

A Community Health Needs Assessment
Prepared for the Riverside Health System Hospitals
By Community Health Solutions
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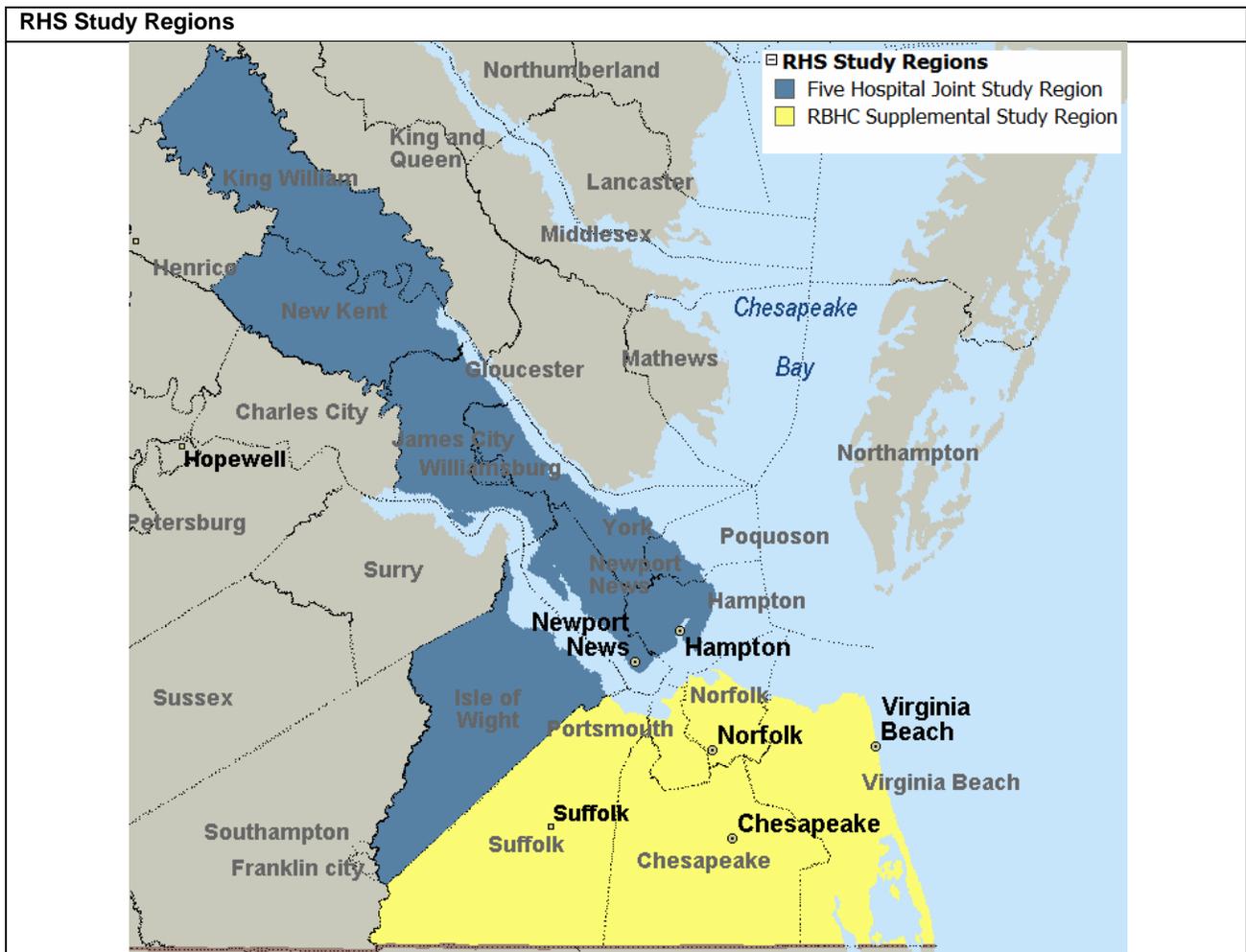
Introduction

The mission of Riverside Health System (RHS) is "to care for others as we would care for those we love-to enhance their well-being and improve their health." With this mission in mind, RHS commissioned Community Health Solutions to conduct this regional community health needs assessment on behalf of the following RHS facilities:

- Doctors' Hospital Williamsburg
- Hampton Roads Specialty Hospital
- Regional Medical Center
- Riverside Behavioral Health Center and
- Riverside Rehabilitation Institute

The five RHS facilities defined a joint study region to include nine localities: the counties of Isle of Wight, James City, King William, New Kent, and York; plus the cities of Hampton, Newport News, Poquoson and Williamsburg. Additionally, Riverside Behavioral Health Center (RBHC) identified a supplemental study region including the five cities of Chesapeake, Norfolk, Portsmouth, Suffolk and Virginia Beach. The joint and supplemental study regions are shown in the map below.

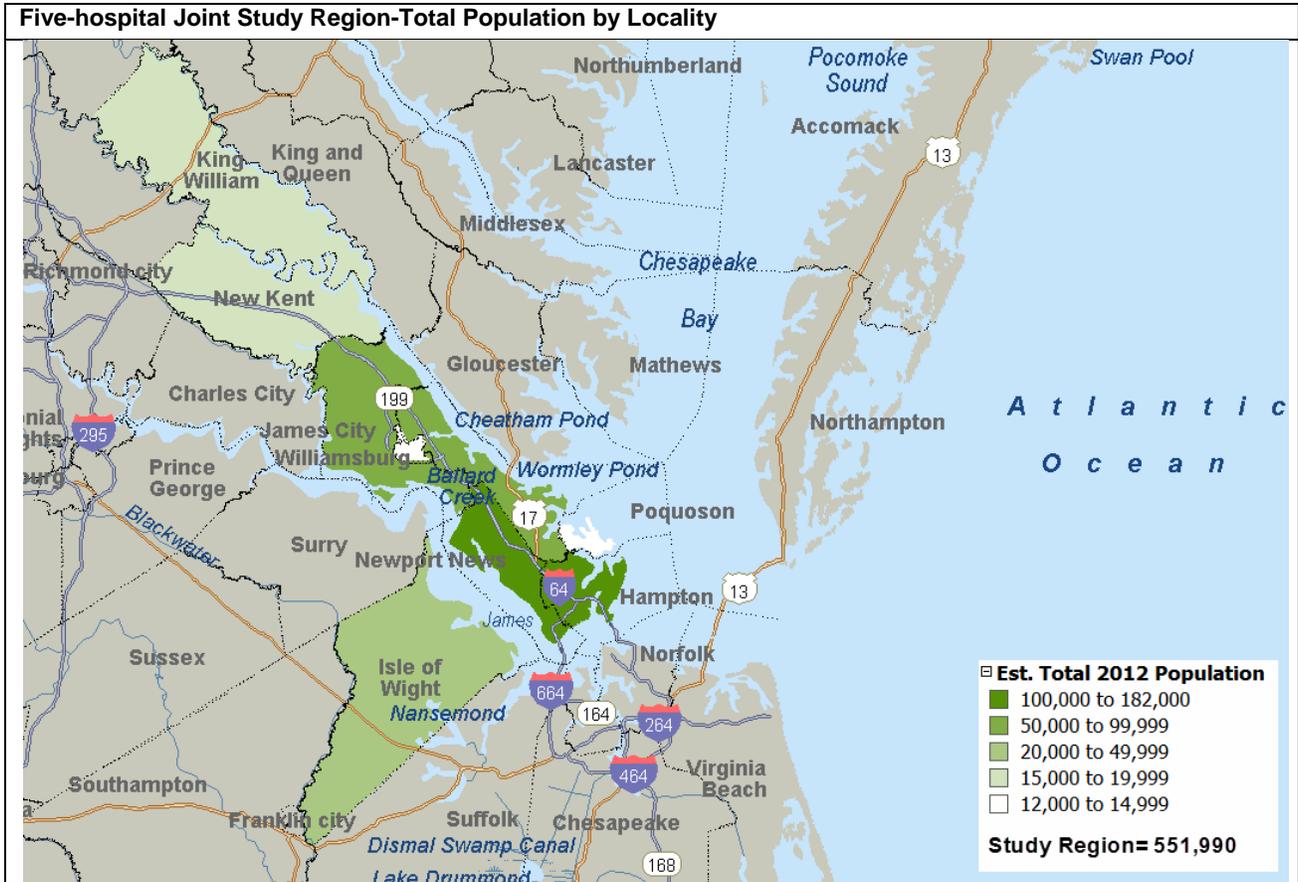
Part I. Five-Hospital Study Region of this report is focused on the nine-locality study region for all five-hospitals. *Part II. Riverside Behavioral Health Center Supplemental Study Region* includes an analysis for RBHC's five-city supplemental study region. For both sections, the results of the study include two primary components: a 'community insight profile' based on qualitative analysis of a survey of community stakeholders, and a 'community indicator profile' based on quantitative analysis of community health status indicators.



Part I. Five-Hospital Joint Study Region

Executive Summary

This section of the report focuses on the five-hospital joint study region of nine localities: the counties of Isle of Wight, James City, King William, New Kent, and York; and the cities of Hampton, Newport News, Poquoson and Williamsburg. The joint study region is shown in the map below. The results of the study include two primary components: a 'community insight profile' based on qualitative analysis of a survey of community stakeholders, and a 'community indicator profile' based on quantitative analysis of community health status indicators.



This Executive Summary outlines major findings, and details are provided in *Part I. Five-Hospital Joint Study Region* of the report.

Community Insight Profile

In an effort to generate community input for the study, a 'Community Insight Survey' was conducted with a group of community stakeholders identified by the five RHS facilities. The survey participants were asked to provide their viewpoints on:

- Important health concerns in the community;
- Significant service gaps in the community; and
- Additional ideas or suggestions for improving community health.

The survey was sent to a group of 158 community stakeholders identified by the five RHS facilities. A total of 83 (53%) submitted a response (although not every respondent answered every question). The respondents provided rich insights about community health in the five-hospital joint study region. To summarize:

- The respondents identified over 20 important health problems such as chronic disease, obesity, mental health conditions, substance abuse and more.

- The respondents reported more than two dozen specific community services in need of strengthening. Identified services included aging services¹, community services for the elderly, behavioral health services, homeless services and more.

Thirty-three respondents offered open-ended responses with additional ideas and suggestions for improving community health. These responses are listed in *Appendix I-A*.

Community Indicator Profile

The community indicator profile presents a wide array of quantitative indicators for the five-hospital joint study region. To produce the profile, Community Health Solutions analyzed data from multiple sources. By design, the analysis does not include every possible indicator of community health. The analysis is focused on a set of indicators that provide broad insight into community health, and for which there were readily available data sources. To summarize:

- *Demographic Profile.* As of 2012, the five-hospital joint study region included an estimated 551,990 people. The population is expected to increase to 570,953 by 2017. It is projected that population growth will occur in all demographic groups, including a 10% increase in seniors age 65+; a 7% increase in the Asian population; and a 5% increase in the Hispanic ethnicity population. Compared to Virginia as a whole, the five-hospital joint study region is more densely populated; has a larger proportion of Black/African American residents, has generally lower income levels; and has a lower rate of adults age 25+ without a high school diploma.
- *Mortality Profile.* In 2011, the five-hospital joint study region had 4,297 total deaths. The leading causes of death were malignant neoplasms (cancer), heart disease, and cerebrovascular disease (stroke). The age-adjusted death rates for the five-hospital joint study region were higher than the Virginia statewide rates overall, and for six of the top fourteen causes of death.
- *Maternal and Infant Health Profile.* In 2011, the five-hospital joint study region had 9,430 pregnancies, 6,964 total live births, and 64 infant deaths. Compared to Virginia as a whole, the five-hospital joint study region had higher rates of non-marital births, teen pregnancies and five-year infant mortality.
- *Preventable Hospitalization Discharge Profile.* The Agency for Healthcare Research and Quality (AHRQ) defines a set of conditions (called Prevention Quality Indicators, or 'PQIs') for which hospitalization should be avoidable with proper outpatient health care. High rates of hospitalization for these conditions indicate potential gaps in access to quality outpatient services for community residents. In 2011, residents of the five-hospital joint study region had 5,259 PQI hospital discharges. The leading diagnoses for these discharges were congestive heart failure, bacterial pneumonia and diabetes. The age-adjusted PQI discharge rates for the five-hospital joint study region were higher than the Virginia statewide rates for congestive heart failure, diabetes and angina primary PQI diagnoses.
- *Behavioral Health Hospitalization Discharge Profile.* Behavioral health (BH) hospitalizations provide another important indicator of community health status. In 2011, residents of the five-hospital joint study region had 3,651 hospital discharges from Virginia community hospitals for behavioral health conditions.² The leading diagnoses for these discharges were affective psychoses, general symptoms³ and schizophrenic disorders. The age-adjusted BH discharge rates for the five-hospital joint study region higher than the statewide for general symptoms and depressive disorders, not elsewhere classified primary BH diagnoses.
- *Adult Health Risk Profile.* Local estimates indicate that substantial numbers of adults (age 18+) in the five-hospital joint study region may have health risks related to nutrition, physical inactivity, weight, tobacco, and alcohol. In addition, substantial numbers of adults have chronic conditions such as high blood pressure, arthritis, high cholesterol, diabetes and asthma.

¹ Aging services primarily include health care services, while community services for the elderly primarily include non-health care support services such as meals, transportation, etc.

² Data include discharges for Virginia residents from Virginia community hospitals reporting to Virginia Health Information, Inc. These data do not include discharges from state behavioral health facilities or federal (military) facilities. Data reported are based on the primary diagnosis.

³ This diagnosis includes symptoms, signs, abnormal results of laboratory or other investigative procedures, and ill-defined conditions regarding which no diagnosis classifiable elsewhere is recorded.

- *Youth Health Risk Profile.* Local estimates indicate that substantial numbers of youth (age 14-19) in the five-hospital joint study region may have health risks related to nutrition, physical inactivity, weight, tobacco, alcohol and mental health.
- *Uninsured Profile.* An estimated 63,166 (13%) nonelderly residents of the five-hospital joint study region were uninsured at any point in time in 2012. This included an estimated 9,916 children and 53,250 adults.
- *Medically Underserved Profile.* Medically Underserved Areas (MUAs) and Medically Underserved Populations (MUPs) are designated by the U.S. Health Resources and Services Administration as being at risk for health care access problems. The designations are based on several factors including primary care provider supply, infant mortality, prevalence of poverty, and the prevalence of seniors age 65+. Eight of the nine localities in the five-hospital joint study region have been fully or partially designated as MUA/MUPs.
- *Health Opportunity Index Profile.* This profile provides a close-up view of the region with the help of the Health Opportunity Index produced by the Virginia Department of Health. In an area as large and diverse as the five-hospital joint study region, city- and county-level analysis can often mask important variations in health opportunity within and across city and county boundaries. The Health Opportunity Index measures a core set of 'social determinants of health' for 105 census tracts in the five-hospital joint study region. The Health Opportunity Index can be used to identify small geographic areas in which the population is likely to be more at risk for health problems. This information can be helpful for focusing community health initiatives in communities where they are most needed.

Accompanying File of City/County-Level Indicators

This report includes community health indicators for the five-hospital joint study region as a whole. A separate Microsoft Excel file contains indicators for each city/county within the five-hospital joint study region.

Appendix I-A. Community Insight Profile-Additional Ideas and Suggestions for Improving Community Health

Thirty-three survey respondents offered open-ended responses with additional ideas and suggestions for improving community health. These responses are listed in *Appendix I-A*.

Appendix I-B. Zip Code-Level Maps

Appendix I-B provides a set of thematically colored maps displaying variation in selected community health indicators by zip code for the five-hospital joint study region. The underlying data for these maps are provided in a separate Microsoft Excel file. *Please read the important note about zip code-level data in Appendix I-B.*

Appendix I-C. Health Opportunity Index by Census Tract

The Virginia Department of Health provides Health Opportunity Index (HOI) scores for 105 census tracts in the five-hospital joint study region. These census tracts are listed by HOI score, rank and quintile in *Appendix I-C*.

Appendix I-D. Data Sources

Appendix I-D. Data Sources provides a list of the data sources used in the analyses for this report.

Community Insight Profile

In an effort to generate community input for the study, a 'Community Insight Survey' was conducted with a group of community stakeholders identified by the five RHS facilities. The survey participants were asked to provide their viewpoints on:

- Important health concerns in the community;
- Significant service gaps in the community; and
- Additional ideas and suggestions for improving community health.

The survey was sent to a group of 158 community stakeholders identified by the five RHS facilities. A total of 83 (53%) submitted a response (although not every respondent answered every question). The respondents provided rich insights about community health in the study region. The results are summarized in the remainder of this section.

1. Survey Respondents

Exhibit 1 below lists the organizational affiliations of the survey respondents.

**Exhibit 1.
Reported Organization Affiliation of Survey Respondents**

Abbitt Management	Hampton HELP, Inc.	RAMPS Across America, Inc.
An Achievable Dream	Hampton Police Division	Riverside Family Medicine Residency
Angels of Mercy Medical Clinic	Hampton Roads Prostate Health Forum	Riverside Health System Foundation
Area Health Education Center	Hiddenwood Presbyterian Church	Riverside Life Long Health Division
Avalon: A Center for Women and Children	Isle of Wight Chamber of Commerce	Riverside Regional Medical Center
Ball Metal Beverage Packaging Division, Americas	Isle of Wight Social Services	Riverside Wellness and Fitness Center (2)
BOSH Global Services	James City County Board of Supervisors	Surry Area Free Clinic
Canon Virginia, Inc.	James City County Community Services/Social Services	Surry Chamber of Commerce/School Board
Child Development Resources	James City County Police Department	The Arc of Virginia Peninsula
Christopher Newport University	Lackey Free Clinic (6)	The Colonial Williamsburg Foundation
City Council of Newport News	Monarch Bank	The Community Free Clinic of Newport News
City of Newport News	Newport News Circuit Court Clerk's Office	The Mariners Museum
City of Newport News, Department of Human Services	Newport News Fire Department (2)	Virginia Peninsula Chamber of Commerce
City of Williamsburg	Newport News Police Department	Walsingham Academy
City of Williamsburg - Fire Department (2)	Newport News Public Schools	West Point Public Schools
Civic Leader	Newport News Shipbuilders	West Point Public Schools-Middle School
Colonial Behavioral Health	Olde Towne Medical Center	Williamsburg Christian Academy
David, Kamp and Frank, LLC	PBMares	Williamsburg Community Chapel
Dixon Hughes Goodman	Peninsula Agency on Aging, Inc.	Williamsburg Community Foundation
Emmanuel Baptist Church/Emmanuel House, Inc.	Peninsula Airport Commission	Williamsburg Community Health Foundation
Foodbank of the Virginia Peninsula	Peninsula Emergency Medical Services	Williamsburg Landing
Greater Williamsburg Chamber and Tourism Alliance	Peninsula Fine Arts Center	Williamsburg/ James City County Schools
Greg Garrett Realty	Peninsula Health District	York-Poquoson Social Services
Hampton Department of Human Services	Poquoson City Schools	<i>Unknown Organization</i>
Hampton Division of Fire and Rescue (2)	Project CARE of the Greater Virginia Peninsula, Inc.	

2. Community Health Concerns

Survey respondents were asked to review a list of common community health issues. The list of issues draws from the topics in *Healthy People 2020* with some refinements. The survey asked respondents to identify from the list what they view as important health concerns in the community. Respondents were also invited to identify additional issues not already defined on the list. *Exhibit 2* summarizes the results, including open-ended responses.

Exhibit 2.
Important Community Health Concerns Identified by Survey Respondents

Answer Options	Response Percent	Response Count
High Blood Pressure	76%	63
Adult Obesity	73%	61
Cancer	71%	59
Heart Disease & Stroke	71%	59
Diabetes	67%	56
Mental Health Conditions	66%	55
Substance Abuse - Illegal Drugs	60%	50
Alcohol Use	57%	47
Childhood Obesity	51%	42
Alzheimer's Disease	49%	41
Substance Abuse - Prescription Drugs	45%	37
Dental Care/Oral Health	42%	35
Stroke	41%	34
Asthma	39%	32
Tobacco Use	35%	29
Arthritis	33%	27
Prenatal & Pregnancy Care	33%	27
Domestic Violence	30%	25
Autism	29%	24
Intellectual/Developmental Disabilities	29%	24
Teen Pregnancy	28%	23
Chronic Pain	27%	22
Injuries	25%	21
Physical Disabilities	25%	21
Orthopedic Problems	23%	19
Renal (kidney) Disease	22%	18
Sexually Transmitted Diseases	22%	18
Respiratory Diseases (other than asthma)	20%	17
Neurological Disorders	19%	16
Vision	19%	16
HIV/AIDS	14%	12
Infectious Diseases	14%	12
Brain Injuries	13%	11
Environmental Quality	13%	11
Post-Operative Complications	7%	6
Immobility (i.e. skin breakdown)	6%	5

Note: When interpreting the survey results, please note that although the relative number of responses received for each item is instructive, it is not a definitive measure of the relative importance of one issue compared to another.

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Exhibit 2. (continued)
Important Community Health Concerns Identified by Survey Respondents

Other Important Community Health Concerns Identified by Survey Respondents in Open-Ended Responses	
1.	Access to quality physicians regardless of ability to pay
2.	Comorbidities exist among many of the areas checked above.
3.	Gang violence is a problem because the victims end up in our emergency rooms and hospitals, thus a major cost to the systems.
4.	GERD, Hyperlipidemia, Allergic Rhinitis, Depression
5.	Geriatric care Access to medical and surgical specialists
6.	Hearing
7.	Large segments of our community are underserved for their health care needs, have limited or no resources to pay for services, and find access to adequate health care services difficult or unattainable.
8.	My response is reflective of the most serious health complications treated by field medical providers.
9.	Some related to half the city's population being college students
10.	We have a large and growing retiree population. Ailments related to that factor will be of increasing importance.

3. Community Service Gaps

Survey respondents were asked to review a list of community services that are typically important for addressing the health needs of a community. Respondents were asked to identify from the list any services they think need strengthening in terms of availability, access, or quality. Respondents were also invited to identify additional service gaps not already defined on the list. *Exhibit 3* summarizes the results, including open-ended responses.

**Exhibit 3.
Important Community Service Gaps Identified by Survey Respondents**

Answer Options	Response Percent ⁴	Response Count
Aging Services ⁵	57%	46
Community Services for the Elderly	54%	44
Behavioral Health Services	52%	42
Homeless Services	51%	41
Adult Day Care Services	48%	39
Dental Care/Oral Health Services	48%	39
Health Care Coverage	48%	39
Patient Self Management Services(e.g. nutrition, exercise, taking medications)	42%	34
Transportation	42%	34
Care Coordination Services	38%	31
Health Promotion and Prevention Services	37%	30
Long Term Care Services	37%	30
Early Intervention Services for Children	35%	28
Caregiver Education Support	33%	27
Social Services	32%	26
Home Health Services	31%	25
Chronic Disease Services	28%	23
Primary Health Care Services	28%	23
Respite Care Services	28%	23
Housing Services	27%	22
Public Health Services	27%	22
Cancer Services	26%	21
Family Planning Services	26%	21
Disability Services	25%	20
Chronic Pain Management Services	22%	18
Domestic Violence Services	22%	18
Food Safety Net/Basic Needs Services	22%	18
Job /Vocational Retraining	22%	18
Maternal, Infant & Child Health Services	22%	18
Hospice Services	19%	15
Assistive Technology	14%	11
School Health Services	14%	11
Specialty Medical Care	14%	11
Workplace Health and Safety Services	14%	11
Physical Rehabilitation	12%	10
Durable Medical Equipment	11%	9
Pharmacy Services	10%	8
Environmental Health Services	7%	6
Hospital Services	7%	6
Rehabilitation Ventilation Services	6%	5

Note: When interpreting the survey results, please note that although the relative number of responses received for each item is instructive, it is not a definitive measure of the relative importance of one issue compared to another.

⁴ Eighty-one (81) of the 83 survey respondents answered this question.

⁵ Aging services primarily include health care services, while community services for the elderly primarily include non-health care support services such as meals, transportation, etc.

Exhibit 3. (continued)
Important Community Service Gaps Identified by Survey Respondents

Other Important Community Service Gaps Identified by Survey Respondents in Open-Ended Responses	
1.	Alcohol drug abuse education - AA classes Child Development Education
2.	Care for the uninsured that fall under the poverty guidelines
3.	Mental Hospital Capacity Substance Abuse Services
4.	More financial resources to build RAMPS Provide temporary aluminum ramps at discharge
5.	Responses above are reflective of the needs as seen from the perspective of a field medical provider.
6.	Safety Net healthcare services

Community Indicator Profile

This section of the report provides a quantitative profile of the five-hospital joint study region based on a wide array of community health indicators. To produce the profile, Community Health Solutions analyzed data from multiple sources. By design, the analysis does not include every possible indicator of community health. The analysis is focused on a set of indicators that provide broad insight into community health, and for which there were readily available data sources.

The results of this profile can be used to evaluate community health status of the five-hospital joint study region compared to the Commonwealth of Virginia overall. The results can also be helpful for determining the number of people affected by specific health concerns. In addition, the results can be used alongside the Community Insight Survey results and the zip code level maps to help inform action plans for community health improvement. This section includes eleven profiles as follows:

1. Health Demographic Trend Profile
2. Health Demographic Snapshot Profile
3. Mortality Profile
4. Maternal and Infant Health Profile
5. Preventable Hospitalization Discharge Profile
6. Behavioral Health Hospitalization Discharge Profile
7. Adult Health Risk Factor Profile
8. Youth Health Risk Factor Profile
9. Uninsured Profile
10. Medically Underserved Profile
11. Health Opportunity Index Profile

1. Health Demographic Trend Profile

Trends in health-related demographics are instructive for anticipating changes in community health status. Changes in the size, age and racial/ethnic mix of the population can have a significant impact on overall health status, health needs and demand for local services.

As shown in *Exhibit 1*, as of 2012, the five-hospital joint study region included an estimated 551,990 people. The population is expected to increase to 570,953 by 2017. It is projected that population growth will occur in all age groups, including a 10% increase in seniors age 65+. Focusing on racial background, growth is projected for all populations, including a 7% increase in the Asian population. The Hispanic ethnicity population is also expected to grow by 5%.

Exhibit 1.
Health Demographic Trend Profile, 2010-2017

Indicator	2010 Census	2012 Estimate	2017 Projection	% Change 2012-2017
Total Population	546,480	551,990	570,953	3%
Population Density (per Sq Mile)	408.1	412.2	426.4	3%
Total Households	216,786	215,045	223,636	4%
Population by Age				
Children Age 0-17	130,246	125,767	127,010	1%
Adults Age 18-29	98,718	101,408	106,517	5%
Adults Age 30-44	98,986	98,762	101,235	3%
Adults Age 45-64	147,520	150,594	153,067	2%
Seniors Age 65+	71,010	75,459	83,124	10%
Population by Race/Ethnicity				
Asian	14,288	14,745	15,720	7%
Black/African American	175,235	176,357	179,742	2%
White	325,619	328,608	341,599	4%
Other or Multi-Race	31,338	32,280	33,892	5%
Hispanic Ethnicity ⁶	28,281	29,117	30,582	5%

Source: Community Health Solutions analysis of US Census data and estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

⁶ Classification of ethnicity; therefore, Hispanic individuals are also included in the race categories.

2. Health Demographic Snapshot Profile

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

Exhibit 2 presents a snapshot of key health-related demographics of the five-hospital joint study region. As of 2012, the five-hospital joint study region included an estimated 551,990 people. Focusing on population rates in the lower part of the Exhibit, compared to Virginia as a whole, the five-hospital joint study region is more densely populated; has a larger proportion of Black/African American residents, has generally lower income levels; and has a lower rate of adults age 25+ without a high school diploma. *Note: Maps 1-13 in Appendix 1-B show the geographic distribution of the population by zip code.*

**Exhibit 2.
Health Demographic Snapshot Profile, 2012**

Indicator		Five-Hospital Joint Study Region	Virginia
Population Counts			
Total	Population	551,990	8,154,815
Age	Children Age 0-17	125,767	1,857,225
	Adults Age 18-29	101,408	1,375,674
	Adults Age 30-44	98,762	1,642,637
	Adults Age 45-64	150,594	2,233,940
	Seniors Age 65+	75,459	1,045,339
Sex	Female	284,614	4,148,680
	Male	267,376	4,006,135
Race	Asian	14,745	459,660
	Black/African American	176,357	1,579,659
	White	328,608	5,573,480
	Other or Multi-Race	32,280	542,016
Ethnicity	Hispanic Ethnicity ⁷	29,117	655,986
Income	Low Income Households (Households with Income < \$25,000)	41,363	553,382
Education	Population Age 25+ Without a High School Diploma	30,817	675,228
Population Rates			
Total	Population Density (pop. per sq. mile)	412.2	202.2
Age	Children Age 0-17 pct. of Total Pop.	23%	23%
	Adults Age 18-29 pct. of Total Pop.	18%	17%
	Adults Age 30-44 pct. of Total Pop.	18%	20%
	Adults Age 45-64 pct. of Total Pop.	27%	27%
	Seniors Age 65+ pct. of Total Pop.	14%	13%
Sex	Female pct. of Total Pop.	52%	51%
	Male pct. of Total Pop.	48%	49%
Race	Asian pct. of Total Pop.	3%	6%
	Black/African American pct. of Total Pop.	32%	19%
	White pct. of Total Pop.	60%	68%
	Other or Multi-Race pct. of Total Pop.	6%	7%
Ethnicity	Hispanic Ethnicity pct. of Total Pop.	5%	8%
Income	Per Capita Income	\$29,707	\$34,307
	Median Household Income	\$58,614	\$64,118
	Low Income Households (Households with Income < \$25,000) pct. of Total Households	19%	18%
Education	Pop. Age 25+ Without a High School Diploma pct. of Total Pop. Age 25+	8%	12%

Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

⁷ Classification of ethnicity; therefore, Hispanic individuals are also included in the race categories.

