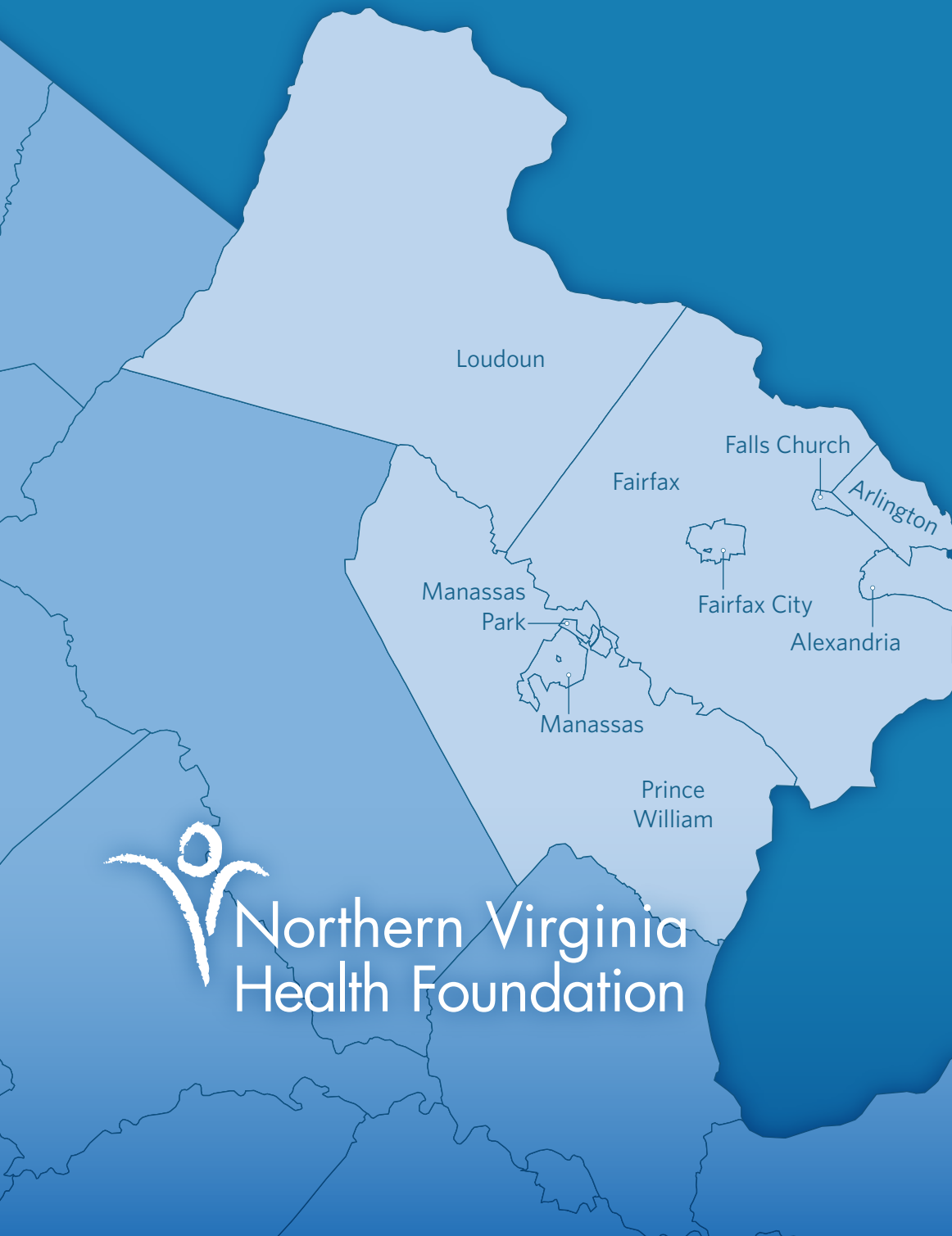


How Healthy Is Northern Virginia?

A Look at the Latest Community Health Indicators

MAY 2013



Northern Virginia
Health Foundation

Table of Contents

Executive Summary	1
Introduction	2
SECTION I	
<i>County Health Rankings</i>	4
SECTION II	
City and County Health Indicators	8
SECTION III	
<i>The Health Opportunity Index</i>	27
SECTION IV	
From Indicators to Action	32
APPENDIX A	
<i>County Health Rankings and Indicators (2013)</i>	33
APPENDIX B	
Northern Virginia Census Tracts Ranked on the <i>Virginia Health Opportunity Index</i>	38
APPENDIX C	
Selected Indicators from the <i>Oral Health In Northern Virginia Report (2011)</i>	49
Acknowledgements	50

Executive Summary

Northern Virginia is a region of roughly 2.2 million people living in four counties: Arlington, Fairfax, Loudoun, and Prince William, and the cities of Alexandria, Fairfax City, Falls Church, Manassas, and Manassas Park. The region, which neighbors the nation's capital, is one of the most prosperous in the nation and, at the same time, one of the most diverse, with about 42 percent of the population Hispanic, Asian, and African American, among other racial and ethnic groups.

By many accounts, the health of residents of Northern Virginia is quite good: According to the *County Health Rankings* published by the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute, seven of the nine jurisdictions in Northern Virginia ranked in the top ten of 133 Virginia cities and counties for health outcomes.

But dig a little deeper, and the reality of Northern Virginia's health status is revealed:

- More than 1 million adult residents are overweight or obese;
- More than 340,000 adults are at risk for binge drinking;
- One quarter of all youth admit that they have felt sad or hopeless for two or more weeks in a row;
- More than one quarter of all youth can be classified as overweight or obese;
- More than 400,000 adults have not had a dental visit in the last two years;
- Roughly 35 percent of all kindergarten to 12th grade students are eligible for free or reduced lunch; and
- More than 5,000 pregnant women gave birth without receiving early prenatal care.

We know that some of these realities are based on income—or, rather, limited income. But others are not. They reflect the fact that many residents, from various income levels and various racial and ethnic groups, face conditions that are challenging to their health.

We know, too, that many of the conditions that contribute to poor health are preventable, and have to do with the built environment, the social environment, and policies and regulations at the local, county, and/or state level. The data provided serve as guides to understanding these realities and to encouraging community stakeholders to come together—across interest areas and across jurisdictions—to address the challenges of creating a healthy region for all Northern Virginians.

Introduction

This report provides a set of health indicators for the communities that together define the region of Northern Virginia. Indicators are provided for the Northern Virginia region as a whole, for each of the nine cities and counties within the region, and for smaller geographic areas within the region. This introductory section outlines how to use the report to inform community health improvement efforts.

The health of a community, like the health of an individual, is dependent on multiple factors. The characteristics of the population, the social environment, the physical environment, the accessibility and quality of services, and the policy structure can all play an influential role in determining the health of a community. Within each community, these factors interact to produce a distinctive mosaic of community health. It is important to understand this mosaic as a starting point for improving community health.

This document is intended to be a resource for individuals and organizations engaged in the vital work of improving community health in Northern Virginia. The information in this report may be used to:

- Enhance understanding of community health status, including the variations in health status that may be found in the diverse communities of the region;
- Engage key stakeholders from multiple sectors in dialog about community health improvement;
- Inform planning, implementation, and evaluation of community health initiatives; and
- Educate policymakers and the public about community health needs in the region.

It is important to note that this document is provided as a starting point and reference for community health improvement. The document does not provide all of the community health indicators one might wish to incorporate when considering ways to improve health outcomes. Also, this document should not be viewed as a 'report card' on the quality of health services in Northern Virginia. There are many factors that influence the health of communities, and an evaluation of these factors would go far beyond the limits of this document.

How to Use This Report

In this context, the authors recommend that this document be used as a reference resource for community health improvement. A suggested approach for utilizing the report is as follows:

- **Start with *County Health Rankings*.** *Section I* of this document provides an overview of the region based on the *County Health Rankings* published by the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute. The *County Health Rankings* are a widely used tool for engaging stakeholders in dialog about health outcomes and health factors at the city and county level. With a few exceptions, Northern Virginia jurisdictions are at or near the top of the *County Health Rankings* for

Virginia, and this is a testament to the many strengths of the region. However, the *Rankings* are not designed to tell the entire story about community health, and they are subject to some technical limitations. The *Rankings* are presented here as a starting point for additional exploration of community health.

- **Expand the view with City and County Health Indicators.** *Section II* provides an expanded view of the region based on a broader and more contemporary array of community health indicators than are provided in the *County Health Rankings*. The indicators are provided for each city and county as well as the Northern Virginia region as a whole. This section can be especially helpful for understanding the substantial numbers of people facing health challenges in Northern Virginia. These numbers can inform efforts to ‘make the case’ for health improvement to audiences that may assume that health needs are minimal in Northern Virginia based on the *County Health Rankings* and other broad measures of health in the region.
- **Take a close-up view with the Health Opportunity Index.** *Section III* provides a close-up view of the region with the help of the *Health Opportunity Index* produced by the Virginia Department of Health. In a region as large and diverse as Northern Virginia, city- and county-level analysis can often mask important variations in health opportunity within and across city and county boundaries. The *Health Opportunity Index* measures a core set of ‘social determinants of health’ for 328 census tracts in the Northern Virginia region. The *Health Opportunity Index* can be used to identify small geographic areas in which the population is likely to be more at risk for health problems. This information can be helpful for focusing community health initiatives in communities where they are most needed.

Data, Methods, and Questions

This document contains a wide array of community health indicators from multiple sources. Among the indicators are demographic estimates from different federal, state, and commercial sources. In some cases these estimates might not match with other sources of local demographic estimates. Also among the indicators are selected estimates in which state or national survey data are applied to local demographic profiles in order produce a local estimate. These estimates are identified when they appear, and they are accompanied by appropriate technical notes. Technical questions about data sources or methods can be directed to Stephen Horan, Ph.D., of Community Health Solutions, at (804) 673-0166 or shoran@chsresults.com.

SECTION I

The *County Health Rankings*

This section provides an overview of the Northern Virginia region based on the *County Health Rankings* published by the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute. The *County Health Rankings* are a widely used tool for engaging stakeholders in dialog about health outcomes and health factors at the city and county level. As stated by the publishers of the *Rankings*:

“The *County Health Rankings* are designed as a call to action....We encourage any community that has not already done so to use the *Rankings* as a stimulus to engage community members in a more detailed community health assessment, using whatever additional data sources they have available. The *Rankings* can be used as a pointer to suggest areas where more in-depth analysis might be helpful.”

Accordingly, the *County Health Rankings* for Northern Virginia are included in this report as a starting point for more comprehensive analysis in the following sections.

Summary of *County Health Rankings* for Northern Virginia

The *County Health Rankings* for Northern Virginia are summarized in **Exhibit I-1**. As shown, the rankings are provided in two broad categories of *Health Outcomes* and *Health Factors*. The *Health Outcomes* rank is based on two sub-rankings on measures of mortality and morbidity. The *Health Factors* rank is based on four sub-rankings on measures of health behaviors, clinical care, social and economic factors, and physical environment. **Appendix A** provides a detailed explanation of the methods and measures used to produce the rankings.

EXHIBIT I - 1

Summary of County Health Rankings for Northern Virginia (2013 Version)

Indicator	Alexandria City of	Arlington County	Fairfax City of	Fairfax County	Falls Church City of	Loudoun County	Manassas City of	Manassas Park City of	Prince William County
Estimated Population (2012)	144,055	214,681	22,899	1,108,149	13,028	331,662	39,372	15,210	424,232
Health Outcomes Rank	8	3	55	1	16	2	7	9	10
Mortality Rank	9	3	97	2	18	1	15	6	8
Morbidity Rank	11	6	9	3	22	8	4	31	41
Health Factors Rank	12	3	7	4	1	2	50	65	21
Health Behaviors Rank	2	1	10	5	3	4	18	66	31
Clinical Care Rank	52	17	16	15	1	9	69	124	76
Social & Economic Factors Rank	23	5	13	2	4	1	75	36	18
Physical Environment Rank	30	18	1	46	2	35	42	104	64

(Ranking figures indicate rank among 133 Virginia cities and counties, where 1 = best)

Source: Population estimates: Community Health Solutions analysis of data from Alteryx, Inc. Rankings: Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute. www.countyhealthrankings.org.

