

Community Health Needs Assessment

Prepared for
Inova Loudoun Hospital

By
Verité Healthcare Consulting, LLC

Board Approved May 24, 2016

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ABOUT VERITÉ HEALTHCARE CONSULTING

Verité Healthcare Consulting, LLC (Verité) was founded in May 2006 and is located in Alexandria, Virginia. The firm serves clients throughout the United States as a resource that helps health care providers conduct Community Health Needs Assessments and develop Implementation Strategies to address significant health needs. Verité has conducted more than 50 needs assessments for hospitals, health systems, and community partnerships nationally since 2010.

The firm also helps hospitals, hospital associations, and policy makers with community benefit reporting, program infrastructure, compliance, and community benefit-related policy and guidelines development. Verité is a recognized, national thought leader in community benefit and in the evolving expectations that tax-exempt healthcare organizations are required to meet.

EXECUTIVE SUMMARY

Introduction

This Community Health Needs Assessment (CHNA) was conducted by Inova Loudoun Hospital (Inova Loudoun Hospital or “the hospital”) to identify significant community health needs and to inform development of an Implementation Strategy to address those needs. The hospital’s assessment of community health needs also responds to regulatory requirements.

Inova Loudoun Hospital is a 183-bed community hospital that serves Loudoun County, Virginia, and parts of Fauquier County. The hospital provides an array of medical and surgical services, including a dedicated maternity birthing inn, cardiac and vascular services, pediatrics, comprehensive cancer services, and others. Additional information on the hospital and its services is available at: <http://www.inova.org/ilh/>.

The hospital is an operating unit of the Inova Health System (Inova), which includes four other hospitals (Inova Alexandria Hospital, Inova Fairfax Medical Campus, Inova Fair Oaks Hospital, and Inova Mount Vernon Hospital) and that operates a number of other facilities and services across Northern Virginia. Additional information about Inova Health System is available at: <http://www.inova.org/>.

Federal regulations require that tax-exempt hospital facilities conduct a CHNA every three years and adopt an Implementation Strategy that addresses significant community health needs. Tax-exempt hospitals also are required to report information about the CHNA process and about community benefits they provide on IRS Form 990, Schedule H.

As described in the instructions to Schedule H, community benefits are programs or activities that provide treatment and/or promote health and healing as a response to identified community needs. Community benefit activities and programs also seek to achieve objectives, including:

- improving access to health services,
- enhancing public health,
- advancing increased general knowledge, and
- relief of a government burden to improve health.¹

To be reported, community need for the activity or program must be established. Need can be established by conducting a Community Health Needs Assessment.

CHNAs seek to identify significant health needs for particular geographic areas and populations by focusing on the following questions:

- **Who** in the community is most vulnerable in terms of health status or access to care?
- **What** are the unique health status and/or access needs for these populations?

¹Instructions for IRS form 990 Schedule H, 2015.

- **Where** do these people live in the community?
- **Why** are these problems present?

The question of **how** the hospital can best address significant needs is the subject of a separate Implementation Strategy.

Methodology Summary

An Advisory Committee was established to help guide the hospital's CHNA process. This committee included the Health Directors from the City of Alexandria and from Fairfax, Loudoun, and Arlington Counties. Executive Directors from three Federally Qualified Health Centers (FQHCs) also provided input (Neighborhood Health, HealthWorks For Northern Virginia (HealthWorks), and Greater Prince William Community Health Center). Committee members also included representatives from Inova hospitals and Inova Health System. Input was received from the committee regarding how the hospital's community was defined; data sources; interview candidates and protocols; the design and administration of a community survey, and interpretation of its results; and the process by which community health needs were determined to be significant.

Federal regulations that govern the CHNA process allow hospital facilities to define the "community a hospital serves" based on "all of the relevant facts and circumstances," including the "geographic location" served by the hospital facility, "target populations served" (e.g., children, women, or the aged), and/or the hospital facility's principal functions (e.g., focus on a particular specialty area or targeted disease).² The community assessed by Inova Loudoun Hospital accounts for over 83 percent of the hospital's 2014 inpatient discharges and emergency department visits.

Secondary data from multiple sources were gathered and assessed. Statistics for numerous health status, health care access, and related indicators were analyzed, including comparisons to benchmarks where possible. Findings from recent assessments of the community's health needs conducted by other organizations were reviewed as well.

Input from 30 individuals was received through key informant interviews. These informants represented the broad interests of the community and included individuals with special knowledge of or expertise in public health.

A community survey was administered between November 1, 2015 and January 31, 2016. The survey was translated into eight languages. A total of 2,232 surveys from across Northern Virginia were received and assessed. Among those, 600 surveys were received from individuals living in the Inova Loudoun Hospital community.

Certain community health needs were determined to be "significant" if they were identified as problematic in at least three of the four following data sources: (1) the most recently available secondary data regarding the community's health, (2) recent assessments developed by other

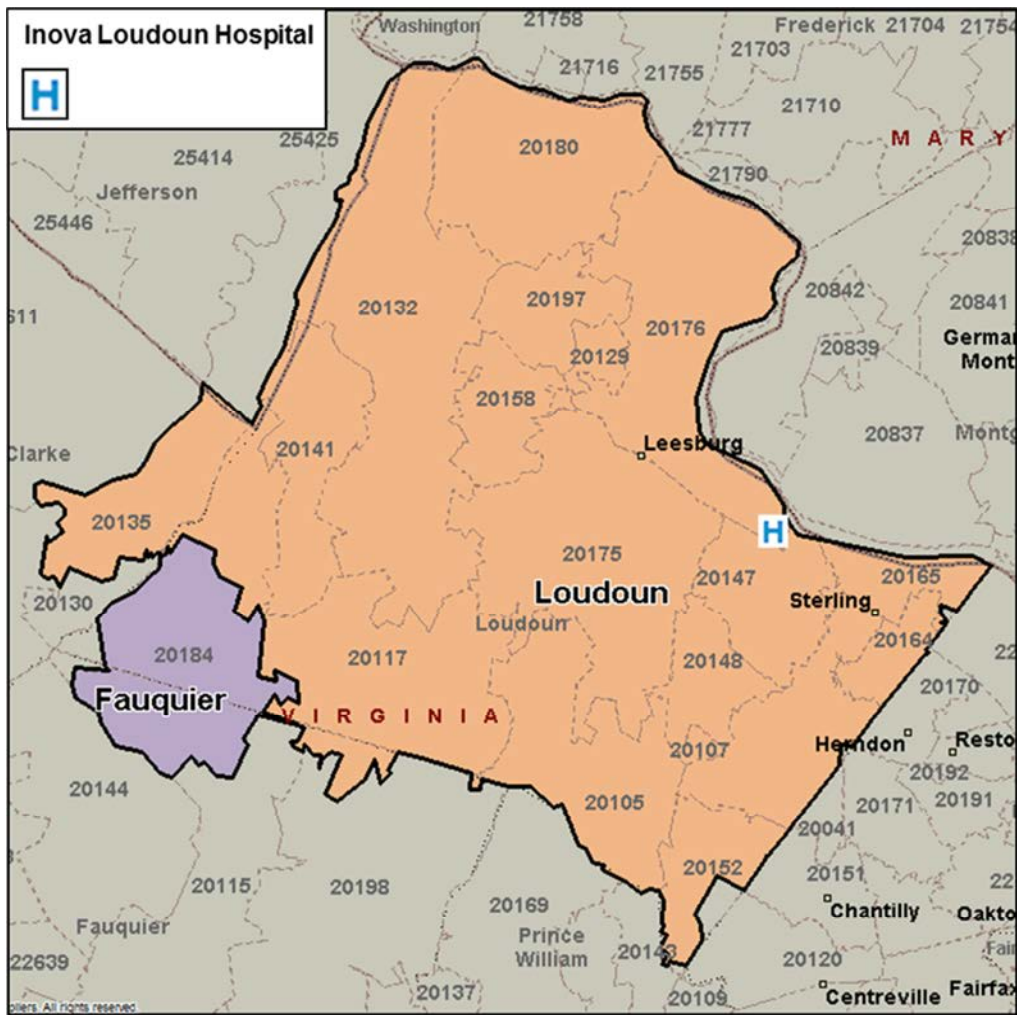
² 501(r) Final Rule, 2014.

organizations (e.g., local Health Departments), (3) community input provided by the key informants who participated in the interview process, or (4) the community survey.

It is important to note that the survey utilized a convenience sampling methodology, and not a random sampling approach, such as one carried out by dialing randomly selected phone numbers. For this reason, findings from the survey are not generalizable to or representative of community-wide opinion. Even with this consideration, results from the community survey have been included in this assessment because they may corroborate and supplement the other data sources, and may be helpful in identifying potential health disparities.

Community Served by the Hospital

The following map portrays the community served by Inova Loudoun Hospital.



Summary Characteristics

- Community comprised of Loudoun County and one ZIP code of Fauquier County (19 ZIP codes total)
- 83.5% of 2014 discharges originated in the community
 - 27.5% from Leesburg
 - 22.4% from Ashburn/Arcola
- Total population in 2014: 359,758
- Projected population change between 2015 and 2020: 13.4%
 - 38.7% for the 65+ population
- Comparatively favorable health status and socioeconomics, but pockets of poverty and specific community health problems found to be present
- Nine significant community health needs identified through the CHNA

Significant Community Health Needs

Based on an assessment of secondary data (a broad range of health status and access to care indicators) and of primary data received through key stakeholder interviews and the community survey, the following nine issues have been identified as significant health needs in Loudoun County, the community served by Inova Loudoun Hospital. The issues are presented below in alphabetical order, along with certain highlights regarding why each issue was identified as “significant.”

Access to Dental Care

- County Health Rankings shows that the per-capita supply of dentists in Loudoun County is below Virginia averages (**Exhibit 20**).
- Interviewees consistently stated that access to dental care is problematic for many in the community – particularly for those without insurance or who have coverage that dentists are unwilling to accept.
- Other recent community health assessments have identified access to dental care as a significant need in the community, including the Loudoun Community Health Improvement Plan (CHIP) and the Loudoun County Community Health Status Assessment (CHSA).
- Access to dental care was identified by survey respondents from the Inova Loudoun Hospital community as the second most difficult service to access (**Exhibit 39**).

Access to Primary Care

- Loudoun County is one of the fastest growing counties in the United States. Assuring an adequate supply of providers, facilities, and services is a particular challenge in this part of Northern Virginia.
- Other recent community health assessments have identified access to primary care as a significant need in the community, including the Loudoun CHIP and the Loudoun County CHSA. The Virginia Health Equity Report (2012) also identifies primary care access as a problem, particularly for low-income individuals and certain racial/ethnic minorities.
- Access to care is a Healthy People 2020 goal, as it “is important for the achievement of health equity and for increasing the quality of a healthy life for everyone.”
- Access to primary care was identified by a large majority of interviewees as problematic. Interviewees indicated that segments of the population rely excessively on emergency departments for primary care. A lack of transportation options, lack of health insurance coverage, and service affordability were all identified as significant barriers to primary care by interviewees.
- Many interviewees noted that services are not well distributed throughout the county, so it can be particularly difficult to access care in western areas where the options are limited, as is transportation.
- To date, Virginia has been one of the states that has not expanded Medicaid, as originally contemplated by the Patient Protection and Affordable Care Act (ACA, 2010). The uninsurance rate would decline if Virginia reversed this policy decision.

- Virginia-wide BRFSS data indicate that Hispanics have the highest uninsurance rate and are least able to see a doctor due to cost. Financial barriers to accessing care are greatest for lower-income individuals.

Conditions and Care of the Elderly

- The population in Loudoun County is projected to increase 13.4 percent between 2015 and 2020; the number of persons 65 years of age and older in Loudoun County is projected to increase by 38.7 percent over this period (**Exhibit 5**). Meeting the health and social services needs of the aging population is a significant issue.
- The Loudoun CHIP identified care of the elderly as a significant community health need.
- Interviewees also identified care of the elderly as a particular challenge in Loudoun County. The need for additional in-home health care services, day care services, and affordable housing was mentioned frequently. Concern was also expressed about the number of seniors who live alone and who suffer from poor mental health/depression.
- The health of older adults is a topic area focus in Healthy People 2020 goals. Objectives related to this goal include increased use of preventive services, increased providers with geriatric specialties and aging well in place.

Cultural Competency in Care

- Loudoun County is becoming more diverse. U.S. Census data indicate that Hispanic (or Latino) and Asian populations in Loudoun County have grown by 20 percent or more in the past three years.
- Over 25 percent of the population in four Loudoun County ZIP codes are foreign-born (**Exhibit 10**).
- Poverty rates for Black and Hispanic (or Latino) populations in Loudoun County (and across Virginia) are comparatively high (**Exhibit 14**).
- A number of interviewees stated that immigrants, undocumented workers, minority populations, and those with language barriers experience greater challenges in accessing care than the general population.

Lack of Affordable Housing

- Community Health Status Indicators (CHSI) data indicate that high housing costs benchmark unfavorably in Loudoun compared to peer counties (**Exhibit 21**).
- Additionally, access to parks and housing stress are physical environment factors that ranked unfavorably.
- Both the Loudoun County CHSA and CHIP identified the lack of affordable housing as a top concern.
- About 13 percent of community survey respondents identified a lack of “housing that is adequate, safe and affordable” as a top community health concern (**Exhibit 37**).

Lyme Disease

- The incidence of Lyme disease in Loudoun County (54.0 per 100,000) far exceeds the Virginia average (14.1 per 100,000, **Exhibit 25**).
- Interviewees identified Lyme disease as one of the most significant health needs in Loudoun County.
- Both the Loudoun County CHSA and CHIP identified Lyme disease as a top concern.

- Community survey respondents ranked Lyme disease as the third most important health concern in the community (**Exhibit 37**).

Mental Health Conditions and Services

- The per-capita supply of mental health providers (1 provider for every 781 people) in Loudoun County is below the Virginia average (**Exhibit 20**).
- The Loudoun County CHSA and CHIP both identified access to mental health services as challenging.
- Interviewees identified poor mental health status (including depression and anxiety) as a significant concern. Stigmas associated with mental health are still present. Concerns were expressed about a lack of access to mental health services – in particular services for adolescents and services to meet long-term mental health needs. When asked about programs that should be created or enhanced to address community health needs, interviewees most frequently mentioned mental health programs.
- Along the lines of increased services and needed care for ongoing mental health support (not just acute or emergency services), the Healthy People 2020 goal for mental health is to “improve mental health through prevention and by ensuring access to appropriate, quality mental health services.”
- More than 20 percent of community survey respondents identified mental health problems as a top community health concern (**Exhibit 37**). About 23 percent indicated they have been told at least once by a health care provider that they have a depressive disorder (**Exhibit 38**).

Obesity and Obesity-Related Concerns

- While Loudoun County performs well in County Health Rankings on adult obesity (ranked number 4 out of 133 counties and cities, **Exhibit 19**), the Loudoun County CHSA and CHIP identified addressing childhood obesity as top community health priorities.
- Interviewees identified obesity (particularly among adolescents) as a significant concern in Loudoun. Interviewees believed that both a lack of proper nutrition and a lack of exercise were primary causes of obesity in Loudoun. Concerns were also raised about how obesity is contributing to a higher incidence of pre-diabetes and diabetes.
- Almost 24 percent of community survey respondents identified obesity/overweight problems as a top community health concern (**Exhibit 37**). About 46 percent indicated they have been told at least once by a health care provider that they are overweight or obese (**Exhibit 38**).
- Over 12 percent of community survey respondents identified a lack of exercise as one of the top three community health concerns in Loudoun County (**Exhibit 37**).
- The Healthy People 2020 goal related to nutrition and weight status is to “promote health and reduce chronic disease risk through the consumption of healthful diets and achievement and maintenance of healthy body weights.”

Substance Abuse and Excessive Alcohol Use

- In County Health Rankings, Loudoun County ranked 126 out of 133 counties for “excessive drinking” (**Exhibit 19**). Indicators for “binge plus heavy drinking” and the

“percent of driving deaths with alcohol impairment” both have exceeded Virginia and U.S. averages (**Exhibit 20**).

- Other assessments (Loudoun County CHSA, Loudoun CHIP, and Northern Virginia Health Foundation’s *How Healthy is Northern Virginia?*) all identified substance abuse and drinking as problematic in Loudoun.
- Many interviewees identified substance abuse (including excessive alcohol use) as significant concerns. Prescription drugs, opioids, and alcohol were the most commonly cited substances. Interviewees were most concerned about substance abuse by adolescents, particularly when left unsupervised by working parents.
- Substance abuse is also a focus in Healthy People 2020.

CHINA DATA AND ANALYSIS

METHODOLOGY

This section provides information on how the CHNA was conducted.

Data Sources

Community health needs were identified by collecting and analyzing data from multiple sources. Considering a vast array of information is important when assessing community health needs, to ensure the assessment captures a wide range of facts and perspectives and to increase confidence that significant community health needs have been identified accurately and objectively.

Statistics for numerous community health indicators were analyzed, including data provided by local, state, and federal government agencies, local community service organizations, and Inova Health System. Comparisons to benchmarks were made where possible. This CHNA also incorporated findings from other recently conducted, relevant community health assessments.

Input from 30 persons representing the broad interests of the community was taken into account through key informant interviews. Interviewees included: individuals with special knowledge of or expertise in public health; local public health departments; agencies with current data or information about the health and social needs of the community; representatives of social service organizations; and leaders, representatives, and members of medically underserved, low-income, and minority populations.

A community survey was administered between November 1, 2015 and January 31, 2016. In total, 2,232 surveys were received from communities served by all Inova hospitals, and 600 surveys were received from residents of the Inova Loudoun Hospital community. The survey was available online (in eight languages: English, Amharic, Arabic, Farsi, Korean, Spanish, Vietnamese, and Urdu) and also in paper-based formats. The survey consisted of 22 questions about a range of health status and access issues and regarding respondent demographic characteristics (see Appendix A).

Paper copies of the survey were distributed to various local organizations. Efforts were made to reach vulnerable populations such as racial and ethnic minorities, low-income groups, and non-English speakers. The survey was publicized via social media and interactions with human services organizations, Health Departments, and other methods.

It is important to note that the survey utilized a convenience sampling methodology, and not a random sampling approach, such as one carried out by dialing randomly selected phone numbers. For this reason, findings from the survey are not generalizable to or representative of community-wide opinion. Even with this consideration, results from the community survey have been included in this assessment because they may corroborate and supplement the other data sources, and may be helpful in identifying potential health disparities.

Surveys submitted or entered between mid-November 18, 2015 and February 2, 2016 are included in this assessment.

Collaboration

The hospital collaborated with an Advisory Committee, which was established to help guide the CHNA process. This committee included the Health Directors from the City of Alexandria and from Fairfax, Loudoun, and Arlington Counties. Executive Directors from three Federally Qualified Health Centers (FQHCs) also provided input (Neighborhood Health, HealthWorks, and Greater Prince William Community Health Center). Committee members also included representatives from Inova hospitals and the Inova Health System. Input was received from the committee regarding how the hospital's community was defined; data sources; interview candidates and protocols; the design and administration of a community survey, and interpretation of its results; and the process by which community health needs were determined to be significant.

Prioritization Process

Community health needs were determined to be "significant" if they were identified as problematic in at least three of the four following data sources: (1) the most recently available secondary data regarding the community's health, (2) recent assessments developed by other organizations (e.g., local Health Departments), (3) community input provided by the key informants who participated in the interview process, or (4) the community survey.

Information Gaps

This CHNA relies on multiple data sources and community input gathered between August 2015 and February 2016. A number of data limitations should be recognized when interpreting results. For example, some data (e.g., County Health Rankings, Community Health Status Indicators, Behavioral Risk Factors Surveillance System, and others) exist only at a county-wide level of detail. These data sources do not allow assessing health needs at a more granular level of detail, such as by ZIP code or census tract. The hospital's community includes a subset of Fauquier County ZIP codes, so relying on county-wide data for those areas is imprecise.

Secondary data upon which this assessment relies measure community health in prior years. For example, the most recently available mortality data published by the Virginia Department of Health are from 2013. Others sources incorporate data from 2010. The impacts of recent public policy developments, changes in the economy, and other community developments are not yet reflected in those data sets.

In addition, data availability varies across cities and counties in Northern Virginia. For example, both Fairfax County and the City of Alexandria recently conducted youth risk behavior surveys in public schools. These "YRBSS" (Youth Risk Behaviors Surveillance System) data are helpful in identifying health issues for youth, such as concerns regarding mental health, smoking, sexual behaviors, substance abuse, and others. A similar survey has not yet been conducted in Loudoun or Fauquier counties.

The community survey developed and administered for this CHNA was not administered to a random sample of community residents. Accordingly, its results are not generalizable to or representative of community-wide opinion.