3. Mortality Profile

Mortality is one of the most commonly cited community health indicators. As shown in *Exhibit 3*, in 2011, the five-hospital joint study region had 4,297 total deaths. The leading causes of death were malignant neoplasms (cancer) (1,046), heart disease (963) and cerebrovascular disease (stroke) (242). The age-adjusted death rates for the five-hospital joint study region were higher than the Virginia statewide rates overall, and for six of the top fourteen causes of death. *Note: Maps 14-17 in Appendix 1-B show the geographic distribution of deaths by zip code.*

**Exhibit 3.
Mortality Profile, 2011**

Indicator	Five-Hospital Joint Study Region	Virginia
Total Deaths		
Deaths by All Causes	4,297	60,325
Deaths by Top 14 Causes		
Malignant Neoplasms Deaths	1,046	14,261
Heart Disease Deaths	963	13,201
Cerebrovascular Diseases Deaths	242	3,327
Chronic Lower Respiratory Diseases Deaths	195	3,097
Unintentional Injury Deaths	183	2,726
Diabetes Mellitus Deaths	141	1,628
Alzheimer's Disease Deaths	109	1,800
Septicemia Deaths	90	1,372
Nephritis and Nephrosis Deaths	88	1,425
Influenza and Pneumonia Deaths	69	1,404
Suicide Deaths	67	1,052
Primary Hypertension and Renal Disease Deaths	53	569
Chronic Liver Disease Deaths	47	725
Pneumonitis Deaths	42	560
Age Adjusted Death Rates per 100,000 Population		
Total Deaths	743.4	735.8
Malignant Neoplasms Deaths	175.8	169.5
Heart Disease Deaths	166.2	161.3
Cerebrovascular Diseases Deaths	42.8	41.4
Chronic Lower Respiratory Diseases Deaths	34.4	38.4
Unintentional Injury Deaths	32.1	33.4
Diabetes Mellitus Deaths	23.5	19.4
Alzheimer's Disease Deaths	19.3	23.0
Septicemia Deaths	16.1	16.8
Nephritis and Nephrosis Deaths	15.0	17.6
Influenza and Pneumonia Deaths	12.4	17.4
Suicide Deaths	12.4	12.5
Primary Hypertension and Renal Disease Deaths	8.9	6.9
Chronic Liver Disease Deaths	7.9	8.1
Pneumonitis Deaths	7.5	7.0

Source: Virginia Department of Health death record data. See Appendix I-D. Data Sources for details.

4. Maternal and Infant Health Profile

Maternal and infant health indicators are another widely cited category of community health. As shown in *Exhibit 4*, in 2011, the five-hospital joint study region had 9,430 pregnancies, 6,964 total live births, and 64 infant deaths. Among the live births were 554 low weight births, 570 births without early prenatal care, 3,002 non-marital births and 531 births to teens. Compared to Virginia as a whole, the five-hospital joint study region had higher rates of non-marital births, teen pregnancies and five-year infant mortality. *Note: Maps 18-21 in Appendix 1-B show the geographic distribution of births by zip code.*

Exhibit 4
Maternal and Infant Health Profile, 2011

Indicator	Five-Hospital Joint Study Region	Virginia
Counts		
Total Pregnancies	9,430	132,429
Induced Terminations of Pregnancy	2,124	23,635
Natural Fetal Deaths	342	6,269
Total Live Births	6,964	102,525
Low Weight Births (under 2,500 grams / 5 lb. 8	554	8,204
Births Without Early Prenatal Care (No Prenatal Care in First 13 Weeks)	570	13,500
Non-Marital Births	3,002	36,390
Total Teenage (age 10-19) Pregnancies	845	9,630
Live Births to Teens Age 10-19	531	6,572
Live Births to Teens Age 18-19	390	4,807
Live Births to Teens Age 15-17	132	1,708
Live Births to Teens Age <15	9	57
Total Infant Deaths	64	685
Rates		
Live Birth Rate per 1,000 Population	12.7	12.7
Low Weight Births pct. of Total Live Births	8%	8%
Births Without Early Prenatal Care (No Prenatal Care in First 13 Weeks) pct. of Total Live Births	8%	13%
Non-Marital Births pct. of Total Live Births	43%	35%
Teenage (age 10-19) Pregnancy Rate per 1,000 Teenage Female Population	22.7	18.6
Five-Year Average Infant Mortality Rate per 1,000 Live Births 2007-2011	8.2	7.0

Source: Virginia Department of Health birth record data. See Appendix I-D. Data Sources for details.

5. Preventable Hospitalization Discharge Profile

Preventable hospitalization is a community health indicator that is receiving increasing interest as the health system focuses on patient-centered care and avoidance of unnecessary hospitalization. The Agency for Healthcare Research and Quality (AHRQ) defines a set of conditions (called Prevention Quality Indicators, or 'PQIs') for which hospitalization should be avoidable with proper outpatient health care.⁸ High rates of hospitalization for these conditions indicate potential gaps in access to quality outpatient services for community residents.

As shown in *Exhibit 5*, in 2011, residents of the five-hospital joint study region had 5,259 PQI hospital discharges from Virginia hospitals.⁹ The leading diagnoses for these discharges were congestive heart failure (1,345), bacterial pneumonia (937) and diabetes (889). The age-adjusted PQI discharge rates for the five-hospital joint study region were higher than the Virginia statewide rates for congestive heart failure, diabetes and angina primary PQI diagnoses. *Note: Map 22 in Appendix I-B shows the geographic distribution of PQI discharges by zip code.*

Exhibit 5.
Prevention Quality Indicator (PQI) Hospital Discharge Profile, 2011

Indicator	Five-Hospital Joint Study Region	Virginia
Total PQI Discharges³		
Total PQI Discharges by All Diagnoses	5,259	83,392
PQI Discharges by Diagnosis		
Congestive Heart Failure PQI Discharges	1,345	18,990
Bacterial Pneumonia PQI Discharges	937	16,221
Diabetes PQI Discharges	889	11,326
Urinary Tract Infection PQI Discharges	631	10,496
Chronic Obstructive Pulmonary Disease (COPD) PQI Discharges	547	11,439
Adult Asthma PQI Discharges	413	6,419
Hypertension PQI Discharges	186	2,898
Dehydration PQI Discharges	181	3,401
Perforated Appendix PQI Discharges	81	1,487
Angina PQI Discharges	49	715
Age Adjusted PQI Discharge Rates per 100,000 Population		
All Diagnoses	923.9	1,006.8
Congestive Heart Failure	235.6	233.0
Bacterial Pneumonia	164.7	197.4
Diabetes	157.4	133.2
Urinary Tract Infection	111.1	131.0
Chronic Obstructive Pulmonary Disease (COPD)	92.3	134.2
Adult Asthma	74.6	75.3
Hypertension	34.2	34.8
Dehydration	31.1	41.4
Perforated Appendix	14.4	18.1
Angina	8.4	8.3

Source: Community Health Solutions analysis of hospital discharge data from Virginia Health Information, Inc. and estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

⁸ The PQI definitions are detailed in their specification of ICD-9 diagnosis codes and procedure codes. Not every hospital admission for congestive heart failure, bacterial pneumonia, etc. is included in the PQI definition; only those meeting the detailed specifications. Low birth weight is one of the PQI indicators, but for the purpose of this report, low birth weight is included in the Maternal and Infant Health Profile. Also, there are three diabetes-related PQI indicators which have been combined into one for the report. For more information, visit the AHRQ website at www.qualityindicators.ahrq.gov/pqi_overview.htm

⁹ Data include discharges for Virginia residents from Virginia community hospitals reporting to Virginia Health Information, Inc. These data do not include discharges from state behavioral health facilities or federal (military) facilities. Data reported are based on the primary diagnosis.

6. Behavioral Health Hospitalization Discharge Profile

Behavioral health (BH) hospitalizations provide another important indicator of community health status. As show in *Exhibit 6*, in 2011, residents of the five-hospital joint study region had 3,651 hospital discharges from Virginia hospitals for behavioral health conditions.¹⁰ The leading diagnoses for these discharges were affective psychoses (1,241), general symptoms (827) and schizophrenic disorders (553). The age-adjusted BH discharge rates for the five-hospital joint study region were higher than the statewide for general symptoms and depressive disorders, not elsewhere classified primary BH diagnoses. *Note: Map 23 in Appendix I-B shows the geographic distribution of BH discharges by zip code.*

Exhibit 6.
Behavioral Health Hospital Discharge Profile, 2011

Indicator	Five-Hospital Joint Study Region	Virginia
BH Discharges⁵		
Total BH Discharges by All Diagnoses	3,651	64,892
BH Discharges by Diagnosis		
Affective Psychoses ¹¹	1,241	27,277
General Symptoms ¹²	827	11,135
Schizophrenic Disorders	553	8,042
Depressive Disorder, Not Elsewhere Classified	213	2,785
Alcoholic Psychoses	176	3,283
Other Nonorganic Psychoses	124	2,148
Adjustment reaction	87	2,123
Neurotic Disorders	87	1,351
Alcoholic Dependence Syndrome	86	2,161
Drug Psychoses	78	1,321
Age Adjusted BH Discharge Rates per 100,000 Population		
All Diagnoses	667.2	786.8
Affective Psychoses	230.8	332.7
General Symptoms	147.7	136.4
Schizophrenic Disorders	100.3	95.0
Depressive Disorder, Not Elsewhere Classified	39.3	34.2
Alcoholic Psychoses	31.4	38.0
Other Nonorganic Psychoses	22.2	26.2
Neurotic Disorders	16.1	16.4
Adjustment Reaction	16.0	26.2
Alcoholic Dependence Syndrome	15.7	25.2
Drug Psychoses	14.1	16.0

Source: Community Health Solutions analysis of hospital discharge data from Virginia Health Information, Inc. and estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

¹⁰ Data include discharges for Virginia residents from Virginia community hospitals reporting to Virginia Health Information, Inc. These data do not include discharges from state behavioral health facilities or federal (military) facilities. Data reported are based on the primary diagnosis.

¹¹ Includes major depressive, bipolar affective and manic depressive disorders.

¹² This diagnosis includes symptoms, signs, abnormal results of laboratory or other investigative procedures, and ill-defined conditions regarding which no diagnosis classifiable elsewhere is recorded.

7. Adult Health Risk Factor Profile

This section examines health risks for adults age 18+. Prevalence estimates of health risks, chronic disease and health status can be useful in developing prevention and improvement efforts. *Exhibit 7* shows estimates indicating that substantial numbers of adults in the five-hospital joint study region have health risks related to nutrition, physical inactivity, weight, tobacco and alcohol. In addition, substantial numbers of adults have chronic conditions such as high blood pressure, arthritis, high cholesterol, diabetes and asthma. *Note: Maps 24-27 in Appendix I-B show the geographic distribution of selected adult health risks by zip code.*

**Exhibit 7.
Adult Health Risk Factor Profile (Estimates), 2012**

Indicator	Five-Hospital Joint Study Region Estimates (Count)	Five-Hospital Joint Study Region Estimates (Percent)
Estimated Adults age 18+	426,223	100%
Risk Factors		
Less than Five Servings of Fruits and Vegetables Per Day	339,058	80%
Overweight or Obese ¹³	267,414	63%
Not Meeting Recommendations for Physical Activity in the Past 30 Days	212,566	50%
At Risk for Binge Drinking (males having five or more drinks on one occasion, females having four or more drinks on one occasion)	78,631	18%
Smoker	70,123	16%
Chronic Conditions		
High Cholesterol (was checked, and told by a doctor or other health professional it was high)	152,621	36%
High Blood Pressure (told by a doctor or other health professional)	124,900	29%
Arthritis (told by a doctor or other health professional)	101,868	24%
Diabetes (told by a doctor or other health professional)	44,767	11%
Asthma (told by a doctor or other health professional)	30,816	7%
General Health Status		
Limited in any Activities because of Physical, Mental or Emotional Problems	81,462	19%
Fair or Poor Health Status	67,604	16%

Source: Estimates based on Community Health Solutions analysis of Virginia Behavioral Risk Factor Surveillance System data and estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

¹³ According to the CDC, for adults 20 years old and older, BMI is interpreted using standard weight status categories that are the same for all ages and for both men and women. Overweight is defined as a BMI between 25.0 and 29.9. Obesity is defined as a BMI 30.0 and above. For more information: http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html#Interpreted

8. Youth Health Risk Factor Profile

This section examines selected health risks for youth age 14-19. These risks have received increasing attention as the population of American children have become more sedentary, more prone to unhealthy eating and more likely to develop unhealthy body weight. The long-term implications of these trends are serious, as these factors place children at higher risk for chronic disease both now and in adulthood.

Exhibit 8 shows estimates indicating that substantial numbers of youth in the five-hospital joint study region have health risks related to nutrition, weight, physical activity, tobacco, alcohol and mental health. *Note: Maps 28-29 in Appendix I-B shows the geographic distribution of selected youth health risks by zip code.*

Exhibit 8.
Youth Health Risk Factor Profile (Estimates), 2012

Indicator	Five-Hospital Joint Study Region Estimates (Count)	Five-Hospital Joint Study Region Estimates (Percent)
Estimated Youth age 14-19	46,377	100%
Less than the Recommended Intake of Vegetables	41,128	89%
Less than the Recommended Intake of Fruit	39,703	86%
Overweight or Obese ¹⁴	13,948	30%
Have at least One Drink of Alcohol at least One Day in the Past 30 Days	13,253	29%
Feel Sad or Hopeless (almost every day for two or more weeks in a row so that they stopped doing some usual activities)	11,535	25%
Used Tobacco in the Past 30 Days	8,969	19%
Not Meeting Recommendations for Physical Activity in the Past Week	7,296	16%

Source: Estimates based on Community Health Solutions analysis of Virginia Youth Risk Behavioral Surveillance System data and estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

¹⁴ For children and adolescents (aged 2–19 years), the BMI value is plotted on the CDC growth charts to determine the corresponding BMI-for-age percentile. Overweight is defined as a BMI at or above the 85th percentile and lower than the 95th percentile. Obesity is defined as a BMI at or above the 95th percentile for children of the same age and sex. For more information: http://www.cdc.gov/healthyweight/assessing/bmi/childrens_BMI/about_childrens_BMI.html

9. Uninsured Profile

Decades of research show that health coverage matters when it comes to overall health status, access to health care, quality of life, school and work productivity, and even mortality. *Exhibit 9* shows the estimated number of uninsured individuals, by income as a percent of the federal poverty level (FPL), in the five-hospital joint study region as of 2012.¹⁵ An estimated 63,166 (13%) nonelderly residents of the five-hospital joint study region were uninsured at any point in time in 2012. This included an estimated 9,916 children and 53,250 adults. *Note: Maps 30-31 in Appendix I-B show the geographic distribution of the uninsured population by zip code.*

Exhibit 9.
Uninsured Profile (Estimates), 2012

Indicator	Five-Hospital Joint Study Region
Estimated Uninsured Counts	
Uninsured Nonelderly Age 0-64	63,166
Uninsured Children Age 0-18	9,916
Uninsured Children <100% FPL	2,910
Uninsured Children 100-200% FPL	3,780
Uninsured Children 201-300% FPL	1,560
Uninsured Children 301%+ FPL	1,666
Uninsured Adults Age 19-64	53,250
Uninsured Adults <100% FPL	24,162
Uninsured Adults 100-200% FPL	14,521
Uninsured Adults 201-300% FPL	8,755
Uninsured Adults 301%+ FPL	5,812
Estimated Uninsured Rates	
Uninsured Nonelderly Percent	13%
Uninsured Children Percent	7%
Uninsured Adults Percent	16%

Source: Community Health Solutions estimates based on Community Health Solutions analysis of Profile of the Uninsured report produced for Virginia Health Care Foundation by the Urban Institute and estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

¹⁵ For more information, please see: <http://aspe.hhs.gov/poverty/12poverty.shtml>

10. Medically Underserved Profile

Medically Underserved Areas (MUAs) and Medically Underserved Populations (MUPs) are designated by the U.S. Health Resources and Services Administration as being at risk for health care access problems. The designations are based on several factors including primary care provider supply, infant mortality, prevalence of poverty and the prevalence of seniors age 65+.

As shown in *Exhibit 10*, eight of the nine localities in the five-hospital joint study region are fully or partially designated as MUA/MUPs. For a more detailed description, visit the U.S. Health Resources and Service Administration designation webpage at <http://muafind.hrsa.gov/>.

**Exhibit 10.
Medically Underserved Area/Populations Profile**

Locality	MUA/MUP Designation ¹⁶	Census Tracts
Hampton, City of	Partial	22 of 33 Census Tracts
Isle of Wight County	Full	8 of 8 Census Tracts
James City County	Partial	6 of 11 Census Tracts
King William County	Full	4 of 4 Census Tracts
New Kent County	Full	3 of 3 Census Tracts
Newport News, City of	Partial	17 of 44 Census Tracts
Poquoson, City of	None	---
Williamsburg, City of	Partial	3 of 3 Census Tracts
York County	Partial	3 of 14 Census Tracts

Source: Community Health Solutions analysis of U.S. Health Resources and Services Administration data.

¹⁶ James City County and City of Williamsburg designation is an MUP (Medically Underserved Population) designation, indicating that the low income population of specific census tracts is designated as underserved. York County has both an MUP designation for the low income population of specific census tracts and an MUA (Medically Underserved Area) designation for a specific census tract.

11. Health Opportunity Index

The preceding community indicator profiles presented a broader view of the five-hospital study region, with an emphasis on the magnitude of need across the nine localities. The profiles provide important insights about the health of five-hospital joint study region residents. But they do not fully portray the diversity of needs that exist within and across the cities and counties of the five-hospital joint study region.

This section provides a closer look at the five-hospital joint study region through the lens of the *Health Opportunity Index*. The Health Opportunity Index (HOI) was developed by the Virginia Department of Health (VDH) to identify those geographic areas and populations that are most vulnerable to adverse health outcomes¹⁷. The HOI is produced at the census-tract level, making it possible to identify pockets of vulnerability within the boundaries of larger cities and counties. When we apply the HOI to the five-hospital joint study region, we find some of the most vulnerable census tracts in the Commonwealth of Virginia.

About the Health Opportunity Index

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

1. *Affordability*. The affordability indicator measures the proportion of income households spend on housing and transportation. A higher proportion spent on these items indicates a lower proportion available for other needs including health.
2. *Education*. The education indicator measures the overall level of educational attainment achieved by the adult population. Lower levels of education are strongly associated with poorer health status.
3. *Environment*. The environmental indicator measured the level of air pollution based on data from the Environmental Protection Agency. The higher the indicator, the greater the exposure to environmental conditions that may result in adverse health outcomes.
4. *Income Diversity*. The income diversity indicator measures the distribution of household income within a census tract. When income diversity is low and average income is low, this signifies a high concentration of low income individuals who may be at risk for poor health status.
5. *Job Participation*. The job participation indicator measures the percent of population age 16 through 64 who are either unemployed or seeking work. The higher the job participation rate, the greater the opportunity for employment, income, and better health status.
6. *Local Commute of Workers*. The local commute indicator measures the inflow of workers to an area compared to the outflow from that same area. As with the job participation indicator, the higher the indicator, the greater the opportunity for local employment, income, and better health status.
7. *Population Churning*. The population churning indicator measures the sum number of in- and out-migrants of an area in relation to the total population. High levels of population churn can influence population health measures depending on the types of people that are moving in or out of the census tract.
8. *Population Density*. The population density indicator measures the concentration of people per square mile within a census tract. It is often used as a measure of rural and urban populations, and can be helpful for identifying special health needs of communities that are especially sparsely populated or crowded.
9. *Racial Diversity*. The racial diversity indicator measures the racial distribution of the population within a census tract. According to research cited by VDH, low diversity may be associated with poor health when the area is predominantly non-White.

¹⁷ Virginia Department of Health's *Virginia Health Equity Report 2012*. <http://www.vdh.virginia.gov/OMHHE/2012report.htm>

10. *Townsend Index*. The Townsend Index measures economic deprivation. It is based on four equally weighted variables including the percent unemployed, the percent of private households that do not possess a car or van, the percent of private households that are not owner-occupied, and the percent of private households that are over-crowded (more than one person per room). The higher the Townsend Index, the higher the economic deprivation, and the higher the risk of adverse health.

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

The Health Opportunity Index in the Five-Hospital Joint Study Region

VDH provides Health Opportunity Index scores for 105 census tracts in the five-hospital joint study region. *Exhibit 11A* provides a summary of the statewide rankings for five-hospital joint study region census tracts. As illustrated in *Exhibit 11A*, 18 five-hospital joint study region census tracts are ranked in the top quintile (top twenty percent) statewide on the Health Opportunity Index. Another 19 census tracts are ranked in the second quintile. These rankings reflect the high level of health opportunity in many parts of the five-hospital joint study region.

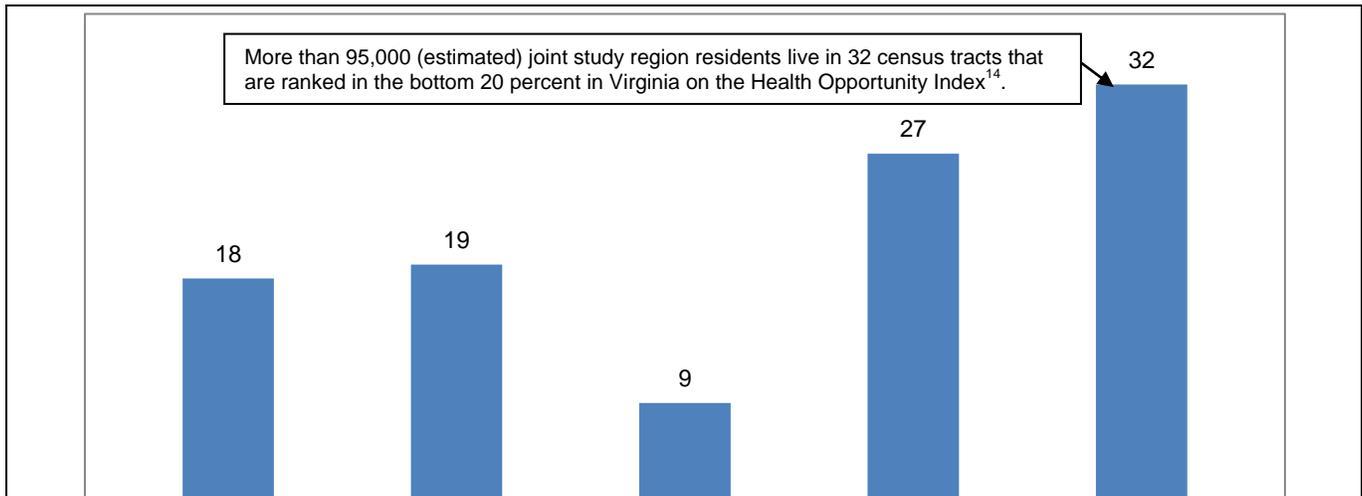
At the opposite end of the spectrum, 27 census tracts are ranked in the fourth quintile, and 32 census tracts are ranked in the 5th (lowest) quintile statewide. These rankings indicate that substantial numbers of five-hospital joint study region residents are vulnerable to adverse health outcomes based on social determinants of health. To put this in perspective, more than 95,000 residents live in the 32 census tracts ranked in the bottom 20 percent statewide¹⁸. This dynamic is easily masked by analyses focused solely on city- and county-level indicators of health.

Identifying Census Tracts with Low Scores on the Health Opportunity Index

Exhibit 11B lists the specific census tracts that ranked in the bottom quintile statewide on the Health Opportunity Index. As shown, these census tracts can be found in the cities of Hampton and Newport News; and York County. (Please note that these census tracts are based on 2000 census boundaries). *Note: On the following page, maps in Exhibit 11B and Exhibit 11C show all joint study region census tracts by HOI quintile. Additionally, Appendix I-C provides a listing of all joint study region census tracts by HOI score, rank and quintile.*

Exhibit 11A.

Five-Hospital Joint Study Region Census Tracts by Statewide Ranking on Health Opportunity Index, 2012



Virginia Department of Health's Virginia Health Equity Report, 2012. See Appendix I-D. Data Sources for details.

¹⁸ 2012 population estimates from Alteryx, Inc. It is important to note these estimates are provided for census tracts with 2010 boundaries; some 2010 census boundaries differ from 2000 census boundaries.

Exhibit 11B. Health Opportunity Index by Census Tract, Full View, 2012

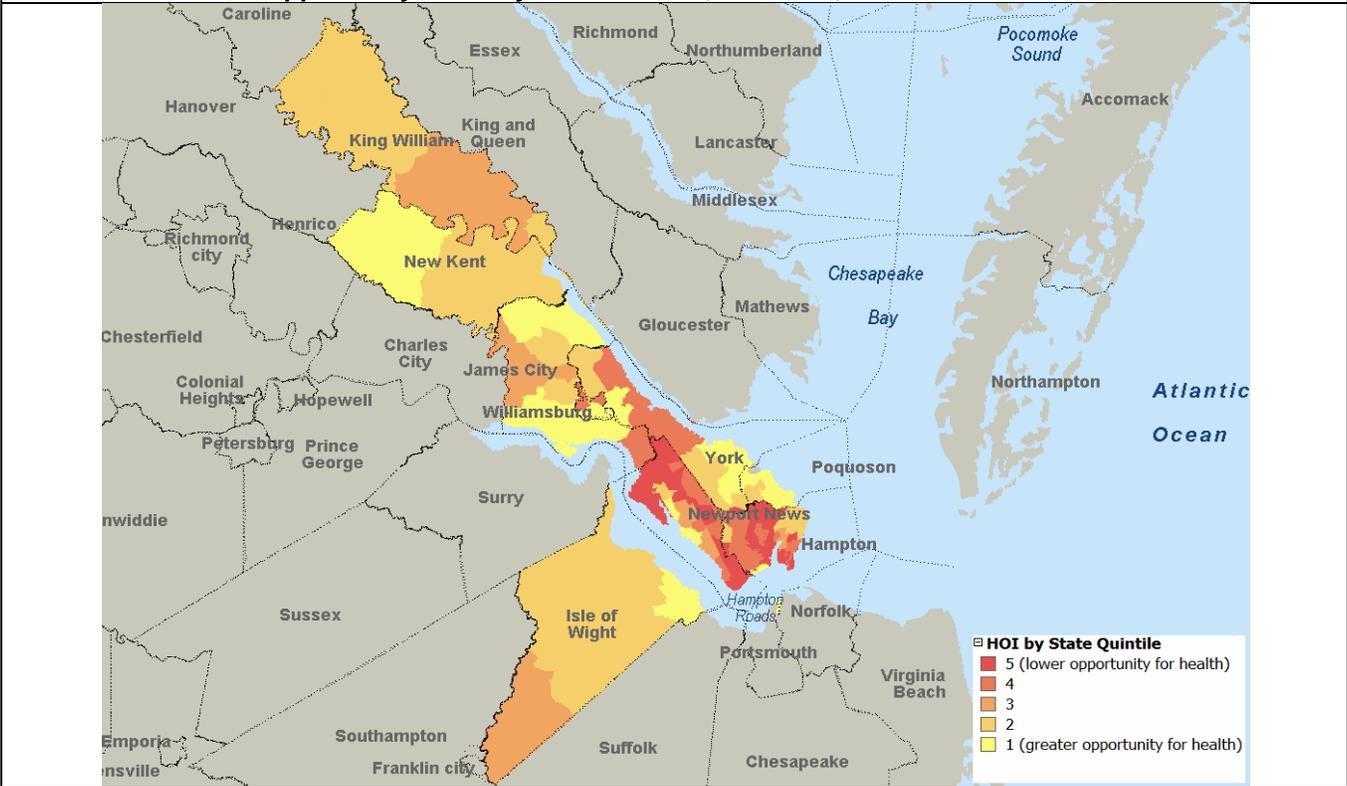
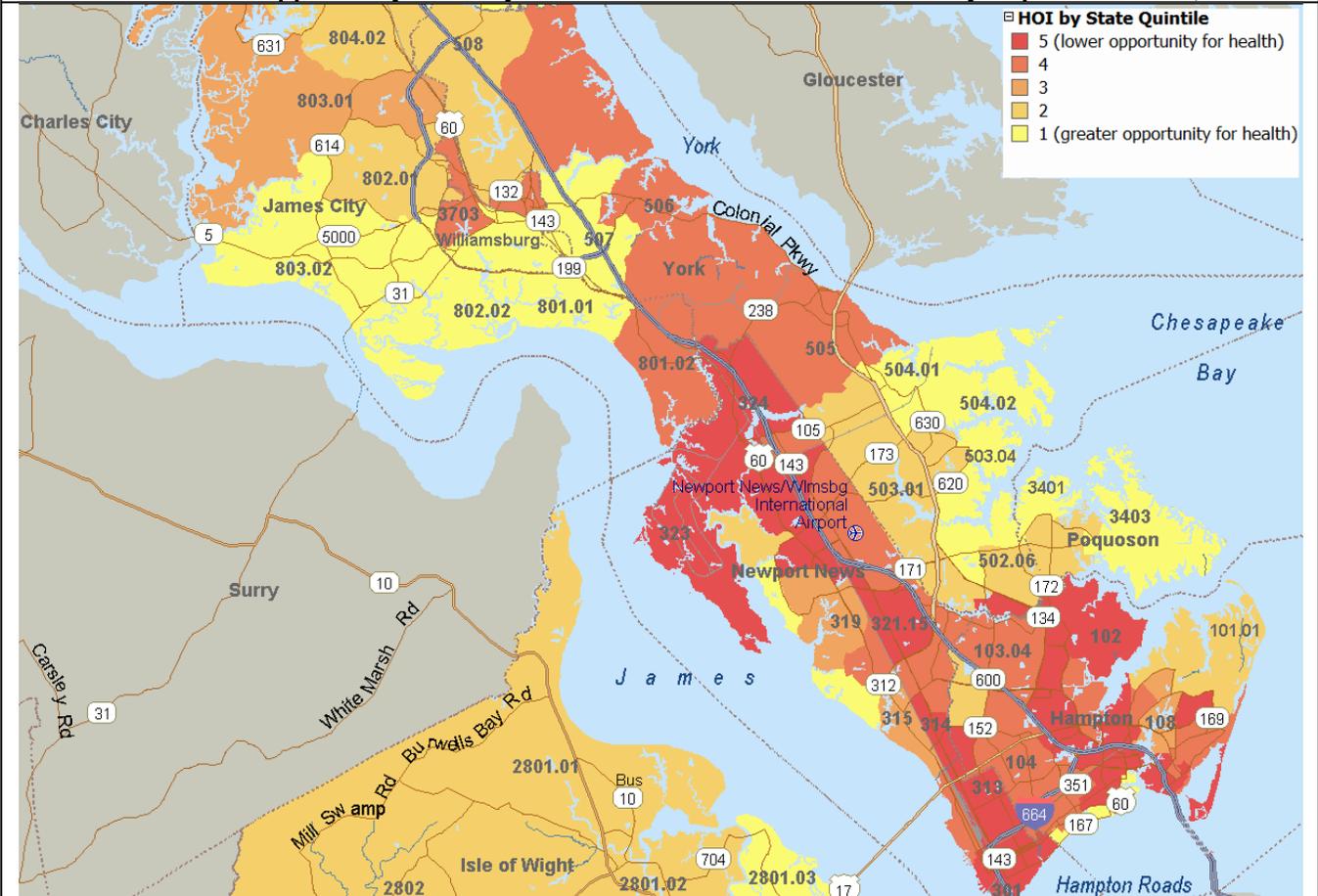


Exhibit 11C. Health Opportunity Index by Census Tract- Zoom View of Densely Populated Areas, 2012



Note: These census tracts are based on Year 2000 US Census boundaries. Source: Virginia Department of Health's Virginia Health Equity Report, 2012. See Appendix I-D. Data Sources for details.