Health Outcomes Rank

Exhibit I-1 shows that Fairfax County, Loudoun County, and Arlington County are ranked first, second, and third among Virginia cities and counties on *Health Outcomes*. Alexandria, Manassas, Manassas Park, and Prince William are ranked in the top ten, and Falls Church is ranked 16th.

The outlier is the City of Fairfax, which is ranked 55th. The primary factor in the City of Fairfax’s relatively low ranking on health outcomes is a mortality ranking of 97. This mortality ranking is based on a relatively high rate of premature death, defined as years of potential life lost (YPLL) before age 75 per 100,000 population (age-adjusted). It is worth noting that the City of Fairfax is a relatively small jurisdiction in terms of population, and the YPLL measure is based on a relatively small sample of records from 2008-2010.

Because of the small sample size, there may be considerable fluctuation in this measure from year to year. To illustrate this point, in the 2012 version of the *County Health Rankings*, the City of Fairfax was ranked 63rd on this measure—a considerable difference from the 2013 rank of 97.

Health Factors Rank

Exhibit I-1 shows that Falls Church, Loudoun County, and Arlington County are the three highest ranked jurisdictions in Virginia on *Health Factors*. Fairfax County is ranked 4th, the City of Fairfax is ranked 7th, the City of Alexandria is ranked 12th, and Prince William County is ranked 21st. Manassas and Manassas Park are ranked much lower at 50th and 65th, respectively. Also notable are the relative rankings of Alexandria and Prince William on selected indicators. There are several reasons for these notably low rankings, as outlined below.

City of Manassas. The City of Manassas' rank of 50th is a result of relatively low rankings for clinical care, social and economic factors, and physical environment. The clinical care rank of 69 is caused in part by a high estimated rate of uninsured, plus missing data for several indicators used to produce the rankings (the statewide mean is used as a substitute indicator for missing data). The social and economic factors rank of 75 is a result of relatively low rates of educational attainment, and relatively high rates of unemployment, children in poverty, children in single-parent households, and violent crime. The physical environment rank of 42 is a result of measures indicating a relatively high prevalence of fast food restaurants and missing data on drinking water safety (the statewide mean is used as a substitute indicator).

City of Manassas Park. The City of Manassas Park's rank of 65th on health factors is a result of relatively low rankings for health behaviors, clinical care, social and economic factors, and physical environment. The health behaviors rank of 66 is a result of relatively high rates of adult obesity, adult physical inactivity, and teen births plus missing data for several indicators (the statewide mean is used as a substitute indicator). The clinical care rank of 124 is influenced by several factors, including a high estimated rate of uninsured, a relatively low rate of mammography screening, and missing data for indicators of primary care providers and dentists (the statewide mean is used as a substitute indicator). The social and economic factors rank of 36 is a result of relatively low rankings on educational attainment and a high number of children in single-parent households. The physical environment rank of 104 is influenced by relatively low rankings on access to recreational facilities, access to healthy foods, and prevalence of fast food restaurants. Another factor is missing data on drinking water safety (the statewide mean is used as a substitute indicator).

City of Alexandria. Although Alexandria ranks high overall on summary rankings of health outcomes and health factors, it does rank comparatively low (52nd) on the clinical care sub-ranking. This ranking is influenced by three indicators for which Alexandria scored about the same or worse than the statewide rate, including the uninsured rate, and the rates of diabetic screening, and mammography screening for Medicare enrollees. (See Appendix A for details).

Fairfax County. Although Fairfax County ranks 4th in the state on the overall health factors rank, it ranks 46th on the physical environment sub-ranking. This ranking is influenced by scores about the same or worse than the statewide rate for daily fine particulate matter, access to recreational facilities, and availability of fast food restaurants. (See Appendix A for details).

Prince William County. Prince William ranks high overall on summary rankings of health outcomes and health factors, but ranks comparatively low (76th) on the clinical care sub-ranking. This ranking is influenced by five indicators that were about the same or worse than the statewide rate, including the uninsured rate, primary care physician supply, dentist supply, and diabetic and mammography screening rates for Medicare patients. Prince William also ranks comparatively low (64th) on the physical environment sub-ranking. This ranking is influenced by scores that were about same or worse than the statewide rate for daily fine particulate matter, access to recreational facilities, access to healthy foods, and availability of fast food restaurants.

Summary: The *County Health Rankings* in Context

The *County Health Rankings* show that on broad measures of health outcomes and health factors, most of the localities in the region rank at or near the top compared to the rest of Virginia (although there are some exceptions, as outlined above). As stated in the introduction to this section, the *County Health Rankings* for Northern Virginia provide a starting point for examining community health in the Northern Virginia region. More comprehensive analysis is warranted for two primary reasons. First, it is important to consider a broader array of indicators that depict the substantial numbers of Northern Virginia residents facing health challenges. Secondly, it is important to look within and across city and county boundaries to identify communities that are vulnerable to adverse health outcomes because of social determinants of health. These two perspectives are addressed in the next two sections of the document.

SECTION II

City and County Health Indicators

The previous section provided an overview of the Northern Virginia region based on the *County Health Rankings*. This section provides a more comprehensive view of the region based on a more expansive and contemporary array of indicators. The indicators are organized into a set of 'community health profiles' as follows:

1. Demographic Profile
2. Maternal and Infant Health Profile
3. Mortality Profile
4. Cancer Profile
5. HIV and Tuberculosis Profile
6. Preventable Hospitalization Profile
7. Behavioral Health Hospitalization Profile
8. Adult Health Risk Factor Profile
9. Youth Health Risk Factor Profile
10. Oral Health Profile
11. Nutrition Assistance Program Profile
12. Health Coverage Profile

Each profile provides both *counts* and *rates* for various health indicators. *Counts* refer to the number of cases of a particular health condition, such as the number of newborns with low birth weight. *Rates* refer to the number of cases per capita, such as the percent of all newborns with low birth weight. *Counts* are helpful for understanding the magnitude of need within a region, while *rates* are helpful for comparing health indicators across cities and counties with different population sizes. In a region such as Northern Virginia, it is especially important to understand both counts and rates because a city or county with a large population could have a comparatively healthy rate of a health condition while still having a large number (or count) of people affected by the condition.

1. Demographic Profile

Community health is driven in part by community demographics. Population demographics such as age, sex, race, ethnicity, education status, and income status are strong predictors of community health status and community health needs.

Exhibit II-1 provides a snapshot of selected demographic indicators for the Northern Virginia region as of 2012. Northern Virginia is home to a large population of more than 2.3 million people residing in its nine cities and counties. Overall, the region is generally younger, more racially and ethnically diverse, more educated, and more affluent than the Commonwealth of Virginia as a whole. However, it is important to remember that demographic indicators based on rates can sometimes mask the existence of substantial numbers of potentially vulnerable residents within a community. For example, within the region there are more than 150,000 people in poverty, more than 126,000 adults age 25+ who have not graduated from high school, more than 214,000 seniors, and more than 567,000 children. There is also significant variation across cities and counties on measures of income, education, and racial/ethnic diversity.

EXHIBIT II - 1

Demographic Profile

Count Estimates (2012)	2012 Population	Asian	Black/African American	White	Other/Multi Race	Hispanic Ethnicity¹
Region Total	2,313,288	317,207	272,687	1,460,051	263,343	379,083
Alexandria (City of)	144,055	8,872	31,634	87,053	16,496	23,257
Arlington County	214,681	21,071	18,488	153,045	22,077	32,418
Fairfax (City of)	22,899	3,515	1,091	15,908	2,385	3,608
Fairfax County	1,108,149	195,811	102,474	691,333	118,531	173,694
Falls Church (City of)	13,028	1,230	566	10,398	834	1,159
Loudoun County	331,662	50,550	24,454	225,840	30,818	41,038
Manassas (City of)	39,372	2,011	5,408	24,193	7,760	12,487
Manassas Park (City of)	15,210	1,377	1,976	8,485	3,372	5,025
Prince William County	424,232	32,770	86,596	243,796	61,070	86,397
Virginia	8,154,815	459,660	1,579,659	5,573,480	542,016	655,986

Rate Estimates (2012)	Asian Percent of Total Population	Black/African American Percent of Total Population	White Percent of Total Population	Other/Multi Race Percent of Total Population	Hispanic Ethnicity Percent of Total Population
Region Total	14%	12%	63%	11%	16%
Alexandria (City of)	6%	22%	60%	11%	16%
Arlington County	10%	9%	71%	10%	15%
Fairfax (City of)	15%	5%	69%	10%	16%
Fairfax County	18%	9%	62%	11%	16%
Falls Church (City of)	9%	4%	80%	6%	9%
Loudoun County	15%	7%	68%	9%	12%
Manassas (City of)	5%	14%	61%	20%	32%
Manassas Park (City of)	9%	13%	56%	22%	33%
Prince William County	8%	20%	57%	14%	20%
Virginia	6%	19%	68%	7%	8%

¹ Classification of ethnicity; therefore, Hispanic individuals are also included in the race categories.

EXHIBIT II-1 (CONTINUED)

Demographic Profile

Count Estimates (2012)	2012 Population	Children 0-17	Seniors 65+	Age 25+ and Did Not Graduate High School	Population in Poverty
Region Total	2,313,288	567,552	214,007	126,424	150,083
Alexandria (City of)	144,055	26,079	14,003	11,554	11,522
Arlington County	214,681	34,367	19,217	11,793	15,894
Fairfax (City of)	22,899	4,603	3,277	1,158	1,619
Fairfax County	1,108,149	263,756	117,480	57,646	73,792
Falls Church (City of)	13,028	3,141	1,431	369	372
Loudoun County	331,662	100,136	23,379	9,725	12,996
Manassas (City of)	39,372	10,963	2,867	4,189	4,035
Manassas Park (City of)	15,210	4,267	916	1,792	1,214
Prince William County	424,232	120,240	31,437	28,198	28,639
Virginia	8,154,815	1,857,225	1,045,339	675,228	912,776

Rate Estimates (2012)	Children 0-17 Percent of Total Population	Seniors 65+ Percent of Total Population	Age 25+ Percent of Total Population	Percent of Total Population in Poverty	Per Capita Income	Median Income
Region Total	25%	9%	8%	7%	\$49,382	\$104,018
Alexandria (City of)	18%	10%	11%	8%	\$53,496	\$78,300
Arlington County	16%	9%	7%	8%	\$61,694	\$98,894
Fairfax (City of)	20%	14%	7%	7%	\$46,873	\$99,364
Fairfax County	24%	11%	8%	7%	\$51,572	\$108,580
Falls Church (City of)	24%	11%	4%	3%	\$58,896	\$112,486
Loudoun County	30%	7%	5%	4%	\$50,911	\$122,627
Manassas (City of)	28%	7%	17%	10%	\$30,925	\$75,795
Manassas Park (City of)	28%	6%	19%	8%	\$28,578	\$75,737
Prince William County	28%	7%	11%	7%	\$37,140	\$95,939
Virginia	23%	13%	12%	11%	\$34,307	\$64,118

Source: Community Health Solutions analysis of population estimates from Alteryx, Inc. (2012). Alteryx, Inc., a commercial vendor of demographic data; and U.S. Census Bureau Small Area Income and Poverty Estimates (2011) <http://www.census.gov/did/www/saipe/data/interactive/#>.

2. Maternal and Infant Health Profile

Maternal and infant health is traditionally one of the most important indicators of community health status. **Exhibit II-2** shows selected maternal and infant health indicators for the region. In 2011, there were 33,921 live births in the region. Among these were 2,367 low weight births, 5,189 births with late prenatal care, and 7,887 non-marital births. There were also 1,643 teen pregnancies in 2011. Over the five-year period from 2007 to 2011, there were 842 infant deaths in the region.

Compared to Virginia as a whole, the region had higher rates of births with late prenatal care. The region also had lower rates of low weight births, teen pregnancy, and five-year infant mortality. Within the region, four localities exceeded the statewide rate of births without early prenatal care (Prince William County and the cities of Alexandria, Fairfax, and Manassas). Also four localities exceeded the statewide rate of teen pregnancy (cities of Alexandria, Fairfax, Falls Church, and Manassas).