The findings of this CHNA may differ from those of others conducted in the community. Differences in data sources, communities assessed (e.g., hospital service areas versus counties or cities), and prioritization processes contribute to differences in findings.

DEFINITION OF COMMUNITY ASSESSED

This section identifies the community that was assessed by Inova Loudoun Hospital. The community was defined by considering the geographic origins of the hospital's 2014 inpatient discharges and emergency department visits.

Inova Loudoun Hospital's community is comprised of 19 ZIP codes, including all of Loudoun County and one ZIP code of Fauquier County (**Exhibit 1**).

Exhibit 1: Inova Loudoun Hospital Inpatient Discharges and Emergency Department Visits by City or County, 2014

Subregions	Percent of Discharges	Percent of Emergency Department Visits
Ashburn/Arcola	22.4%	24.1%
Leesburg	27.5%	29.9%
Sterling/Dulles	18.2%	18.8%
South Riding/Aldie	2.4%	1.3%
Western Loudoun	13.0%	13.3%
Community Total	83.5%	87.3%
Other Area	16.5%	12.7%
All Areas	100.0%	100.0%
Note: Total Discharges and ED Visits	11,443	66,547

Source: Inova Health System, 2015.

In 2014, the 19 ZIP codes that comprise the hospital's community accounted for over 83 percent of its discharges and over 87 percent of its emergency department visits.

The total population of this community in 2014 was approximately 360,000 persons (**Exhibit 2**).

Exhibit 2: Community Population, 2014

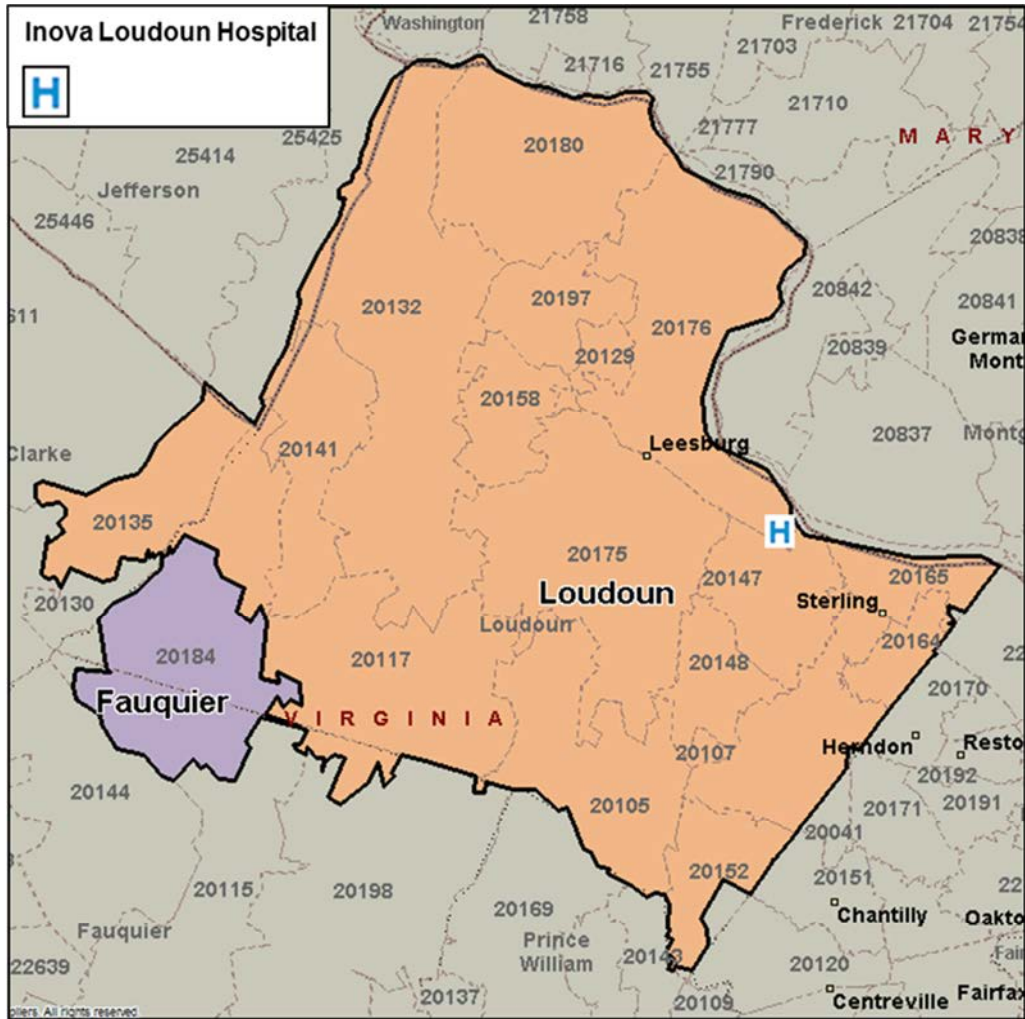
Subregions	2014 Population	Percent of 2014 Population
Ashburn/Arcola	102,785	28.6%
Leesburg	79,971	22.2%
Sterling/Dulles	79,393	22.1%
South Riding/Aldie	50,300	14.0%
Western Loudoun	47,309	13.2%
Community Total	359,758	100.0%

Source: Metropolitan Washington Council of Governments, 2015.

The hospital is located in Leesburg (ZIP code 20176).

The map in **Exhibit 3** portrays the ZIP codes and jurisdictions that comprise the Inova Loudoun Hospital community.

Exhibit 3: Inova Loudoun Hospital Community



Source: Microsoft MapPoint and Inova Health System, 2015.

SECONDARY DATA ASSESSMENT

This section presents an assessment of secondary data regarding health needs in the Inova Loudoun Hospital community.

Demographics

Population characteristics and changes directly influence community health needs. The total population in the Inova Loudoun Hospital community is expected to grow 13.4 percent from 2015 to 2020 (**Exhibit 4**).

Exhibit 4: Percent Change in Community Population by Subregion

Subregions	Total Population			Percent Change in Population	
	2010	2015	2020	2010-2015	2015-2020
Ashburn/Arcola	86,413	107,502	121,399	24.4%	12.9%
Leesburg	73,940	81,562	88,381	10.3%	8.4%
Sterling/Dulles	76,160	80,443	84,896	5.6%	5.5%
South Riding/Aldie	36,261	54,813	72,200	51.2%	31.7%
Western Loudoun	44,151	48,149	55,687	9.1%	15.7%
Community Total	316,924	372,467	422,562	17.5%	13.4%

Source: Metropolitan Washington Council of Governments, 2015.

Every subregion in the community is projected to experience population growth from 2015 to 2020. The population in the South Riding/Aldie community is expected to grow by more than 30 percent.

Exhibit 5 shows the community’s population by age and sex from 2010 through 2015, with projections to 2020.

Exhibit 5: Percent Change in Population by Age/Sex Cohort, 2015-2020

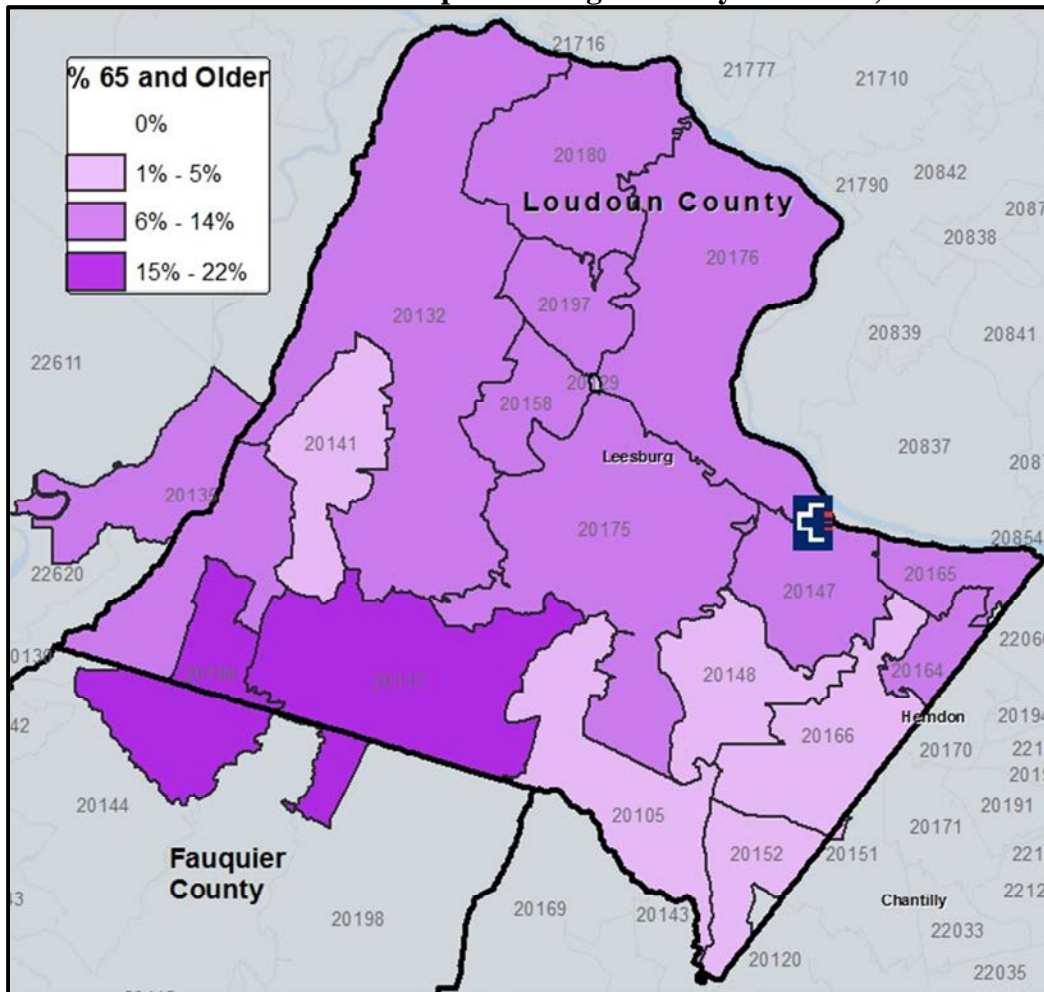
Age/Sex Cohort	Community Population			% Change in Population	
	2010	2015	2020	2010-2015	2015-2020
0-17	96,765	108,894	119,339	12.5%	9.6%
Female 18-44	61,923	69,060	72,407	11.5%	4.8%
Male 18-44	59,332	67,121	71,133	13.1%	6.0%
45-54	50,072	58,798	64,686	17.4%	10.0%
55-64	27,621	38,724	53,583	40.2%	38.4%
65+	21,210	29,870	41,415	40.8%	38.7%
Total	316,924	372,467	422,562	17.5%	13.4%

Source: Metropolitan Washington Council of Governments and Claritas, 2015.

The number of persons aged 65 years and older is projected to increase by 38.7 percent between 2015 and 2020. The population 55 to 64 years of age is projected to increase by a similar rate. The growth of older populations is likely to lead to growing need for health services, since on an overall per-capita basis, older individuals typically need and use more services than younger persons.

Exhibit 6 illustrates the percent of the population 65 years of age and older in the community by ZIP code.

Exhibit 6: Percent of Population Aged 65+ by ZIP Code, 2014

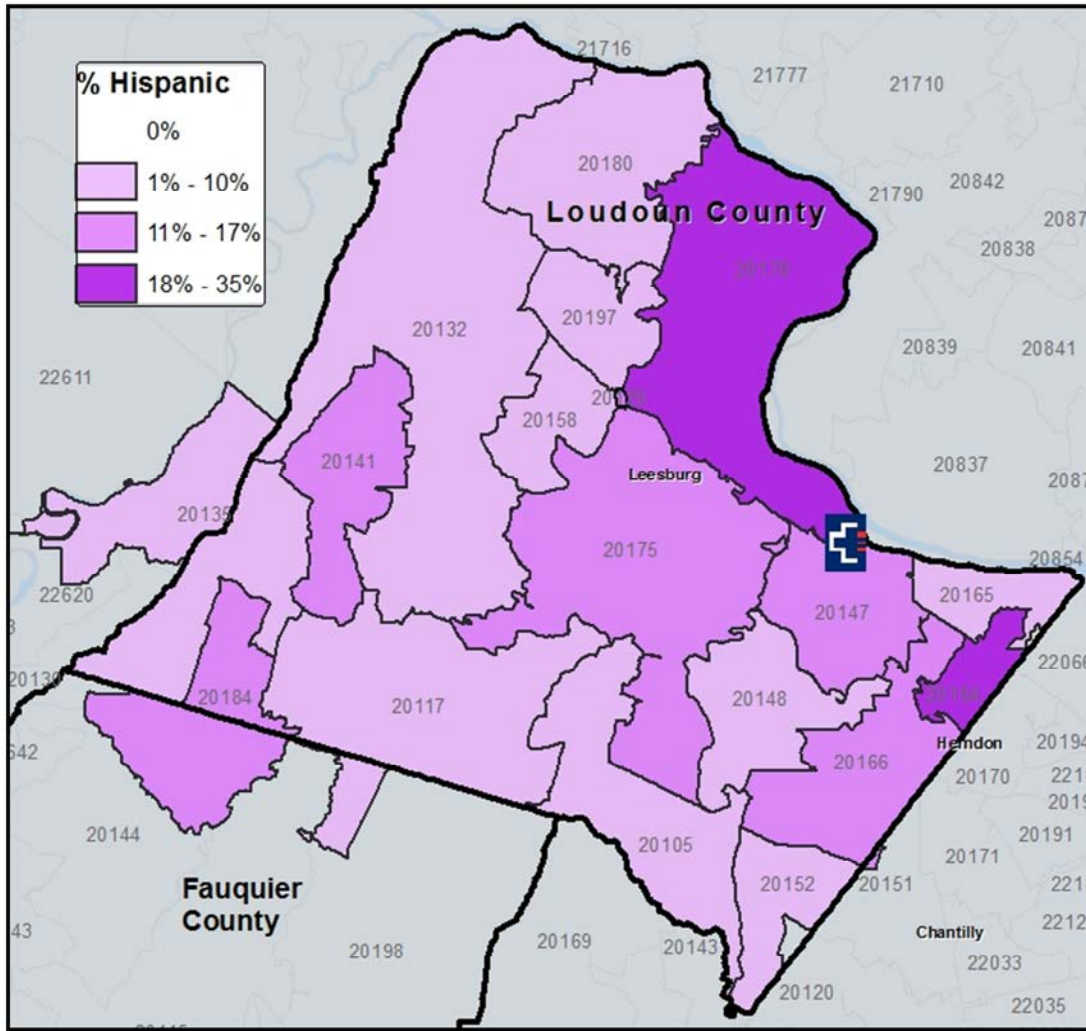


Source: U.S. Census, ACS 5-Year Estimates, 2010-2014

Certain ZIP codes in Western Loudoun and Fauquier County had the highest proportions of populations aged 65 and over (ZIP codes 20117 and 20184). ZIP code 20148 had the lowest proportion.

Exhibits 7 through 11 show locations in the community where the percentages of the population that are Black, Hispanic (or Latino), Asian, Foreign Born, and “not proficient in English” were highest in 2014.

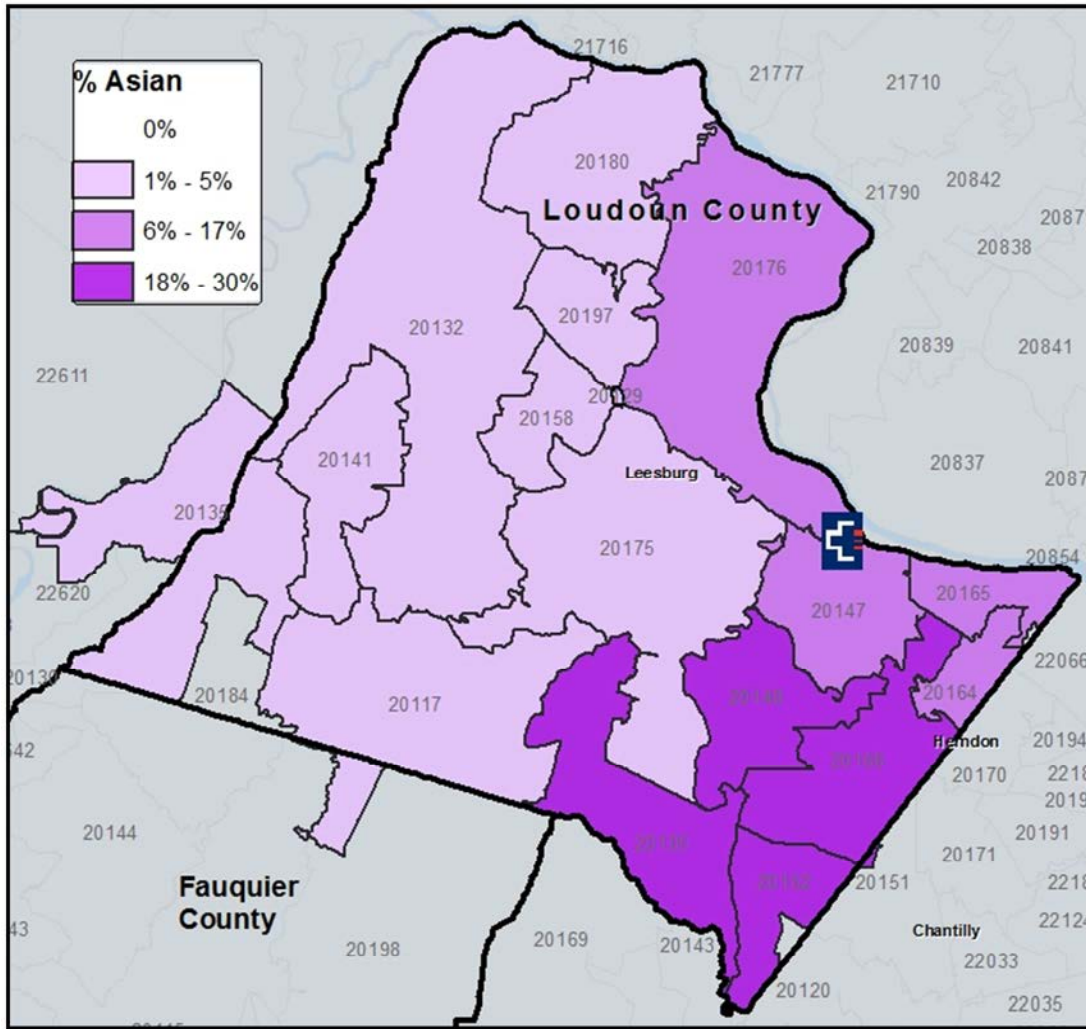
Exhibit 8: Percent of Population - Hispanic (or Latino), 2014



Source: U.S. Census, ACS 5-Year Estimates, 2010-2014

The highest proportion of Hispanic (or Latino) residents in the community was in ZIP code 20164 at nearly 35 percent. Other ZIP codes (20166, 20176 and 20129) were between 14 and 16 percent. According to the U.S. Census, the population of Hispanic (or Latino) residents in Loudoun County increased by 20 percent between 2011 and 2014.