APPENDIX I-A. Community Insight Profile-Additional Ideas and Suggestions for Improving Community Health

Survey respondents were given the option to submit additional ideas and suggestions for improving community health. The open-ended responses are listed below.

Response #	
1	<ul style="list-style-type: none"> • Dental clinics needed for dental care • Psych beds needed in area-additional. Also need geriatric-psych beds in house at Riverside Psych floor. • Have in house ultrasound. Now have to expose patients for unwanted radiation through CT to get diagnosis of gall bladder disease, appendicitis in kids, etc. exposure [is] associated with increasing cancer in kids with early CT's. • Transfer center set up for appointments for all specialties, not just cardiology and orthopedics. • Have pharmacy representative in Emergency Department to sort through medical record to decrease errors and decrease hospital stays. • More memory units for dental patients • Identify Emergency Department frequent patients- Identify etiology and arrange outpatient services • Emergency Department educational methods for obesity, DM, HTN, CVA, CAD, educational books to hand out.
2	Actively encourage every employer and elected official in this community to demonstrate their commitment to employee well-being and a healthy life-style for all its citizens.
3	As RHS moves to becoming an ACO, we should look for ways to utilize the Wellness Centers to effectively help participants manage their health status through preventative services.
4	As the population age increases I think the burden on health care services will change and increase. Preparing for this now may avoid problems in the future.
5	Be a full partner with Avalon in establishing a strong system of response to rape, sexual assault and domestic violence. Our clients are college students and younger, as well as the elderly.
6	Concentrating on obesity prevention, helping the elderly that have multiple system disorders, early recognition
7	Continue Riverside Health System's established history of embracing the nursing profession, and consider
8	<ul style="list-style-type: none"> • Continue with community integration. • Care coordination services. • Palliative care services
9	Enhancing the ability to interface electronic medical records with other health systems in the area to extend the ability to communicate health information of patients that may be seen in any of the health systems in the region and clinics like LFC. Transparency of information to improve patient care will enhance efficiency and reduce duplication of services, including patient safety.
10	Ensure every RHS team member has access to resources available to assist in the execution of the mission. Every team member be aware of the RHS's language program, language access, and best practices orchestrated to better bridge the communication and cultural gap with non-English speaking patients.
11	Happy to have you in Williamsburg and look forward to your role growing.
12	I believe the ratio of patients to nurses needs to be decreased. There is a decrease in the quantity and quality during the past decade that will only be changed with a large direct care staff.
13	I have lived in Newport News for my entire life. Over those 54 years, I have utilized Riverside for both my medical needs and my family's medical needs. I have witnessed first-hand the outstanding job that Riverside and its employees provide the community and their patients. I feel strongly that Riverside is a forward thinking organization that is always on the cutting edge of services/procedures not only for their community and patients but for their employees also. This is prominent in the advancement of medical buildings and the services that are provided within. I commend the organization and I would not hesitate for one second to utilize your services.

Continued on next page

APPENDIX I-A. Community Insight Profile-Additional Ideas and Suggestions for Improving Community Health (continued)

14	I recommend more internal advertising and cross referrals of services that meet the health needs of our community. For example, we are no longer allowed to advertise Riverside's DIETCISE Weight Loss Program on the RRMC marquee which hinders our ability to get the word out to customers in our area. Using various cost effective methods of advertising throughout the health system to communicate valuable preventative and treatment services is key to improving the health and well-being of our community.
15	I would like to have occupational health services at the new Doctor's Hospital. Post offer physicals, drug screens, hearing tests, and injury follow-up to be accessible and conveniently located for businesses in Williamsburg and James City County.
16	I would welcome the opportunity to discuss exploring opportunities for Riverside to partner with the EMS providers to support community education with a goal of creating a healthier community; reducing emergent transports to the ED and in creating a community triage team with the ability to treat and release patients that can receive appropriate care in the home setting.
17	It has been my experience that not all of the care is created equal. Our family has had wonderful internists and ones not as interested and good. If you are well enough to be your own advocate you are fine, but older, sicker people really need a private nurse as the care is hit or miss. Most of the nurses are caring and lovely, just over worked. Your outpatient services are great, and your system is organized and run in a timely fashion. Your cancer unit is wonderful.
18	Maximize sharing of information among all Riverside facilities so that when a patient updates information with one Riverside provider, that information is updated with all Riverside facilities and providers. Strong inter-facility information sharing increases the consumer's trust in the organization as a whole.
19	<ul style="list-style-type: none"> • More effectively addressing the issues named above • Better supervision and control of services and care offered to patients in the hospital and emergency rooms.
20	One of the issues I notice among people in my community is that they do not have a primary care physician. They rely on the local Med Express when they have an issue. This prevents them from developing a long term relationship with a doctor that could help spot larger issues earlier in the person's life. I am not sure if there is a shortage on PCPs or if it is a convenience issue that young people need to learn how to deal with. However, it is something that I believe could be addressed in our community.
21	Our two greatest needs are to care for the homeless and at-risk homeless and aging population. My selection of answers, on the earlier questions, is incomplete because I am not adequately conversant with the specific needs. However, those are the groups that will need increasing care into the future. Beyond that, I believe our specific medical needs will resemble other communities.
22	Provide the region's first and only comprehensive prostate cancer service for men of highest risk of having prostate cancer (men of African descent and me with a first degree family history of prostate cancer). This targeted service should include prevention to cure or death. I would be very pleased to work with whoever is assigned this task. Also, training of physicians, physician assistants, and nurse practitioners on how to treat men at highest risk for developing prostate cancer would address a major community need.
23	<ul style="list-style-type: none"> • Riverside has been a great supporter of the Community Free Clinics and for the vulnerable that need services. • There is a need to enhance the services to minimize the continued use of the Emergency Room for primary medical and dental care. • Behavioral health is a huge need in the underserved communities.
24	Riverside has done a fine job of providing service. My main observation has been in the people-relational components of the services. As is true in many organizations, patients/customers could benefit from more humane and thoughtful interactions, which does speak to your mission.
25	Riverside Health System is a vital part of the Peninsula community. Outreach to the business and non-profit community assists with marketing of available services for both employees and the population at large. A forum where these topics and potential solutions can be discussed may open up additional channels of community relations between the health system and established businesses. Joint discussions with health providers, governmental entities (example - EDA), business and non-profits might prove fruitful in addressing these community health concerns.
26	Riverside provides excellent medical services through its acute and specialty hospitals, as well as its physicians. Nursing homes and related rehabilitation facilities are not as robust in reflecting the Riverside commitment to its mission. Those facilities are good, but there is room for improvement.

Continued on next page

APPENDIX I-A. Community Insight Profile-Additional Ideas and Suggestions for Improving Community Health (continued)

27	Services in the poorest communities with a physical structure present, e.g. Doc in the box or small PACE services.
28	Strive to see patients at the scheduled appointment time. When it's not possible, the co-pay should be waived. Patients who show up for their appointments on time should be compensated if their schedule is altered because the doctor is running behind.
29	The abuse of the 911 system for a ride to your facilities is an ongoing issue. Addressing transportation issues for access to your facilities would be a plus for both agencies. At home care for the elderly is very hit and miss. Many people do not [know] what options and programs that are available to assist them. The lower socioeconomic areas do not always see the PSA's on TV or hear them on the radio. Churches and community groups within these areas tend to have a greater impact on getting the word out.
30	The communication and support of the emergency staff at Drs. Hospital has been terrific.
31	Unsure. Major barrier is transportation in IOW. Mental Health services for those needing but not wanting services is also an issue which contributes to the homeless population.
32	Visionary leadership
33	We read about so many instances where the elderly are receiving health-care services and are victims of abuse. We need to have a caring, trusting organization that provides these services so that family members can feel confident that their loved ones are being treated with respect and dignity.

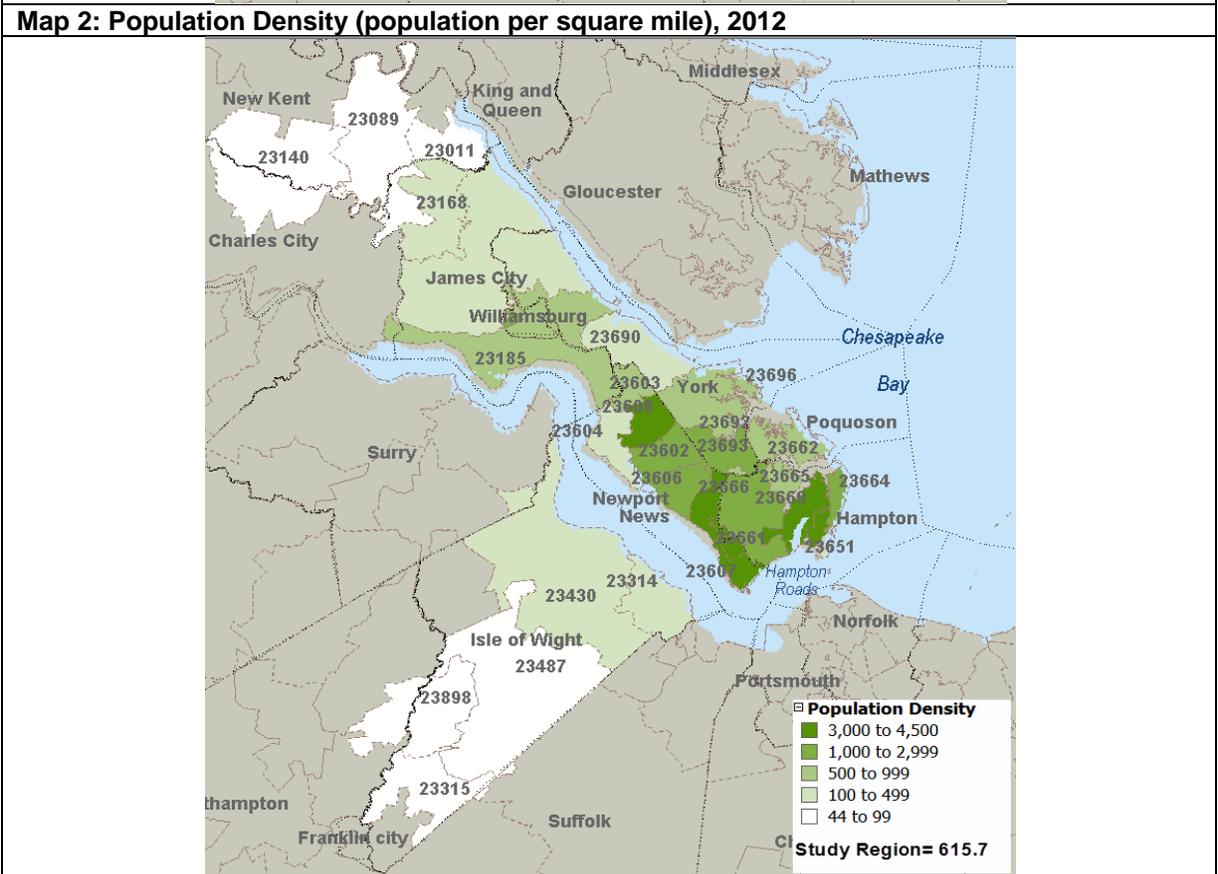
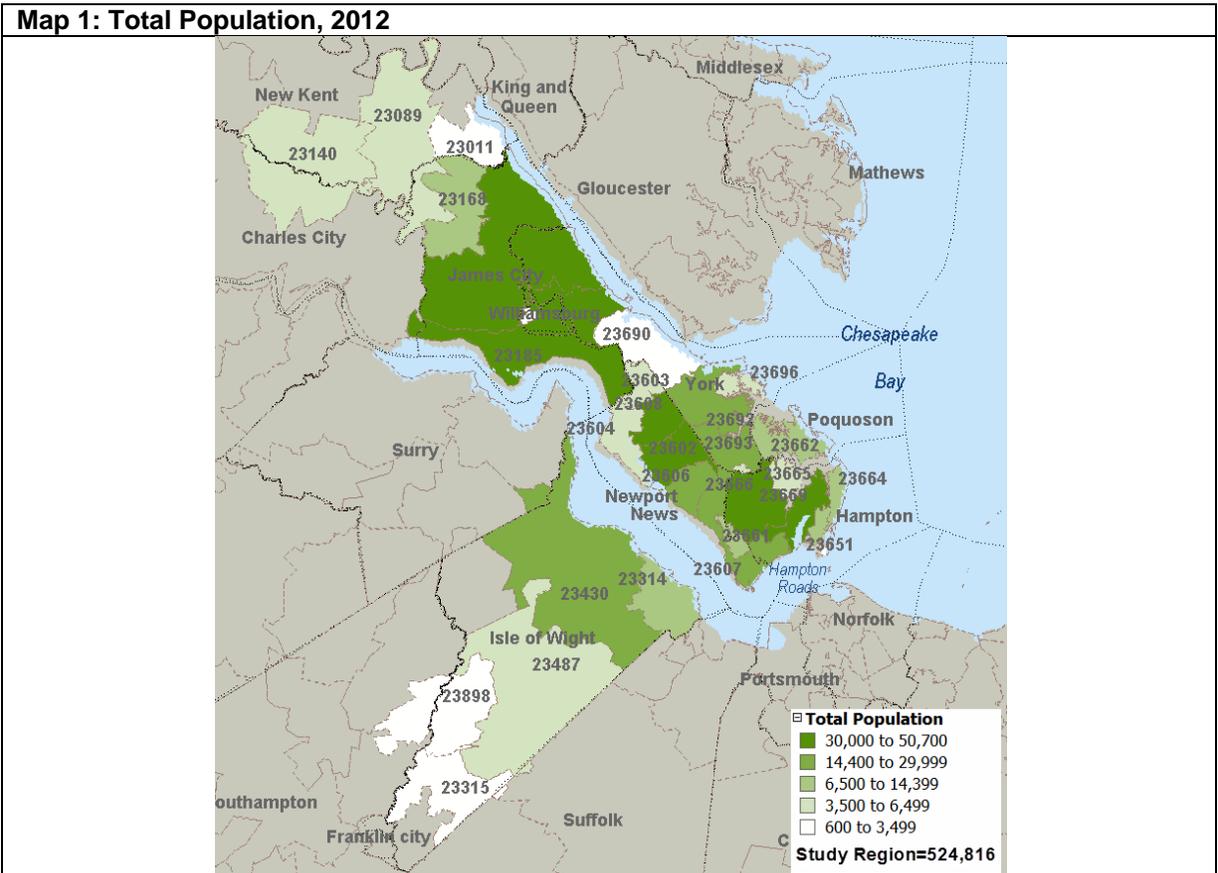
APPENDIX I-B. Zip Code-Level Maps for the Five-Hospital Joint Study Region

The maps in this section illustrate the geographic distribution of the five-hospital joint study region population on key demographic and health indicators at the zip code-level. The results can also be used alongside the Community Insight Survey and the Community Indicator Profile to help inform plans for community health initiatives. The underlying data for these maps are provided in a separate Microsoft Excel file. The maps in this section include the following for 2011/2012:

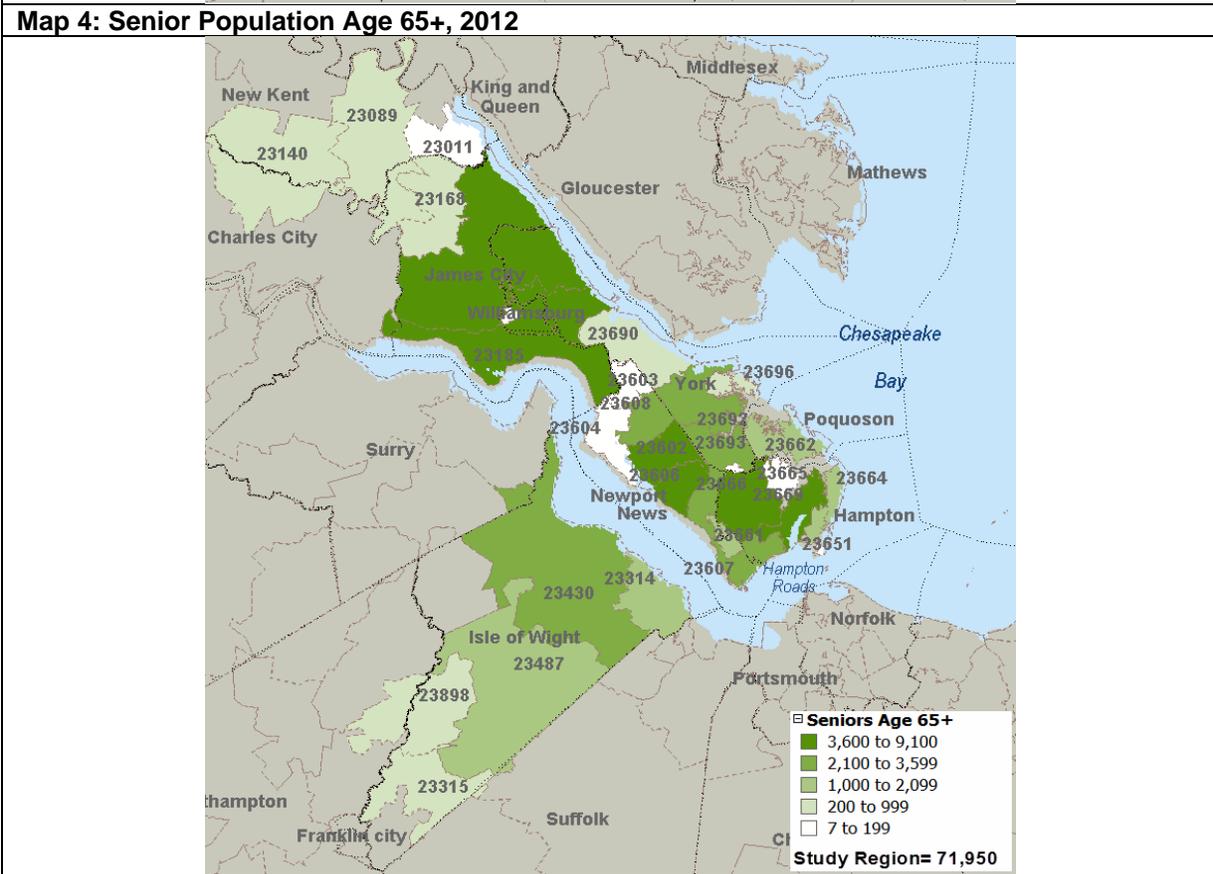
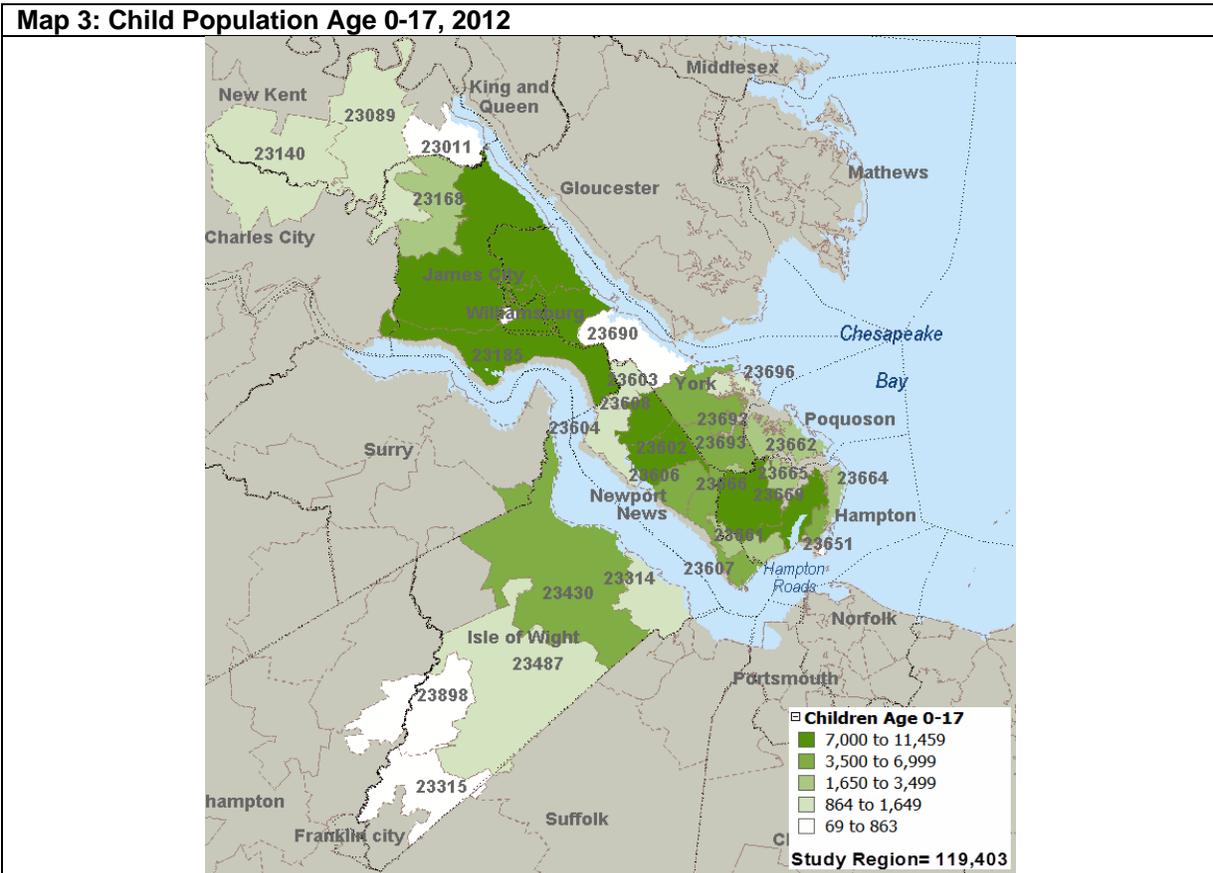
1. Total Population, 2012	17. Cerebrovascular Disease (Stroke) Deaths, 2011
2. Population Density, 2012	18. Total Live Births, 2011
3. Child Population Age 0-17, 2012	19. Low Weight Births, 2011
4. Senior Population Age 65+, 2012	20. Births Without Early Prenatal Care (No Prenatal Care in the First 13 Weeks), 2011
5. Asian Population, 2012	21. Births to Teen Mothers Under Age 18, 2011
6. Black/African American Population, 2012	22. Prevention Quality Indicator (PQI) Hospital Discharges, 2011
7. White Population, 2012	23. Behavioral Health (BH) Hospital Discharges, 2011
8. Other or Multi-Race Population, 2012	24. Estimated Adults Age 18+ Overweight or Obese, 2012
9. Hispanic Ethnicity Population, 2012	25. Estimated Adult Age 18+ Smokers, 2012
10. Per Capita Income, 2012	26. Estimated Adults Age 18+ with Diabetes, 2012
11. Median Household Income, 2012	27. Estimated Adults Age 18+ with High Blood Pressure, 2012
12. Low Income Households (Households with Income <\$25,000), 2012	28. Estimated Youth Age 14-19 Overweight or Obese, 2012
13. Population Age 25+ Without a High School Diploma, 2012	29. Estimated Youth Age 14-19 who had No Physical Activity in the Past Week, 2012
14. Total Deaths, 2011	30. Estimated Uninsured Children Age 0-18, 2012
15. Malignant Neoplasm (Cancer) Deaths, 2011	31. Estimated Uninsured Adults Age 19-64, 2012
16. Heart Disease Deaths, 2011	

****Technical Notes****

1. The zip code-level maps focus on the five-hospital joint study region of 32 zip codes, as identified by the Riverside Health System Hospitals, most of which fall within the counties of Isle of Wight, James City, New Kent, and York; plus the cities of Hampton, Newport News, Poquoson and Williamsburg. Because zip code boundaries do not automatically align with city/county boundaries, there are some zip codes that extend beyond the city/county boundaries. Additionally, not all zip codes in each of the nine locality were identified by RHS as part of the five-hospital joint study region. Consequently, the combined zip code-level totals for population, deaths, births, hospital discharges, etc. differ from the five-hospital joint study region totals listed throughout the body of the report.
2. With the exception of population density, per capita income and median household income, the maps show counts rather than rates. Rates are not mapped at the zip code-level because in some zip codes the population is too small to support rate-based comparisons.
3. Data are presented in quintiles (categorized in groups of five).
4. Gray shading indicates either zip codes not included in the five-hospital joint study region, or zero values for zip codes that are included in the five -hospital study region. Five-hospital study joint study region zip codes with zero values are noted.