EXHIBIT II - 2

Maternal and Infant Health Profile

Counts (2011)	Total Live Births	Low Weight Births	Births w/o Early Prenatal Care	Non-Marital Births	Teen Pregnancies (age 10-19)	Infant Deaths (2007-2011)
Region Total	33,921	2,367	5,189	7,887	1,643	842
Alexandria (City of)	2,632	181	502	746	157	66
Arlington County	3,049	176	637	529	79	64
Fairfax (City of)	496	42	72	94	35	8
Fairfax County	15,148	1,061	2,110	3,420	595	377
Falls Church (City of)	148	12	17	18	33	3
Loudoun County	4,970	329	443	780	142	93
Manassas (City of)	721	50	188	292	139	15
Manassas Park (City of)	66	8	18	23	4	7
Prince William County	6,691	508	1,202	1,985	459	209
Virginia	102,525	8,204	13,500	36,390	9,630	3,675
Rates (2011)	Birth Rate per 1,000 Population	Percent of Total Live Births	Percent of Total Live Births	Percent of Total Live Births	Teenage Pregnancy Rate per 1,000 Teenage Female Population Age 10-19	Five-Year Average Infant Mortality Rate 2007-2011
Region Total	14.8	7%	15%	23%	11.7	5.0
Alexandria (City of)	18.2	7%	19%	28%	33.4	5.1
Arlington County	14.1	6%	21%	17%	10.6	4.3
Fairfax (City of)	22.0	8%	15%	19%	27.1	--
Fairfax County	13.8	7%	14%	23%	8.6	4.9
Falls Church (City of)	11.6	--	--	--	37.2	--
Loudoun County	15.3	7%	9%	16%	6.1	3.6
Manassas (City of)	18.3	7%	26%	40%	52.3	--
Manassas Park (City of)	4.3	--	--	--	--	--
Prince William County	16.0	8%	18%	30%	15.4	6.3
Virginia	12.7	8%	13%	35%	18.6	7.0

-- Rates are not calculated where the number of cases is less than 30.

Source: Community Health Solutions analysis of Virginia Department of Health birth record data (2011).

3. Mortality Profile

Along with maternal and infant health, mortality is another traditionally important indicator of community health status. **Exhibit II-3** shows selected mortality indicators for the Northern Virginia region. In 2011, the Northern Virginia population had 9,269 total deaths. The exhibit shows the five leading causes of death, including malignant neoplasms (cancer), heart disease, cerebrovascular disease (stroke), unintentional injury, and chronic lower respiratory disease. Together these five causes accounted for 59 percent of all deaths in the region. Other leading causes of death not shown in the exhibit include septicemia, diabetes, Alzheimer’s, influenza and pneumonia, and suicide. The age-adjusted death rates for the region were below statewide rates for deaths overall and for all leading causes. This same pattern held for all cities and counties in the region, although there was substantial variation in death rates across the localities.

EXHIBIT II - 3
Mortality Profile

Counts (2011)	Total Deaths	Malignant Neoplasm (Cancer)	Heart Disease	Cerebrovascular Disease (Stroke)	Unintentional Injury	Chronic Lower Respiratory Disease
Region Total	9,269	2,388	1,837	490	421	361
Alexandria (City of)	679	160	147	36	26	21
Arlington County	928	214	207	56	33	36
Fairfax (City of)	169	27	34	18	10	7
Fairfax County	4,657	1,219	924	247	205	183
Falls Church (City of)	70	13	17	1	5	3
Loudoun County	1,062	303	190	47	44	38
Manassas (City of)	180	33	37	10	8	4
Manassas Park (City of)	50	13	12	3	5	3
Prince William County	1,474	406	269	72	85	66
Virginia	60,325	14,261	13,201	3,327	2,726	3,097
Rates (2011)	Age-Adjusted Rate Per 100,000					
Region Total	535.7	131.2	109.5	30.0	21.6	22.8
Alexandria (City of)	551.7	127.5	121.9	28.0	--	--
Arlington County	553.8	129.3	128.3	36.1	15.7	23.6
Fairfax (City of)	631.4	--	130.8	--	--	--
Fairfax County	503.5	125.4	102.0	28.0	20.5	21.3
Falls Church (City of)	590.3	--	--	--	--	--
Loudoun County	545.1	145.3	101.2	24.9	18.8	21.8
Manassas (City of)	693.4	116.9	138.9	--	--	--
Manassas Park (City of)	677.5	--	--	--	--	--
Prince William County	595.7	146.9	118.7	34.0	27.3	29.8
Virginia	735.8	169.5	161.3	41.4	33.4	38.4

-- Rates are not calculated where the number of cases is less than 30.

Source: Community Health Solutions analysis of Virginia Department of Health death record data (2011).

4. Cancer Profile

Cancer is the leading cause of death in the Northern Virginia region, as well as a serious health condition for thousands of people living with cancer. **Exhibit II-4** shows selected cancer indicators for the region at the health district level. From 2005-2009, there were 35,490 new cancer diagnoses in Northern Virginia. The leading diagnoses were for breast cancer, lung and bronchus cancer, and colorectal cancer. Rates of cancer incidence were generally lower in Northern Virginia than for Virginia as a whole, with the exceptions being breast cancer in the Fairfax Health District and melanoma in the Loudoun Health District.

EXHIBIT II - 4
Cancer Profile

Counts of Cancer Incidence (2005-2009)	All Cancers	Breast Cancer	Cervical Cancer	Colorectal Cancer	Lung and Bronchus Cancer	Melanoma	Oral Cavity Cancer
Region Total	35,490	6,231	306	3,043	3,689	1,659	793
Alexandria Health District	2,363	404	19	210	254	106	67
Arlington Health District	3,282	565	21	302	338	174	72
Fairfax Health District	19,654	3,522	164	1,652	1,963	867	412
Loudoun Health District	3,946	714	36	327	374	224	86
Prince William Health District	6,245	1,026	66	552	760	288	156
Virginia	178,501	26,763	1,349	16,716	25,969	8,099	4,210
Rates of Cancer Incidence (2005-2009)	Rate per 100,000	Rate per 100,000 (Females)	Rate per 100,000	Rate per 100,000	Rate per 100,000	Rate per 100,000	Rate per 100,000
Region Total	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alexandria Health District	346.6	108.2	5.2	30.4	39.6	14.6	9.7
Arlington Health District	376.6	122.1	4.2	35.4	41.9	18.6	8.0
Fairfax Health District	403.6	127.9	6.0	35.5	45.1	17.5	8.0
Loudoun Health District	410.1	123.4	5.3	37.5	47.6	21.2	8.1
Prince William Health District	426.8	117.5	6.8	41.2	61.5	17.4	10.0
Virginia	454.4	124.0	6.6	43.1	67.4	20.7	10.5

N/A- Data were not available

Source: Community Health Solutions analysis of Virginia Department of Health data from *Cancer In Virginia: Overview and Data Tables* report (July 2012). Counts show the number of newly diagnosed cases (incidence).

5. HIV and Tuberculosis Profile

HIV and tuberculosis (TB) are two infectious diseases that are often linked.² Exhibit II-5 shows HIV and TB statistics for the region. In 2011, there were 238 diagnoses of HIV and 137 diagnoses of TB. The HIV diagnoses rate was higher than the statewide rate in Alexandria and Arlington. The TB diagnosis rate was higher than the statewide rate throughout the region.

EXHIBIT II - 5

HIV and Tuberculosis Profile

Counts (2011)	HIV	Tuberculosis
Region Total	238	137
Alexandria (City of)	40	13
Arlington County	37	9
Fairfax (City of)	2	Included in Fairfax County
Fairfax County	105	82
Falls Church (City of)	0	Included in Fairfax County
Loudoun County	21	12
Manassas (City of)	1	Included in Prince William County
Manassas Park (City of)	0	Included in Prince William County
Prince William County	32	21
Virginia	914	221
Rates (2011)	Rate per 100,000	Rate per 100,000
Region Total	10.4	6.0
Alexandria (City of)	27.7	9.1
Arlington County	17.1	4.2
Fairfax (City of)	8.9	Included in Fairfax County
Fairfax County	9.5	7.2
Falls Church (City of)	0	Included in Fairfax County
Loudoun County	6.5	3.7
Manassas (City of)	2.5	Included in Prince William County
Manassas Park (City of)	0	Included in Prince William County
Prince William County	7.6	4.5
Virginia	11.3	2.7

Source: Community Health Solutions analysis of Virginia Department of Health data from quarterly surveillance reports.
<http://www.vdh.virginia.gov/epidemiology/DiseasePrevention/Data/>

²For example, the CDC reports that people with HIV and latent TB infection are at much higher risk for progressing to active TB disease than people with latent TB infection alone. The CDC also recommends that all people newly diagnosed with HIV should be tested for TB infection. If they are infected with TB bacteria, immediate treatment can prevent them from progressing to TB disease. For more information, see <http://www.cdc.gov/hiv/resources/factsheets/hivtb.htm>

6. Preventable Hospitalization Profile

Preventable hospitalization is a community health indicator that is receiving increasing interest as the health system focuses on patient-centered care and avoidance of unnecessary hospitalization. From a community health perspective, preventable hospitalization is an important indicator of access to outpatient services within a community. If the number of preventable hospitalizations is substantial, this suggests that action should be taken to improve access to outpatient services for the populations most at risk for hospitalization.

In this context, the U.S. Agency for Healthcare Research and Quality (AHRQ) has defined a set of conditions called Prevention Quality Indicators, or 'PQIs,' for which hospitalization should be avoidable with proper outpatient care.³ These conditions are defined in terms of specific types of diagnoses and (in some cases) procedures. **Exhibit II-6** shows indicators of PQI hospital discharges for Northern Virginia residents. In 2011, the Northern Virginia region had 12,175 PQI hospital discharges from Virginia community hospitals. The leading diagnoses for these discharges were bacterial pneumonia, congestive heart failure, urinary tract infection, diabetes, and chronic obstructive pulmonary disease. The age-adjusted PQI discharge rate for the Northern Virginia region was below the statewide rate. Within the region there was substantial variation, and two cities (Fairfax and Manassas) had rates above the statewide rate.

EXHIBIT II - 6

Preventable Hospitalization Profile

Counts (2011)	Total PQI Discharges	Bacterial Pneumonia	Congestive Heart Failure	Urinary Tract Infection	Diabetes	Chronic Obstructive Pulmonary Disease (COPD)
Region Total	12,175	2,536	2,464	1,967	1,526	1,205
Alexandria (City of)	1,052	194	190	171	143	75
Arlington County	899	210	176	155	107	94
Fairfax (City of)	306	68	54	64	32	33
Fairfax County	5,289	1,083	1,123	923	604	536
Falls Church (City of)	78	22	20	10	10	6
Loudoun County	1,593	375	324	245	169	167
Manassas (City of)	346	85	64	37	68	37
Manassas Park (City of)	1	0	0	1	0	0
Prince William County	2,611	499	513	361	393	257
Virginia	83,392	16,221	18,990	10,496	11,326	11,439

³ The PQI definitions are detailed in their specification of ICD-9 diagnosis codes and procedure codes. Not every hospital admission for congestive heart failure, bacterial pneumonia, etc., is included in the PQI definition, only those meeting the detailed specifications. Low birth weight is one of the PQI indicators, but for the purpose of this report, low birth weight is included in the Maternal and Infant Health Profile. Also, there are three diabetes-related PQI indicators which have been combined into one for the report. For more information, visit the AHRQ website at www.qualityindicators.ahrq.gov/pqi_overview.htm

EXHIBIT II-6 (CONTINUED)
Preventable Hospitalization Profile

Rates (2011)	Age-Adjusted Rate Per 100,000					
	18-24	25-34	35-44	45-54	55-64	65+
Region Total	672.8	144.1	149.6	114.8	71.2	69.7
Alexandria (City of)	891.2	169.6	169.6	152.6	107.2	63.3
Arlington County	533.3	125.6	109.2	93.9	57.7	62.4
Fairfax (City of)	1,228.4	269.8	208.5	251.7	139.8	129.9
Fairfax County	553.8	116.6	126.8	100.6	54.7	57.5
Falls Church (City of)	628.7	--	--	--	--	--
Loudoun County	768.6	180.8	182.8	124.2	65.5	86.4
Manassas (City of)	1,218.4	324.6	263.2	138.3	188.9	135.1
Manassas Park (City of)	--	--	--	--	--	--
Prince William County	961.0	192.7	218.3	151.2	114.3	98.2
Virginia	1,006.8	197.4	233.0	131.0	133.2	134.2

-- Rates are not calculated where the number of cases is less than 30

Source: Community Health Solutions analysis of hospital discharge data from the Virginia Health Information (VHI) dataset (January 1-December 31, 2011) and demographic data from Alteryx, Inc. (2011). Data include discharges from Virginia hospitals reporting to Virginia Health Information, Inc. These data do not include discharges from state behavioral health facilities or federal (military) facilities. Data reported are based on the patient's primary diagnosis.⁴

⁴ Virginia Health Information (VHI) requires the following statement to be included in all reports utilizing its data: VHI has provided non-confidential patient level information used in this report which was compiled in accordance with Virginia law. VHI has no authority to independently verify this data. By accepting this report the requester agrees to assume all risks that may be associated with or arise from the use of inaccurately submitted data. VHI edits data received and is responsible for the accuracy of assembling this information, but does not represent that the subsequent use of this data was appropriate or endorse or support any conclusions or inferences that may be drawn from the use of this data.