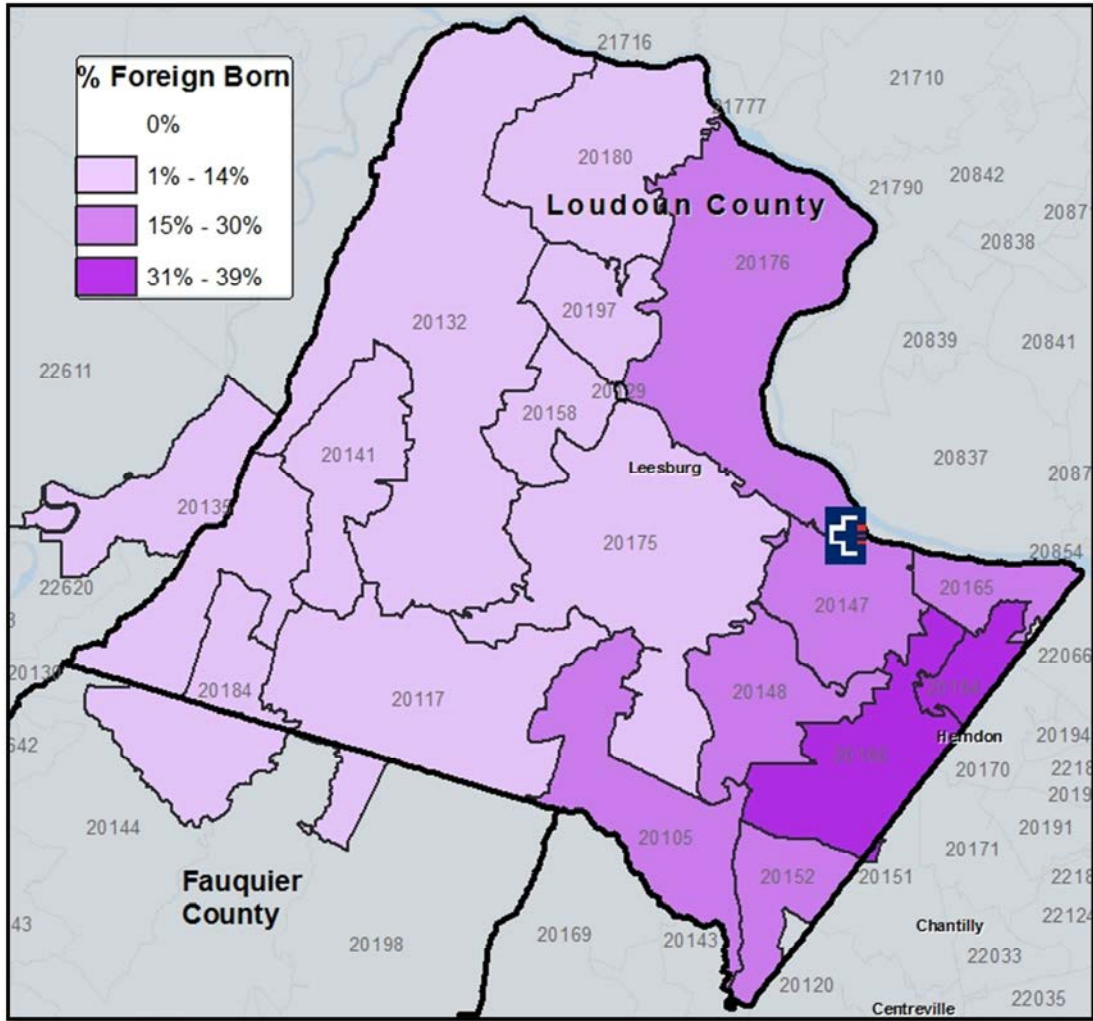
Exhibit 9: Percent of Population - Asian, 2014



Source: U.S. Census, ACS 5-Year Estimates, 2010-2014

Southeast Loudoun County (ZIP codes 20148, 20152, 20166, and 20105) has the areas where the percentage of the population that is Asian is highest, each above 25 percent. According to the U.S. Census, the Asian population in Loudoun County increased by 22.7 percent between 2011 and 2014.

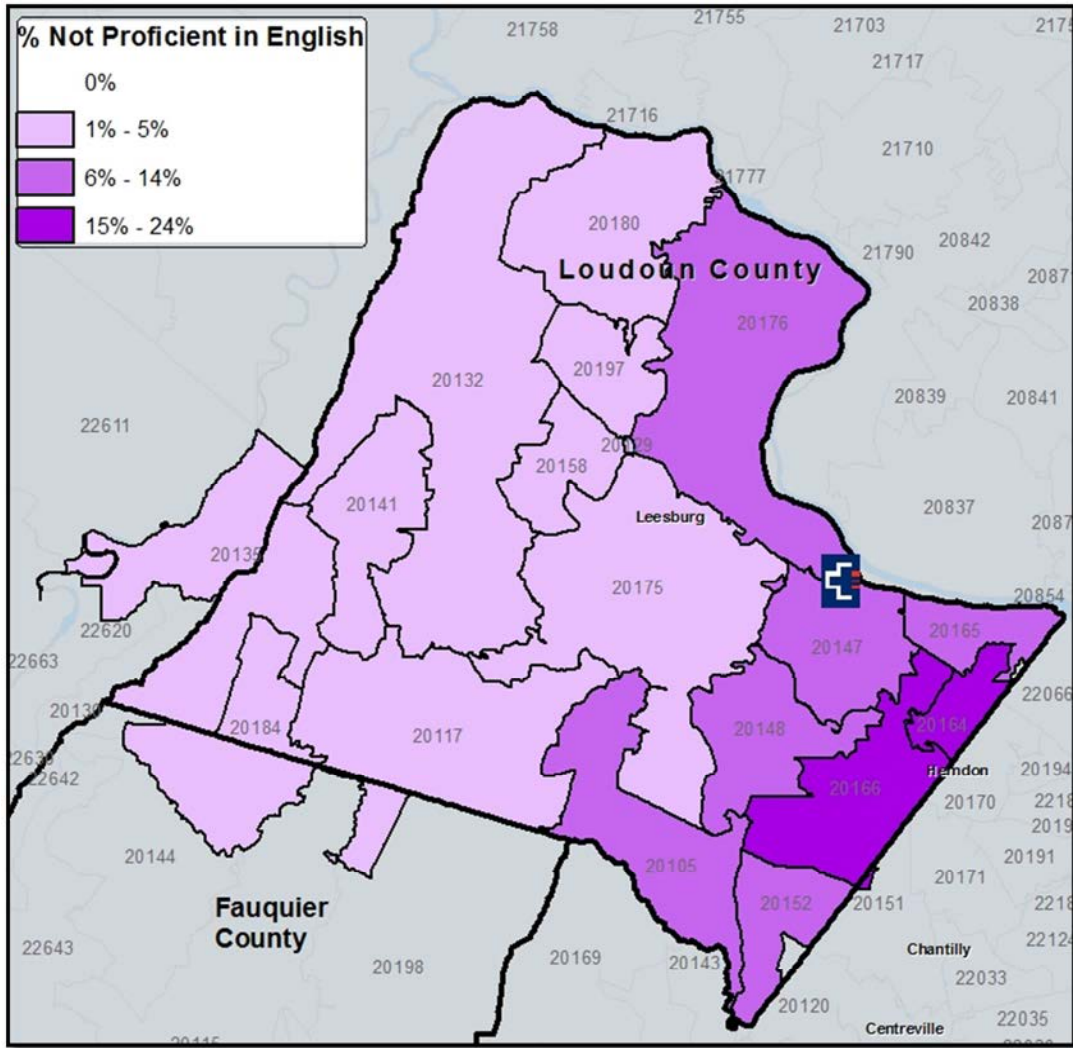
Exhibit 10: Percent of Population - Foreign Born, 2014



Source: U.S. Census, ACS 5-Year Estimates, 2010-2014

The eastern regions of Loudoun County had the largest proportion of foreign-born residents. In ZIP codes 20166, 20164, 20152, 20105, the percent of the population foreign-born exceeded 25 percent in 2014.

Exhibit 11: Percent of Population - Not Proficient in English, 2014



Source: U.S. Census, ACS 5-Year Estimates, 2010-2014

In 2014, 24.3 percent of the residents of ZIP code 20164 and 16.9 percent of residents in ZIP code 20166 were not proficient in English.

Data regarding residents without a high school diploma, with a disability, and linguistically isolated are presented in **Exhibit 12** by city and county, for Virginia and the United States.

Exhibit 12: Other Socioeconomic Indicators, 2014

Measure	Loudoun County	Virginia	U.S.
Population 25+ without High School Diploma	6.5%	12.1%	13.7%
Population with a Disability	5.2%	11.0%	12.3%
Population Linguistically Isolated	10.0%	5.6%	8.6%

Source: U.S. Census, ACS 5-Year Estimates, 2010-2014

Exhibit 12 indicates that:

- Loudoun County had a lower percentage of residents aged 25 years and older without a high school diploma than Virginia and United States averages.
- The county had a lower percentage of the population with a disability, at more than half the Virginia and United States averages.
- Compared to Virginia and national averages, Loudoun County had a higher proportion of the population that is linguistically isolated. Linguistic isolation is defined as residents who speak a language other than English and speak English less than “very well.”

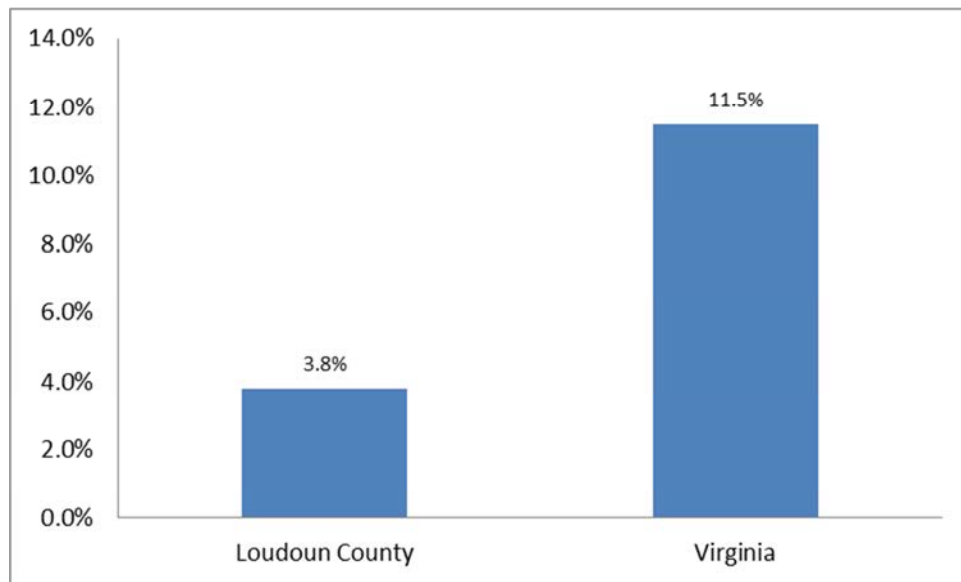
Economic indicators

The following categories of economic indicators with implications for health were assessed: (1) people in poverty; (2) unemployment rate; (3) insurance status; and (4) crime.

People in Poverty

Many health needs have been associated with poverty. According to the U.S. Census, in 2014 approximately 11.5 percent of people in Virginia were living in poverty. Loudoun County reported an overall poverty rate well below the Virginia average (**Exhibit 13**).

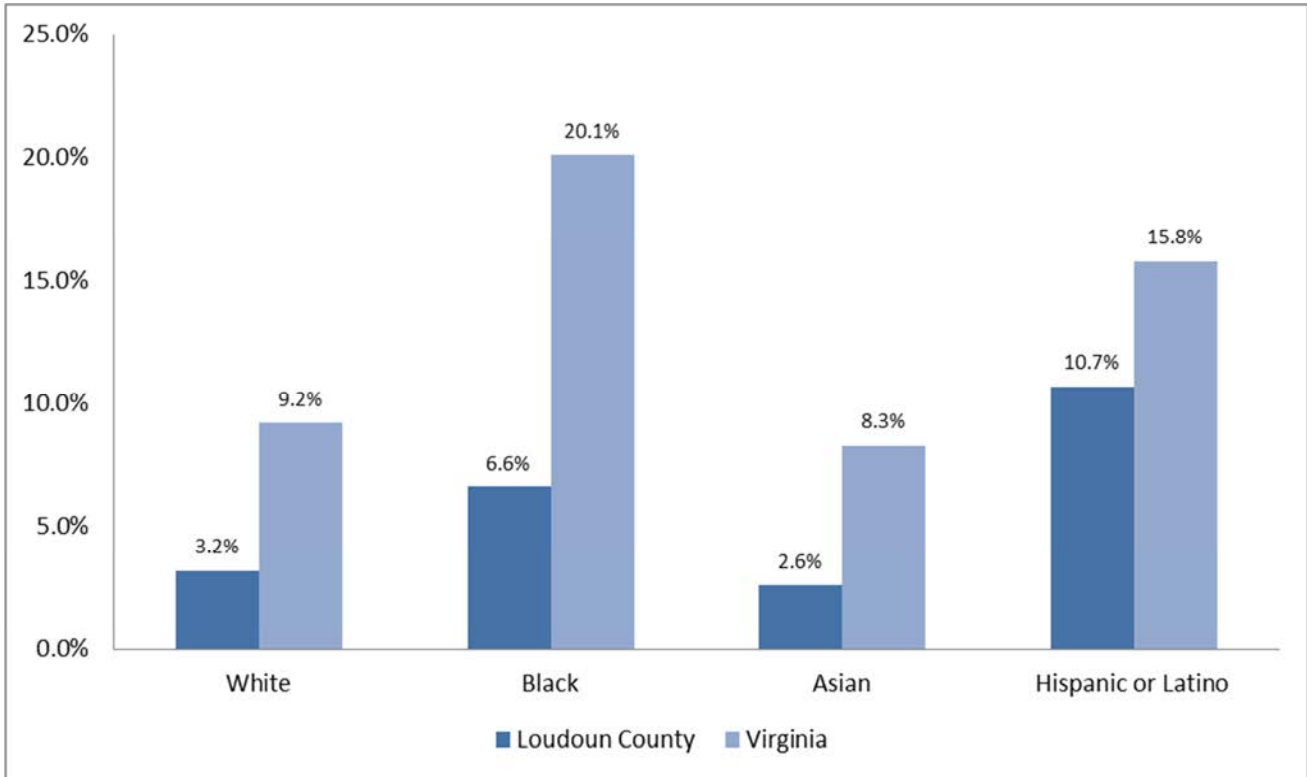
Exhibit 13: Percent of People in Poverty, 2014



Source: U.S. Census, ACS 5-Year Estimates, 2010-2014

While poverty rates in the community served by the hospital appear lower than the Commonwealth-wide average, variation in poverty rates is present across racial and ethnic categories (**Exhibit 14**).

Exhibit 14: Poverty Rates by Race and Ethnicity, 2014



Source: U.S. Census, ACS 5-Year Estimates, 2010-2014

Poverty rates across the county have been comparatively high for African American and Hispanic (or Latino) populations. The poverty rates for all racial and ethnic populations, however, are below Virginia averages.

Exhibit 15 portrays (in blue shading) the low income census tracts in this community. The U.S. Department of Agriculture defines “low income census tracts” as areas where poverty rates are 20 percent or higher or where median family incomes are 80 percent or lower than within the metropolitan area.

Exhibit 15: Low Income Census Tracts



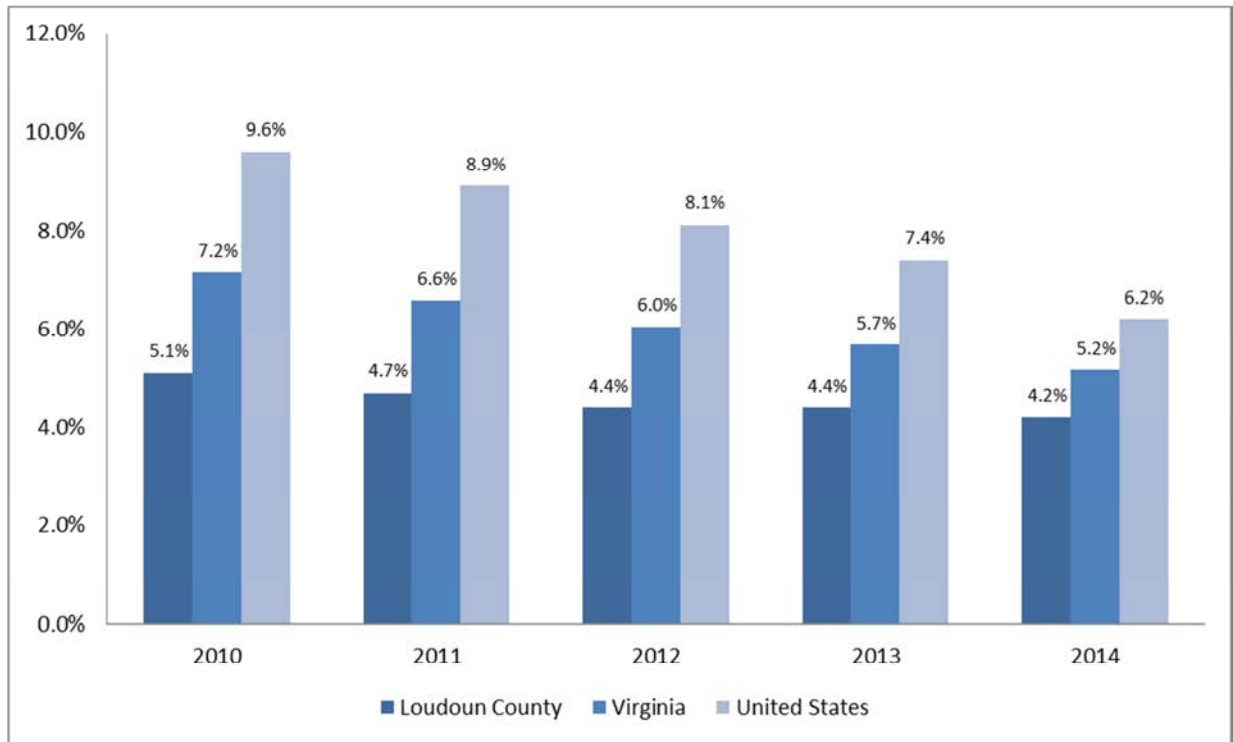
Source: US Department of Agriculture Economic Research Service, ESRI, 2016.

Low income census tracts are present in Leesburg and Sterling.

Unemployment

Unemployment is problematic because many receive health insurance coverage through their (or a family member's) employer. If unemployment rises, access to employer based health insurance can decrease. **Exhibit 16** shows unemployment rates for 2010 through 2014 for Loudoun County, with Virginia and national rates for comparison.

Exhibit 16: Unemployment Rates, 2010-2014



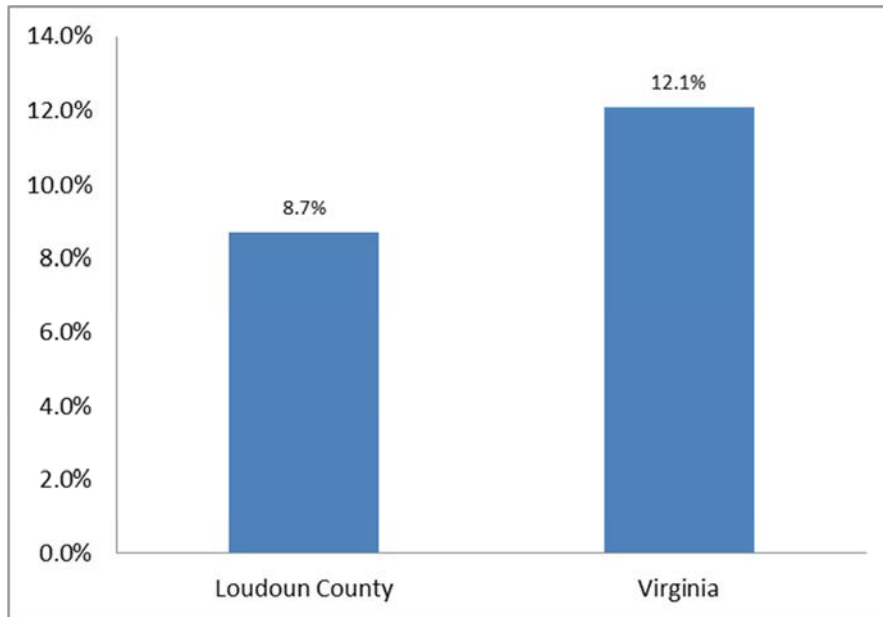
Source: Bureau of Labor Statistics, 2010-2014.

Unemployment rates fell significantly between 2010 and 2014. While unemployment rates in Loudoun have been well below Virginia and national averages, the decrease from 2010-2014 has been comparatively slower.

Insurance Status

Exhibit 17 presents the estimated percent of populations in Loudoun County and the Commonwealth of Virginia without health insurance (uninsured).

Exhibit 17: Percent of the Population without Health Insurance, 2014



Source: U.S. Census, ACS 5-Year Estimates, 2010-2014

At 8.7 percent, Loudoun’s uninsured rate is below the Virginia average.

Virginia Medicaid Expansion

The uninsurance rate would be lower if Virginia had expanded eligibility for Medicaid as originally contemplated by the Patient Protection and Affordable Care Act (ACA, 2010). Subsequent to the ACA’s passage, a June 2012 Supreme Court ruling provided states with discretion regarding whether or not to expand Medicaid eligibility. To date, Virginia has been one of the states that has not expanded Medicaid. As a result, Medicaid eligibility in Virginia has remained very limited.

In Virginia, Medicaid is primarily available to children in low-income families, pregnant women, low-income elderly persons, individuals with disabilities, and parents who meet specific income thresholds.³ Adults without children or disabilities are ineligible.

It has been estimated that over 400,000 Virginians could gain coverage if Medicaid were expanded. Across the United States, uninsurance rates have fallen most in states that decided to expand Medicaid.⁴

³ DMAS.