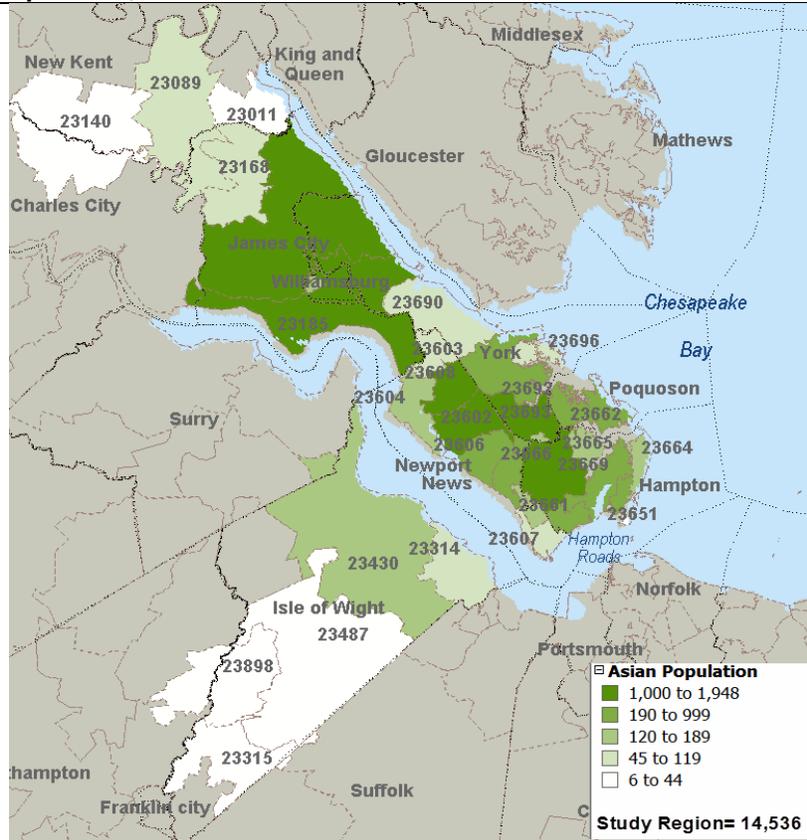


Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

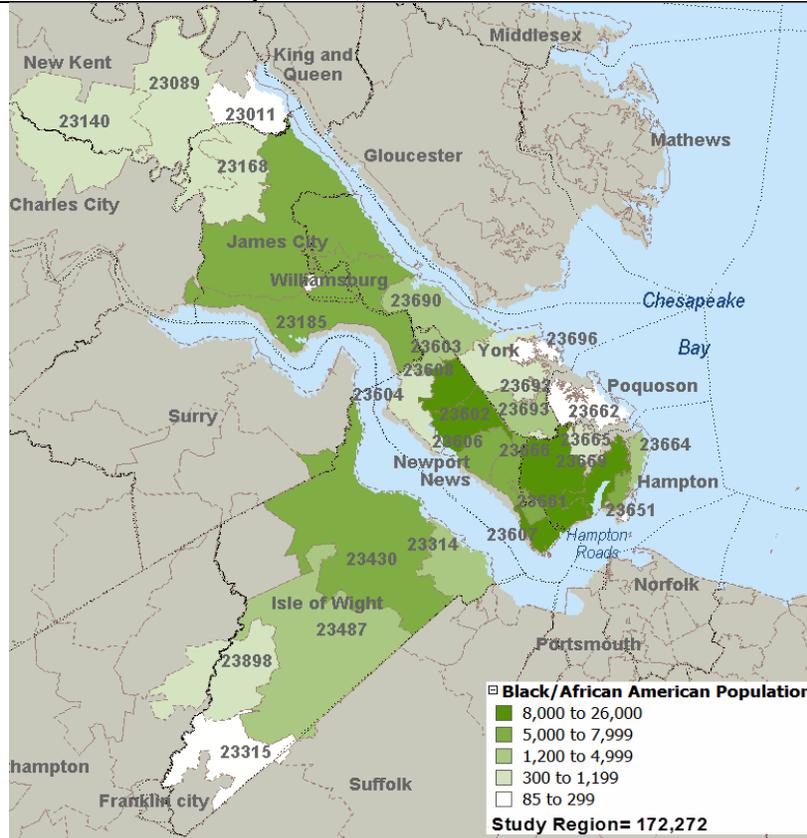


Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 5: Asian Population, 2012

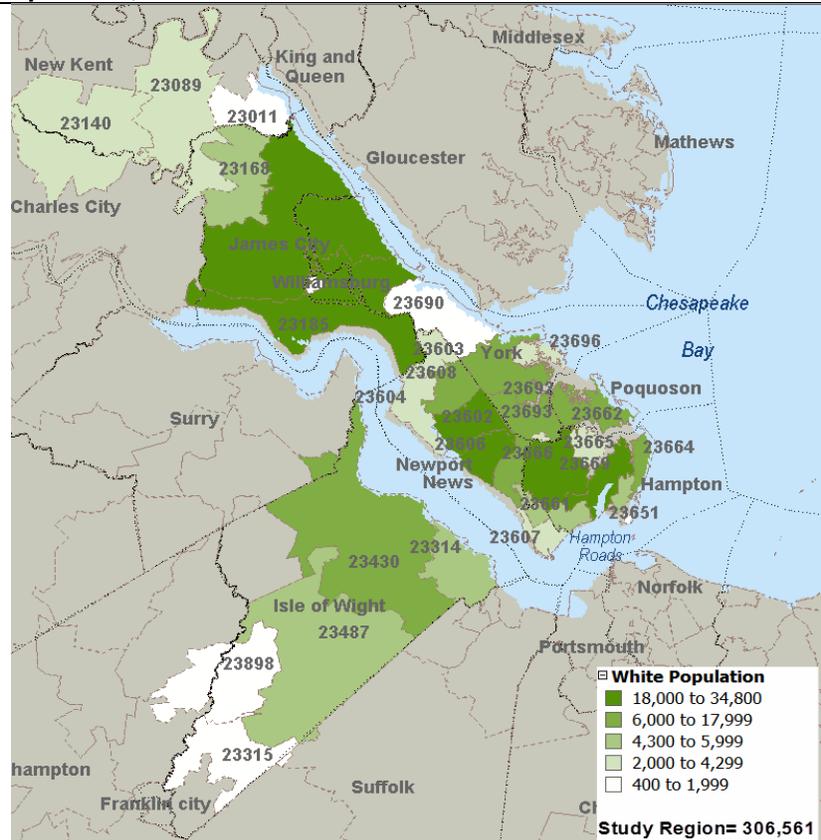


Map 6: Black/African American Population, 2012

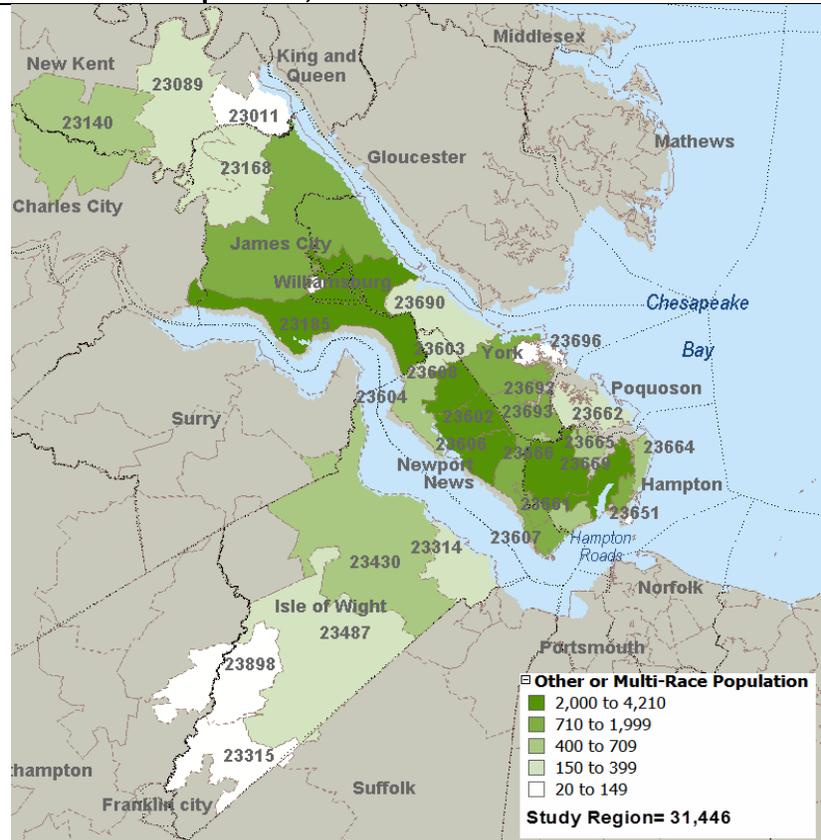


Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

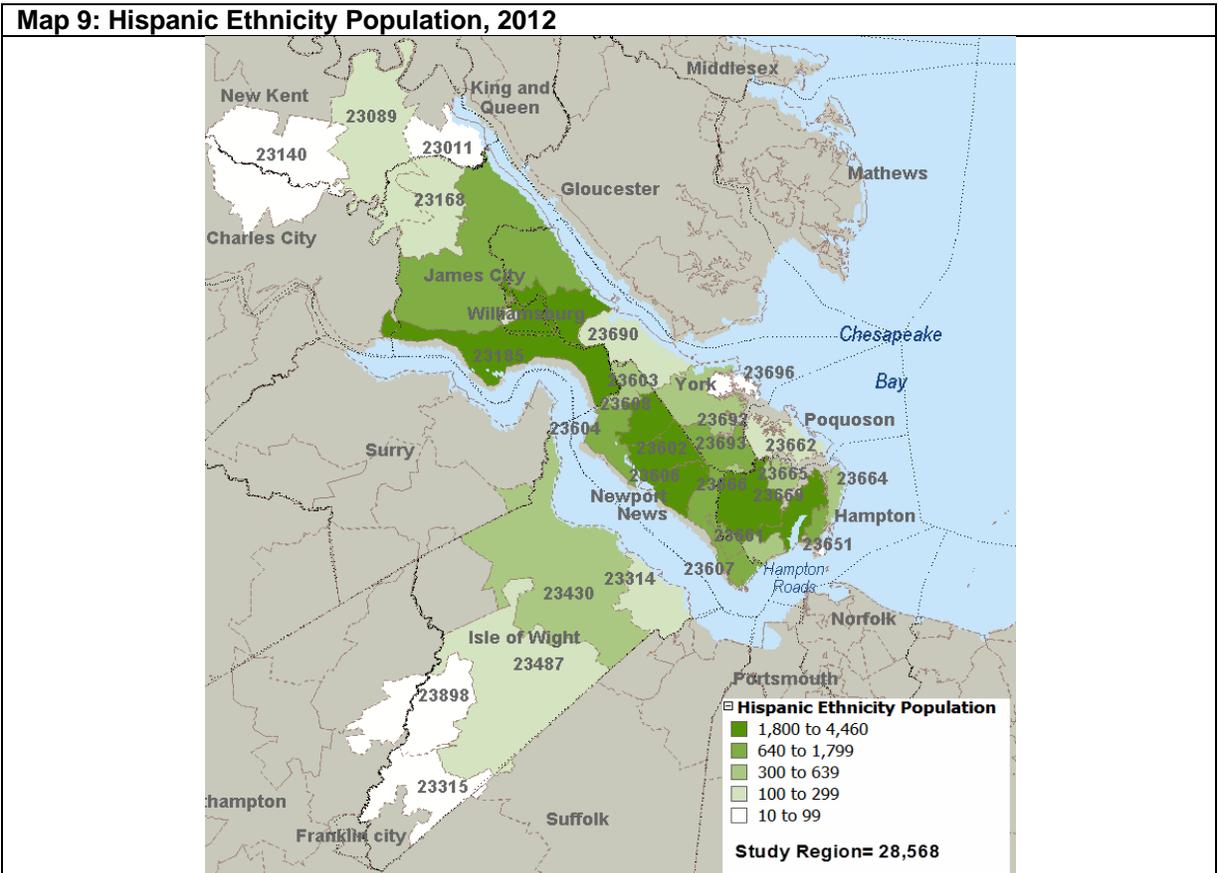
Map 7: White Population, 2012



Map 8: Other or Multi-Race Population, 2012

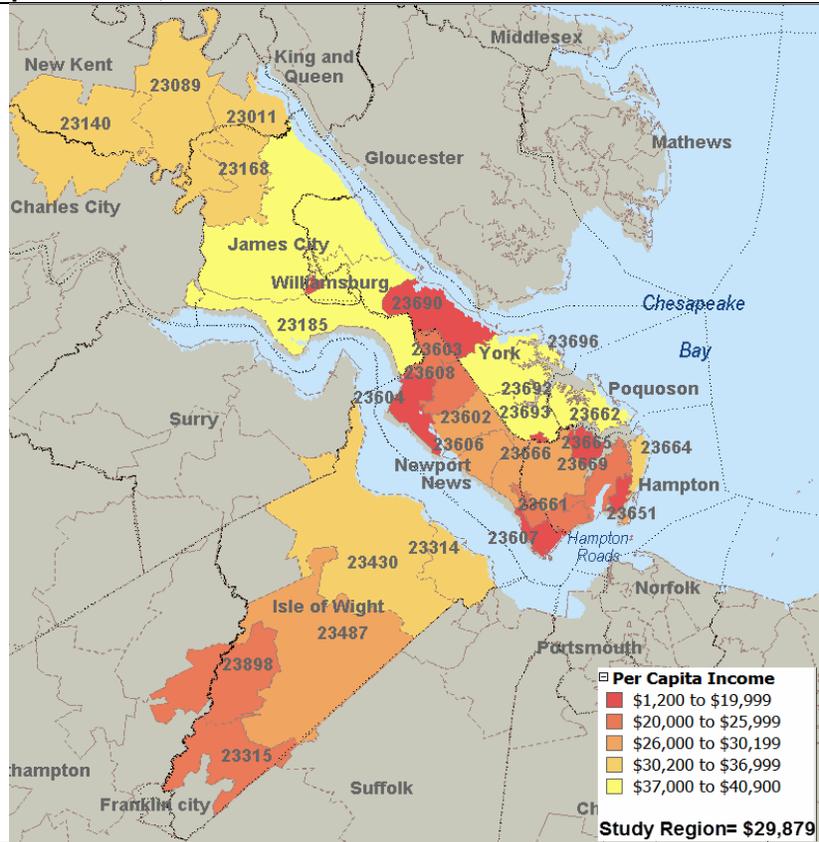


Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

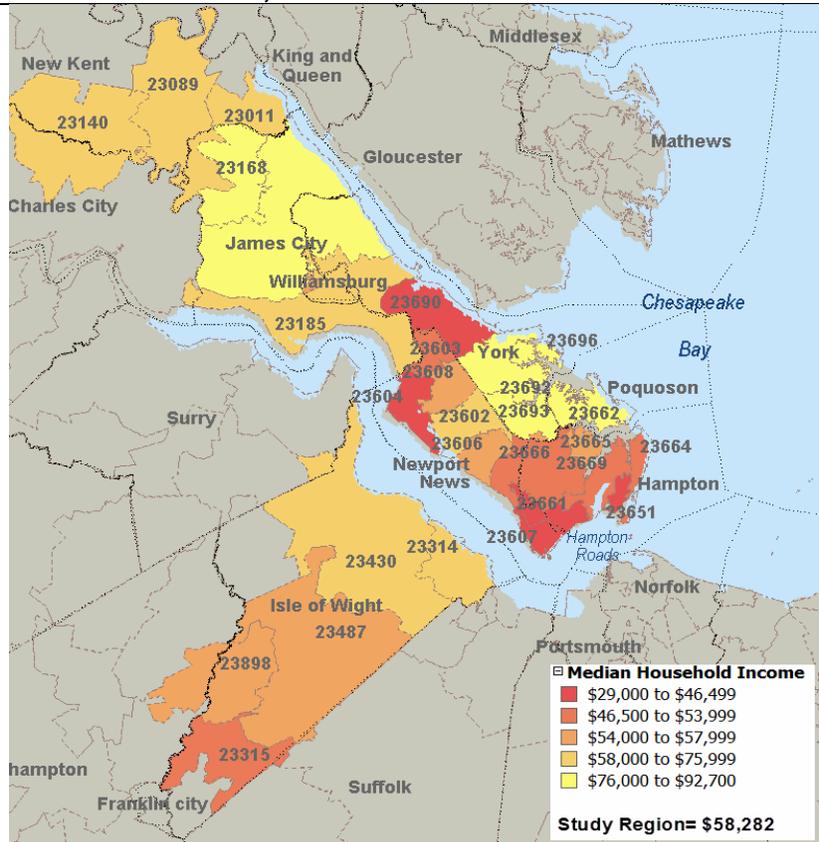


Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 10: Per Capita Income, 2012

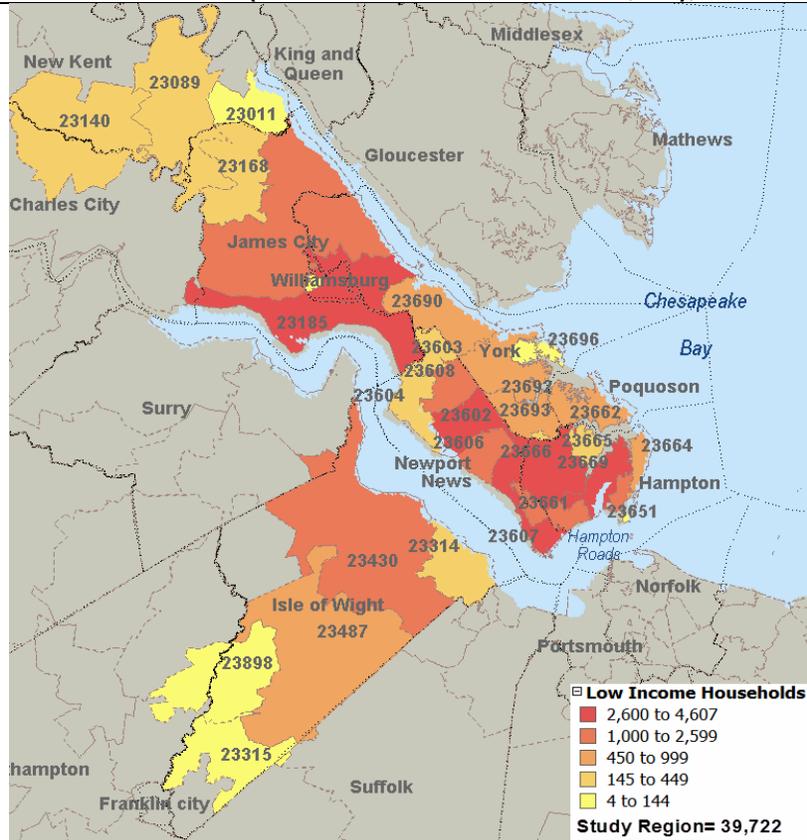


Map 11: Median Household Income, 2012

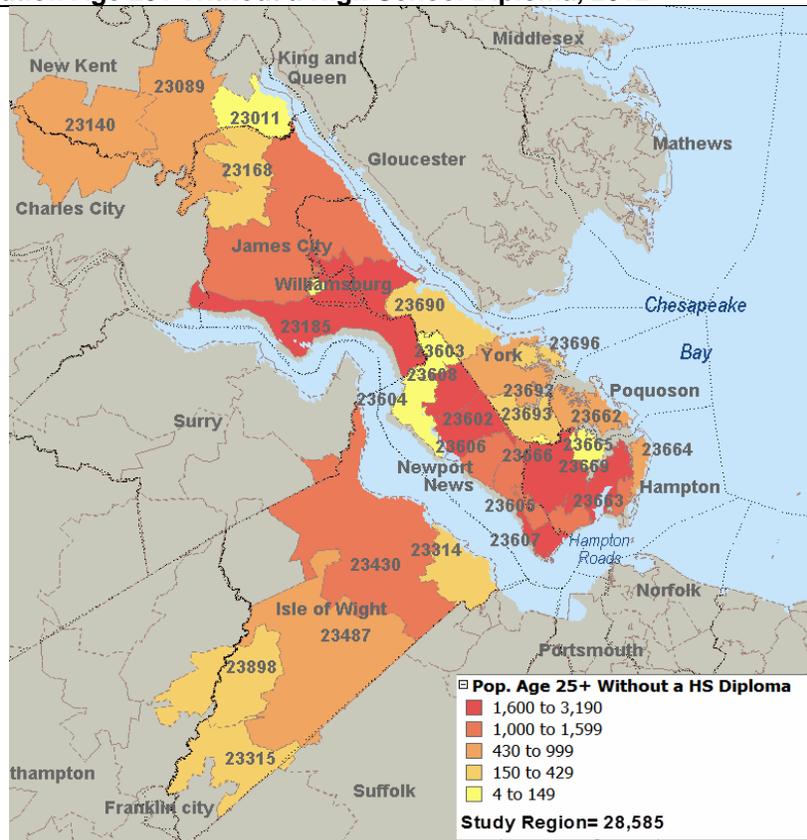


Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 12: Low Income Households (Households with Income < \$25,000), 2012

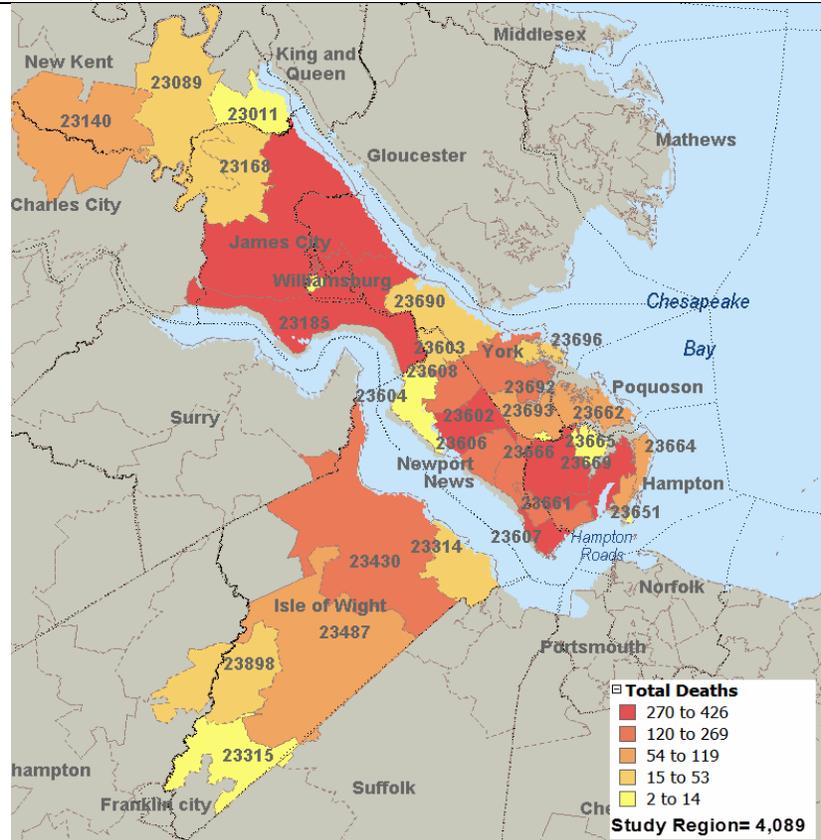


Map 13: Population Age 25+ Without a High School Diploma, 2012

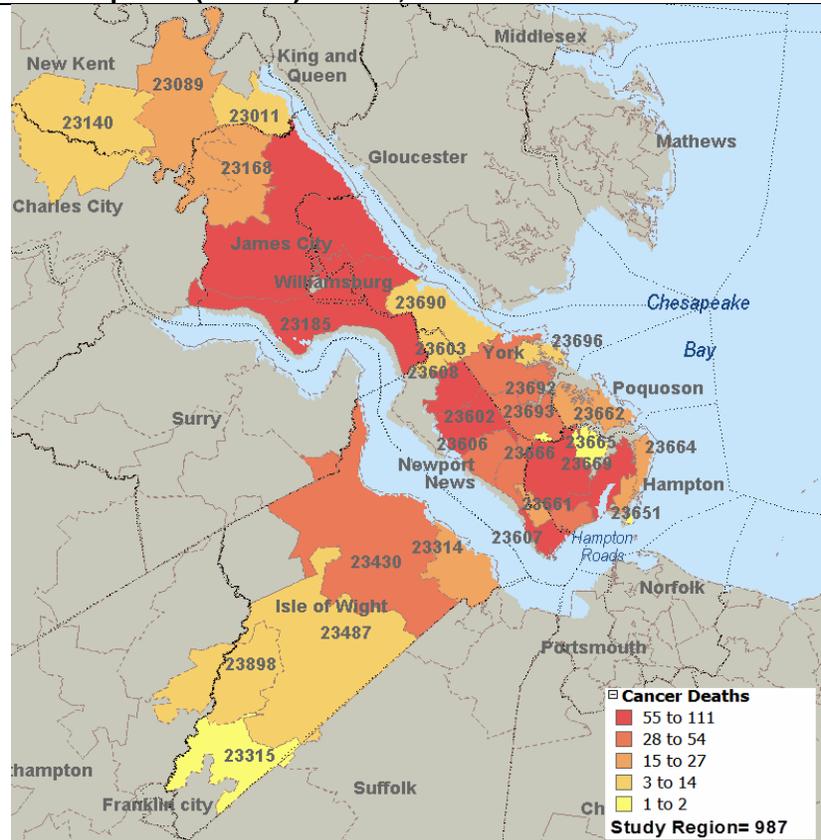


Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 14: Total Deaths, 2011

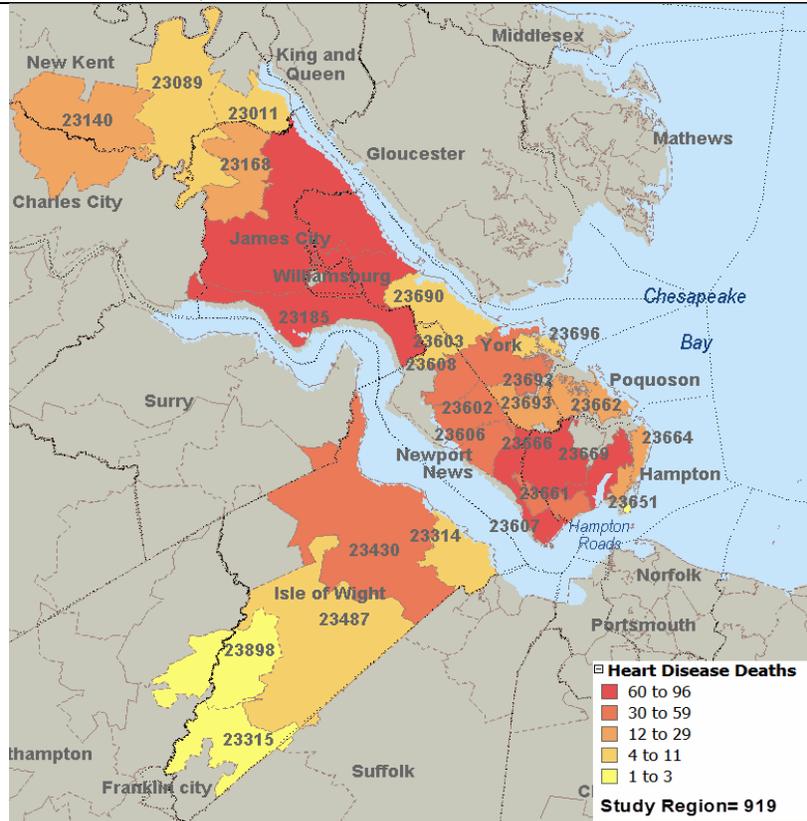


Map 15: Malignant Neoplasm (Cancer) Deaths, 2011*

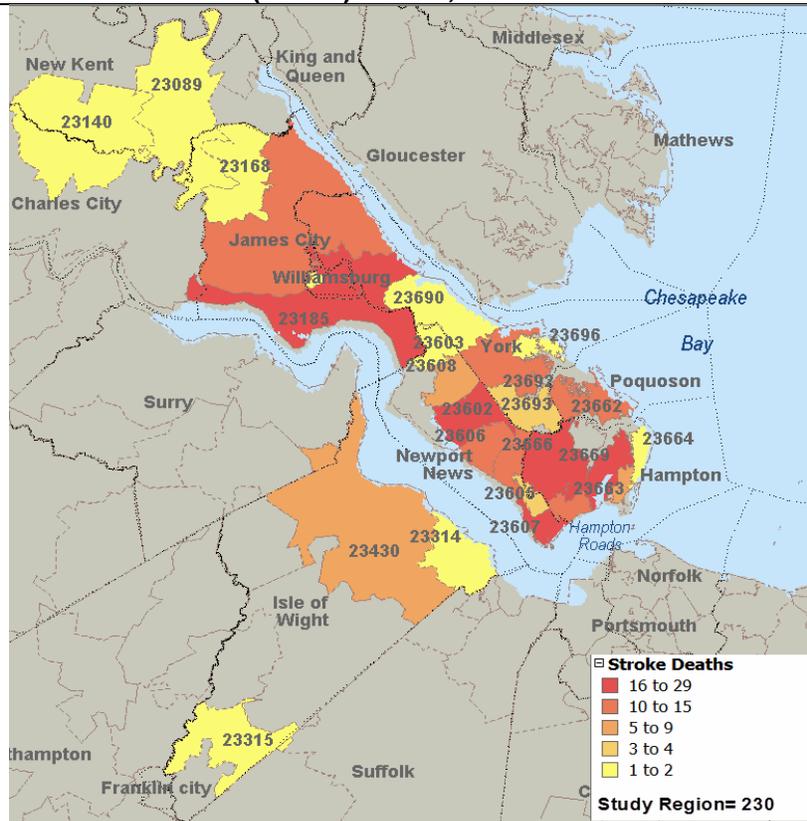


*There were no reported cancer deaths for zip code 23604 and 23186.
 Source: Community Health Solutions analysis of data from the Virginia Department of Health. See Appendix I-D. Data Sources for details.