7. Behavioral Health Hospitalization Profile

Behavioral health hospitalization is an important indicator of behavioral health needs within a community. Although preventable behavioral health hospitalizations are not as well-defined as the *Prevention Quality Indicators* listed in the previous profile, some hospitalizations for behavioral health conditions can be prevented with appropriate outpatient care. **Exhibit II-7** shows indicators of behavioral health hospitalizations for Northern Virginia residents. In 2011, the Northern Virginia region had 10,100 behavioral health discharges from Virginia hospitals (excluding state and federal facilities).⁵ The leading diagnoses were affective psychoses, general symptoms, schizophrenic disorders, alcoholic psychoses, and other nonorganic psychoses. The age-adjusted discharge rate for the Northern Virginia region was below the statewide rate, although within the region, two cities (Fairfax and Manassas) had rates above the statewide rate.

EXHIBIT II - 7

Behavioral Health Hospitalization Profile

Counts (2011)	Total Behavioral Health Discharges	Affective Psychoses ⁶	General Symptoms ⁷	Schizophrenic Disorders	Alcoholic Psychoses	Other Nonorganic Psychoses ⁸
Region Total	10,100	4,733	1,634	952	912	394
Alexandria (City of)	639	213	119	77	77	28
Arlington County	925	345	156	142	106	42
Fairfax (City of)	204	89	25	17	19	8
Fairfax County	4,097	1,905	660	391	364	118
Falls Church (City of)	80	44	13	4	6	3
Loudoun County	1,321	743	233	69	89	49
Manassas (City of)	408	200	47	38	54	17
Manassas Park (City of)	0	0	0	0	0	0
Prince William County	2,426	1,194	381	214	197	129
Virginia	64,892	27,277	11,135	8,042	3,283	2,148

⁵ NOTE: Virginia Health Information (VHI) requires the following statement to be included in all reports utilizing its data: VHI has provided non-confidential patient level information used in this report which was compiled in accordance with Virginia law. VHI has no authority to independently verify this data. By accepting this report the requester agrees to assume all risks that may be associated with or arise from the use of inaccurately submitted data. VHI edits data received and is responsible for the accuracy of assembling this information, but does not represent that the subsequent use of this data was appropriate or endorse or support any conclusions or inferences that may be drawn from the use of this data.

⁶ Includes major depressive, bipolar affective, and manic depressive disorders.

⁷ This diagnosis includes symptoms, signs, abnormal results of laboratory or other investigative procedures, and ill-defined conditions regarding which no diagnosis classifiable elsewhere is recorded.

⁸ Psychotic conditions due to or provoked by emotional stress, environmental factors, or as major part of etiology.

EXHIBIT II-7 (CONTINUED)

Behavioral Health Hospitalization Profile

Rates (2011)	Age-Adjusted Rate Per 100,000					
Region Total	459.2	210.5	88.0	39.9	36.7	17.6
Alexandria (City of)	473.0	159.9	102.5	52.4	49.7	--
Arlington County	462.5	168.4	93.8	64.7	49.6	17.6
Fairfax (City of)	876.1	385.7	--	--	--	--
Fairfax County	379.9	176.7	66.4	34.6	29.9	10.8
Falls Church (City of)	645.6	375.1	--	--	--	--
Loudoun County	473.7	252.5	106.6	22.1	25.8	17.2
Manassas (City of)	1,060.8	492.4	160.5	100.4	132.9	--
Manassas Park (City of)	--	--	--	--	--	--
Prince William County	626.7	282.4	139.5	49.6	44.5	32.0
Virginia	786.8	332.7	136.4	95.0	38.0	26.2

-- Rates are not calculated where the number of cases is less than 30

Source: Community Health Solutions analysis of hospital discharge data from the Virginia Health Information (VHI) dataset (January 1-December 31, 2011) and demographic data from Alteryx, Inc. (2011). Data include discharges from Virginia hospitals reporting to Virginia Health Information, Inc. These data do not include discharges from state behavioral health facilities or federal (military) facilities. Data reported are based on the patient's primary diagnosis.

8. Adult Health Risk Factor Profile

Exhibit II-8 shows indicators of selected health risks for adults. The indicators are estimates based on multiple years of data from the Virginia Behavioral Risk Factor Surveillance Survey, applied to local demographics for 2012 (see source for details on methods). The estimates indicate that more than 497,100 adults may have high blood pressure, more than 612,400 may have high cholesterol, more than 1,021,100 may be overweight or obese, more than 344,800 may be at risk for binge drinking, more than 316,600 may be smokers, and more than 286,500 may be in fair or poor health (as self-reported in surveys).

EXHIBIT II - 8

Adult Health Risk Factor Profile

Count Estimates (2012)	High Blood Pressure ⁹	High Cholesterol ¹⁰	Overweight or Obese	At Risk for Binge Drinking ¹¹	Smoke	Fair or Poor Health Status
Region Total	497,157	612,445	1,021,123	344,890	316,675	286,576
Alexandria (City of)	34,765	41,895	71,261	21,528	15,770	18,950
Arlington County	53,450	64,423	106,662	35,565	29,848	30,666
Fairfax (City of)	4,889	6,425	10,674	3,814	3,785	3,081
Fairfax County	242,731	297,080	498,966	158,021	166,247	140,853
Falls Church (City of)	2,960	3,500	6,061	1,449	1,746	1,661
Loudoun County	64,887	80,055	131,921	47,503	26,037	37,175
Manassas (City of)	8,571	10,269	17,005	5,860	5,160	4,817
Manassas Park (City of)	2,966	3,806	6,386	2,229	1,811	1,641
Prince William County	81,937	104,992	172,186	68,921	66,273	47,732
Virginia	1,859,926	2,230,623	3,893,354	1,145,316	1,206,498	999,124
Rate Estimates (2012)	Percent of Total Pop. Age 18+					
Region Total	28%	35%	58%	20%	18%	16%
Alexandria (City of)	29%	36%	60%	18%	13%	16%
Arlington County	30%	36%	59%	20%	17%	17%
Fairfax (City of)	27%	35%	58%	21%	21%	17%
Fairfax County	29%	35%	59%	19%	20%	17%
Falls Church (City of)	30%	35%	61%	15%	18%	17%
Loudoun County	28%	35%	57%	21%	11%	16%
Manassas (City of)	30%	36%	60%	21%	18%	17%
Manassas Park (City of)	27%	35%	58%	20%	17%	15%
Prince William County	27%	35%	57%	23%	22%	16%
Virginia	30%	35%	62%	18%	19%	16%

Source: All indicators are estimates based on Community Health Solutions analysis of a multi-year dataset from the Virginia Behavioral Risk Factor Surveillance System (2006-2010), applied to local demographic data from Alteryx, Inc. (2012). Local-level synthetic estimates are based on state-level Virginia data. The indicators are estimates subject to measurement error, and should be used for planning purposes only. Differences between local rates and state rates may reflect estimation error rather than valid differences.

⁹ Includes only cases where the survey respondent was told of high blood pressure by a health care professional.

¹⁰ Includes only cases where the survey respondent was told of high cholesterol by a health care professional.

¹¹ Males having five or more drinks on one occasion, females having four or more drinks on one occasion.

9. Youth Health Risk Factor Profile

Exhibit II-9 shows indicators of selected health risks for children age 14-19. The indicators are estimates based on statewide data from the Virginia Youth Risk Behavioral Surveillance Survey as applied to local demographics for 2012 (see the source note in the exhibit for details). The estimates indicate that more than 33,000 youth may use tobacco, more than 47,000 may use alcohol, more than 42,000 may be at risk for depression (based on sad or hopeless feelings), and more than 46,000 may be overweight or obese.

EXHIBIT II-9

Youth Health Risk Factor Profile

Count Estimates (2012)	Used Tobacco in Past 30 Days	Consumed Alcohol in Past 30 Days	Felt Sad or Hopeless for Two or More Weeks in a Row	Classified as Overweight or Obese
Region Total	33,353	47,381	42,340	46,007
Alexandria (City of)	1,021	1,468	1,383	1,698
Arlington County	1,691	2,395	2,151	2,399
Fairfax (City of)	292	412	367	375
Fairfax County	16,622	23,543	21,171	22,234
Falls Church (City of)	224	317	258	265
Loudoun County	5,635	8,046	6,793	7,052
Manassas (City of)	663	926	828	986
Manassas Park (City of)	232	323	298	349
Prince William County	6,974	9,952	9,092	10,648
Virginia	130,030	189,350	159,249	179,073
Rate Estimates (2012)	Percent of Total Pop. Age 14-19	Percent of Total Pop. Age 14-20	Percent of Total Pop. Age 14-21	Percent of Total Pop. Age 14-22
Region Total	20%	28%	25%	28%
Alexandria (City of)	19%	27%	26%	32%
Arlington County	20%	29%	26%	29%
Fairfax (City of)	20%	29%	25%	26%
Fairfax County	20%	28%	25%	26%
Falls Church (City of)	21%	30%	25%	25%
Loudoun County	21%	30%	25%	26%
Manassas (City of)	21%	29%	26%	31%
Manassas Park (City of)	20%	28%	26%	31%
Prince William County	20%	28%	26%	30%
Virginia	20%	30%	25%	28%

Source: All indicators are estimates based on Community Health Solutions analysis of the statewide Virginia Youth Risk Behavioral Surveillance Survey from the Centers for Disease Control (2011), applied to local demographic data from Alteryx, Inc. (2012). Local-level synthetic estimates are based on state-level Virginia data. The indicators are estimates subject to measurement error, and should be used for planning purposes only. Differences between local rates and state rates may reflect estimation error rather than valid differences.

10. Oral Health Profile

Exhibit II-10 shows indicators of oral health status for adults age 18+ and children age 0-17. The indicators are estimates based on multiple years of the Virginia Behavioral Risk Factor Surveillance Survey for adults, and the 2010 National Health and Nutrition Examination Survey for children, as applied to local demographics for 2012 (see the source note in the exhibit for details). The estimates indicate that more than 123,100 children may not have had a dental visit in the prior year, more than 102,000 children may have dental caries, and more than 33,300 children may have teeth in fair/poor condition. Focusing on adults, the estimates indicate that more than 410,700 may not have had a dental visit in the prior two years.