⁴ See: <http://hrms.urban.org/briefs/Increase-in-Medicaid-under-the-ACA-reduces-uninsurance.html>

Crime

Exhibit 18 provides certain crime statistics for Loudoun County and for Virginia. Cells are shaded if the statistic is at all worse than Virginia averages.

Exhibit 18: Crime Rates by Type and County, Per 100,000, 2014

Crime	Loudoun County	Virginia
Violent Crime	65.2	199.6
Murder/Non-negligent manslaughter	0.9	4.1
Rape	15.0	28.2
Robbery	12.1	52.4
Aggravated assault	37.2	114.8
Property Crime	766.3	1,963.6
Burglary	50.8	282.5
Larceny-theft	682.2	1,587.4
Motor vehicle theft	33.3	93.6

Source: FBI, 2014.

All Loudoun County crime rates for 2014 were well below Commonwealth of Virginia rates.

Local Health Status and Access Indicators

This section assesses health status and access indicators for the Inova Loudoun Hospital community. Data sources include: (1) County Health Rankings, (2) the Centers for Disease Control and Prevention’s (CDC) Community Health Status Indicators, (3) the Virginia Department of Health, and (4) the CDC’s Behavioral Risk Factor Surveillance System.

Throughout this section, data and cells are highlighted if indicators are unfavorable – because they exceed benchmarks (typically, Virginia averages). Where confidence interval data are available, cells are highlighted only if variances are unfavorable and also statistically significant.

County Health Rankings

County Health Rankings, a University of Wisconsin Population Health Institute initiative funded by the Robert Wood Johnson Foundation, incorporates a variety of health status indicators into a system that ranks each county/city within each state in terms of “health factors” and “health outcomes.” These health factors and outcomes are composite measures based on several variables grouped into the following categories: health behaviors, clinical care,⁵ social and

⁵A composite measure of Access to Care, which examines the percent of the population without health insurance and ratio of population to primary care physicians, and Quality of Care, which examines the hospitalization rate for ambulatory care sensitive conditions, whether diabetic Medicare patients are receiving HbA1C screening, and percent of chronically ill Medicare enrollees in hospice care in the last 8 months of life.

economic factors, and physical environment.⁶ *County Health Rankings* is updated annually. *County Health Rankings 2016* relies on data from 2006 to 2015, with most data from 2010 to 2013.

Exhibit 19 presents 2013 and 2016 rankings for each available indicator category. Rankings indicate how the county (or city) ranked in relation to all 134 counties (or cities) in the Commonwealth, with 1 indicating the most favorable ranking and 134 the least favorable. The table also indicates if rankings fell between 2013 and 2016. For some indicators, for example “Excessive drinking,” values are available for fewer than 134 counties (or cities). For that indicator, only 97 comparison jurisdictions were available for the 2013 County Health Ranking.

Indicators in the exhibit are shaded based on the jurisdiction’s percentile for the state ranking (light shading indicates the jurisdiction is in the bottom 50th percentile and dark shading indicated the jurisdiction is in the bottom 25th percentile). For example, Loudoun County compared unfavorably to other counties in Virginia for the percentage of Medicare eligible individuals receiving diabetic screening. Loudoun’s rank of 106 out of 134 counties placed it in the bottom 25th percentile in the 2016 rankings.

⁶A composite measure that examines Environmental Quality, which measures the number of air pollution-particulate matter days and air pollution-ozone days, and Built Environment, which measures access to healthy foods and recreational facilities and the percent of restaurants that are fast food.

Exhibit 19: County Health Rankings, 2013 and 2016

	Loudoun County		
	2013	2016	Rank Change
Health Outcomes	2	1	
Length of Life	1	1	
Quality of Life	8	1	
Health Factors	2	4	↓
Health Behaviors	4	3	
Adult smoking*	14	2	
Adult obesity	3	4	↓
Excessive drinking**	92	126	↓
STIs	9	18	↓
Teen births	10	7	
Clinical Care	9	21	↓
Primary care physicians	43	34	
Dentists	36	38	↓
Mental health providers	47	46	
Preventable hospital stays	35	50	↓
Diabetic screening	103	106	↓
Social & Economic Factors	1	2	↓
Some college	4	3	
Unemployment	2	8	↓
Injury deaths	-	2	
Physical Environment	35	116	↓
Air pollution	100	83	
Severe housing problems	-	59	

*2013 Data Ranked out of 98 Counties with Data Available

**2013 Data Ranked out of 97 Counties with Data Available

Source: County Health Rankings, 2016.

Overall, Loudoun County compared favorably in most indicator categories to the other cities and counties in Virginia. Exceptions include excessive drinking, diabetic screening rates (for Medicare eligible individuals), the physical environment, and air pollution. County rankings noticeably fell between 2013 and 2016 for excessive drinking, STIs, clinical care measure, preventable hospital stays, and physical environment.

Exhibit 20 provides data for each underlying indicator of the composite categories in the County Health Rankings.⁷ The exhibit also includes national averages. Cells in the exhibit are shaded if the indicator for the city or county exceeded the Virginia average at all for that indicator, and are shaded darker if the value is 25% worse than Virginia.

⁷ County Health Rankings provides details about what each indicator measures, how it is defined, and data sources at http://www.countyhealthrankings.org/sites/default/files/resources/2013Measures_datasources_years.pdf

Exhibit 20: County Health Rankings Data Compared to Virginia and U.S. Average, 2016

Indicator Category	Data	Loudoun County	Virginia	U.S.
Health Outcomes				
Length of Life	Years of potential life lost before age 75 per 100,000 population	3,227.5	6,147.1	7,700.0
Quality of Life	Percent of adults reporting fair or poor health	10.5	14.2	16.0
	Average number of physically unhealthy days reported in past 30 days	2.6	3.2	3.7
	Average number of mentally unhealthy days reported in past 30 days	2.6	3.1	3.7
	Percent of live births with low birthweight (<2500 grams)	6.6	8.2	8.0
Health Factors				
Health Behaviors				
Adult Smoking	Percent of adults that report smoking \geq 100 cigarettes and currently smoking	13.0	16.9	18.0
Adult Obesity	Percent of adults that report a BMI \geq 30	21.8	27.3	31.0
Food Environment Index	Index of factors that contribute to a healthy food environment, 0 (worst) to 10 (best)	10.0	8.3	7.2
Physical Inactivity	Percent of adults aged 20 and over reporting no leisure-time physical activity	19.5	22.2	28.0
Access to Exercise Opportunities	Percent of population with adequate access to locations for physical activity	89.0	80.7	62.0
Alcohol Impaired Driving Deaths	Percent of driving deaths with alcohol involvement	33.8	31.2	30.0
Excessive Drinking	Binge plus heavy drinking	18.7	16.8	17.0
STDs	Chlamydia rate per 100,000 population	158.2	407.0	287.7
Teen Births	Teen birth rate per 1,000 female population, ages 15-19	10.9	27.5	40.0
Clinical Care				
Uninsured	Percent of population under age 65 without health insurance	9.1	14.0	17.0
Primary Care Physicians	Ratio of population to primary care physicians	1350:1	1329:1	1990:1
Dentists	Ratio of population to dentists	1650:1	1570:1	2590:1
Mental Health Providers	Ratio of population to mental health providers	781:1	685:1	1060:1
Preventable Hospital Stays	Hospitalization rate for ambulatory-care sensitive conditions per 1,000 Medicare enrollees	46.7	49.1	60.0
Diabetic Screening	Percent of diabetic Medicare enrollees that receive HbA1c monitoring	84.9	86.6	85.0
Mammography Screening	Percent of female Medicare enrollees, ages 67-69, that receive mammography screening	58.0	63.0	61.0

Source: County Health Rankings, 2016.

Exhibit 20: County Health Rankings Data Compared to Virginia and U.S. Average, 2016 (continued)

Indicator Category	Data	Loudoun County	Virginia	U.S.
Health Factors				
Social & Economic Factors				
High School Graduation	Percent of ninth-grade cohort that graduates in four years	93.0	84.6	86.0
Some College	Percent of adults aged 25-44 years with some post-secondary education	82.9	68.8	56.0
Unemployment	Percent of population age 16+ unemployed but seeking work	4.2	5.2	6.0
Children in poverty	Percent of children under age 18 in poverty	4.4	15.9	23.0
Income Inequality	Ratio of household income at the 80th percentile to income at the 20th percentile	3.3	4.8	4.4
Children in single-parent households	Percent of children that live in a household headed by single parent	15.3	30.0	32.0
Social Associations	Number of associations per 10,000 population	6.9	11.3	13.0
Violent Crime	Number of reported violent crime offenses per 100,000 population	88.5	200.2	199.0
Injury Deaths	Injury mortality per 100,000	25.9	52.0	74.0
Physical Environment				
Air Pollution	The average daily measure of fine particulate matter in micrograms per cubic meter (PM2.5) in a county	12.8	12.7	11.9
Severe Housing Problems	Percentage of households with at least 1 of 4 housing problems: overcrowding, high housing costs, or lack of kitchen or plumbing facilities	13.1	15.4	14.0
Drive Alone to Work	Percent of the workforce that drives alone to work	78.0	77.5	80.0
Long Commute- Drive Alone	Among workers who commute in their car alone, the percent that commute more than 30 minutes	51.0	38.2	29.0

Source: County Health Rankings, 2016.

Exhibit 20 highlights the following comparatively unfavorable indicators for Loudoun County:

- Percent of driving deaths involving alcohol,
- Binge plus heavy drinking,
- Primary care physicians, dentists, and mental health providers rates,
- Percent of diabetic Medicare enrollees that receive HbA1c monitoring,
- Percent of female Medicare enrollees that receive mammography screening,
- Social associations rate,
- Average daily measure of particulate matter (air pollution),
- Percent of workforce that drives alone to work, and
- Percent of workers who commute in their car alone and drive more than 30 minutes.

Community Health Status Indicators

The Centers for Disease Control and Prevention’s *Community Health Status Indicators* provide health profiles for all 3,143 counties in the United States. Counties are assessed using 44 metrics associated with health outcomes including health care access and quality, health behaviors, social factors, and the physical environment.

The *Community Health Status Indicators* allow comparisons between a given county to other “peer counties.” Peer counties are assigned based on 19 variables including population size, population growth, population density, household income, unemployment, percent children, percent elderly and poverty rates.

Exhibit 21 compares Loudoun County to its respective peer counties and cities and highlights community health issues found to rank in the bottom quartile of the jurisdictions included in the analysis.

Exhibit 21: Community Health Status Indicators, 2015

Category	Indicator	Loudoun County
Mortality	Alzheimer's Disease Deaths	
	Cancer Deaths	
	Chronic Kidney Disease Deaths	
	Chronic Lower Respiratory Disease (CLRD) Deaths	
	Coronary Heart Disease Deaths	
	Diabetes Deaths	
	Female Life Expectancy	
	Male Life Expectancy	
	Motor Vehicle Deaths	
	Stroke Deaths	
	Unintentional Injury (including motor vehicle)	
Morbidity	Adult Diabetes	
	Adult Obesity	
	Adult Overall Health Status	
	Alzheimer's Disease/Dementia	
	Cancer	
	Gonorrhea	
	HIV	
	Older Adult Asthma	
	Older Adult Depression	
	Preterm Births	
	Syphilis	
Health Care Access and Quality	Cost Barrier to Care	
	Older Adult Preventable Hospitalizations	
	Primary Care Provider Access	
	Uninsured	
Health Behaviors	Adult Binge Drinking	
	Adult Female Routine Pap Tests	
	Adult Physical Inactivity	
	Adult Smoking	
	Teen Births	
Social Factors	Children in Single-Parent Households	
	High Housing Costs	
	Inadequate Social Support	
	On Time High School Graduation	
	Poverty	
	Unemployment	
	Violent Crime	
Physical Environment	Access to Parks	
	Annual Average PM2.5 Concentration	
	Drinking Water Violations	
	Housing Stress	
	Limited Access to Healthy Food	
	Living Near Highways	

Source: Community Health Status Indicators, 2015.

The CHSI data indicate that high housing costs benchmark unfavorably in Loudoun compared to peer counties. Additionally, access to parks and housing stress are physical environment factors that are unfavorable.

Virginia Department of Health

The Virginia Department of Health maintains a data warehouse that includes city or county-level indicators regarding mortality (**Exhibits 22 and 23**), cancer incidence (**Exhibit 24**), communicable diseases (**Exhibit 25**), and maternal and child health (**Exhibit 26**). Cells are shaded if the statistic is at all worse than Virginia averages, but does not indicate a statistically significant difference.

Exhibit 22 provides age-adjusted mortality rates for selected causes of death in 2013.

Exhibit 22: Selected Causes of Death, Age-Adjusted Rates per 100,000 Population, 2013

Age Adjusted Mortality Rates	Loudoun County	Virginia
Total Deaths	515.0	720.1
Cancer	123.5	161.3
Heart Disease	117.0	155.9
Cerebrovascular Diseases (Stroke)	29.8	38.5
Chronic Lower Respiratory Diseases	20.7	37.2
Unintentional Injury	22.2	33.0
Alzheimer's Disease	12.8	19.6
Diabetes	12.7	18.3
Nephritis and Nephrosis	11.3	18.0
Septicemia	3.1	17.7
Influenza and Pneumonia	11.6	16.8
Suicide	9.6	12.2
Chronic Liver Disease	3.8	8.9
Primary Hypertension and Renal Disease	7.3	7.2

Source: Virginia Department of Health, 2013.

With few exceptions (primary hypertension and renal disease), age-adjusted mortality rates in the community have been below Virginia averages.

Exhibit 23: Cancer Deaths, Age-Adjusted Rates per 100,000 Population, 2008-2012

Mortality Rate	Loudoun County	Virginia
All Cancers	140.3	171.2
Breast	19.2	22.7
Cervical	1.8	1.9
Colorectal	14.2	14.9
Lung and Bronchus	35.2	48.2
Melanoma	2.2	2.9
Oral Cavity	1.7	2.3
Ovarian	7.4	7.9
Prostate	21.3	22.4

Source: Virginia Department of Health, 2012.

Similarly, cancer mortality rates in Loudoun have been below Virginia averages on an age-adjusted basis.

Exhibit 24 presents age-adjusted cancer incidence rates in the community.

Exhibit 24: Age-Adjusted Cancer Incidence Rates per 100,000 Population, 2008-2012

Incidence Rate	Loudoun County	Virginia
All Cancers	364.9	429.1
Breast	123.4	124.6
Prostate	105.3	126.3
Lung and Bronchus	44.2	63.6
Colorectal	32.3	38.3
Melanoma	12.9	18.3
Ovarian	13.5	11.8
Pancreas	7.9	10.4
Cervical	4.2	6.3

Source: National Cancer Institute and Center for Disease Control, 2012.

Cancer incidence rates in Loudoun County are also generally below commonwealth averages, with an exception for the incidence rate of ovarian cancer.

Exhibit 25: Communicable Disease Incidence per 100,000 Population, 2014

Diagnosis	Loudoun County	Virginia
HIV	3.9	13.4
Chlamydia	179.9	438.0
Gonorrhea	18.1	100.8
Early Syphilis	2.4	6.8
E. coli	2.1	1.2
Lyme Disease	54.0	14.1
Salmonellosis	15.1	12.7
Tuberculosis	3.0	2.2

Source: Virginia Department of Health, 2014.

Loudoun County has a comparatively high rate of Lyme disease. Incidence rates of E. coli, salmonella, and tuberculosis also exceed commonwealth rates.

Exhibit 26: Maternal and Child Health Indicators, 2013

Measure	Loudoun County	Virginia
Birth Rate (per 1,000 population)	14.3	12.3
Teen Pregnancy Rate (age 10-19)	4.6	14.4
< 15 years	0.1	0.3
15-17 years	3.3	11.3
18-19 years	25.7	50.4
Low Weight Births (%)	5.9	8.0
First Trimester Care (%)	88.4	82.9
Non-Marital Births (%)	15.7	34.6
Infant Mortality Rate	4.4	6.2

Source: Virginia Department of Health, 2013.

Exhibit 26 indicates that maternal and child health indicators in Loudoun County are comparatively better than Virginia averages.

Behavioral Risk Factor Surveillance System

The Centers for Disease Control and Prevention’s (CDC) Behavioral Risk Factor Surveillance System (BRFSS) gathers data through a telephone survey regarding health risk behaviors, healthcare access, and preventive health measures. Data are collected for the entire United States. Analysis of BRFSS data can identify local health issues, trends and health disparities, and can enable county, state, or nation-wide comparisons.

BRFSS data were assessed for Loudoun County and compared with Virginia averages. No indicators from Loudoun County were worse than commonwealth averages.

In addition to asking questions about respondent health, the BRFSS gathers certain demographic data such as respondent age, education level achieved, household income, gender, and race/ethnicity. Unfortunately, BRFSS data available for Loudoun County are based on sample sizes too small to analyze local responses by demographic cohort. BRFSS data for these demographic cohorts are available for the entire Commonwealth, and those data show the following:

- Results by age range:
 - According to the Virginia BRFSS data, uninsurance rates tend to fall as individuals age. Rates are lowest for Medicare-eligible individuals (65 years of age and older).
 - The prevalence of chronic disease tends to increase as individuals age.
 - Across age groups, 14 to 20 percent of Virginians have been told they have some form of depression. Rates overall average 16 percent, and are highest for those between 44 and 65 years of age.
 - Smoking is most prevalent for those aged 25 to 34 years. Inability to see a doctor due to cost is also most prevalent within this group.
 - Binge drinking rates are highest for those aged 18 to 24 years and appear to decline with age.
- Results by level of educational achievement: uninsurance rates, chronic disease prevalence, smoking rates, depression rates, and the percentage of respondents unable to see a doctor due to cost are highest within cohorts with the lowest levels of educational achievement (those without high school diplomas and with no post-high school education).
- Results by level of household income:
 - Not surprisingly, households with the lowest incomes also have the highest rates of uninsurance, chronic disease, depression, smoking, and problems seeing a doctor due to cost.
 - Binge drinking rates are highest in households with the highest incomes.
- Results by gender: compared to males, females report higher levels of disability (e.g., difficulty walking or climbing stairs), higher cancer rates, and higher rates of depression. Males report slightly higher rates of angina or coronary heart disease than females.
- Results by race/ethnicity:
 - BRFSS data indicate that Hispanics have the highest uninsurance rate and are least able to see a doctor due to cost.

- Disabilities appear to be most prevalent within Virginia’s Black populations (e.g., difficulties with activities of daily living). Black individuals also appear to have the highest rates of smoking, high blood pressure, asthma, and diabetes.
- Binge drinking appears to be most prevalent within White populations.

Ambulatory Care Sensitive Conditions

This section examines the frequency of discharges for Ambulatory Care Sensitive Conditions (ACSCs) throughout the community.

ACSCs are eighteen health “conditions for which good outpatient care can potentially prevent the need for hospitalization or for which early intervention can prevent complications or more severe disease.”⁸ As such, rates of hospitalization for these conditions can “provide insight into the quality of the health care system outside of the hospital,” including the accessibility and utilization of primary care, preventive care and health education. Among these conditions are: diabetes, perforated appendixes, chronic obstructive pulmonary disease (COPD), hypertension, congestive heart failure, dehydration, bacterial pneumonia, urinary tract infection, and asthma.

Disproportionately high rates of discharges for ACSC indicate potential problems with the availability or accessibility of ambulatory care and preventive services and can suggest areas for improvement in the health care system and ways to improve outcomes. In Exhibits 27 and 28, cells are shaded if the value is at all worse than Virginia averages, with darker shading indicating the value is more than 25% worse than Virginia.

Exhibit 27 provides PQI rates (per 100,000 persons) for Loudoun County – with comparisons to Virginia averages.

⁸Agency for Healthcare Research and Quality (AHRQ) Prevention Quality Indicators.

Exhibit 27: PQI (ACSC) Risk Adjusted Rate per 100,000

Prevention Quality Indicators Risk Adjusted Rate per 100,000 Population	Loudoun County	Virginia
Chronic Obstructive Pulmonary Disease or Asthma in Older Adults	175.7	406.8
Heart failure admission rate	215.3	322.2
Percutaneous coronary angioplasty rate	185.2	274.3
Laminectomy rate	178.6	239.0
Bacterial pneumonia admission rate	186.5	227.2
Urinary tract infection admission rate	126.3	159.6
Hysterectomy rate	43.3	127.2
Dehydration admission rate	87.7	112.2
Coronary artery bypass graft rate	63.8	108.0
Diabetes long-term complication admission rate	47.5	100.6
Diabetes short-term complication admission rate	34.2	74.1
Hypertension admission rate	27.4	50.9
Asthma in Younger Adults	13.9	44.3
Rate of lower-extremity amputation among patients with diabetes	6.6	16.3
Uncontrolled diabetes admission rate	2.6	12.6
Angina without procedure admission rate	3.3	8.3
Low birth weight rate	4.5	6.5

Source: Virginia Department of Health, 2013.

