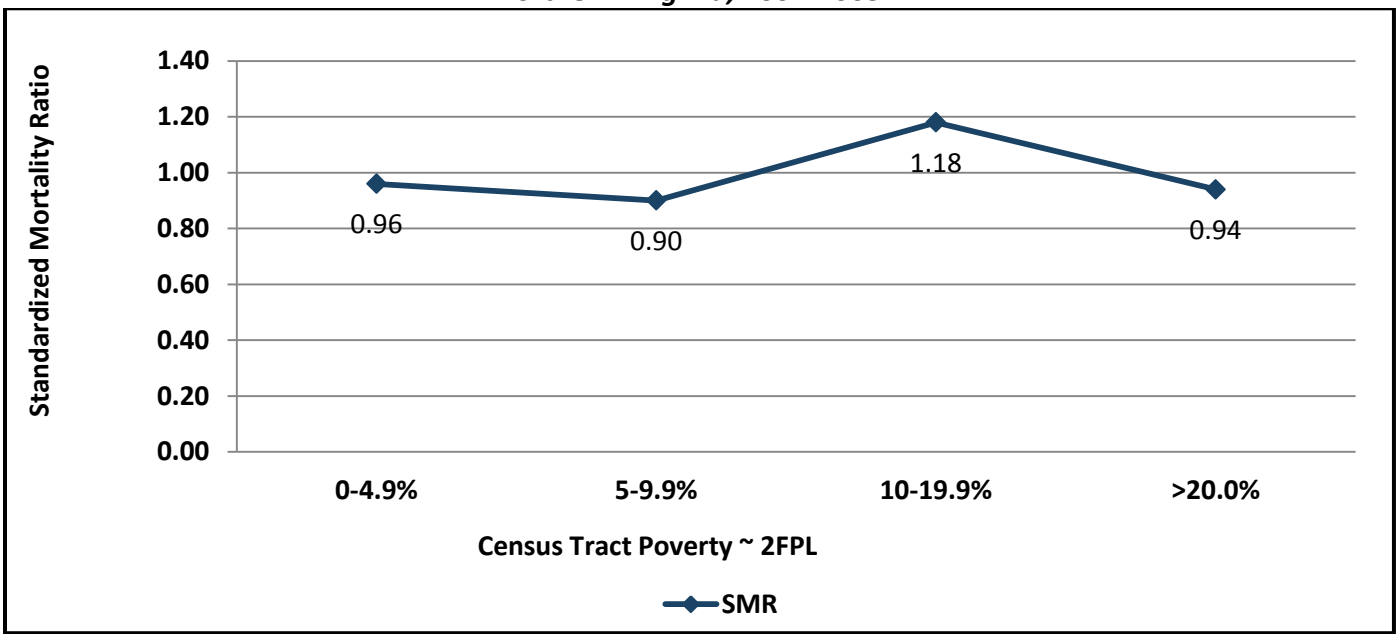
Source: VDH, Office of Minority Health and Public Policy, 2008.

General Mortality

A standardized mortality rate (SMR) greater than 1.0 indicates a higher-than-expected death rate, while a SMR less than 1.0 indicates a death rate that is lower than expected.

There is a lack of sub-state level data describing disparities related to education and poverty for mortality indicators. As a result, data on state level health disparities were obtained from the *Virginia Health Equity Report 2008*. According to that report, mortality rates increase as educational attainment decreases across almost all causes of death (suicide being the exception). The mortality rate for the least-educated was higher than the rate for the most-educated: Virginians with less than 12 years of education have the highest mortality rates, followed by those with 12 years of education, and the lowest death rates are among those with more than 12 years of education. The mortality rates across 13 causes of death for Virginians less than 12 years of education range from 1.7 times higher (cancer) to 8.5 times higher (homicide) than Virginians with more than 12 years of education. For Virginians with 12 years of education, their mortality rates range from 1.6 times higher (cancer) to 4.7 times higher (homicide) than Virginians with more than 12 years of education (VDH Office of Minority Health and Public Policy, 2008).

Figure 68: Standardized Mortality Ratio by Census Tract Poverty Level, Northern Virginia, 2001-2005



Source: VDH, Office of Minority Health and Public Policy, 2008.

The *2008 Virginia Health Equity Report* summarizes the mortality for all causes relative to the mortality that would be expected, based on the demographics of the population living within each census tract