EXHIBIT II-10

Oral Health Profile

Count Estimates (2012)	Children Age 0-17 with No Dental Visit in Past Year	Children Age 0-17 with Dental Caries in Primary or Permanent Teeth	Children Age 0-17 with Teeth in Fair/Poor Condition	Adults Age 18+ with No Dental Visit in Last Two Years
Region Total	123,163	102,041	33,331	410,793
Alexandria (City of)	5,759	5,070	1,624	24,592
Arlington County	7,557	6,170	2,040	42,444
Fairfax (City of)	1,000	798	267	4,452
Fairfax County	56,723	46,455	15,216	197,248
Falls Church (City of)	658	531	170	2,070
Loudoun County	21,055	17,070	5,541	57,136
Manassas (City of)	2,581	2,108	723	6,108
Manassas Park (City of)	1,007	820	281	1,810
Prince William County	26,882	23,019	7,470	74,941
Virginia	384,359	339,855	104,969	1,411,421

Oral Health Profile

Rate Estimates (2012)	Percent of Total Pop. Age 0-17	Percent of Total Pop. Age 0-17	Percent of Total Pop. Age 0-17	Percent of Total Pop. Age 18+
Region Total	22%	18%	6%	24%
Alexandria (City of)	22%	19%	6%	21%
Arlington County	22%	18%	6%	24%
Fairfax (City of)	22%	17%	6%	24%
Fairfax County	22%	18%	6%	23%
Falls Church (City of)	21%	17%	5%	21%
Loudoun County	21%	17%	6%	25%
Manassas (City of)	24%	19%	7%	22%
Manassas Park (City of)	24%	19%	7%	17%
Prince William County	22%	19%	6%	25%
Virginia	21%	18%	6%	22%

Source: All indicators are estimates based on Community Health Solutions analysis of state and national survey data applied to local demographic data. Survey data included a multi-year dataset from the Virginia Behavioral Risk Factor Surveillance System-Adults 18+ (2006-2010), and National Health and Nutrition Examination Survey data from the Centers for Disease Control for Children 0-17 (2010). Local demographic data were obtained from Alteryx, Inc. (2012). Local-level synthetic estimates are based on state-level Virginia data. Attempts to contrast local estimates versus state estimates would result in a circular comparison. The indicators are estimates subject to measurement error, and should be used for planning purposes only. Differences between local rates and state rates may reflect estimation error rather than valid differences.

Additional insight into oral health can be found in a 2011 report commissioned by the Northern Virginia Health Foundation. The report titled *Oral Health in Virginia* "...describes the importance of oral health to overall health, details the status of oral health for Northern Virginians, identifies barriers they face in obtaining needed dental care, and offers specific steps that policymakers and other leaders can take to improve oral health in the region."

Appendix C provides a summary of selected indicators from this report. Obstacles to Northern Virginians receiving dental care as identified in the report included lack of health coverage, unaffordable cost, only seeking care in emergencies, relying on self-care, lack of time, being afraid or nervous, lack of transportation, lack of child care, and inability to get an appointment.

11. Nutrition Assistance Program Profile

Exhibit II-11 shows selected indicators of children and families served in nutrition assistance programs. In the 2012/2013 school year, 112,362 students in the Northern Virginia region were eligible for free or reduced lunch services. The percent of students in the region eligible for free or reduced lunch was lower than the statewide rate. However, the rate of students eligible for free or reduced lunch was higher in the cities of Alexandria, Manassas, and Manassas Park than the state as a whole. Also, in 2010/2011 a total of 161,507 individuals received services through the Supplemental Nutrition Assistance Program.

EXHIBIT II-11

Nutrition Assistance Program Profile

Counts	K-12 Student Eligible for Free or Reduced Lunch (School Year 2012-2013)	Supplemental Nutrition Assistance Program Individual Participation (July 1, 2010-June 30, 2011)
Region Total	112,362	161,507
Alexandria (City of)	7,394	13,844
Arlington County	7,138	11,526
Fairfax (City of)	Included in Fairfax County	Included in Fairfax County
Fairfax County	47,874	70,184
Falls Church (City of)	155	Included in Fairfax County
Loudoun County	11,911	14,048
Manassas (City of)	4,015	7,188
Manassas Park (City of)	1,813	2,241
Prince William County	32,062	42,476
Virginia	498,648	1,261,109
Rates	Percent of Total K-12 Population	N/A
Region Total	28%	N/A
Alexandria (City of)	57%	N/A
Arlington County	31%	N/A
Fairfax (City of)	Included in Fairfax County	N/A
Fairfax County	27%	N/A
Falls Church (City of)	7%	N/A
Loudoun County	17%	N/A
Manassas (City of)	56%	N/A
Manassas Park (City of)	58%	N/A
Prince William County	38%	N/A
Virginia	40%	N/A

N/A- Data were not available

Source: Community Health Solutions analysis of National School Lunch Program-Free and Reduced Price Eligibility Report data from Virginia Department of Education (2012-2013 School Year); Supplemental Nutrition Assistance Program data from Virginia Department of Social Services (July 1, 2010-June 30, 2011). http://www.dss.virginia.gov/geninfo/reports/financial_assistance/fs.cgi

12. Health Coverage Profile

Exhibit II-12 shows indicators of health coverage for adults and children. The indicators are estimates based on 2010 U.S. Census Bureau Small Area Health Insurance Estimates (see source note in exhibit for details). The estimates indicate that at a given point in time during 2010, more than 263,800 Northern Virginians age 0-64 were uninsured. Among the estimated 38,296 uninsured children under age 19, an estimated 19,400 had income at or below 200 percent of the federal poverty level (FPL), which is the income limit for children eligible for Virginia Medicaid and FAMIS. Among the estimated 229,197 uninsured adults age 18-64, an estimated 65,887 had income at or below 138 percent of the federal poverty level, which is the income limit for the optional Medicaid expansion under the Patient Protection and Affordable Care Act.¹² Overall, the estimated uninsured rate for the region was 13 percent of people age 0-64, with a range of 8 percent to 24 percent across the nine cities and counties.

EXHIBIT II - 12

Health Care Coverage Profile (2010)

Counts (2010)	Uninsured Age 0-64		Uninsured Age 0-19		Uninsured Age 18-64		
	All Income Levels	All Income Levels	At or Below 200% FPL	At or Below 250% FPL (cumulative)	All Income Levels	At or Below 138% FPL	At or Below 250% FPL (cumulative)
Region Total	263,895	38,296	19,400	24,466	229,197	65,887	131,689
Alexandria (City of)	18,912	1,632	978	1,211	17,421	5,933	10,948
Arlington County	22,549	1,776	1,045	1,265	20,940	6,916	12,875
Fairfax (City of)	2,638	335	174	220	2,337	710	1,407
Fairfax County	124,784	18,970	9,703	12,112	107,598	29,975	60,686
Falls Church (City of)	906	121	52	70	801	228	458
Loudoun County	25,479	4,555	2,052	2,642	21,335	5,244	11,149
Manassas (City of)	7,451	1,060	584	729	6,499	2,462	4,395
Manassas Park (City of)	3,204	448	226	302	2,796	1,015	1,854
Prince William County	57,972	9,399	4,586	5,915	49,470	13,404	27,917
Virginia	1,009,466	133,975	73,337	91,021	889,641	325,997	582,316

¹² Please note that the overlapping age groupings in the table were defined by the U.S. Census Bureau. Also note that income level is not the only factor that determines eligibility for Medicaid or FAMIS. Detailed information on eligibility for Medicaid and FAMIS can be found at http://www.dss.virginia.gov/benefit/medical_assistance/

EXHIBIT II-12 (CONTINUED)
Health Care Coverage Profile (2010)

Rates (2010)	Percent of Total Pop. Age 0-64	Percent of Total Pop. Age 0-19	Percent of Total Pop. Age 18-64
	All Income Levels	All Income Levels	All Income Levels
Region Total	13%	7%	15%
Alexandria (City of)	15%	7%	17%
Arlington County	12%	5%	13%
Fairfax (City of)	14%	7%	16%
Fairfax County	13%	7%	15%
Falls Church (City of)	8%	4%	10%
Loudoun County	9%	5%	11%
Manassas (City of)	21%	9%	26%
Manassas Park (City of)	24%	11%	29%
Prince William County	16%	8%	19%
Virginia	15%	7%	18%

Source: Community Health Solutions analysis of U.S. Census Bureau Small Area Health Insurance Estimates 2010
(<http://www.census.gov/did/www/sahie/data/index.html>.)

SECTION III

The *Health Opportunity Index*

Section I of the report presented a starting point for exploring community health through the lens of the *County Health Rankings*. *Section II* presented a broader view of the region, with an emphasis on the magnitude of need across the nine jurisdictions. Both sections provide important insights about the health of Northern Virginia residents, but they do not fully portray the diversity of needs that exist within and across the cities and counties of the region.

This section provides a closer look at Northern Virginia through the lens of the *Health Opportunity Index* (HOI). The HOI was developed by the Virginia Department of Health (VDH) to identify those geographic areas and populations that are most vulnerable to adverse health outcomes. The HOI is produced at the census-tract level, making it possible to identify pockets of vulnerability within the boundaries of larger cities and counties. When we apply the HOI to Northern Virginia, we find some of the most vulnerable census tracts in the Commonwealth of Virginia.

About the *Health Opportunity Index*

VDH has recently published the HOI for each of more than 1,500 census tracts across Virginia. (Census tracts vary in size, but on average there are about 4,000 people within a census tract.) The HOI is comprised of ten indicators that reflect a broad array of social determinants of health within each census tract. Social determinants of health include a range of personal, social, economic, and environmental factors that can contribute to individual and population health. The ten indicators used to produce the HOI include the following:

1. ***Affordability***. The affordability indicator measures the proportion of income households spend on housing and transportation. A higher proportion spent on these items indicates a lower proportion available for other needs including health.
2. ***Education***. The education indicator measures the overall level of educational attainment achieved by the adult population. Lower levels of education are strongly associated with poorer health status.
3. ***Environment***. The environmental indicator measures the level of air pollution based on data from the Environmental Protection Agency. The higher the indicator, the greater the exposure to environmental conditions that may result in adverse health outcomes.
4. ***Income Diversity***. The income diversity indicator measures the distribution of household income within a census tract. When income diversity is low and average income is low, this signifies a high concentration of low-income individuals who may be at risk for poor health status.

5. *Job Participation*. The job participation indicator measures the percent of the population age 16 through 64 who are either unemployed or seeking work. The higher the job participation rate, the greater the opportunity for employment, income, and better health status.
6. *Local Commute of Workers*. The local commute indicator measures the inflow of workers to an area compared to the outflow from that same area. As with the job participation indicator, the higher the indicator, the greater the opportunity for local employment, income, and better health status.
7. *Population Churning*. The population churning indicator measures the sum number of migrants in and out of an area in relation to the total population. High levels of population churn can influence population health measures depending on the types of people that are moving in or out of the census tract.
8. *Population Density*. The population density indicator measures the concentration of people per square mile within a census tract. It is often used as a measure of rural and urban populations, and can be helpful for identifying special health needs of communities that are especially sparsely populated or crowded.
9. *Racial Diversity*. The racial diversity indicator measures the racial distribution of the population within a census tract. According to research cited by VDH, low diversity may be associated with poor health when the area is predominantly non-white.
10. *Townsend Index*. The Townsend Index measures economic deprivation. It is based on four equally weighted variables including percent unemployed, percent of private households that do not possess a car or van, percent of private households that are not owner-occupied, and percent of private households that are over-crowded (more than one person per room). The higher the Townsend Index, the higher the economic deprivation and the higher the risk of adverse health.

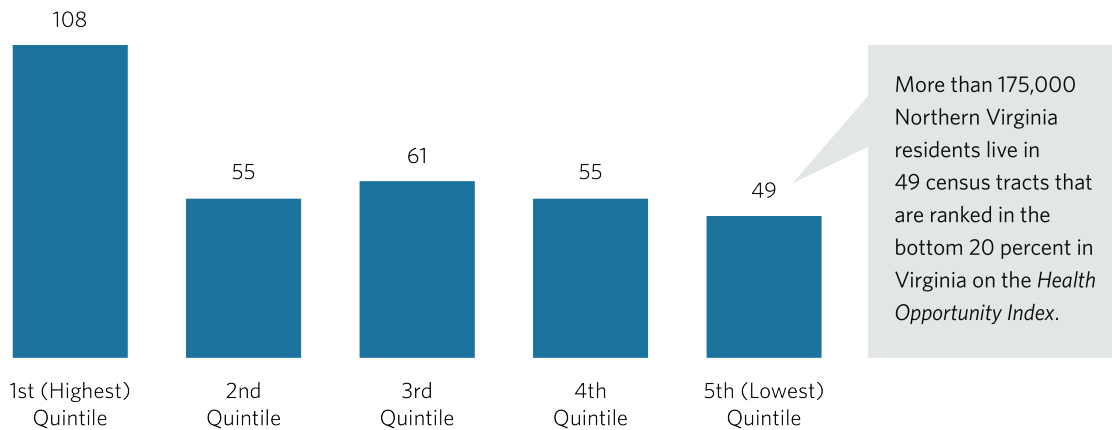
These ten indicators are statistically combined to produce a single index of health opportunity called the *Health Opportunity Index*. To evaluate the HOI, VDH conducted a series of studies to test the relationship between the HOI and a set of widely used indicators of community health. The results indicate that patterns of variation in the HOI are strongly related to patterns of variation in life expectancy, HIV disease, infant mortality, and low birth weight. Consequently, the HOI can be useful as a guide for identifying small geographic areas that are at relative risk for adverse health outcomes.