The rates of admissions for ACSC for Loudoun County were below Virginia averages for all PQI conditions.

Exhibit 28 provides 2014 PQI data for Loudoun County and other areas in Northern Virginia. An additional analysis of PQI rates for the twenty lowest-income ZIP codes across the community served by Inova is also provided. Cells are highlighted if rates are above the average for Northern Virginia, with dark shading if rates are 50 percent or more above average.

Exhibit 28: Unadjusted PQI (ACSC) Rates per 100,000, 2014

Condition	Alexandria City	Arlington County	Fairfax County	Loudoun County	Prince William County	Northern Virginia	Low Income ZIP Codes
COPD in Older Adults	312.5	166.2	187.2	185.6	274.9	208.7	288.2
Heart Failure	203.1	95.1	178.3	167.9	197.0	173.0	206.9
Bacterial Pneumonia	117.7	64.7	103.3	120.4	103.7	102.6	108.6
Urinary Tract Infection	148.4	67.4	108.6	107.8	103.1	105.9	119.8
Dehydration	72.1	34.2	49.8	61.5	52.2	51.7	56.8
Long-term Diabetes Complications	70.5	36.9	49.4	57.7	70.1	54.5	69.4
Short-term Diabetes Complications	57.2	30.4	37.6	38.3	60.0	42.4	61.6
Hypertension	44.8	10.9	30.0	16.4	23.5	25.9	39.9
Perforated Appendix	24.9	11.4	19.8	17.3	16.6	18.3	22.1
Asthma in Younger Adults	20.3	11.2	18.0	18.6	29.2	19.4	22.0
Lower-Extremity Amputation due to Diabetes	9.1	2.7	6.8	4.6	6.8	6.2	8.8
Uncontrolled Diabetes	9.9	3.3	2.8	2.5	4.9	3.7	5.3
Angina	4.1	0.5	3.3	2.5	4.2	3.1	2.8

Source: Analysis of 2014 discharge data using AHRQ software, 2016.

In **Exhibit 28**, Loudoun’s PQI rates are generally below the Northern Virginia average. Rates are slightly above average for bacterial pneumonia, urinary tract infections, dehydration, and long-term diabetes complications. Rates are higher for each condition except Angina within the lowest-income ZIP codes.

Exhibit 29 provides the number of PQI cases for each Inova hospital.

Exhibit 29: PQI Cases by Inova Hospital, 2014

Condition	Inova Alexandria Hospital	Inova Fairfax Hospital	Inova Fair Oaks Hospital	Inova Loudoun Hospital	Inova Mount Vernon Hospital
COPD in Older Adults	403	370	182	209	185
Heart Failure	457	785	246	317	266
Bacterial Pneumonia	260	376	175	234	118
Urinary Tract Infection	337	387	199	203	120
Dehydration	178	149	88	115	72
Long-term Diabetes Complications	182	258	87	88	48
Short-term Diabetes Complications	127	114	74	77	58
Hypertension	143	95	36	35	60
Perforated Appendix	40	90	41	28	16
Asthma in Younger Adults	25	18	9	9	10
Lower-Extremity Amputation due to Diabetes	15	39	11	6	1
Uncontrolled Diabetes	17	17	3	5	3
Angina	11	9	7	5	6
Low Birth Weight	185	492	138	93	-
PQI Discharges	2,380	3,199	1,296	1,424	963
Total Discharges	19,356	50,880	16,524	13,811	8,626
PQI / Total Discharges	12.3%	6.3%	7.8%	10.3%	11.2%

Source: Analysis of 2014 discharge data using AHRQ software, 2016.

About 10 percent of Inova Loudoun Hospital’s discharges are for PQI conditions. These cases represent 12 percent of discharges for Inova Alexandria Hospital, 11 percent for Inova Mount

Vernon Hospital, 8 percent for Inova Fair Oaks Hospital, and 6 percent for Inova Fairfax Medical Campus.

Community Need Index™ and Food Deserts

Dignity Health Community Need Index

Dignity Health, a California-based hospital system, developed and has made widely available for public use a *Community Need Index*™ that measures barriers to health care access by county/city and ZIP code. The index is based on five social and economic indicators:

- The percentage of elders, children, and single parents living in poverty;
- The percentage of adults over the age of 25 with limited English proficiency, and the percentage of the population that is non-White;
- The percentage of the population without a high school diploma;
- The percentage of uninsured and unemployed residents; and
- The percentage of the population renting houses.

The *Community Need Index*™ calculates a score for each ZIP code based on these indicators. Scores range from “Lowest Need” (1.0-1.7) to “Highest Need” (4.2-5.0).

Exhibit 30 presents the *Community Need Index*[™] (CNI) score of each ZIP code in the Inova Loudoun Hospital community.

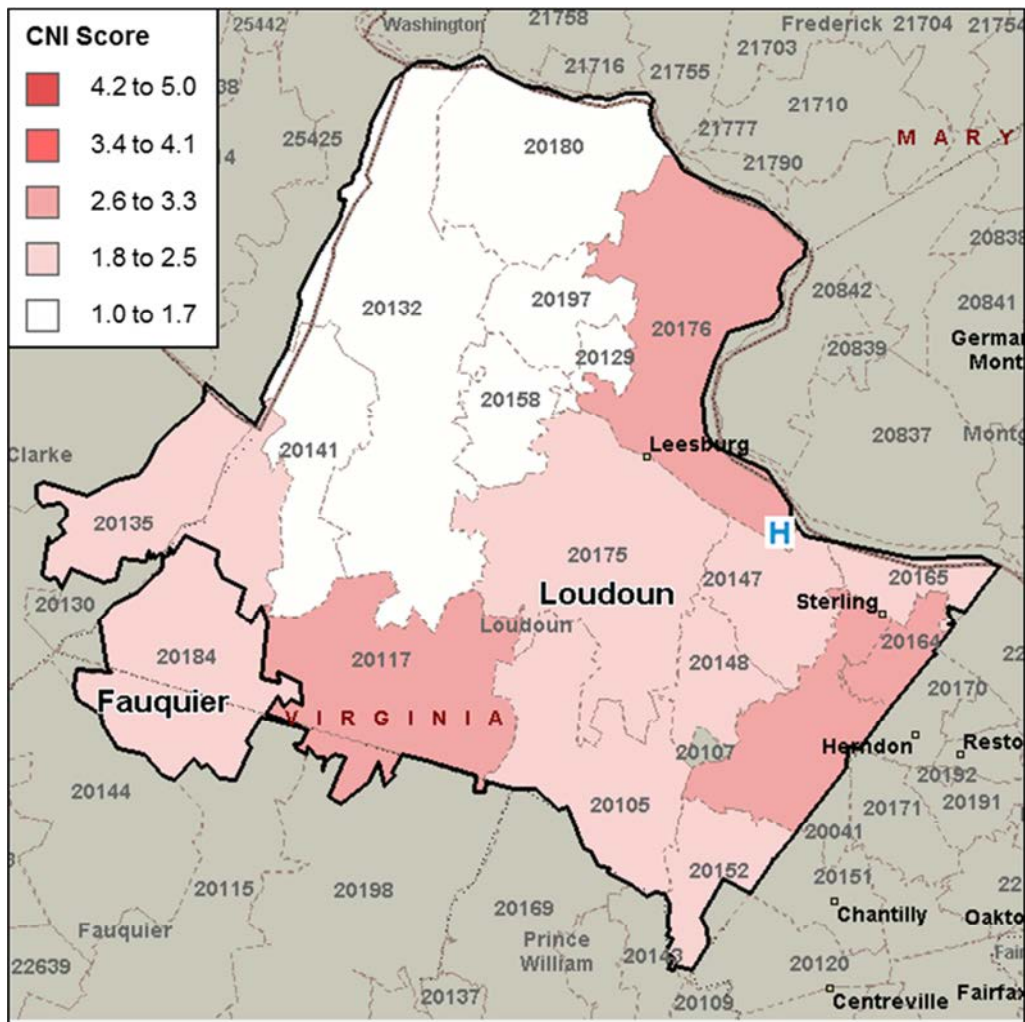
Exhibit 30: Community Need Index[™] Score by ZIP Code, 2015

ZIP Code	County	Community	CNI Score
20164	Loudoun	Sterling/Dulles	2.8
20166	Loudoun	Sterling/Dulles	2.8
20176	Loudoun	Leesburg	2.8
20117	Loudoun	West Loudoun	2.6
20147	Loudoun	Ashburn/Arcola	2.4
20184	Fauquier	West Loudoun	2.2
20165	Loudoun	Sterling/Dulles	2.0
20148	Loudoun	Ashburn/Arcola	2.0
20175	Loudoun	Leesburg	2.0
20105	Loudoun	South Riding/Aldie	1.8
20152	Loudoun	South Riding/Aldie	1.8
20135	Loudoun	West Loudoun	1.8
20132	Loudoun	West Loudoun	1.6
20180	Loudoun	West Loudoun	1.6
20129	Loudoun	West Loudoun	1.4
20141	Loudoun	West Loudoun	1.4
20158	Loudoun	West Loudoun	1.4
20197	Loudoun	West Loudoun	1.4
20107	Loudoun	Ashburn/Arcola	-
ILH Community Average			2.2
Loudoun County Average			2.2

Source: Dignity Health, 2015.

Exhibit 31 presents these data in a community map format.

Exhibit 31: Community Need Index, 2015



Source: Microsoft MapPoint and Dignity Health, 2015.

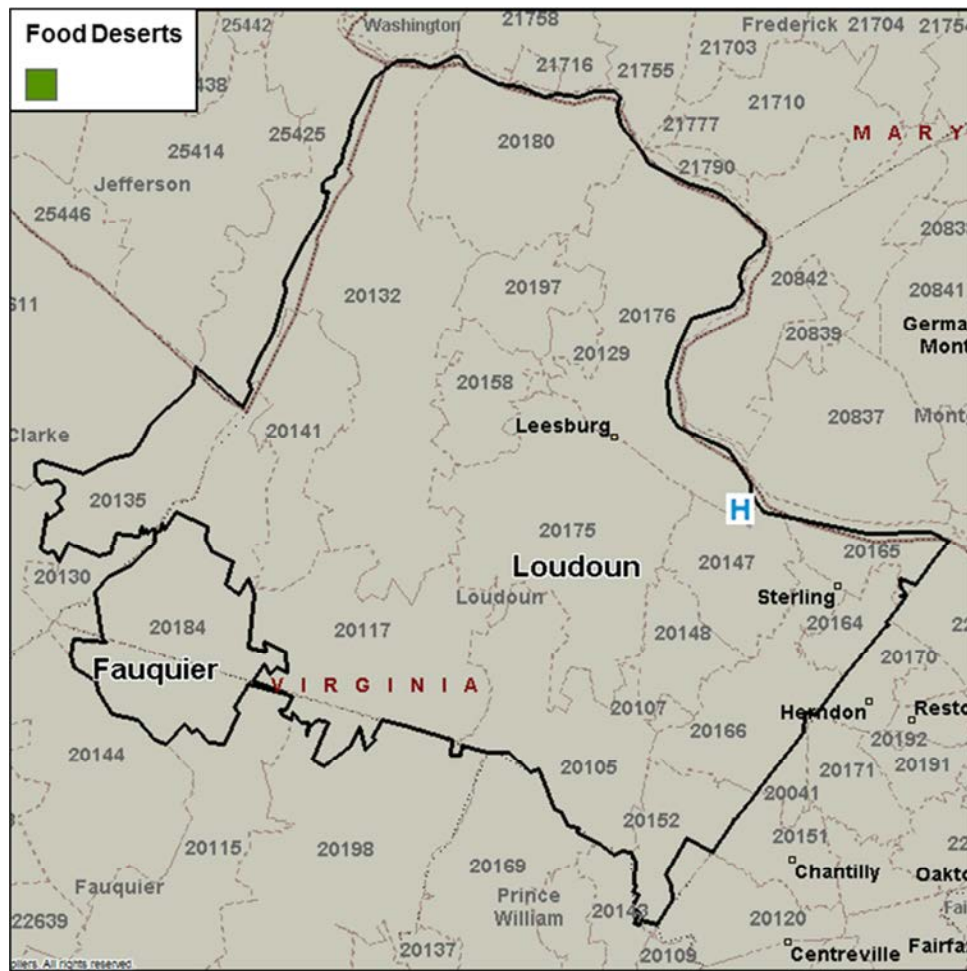
The CNI indicates that highest need areas are in ZIP codes 20164, 20166, and 20176, each with a CNI score of 2.8.

Food Deserts

The U.S. Department of Agriculture’s Economic Research Service estimates the number of people in each census tract that live in a “food desert,” defined as low-income areas more than one mile from a supermarket or large grocery store in urban areas and more than 10 miles from a supermarket or large grocery store in rural areas. Many government-led initiatives aim to increase the availability of nutritious and affordable foods to people living in these food deserts.

Exhibit 32 illustrates the location of food deserts in the community.

Exhibit 32: Food Deserts



Source: Microsoft MapPoint and U.S. Department of Agriculture, 2015.

As Exhibit 32 depicts, the USDA currently has not designated any areas in the Loudoun community as food deserts.

Medically Underserved Areas and Populations

Medically Underserved Areas and Populations (MUA/Ps) are designated by the Health Resources and Services Administration (HRSA) based on an “Index of Medical Underservice.” The index includes the following variables: ratio of primary medical care physicians per 1,000 population, infant mortality rate, percentage of the population with incomes below the poverty level, and percentage of the population age 65 or over.⁹ Areas with a score of 62 or less are considered “medically underserved.”

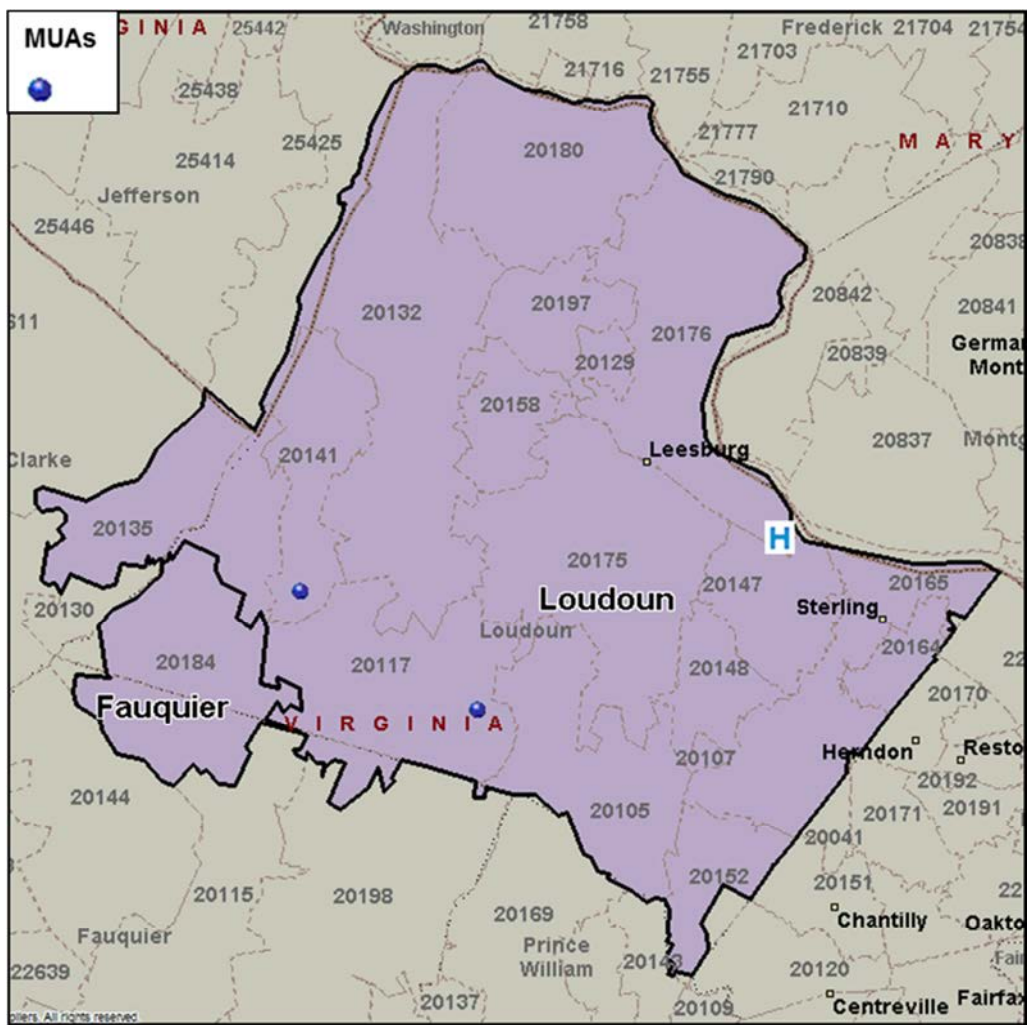
Populations receiving MUP designation include groups within a geographic area with economic barriers or cultural and/or linguistic access barriers to receiving primary care. If a population group does not qualify for MUP status based on the IMU score, Public Law 99-280 allows MUP designation if “unusual local conditions which are a barrier to access to or the availability of personal health services exist and are documented, and if such a designation is recommended by the chief executive officer and local officials of the state where the requested population resides.”¹⁰

The Medically Underserved Areas for Loudoun County are depicted in **Exhibit 33**.

⁹ Health Resources and Services Administration. See <http://www.hrsa.gov/shortage/mua/index.html>

¹⁰ *Ibid.*

Exhibit 33: Medically Underserved Populations



Source: Microsoft MapPoint and HRSA, 2015.

Description of Other Facilities and Resources within the Community

Federally Qualified Health Centers

Federally Qualified Health Centers (FQHCs) are established to promote access to ambulatory care in areas designated as “medically underserved.” These centers receive enhanced reimbursement for Medicaid and Medicare services and most also receive federal grant funds under Section 330 of the Public Health Service Act. All centers provide comprehensive and integrated primary, dental, and behavioral health services to primarily low income, uninsured, or Medicaid patients. There currently are three FQHC organizations operating multiple sites in Northern Virginia (**Exhibit 34**).

Exhibit 34: Federally Qualified Health Centers

Facility	County	ZIP Code	Address
Neighborhood Health King Street Dental	Alexandria City	22302	4480 King St
Neighborhood Health at the Casey Clinic	Alexandria City	22304	1200 N Howard St
Neighborhood Health at Alexandria CSB	Alexandria City	22314	720 N Saint Asaph St
Neighborhood Health at 2 East	Alexandria City	22305	2 E Glebe Rd
Neighborhood Health at the WOW Bus	Alexandria City	22305	2 E Glebe Rd
Neighborhood Health at Richmond Highway	Fairfax	22306	6677 Richmond Hwy
Loudoun Community Health Center- Healthworks of Northern Virginia	Loudoun	20176	163 Fort Evans Rd Ne
Loudoun Community Health Center- Healthworks of Northern Virginia	Fairfax	20170	1141 Elden St Ste
Greater Prince William Community Health Center- Dumfries	Prince William	22026	17739 Main St
Greater Prince William Community Health Center- Ridgewood	Prince William	22192	4379 Ridgewood Center Dr
Greater Prince William Community Health Center- Evergreen Terrace	City of Manassas	20110	9705 Liberia Ave

Source: Health Resources and Services Administration, 2016.

Other Clinics for Lower-Income Individuals

In addition to the FQHCs, there are other clinics in the area that serve lower-income individuals. These include the Arlington Free Clinic (Arlington, VA), the Loudoun Free Clinic (Leesburg, VA), and three Community Health Care Network (CHCN) sites currently operated by Fairfax County (Merrifield – ZIP code 22031, South County – ZIP code 22309, and North County – ZIP code 20190).

In addition to these resources, Inova operates several InovaCares Clinic sites across Northern Virginia. The Loudoun County Health Department also provides an array of services at locations throughout the county.

Hospitals

Exhibit 35 presents information on hospital facilities that operate in the community.