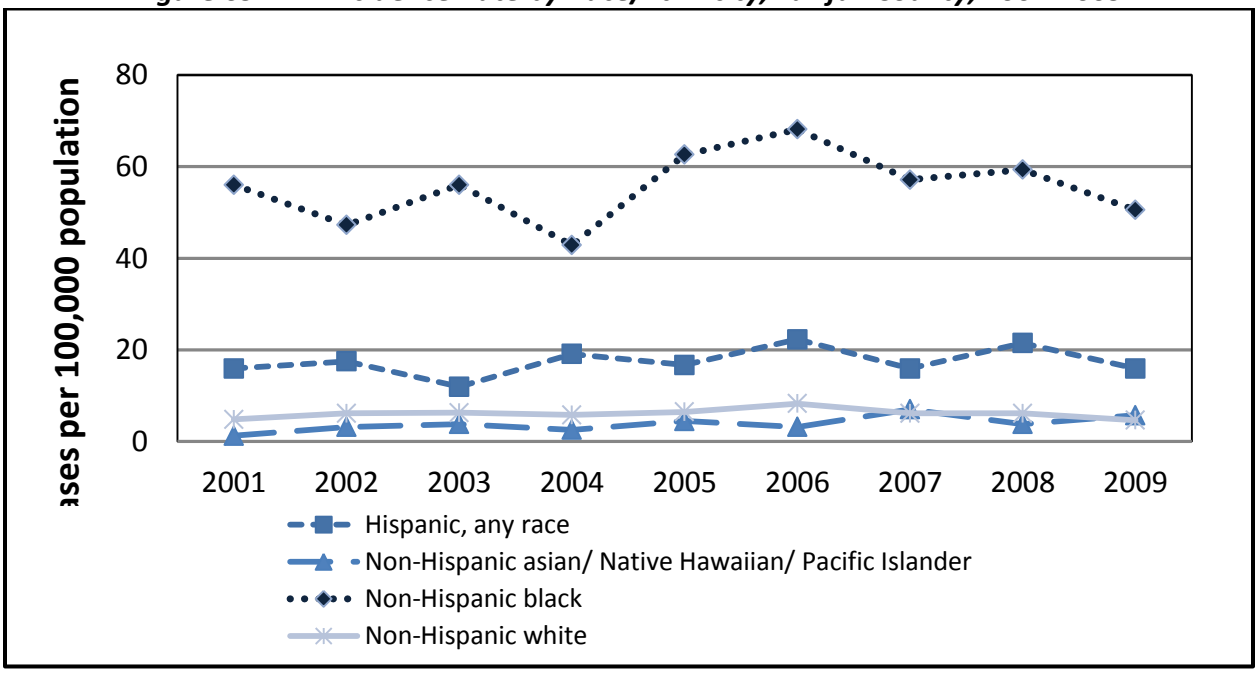
and poverty levels. From 2001 - 2005, as poverty levels increased in the census tract areas, standardized mortality increased. This is consistent with nationwide data demonstrating that the gradient in health status is not just for "poor" and "non-poor." At each decreasing step of socioeconomic status (in this case, as census tract poverty increases) health status worsens (VDH, Office of Minority Health and Public Policy, 2008).

In Fairfax County, Blacks had disproportionately higher mortality rates than Whites for the 3 leading causes of death (heart disease, cancer, and cerebrovascular disease). For other causes of deaths, Whites had the highest rates for unintentional injury, chronic lower respiratory disease, Alzheimer's disease, influenza/ pneumonia, and suicide, while Blacks had the highest rates for diabetes, nephritis/nephrosis, septicemia, homicide, and HIV/AIDS. In short, Fairfax County Blacks experience a higher disease burden across almost all age spans when compared to Whites (VDH, Vital Health Statistics, 2009).

Communicable Diseases

Significant health disparities exist for specific reportable communicable diseases in the Fairfax Community. These disparities are most notable for HIV/AIDS, sexually-transmitted diseases (e.g., Chlamydia and gonorrhea), and tuberculosis. For each of these diseases, these disparities have remained relatively constant over the last 10 years (FCHD, Communicable Disease Surveillance Data, 2010).

Figure 69: HIV Incidence Rate by Race/Ethnicity, Fairfax County, 2001-2009



Source: FCHD, Communicable Disease Surveillance Data, 2010.

In Fairfax County, as in the rest of the U.S., men having sex with men was by far the most commonly reported risk factor among individuals diagnosed with HIV between 2000-2009. By racial and ethnic group, the HIV incidence rate for non-Hispanic Blacks was nearly 9 times greater than that seen among White residents over the same time period. Hispanics were also disproportionately affected, with an incidence rate almost 3 times that seen among Whites.

Similar disparities among racial and ethnic groups were noted for Chlamydia and gonorrhea. For example, the Chlamydia incidence rate among non-Hispanic Blacks was nearly 7 times that seen among Whites and the rate among Hispanics was approximately 3.5 times the rate for Whites.

In Fairfax County, over 90 percent of tuberculosis cases diagnosed between 2000 and 2009 were among foreign-born residents, the majority of whom have resided in the U.S. for less than 5 years. The remainder of tuberculosis cases occurred among native-born U.S. residents from a variety of racial and ethnic groups, with White residents very rarely affected (incidence rate of less than 1 per 100,000 in 2009).

Health Workforce

While the Fairfax Community continues to diversify, the health workforce (almost all professions) lags in its diversity representation of racial and ethnic minorities (especially physicians and nurses). In the face of a forecasted future shortage of physicians (primary care physicians, oral and mental health providers), White physicians and dentists are far less likely than their minority colleagues to practice in federally designated shortage areas, to see minority patients, and to accept Medicaid patients. Racial concordance of patient and provider is associated with greater participation in care, higher patient satisfaction, and greater adherence to treatment as needed. There is concern about the future adequacy of the supply and composition of the health workforce to address the needs of racial and ethnically diverse populations, the aged, mentally ill and disabled, as well as those with chronic illness. While Virginia and other states have undertaken many initiatives to improve the "pipeline" of minority practitioners, more must be done to meet population needs in the Fairfax Community.

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