Map 16: Heart Disease Deaths, 2011*



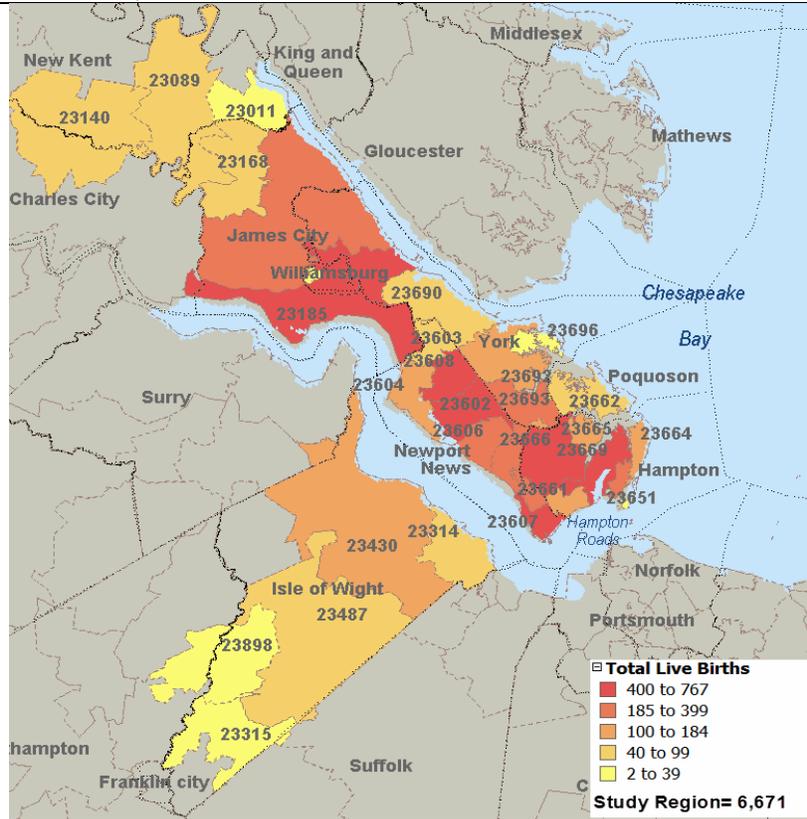
Map 17: Cerebrovascular Disease (Stroke) Deaths, 2011*



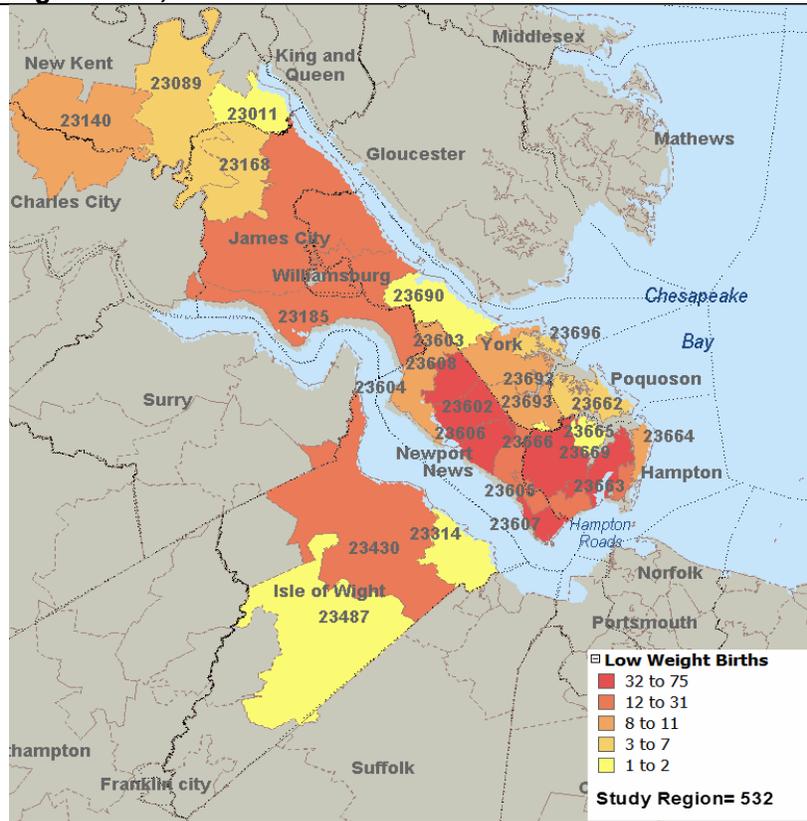
*There were no reported heart disease deaths for zip codes 23604, 23186 and 23665. There were no reported stroke deaths for zip codes 23604, 23665, 23651, 23898, 23011 and 23487.

Source: Community Health Solutions analysis of data from the Virginia Department of Health. See Appendix I-D. Data Sources for details.

Map 18: Total Live Births, 2011



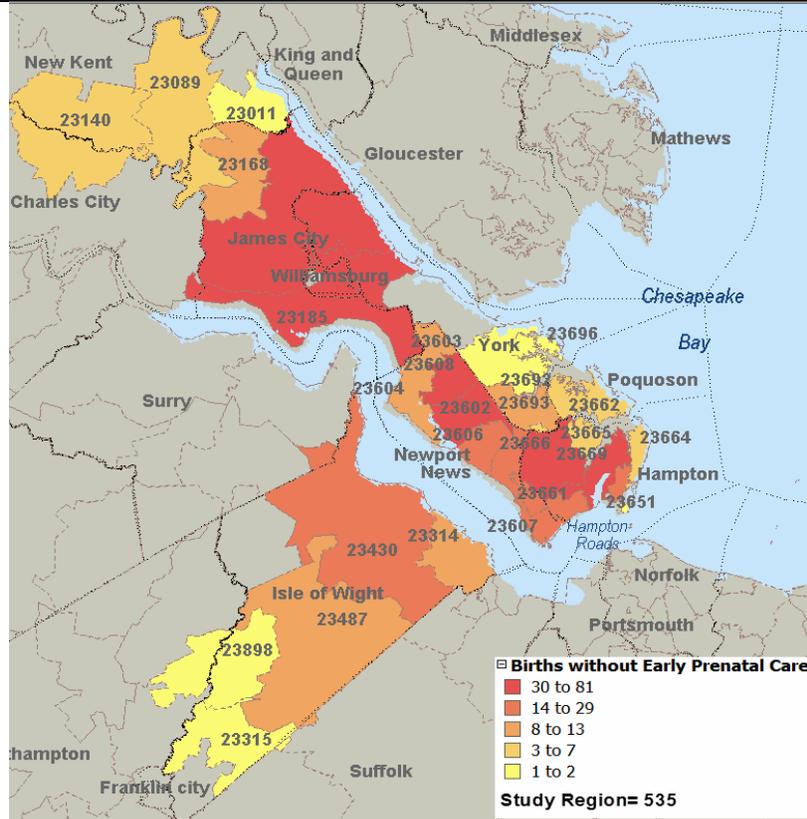
Map 19: Low Weight Births, 2011*



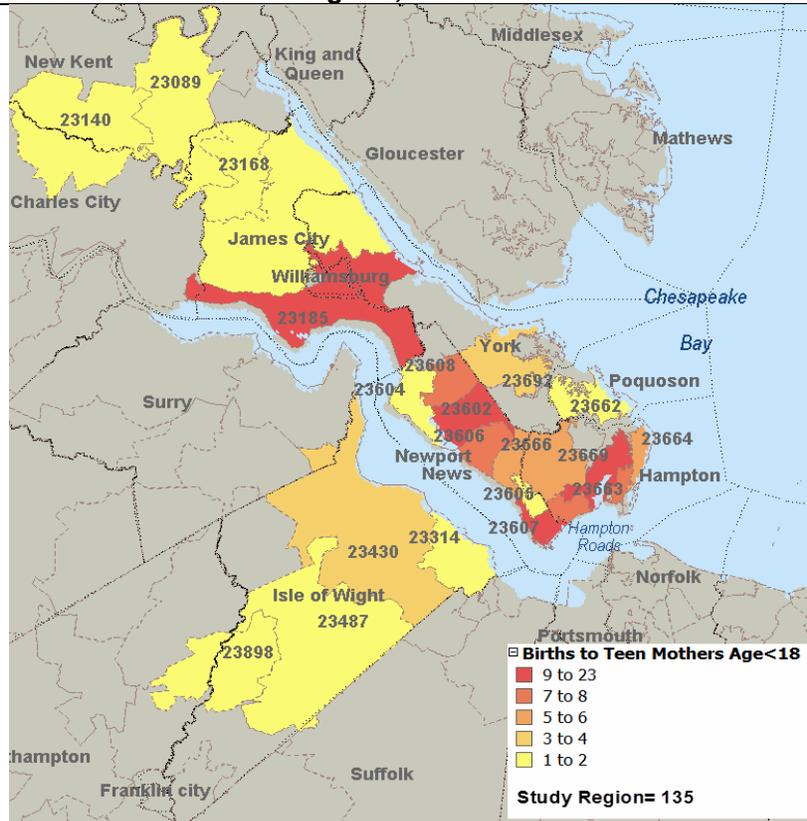
*There were no reported low weight births for zip codes 23186, 23651, 23315 and 23898.

Source: Community Health Solutions analysis of data from the Virginia Department of Health. See Appendix I-D. Data Sources for details.

Map 20: Births Without Early Prenatal Care (No Prenatal Care in the First 13 Weeks), 2011*

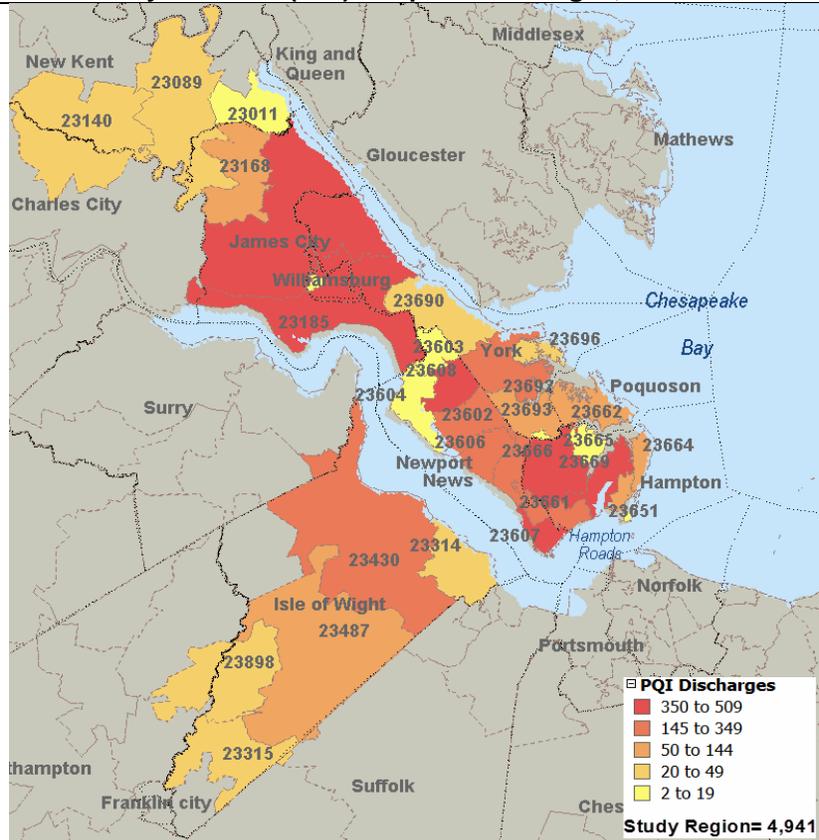


Map 21: Births to Teen Mothers Under Age 18, 2011*

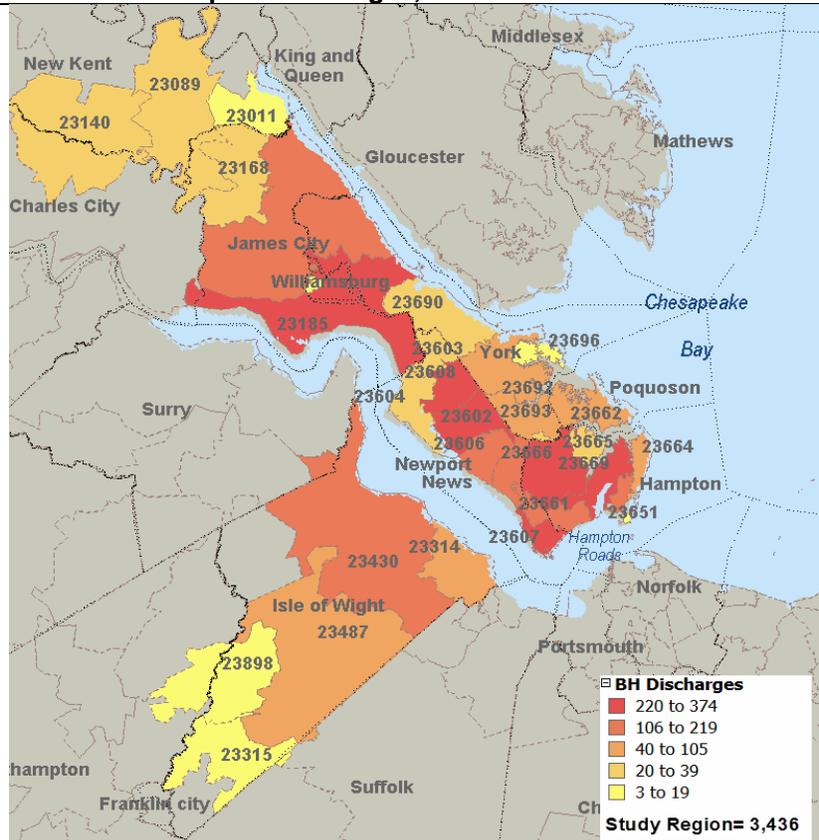


*There were no reported births without early prenatal care for zip codes 23186 and 23690. There were no reported births to teen mothers under age 18 for zip codes 23186, 23690, 23651, 23315, 23011, 23696, 23665, 23693 and 23603. Source: Community Health Solutions analysis of data from the Virginia Department of Health. See Appendix I-D. Data Sources for details.

Map 22: Prevention Quality Indicator (PQI) Hospital Discharges, 2011

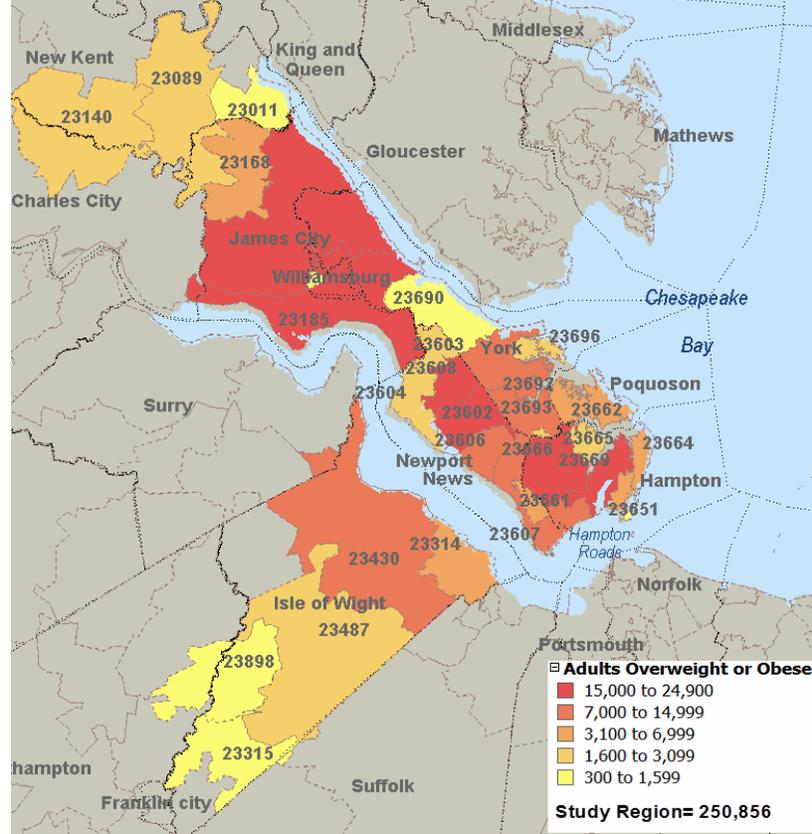


Map 23: Behavioral Health Hospital Discharges, 2011

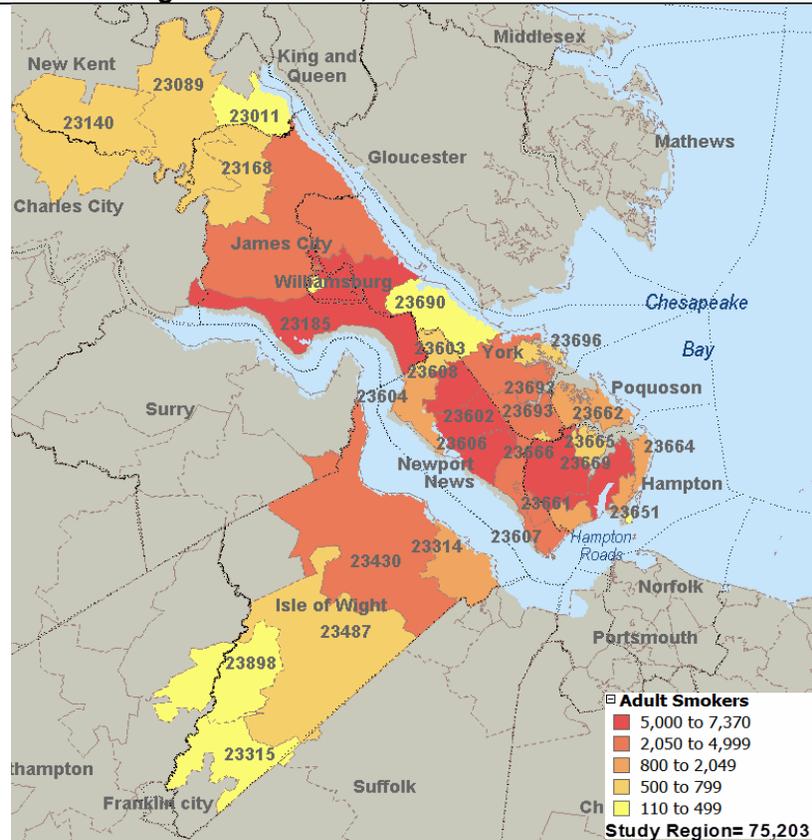


Source: Community Health Solutions analysis of hospital discharge data from Virginia Health Information, Inc. See Appendix I-D. Data Sources for details.

Map 24: Estimated Adults Age 18+ Overweight or Obese, 2012

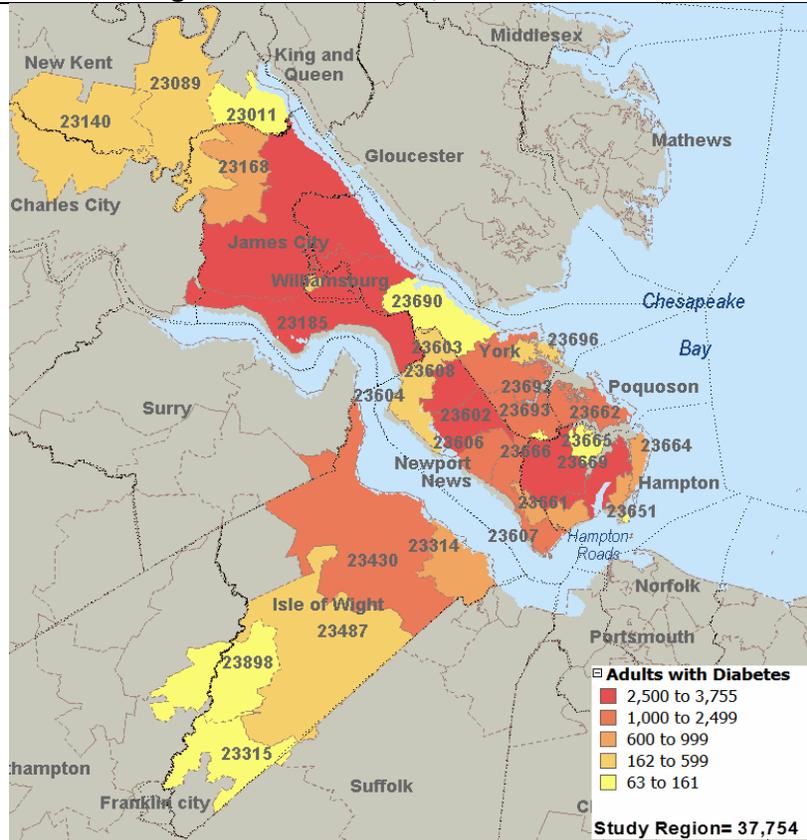


Map 25: Estimated Adult Age 18+ Smokers, 2012

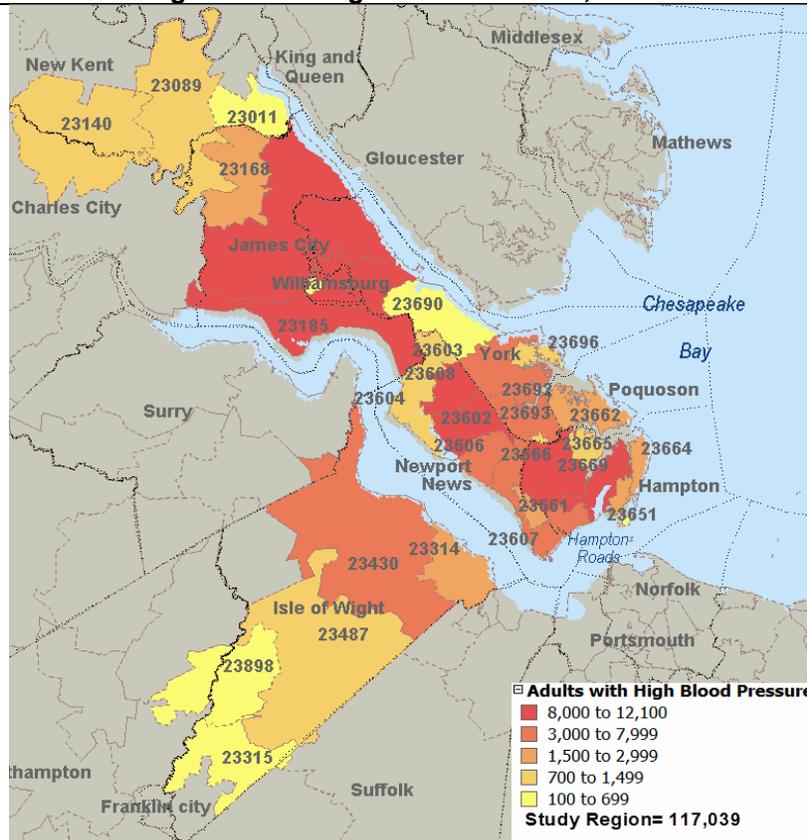


Source: Estimates based on Community Health Solutions analysis of Virginia Behavioral Risk Factor Surveillance System data and estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 26: Estimated Adults Age 18+ with Diabetes, 2012

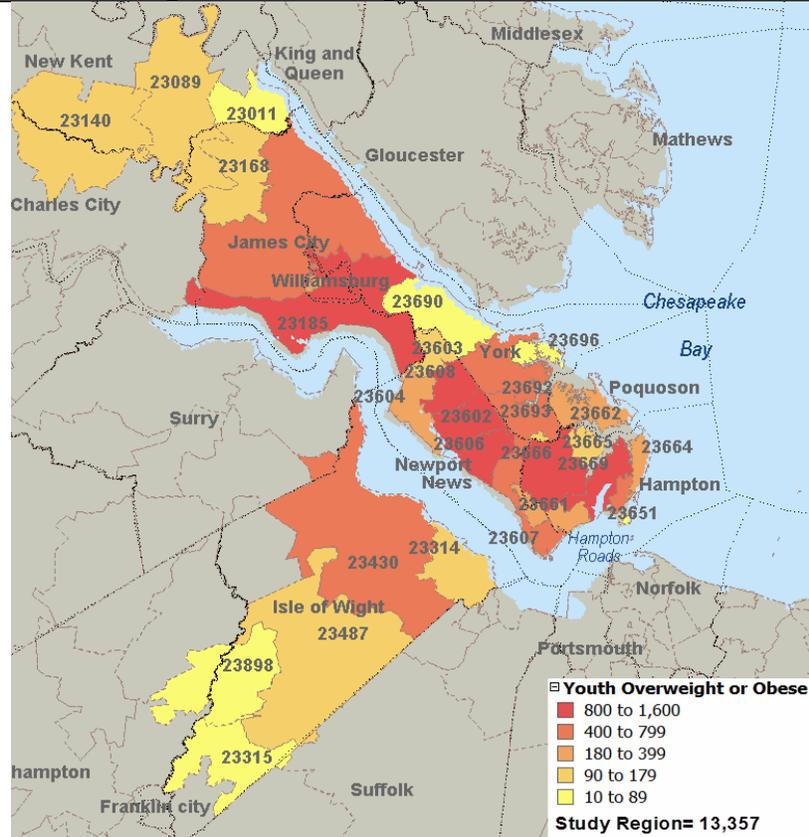


Map 27: Estimated Adults Age 18+ with High Blood Pressure, 2012

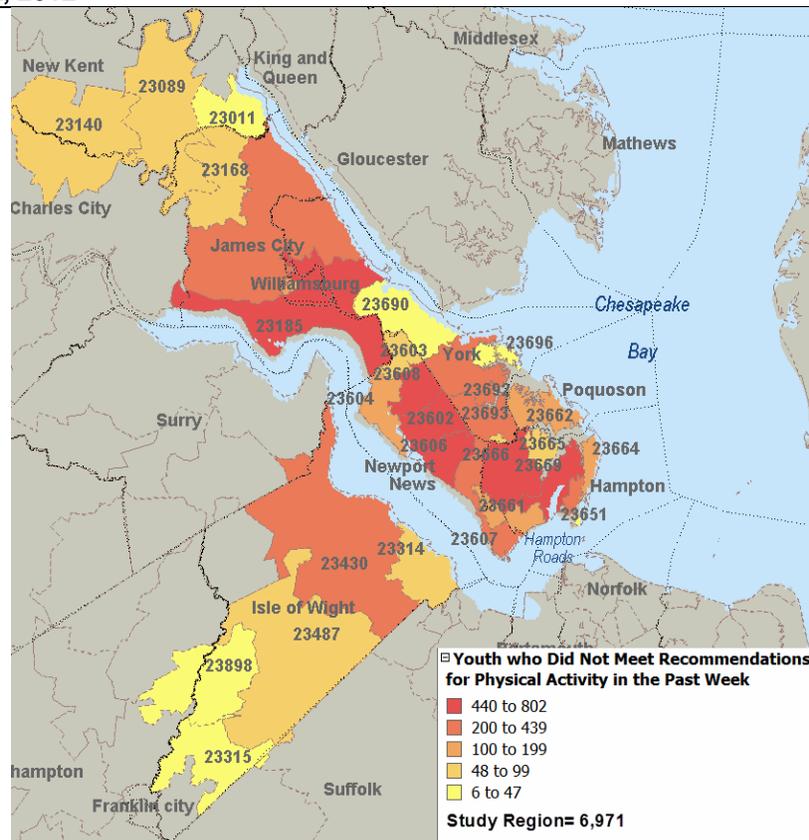


Source: Estimates based on Community Health Solutions analysis of Virginia Behavioral Risk Factor Surveillance System data and estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 28: Estimated Youth Age 14-19 Overweight or Obese, 2012 Part I. Five-Hospital Joint Study Region

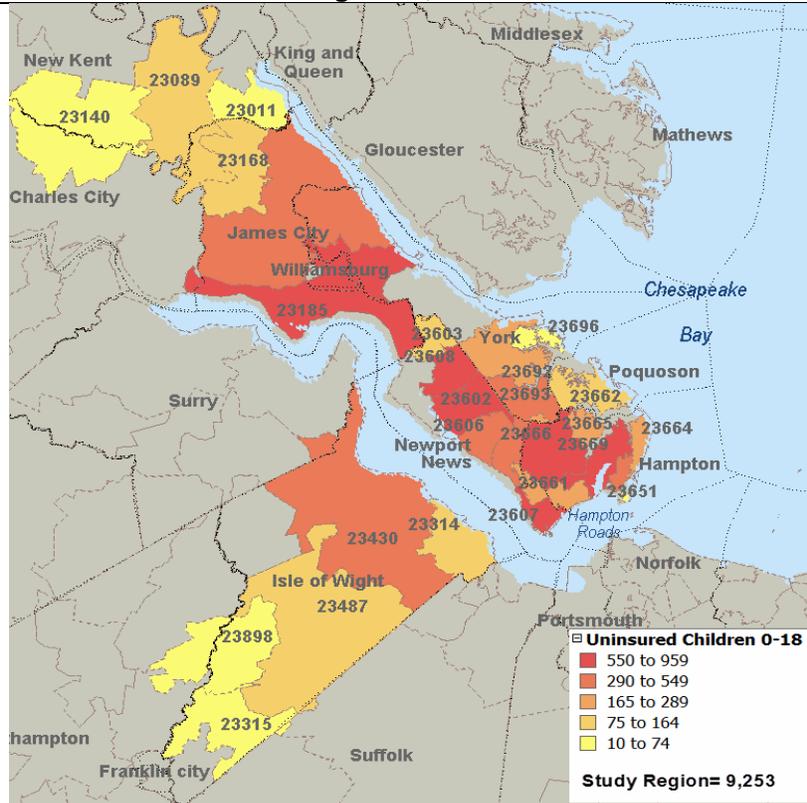


Map 29: Estimated Youth Age 14-19 Not Meeting Recommendations for Physical Activity in the Past Week, 2012

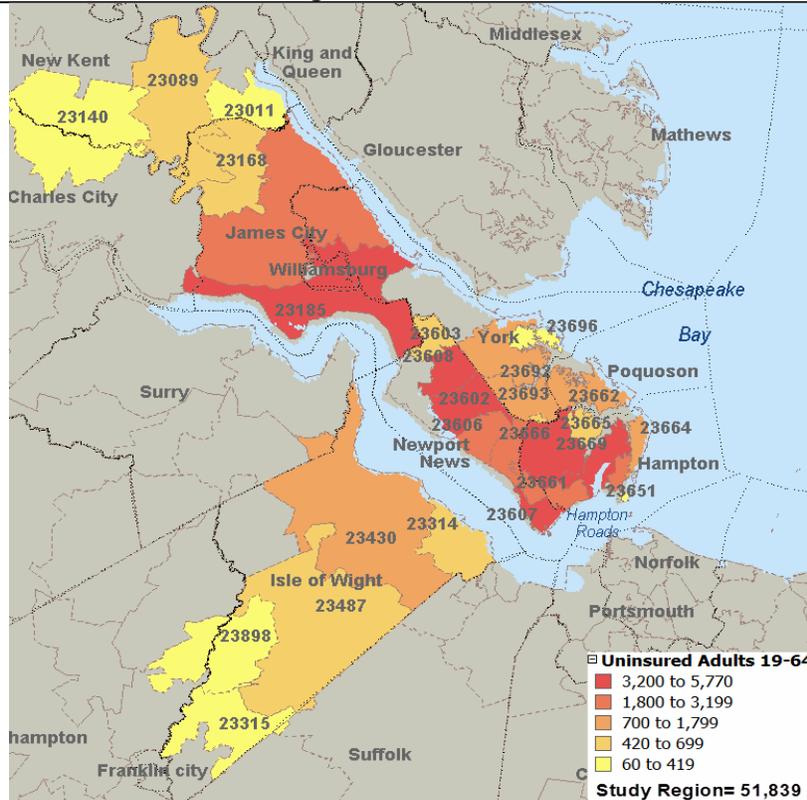


Source: Estimates based on Community Health Solutions analysis of Virginia Youth Risk Behavioral Surveillance System data and estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 30: Estimated Uninsured Children Age 0-18, 2012*



Map 31: Estimated Uninsured Adults Age 19-64, 2012*



*Zip codes 23186, 23690 and 23604 were removed from the uninsured analysis because their populations are largely military or college residents.