Exhibit 35: Hospitals

Facility	Facility Type	Number of Beds	ZIP Code	City
Dominion Hospital	Psychiatric	100	22044	Falls Church
Fairfax Surgical Center	Ambulatory Surgical	-	22030	Fairfax
Haymarket Medical Center	Acute	60	20169	Haymarket
HealthSouth Rehab Hospital of Northern Virginia	Rehabilitation	55	20105	Aldie
Inova Alexandria Hospital	Acute	318	22304	Alexandria
Inova Fair Oaks Hospital	Acute	182	22033	Fairfax
Inova Fairfax Hospital	Acute	833	22042	Falls Church
Inova Loudoun Ambulatory Surgery Center	Ambulatory Surgical	-	20176	Leesburg
Inova Loudoun Hospital	Acute	183	20176	Leesburg
Inova Mount Vernon Hospital	Acute	237	22306	Alexandria
Inova Surgery Center at Franconia-Springfield	Ambulatory Surgical	-	22310	Alexandria
Kaiser Permanente Tysons Corner Surgey Center	Ambulatory Surgical	-	22102	McLean
North Spring Behavioral Healthcare	Psychiatric	-	20176	Leesburg
Northern Virginia Eye Surgery Center, LLC	Ambulatory Surgical	-	22031	Fairfax
Northern Virginia Surgery Center	Ambulatory Surgical	-	22033	Fairfax
Novant Health Prince William Medical Center	Acute	130	20110	Manassas
Prince William Ambulatory Surgery Center	Ambulatory Surgical	-	20110	Manassas
Reston Hospital Center	Acute	187	20190	Reston
Reston Surgery Center	Ambulatory Surgical	-	20190	Reston
Sentara Northern Virginia Medical Center	Acute	183	22191	Woodbridge
Skin Cancer Outpatient Surgical Hospital	Ambulatory Surgical	-	22182	Vienna
Virginia Hospital Center	Acute	342	22205	Arlington

Source: Virginia Health Information, 2016.

Other Community Resources

There is a wide range of agencies, coalitions, and organizations available in the region served by Inova Loudoun Hospital. 2-1-1 Virginia maintains a large database to help refer individuals in need to health and human services in the Commonwealth. This is a service of the Virginia Department of Social Services and is provided in partnership with the Council of Community Services, The Planning Council, and United Way chapters in the Commonwealth.

Exhibit 36 identifies the number of agencies with information available at 2-1-1 Virginia, accessible by city and county and by type of service provided.

Exhibit 36: Other Community Resources

Category	Loudoun County
Health Care	62
Food	21
Housing	14
Mental Health	223
Substance Abuse Treatment	18
Assisted Living	114
Dental Care	24
Legal Advice/Representation	46
Financial Aid	35
Environment	25

Source: 2-1-1 Virginia.

Additional information about these resources is available at:
<http://211virginia.org/consite/index.php>

Findings of Other Community Health Needs Assessments

Five other needs assessments and health reports relevant to the Inova Loudoun Hospital community also were reviewed. These reports are as follows:

- Virginia Department of Health’s *Virginia Health Equity Report*
- Loudoun County’s *Community Health Status Assessment*
- Northern Virginia Health Foundation’s *How Healthy is Northern Virginia?*
- NoVAHealthFORCE’s *The State of the Healthcare Workforce of Northern Virginia*
- Loudoun County’s *Community Health Improvement Plan*

Virginia Health Equity Report

In 2012, the Virginia Department of Health published the *Virginia Health Equity Report* to assess the presence of health disparities and health equity issues across the Commonwealth.

Key findings of the report include the following:

- Virginia’s fastest growing population is Hispanic, rising 47.8 percent from 2000-2009
- Blacks, Hispanics, and American Indians are disproportionately represented within the 13 percent of Virginians (older than 25) who have not earned a high school diploma
- Compared to Whites, Blacks were 2.4 times more likely to live in poverty, Hispanics were 1.9 times more likely, and American Indians 3 times more likely
- All other racial groups are more likely to be uninsured than Whites, with Hispanics the most likely to be uninsured (2.4 times more likely than Whites)
- Blacks and Hispanics were significantly more likely to say their neighborhood was unsafe compared to Whites, and almost twice as many respondents who reported their neighborhood as unsafe had poor health status (20.3 vs. 11.7 percent)

- 24.6 percent of Blacks reported experiences of perceived racial discrimination, nearly 5 times higher than rates among Whites
- Those who reported experiences of racial discrimination were more than twice as likely to be unhealthy than those who did not and almost 3 times more likely to report mentally unhealthy days
- As well as having poorer health, socioeconomically disadvantaged and racial/ethnic minority populations appear to have higher death rates and shorter life expectancy
- For all 14 leading causes of death in Virginia, those with the lowest education levels have higher rates of death than those with the highest levels of educational achievement
- Black males are expected to live 5 years shorter than Whites, and Black females 3 years shorter than White females
- Heart disease, cancer, and cerebrovascular disease/stroke account for two-thirds of all deaths for Whites and Blacks, with mortality rates for Blacks 30 percent greater for these causes than rates for Whites
- Racial inequities are more concentrated in metropolitan areas
- The annual direct costs of health inequities among disadvantaged populations account for billions of dollars
- Black Virginians are 3.7 times more likely to live in a low Health Opportunity Index (HOI) area than Whites; Whites are 4.2 times more likely to live in a high HOI area
- Hispanics are more likely to live in low HOI areas and less likely in high HOI areas
- These HOI variances are even more pronounced in urban areas
- While Northern Virginia and Loudoun are generally defined as high HOI areas, multiple tracts of low health opportunity can be found
- The infant mortality rate is 7.2 per 1,000 live births in Virginia, but 4.5 for Whites and 12.9 for Blacks
- Virginians with the least educational attainment have a death rate 2.7 times higher than those with more than 12 years of education (1.3 times higher than those with 12 years)

Loudoun County Community Health Status Assessment, 2013

Using the Mobilizing for Action through Planning and Partnerships (MAPP) system, Loudoun County completed a Community Health Status Assessment (CHSA) to evaluate the health of its residents to plan strategies for the future.

Key elements of the report included:

- Seven themes were identified in the report
 - Access to Care: while Loudoun county does comparably well in insurance rate, still over 26,000 people are without insurance. High costs and availability of health care are also a concern, particularly among seniors and low-income populations.
 - Timely Use of Preventive Services: Only 76% of respondents had visited a dentist, 65% had a routine checkup and 37% had a flu shot in past year.
 - Children's Health, Wellness and Safety: 30% of Loudoun's population is under 17. Bullying, drug use, gang involvement, and childhood obesity are all concerns for this population.

- Clean and Healthy Environment: Air contaminants and ozone levels are of concern. Lyme disease and access to outdoor space for exercise and fresh air are also important to address.
 - Substance Abuse: 15% of Loudoun County residents are binge drinkers and 9% are current smokers. Drug and alcohol abuse were a top concern within the community.
 - Affordable Housing: Black respondents, those living alone, uninsured populations, and those with an income of less than \$50,000 all identified affordable housing as a concern.
 - Maximizing Partnerships: Respondents noted a desire to bring local entities together to solve health problems, with ideas that are well-educated, technology focused, and share a number of health priorities.
- Loudoun is one of the faster growing counties in the country, with its 21 percent growth rate from 2007-2012 more than triple the Virginia average
 - There is a growing subpopulation of low income (mainly immigrant) residents with limited access to care
 - Travel and traffic (transportation) remain a large challenge in the community, as well as its impact on the environment
 - Lyme disease is still an issue due to Loudoun's natural habitat
 - Tobacco and alcohol use remain a challenge, particularly among youth
 - Lyme disease, cost of healthcare and availability of healthcare were principal concerns; bullying, drug use and gang involvement were additional, behavioral concerns
 - Hispanic and black respondents were more likely not to have a college degree, to be uninsured, and to have an income under \$50,000
 - Additional food and water contamination concern was identified in the assessment
 - Ranked as the number one place in the country to find a job, with growth rate of 24.6 percent between 2007-2011
 - 8.4 percent of the population under age 65 is uninsured, representing 26,334 residents
 - Most of the county's health services are located in the east, resulting in concerns about lack of transportation for those in Western Loudoun County
 - From 2009 to 2012, arrests decreased from 6,380 to 5,587
 - 15 percent of residents were not able to see a doctor due to cost
 - Loudoun's mortality rates for the ten leading causes of death were lower than Virginia overall
 - Lyme disease went from 109 cases in 2006 to 293 in 2007

Northern Virginia Health Foundation

The Northern Virginia Health Foundation published its report, *How Healthy is Northern Virginia?* which contains community health indicators for the region.

Findings include the following:

- 9 of the 10 regions of Northern Virginia are ranked in the top 16 in health outcomes for all Virginia cities and counties. However, the City of Fairfax is an outlier at 55
- While based on a small sample size, the City of Fairfax has a mortality ranking of 97 due to a relatively high premature death rate

- Northern Virginia had higher rates of births with late prenatal care than Virginia
- Compared to the Commonwealth as a whole, cancer rates are generally lower in Northern Virginia, with exceptions being breast cancer in the Fairfax Health District and melanoma in the Loudoun Health District
- Rates of HIV diagnosis were higher in Alexandria (27.7 per 100,000) and Arlington (17.1) than Virginia (11.3); and tuberculosis rates were comparatively high throughout the region
- The City of Manassas (1,060.8) and City of Fairfax (876.1) had higher rates of behavioral health discharges than Virginia (786.8)
- 20 percent of adults in the region are at risk for binge drinking, 2 percent higher than the state average
- Over 50 percent of K-12 students in the cities of Alexandria, Manassas, and Manassas Park are eligible for free or reduced lunch
- Approximately 175,000 Northern Virginians live in 49 census tracts that are ranked in the bottom 20 percent statewide for Health Opportunity Index

The State of the Health Care Workforce in Northern Virginia

This report, published in 2014 by NoVAHealthFORCE, aimed to identify the shift that had occurred in the regional health care landscape and the job patterns that accompanied this shift. The report covered Arlington, Fairfax, Prince William and Loudoun Counties and the Cities of Alexandria, Fairfax, Falls Church, Manassas and Manassas Park.

- While a projected shortage of nurses was expected to last through 2020, employers report a sufficient supply of registered nursing candidates
- The area's population has grown 22% in the past decade; minorities currently comprise 31% of the population – a statistic expected to rise to 41% by 2020
- Population and employment opportunities are projected to grow most rapidly in Prince William and Loudoun counties
- Health care job growth is expected particularly in Prince William and Loudoun counties as the population aged 65 plus is expected to increase by 42 percent; an estimated 5,600 new jobs will be needed

Loudoun County Community Health Improvement Plan (CHIP)

This 2015 report was a joint publication of the Loudoun County Health Department and the Loudoun Health Council.

Key elements of this report included:

- Demographics
 - Population more than doubled from 2000-2014
 - As of 2010, 19.9% of the population was born outside the United States
 - Median household income is \$116,848 and 3.4% of population is under poverty level
- The Loudoun Health Council identified seven themes to cover areas of needed improvement, from which four priority issues were derived:
 - Access to care
 - Timely use of preventive services

- Children’s health, wellness and safety
- Clean and healthy environment
- Substance abuse
- Affordable housing
- Maximizing partnerships
- Issue 1: Increasing access to and timely utilization of health care services
 - Outcome objective:
 - Increase awareness of available health insurance options, of recommended schedules for preventive health care services, and of available health care resource options and services
 - Impact objectives:
 - Improved immunization coverage rates
 - Reduced number of maternity patients who deliver without prenatal care
 - Increased number of available dental slots for low income residents
 - Improved access to mental health services
- Issue 2: Ensuring a safe, healthy, and accessible environment
 - Outcome objectives:
 - Promote use of alternate modes of transportation for work
 - Increase awareness of the benefit of periodic well water testing and increase the number of onsite septic systems that are pumped out at least every 5 years
 - Increase awareness of Lyme disease and other arboviral infections
 - Increase awareness of and participation in drug take back initiatives
 - Impact objectives:
 - Reduced number of days the Air Quality Index exceeds 100
 - Reduced proportion of Lyme disease cases identified in a late stage
 - Minimized number of waterborne infections
- Issue 3: Improving child health and wellness
 - Outcome objectives:
 - Increase participation in the USDA’s WIC nutrition program
 - Reduce percentage of children entering school who have a BMI above recommended level
 - Increase awareness of the benefits of healthy eating and exercise
 - Increase number of farmers markets accepting SNAP
 - Impact objectives:
 - Increased number of farmers markets that accept SNAP
 - Increased number of providers trained in mental health first aid
- Issue 4: Promoting healthy families in healthy communities
 - Outcome objectives:
 - Improve sustainability of the Loudoun Pediatric Obesity Coalition
 - Increase number of businesses participating in the Loudoun Chamber of Commerce’s Healthy Business Challenge
 - Increase awareness of substance abuse and mental health issues
 - Impact objectives:
 - Increased availability of affordable housing units
 - Increased social involvement

PRIMARY DATA ASSESSMENT

Community input (primary data) was gathered through the design and administration of a community survey and through key informant interviews. This section summarizes findings from this process.

Community Survey Findings

In total, 2,232 surveys were received from communities served by all Inova hospitals, and 600 surveys were received from residents of the Inova Loudoun Hospital community.

It is important to note that the survey utilized a convenience sampling methodology, and not a random sampling approach, such as one carried out by dialing randomly selected phone numbers. For this reason, findings from the survey are not generalizable to or representative of community-wide opinion. Even with this consideration, results from the community survey have been included in this assessment because they may corroborate and supplement the other data sources, and may be helpful in identifying potential health disparities.

Respondent Characteristics

Of the 600 surveys from the Inova Loudoun Hospital community:

- About 60 percent of responses were received from residents of five ZIP Codes: 20176, 20147, 20164, 20175, and 20165;
- Approximately 74 percent were female (476 respondents indicated their gender; 353 of these as female);
- 5 percent indicated they were Hispanic (or Latino);
- 3 percent indicated they were Black or African American; 5 percent were Asian (including from Bangladesh, India, and Pakistan); 84 percent were White/Caucasian;
- 40 percent indicated they were between 40 and 54 years of age; 22 percent were between 55 and 64 years of age; 22 percent were between 26 and 39 years of age; 14 percent 65 years of age or older;
- 3 percent indicated annual household income below \$25,000; 9 percent between \$25,000 and \$50,000; 23 percent between \$50,000 and \$99,999; and 66 percent \$100,000 and above
- 81 percent indicated they had private health insurance; 4 percent that they were uninsured.

Results: Inova Loudoun Hospital Community Residents

Exhibits 37 through 40 summarize survey responses from residents of the Inova Loudoun Hospital community.

Exhibit 37

Question: What do you think are the most important health issues in your community/neighborhood? Check only 3.

Issue	Responses	Percent of Respondents
Access to care	175	29.2%
Overweight/Obesity	143	23.8%
Lyme Disease	135	22.5%
Mental health problems	121	20.2%
Cancers	96	16.0%
Aging problems (e.g., arthritis, hearing/vision loss)	92	15.3%
Heart disease and stroke	91	15.2%
Housing that is adequate, safe and affordable	78	13.0%
Lack of exercise	77	12.8%
Alcohol/Drug abuse	72	12.0%
High blood pressure	59	9.8%
Nutrition	53	8.8%
Motor vehicle crash injuries	51	8.5%
Diabetes	49	8.2%
Other (please specify)	35	5.8%
Bullying	26	4.3%
Infectious diseases (e.g., hepatitis, TB)	25	4.2%
Teenage pregnancy	24	4.0%
Domestic Violence	17	2.8%
Child abuse/neglect	16	2.7%
Suicide	16	2.7%
Tobacco Use	16	2.7%
Dental problems	14	2.3%
Respiratory/lung disease	11	1.8%
Gun-related injuries	7	1.2%
Rape/sexual assault	5	0.8%
Sexually transmitted diseases	4	0.7%
Homicide	1	0.2%
Infant death	1	0.2%
HIV/AIDS	0	0.0%

Source: Inova Health System, 2016.

Over 20 percent of respondents indicated access to care, obesity, Lyme disease, and mental health problems were among the most important health issues in the community. Cancers, aging problems, heart disease and stroke, affordable housing, lack of exercise, and alcohol and drug abuse were identified by over 10 percent of respondents as among the most important issues.

Exhibit 38

Question: Has a doctor, nurse, or other health professional EVER told you that you had any of the following?

Issue	Percent Yes
Overweight or obese	45.9%
High cholesterol	38.7%
High blood pressure	36.2%
Some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia	31.6%
A depressive disorder, including depression, major depression, dysthymia, or minor depression	23.4%
Asthma	18.8%
Skin cancer	13.6%
Any other types of cancer	8.6%
Diabetes at any other time	7.8%
Chronic Obstructive Pulmonary Disease or COPD, emphysema or chronic bronchitis	5.8%
Diabetes when you were pregnant	3.5%
Kidney disease (Does NOT include kidney stones, bladder infection or incontinence)	3.0%
A stroke	2.8%
Angina or coronary heart disease	2.1%
A heart attack, also called a myocardial infarction	1.9%

Source: Inova Health System, 2016.

Over 10 percent of respondents indicated that a health professional had told them that they had: obesity/overweight, high cholesterol, high blood pressure, some form of arthritis, depression (mental health problems), asthma, or skin cancer.

Survey questions 9 and 10 asked about access to care, and for those unable to access needed medical care, the reasons why not, by service type. **Exhibit 39** identifies the number of respondents who indicated access challenges for each type of service.

Exhibit 39: Respondents Unable to Access Services, by Service Type

Issue	Count
Basic Medical Care	42
Dental Care	33
Medicines	27
Mental Health Care	20
Medical/Surgical Specialty Care	18
Medical Supplies	7

Source: Inova Health System, 2016.

Basic medical care, dental care, and access to proper medicines were the most frequently identified services.

Exhibit 40 summarizes reasons why respondents have been unable to access these services.

Exhibit 40: Access Barriers by Service Type

Access Barrier	Basic Medical Care	Dental Care	Mental Health Care	Medical/Surgical	Medicines	Medical Supplies
Can't afford	19	24	6	8	17	4
No insurance	18	20	5	6	14	4
Insurance wouldn't cover	6	8	4	7	9	1
Inconvenient hours	15	5	8	3	1	0
Can't get appointment	9	2	7	5	3	0
No child care	8	6	2	1	0	0
No transportation	4	3	1	0	0	0
Other reasons	4	1	1	1	0	1
Don't know how to schedule an appointment	1	1	0	1	0	0
Don't trust providers	1	0	1	0	0	0
Cultural/religious beliefs	0	0	0	0	0	0
Language barrier	0	0	0	0	0	0

Source: Inova Health System, 2016.

A lack of affordability and a lack of insurance coverage were the top two most frequently identified access barriers. For basic medical care and mental health care, a lack of convenient hours was also cited as a primary barrier.

Results: Northern Virginia-Wide Responses by Demographic Cohort

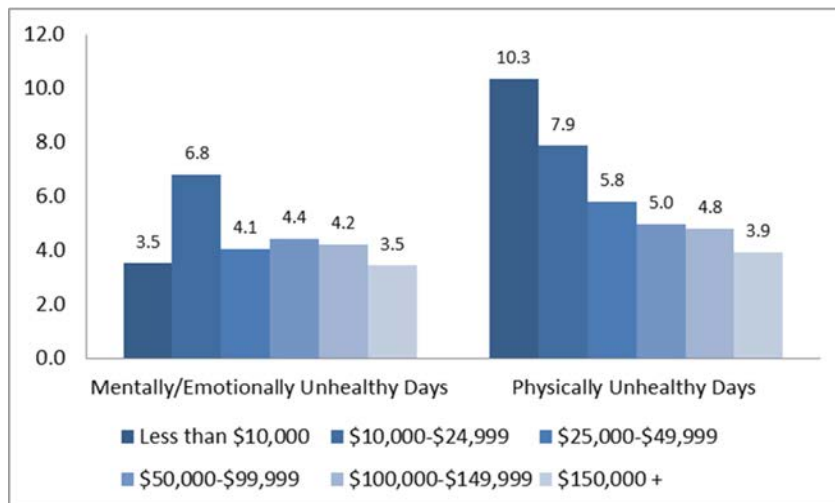
In addition to assessing responses from all residents of the Inova Loudoun Hospital community, survey responses from across the area served by all Inova hospitals were assessed to understand how responses vary by demographic cohort (ethnicity, race, age, gender, income, and insurance status). The following observations are based on analyzing the 2,232 survey responses, by cohort.