The Health Opportunity Index in Northern Virginia

VDH provides *Health Opportunity Index* scores for 328 census tracts in the Northern Virginia region. **Exhibit III-1** provides a summary of the statewide rankings for Northern Virginia census tracts. As illustrated in **Exhibit III-1**, 108 Northern Virginia census tracts are ranked in the top quintile (top 20 percent) statewide on the *Health Opportunity Index*. Another 55 census tracts are ranked in the second quintile. These rankings reflect the high level of health opportunity in many parts of Northern Virginia. They also help explain why Northern Virginia cities and counties tend to rank so highly in the *County Health Rankings* and other measures of health at the city and county level.

EXHIBIT III - 1

Number of Northern Virginia Census Tracts by Statewide Ranking on *Health Opportunity Index* (2009)



Source: Community Health Solutions analysis of *Health Opportunity Index* data from the Virginia Department of Health.

At the opposite end of the spectrum, 55 census tracts are ranked in the 4th quintile, and 49 census tracts are ranked in the 5th (lowest) quintile statewide. These rankings indicate that substantial numbers of Northern Virginia residents are vulnerable to adverse health outcomes based on social determinants of health. To put this in perspective, more than 175,000 residents live in the 49 census tracts ranked in the bottom 20 percent statewide. This dynamic is easily masked by analyses focused solely on city- and county -level indicators of health.

Identifying Census Tracts with Low Scores on the *Health Opportunity Index*

Exhibit III-2 lists the specific census tracts that ranked in the bottom quintile statewide on the *Health Opportunity Index*. As shown, these census tracts can be found in the City of Alexandria, Arlington County, Fairfax County, and Prince William County. (Please note that these census tracts are based on 2000 census designations.) Appendix B provides a listing of all Northern Virginia census tracts by rank on the *Health Opportunity Index*. For further reference, beginning in June of 2013, the *Virginia Atlas of Community Health* will provide an interactive mapping portal where visitors will be able to map the *Health Opportunity Index* for any region of the state.

EXHIBIT III - 2

Northern Virginia Census Tracts Ranked in the 5th Quintile (Bottom 20%) on the Virginia Health Opportunity Index (HOI)

Notes: Census Tracts are based on Year 2000 U.S. Census Boundaries. The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health. The HOI ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.

Census Tract	Jurisdiction	Statewide HOI Score	Statewide HOI Ranking
51510200105	Alexandria City	0.363388	6
51510201203	Alexandria City	0.403103	12
51013102700	Arlington County	0.432427	18
51059422200	Fairfax County	0.463594	23
51013102200	Arlington County	0.471257	24
51013101700	Arlington County	0.475134	28
51013102000	Arlington County	0.482561	30
51059451400	Fairfax County	0.502488	35
51153900903	Prince William County	0.527913	49
51059451600	Fairfax County	0.551662	63
51510200301	Alexandria City	0.56025	70
51013103500	Arlington County	0.564958	75
51013103800	Arlington County	0.566876	76
51510201204	Alexandria City	0.578483	89
51059421900	Fairfax County	0.582681	91
51059416200	Fairfax County	0.58466	95
51059421500	Fairfax County	0.587521	98
51510200402	Alexandria City	0.589055	100
51059421400	Fairfax County	0.591485	103
51059452300	Fairfax County	0.593259	107
51059461900	Fairfax County	0.596459	112

EXHIBIT III - 2 (CONTINUED)

Northern Virginia Census Tracts Ranked in the 5th Quintile (Bottom 20%) on the Virginia Health Opportunity Index (HOI)

Notes: Census Tracts are based on Year 2000 U.S. Census Boundaries. The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health. The HOI ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.

51059421600	Fairfax County	0.599315	117
51059451500	Fairfax County	0.60426	127
51153901100	Prince William County	0.607944	132
51510200103	Alexandria City	0.609102	133
51510200500	Alexandria City	0.61411	143
51510200104	Alexandria City	0.615662	145
51510200303	Alexandria City	0.622114	163
51013102800	Arlington County	0.630397	181
51013102600	Arlington County	0.632212	185
51059452800	Fairfax County	0.639188	194
51510200102	Alexandria City	0.639916	197
51013102500	Arlington County	0.640309	198
51153900901	Prince William County	0.640504	199
51153900600	Prince William County	0.645112	209
51013103100	Arlington County	0.649224	217
51059452700	Fairfax County	0.653654	225
51059420400	Fairfax County	0.654516	226
51013103200	Arlington County	0.656016	229
51510201202	Alexandria City	0.656065	230
51153900200	Prince William County	0.656963	231
51059450200	Fairfax County	0.659101	235
51013103300	Arlington County	0.668688	259
51153901701	Prince William County	0.671316	267
51013103401	Arlington County	0.674049	275
51059421800	Fairfax County	0.675563	282
51059420600	Fairfax County	0.678607	292
51510201600	Alexandria City	0.681699	296
51059440200	Fairfax County	0.681902	298

Source: Community Health Solutions analysis of *Health Opportunity Index* data from the Virginia Department of Health.
<http://www.vdh.virginia.gov/OMHHE/2012report.htm>

SECTION IV

From Indicators to Action

The preceding sections of this report provided an overview of the health of Northern Virginia. In presenting them, the Northern Virginia Health Foundation hopes that all sectors of the community will begin to understand the important role non-health factors play in community health and will work across sectors to enhance the health and well-being of all of Northern Virginia's residents.

Each of the major jurisdictions in Northern Virginia has public-private initiatives focused on assessing and promoting health within their community. Building on that work, the health summit sponsored by the Foundation, *"The Health of Northern Virginia: Where Are We, and Where Could We Go,"* was a first step in bringing together key stakeholders from all the communities in Northern Virginia, and from various sectors within them, to start conversations about how each can contribute to the health of Northern Virginia. Too often, we work in silos of our own making, using political boundaries, funding streams, professional training, and a narrow understanding of what contributes to individual and community health as the materials to construct them.

Many of the diseases and conditions described in this report are preventable. If we are to have any impact on those diseases, we need to look at health through a wide lens and ask ourselves how factors such as the social environment, the built environment, the availability and quality of services, and organizational and government policies at every level contribute to—or impede—community health. And then we need to ask: "Who in the community can influence those factors, and how can we engage them?"

Since the Northern Virginia Health Foundation was created, it has invested both financial and other resources to meet its mission to improve the health and health care of low-income Northern Virginians. It has engaged in traditional grantmaking, providing funding to organizations providing primary, behavioral, and oral health care services. It has also helped build community collaborations, served as a neutral convener, and helped educate policymakers and the public about important health issues in the community. The Foundation believes that its non-grantmaking activities are every bit as important as the funding it provides, because many of the policy, system, and environmental changes it engages in can significantly impact health—and don't require funding. Nor do these changes have to occur at the macro level. A local business that adopts a health vending policy for its employees, an apartment complex that sets aside some land on its property for a community garden, a neighborhood that establishes a neighborhood watch program—all of these efforts can affect the non-health factors that shape the health and well-being of a community.

The Northern Virginia Health Foundation invites all segments of the community to engage in and build on the work of existing community coalitions and continue the dialog begun at the summit to answer this most important question: "How can we work across sectors to ensure the optimal health of every resident of Northern Virginia?"

APPENDIX A

County Health Rankings and Indicators (2013)

The *County Health Rankings* rank cities and counties within states based on a portfolio of health measures related to health outcomes (morbidity and mortality) and health factors (health behaviors, clinical care, social and economic factors, and physical environment). A detailed listing of the rankings and the underlying indicators is provided in **Exhibit A-1**. The exhibit is followed by technical notes on interpreting the rankings.

EXHIBIT A - 1

Detailed Listing of *County Health Rankings*

Note: The indicators in this exhibit are generally from different sources and from different years than the indicators shown in *Section II* of this report. Therefore, some figures may not match. Blank values reflect unreliable or missing data. Source: Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute. <http://www.countyhealthrankings.org/app/virginia/2013/rankings/outcomes/overall/by-rank>

Indicator	Alexandria City	Arlington	Fairfax	Fairfax City	Falls Church City	Loudoun	Manassas City	Manassas Park City	Prince William
Health Outcomes Rank	8	3	1	55	16	2	7	9	10
Mortality Rank	9	3	2	97	18	1	15	6	8
Premature death (Years of potential life lost before age 75 per 100,000 population (age-adjusted))	5,139	3,842	3,617	8,652	5,628	3,290	5,509	4,760	4,881
Morbidity Rank	11	6	3	9	22	8	4	31	41
Poor or fair health (Percent of adults reporting fair or poor health (age-adjusted))	10%	9%	7%	10%		11%	6%		15%
Poor physical health days (Average number of physically unhealthy days reported in past 30 days (age-adjusted))	2.4	2.5	2.2	2.1	2.4	2.3	2.1		3.3
Poor mental health days (Average number of mentally unhealthy days reported in past 30 days (age-adjusted))	2.1	2.4	2	1.5	1.9	2.4	2.3		3
Low birth weight (Percent of live births with low birth weight (< 2500 grams))	7.5%	6.5%	6.9%	8.0%	7.8%	6.9%	7.2%	6.3%	7.2%

EXHIBIT A-1 (CONTINUED)

Detailed Listing of County Health Rankings

Note: The indicators in this exhibit are generally from different sources and from different years than the indicators shown in *Section II* of this report. Therefore, some figures may not match. Blank values reflect unreliable or missing data. Source: Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute. <http://www.countyhealthrankings.org/app/virginia/2013/rankings/outcomes/overall/by-rank>

Indicator	Alexandria City	Arlington	Fairfax	Fairfax City	Falls Church City	Loudoun	Manassas City	Manassas Park City	Prince William
Health Factors Rank	12	3	4	7	1	2	50	65	21
Health Behaviors Rank	2	1	5	10	3	4	18	66	31
Adult smoking (Percent of adults that report smoking >= 100 cigarettes and currently smoking)	10%	11%	12%	6%	4%	12%	12%		18%
Adult obesity (Percent of adults that report a BMI >= 30)	20%	19%	24%	28%	26%	23%	29%	30%	27%
Physical inactivity (Percent of adults age 20 and over reporting no leisure time physical activity)	18%	17%	19%	27%	22%	20%	25%	25%	21%
Excessive drinking (Binge plus heavy drinking)	20%	19%	20%	11%		19%	7%		18%
Motor vehicle crash death rate (Motor vehicle crash deaths per 100,000 population)	6	3	5	11	18	6	8		8
Sexually transmitted infections (Chlamydia rate per 100,000 population)	354	182	127	328	438	104	407		245
Teen birth rate (Teen birth rate per 1,000 female population, ages 15-19)	48	24	17	21	9	15	48	49	34
Clinical Care Rank	52	17	15	16	1	9	69	124	76
Uninsured (Percent of population under age 65 without health insurance)	15%	12%	13%	14%	8%	9%	21%	24%	16%
Primary care physicians (Ratio of population to primary care physicians)	1,329:1	1,414:1	1,066:1	427:01:00	320:01:00	1,467:1	797:01:00		2,363:1
Dentists (Ratio of population to dentists)	1,442:1	2,060:1	1,202:1		348:01:00	1,683:1	766:01:00		2,350:1
Preventable hospital stays (Hospitalization rate for ambulatory-care sensitive conditions per 1,000 Medicare enrollees)	49	36	39		40	53		63	56

EXHIBIT A-1 (CONTINUED)

Detailed Listing of County Health Rankings

Note: The indicators in this exhibit are generally from different sources and from different years than the indicators shown in Section II of this report. Therefore, some figures may not match. Blank values reflect unreliable or missing data. Source: Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute. <http://www.countyhealthrankings.org/app/virginia/2013/rankings/outcomes/overall/by-rank>