Source: Community Health Solutions estimates based on Community Health Solutions analysis of Profile of the Uninsured report produced for Virginia Health Care Foundation by the Urban Institute and estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

APPENDIX I-C. Joint Study Region Census Tracts Ranked on the Health Opportunity Index

Notes:

- *Census Tracts are based on Year 2000 US Census Boundaries.*
- *The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health.*
- *The HOI Ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.*
- *The HOI Quintile is from 1 to 5, where the 5th quintile indicates a lower opportunity for health.*

Census Tract	Locality	Statewide HOI Score	Statewide HOI Ranking	Statewide HOI Quintile
51700030100	Newport News, City of	0.423351	15	5th
51650011400	Hampton, City of	0.474236	26	5th
51700030600	Newport News, City of	0.515944	40	5th
51700030400	Newport News, City of	0.529115	50	5th
51700030800	Newport News, City of	0.563816	73	5th
51650010502	Hampton, City of	0.583705	93	5th
51700032300	Newport News, City of	0.586214	97	5th
51700030500	Newport News, City of	0.596298	111	5th
51199050204	York County	0.599206	116	5th
51650010601	Hampton, City of	0.623359	166	5th
51700032212	Newport News, City of	0.631958	184	5th
51700031200	Newport News, City of	0.633276	187	5th
51650011100	Hampton, City of	0.637022	191	5th
51650010701	Hampton, City of	0.639659	196	5th
51650010602	Hampton, City of	0.64463	206	5th
51700032222	Newport News, City of	0.64939	218	5th
51700032115	Newport News, City of	0.653099	224	5th
51700030300	Newport News, City of	0.655191	228	5th
51700031400	Newport News, City of	0.659863	239	5th
51700032221	Newport News, City of	0.663611	249	5th
51650011600	Hampton, City of	0.665169	253	5th
51700032124	Newport News, City of	0.669007	260	5th
51650010200	Hampton, City of	0.669514	261	5th
51700031300	Newport News, City of	0.670934	264	5th
51650011300	Hampton, City of	0.671467	269	5th
51650010309	Hampton, City of	0.672007	270	5th
51700032004	Newport News, City of	0.67382	274	5th
51650010104	Hampton, City of	0.675885	284	5th
51650011800	Hampton, City of	0.676094	285	5th
51700032400	Newport News, City of	0.678414	290	5th
51700030900	Newport News, City of	0.678425	291	5th
51650010305	Hampton, City of	0.682929	302	5th
51700032113	Newport News, City of	0.68603	309	4th
51700032123	Newport News, City of	0.688407	314	4th
51650012000	Hampton, City of	0.689511	318	4th
51199050600	York County	0.691247	323	4th
51650011900	Hampton, City of	0.697001	337	4th
51700031601	Newport News, City of	0.70014	346	4th
51650010501	Hampton, City of	0.707102	370	4th
51650010702	Hampton, City of	0.709618	380	4th
51650010900	Hampton, City of	0.709659	381	4th
51199050500	York County	0.710359	384	4th
51830370200	Williamsburg, City of	0.714325	405	4th
51700031100	Newport News, City of	0.721352	429	4th
51650010400	Hampton, City of	0.72354	432	4th
51650010306	Hampton, City of	0.723829	436	4th
51700032114	Newport News, City of	0.725286	443	4th
51095080102	James, City of County	0.726082	449	4th
51700032125	Newport News, City of	0.727719	454	4th
51650011200	Hampton, City of	0.728173	459	4th
51700032117	Newport News, City of	0.72841	460	4th
51650011000	Hampton, City of	0.730792	469	4th
51700032116	Newport News, City of	0.739776	511	4th

Source: Virginia Department of Health's Virginia Health Equity Report, 2012. See Appendix I-D. Data Sources for details.

APPENDIX I-C. Joint Study Region Census Tracts Ranked on the Health Opportunity Index (continued)

Notes:

- *Census Tracts are based on Year 2000 US Census Boundaries.*
- *The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health.*
- *The HOI Ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.*
- *The HOI Quintile is from 1 to 5, where the 5th quintile indicates a lower opportunity for health.*

Census Tract	Locality	Statewide HOI Score	Statewide HOI Ranking	Statewide HOI Quintile
51700031700	Newport News, City of	0.743123	527	4th
51830370300	Williamsburg, City of	0.746613	546	4th
51700031602	Newport News, City of	0.748321	556	4th
51650010304	Hampton, City of	0.749805	563	4th
51650010310	Hampton, City of	0.750618	570	4th
51650010308	Hampton, City of	0.757221	607	4th
51650010703	Hampton, City of	0.765894	659	3rd
51650010800	Hampton, City of	0.779649	731	3rd
51700032005	Newport News, City of	0.780031	732	3rd
51700031500	Newport News, City of	0.785975	770	3rd
51093280400	Isle of Wight County	0.791991	809	3rd
51101950200	King William County	0.792817	814	3rd
51700032002	Newport News, City of	0.797492	839	3rd
51700031900	Newport News, City of	0.797646	840	3rd
51095080301	James, City of County	0.806134	904	3rd
51093280102	Isle of Wight County	0.807938	922	2nd
51093280200	Isle of Wight County	0.807947	923	2nd
51700032211	Newport News, City of	0.808276	927	2nd
51199050203	York County	0.813635	965	2nd
51093280300	Isle of Wight County	0.817168	990	2nd
51095080201	James, City of County	0.821337	1014	2nd
51095080402	James, City of County	0.825058	1033	2nd
51127700300	New Kent County	0.826492	1043	2nd
51093280101	Isle of Wight County	0.826527	1044	2nd
51101950300	King William County	0.82666	1045	2nd
51650010101	Hampton, City of	0.829049	1062	2nd
51199050303	York County	0.831019	1075	2nd
51199050301	York County	0.835237	1108	2nd
51650010103	Hampton, City of	0.839569	1139	2nd
51735340200	Poquoson, City of	0.84525	1178	2nd
51101950100	King William County	0.84866	1195	2nd
51650010307	Hampton, City of	0.850455	1202	2nd
51199050800	York County	0.850671	1203	2nd
51199050206	York County	0.852491	1212	2nd
51735340300	Poquoson, City of	0.856569	1241	1st
51127700200	New Kent County	0.856669	1243	1st
51199050205	York County	0.858803	1257	1st
51093280103	Isle of Wight County	0.862426	1276	1st
51650011500	Hampton, City of	0.869626	1312	1st
51199050700	York County	0.870639	1318	1st
51127700100	New Kent County	0.871226	1320	1st
51095080401	James, City of County	0.872571	1329	1st
51700032001	Newport News, City of	0.876843	1344	1st
51199050402	York County	0.877004	1346	1st
51830370100	Williamsburg, City of	0.886398	1384	1st
51199050401	York County	0.888419	1389	1st
51095080202	James, City of County	0.890443	1394	1st
51735340100	Poquoson, City of	0.895339	1404	1st
51199050304	York County	0.897585	1410	1st
51095080302	James, City of County	0.922447	1466	1st
51095080101	James, City of County	0.925087	1472	1st
51700031800	Newport News, City of	0.940037	1489	1st

Source: Virginia Department of Health's Virginia Health Equity Report, 2012. See Appendix I-D. Data Sources for details.

Appendix I-D. Data Sources

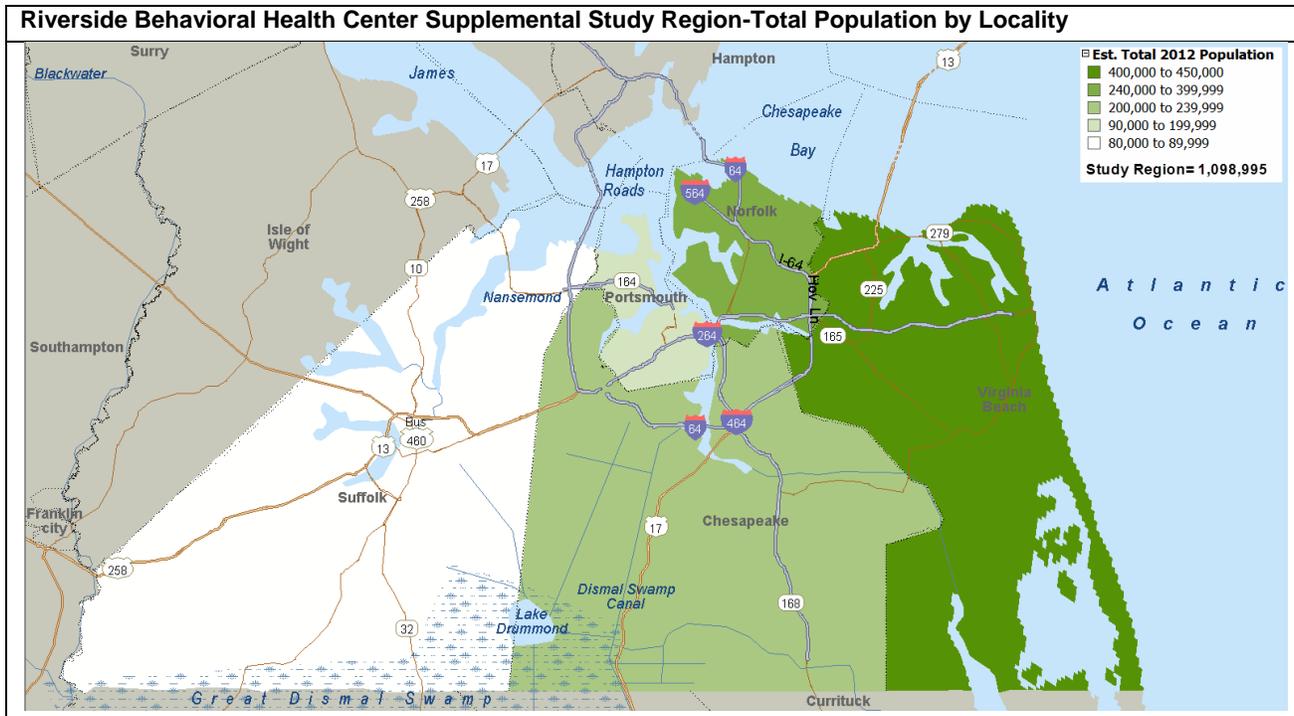
Section	Source
Community Insight Profile	
1) Survey Respondents 2) Community Health Concerns 3) Community Service Gaps 4) APPENDIX I-A and Appendix II-A. Community Insight Profile-Additional Ideas and Suggestions for Improving Community Health	Community Health Solutions analysis of <i>Community Insight</i> survey responses submitted by community stakeholders.
Community Indicator Profile	
1) Health Demographic Trend Profile 2) Health Demographic Snapshot (also Appendix I-B Maps 1-13)	Community Health Solutions analysis of population estimates from Alteryx, Inc. (2012 and 2017). Alteryx, Inc., is a commercial vendor of demographic data. Note that demographic estimates may vary from other sources of local demographic indicators.
3) Mortality Profile (also Appendix I-B Maps 14-17)	Virginia Department of Health death record data (2011). Locality level counts and rates were obtained by Virginia Department of Health. The combined five-hospital joint study region counts and rates, plus zip code level counts were analyzed by Community Health Solutions.
4) Maternal and Infant Health Profile (also Appendix I-B Maps 18-21)	Virginia Department of Health death record data (2011). Locality level counts and rates were obtained by Virginia Department of Health. The combined five-hospital joint study region counts and rates, plus zip code level counts were analyzed by Community Health Solutions.
5) Preventable Hospitalization Profile (also Appendix I-B Map 22) 6) Behavioral Health Hospitalization Profile (also Appendix I-B Map 23)	Community Health Solutions analysis of hospital discharge data from the Virginia Health Information (VHI) dataset (January 1-December 31, 2011) and demographic data from Alteryx, Inc. (2011). Data include discharges for Virginia residents from Virginia hospitals reporting to Virginia Health Information, Inc. These data do not include discharges from state behavioral health facilities or federal (military) facilities. Data reported are based on the patient's primary diagnosis. <i>NOTE: Virginia Health Information (VHI) requires the following statement to be included in all reports utilizing its data: VHI has provided non-confidential patient level information used in this report which was compiled in accordance with Virginia law. VHI has no authority to independently verify this data. By accepting this report the requester agrees to assume all risks that may be associated with or arise from the use of inaccurately submitted data. VHI edits data received and is responsible for the accuracy of assembling this information, but does not represent that the subsequent use of this data was appropriate or endorse or support any conclusions or inferences that may be drawn from the use of this data.</i>
7) Adult Health Risk Factor Profile (also Appendix I-B Maps 24-27)	Estimates of chronic disease and risk behaviors for adults 18+ are based on Community Health Solutions analysis of: <ul style="list-style-type: none"> • A multi-year dataset (2006-2010) from the Virginia Behavioral Risk Factor Surveillance System (BRFSS). For more information on BRFSS visit: http://www.cdc.gov/brfss/about/index.htm • Estimates from Alteryx, Inc. (2012) Estimates are used when there are no primary sources of data available at the local level. The statistical model to produce the estimates was developed by Community Health Solutions. The estimates are for planning purposes only and are not guaranteed for accuracy. The table does not include a comparison to Virginia statewide rates because the local estimates were derived from state-level data. Differences between local rates and state rates may reflect estimation error rather than valid differences.

<p>8) Youth Health Risk Factor Profile (also Appendix I-B Maps 28)</p>	<p>Estimates of risk behaviors for children age 14-19 are based on Community Health Solutions analysis of:</p> <ul style="list-style-type: none"> • National and statewide Virginia Youth Risk Behavioral Surveillance System from the Centers for Disease Control (2011). For more information on YRBSS visit: http://www.cdc.gov/HealthyYouth/yrebs/index.htm • Estimates from Alteryx, Inc. (2012). <p>Estimates are used when there are no primary sources of data available at the local level. The statistical model to produce the estimates was developed by Community Health Solutions. The estimates are for planning purposes only and are not guaranteed for accuracy. The table does not include a comparison to Virginia statewide rates because the local estimates were derived from state-level data. Differences between local rates and state rates may reflect estimation error rather than valid differences.</p>
<p>9) Uninsured Profile (also Appendix I-B Maps 30-31)</p>	<p>Estimates of uninsured nonelderly age 0-64 are based on Community Health Solutions analysis of:</p> <ul style="list-style-type: none"> • <i>Profile of the Uninsured</i> report produced for Virginia Health Care Foundation by the Urban Institute (2011) • Estimates from Alteryx, Inc. (2012) <p>Estimates are used when there are no primary sources of data available at the local level. The statistical model to produce the estimates was developed by Community Health Solutions. The estimates are for planning purposes only and are not guaranteed for accuracy. The table does not include a comparison to Virginia statewide rates because the local estimates were derived from state-level data. Differences between local rates and state rates may reflect estimation error rather than valid differences.</p>
<p>10) Medically Underserved Profile</p>	<p>Community Health Solutions analysis of U.S. Health Resources and Services Administration data. For more information visit: http://muafind.hrsa.gov/.</p>
<p>11) Health Opportunity Index Profile (also Appendix I-C)</p>	<p>Virginia Department of Health's <i>Virginia Health Equity Report 2012</i>. http://www.vdh.virginia.gov/OMHHE/2012report.htm</p>

Part II. Riverside Behavioral Health Center Supplemental Study Region

Executive Summary

This section of the report focuses on the Riverside Behavioral Health Center (RBHC) supplemental study region of five localities: the cities of Chesapeake, Norfolk, Portsmouth, Suffolk and Virginia Beach. The RBHC supplemental study region is shown in the map below. The results of the study include two primary components: a 'community insight profile' based on qualitative analysis of a survey of community stakeholders, and a 'community indicator profile' based on quantitative analysis of community health status indicators.



This Executive Summary outlines major findings, and details are provided in *Part II. Riverside Behavioral Health Center Supplemental Study Region* of the report.

Part I. Community Insight Profile

In an effort to generate community input for the study, a 'Community Insight Survey' was conducted with a group of community stakeholders identified by the Riverside Behavioral Health Center (RBHC). The survey participants were asked to provide their viewpoints on:

- Important health concerns in the community;
- Significant service gaps in the community; and
- Additional ideas or suggestions for improving community health.

The survey was sent to a group of 25 community stakeholders identified by RBHC. A total of 16 (64%) submitted a response (although not every respondent answered every question). The respondents provided rich insights about community health in the study region. To summarize:

- The respondents identified over 20 important health problems such as chronic disease, obesity, mental health conditions, teen pregnancy, tobacco use, and more.
- The respondents reported more than two dozen specific community services in need of strengthening. Identified services included behavioral health services, dental care/oral health services, health care coverage, aging services¹⁹, and more.

¹⁹ Aging services primarily include health care services, while community services for the elderly primarily include non-health care support services such as meals, transportation, etc.

Four respondents offered open-ended responses with additional ideas and suggestions for improving community health. These responses are listed in *Appendix II-A*.

Community Indicator Profile

The community indicator profile presents a wide array of quantitative community health indicators for the RBHC supplemental study region. To produce the profile, Community Health Solutions analyzed data from multiple sources. By design, the analysis does not include every possible indicator of community health. The analysis is focused on a set of indicators that provide broad insight into community health, and for which there were readily available data sources. To summarize:

- *Demographic Profile.* As of 2012, the RBHC supplemental study region included 1,098,995 people. The population is expected to increase to 1,126,863 by 2017. It is projected that population growth will occur in all demographic groups, including a 10% increase in seniors age 65+; a 6% increase in the Asian population; and a 4% increase in the Hispanic ethnicity population. Compared to Virginia as a whole, the RBHC supplemental study region is more densely populated; has a larger proportion of Black/African American residents, has generally lower income levels; and has a lower rates of adults age 25+ without a high school diploma.
- *Mortality Profile.* In 2011, the RBHC supplemental study region had 7,931 total deaths. The leading causes of death were malignant neoplasms (cancer), heart disease, and chronic lower respiratory diseases. The age-adjusted death rates for the RBHC supplemental study region were higher than the Virginia statewide rates overall, for 11 of the top fourteen causes of death.
- *Maternal and Infant Health Profile.* In 2011, the RBHC supplemental study region had 21,370 pregnancies, 15,412 total live births, and 121 infant deaths. Compared to Virginia as a whole, the RBHC supplemental study region had higher rates of live births, low weight births, non-marital births, teen pregnancies and five-year infant mortality.
- *Preventable Hospitalization Discharge Profile.* The Agency for Healthcare Research and Quality (AHRQ) defines a set of conditions (called Prevention Quality Indicators, or 'PQIs') for which hospitalization should be avoidable with proper outpatient health care. High rates of hospitalization for these conditions indicate potential gaps in access to quality outpatient services for community residents. In 2011, residents of the RBHC supplemental study region had 11,091 PQI hospital discharges. The age-adjusted PQI discharge rates for the RBHC supplemental study region were higher than the Virginia statewide rates overall, and for five of the 10 primary PQI diagnoses.
- *Behavioral Health Hospitalization Discharge Profile.* Behavioral health (BH) hospitalizations provide another important indicator of community health status. In 2011, residents of the RBHC supplemental study region had 9,571 hospital discharges from Virginia community hospitals for behavioral health conditions.²⁰ The leading diagnoses for these discharges were affective psychoses, schizophrenic disorders and general symptoms²¹. The age-adjusted BH discharge rates for the RBHC supplemental study region were higher than the statewide rates overall, and for six of the ten primary BH diagnoses.
- *Adult Health Risk Profile.* Local estimates indicate that substantial numbers of adults (age 18+) in the RBHC supplemental study region may have health risks related to nutrition, physical inactivity, weight, tobacco, and alcohol. In addition, substantial numbers of adults have chronic conditions such as high blood pressure, arthritis, high cholesterol, diabetes and asthma.
- *Youth Health Risk Profile.* Local estimates indicate that substantial numbers of youth (age 14-19) in the RBHC supplemental study region may have health risks related to nutrition, physical inactivity, weight, tobacco, alcohol and mental health.
- *Uninsured Profile.* An estimated 135,486 (14%) nonelderly residents of the RBHC supplemental study region were uninsured at any point in time in 2012. This included an estimated 20,487 children and 114,999 adults.

²⁰ Data include discharges for Virginia residents from Virginia community hospitals reporting to Virginia Health Information, Inc. These data do not include discharges from state behavioral health facilities or federal (military) facilities. Data reported are based on the primary diagnosis.

²¹ This diagnosis includes symptoms, signs, abnormal results of laboratory or other investigative procedures, and ill-defined conditions regarding which no diagnosis classifiable elsewhere is recorded.

- *Medically Underserved Profile.* Medically Underserved Areas (MUAs) and Medically Underserved Populations (MUPs) are designated by the U.S. Health Resources and Services Administration as being at risk for health care access problems. The designations are based on several factors including primary care provider supply, infant mortality, prevalence of poverty, and the prevalence of seniors age 65+. All five localities in the RBHC supplemental study region have been fully or partially designated as MUA/MUPs.
- *Health Opportunity Index Profile.* This profile provides a close-up view of the region with the help of the Health Opportunity Index produced by the Virginia Department of Health. In an area as large and diverse as the RBHC supplemental study region, city- and county-level analysis can often mask important variations in health opportunity within and across city and county boundaries. The Health Opportunity Index measures a core set of 'social determinants of health' for 251 census tracts in the RBHC supplemental study region. The Health Opportunity Index can be used to identify small geographic areas in which the population is likely to be more at risk for health problems. This information can be helpful for focusing community health initiatives in communities where they are most needed.

Accompanying File of City/County-Level Indicators

This report includes community health indicators for the RBHC supplemental study region as a whole. A separate Microsoft Excel file contains indicators for each city/county within the RBHC supplemental study region.

Appendix II-A. Community Insight Profile-Additional Ideas and Suggestions for Improving Community Health

Four survey respondents offered open-ended responses with additional ideas and suggestions for improving community health. These responses are listed in *Appendix II-A*.

Appendix II-B. Zip Code-Level Maps

Appendix II-B provides a set of thematically colored maps displaying variation in selected community health indicators by zip code for the RBHC supplemental study region. The underlying data for these maps are provided in a separate Microsoft Excel file. *Please read the important note about zip code-level data in Appendix II-B.*

Appendix II-C. Health Opportunity Index by Census Tract

The Virginia Department of Health provides Health Opportunity Index (HOI) scores for 251 census tracts in the RBHC supplemental study region. These census tracts are listed by HOI score, rank and quintile in *Appendix II-C*.

Appendix II-D. Data Sources

Appendix II-D. Data Sources provides a list of the data sources used in the analyses for this report.

Community Insight Profile

In an effort to generate community input for the study, a 'Community Insight Survey' was conducted with a group of community stakeholders identified by RBHC. The survey participants were asked to provide their viewpoints on:

- Important health concerns in the community;
- Significant service gaps in the community; and
- Additional ideas and suggestions for improving community health.

The survey was sent to a group of 25 community stakeholders identified by RBHC. A total of 16 (64%) submitted a response (although not every respondent answered every question). The respondents provided rich insights about community health in the study region. The results are summarized in the remainder of this section.

1. Survey Respondents

Exhibit 1 below lists the organizational affiliations of the survey respondents.

Exhibit 1
Reported Organization Affiliation of Survey Respondents

Chesapeake Care, Inc
Chesapeake and Western Tidewater Health Districts
Chesapeake Community Service Board
City of Norfolk, Community Services Board
Foodbank of Southeastern Virginia
Hampton Roads Community Health Center
Medical Staffing Solutions, USA
Norfolk Department of Public Health
Norfolk Public Schools
Portsmouth General Hospital Foundation
Portsmouth Health District
Senior Advocate
Sentara Healthcare
Tycon Medical Systems, Inc.
Virginia Beach Department of Public Health
Virginia Beach Department of Human Services

2. Community Health Concerns

Survey respondents were asked to review a list of common community health issues. The list of issues draws from the topics in *Healthy People 2020* with some refinements. The survey asked respondents to identify from the list what they view as important health concerns in the community. Respondents were also invited to identify additional issues not already defined on the list. *Exhibit 2* summarizes the results, including open-ended responses.

**Exhibit 2.
Important Community Health Concerns Identified by Survey Respondents**

Answer Options	Response Percent	Response Count	
Adult Obesity	81%	13	<i>Note: When interpreting the survey results, please note that although the relative number of responses received for each item is instructive, it is not a definitive measure of the relative importance of one issue compared to another.</i>
Mental Health Conditions	81%	13	
Diabetes	75%	12	
Heart Disease & Stroke	69%	11	
High Blood Pressure	69%	11	
Childhood Obesity	63%	10	
Teen Pregnancy	56%	9	
Tobacco Use	56%	9	
Alcohol Use	50%	8	
Alzheimer's Disease	50%	8	
Dental Care/Oral Health	50%	8	
Cancer	44%	7	
Sexually Transmitted Diseases	44%	7	
Substance Abuse - Illegal Drugs	44%	7	
Stroke	38%	6	
Substance Abuse - Prescription Drugs	38%	6	
Asthma	31%	5	
Chronic Pain	31%	5	
Domestic Violence	31%	5	
Infectious Diseases	31%	5	
Arthritis	25%	4	
Autism	25%	4	
HIV/AIDS	25%	4	
Prenatal & Pregnancy Care	25%	4	
Brain Injuries	19%	3	
Environmental Quality	19%	3	
Injuries	19%	3	
Orthopedic Problems	19%	3	
Intellectual/Developmental Disabilities	13%	2	
Neurological Disorders	13%	2	
Post-Operative Complications	13%	2	
Renal (kidney) Disease	13%	2	
Vision	13%	2	
Physical Disabilities	6%	1	
Respiratory Diseases (other than asthma)	6%	1	
Immobility (i.e. skin breakdown)	0%	0	
Other Important Community Health Concerns Identified by Survey Respondents in Open-Ended Responses			
1) All are important; these are the ones that I see the most.			
2) Infant Mortality. Adequate and timely prenatal care services are a contributing factor among others that contributes to this health outcome.			
3) Some of my answers apply to certain areas only--dental/oral health care-Isle of Wight, diabetes-Chesapeake and Suffolk, sexually transmitted diseases-Chesapeake and Suffolk, teen pregnancy-Franklin City.			

3. Community Service Gaps

Survey respondents were asked to review a list of community services that are typically important for addressing the health needs of a community. Respondents were asked to identify from the list any services they think need strengthening in terms of availability, access, or quality. Respondents were also invited to identify additional service gaps not already defined on the list. *Exhibit 3* summarizes the results, including open-ended responses.

**Exhibit 3.
Important Community Service Gaps Identified by Survey Respondents**

Answer Options	Response Percent	Response Count
Behavioral Health Services	69%	11
Dental Care/Oral Health Services	56%	9
Health Care Coverage	56%	9
Aging Services ²²	50%	8
Transportation	50%	8
Adult Day Care Services	44%	7
Care Coordination Services	38%	6
Chronic Disease Services	38%	6
Family Planning Services	38%	6
Homeless Services	38%	6
Job /Vocational Retraining	38%	6
Chronic Pain Management Services	31%	5
Community Services for the Elderly	31%	5
Disability Services	31%	5
Domestic Violence Services	31%	5
Health Promotion and Prevention Services	31%	5
Cancer Services	25%	4
Early Intervention Services for Children	25%	4
Food Safety Net/Basic Needs Services	25%	4
Pharmacy Services	25%	4
Respite Care Services	25%	4
School Health Services	25%	4
Caregiver Education Support	19%	3
Housing Services	19%	3
Maternal, Infant & Child Health Services	19%	3
Patient Self Management Services(e.g. nutrition, exercise, taking medications)	19%	3
Primary Health Care Services	19%	3
Social Services	19%	3
Environmental Health Services	13%	2
Public Health Services	13%	2
Workplace Health and Safety Services	13%	2
Durable Medical Equipment	6%	1
Home Health Services	6%	1
Hospital Services	6%	1
Long Term Care Services	6%	1
Specialty Medical Care	6%	1
Assistive Technology	0%	0
Hospice Services	0%	0
Physical Rehabilitation	0%	0
Rehabilitation Ventilation Services	0%	0

Note: When interpreting the survey results, please note that although the relative number of responses received for each item is instructive, it is not a definitive measure of the relative importance of one issue compared to another.

Continued on next page...

²² Aging services primarily include health care services, while community services for the elderly primarily include non-health care support services such as meals, transportation, etc.

Exhibit 3.
Important Community Service Gaps Identified by Survey Respondents (continued)

Other Important Health Service Gaps Identified by Survey Respondents in Open-Ended Responses	
1)	Adult Day Care Services-maybe change name so it sounds more like a social club. Respite Care Services--people, especially caregivers, do not know the importance of this!
2)	Dental Care/Oral Health Services applies to Isle of Wight only. Public Health Services is too vague a reference.
3)	Foreign language interpretive and translative services, Culturally sensitive services, Adult literacy services and tools
4)	Psychiatric bed availability for the difficult psych patient (fire-starter, max of physical/sexual, assault, commorbidity)

Community Indicator Profile

This section of the report provides a quantitative profile of the RBHC supplemental study region based on a wide array of community health indicators. To produce the profile, Community Health Solutions analyzed data from multiple sources. By design, the analysis does not include every possible indicator of community health. The analysis is focused on a set of indicators that provide broad insight into community health, and for which there were readily available data sources.