- Responses by race:
 - Among the 2,232 survey responses, 1,299 respondents indicated they are White or Caucasian, 144 indicated they are Black or African American, 90 Asian (including from Bangladesh, India and Pakistan), and 84 some other race; 615 respondents left this survey question blank.
 - Regarding the “most important health issues” in the community, the following issues ranked comparatively high:
 - Black/African American respondents: alcohol/drug abuse, diabetes, high blood pressure, dental problems, and safe and affordable housing
 - Asian respondents: diabetes and high blood pressure
 - White/Caucasian respondents: mental health problems, heart disease and stroke, cancers, and Lyme disease
 - The survey included questions about the number of days (during the past 30) when mental health and physical health “was not good.” Average responses were:
 - Black/African American respondents: 5.4 days (mental health), 6.3 days (physical health)
 - Asian respondents: 4.1 days (mental health), 4.6 (physical health)
 - White/Caucasian respondents: 3.8 days (mental health), 4.6 days (physical health)
 - Regarding where respondents and their family members go for regular health care, Black/African American and Asian respondents indicated greater reliance on free or low-cost clinics or health centers (approximately 10 percent of these respondents versus 3 percent for White/Caucasian individuals). White/Caucasian respondents reported greater use of urgent care centers or walk-in clinics.
 - Regarding whether the respondent had been told by a health professional that he/she had certain conditions:
 - More Black/African American respondents indicated “yes” for high blood pressure (46 percent) and for overweight/obesity (59 percent) than for White/Caucasian (40 percent and 45 percent respectively)
 - More White/Caucasian respondents indicated “yes” for high cholesterol, skin cancer, and depression than other groups
 - More Asian respondents indicated “yes” for diabetes than other groups (12 percent, versus 7 percent for Black/African American and 4 percent for White/Caucasian)

- Black/African American respondents indicated: more exposure to second hand smoke, and less healthy diets (more fast food, fewer servings of vegetables and fruit).
- Thirty-one percent of White/Caucasian respondents indicated they have more alcoholic drinks per day (more than 2 per day for men or 1 per day for women) versus 12 percent for Asian and 19 percent for Black/African American respondents.
- Responses by age group:
 - Among the 2,232 survey responses, 57 were 18 to 25 years of age, 336 were 26 to 39, 568 were 40 to 54, 412 were 55 to 64, and 347 were 65 years of age and older; 512 individuals did not provide their age range.
 - Regarding the “most important health issues” in the community:
 - A number of issues were ranked highly across all age groups, including access to care, cancers, diabetes, housing that is affordable and safe, obesity/overweight and lack of exercise, and mental health problems.
 - Respondents in older age groups mentioned “aging problems” as the number one issue. Heart disease and stroke and high blood pressure also were ranked among the most important issues.
 - Respondents in younger age groups mentioned nutrition, domestic violence, and teenage pregnancy as problematic.
 - Almost 80 percent of older respondents indicated they visit the emergency room only in the event of a “real emergency.” Almost one-half of those in younger age groups indicated they visit emergency rooms for other reasons, such as a lack of health insurance or “doctor’s office was closed” or “could not see me/my family.”
 - Survey responses indicate that as community residents age, they are more likely to have been told by a health professional that they have one or more health conditions, such as high blood pressure, arthritis, or high cholesterol. This is not the case, however, for depression which ranges from 19 to 27 percent of respondents across all age groups.
 - Certain health-related behaviors appear less prevalent within the 65 years and older age group, such as exposure to second-hand smoke and eating fast food. This age group, however, has the highest proportion indicating they do not “exercise for 30 minutes or more a day.”
- Responses by income level:
 - Among the 2,232 survey responses,

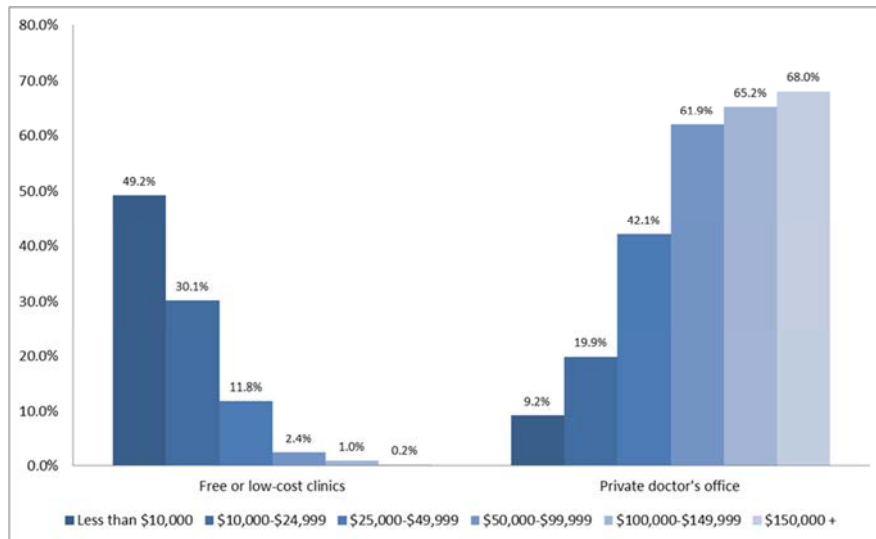
- 45 were from individuals who indicated their annual household income was less than \$10,000,
 - 80 were received from those with income between \$10,000 and \$24,999,
 - 172 for \$25,000 to \$49,999,
 - 389 for those \$50,000 to \$99,999,
 - 333 for those \$100,000 to \$149,999, and
 - 392 with incomes of \$150,000 and higher.
 - 821 individuals did not provide their income range.
- Regarding the “most important health issues” in the community:
 - Dental problems, diabetes, and bullying were ranked comparatively high by the lowest income groups.
 - Heart disease and stroke, overweight/obesity and mental health problems were ranked comparatively high by the highest income groups. “Mental health problems” and “Access to care” were ranked the most important health issues (tied) for the \$150,000 and above group. Access to care was ranked the most important health issue in the community in all other groups as well.
 - Regarding the number of days (during the past 30) when physical health “was not good,” the average for all respondents was 5.0 days; however, those with incomes under \$10,000 averaged 10.3 days. This statistic fell as income levels rose, with 10.3 days for the lowest income category and 3.9 days for the highest income category (**Exhibit 41**).

Exhibit 41: Average Monthly Unhealthy Days, by Income Level



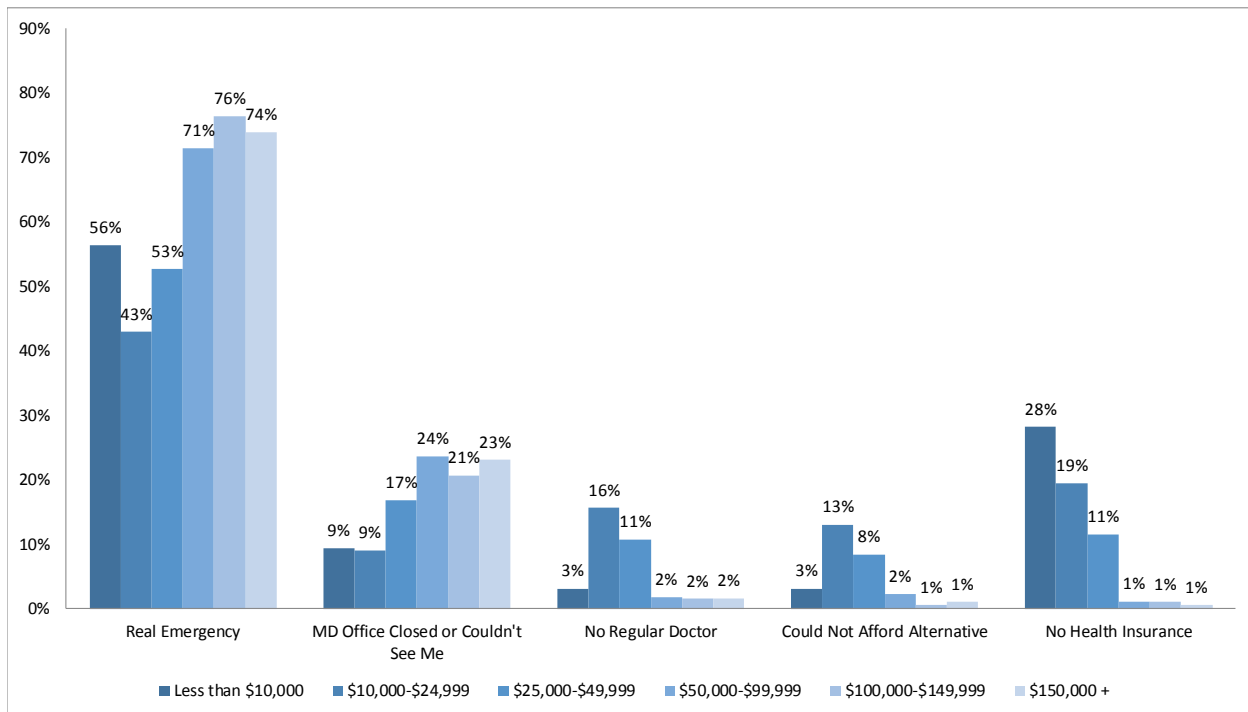
- Respondents with the lowest income levels relied the most on free or low-cost clinics or health centers and on hospital emergency rooms for their regular health care (**Exhibit 42**). Most respondents in higher income categories received regular care in private doctor’s offices (e.g., 370 out of the 392 respondents with incomes of \$150,000 and higher).

Exhibit 42: Use of Free Clinics and Private Doctor’s Offices, by Income Level



- Over seventy percent of higher income respondents indicated they tend to go to an emergency room in the event of a real emergency (unless their doctor’s office is closed or otherwise unavailable). Lower income respondents go to an emergency room either because they are uninsured or because they do not have a regular medical doctor (**Exhibit 43**).

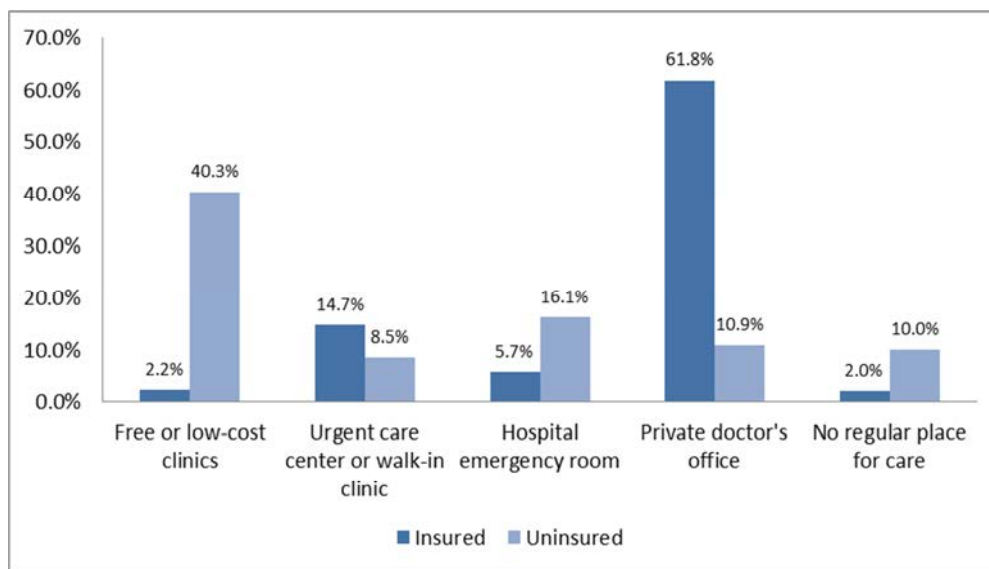
Exhibit 43: Reasons for Emergency Room Visit(s), by Income Level



- Lower-income respondents indicated greater prevalence of diabetes and COPD or emphysema than higher income groups.
- Certain health-related behaviors appear more prevalent within lower-income groups, such as poor nutrition and unprotected sex.
- Respondents indicated that having alcoholic drinks (more than 2 per day for men or 1 per day for women) increases with income: 5 percent of those with incomes under \$10,000 and 12 percent of those with incomes between \$10,000 and \$24,999 indicated this level of alcohol use – increasing to 35 percent for those with incomes of \$150,000 and higher.
- Responses by payer source:
 - Among the 2,232 survey responses, 122 indicated they were uninsured; 1,594 indicated they had some form of insurance coverage – either Medicare, Medicaid, other governmental (e.g., TRICARE) or private insurance. 516 respondents did not provide insurance coverage information.
 - Three out of the top five most important issues were the same among both those with and without insurance (access to care [1], aging problems [4] and housing that is safe and affordable [5]). Among the uninsured, dental problems and alcohol/drug abuse were number 2 and 3 respectively. For insured respondents, the second and third most important issues were mental health problems and overweight/obesity.

- Regarding the number of days (during the past 30) when physical health “was not good,” the average for uninsured respondents was 7.4 days and for insured respondents was 4.8 days.
- Fifty-six (56) percent of uninsured respondents said they rely on free or low-cost clinics or health centers and on hospital emergency rooms for their regular health care, compared to 8 percent for those with insurance (**Exhibit 44**). Ten (10) percent of uninsured respondents indicate they “don’t have a regular place for medical care” compared to 2 percent for those with insurance.

Exhibit 44: Types of Providers Used, by Insurance Status



- Seventy-eight (78) percent of uninsured respondents indicated that they went to an emergency room in the last year, with 37 percent of these visits representing “real emergencies.” Reasons for these visits included a lack of health insurance, not having a regular medical doctor, and lack of affordability. Forty-five (45) percent of insured respondents went to an emergency room, with 73 percent of these visits being a “real emergency.”
- Generally, fewer uninsured respondents had been told by a health professional that they have one of a list of specific health conditions than insured respondents, with the exceptions of diabetes and “overweight or obese.”
- Regarding questions about health behaviors, uninsured respondents indicated that they have less healthy nutritional and exercise habits, more unprotected sex, and more tobacco and e-cigarette use.

Survey findings varied significantly depending on respondent ethnicity, race, income, insurance status, and other demographic characteristics.

Key Stakeholder Interviews

Findings

The following issues were identified by external informants as those of greatest concern to community health in the Inova Loudoun Hospital community, and are presented in alphabetical order.

Access to Care. There were several healthcare services that participants identified as difficult to access for many in the community.

- **Primary Care.** Several respondents indicated that primary care was still problematic for those in the community to access. These assertions were accompanied by beliefs that many still used emergency departments as a primary care provider.
- **Dental Care.** Interviewees pointed to dental care as one service that many in the community could not access. The inability to access was often caused by not having insurance that was accepted by dentists.
- **Specialty Care.** Several interviewees indicated that access to specialty care is difficult in Loudoun County. A centralized system for specialty care referrals would help patients and primary care providers find needed services. Interviewees also stated that travel to specialty care providers presents challenges for many in the community.
- **Pain Management.** Multiple interviewees identified pain management/treatment as a service that is lacking in the Loudoun community. Respondents indicated that residents with chronic pain often did not know where to go and, if they did receive treatment, were over-prescribed pain medications instead of treating the cause of pain.

Access to Transportation. Many interviewees in the Loudoun community identified adequate transportation as a common barrier in accessing healthcare services and achieving good health. Among those interviewed, there was a general agreement that there were few or poor public transportation options in the community. Interviewees identified this problem as particularly poignant for the elderly community, children and the disabled, especially in securing door-to-door transportation for medical appointments. Better transportation options are needed especially to provide access to services in the Eastern part of the county for residents who live in the Western side.

Elderly Care. Care for the elderly was often cited in interviews as a particular challenge in the community. Respondents indicated that the elderly faced difficulty in securing care or access across all services. However, interviewees also viewed elderly-specific services as challenging to access. Services such as in-home health care, daily care facilities, and housing options that allowed proper aging in the community were identified as difficult to secure. Isolated seniors and their mental health also concerned interviewees.

Health Disparities. While residents considered the health of the community positively, many stated that there were pockets of disparities and particular subgroups in the community that had poorer health or access opportunities. Residents that were poor, impoverished, or uninsured were all described as groups in need. Immigrant populations, particularly those who were undocumented or illegal, also were thought to encounter difficulties in sustaining good health. Language barriers and inability to obtain insurance both played a role in this disparity.

Lack of Information and Education. Throughout the interviews, respondents indicated that there was a large lack of knowledge about health conditions and services that negatively impacted the health of the community. Interviewees also expressed concerns about a lack of information on nutrition, services available, insurance, and when to use emergency services, among others. When asked what programs were most needed, a centralized source of information and other systems for educating the community were often mentioned. Finally, many interviewees expressed general unawareness about Inova programs that were already in place in the community.

Lyme Disease and Communicable Diseases. Communicable diseases, in particular Lyme disease, were a large concern among several stakeholders interviewed in this process. While there was a general consensus that issues with Lyme disease had improved since the last iteration of the assessment in 2013, interviewees still indicated that the disease was problematic and a concern to citizens. Along with Lyme disease, other communicable diseases were also mentioned as concerns within the community, including tuberculosis, measles, and chlamydia.

Mental Illness and Mental Health Services. Individuals that participated in interviews generally identified mental illness as a health concern. Depression, anxiety, and the stigma against discussing mental health and problems related to mental illnesses were all discussed as problem areas. Furthermore, there was concern among many participants that mental health treatment and services were not accessible to many in the Loudoun community. In addition to general mental health care needs, participants highlighted long-term mental health care and adolescent psychiatric care. The desire for more mental health resources was further expressed by interviewees through their identification of mental health programs as the most-often cited program that they wish they could create in their community.

Substance Abuse and Treatment. Among those interviewed, many believed that substance abuse was a prominent unhealthy behavior in the community. Prescription drugs, opioids, and alcohol were the most commonly cited substances of concern. Furthermore, participants noted specific concern for substance abuse among youth and adolescents in the community. This population was noted as a particular concern due to many adolescents having funds and being unsupervised due to parents' work schedules. Interviewees also believed that there were not enough substance abuse and rehabilitation services in the community.

Unhealthy Diet and Resulting Conditions. Participants interviewed identified several health behaviors and resulting conditions pertaining to unhealthy eating as significant health needs in the Loudoun community. Poor nutrition and diet was cited by several interviewees as a need, with poor information about the cost of unhealthy food a driving factor. This nutrition problem also led to participants citing obesity as a health concern, particularly among adolescents. In

addition, diabetes and pre-diabetes were two conditions thought to be particularly problematic for the community.

Interview Participants

Individuals from the following organizations participated in the interview process (**Exhibit 45**).

Exhibit 45: Interview Participants

Organization	Description	Populations Represented
Community Foundation for Loudoun and Northern Fauquier Counties	Charitable giving and community investment foundation	General population Families and local youth
George Mason University, College of Health and Human Services	University program dedicated to health	General population Students
Grace Ministries	Faith-based community outreach program	Faith-based community Immigrant population
HealthWorks for Northern Virginia	Federally Qualified Health Center	General population Low income Uninsured/Underinsured
Inova Board of Directors	Controlling body of Inova Health System	General population
Inova Loudoun Internal Staff	Internal working staff of Inova Loudoun Hospital	General population Physicians
Inova Office of Health Equity	Inova office dealing in health disparities	Marginalized populations Minority populations
Loudoun County Area Agency on Aging	Loudoun County Government central point of contact for seniors (aged 55 and above)	General population Aging population
Loudoun County Health Department	Public health department	General population
Loudoun County Office of County Administrator	Highest level management office of Loudoun County government	General population
Loudoun County Public Schools	School system of Fairfax County	General population Youth/adolescents
Loudoun Health Council	Council charged with assisting county government in formulating health policy and strategy	General population Physicians Faith-based community Non-profit community
Northern Virginia Family Services	Non-profit	Adolescent/youth Low income Homeless Mentally ill
Northern Virginia Health Foundation	Healthcare grant organization	General population Low Income Uninsured/Underinsured

APPENDIX A – COMMUNITY SURVEY INSTRUMENT

Your Opinion Matters!

Inova is doing a community health needs assessment to help find and act on the biggest health and healthcare issues in our communities. This survey will help us learn more about health where you live.

This survey will take 15 minutes or less to complete. There are no right or wrong answers to these questions, we want to hear your thoughts and opinions. All answers are completely anonymous and confidential.

Thank you for your time and input.

1. What is your ZIP Code? _____
2. What do you think are the most important health issues in your community/neighborhood? Check only 3.