Indicator	Alexandria City	Arlington	Fairfax	Fairfax City	Falls Church City	Loudoun	Manassas City	Manassas Park City	Prince William
Diabetic screening (Percent of diabetic Medicare enrollees that receive HbA1c screening)	81%	82%	84%		81%	84%		90%	84%
Mammography screening (Percent of female Medicare enrollees that receive mammography screening)	66%	68%	65%		73%	66%		51%	58%
Social & Economic Factors Rank	23	5	2	13	4	1	75	36	18
High school graduation (Percent of 9 th grade cohort that graduates in 4 years)	82%	89%	91%	91%	97%	95%	80%	85%	89%
Some college (Percent of adults age 25-44 years with some post-secondary education)	81%	88%	79%	85%	84%	83%	48%	55%	67%
Unemployment (Percent of population age 16+ unemployed but seeking work)	4.80%	3.80%	4.30%	6.40%	7.20%	4.20%	6.50%	5.20%	5.10%
Children in poverty (Percent of children under age 18 in poverty)	15%	10%	9%	9%	3%	5%	17%	14%	10%
Inadequate social support (Percent of adults without social/emotional support)	14%	18%	14%			12%			21%
Children in single-parent households (Percent of children that live in household headed by single parent)	33%	23%	18%	17%	14%	15%	29%	28%	25%
Violent crime rate (Violent crime rate per 100,000 population)	208	155	85	124	139	100	424	139	167

EXHIBIT A-1 (CONTINUED)

Detailed Listing of County Health Rankings

Note: The indicators in this exhibit are generally from different sources and from different years than the indicators shown in Section II of this report. Therefore, some figures may not match. Blank values reflect unreliable or missing data. Source: Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute. <http://www.countyhealthrankings.org/app/virginia/2013/rankings/outcomes/overall/by-rank>

Indicator	Alexandria City	Arlington	Fairfax	Fairfax City	Falls Church City	Loudoun	Manassas City	Manassas Park City	Prince William
Physical Environment Rank	30	18	46	1	2	35	42	104	64
Daily fine particulate matter (The average daily measure of fine particulate matter in micrograms per cubic meter (PM2.5) in a county)	12.4	12.4	12.4	12.4	12.4	12.5	12.4	12.4	12.4
Drinking water safety (Percentage of population exposed to water exceeding a violation limit during the past year)		0%	0%			0%			0%
Access to recreational facilities (Rate of recreational facilities per 100,000 population)	11	15	11	57	32	15	13	0	10
Limited access to healthy foods (Percent of population who are low-income and do not live close to a grocery store)	0%	0%	1%	0%	0%	1%	1%	5%	3%
Fast food restaurants (Percent of all restaurants that are fast-food establishments)	46%	51%	54%	45%	42%	51%	51%	56%	56%

It is important to keep the following considerations in mind when interpreting the *County Health Rankings*:

- *Comparing Regions or States.* The *County Health Rankings* are not designed to support rankings across states or regions. The rankings only support comparisons between cities and counties within a single state.
- *Choice of Indicators.* The rankings are derived based on a set of underlying indicators chosen by the researchers that produce the rankings. The underlying indicators were chosen based on multiple criteria including availability and relevance. They are not intended to represent the full spectrum of indicators that may be of interest to community stakeholders.
- *Grouping and Weighting.* The 33 indicators are grouped and weighted to produce the eight ranking categories shown in Exhibit A-1. As with the choice of indicators, the grouping and weighting decisions were made by the researchers that produce the rankings.
- *Currency of Indicators.* The *County Health Rankings* project is national in scope, and many of the indicators are derived from national databases. In some cases, the national databases contain data that are several years old, and there are more contemporary indicators available from local Virginia sources than are shown in the *County Health Rankings*.
- *Sampling and Missing Data.* Many of the indicators in the *Rankings* are based on samples of records or surveys. Due to small sample sizes, some indicators are not reported for smaller communities such as the cities of Fairfax, Falls Church, Manassas, and Manassas Park. In some instances, if a city or county is missing data for any individual measure, the statewide mean is used as a substitute measure. This can result in a lower ranking for some small localities.
- *Interpreting Ranks.* It is important to note that because of the technical considerations outlined above, a unit difference in ranking does not necessarily mean a substantial difference in health. For example, the difference between a ranking of eight or nine may reflect only a slight difference in the underlying indicators.

APPENDIX B

Northern Virginia Census Tracts Ranked on the Virginia Health Opportunity Index (HOI)

EXHIBIT B - 1

Northern Virginia Census Tracts Ranked on the Virginia Health Opportunity Index (HOI)

Notes: Census Tracts are based on Year 2000 U.S. Census Boundaries. The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health. The HOI ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.

Census Tract	Jurisdiction	Statewide HOI Score	Statewide HOI Ranking
51510200105	Alexandria City	0.363388	6
51510201203	Alexandria City	0.403103	12
51013102700	Arlington County	0.432427	18
51059422200	Fairfax County	0.463594	23
51013102200	Arlington County	0.471257	24
51013101700	Arlington County	0.475134	28
51013102000	Arlington County	0.482561	30
51059451400	Fairfax County	0.502488	35
51153900903	Prince William County	0.527913	49
51059451600	Fairfax County	0.551662	63
51510200301	Alexandria City	0.56025	70
51013103500	Arlington County	0.564958	75
51013103800	Arlington County	0.566876	76
51510201204	Alexandria City	0.578483	89
51059421900	Fairfax County	0.582681	91
51059416200	Fairfax County	0.58466	95
51059421500	Fairfax County	0.587521	98
51510200402	Alexandria City	0.589055	100
51059421400	Fairfax County	0.591485	103
51059452300	Fairfax County	0.593259	107
51059461900	Fairfax County	0.596459	112
51059421600	Fairfax County	0.599315	117
51059451500	Fairfax County	0.60426	127

EXHIBIT B - 1 (CONTINUED)

**Northern Virginia Census Tracts Ranked on the Virginia
Health Opportunity Index (HOI)**

Notes: Census Tracts are based on Year 2000 U.S. Census Boundaries. The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health. The HOI ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.

Census Tract	Jurisdiction	Statewide HOI Score	Statewide HOI Ranking
51153901100	Prince William County	0.607944	132
51510200103	Alexandria City	0.609102	133
51510200500	Alexandria City	0.61411	143
51510200104	Alexandria City	0.615662	145
51510200303	Alexandria City	0.622114	163
51013102800	Arlington County	0.630397	181
51013102600	Arlington County	0.632212	185
51059452800	Fairfax County	0.639188	194
51510200102	Alexandria City	0.639916	197
51013102500	Arlington County	0.640309	198
51153900901	Prince William County	0.640504	199
51153900600	Prince William County	0.645112	209
51013103100	Arlington County	0.649224	217
51059452700	Fairfax County	0.653654	225
51059420400	Fairfax County	0.654516	226
51013103200	Arlington County	0.656016	229
51510201202	Alexandria City	0.656065	230
51153900200	Prince William County	0.656963	231
51059450200	Fairfax County	0.659101	235
51013103300	Arlington County	0.668688	259
51153901701	Prince William County	0.671316	267
51013103401	Arlington County	0.674049	275
51059421800	Fairfax County	0.675563	282
51059420600	Fairfax County	0.678607	292
51510201600	Alexandria City	0.681699	296
51059440200	Fairfax County	0.681902	298
51059420500	Fairfax County	0.685377	307

EXHIBIT B - 1 (CONTINUED)

Northern Virginia Census Tracts Ranked on the Virginia

Health Opportunity Index (HOI)

Notes: Census Tracts are based on Year 2000 U.S. Census Boundaries. The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health. The HOI ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.

Census Tract	Census Tract	Census Tract	Census Tract
51059430600	Fairfax County	0.688093	313
51510200401	Alexandria City	0.690046	319
51510200101	Alexandria City	0.690061	320
51059481000	Fairfax County	0.691833	324
51059421700	Fairfax County	0.694534	330
51059452500	Fairfax County	0.698256	342
51153901008	Prince William County	0.706463	367
51013101400	Arlington County	0.706925	369
51059452200	Fairfax County	0.708327	373
51013103600	Arlington County	0.708704	375
51013102400	Arlington County	0.709986	382
51059450700	Fairfax County	0.71104	388
51059422100	Fairfax County	0.71164	390
51059422000	Fairfax County	0.711834	392
51153901900	Prince William County	0.712215	393
51013101800	Arlington County	0.712275	394
51510200600	Alexandria City	0.713458	400
51059461700	Fairfax County	0.72245	430
51153900405	Prince William County	0.723555	433
51059480900	Fairfax County	0.725153	441
51153901404	Prince William County	0.726	447
51059431600	Fairfax County	0.726032	448
51059451900	Fairfax County	0.726189	451
51059416000	Fairfax County	0.727789	455
51059450300	Fairfax County	0.727966	456
51153900500	Prince William County	0.728022	457
51153900403	Prince William County	0.731246	470
51153901403	Prince William County	0.732634	475
51059415400	Fairfax County	0.735176	489
51013100800	Arlington County	0.737377	497
51059491200	Fairfax County	0.738257	499

EXHIBIT B - 1 (CONTINUED)

**Northern Virginia Census Tracts Ranked on the Virginia
Health Opportunity Index (HOI)**

Notes: Census Tracts are based on Year 2000 U.S. Census Boundaries. The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health. The HOI ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.

Census Tract	Census Tract	Census Tract	Census Tract
51013102900	Arlington County	0.738546	502
51153900700	Prince William County	0.739192	506
51059450100	Fairfax County	0.739404	508
51059450500	Fairfax County	0.739421	509
51059452600	Fairfax County	0.739796	512
51013102300	Arlington County	0.740018	514
51059491600	Fairfax County	0.741893	522
51685920100	Manassas Park City	0.742177	523
51059471300	Fairfax County	0.74253	524
51153901702	Prince William County	0.74556	541
51059461600	Fairfax County	0.746842	548
51059471400	Fairfax County	0.746892	549
51107611400	Loudoun County	0.747233	551
51683910300	Manassas City	0.748386	557
51059482100	Fairfax County	0.74849	558
51059415300	Fairfax County	0.74941	562
51153900404	Prince William County	0.750606	569
51059471200	Fairfax County	0.752262	580
51600300100	Fairfax City	0.752266	581
51153900300	Prince William County	0.753685	588
51510200302	Alexandria City	0.755521	594
51059492400	Fairfax County	0.756694	603
51059481200	Fairfax County	0.757485	608
51013102100	Arlington County	0.758339	615
51059450600	Fairfax County	0.758621	616
51153900406	Prince William County	0.75884	618
51059480800	Fairfax County	0.759462	621
51107611600	Loudoun County	0.760706	627
51153901214	Prince William County	0.761694	632
51059452400	Fairfax County	0.762987	639
51013103402	Arlington County	0.763714	645

EXHIBIT B - 1 (CONTINUED)

**Northern Virginia Census Tracts Ranked on the Virginia
Health Opportunity Index (HOI)**

Notes: Census Tracts are based on Year 2000 U.S. Census Boundaries. The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health. The HOI ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.

Census Tract	Census Tract	Census Tract	Census Tract
51153901211	Prince William County	0.764687	651
51153901221	Prince William County	0.765063	653
51683910400	Manassas City	0.766247	660
51153901203	Prince William County	0.767097	664
51107611300	Loudoun County	0.767134	666
51153900800	Prince William County	0.767389	671
51013100600	Arlington County	0.768745	677
51153901213	Prince William County	0.769762	683
51059421000	Fairfax County	0.770325	690
51059461800	Fairfax County	0.770561	693
51107610501	Loudoun County	0.771272	696
51153900902	Prince William County	0.772505	700
51013101500	Arlington County	0.774015	705
51107611205	Loudoun County	0.774093	706
51600300300	Fairfax City	0.77415	707
51107611500	Loudoun County	0.774734	709
51153901001	Prince William County	0.777823	720
51107611204	Loudoun County	0.77825	721
51510201802	Alexandria City	0.778798	724
51107611700	Loudoun County	0.778863	725
51013101600	Arlington County	0.779444	730
51013100700	Arlington County	0.780122	735
51683910200	Manassas City	0.780491	738
51059420100	Fairfax County	0.780536	740
51600300400	Fairfax City	0.781672	747
51153901212	Prince William County	0.783604	753
51510200201	Alexandria City	0.78417	758
51059482300	Fairfax County	0.785271	764
51013101200	Arlington County	0.785908	769
51510200700	Alexandria City	0.787726	781
51059415500	Fairfax County	0.788063	785

EXHIBIT B - 1 (CONTINUED)

**Northern Virginia Census Tracts Ranked on the Virginia
Health Opportunity Index (HOI)**

Notes: Census Tracts are based on Year 2000 U.S. Census Boundaries. The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health. The HOI ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.