The results of this profile can be used to evaluate community health status of the RBHC supplemental study region compared to the Commonwealth of Virginia overall. The results can also be helpful for determining the number of people affected by specific health concerns. In addition, the results can be used alongside the Community Insight Survey results and the zip code level maps to help inform action plans for community health improvement. This section includes eleven profiles as follows:

1. Health Demographic Trend Profile
2. Health Demographic Snapshot Profile
3. Mortality Profile
4. Maternal and Infant Health Profile
5. Preventable Hospitalization Discharge Profile
6. Behavioral Health Hospitalization Discharge Profile
7. Adult Health Risk Factor Profile
8. Youth Health Risk Factor Profile
9. Uninsured Profile
10. Medically Underserved Profile
11. Health Opportunity Index Profile

1. Health Demographic Trend Profile

Trends in health-related demographics are instructive for anticipating changes in community health status. Changes in the size, age and racial/ethnic mix of the population can have a significant impact on overall health status, health needs and demand for local services.

As shown in *Exhibit 1*, as of 2012, the RBHC supplemental study region included 1,098,995 people. The population is expected to increase to 1,126,863 by 2017. It is projected that population growth will occur in all age groups, including a 10% increase in seniors age 65+. Focusing on racial background, growth is projected for all populations, including a 6% increase in the Asian population. The Hispanic population is also expected to grow by 4%.

Exhibit 1.
Health Demographic Trend Profile, 2010-2017

Indicator	2010 Census	2012 Estimate	2017 Projection	% Change 2012-2017
Total Population	1,083,126	1,098,995	1,126,863	3%
Population Density (per Sq Mile)	911.0	924.3	947.7	3%
Total Households	399,791	403,381	415,487	3%
Population by Age				
Children Age 0-17	262,666	257,375	260,666	1%
Adults Age 18-29	215,164	218,603	220,772	1%
Adults Age 30-44	215,817	218,372	223,287	2%
Adults Age 45-64	274,756	282,800	288,169	2%
Seniors Age 65+	114,723	121,845	133,969	10%
Population by Race/Ethnicity				
Asian	43,520	45,067	47,702	6%
Black/African American	343,842	349,014	356,939	2%
White	633,884	640,986	655,657	2%
Other or Multi-Race	61,880	63,928	66,565	4%
Hispanic Ethnicity ²³	60,171	62,104	64,322	4%

Source: Community Health Solutions analysis of US Census data and estimates from Alteryx, Inc. See Appendix II-D. Data Sources for details.

²³ Classification of ethnicity; therefore, Hispanic individuals are also included in the race categories.

2. Health Demographic Snapshot Profile

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

Exhibit 2 presents a snapshot of key health-related demographics of the RBHC study region. As of 2012, the RBHC supplemental study region included an estimated 1,098,995 people. Focusing on population rates in the lower part of the Exhibit, compared to Virginia as a whole, the RBHC supplemental study region is more densely populated; has a larger proportion of Black/African American residents, has generally lower income levels; and has a lower rates of adults age 25+ without a high school diploma. *Note: Maps 1-13 in Appendix II-B show the geographic distribution of the population by zip code.*

Exhibit 2.
Health Demographic Snapshot Profile, 2012

Indicator		RBHC Supplemental Study Region	Virginia
Population Counts			
Total	Population	1,098,995	8,154,815
Age	Children Age 0-17	257,375	1,857,225
	Adults Age 18-29	218,603	1,375,674
	Adults Age 30-44	218,372	1,642,637
	Adults Age 45-64	282,800	2,233,940
	Seniors Age 65+	121,845	1,045,339
Sex	Female	555,156	4,148,680
	Male	543,839	4,006,135
Race	Asian	45,067	459,660
	Black/African American	349,014	1,579,659
	White	640,986	5,573,480
	Other or Multi-Race	63,928	542,016
Ethnicity	Hispanic Ethnicity ²⁴	62,104	655,986
Income	Low Income Households (Households with Income < \$25,000)	75,222	553,382
Education	Population Age 25+ Without a High School Diploma	67,895	675,228
Population Rates			
Total	Population Density (pop. per sq. mile)	924.3	202.2
Age	Children Age 0-17 pct. of Total Pop.	23%	23%
	Adults Age 18-29 pct. of Total Pop.	20%	17%
	Adults Age 30-44 pct. of Total Pop.	20%	20%
	Adults Age 45-64 pct. of Total Pop.	26%	27%
	Seniors Age 65+ pct. of Total Pop.	11%	13%
Sex	Female pct. of Total Pop.	51%	51%
	Male pct. of Total Pop.	49%	49%
Race	Asian pct. of Total Pop.	4%	6%
	Black/African American pct. of Total Pop.	32%	19%
	White pct. of Total Pop.	58%	68%
	Other or Multi-Race pct. of Total Pop.	6%	7%
Ethnicity	Hispanic Ethnicity pct. of Total Pop.	6%	8%
Income	Per Capita Income	\$28,541	\$34,307
	Median Household Income	\$58,154	\$64,118
	Low Income Households (Households with Income < \$25,000) pct. of Total Households	19%	18%
	Education	Pop. Age 25+ Without a High School Diploma pct. of Total Pop. Age 25+	10%

Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix II-D. Data Sources for details.

²⁴ Classification of ethnicity; therefore, Hispanic individuals are also included in the race categories.

3. Mortality Profile

Mortality is one of the most commonly cited community health indicators. As shown in *Exhibit 3*, in 2011, the RBHC supplemental study region had 7,931 total deaths. The leading causes of death were malignant neoplasms (cancer) (1,835), heart disease (1,687) and chronic lower respiratory diseases (441). The age-adjusted death rates for the RBHC supplemental study region were higher than the Virginia statewide rates overall, for 11 of the top fourteen causes of death. *Note: Maps 14-17 in Appendix II-B show the geographic distribution of deaths by zip code.*

**Exhibit 3.
Mortality Profile, 2011**

Indicator	RBHC Supplemental Study Region	Virginia
Total Deaths		
Deaths by All Causes	7,931	60,325
Deaths by Top 14 Causes		
Malignant Neoplasms Deaths	1,835	14,261
Heart Disease Deaths	1,687	13,201
Chronic Lower Respiratory Diseases Deaths	411	3,097
Cerebrovascular Diseases Deaths	406	3,327
Unintentional Injury Deaths	335	2,726
Alzheimer's Disease Deaths	274	1,800
Diabetes Mellitus Deaths	236	1,628
Nephritis and Nephrosis Deaths	200	1,425
Septicemia Deaths	180	1,372
Influenza and Pneumonia Deaths	155	1,404
Suicide Deaths	142	1,052
Chronic Liver Disease Deaths	104	725
Primary Hypertension and Renal Disease Deaths	84	569
Pneumonitis Deaths	70	560
Age Adjusted Death Rates per 100,000 Population		
Total Deaths	793.4	735.8
Malignant Neoplasms Deaths	182.4	169.5
Heart Disease Deaths	169.9	161.3
Chronic Lower Respiratory Diseases Deaths	42.8	38.4
Cerebrovascular Diseases Deaths	41.3	41.4
Unintentional Injury Deaths	31.9	33.4
Alzheimer's Disease Deaths	28.8	23.0
Diabetes Mellitus Deaths	23.6	19.4
Nephritis and Nephrosis Deaths	20.5	17.6
Septicemia Deaths	18.2	16.8
Influenza and Pneumonia Deaths	15.7	17.4
Suicide Deaths	13.0	12.5
Chronic Liver Disease Deaths	9.5	8.1
Primary Hypertension and Renal Disease Deaths	8.2	6.9
Pneumonitis Deaths	7.2	7.0

Source: Virginia Department of Health death record data. See Appendix II-D. Data Sources for details.

4. Maternal and Infant Health Profile

Maternal and infant health indicators are another widely cited category of community health. As shown in *Exhibit 4*, in 2011, the RBHC supplemental study region had 21,370 pregnancies, 15,412 total live births, and 121 infant deaths. Among the live births were 1,398 low weight births, 1,867 births without early prenatal care, 6,237 non-marital births and 1,106 births to teens. Compared to Virginia as a whole, the RBHC supplemental study region had higher rates of live births, low weight births, non-marital births, teen pregnancies and five-year infant mortality. *Note: Maps 18-21 in Appendix II-B show the geographic distribution of births by zip code.*

Exhibit 4
Maternal and Infant Health Profile, 2011

Indicator	RBHC Supplemental Study Region	Virginia
Counts		
Total Pregnancies	21,370	132,429
Induced Terminations of Pregnancy	5,218	23,635
Natural Fetal Deaths	740	6,269
Total Live Births	15,412	102,525
Low Weight Births (under 2,500 grams / 5 lb. 8	1,398	8,204
Births Without Early Prenatal Care (No Prenatal Care in First 13 Weeks)	1,867	13,500
Non-Marital Births	6,237	36,390
Total Teenage (age 10-19) Pregnancies	1,740	9,630
Live Births to Teens Age 10-19	1,106	6,572
Live Births to Teens Age 18-19	830	4,807
Live Births to Teens Age 15-17	269	1,708
Live Births to Teens Age <15	7	57
Total Infant Deaths	121	685
Rates		
Live Birth Rate per 1,000 Population	14.1	12.7
Low Weight Births pct. of Total Live Births	9%	8%
Births Without Early Prenatal Care (No Prenatal Care in First 13 Weeks) pct. of Total Live Births	12%	13%
Non-Marital Births pct. of Total Live Births	40%	35%
Teenage (age 10-19) Pregnancy Rate per 1,000 Teenage Female Population	24.9	18.6
Five-Year Average Infant Mortality Rate per 1,000 Live Births 2007-2011	8.7	7.0

Source: Virginia Department of Health birth record data. See Appendix II-D. Data Sources for details.

5. Preventable Hospitalization Discharge Profile

The Agency for Healthcare Research and Quality (AHRQ) defines a set of conditions (called Prevention Quality Indicators, or 'PQIs') for which hospitalization should be avoidable with proper outpatient health care.²⁵ High rates of hospitalization for these conditions indicate potential gaps in access to quality outpatient services for community residents.

As shown in *Exhibit 5*, in 2011, residents of the RBHC supplemental study region had 11,091 PQI hospital discharges from Virginia hospitals.²⁶ The leading diagnoses for these discharges were congestive heart failure (2,997), diabetes (1,889) and bacterial pneumonia (1,753). The age-adjusted PQI discharge rates for the RBHC supplemental study region were higher than the Virginia statewide rates overall, and for five of the 10 primary PQI diagnoses. *Note: Map 22 in Appendix II-B shows the geographic distribution of PQI discharges by zip code.*

Exhibit 5.
Prevention Quality Indicator (PQI) Hospital Discharge Profile, 2011

Indicator	RBHC Supplemental Study Region	Virginia
Total PQI Discharges¹²		
Total PQI Discharges by All Diagnoses	11,091	83,392
PQI Discharges by Diagnosis		
Congestive Heart Failure PQI Discharges	2,997	18,990
Diabetes PQI Discharges	1,889	11,326
Bacterial Pneumonia PQI Discharges	1,753	16,221
Urinary Tract Infection PQI Discharges	1,214	10,496
Chronic Obstructive Pulmonary Disease (COPD) PQI Discharges	1,185	11,439
Adult Asthma PQI Discharges	980	6,419
Hypertension PQI Discharges	403	2,898
Dehydration PQI Discharges	375	3,401
Perforated Appendix PQI Discharges	177	1,487
Angina PQI Discharges	118	715
Age Adjusted PQI Discharge Rates per 100,000 Population		
All Diagnoses	1,093.6	1,006.8
Congestive Heart Failure PQI Discharges	305.3	233.0
Bacterial Pneumonia PQI Discharges	176.7	197.4
Diabetes PQI Discharges	172.9	133.2
Urinary Tract Infection PQI Discharges	125.7	131.0
Chronic Obstructive Pulmonary Disease (COPD) PQI Discharges	118.4	134.2
Adult Asthma PQI Discharges	90.5	75.3
Hypertension PQI Discharges	38.5	34.8
Dehydration PQI Discharges	37.9	41.4
Perforated Appendix PQI Discharges	16.1	18.1
Angina PQI Discharges	11.5	8.3

Source: Community Health Solutions analysis of hospital discharge data from Virginia Health Information, Inc. and estimates from Alteryx, Inc. See Appendix II-D. Data Sources for details.

²⁵ The PQI definitions are detailed in their specification of ICD-9 diagnosis codes and procedure codes. Not every hospital admission for congestive heart failure, bacterial pneumonia, etc. is included in the PQI definition; only those meeting the detailed specifications. Low birth weight is one of the PQI indicators, but for the purpose of this report, low birth weight is included in the Maternal and Infant Health Profile. Also, there are three diabetes-related PQI indicators which have been combined into one for the report. For more information, visit the AHRQ website at www.qualityindicators.ahrq.gov/pqi_overview.htm

²⁶ Data include discharges for Virginia residents from Virginia community hospitals reporting to Virginia Health Information, Inc. These data do not include discharges from state behavioral health facilities or federal (military) facilities. Data reported are based on the primary diagnosis.

6. Behavioral Health Hospitalization Discharge Profile

Behavioral health (BH) hospitalizations provide another important indicator of community health status. As shown in *Exhibit 6*, in 2011, residents of the RBHC supplemental study region had 9,571 hospital discharges from Virginia hospitals for behavioral health conditions.²⁷ The leading diagnoses for these discharges were affective psychoses (3,907), schizophrenic disorders (1,636) and general symptoms (1,589). The age-adjusted BH discharge rates for the RBHC supplemental study region were higher than the statewide rates overall, and for six of the ten primary BH diagnoses. *Note: Map 23 in Appendix II-B shows the geographic distribution of BH discharges by zip code.*

Exhibit 6.
Behavioral Health Hospital Discharge Profile, 2011

Indicator	RBHC Supplemental Study Region	Virginia
BH Discharges¹⁴		
Total BH Discharges by All Diagnoses	9,571	64,892
BH Discharges by Diagnosis		
Affective Psychoses ²⁸	3,907	27,277
Schizophrenic Disorders	1,636	8,042
General Symptoms ²⁹	1,589	11,135
Alcoholic Psychoses	433	3,283
Depressive Disorder, Not Elsewhere Classified	323	2,785
Other Nonorganic Psychoses	307	2,148
Drug Psychoses	250	1,321
Alcoholic Dependence Syndrome	249	2,161
Adjustment reaction	207	2,123
Neurotic Disorders	165	1,351
Age Adjusted BH Discharge Rates per 100,000 Population		
All Diagnoses	877.7	786.8
Affective Psychoses	351.2	332.7
General Symptoms	156.7	136.4
Schizophrenic Disorders	146.0	95.0
Alcoholic Psychoses	39.2	38.0
Depressive Disorder, Not Elsewhere Classified	29.0	34.2
Other Nonorganic Psychoses	27.9	26.2
Drug Psychoses	22.8	16.0
Alcoholic Dependence Syndrome	22.3	25.2
Adjustment Reaction	18.1	26.2
Neurotic Disorders	15.3	16.4

Source: Community Health Solutions analysis of hospital discharge data from Virginia Health Information, Inc. and estimates from Alteryx, Inc. See Appendix II-D. Data Sources for details.

²⁷ Data include discharges for Virginia residents from Virginia community hospitals reporting to Virginia Health Information, Inc. These data do not include discharges from state behavioral health facilities or federal (military) facilities. Data reported are based on the primary diagnosis.

²⁸ Includes major depressive, bipolar affective and manic depressive disorders.

²⁹ This diagnosis includes symptoms, signs, abnormal results of laboratory or other investigative procedures, and ill-defined conditions regarding which no diagnosis classifiable elsewhere is recorded.

7. Adult Health Risk Factor Profile

This section examines health risks for adults age 18+. Prevalence estimates of health risks, chronic disease and health status can be useful in developing prevention and improvement efforts. *Exhibit 7* show estimates indicating that substantial numbers of adults in the RBHC supplemental study region have health risks related to nutrition, physical inactivity, weight, tobacco and alcohol. In addition, substantial numbers of adults have chronic conditions such as high blood pressure, arthritis, high cholesterol, diabetes and asthma. *Note: Maps 24-27 in Appendix II-B show the geographic distribution of selected adult health risks by zip code.*

Exhibit 7.
Adult Health Risk Factor Profile (Estimates), 2011

Indicator	RBHC Supplemental Study Region Estimates (Count)	RBHC Supplemental Study Region Estimates (Percent)
Estimated Adults age 18+	841,620	100%
Risk Factors		
Less than Five Servings of Fruits and Vegetables Per Day	658,727	78%
Overweight or Obese ³⁰	518,153	62%
Not Meeting Recommendations for Physical Activity in the Past 30 Days	435,596	52%
Smoker	172,319	20%
At Risk for Binge Drinking (males having five or more drinks on one occasion, females having four or more drinks on one occasion)	166,186	20%
Chronic Conditions		
High Cholesterol (was checked, and told by a doctor or other health professional it was high)	299,350	36%
High Blood Pressure (told by a doctor or other health professional)	243,522	29%
Arthritis (told by a doctor or other health professional)	203,177	24%
Diabetes (told by a doctor or other health professional)	77,327	9%
Asthma (told by a doctor or other health professional)	59,574	7%
General Health Status		
Limited in any Activities because of Physical, Mental or Emotional Problems	163,521	19%
Fair or Poor Health Status	131,857	16%

* Source: Estimates based on Community Health Solutions analysis of Virginia Behavioral Risk Factor Surveillance System data and estimates from Alteryx, Inc. See Appendix II-D. Data Sources for details.

³⁰ According to the CDC, for adults 20 years old and older, BMI is interpreted using standard weight status categories that are the same for all ages and for both men and women. Overweight is defined as a BMI between 25.0 and 29.9. Obesity is defined as a BMI 30.0 and above. For more information: http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html#Interpreted

8. Youth Health Risk Factor Profile

This section examines selected health risks for youth age 14-19. These risks have received increasing attention as the population of American children has become more sedentary, more prone to unhealthy eating and more likely to develop unhealthy body weight. The long-term implications of these trends are serious, as these factors place children at higher risk for chronic disease both now and in adulthood.

Exhibit 8 shows estimates indicating that substantial numbers of youth in the RBHC supplemental study region have health risks related to nutrition, weight, physical activity, tobacco, alcohol and mental health. *Note: Maps 28-29 in Appendix II-B shows the geographic distribution of selected youth health risks by zip code.*

**Exhibit 8.
Youth Health Risk Factor Profile (Estimates), 2012**

Indicator	RBHC Supplemental Study Region Estimates (Count)	RBHC Supplemental Study Region Estimates (Percent)
Estimated Youth age 14-19	86,918	100%
Less than the Recommended Intake of Vegetables	77,067	89%
Less than the Recommended Intake of Fruit	74,335	86%
Overweight or Obese ³¹	26,433	30%
Have at least One Drink of Alcohol at least One Day in the Past 30 Days	24,335	28%
Feel Sad or Hopeless (almost every day for two or more weeks in a row so that they stopped doing some usual activities)	21,433	25%
Used Tobacco in the Past 30 Days	16,540	19%
Not Meeting Recommendations for Physical Activity in the Past Week	13,629	16%

Source: Estimates based on Community Health Solutions analysis of Virginia Youth Risk Behavioral Surveillance System data and estimates from Alteryx, Inc. See Appendix II-D. Data Sources for details.

³¹ For children and adolescents (aged 2–19 years), the BMI value is plotted on the CDC growth charts to determine the corresponding BMI-for-age percentile. Overweight is defined as a BMI at or above the 85th percentile and lower than the 95th percentile. Obesity is defined as a BMI at or above the 95th percentile for children of the same age and sex. For more information: http://www.cdc.gov/healthyweight/assessing/bmi/childrens_BMI/about_childrens_BMI.html

9. Uninsured Profile

Decades of research show that health coverage matters when it comes to overall health status, access to health care, quality of life, school and work productivity, and even mortality. *Exhibit 9* shows the estimated number of uninsured individuals, by income as a percent of the federal poverty level (FPL), in the RBHC supplemental study region as of 2012.³² An estimated 135,486 (14%) nonelderly residents of the RBHC supplemental study region were uninsured at any point in time in 2012. This included an estimated 20,487 children and 114,999 adults. *Note: Maps 30-31 in Appendix II-B show the geographic distribution of the uninsured population by zip code.*

Exhibit 9.
Uninsured Profile (Estimates), 2012

Indicator	RBHC Supplemental Study Region
Estimated Uninsured Counts	
Uninsured Nonelderly Age 0-64	135,486
Uninsured Children Age 0-18	20,487
Uninsured Children <100% FPL	6,195
Uninsured Children 100-200% FPL	7,975
Uninsured Children 201-300% FPL	3,051
Uninsured Children 301%+ FPL	3,266
Uninsured Adults Age 19-64	114,999
Uninsured Adults <100% FPL	53,085
Uninsured Adults 100-200% FPL	32,120
Uninsured Adults 201-300% FPL	18,318
Uninsured Adults 301%+ FPL	11,476
Estimated Uninsured Rates	
Uninsured Nonelderly Percent	14%
Uninsured Children Percent	8%
Uninsured Adults Percent	16%

Source: Community Health Solutions estimates based on Community Health Solutions analysis of Profile of the Uninsured report produced for Virginia Health Care Foundation by the Urban Institute and estimates from Alteryx, Inc. See Appendix II-D. Data Sources for details.

³² For more information, please see: <http://aspe.hhs.gov/poverty/12poverty.shtml>

10. Medically Underserved Profile

Medically Underserved Areas (MUAs) and Medically Underserved Populations (MUPs) are designated by the U.S. Health Resources and Services Administration as being at risk for health care access problems. The designations are based on several factors including primary care provider supply, infant mortality, prevalence of poverty and the prevalence of seniors age 65+.

As shown in *Exhibit 10*, all five localities in the RBHC supplemental study region are fully or partially designated as MUA/MUPs. For a more detailed description, visit the U.S. Health Resources and Service Administration designation webpage at <http://muafind.hrsa.gov/>.

Exhibit 10. Medically Underserved Area/Populations

Locality	MUA/MUP Designation	Census Tracts
Chesapeake, City of	Partial	8 of 41 Census Tracts
Norfolk, City of	Partial	31 of 80 Census Tracts
Portsmouth, City of	Partial	11 of 31 Census Tracts
Suffolk, City of	Full	28 of 28 Census Tracts
Virginia Beach, City of	Partial	5 of 99 Census Tracts

Source: Community Health Solutions analysis of U.S. Health Resources and Services Administration data.

11. Health Opportunity Index

The preceding community indicator profiles presented a broader view of the RBHC supplemental study region, with an emphasis on the magnitude of need across the five localities. The profiles provide important insights about the health of RBHC supplemental study region residents. But they do not fully portray the diversity of needs that exist within and across the cities of the RBHC supplemental study region.

This section provides a closer look at the RBHC supplemental study region through the lens of the *Health Opportunity Index*. The Health Opportunity Index (HOI) was developed by the Virginia Department of Health (VDH) to identify those geographic areas and populations that are most vulnerable to adverse health outcomes³³. The HOI is produced at the census-tract level, making it possible to identify pockets of vulnerability within the boundaries of larger cities and counties. When we apply the HOI to the RBHC supplemental study region, we find some of the most vulnerable census tracts in the Commonwealth of Virginia.

About the Health Opportunity Index

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

1. *Affordability*. The affordability indicator measures the proportion of income households spend on housing and transportation. A higher proportion spent on these items indicates a lower proportion available for other needs including health.
2. *Education*. The education indicator measures the overall level of educational attainment achieved by the adult population. Lower levels of education are strongly associated with poorer health status.
3. *Environment*. The environmental indicator measured the level of air pollution based on data from the Environmental Protection Agency. The higher the indicator, the greater the exposure to environmental conditions that may result in adverse health outcomes.
4. *Income Diversity*. The income diversity indicator measures the distribution of household income within a census tract. When income diversity is low and average income is low, this signifies a high concentration of low income individuals who may be at risk for poor health status.
5. *Job Participation*. The job participation indicator measures the percent of population age 16 through 64 who are either unemployed or seeking work. The higher the job participation rate, the greater the opportunity for employment, income, and better health status.
6. *Local Commute of Workers*. The local commute indicator measures the inflow of workers to an area compared to the outflow from that same area. As with the job participation indicator, the higher the indicator, the greater the opportunity for local employment, income, and better health status.
7. *Population Churning*. The population churning indicator measures the sum number of in- and out-migrants of an area in relation to the total population. High levels of population churn can influence population health measures depending on the types of people that are moving in or out of the census tract.
8. *Population Density*. The population density indicator measures the concentration of people per square mile within a census tract. It is often used as a measure of rural and urban populations, and can be helpful for identifying special health needs of communities that are especially sparsely populated or crowded.
9. *Racial Diversity*. The racial diversity indicator measures the racial distribution of the population within a census tract. According to research cited by VDH, low diversity may be associated with poor health when the area is predominantly non-White.

³³ Virginia Department of Health's *Virginia Health Equity Report 2012*. <http://www.vdh.virginia.gov/OMHHE/2012report.htm>

10. **Townsend Index.** The Townsend Index measures economic deprivation. It is based on four equally weighted variables including the percent unemployed, the percent of private households that do not possess a car or van, the percent of private households that are not owner-occupied, and the percent of private households that are over-crowded (more than one person per room). The higher the Townsend Index, the higher the economic deprivation, and the higher the risk of adverse health.

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

The Health Opportunity Index in the RBHC Supplemental Study Region

VDH provides Health Opportunity Index scores for 251 census tracts in the RBHC supplemental study region. *Exhibit 11A* provides a summary of the statewide rankings for RBHC supplemental study region census tracts. As illustrated in *Exhibit 11A*, 27 RBHC supplemental study region census tracts are ranked in the top quintile (top twenty percent) statewide on the Health Opportunity Index. Another 25 census tracts are ranked in the second quintile. These rankings reflect the high level of health opportunity in many parts of the RBHC supplemental study region.

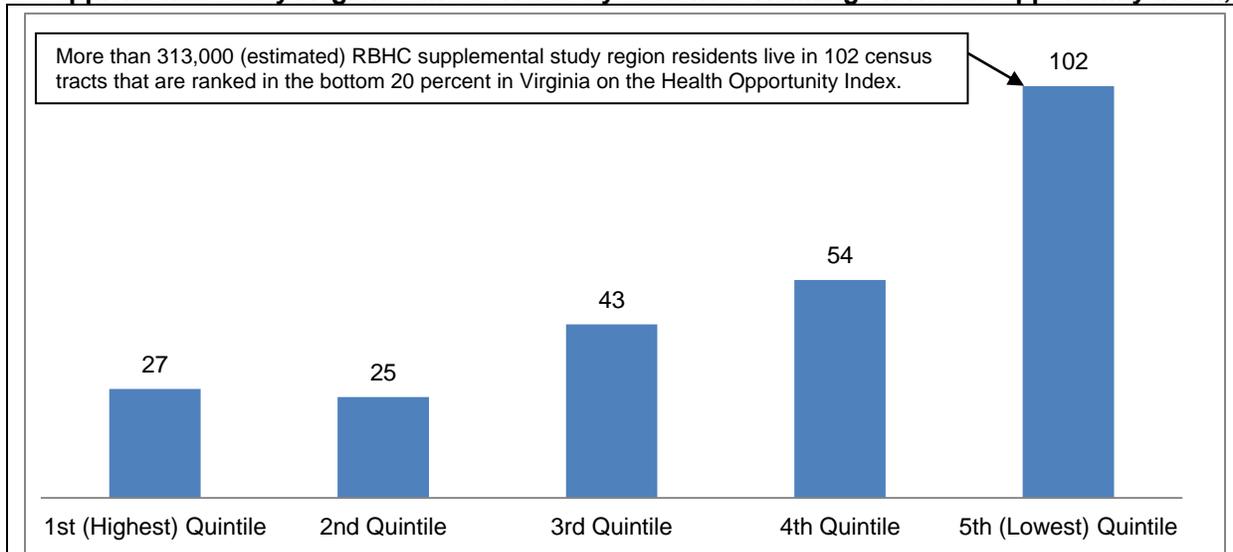
At the opposite end of the spectrum, 54 census tracts are ranked in the fourth quintile, and 102 census tracts are ranked in the 5th (lowest) quintile statewide. These rankings indicate that substantial numbers of RBHC supplemental study region residents are vulnerable to adverse health outcomes based on social determinants of health. To put this in perspective, more than 313,000 residents live in the 102 census tracts ranked in the bottom 20 percent statewide³⁴. This dynamic is easily masked by analyses focused solely on city-level indicators of health.

Identifying Census Tracts with Low Scores on the Health Opportunity Index

Exhibit 11B lists the specific census tracts that ranked in the bottom quintile statewide on the Health Opportunity Index. As shown, these census tracts can be found in all five cities in the RBHC supplemental study region. (Please note that these census tracts are based on 2000 census boundaries). *Note: On the following page, maps in Exhibit 11B and Exhibit 11C show all RBHC supplemental region census tracts by HOI quintile. Additionally, Appendix II-C provides a listing of all RBHC supplemental region census tracts by HOI score, rank and quintile.*

Exhibit 11A.

RBHC Supplemental Study Region Census Tracts by Statewide Ranking on Health Opportunity Index, 2012



Virginia Department of Health's Virginia Health Equity Report, 2012. See Appendix I-D. Data Sources for details.