- | | |
|--|--|
| <input type="checkbox"/> Access to care | <input type="checkbox"/> Infant death |
| <input type="checkbox"/> Aging problems (e.g., arthritis, hearing/vision loss) | <input type="checkbox"/> Infectious diseases (e.g., hepatitis, TB) |
| <input type="checkbox"/> Alcohol/Drug abuse | <input type="checkbox"/> Lack of exercise |
| <input type="checkbox"/> Bullying | <input type="checkbox"/> Lyme Disease |
| <input type="checkbox"/> Cancers | <input type="checkbox"/> Mental health problems |
| <input type="checkbox"/> Child abuse/neglect | <input type="checkbox"/> Motor vehicle crash injuries |
| <input type="checkbox"/> Dental problems | <input type="checkbox"/> Nutrition |
| <input type="checkbox"/> Diabetes | <input type="checkbox"/> Overweight/Obesity |
| <input type="checkbox"/> Domestic Violence | <input type="checkbox"/> Rape/sexual assault |
| <input type="checkbox"/> Gun-related injuries | <input type="checkbox"/> Respiratory/lung disease |
| <input type="checkbox"/> Heart disease and stroke | <input type="checkbox"/> Sexually transmitted diseases |
| <input type="checkbox"/> High blood pressure | <input type="checkbox"/> Suicide |
| <input type="checkbox"/> HIV/AIDS | <input type="checkbox"/> Teenage pregnancy |
| <input type="checkbox"/> Homicide | <input type="checkbox"/> Tobacco Use |
| <input type="checkbox"/> Housing that is adequate, safe and affordable | <input type="checkbox"/> Other: _____ |

3. Thinking about your mental health (including stress, depression, and problems with emotions), for how many days during the past 30 days was your mental/emotional health not good? _____

4. Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good? _____
5. Where do you and your family members go for regular health care? (Please select all that apply.)
- Free or low-cost clinic or health center (like HealthWorks, Neighborhood Health, CHCN Clinic, Arlington Free Clinic, etc.)
 - Urgent care center or other walk-in clinic (like CVS, Walgreens, etc.)
 - Hospital emergency room
 - Health department
 - Provider of alternative medicine (i.e., herbalist, homeopathic, acupuncturist)
 - Private doctor's office (MD, Nurse Practitioner, Physician's Assistant)
 - Chiropractor
 - I don't have a regular place for medical care
 - Other: _____
6. During the last year, why did you or a family member go to an emergency room (if at all)? Please select all that apply.
- I/my family had a real emergency
 - The doctor's office was closed or could not see me/ my family
 - I/my family do not have a regular medical doctor
 - I/my family could not afford health services somewhere else
 - I/my family do not have health insurance
 - Did not go to the emergency room
7. Before today, how long has it been since you last saw a doctor for a routine checkup? A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition.
- Within the past year (anytime less than 12 months ago)
 - Within the past 2 years (more than 1 year but less than 2 years ago)
 - Within the past 5 years (more than 2 years but less than 5 years ago)
 - 5 or more years ago
 - Don't know / Not sure
 - Never

8. Has a doctor, nurse, or other health professional EVER told you that you had any of the following?

	Yes	No	Don't Know/ Not Sure
High blood pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High cholesterol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A heart attack, also called a myocardial infarction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Angina or coronary heart disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A stroke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asthma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skin cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Any other types of cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chronic Obstructive Pulmonary Disease or COPD, emphysema or chronic bronchitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A depressive disorder, including depression, major depression, dysthymia, or minor depression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kidney disease? (Does NOT include kidney stones, bladder infection or incontinence)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diabetes when you were pregnant?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diabetes at any other time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overweight or Obese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Any other chronic condition? Write condition: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. How long has it been since you last went to a dentist or a dental clinic for any reason?
Include visits to dental specialists, such as orthodontists.

- Within the past year (anytime less than 12 months ago)
- Within the past 2 years (more than 1 year but less than 2 years ago)
- Within the past 5 years (more than 2 years but less than 5 years ago)
- 5 or more years ago
- Don't know / Not sure
- Never

10. In the past 12 months, was there a time when you needed medical care (including mental health, dental health, medicines, etc.) but could not get it?

- Yes
- No
- Don't know/Not sure

11. If you answered “Yes”, why not? Check all that apply.

	Basic Medical Care	Dental Care	Mental Health Care	Medical/ Surgical Specialty Care	Medicines	Medical Supplies
No insurance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Can't get appointment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Can't afford it/ too expensive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inconvenient hours/can't get out of work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No child care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insurance wouldn't cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No transportation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Don't trust medical professionals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cultural/religious beliefs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Language barrier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Don't know how to find or schedule an appointment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other reasons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. In the last 30 days, did you:

	Yes	No	Don't Know/ Not Sure
Chew tobacco/snuff or smoke cigarettes, cigars, pipes, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use e-cigarettes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Breathe second-hand smoke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use drugs prescribed for someone else	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have more than 2 alcoholic drinks per day (men) or more than 1 alcoholic drink per day (women)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drive in a car without a seat belt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eat fast food more than once in a week	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Travel in a car with small children without using a car seat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spend more than 20 minutes in the sun without sunscreen (during the summer months)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exercise for 30 minutes or more a day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eat at least 2 servings of vegetables a day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eat at least 2 servings of fruit a day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sleep at least 8 hours every night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have sex without using a condom or dental dam (if not in a monogamous relationship)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Please mark when you have done the following things:

	Less than 12 months	More than 1 year, less than 2 years	More than 2 years, less than 5 years	More than 5 years ago	Don't know/Not sure	Never
Had a colonoscopy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Had a mammogram	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Had cholesterol checked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Had a clinical breast exam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Had a pap test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Had a PSA test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Had an HIV test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Got a flu vaccine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Got the pneumonia vaccine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Got the shingles vaccine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Got a tetanus booster	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Before today, were you at all limited in any activities because of physical, mental, or emotional problems?

- Yes
- No
- Don't know/Not sure

Please answer the following questions so that we can better understand how different members of our diverse community feel about the issues listed above.

15. Are you of Hispanic, Latino/a, or Spanish origin?

- Yes
- No
- Don't know / Not sure / Choose not to answer

16. With which one of these groups do you most identify?

- White/Caucasian
- Black or African American
- Asian, including from Bangladesh, India and Pakistan
- American Indian or Alaska Native
- Native Hawaiian or Other Pacific Islander
- Other
- Don't know / Not sure / Choose not to answer

17. How old are you?

- 18 – 25
- 26 – 39
- 40 – 54
- 55 – 64
- 65 or over

18. Do you have children less than 18 years of age living in your household?

- Yes
- No

19. What is the highest grade or year of school you completed?

- Never attended school or only attended kindergarten
- Grades 1 through 8 (Elementary)
- Grades 9 through 11 (Some high school)
- Grade 12 or GED (High school graduate)
- College 1 year to 3 years (Some college or technical school)
- College 4-year degree or more (College graduate)

20. What is your annual household income from all sources?

- Less than \$10,000
- \$10,000 - \$24,999
- \$25,000 - \$49,999
- \$50,000 - \$99,999
- \$100,000 - \$149,999
- \$150,000+
- I don't know or choose not to answer

21. How do you pay for your health care?

- Use cash or credit/debit card (no insurance)
- Health insurance through my employer or my spouse's employer
- Private health insurance I pay for
- Medicaid
- Medicare
- TRICARE, VA or Military
- Indian Health Services
- Other _____

22. With what gender do you identify?

- Male
- Female
- Transgender – Male to Female
- Transgender – Female to Male
- Other: _____

APPENDIX B – ACTIONS TAKEN SINCE THE PREVIOUS CHNA

This appendix discusses community health improvement actions taken by the Inova Health System since its last CHNA reports were published, and based on the subsequently developed Implementation Strategies. The information is included in the 2016 CHNA reports to respond to final IRC 501(r) regulations, published by the IRS in December 2014.

Priority Strategic Initiatives

1. Improve collaboration and coordination among organizations providing health and social services.
 - a. Inova Health System (Inova) worked together with the Loudoun County Health Department to create the Loudoun County Safety Net Continuum. Inova convenes the group, which works to create collaboration and continuity across services.
 - b. Inova has provided over \$1.5 million in support to local health and social services agencies, such as HealthWorks for Northern Virginia (HealthWorks), Loudoun Cares, the Loudoun Child Advocacy Center, the Loudoun Free Clinic and Mobile Hope. This support is both in direct financial contributions as well as in-kind support (donated space).
 - c. Inova continues to actively participate in the Loudoun Health Council and the Loudoun County Mobilizing for Action through Planning and Partnerships (MAPP) process.
 - d. Starting at the end of 2014, Inova has a representative on the HealthWorks board of directors. HealthWorks is a Loudoun County-based Federally Qualified Health Center or “FQHC”.
 - e. In April 2013, more than 50 clergy, faith community nurses and health ministry coordinators turned out for a Palliative Care Conference. Inova Congregational Health Partnership presented the event in partnership with Inova’s Palliative Care program, Pastoral Care Services, Life with Cancer® program, and the Community Affairs Executive from Inova Fairfax Medical Campus. Participants learned the many aspects of palliative care, specialized medical care for people with serious illnesses with a goal of improving the quality of life for the patients and their families.
 - f. The FACT program, which is offered as a community service at no charge to victims, combines specialized nurse examiners and a private environment so that evidence of abuse can be collected and documented without further traumatizing the victim. The FACT department is also an important component in cross-jurisdictional crime reduction efforts and community outreach programs. FACT representatives serve on five multidisciplinary teams for children in the City of Alexandria as well as Arlington, Fairfax, Loudoun and Prince William counties. In 2015, the program continued to expand its prevention-focused outreach at college campuses and community organizations. Between 2013 – 2015 the FACT Department has helped almost 1,600 individuals.

2. Improve access to care, including preventive care, primary care, specialty care, and dental care.
 - a. Inova works to ensure access to services for the indigent through direct and in-kind support to HealthWorks and the Loudoun Free Clinic. These contributions have exceeded \$1.1 million from 2013-2015.
 - b. Inova partners with the Loudoun County Health Department to provide OB/GYN services to low-income county residents at Inova Loudoun Hospital. From 2013 – 2015 there were almost 15,000 visits to this program.
 - c. At the end of 2012 Inova Loudoun Hospital (ILH) became home to two additional Inova programs, expanding access to care for residents of Loudoun County.
 - i. Inova Transitional Services is a community-based program developed to identify and bridge gaps between illness and recovery. This model establishes cross-setting communication and collaboration and ensures coordination and continuity of care as patients transfer across care delivery settings. The program trains internal teams and works in partnership with the community to develop improved health outcomes at a lower cost for vulnerable patient populations. The Inova Discharge/Transitional Care Clinic at ILH assists patients that have been discharged from the hospital and have no other medical home. Through the Discharge Clinic, patients have a place to go that will help them manage their complex disease states until they can be transitioned to a permanent medical home. From 2013 – 2015, Inova Transitional Services provided over 36,000 encounters, approximately 7,000 of which were in the Loudoun community.
 - ii. Inova Juniper Program (IJP) provides outpatient primary medical care, mental health therapy, substance abuse treatment, pharmaceutical assistance, nutritional counseling and medical case management services to 1,638 persons living with HIV disease in the suburban Virginia region. To maximize accessibility for clients, services are provided at the main location in Fairfax, as well as six satellite clinics (Dumfries, Manassas, Mt. Vernon, Arlington/Falls Church, Leesburg, and Herndon), hospitals, homes and other community locations throughout the region. Opening the Leesburg Clinic has allowed patients to be seen in their neighborhoods and has allowed the Juniper Program to work closely with local providers. From 2013 – 2015, Inova Juniper provided over 100,000 visits throughout the region.
 - d. Care Connection for Children (CCC) is funded by the Virginia Department of Health. The goal of CCC is to help families coordinate community and educational resources with medical expertise to ensure that children with special healthcare needs can reach their maximum potential. CCC partners with families of children who have chronic healthcare needs to help open doors to needed resources and coordinate quality family-centered care. CCC is committed to helping children maximize their potential in a caring, innovative and culturally sensitive manner. In 2015, CCC served 669 families.
 - e. The Inova Lions Eye Clinic provides free eye care (comprehensive ophthalmic care, including medical and surgical care for all types of conditions of the eye) to uninsured adult patients who are at or below 200 percent of the Federal Poverty

Guidelines. Clinic staffing includes an employed ophthalmologist, and ophthalmic technician, and a bilingual receptionist. A number of volunteer specialist physicians also help care for clinic patients. The clinic is funded both by Inova and the Virginia Lions Eye Institute Foundation. From 2013-2015, the clinic had over 8,000 patient visits.

- f. The Inova Kellar Center has provided behavioral health services for children, adolescents, and their families for twenty years. The program provides a full continuum of outpatient services and programs, including individual, family and group therapy, medication management, psychiatric evaluations, psychological testing, intensive outpatient programs, intensive home based services, and partial hospitalization programs. Specific programs also include the After School Intensive Outpatient Program (for male and female adolescents ages 13 and above) and The Kellar School, which served students grades 3 through 12 who have been identified for special education services. The treatment services and programs are provided to children and families regardless of ability to pay.
- g. The Loudoun Mobile Health program brings health screenings and other preventive and wellness services to Loudoun County via a fully-equipped bus. The program offers blood pressure checks, blood sugar screening, cholesterol screening, body mass index screening, bone density screening, hearing and vision screening, sun damage screenings, and Safe Sitter® classes. From 2013-2015, 34,712 services were provided, at an uncompensated cost of \$1 million.
- h. Inova Partnership for Healthier Kids (PHK) is a community-based outreach program designed to increase access to care for uninsured children in Northern Virginia. Through partnerships with schools in Fairfax County, Loudoun County, Prince William County, the City of Alexandria, and with numerous community organizations, the program provides families with application and enrollment assistance for Medicaid and CHIP, and referrals to local safety net providers. From 2013 – 2015, the program helped 10,439 children access health services across Northern Virginia. In April of 2015 PHK received a grant from the Virginia Health Care Foundation as part of the Governors Healthy Virginia Plan to expand outreach and enrollment services in Loudoun County. The grant, which runs through June of 2016, funds a full time program coordinator who works with LCPS, local community safety net providers and the Department of Family Services to provide outreach and enrollment services for Virginia's Medicaid and CHIP programs. Through this grant, PHK has enrolled 159 children, and has assisted over 400 people reach medical care through referrals to other sources such as HealthWorks, etc.
- i. In December of 2012, Inova acquired INTotal Health to fulfill a portion of Inova's Vision 2015. As a Managed Care Organization (MCO), INTotal Health specializes in Medicaid services and for the past nine years the health plan has played an important role in helping more than 55,000 members throughout Northern Virginia, Alleghany/Roanoke, Culpeper, Winchester, and far southwestern regions of Virginia.
- j. For years the safety net partners, including Inova, have been working closely with the Medical Society of Northern Virginia to establish a network of specialty providers for indigent patients who are in need of these services. The group is

working to develop a system that supports the specialists to include transportation for the patients, interpreters when needed and scheduling for the visit. The primary care safety net providers are committed to seeing the patients for follow-up care and labs that don't need a specialist.

3. Reduce disparities in infant health outcomes.
 - a. The Inova Loudoun Hospital-based OB Clinic provides comprehensive obstetric and gynecologic services for uninsured and low-income women in Loudoun County. Comprehensive obstetrical services include gestational diabetes management, case management, non-stress testing and nutritional counseling. From 2012 – 2015, the Inova Loudoun Hospital Obstetrics Clinic provided almost 15,000 visits for low-income women in the community, at a cost of over \$5 million.
 - b. In 2015, the Inova Loudoun Hospital Obstetrics Clinic increased eligibility for enrollment in the program from 115 to 200% of the Federal Poverty Level.

4. Decrease disparities in diabetes mortality and reduce high rates of overweight/obesity.
 - a. In 2013 and 2014, Promotores worked with women with gestational diabetes receiving prenatal care at the Inova Cares Clinic for Women. The Promotores were individually matched with patients to provide one-to-one guidance throughout their pregnancy and early infancy stages through telephonic support. Women participating in this program reported gaining knowledge and understanding of their gestational diabetes and how to best manage their diagnosis. In addition, they reported feeling confident about asking questions to medical providers. In response to a question about their confidence level in management of their Gestational Diabetes, 85.42% of the 384 survey responses reported being “very sure” or “sure” they are now able to better self-manage their gestational diabetes. Furthermore, 91.69% out of 385 responses reported being “very comfortable” or “comfortable” in communicating information with their medical provider related to their gestational diabetes.
 - b. The Inova Center for Wellness and Metabolic Health (ICWMH) provides visits for uninsured, underinsured, and fully insured diabetic patients with an Endocrinologist and Nurse Practitioner. Services include diabetes classes and individual appointments including Medical Nutrition Therapy visits to help people learn about their diets and how nutrition affects health and wellbeing. From 2013 – 2015, ICWMH provided almost 20,000 patient visits overall, over 4,000 in the Loudoun community. ICWMH tracks patient compliance data, and in 2015, 89 percent of patients met behavioral goals. The success of ICWMH contributes to wellness for diabetic patients and prevents or delays longer term negative and often debilitating effects of diabetes and related chronic diseases. ICWMH continues to be recognized by the American Diabetes Association.
 - c. To help local residents afford fresh, healthy food, and ultimately reduce the incidence of chronic disease, Inova started its ‘SNAP Double Dollars’ program in 2011. The program builds on the growing acceptance of SNAP benefits at farmers markets, where fresh, local produce is sold seasonally. Through Inova’s program, SNAP recipients are able to double their farmers market purchases, up to \$10.

During 2013 – 2015, over \$16,000 of Inova funds were used for SNAP Double Dollars recipients. In 2014 and 2015, over \$1,300 in matching dollars were utilized in Loudoun County markets. Both the farmers markets and the individuals receiving these matching funds benefit, with community members becoming less food insecure and experiencing enhanced nutrition.

- a. NOVA Healthy Kids Coalition. The Northern Virginia Healthy Kids Coalition is a community partnership designed to get kids healthy and to fight obesity. The partnership includes area school districts, Inova, and others. The Coalition sponsors and promotes a number of initiatives, including “9-5-2-1-0 For Health” (9 hours of sleep, 5 servings of fruits and vegetables, 2 hours or less of screen time outside of school, 1 hour of physical activity, and 0 sugary beverages).
- b. The third annual “Let’s Move the Needle on Childhood Obesity” event was held on Sept. 26, 2013. The event was co-sponsored by the Community Foundation for Northern Virginia, and was attended by more than 170 school administrators and teachers, business leaders, government officials and nonprofit leaders. Twenty grants of \$1,000 each were awarded in support of school and community based programs in Northern Virginia to encourage more activity and/or better nutrition for students during the 2013 – 2014 School Year. Awardees included Cedar Lane Elementary School, Cool Spring Elementary School, Farmwell Station Middle School, and Lucketts Elementary School in Loudoun County.

Outside of these priority areas identified in the ILH 2013 CHNA Implementation Plan, the hospital has continued community benefit programs that address a variety of health concerns. Inova operates much of its community health programs centrally, and as a result, many of these programs are not operated directly by ILH.

1. The Office of Health Equity (OHE) identifies and addresses health disparities in northern Virginia through internal and community initiatives. The department is dedicated to the elimination of disparities in the community through community partnership, diversity and cultural competence education, and provision of language services. In support of patient safety and satisfaction, language interpretation and translation services are provided at every Inova facility, to facilitate communication with the 14 percent of Inova’s patient population who are limited English proficient (LEP). Medical Interpretation in over 200 languages is provided by on-site medical interpreters and telephonic interpreters. In 2015, Inova delivered 59,048 hours of interpreter services and 13,715 hours of Sign Language interpretation across Inova facilities. Over 572 vital documents were translated into Inova’s top languages.
2. The Inova Comprehensive Addiction Treatment Services Program (CATS) is a leader in providing the highest quality addiction treatment services in Northern Virginia and surrounding areas. A series of structured programs offers effective, compassionate treatment for individuals dealing with all forms of substance abuse disorders, including addiction to alcohol, prescription drugs, heroin, cocaine and other drugs. Services are available to adults ages 18 and older. The range of services includes: Inpatient Medical Detoxification, Partial Hospitalization Program, Intensive Outpatient Program, Outpatient Groups, Medication Assisted Therapy and Substance Use Assessments. In 2015, the

CATS Inpatient and Partial Hospitalization Program served 7,309 clients and provided 10,867 Intensive Outpatient Services (1,858 at ILH).

3. Since the 2013 CHNA, Inova Behavioral Health created a new department, Inova Behavioral Health Access Services (IBHAS), which acts as an entry way into all services within Behavioral Health. IBHAS serves as an access point for all of Inova Behavioral Health's inpatient and outpatient programs by providing rapid access to assessments for individuals in need of behavioral health and addiction services. IBHAS includes a Central Access Call Center, Psychiatric Liaison services for patients seen in Inova Emergency Departments, scheduled Assessment Services for our Partial Hospitalization Program and CATS Intensive Outpatient Programs, and walk-in services through the Inova Psychiatric Assessment Center (IPAC). IPAC provides a unique and valuable resource to our community by offering urgent psychiatric assessments for adults ages 18 and older and referrals to appropriate providers and levels of care.
4. The mission of Life with Cancer (LWC) is to enhance the quality of life of those individuals in the community affected by cancer. The program addresses the specific needs by providing individual and family counseling, support groups, educational seminars, workshops on cancer diagnosis and treatment, and a full array of complimentary therapies. Life with Cancer is generously supported by our community; therefore all services are available at no charge to residents of the Washington Metropolitan area.
5. Loudoun Family and Patient Education Program: Loudoun Family and Patient Education Program serves the community through health education, prevention, wellness programs and care management. In 2015, the program provided educational programs for 5,070 participants.