Census Tract	Census Tract	Census Tract	Census Tract
51153901602	Prince William County	0.788594	788
51059491300	Fairfax County	0.788647	789
51059482200	Fairfax County	0.790576	801
51059432700	Fairfax County	0.791722	806
51510201300	Alexandria City	0.791983	808
51059422300	Fairfax County	0.792239	810
51107611101	Loudoun County	0.79252	811
51510201400	Alexandria City	0.793744	822
51153901223	Prince William County	0.794995	828
51059432000	Fairfax County	0.796566	835
51059491700	Fairfax County	0.796999	836
51685920200	Manassas Park City	0.797717	841
51059422400	Fairfax County	0.799908	861
51510200802	Alexandria City	0.800159	863
51059460600	Fairfax County	0.800334	865
51059431000	Fairfax County	0.801367	872
51059430900	Fairfax County	0.801516	874
51059432200	Fairfax County	0.802144	879
51610500300	Falls Church City	0.803676	892
51059420200	Fairfax County	0.80476	896
51059491800	Fairfax County	0.805454	901
51610500200	Falls Church City	0.80641	907
51059452000	Fairfax County	0.807002	913
51059440500	Fairfax County	0.807124	915
51510201900	Alexandria City	0.808157	925
51107610602	Loudoun County	0.808335	928
51059471100	Fairfax County	0.808385	929
51059450800	Fairfax County	0.808842	932
51510201000	Alexandria City	0.810093	939
51153901209	Prince William County	0.81151	950
51153901208	Prince William County	0.812054	954

EXHIBIT B - 1 (CONTINUED)

**Northern Virginia Census Tracts Ranked on the Virginia
Health Opportunity Index (HOI)**

Notes: Census Tracts are based on Year 2000 U.S. Census Boundaries. The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health. The HOI ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.

Census Tract	Census Tract	Census Tract	Census Tract
51153901601	Prince William County	0.812125	955
51059432800	Fairfax County	0.813536	964
51107610502	Loudoun County	0.814295	967
51683910100	Manassas City	0.814422	968
51059491400	Fairfax County	0.81458	969
51107611202	Loudoun County	0.816042	983
51059431800	Fairfax County	0.817006	987
51153901007	Prince William County	0.818137	993
51059430700	Fairfax County	0.81869	996
51059452100	Fairfax County	0.818792	998
51059430800	Fairfax County	0.818801	999
51059492300	Fairfax County	0.82049	1008
51600300200	Fairfax City	0.820538	1009
51107611002	Loudoun County	0.821361	1015
51059430500	Fairfax County	0.823695	1031
51059481100	Fairfax County	0.827094	1046
51059421100	Fairfax County	0.828327	1058
51059430200	Fairfax County	0.830092	1067
51059451000	Fairfax County	0.831511	1081
51153901222	Prince William County	0.831525	1082
51059431400	Fairfax County	0.832754	1092
51013100900	Arlington County	0.833493	1096
51059420700	Fairfax County	0.834466	1101
51153901005	Prince William County	0.834643	1104
51059460700	Fairfax County	0.834747	1105
51153901006	Prince William County	0.836874	1115
51153901220	Prince William County	0.837599	1119
51059491100	Fairfax County	0.838025	1123
51059420300	Fairfax County	0.838559	1127
51059440100	Fairfax County	0.838623	1128
51059490100	Fairfax County	0.83879	1132

EXHIBIT B - 1 (CONTINUED)

**Northern Virginia Census Tracts Ranked on the Virginia
Health Opportunity Index (HOI)**

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Census Tract	Census Tract	Census Tract	Census Tract
51013103000	Arlington County	0.83998	1142
51600300500	Fairfax City	0.840168	1143
51153901301	Prince William County	0.84133	1148
51107611102	Loudoun County	0.842021	1152
51153901210	Prince William County	0.842203	1154
51059420800	Fairfax County	0.843205	1159
51107611201	Loudoun County	0.844223	1167
51059432600	Fairfax County	0.84457	1172
51059432100	Fairfax County	0.844659	1174
51510201100	Alexandria City	0.846752	1188
51153901218	Prince William County	0.848387	1193
51013101000	Arlington County	0.848802	1196
51059432400	Fairfax County	0.851252	1205
51107610601	Loudoun County	0.852254	1210
51059430400	Fairfax County	0.852807	1214
51107610400	Loudoun County	0.854218	1223
51107611003	Loudoun County	0.855609	1232
51059421300	Fairfax County	0.855706	1233
51059490500	Fairfax County	0.855781	1235
51059431900	Fairfax County	0.856711	1245
51059461100	Fairfax County	0.856764	1246
51510202002	Alexandria City	0.8581	1250
51059432500	Fairfax County	0.858717	1255
51013101900	Arlington County	0.858758	1256
51059451800	Fairfax County	0.859712	1260
51059460400	Fairfax County	0.860394	1265
51107611006	Loudoun County	0.860886	1268
51059432300	Fairfax County	0.861029	1270
51059461500	Fairfax County	0.863086	1281
51059450400	Fairfax County	0.863343	1282
51059460800	Fairfax County	0.864292	1287

EXHIBIT B - 1 (CONTINUED)

**Northern Virginia Census Tracts Ranked on the Virginia
Health Opportunity Index (HOI)**

Notes: Census Tracts are based on Year 2000 U.S. Census Boundaries. The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health. The HOI ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.

Census Tract	Census Tract	Census Tract	Census Tract
51107611005	Loudoun County	0.865151	1294
51059431300	Fairfax County	0.866296	1296
51059430100	Fairfax County	0.866704	1299
51510201801	Alexandria City	0.866728	1301
51059421200	Fairfax County	0.867437	1303
51013101300	Arlington County	0.867715	1304
51059440600	Fairfax County	0.86971	1313
51107611800	Loudoun County	0.870126	1315
51059450900	Fairfax County	0.870527	1317
51059440800	Fairfax County	0.871299	1321
51059481400	Fairfax County	0.871574	1324
51153901405	Prince William County	0.874974	1337
51107610900	Loudoun County	0.876736	1342
51059481900	Fairfax County	0.877039	1347
51107611004	Loudoun County	0.878086	1353
51059431500	Fairfax County	0.878154	1354
51059415200	Fairfax County	0.880272	1360
51059480200	Fairfax County	0.880987	1362
51059482600	Fairfax County	0.881484	1365
51059470500	Fairfax County	0.881833	1366
51107610700	Loudoun County	0.882625	1370
51059461000	Fairfax County	0.883081	1372
51510200801	Alexandria City	0.883582	1373
51107611203	Loudoun County	0.885227	1377
51059415100	Fairfax County	0.885348	1378
51059460500	Fairfax County	0.885806	1380
51013101100	Arlington County	0.886108	1381
51153901502	Prince William County	0.886348	1383
51059482500	Fairfax County	0.888253	1388
51059480500	Fairfax County	0.888826	1390
51059491500	Fairfax County	0.890913	1396

EXHIBIT B - 1 (CONTINUED)

**Northern Virginia Census Tracts Ranked on the Virginia
Health Opportunity Index (HOI)**

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Census Tract	Census Tract	Census Tract	Census Tract
51107611007	Loudoun County	0.890956	1397
51153901501	Prince William County	0.891142	1398
51013100100	Arlington County	0.892546	1400
51059440700	Fairfax County	0.893889	1402
51153901302	Prince William County	0.894021	1403
51510201500	Alexandria City	0.895891	1405
51059470800	Fairfax County	0.896184	1406
51153901406	Prince William County	0.898058	1411
51107610100	Loudoun County	0.899397	1413
51107610800	Loudoun County	0.905793	1431
51059451300	Fairfax County	0.906766	1435
51059460900	Fairfax County	0.908014	1437
51610500100	Falls Church City	0.909382	1439
51153901219	Prince William County	0.909944	1440
51059440300	Fairfax County	0.910605	1441
51059470700	Fairfax County	0.911778	1445
51107611001	Loudoun County	0.911902	1446
51153901217	Prince William County	0.912508	1448
51510202001	Alexandria City	0.912768	1450
51510200202	Alexandria City	0.914025	1452
51510200900	Alexandria City	0.916077	1454
51107610200	Loudoun County	0.917784	1455
51059481700	Fairfax County	0.918625	1456
51059470900	Fairfax County	0.920838	1461
51059492200	Fairfax County	0.921324	1462
51107610300	Loudoun County	0.921732	1463
51059415900	Fairfax County	0.922222	1465
51059491000	Fairfax County	0.925699	1474
51013103700	Arlington County	0.926248	1475
51059416300	Fairfax County	0.927562	1476
51013100200	Arlington County	0.928582	1477
51013100500	Arlington County	0.929327	1479

Census Tract	Census Tract	Census Tract	Census Tract
51059460300	Fairfax County	0.929658	1480
51059490900	Fairfax County	0.930139	1481
51059471000	Fairfax County	0.930331	1482
51059460100	Fairfax County	0.933887	1483
51059451100	Fairfax County	0.935426	1485
51059415700	Fairfax County	0.936285	1486
51059415800	Fairfax County	0.938643	1488
51059482000	Fairfax County	0.943397	1491
51059492000	Fairfax County	0.944523	1492
51059482400	Fairfax County	0.946247	1493
51107611008	Loudoun County	0.952619	1499
51059470600	Fairfax County	0.953238	1500
51059481600	Fairfax County	0.956988	1503
51059481500	Fairfax County	0.957797	1504
51059416100	Fairfax County	0.959891	1505
51059470100	Fairfax County	0.960586	1507
51059492100	Fairfax County	0.960821	1508
51059451200	Fairfax County	0.961325	1509
51059470400	Fairfax County	0.96171	1510
51059461200	Fairfax County	0.963053	1511
51059470300	Fairfax County	0.963575	1512
51013100300	Arlington County	0.966494	1513
51059480400	Fairfax County	0.966942	1514
51059491900	Fairfax County	0.967983	1515
51059460200	Fairfax County	0.9702	1516
51013100400	Arlington County	0.975258	1518
51059415600	Fairfax County	0.979048	1520
51059480300	Fairfax County	0.982639	1521
51059480100	Fairfax County	0.999027	1522

Source: Community Health Solutions analysis of *Health Opportunity Index* data from the Virginia Department of Health.
<http://www.vdh.virginia.gov/OMHHE/2012report.htm>

APPENDIX C

Selected Indicators from the *Oral Health in Northern Virginia* Report (2011)

Additional insight on oral health can be found in the 2011 report, *Oral Health in Northern Virginia*, commissioned by the Northern Virginia Health Foundation. The report "...describes the importance of oral health to overall health, details the status of oral health for Northern Virginians, identifies barriers they face in obtaining needed dental care, and offers specific steps that policymakers and other leaders can take to improve oral health in the region." **Exhibit C-1** provides a summary of selected indicators from this report.

EXHIBIT C - 1

Reasons for Not Seeing a Dentist-Adults Total Northern Virginia Region

	All Income Levels	Income <\$40K	Income \$40K+
Only get health or dental care in emergencies	51%	53%	55%
Take care of my teeth fine and do not have problems	51%	53%	53%
Do not have dental insurance coverage	50%	73%	19%
Not able to afford it	47%	66%	30%
Don't have time	24%	18%	32%
Afraid or nervous	13%	10%	13%
Don't have transportation	12%	15%	4%
Dentist stopped taking my health insurance	11%	13%	7%
Need child care in order to go	10%	10%	5%
Couldn't get an appointment	7%	7%	3%
Children take care of their teeth fine and do not have problems	39%	47%	41%
Only get health or dental care in emergencies	32%	52%	21%
Do not have dental insurance coverage	28%	39%	25%
Not able to afford it	24%	45%	15%
Don't have time	23%	8%	31%
Couldn't get an appointment	13%	12%	13%
Dentist stopped taking my health insurance	8%	4%	8%
Don't have transportation	6%	11%	0%

Source: *Oral Health in Northern Virginia* -A report commissioned by the Northern Virginia Health Foundation (September 2011).
<http://novahealthfdn.org/wp-content/uploads/NVHF-OralHealth-Report-FINAL.pdf>

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