³⁴ 2012 population estimates from Alteryx, Inc. It is important to note these estimates are provided for census tracts with 2010 boundaries; some 2010 census boundaries differ from 2000 census boundaries.

APPENDIX II-A. Community Insight Profile-Additional Ideas and Suggestions for Improving Community Health

Survey respondents were given the option to submit additional ideas and suggestions for improving community health. The open-ended responses are listed below.

Response #	
1	In comparison to similar facilities, what I will say is that I have noticed a positive significant change in your response to pre-screening counselors in the community. Your response as to whether or not you are able to accommodate an individual is swift and the process is not complicated. Perhaps a small unit that could assist with the very difficult.
2	Providing specialty care for the uninsured and un [der] insured population who end up having to go to VCU for care.
3	Riverside is doing a great job of providing a wide variety of services to seniors!
4	Work closely with your local health department on health issues affecting your community to ensure a common vision of the health issues and trends and a coordinated approach to health improvement. The health department should be a part of the process early on in the development stage and not an after-thought.

APPENDIX II-B. Zip Code-Level Maps for the RBHC Study Region

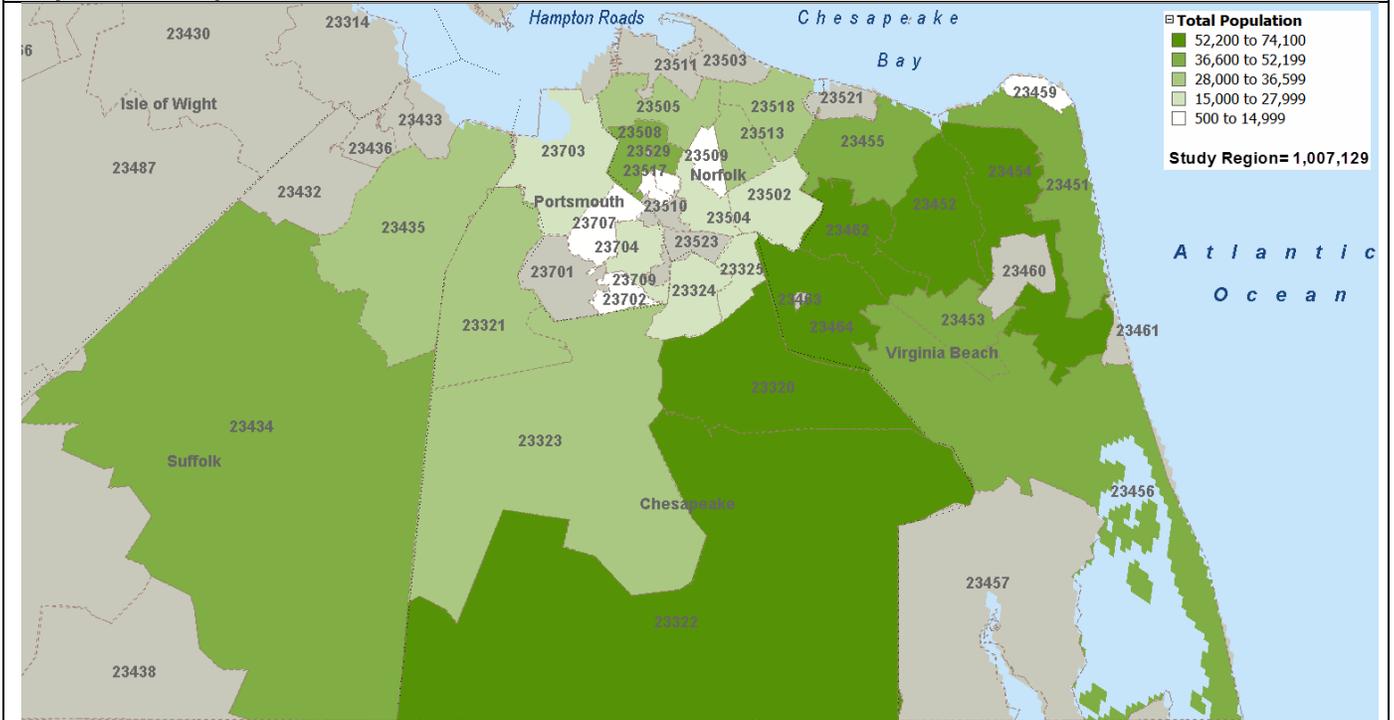
The maps in this section illustrate the geographic distribution of the RBHC supplemental study region population on key demographic and health indicators at the zip code-level. The results can also be used alongside the Community Insight Survey and the Community Indicator Profile to help inform plans for community health initiatives. The underlying data for these maps are provided in a separate Microsoft Excel file. The maps in this section include the following for 2011/2012:

1. Total Population, 2012	17. Chronic Lower Respiratory Diseases Deaths, 2011
2. Population Density, 2012	18. Total Live Births, 2011
3. Child Population Age 0-17, 2012	19. Low Weight Births, 2011
4. Senior Population Age 65+, 2012	20. Births Without Early Prenatal Care (No Prenatal Care in the First 13 Weeks), 2011
5. Asian Population, 2012	21. Births to Teen Mothers Under Age 18, 2011
6. Black/African American Population, 2012	22. Prevention Quality Indicator (PQI) Hospital Discharges, 2011
7. White Population, 2012	23. Behavioral Health (BH) Hospital Discharges, 2011
8. Other or Multi-Race Population, 2012	24. Estimated Adults Age 18+ Overweight or Obese, 2012
9. Hispanic Ethnicity Population, 2012	25. Estimated Adult Age 18+ Smokers, 2012
10. Per Capita Income, 2012	26. Estimated Adults Age 18+ with Diabetes, 2012
11. Median Household Income, 2012	27. Estimated Adults Age 18+ with High Blood Pressure, 2012
12. Low Income Households (Households with Income <\$25,000), 2012	28. Estimated Youth Age 14-19 Overweight or Obese, 2012
13. Population Age 25+ Without a High School Diploma, 2012	29. Estimated Youth Age 14-19 who had No Physical Activity in the Past Week, 2012
14. Total Deaths, 2011	30. Estimated Uninsured Children Age 0-18, 2012
15. Malignant Neoplasm (Cancer) Deaths, 2011	31. Estimated Uninsured Adults Age 19-64, 2012
16. Heart Disease Deaths, 2011	

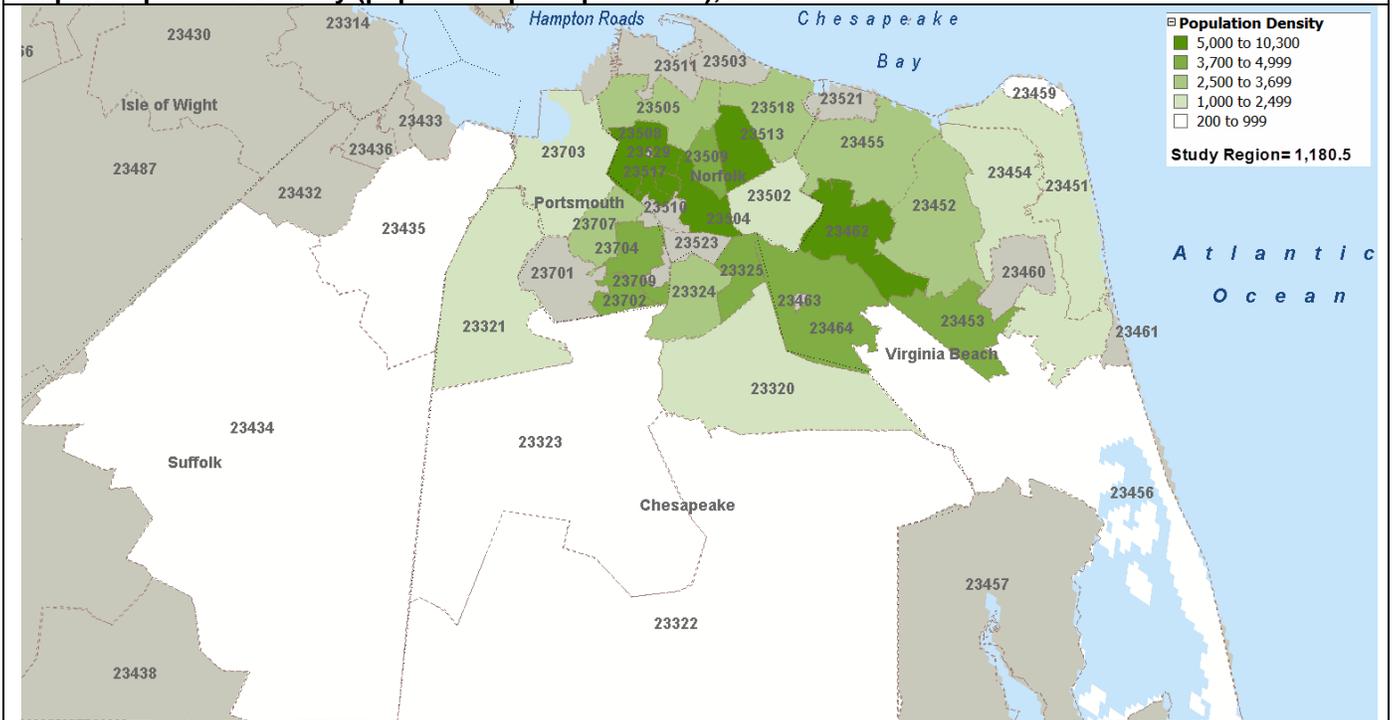
Technical Notes

1. The zip code-level maps focus on the RBHC supplemental study region of 30 zip codes, as identified by the Riverside Health System Hospitals, most of which fall within the cities of Chesapeake, Norfolk, Portsmouth, Suffolk and Virginia Beach. Because zip code boundaries do not automatically align with city/county boundaries, there are some zip codes that extend beyond the city/county boundaries. Additionally, not all zip codes in each locality were identified by RBHC as part of the RBHC supplemental study region. Consequently, the combined zip-code-level totals for population, deaths, births, hospital discharges, etc. differ from the RBHC supplemental study region totals listed throughout the body of the report.
2. With the exception of population density, per capita income and median household income, the maps show counts rather than rates. Rates are not mapped at the zip code-level because in some zip codes the population is too small to support rate-based comparisons.
3. Data are presented in quintiles (categorized in groups of five).
4. Gray shading indicates either zip codes not included in the RBHC supplemental study region, or zero values for zip codes that are included in the RBHC supplemental study region. RBHC supplemental study region zip codes with zero values are noted.

Map 1: Total Population, 2012

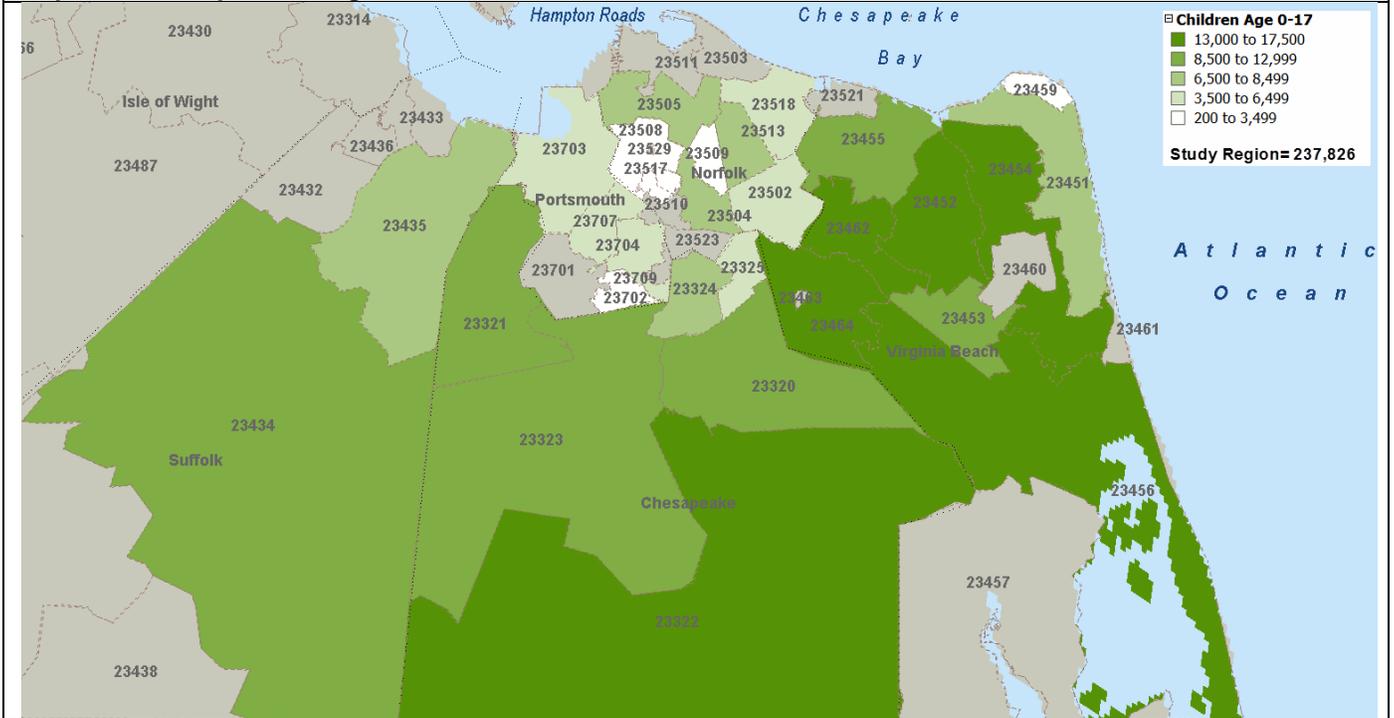


Map 2: Population Density (population per square mile), 2012

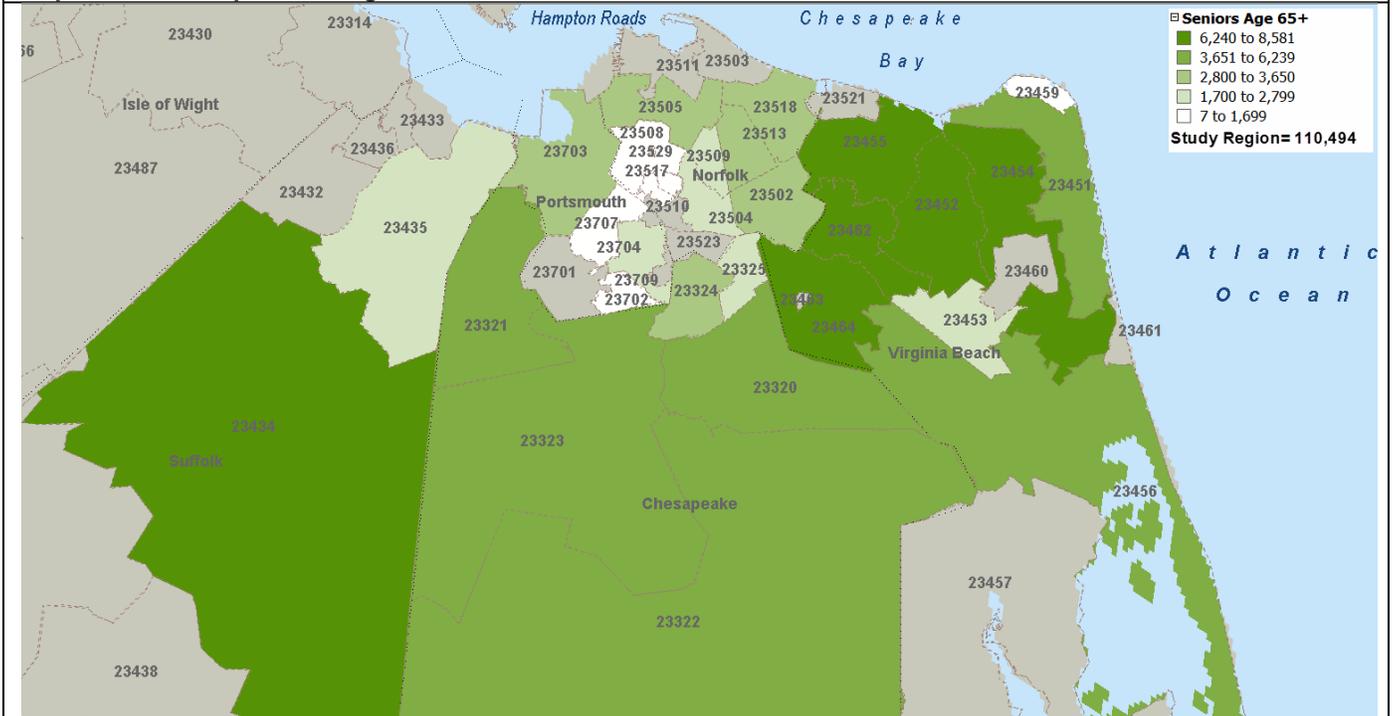


Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 3: Child Population Age 0-17, 2012

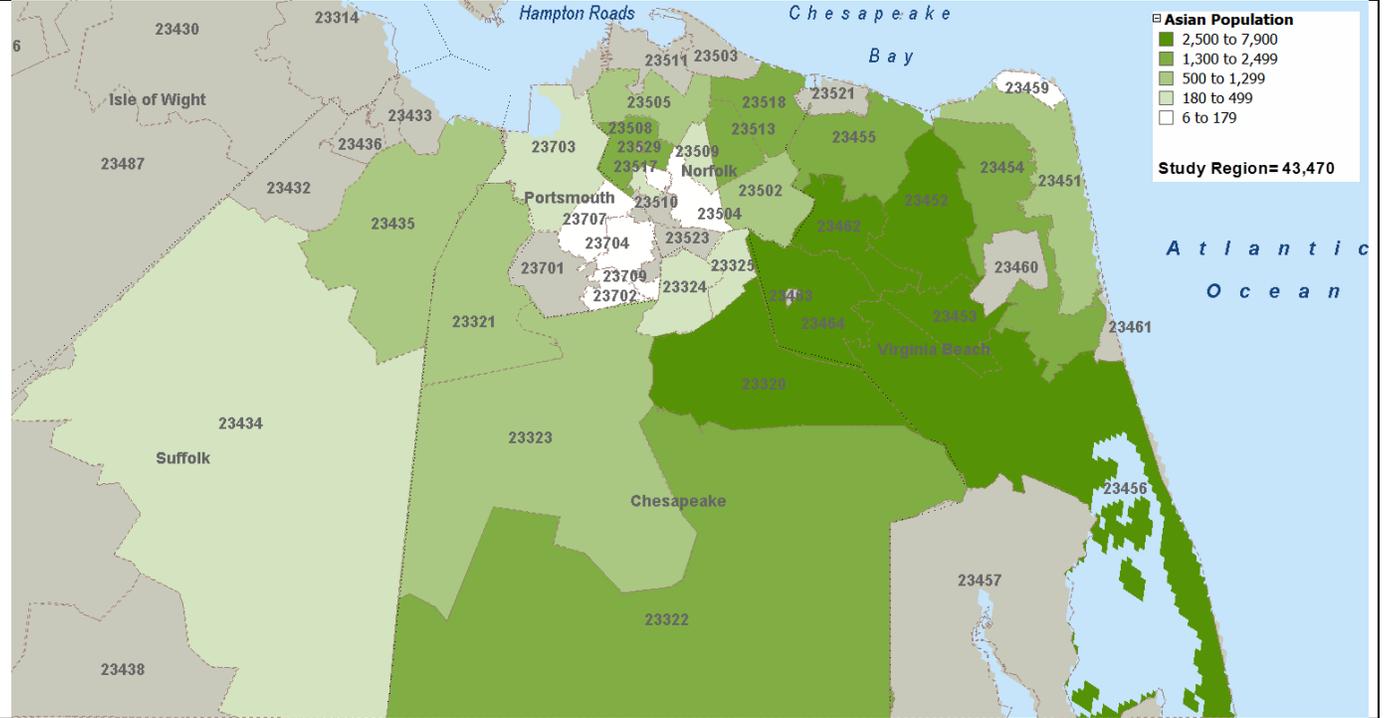


Map 4: Senior Population Age 65+, 2012

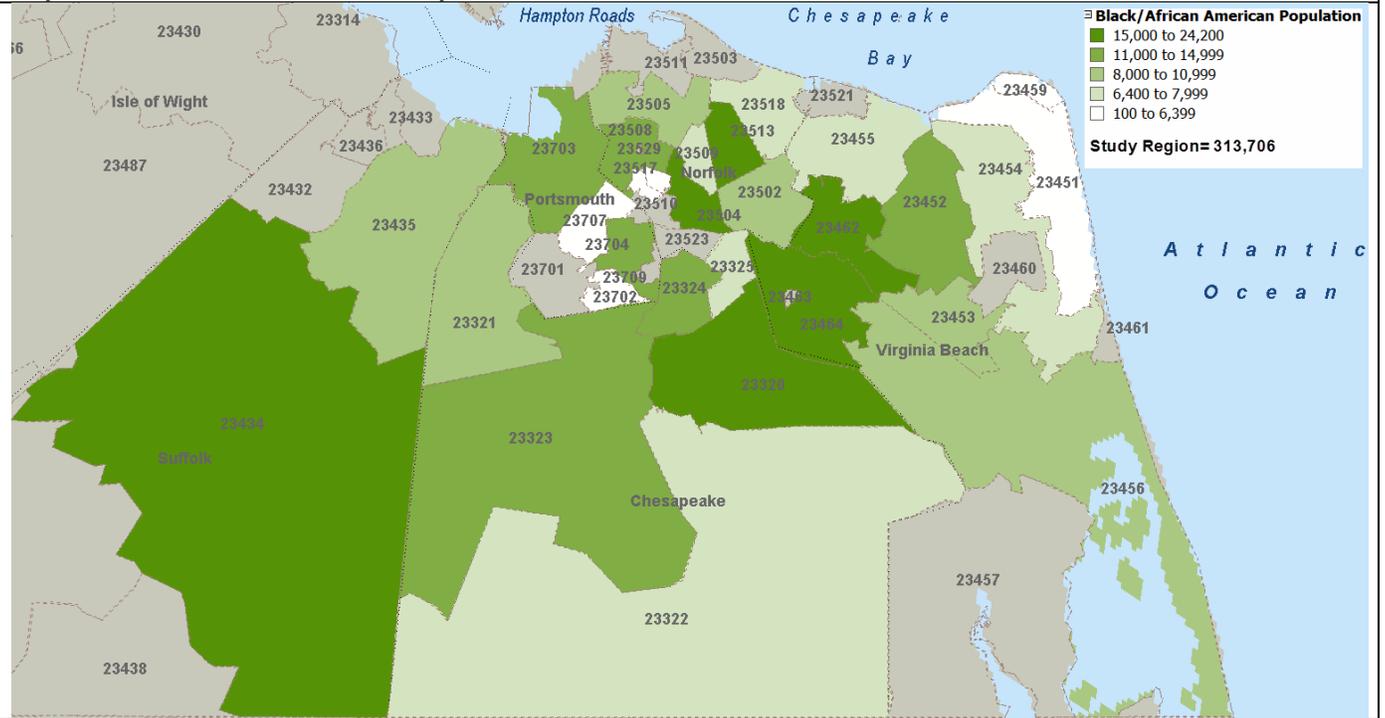


Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 5: Asian Population, 2012

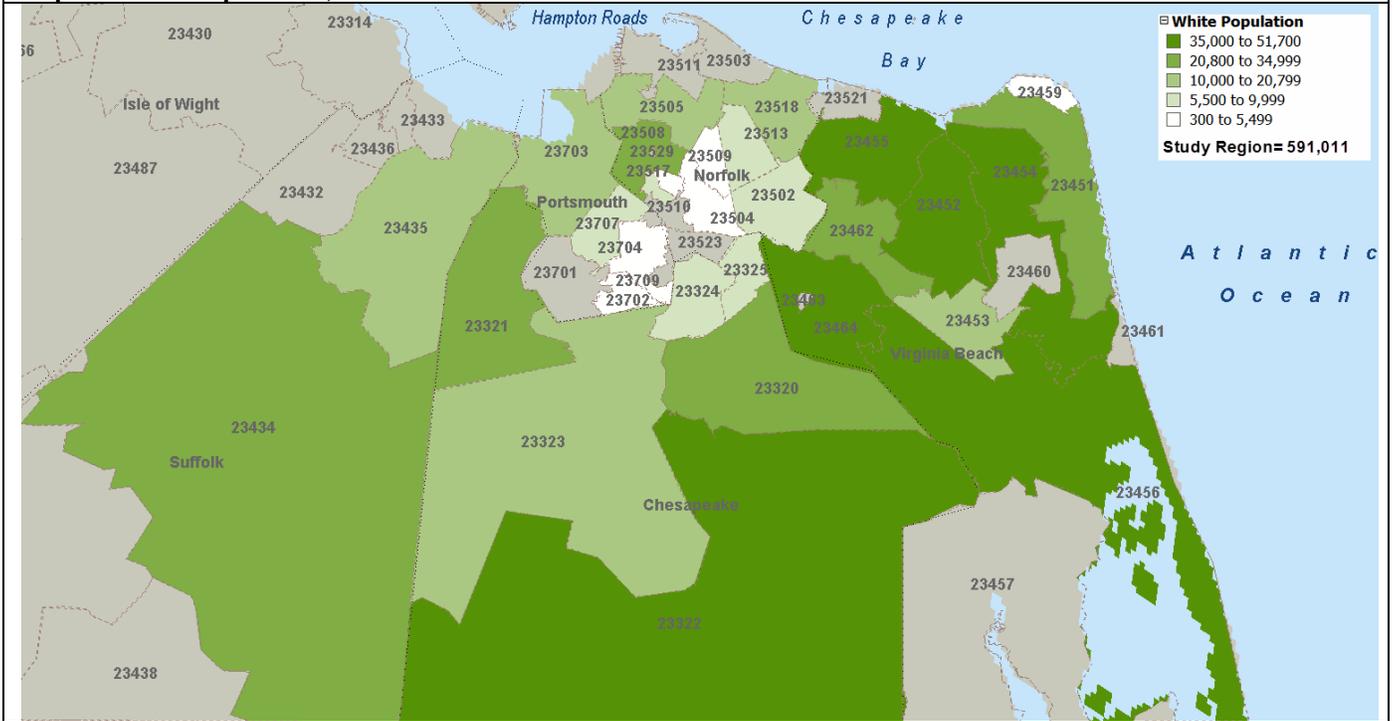


Map 6: Black/African American Population, 2012

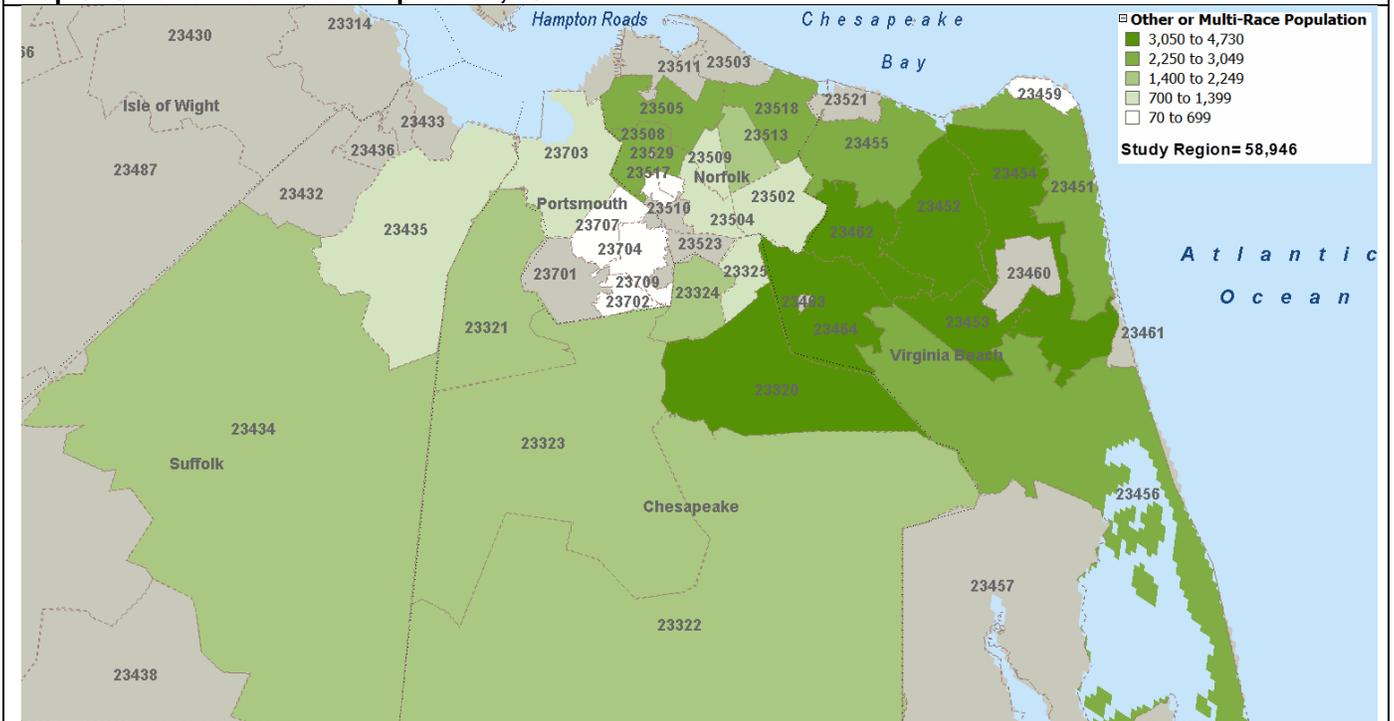


Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 7: White Population, 2012

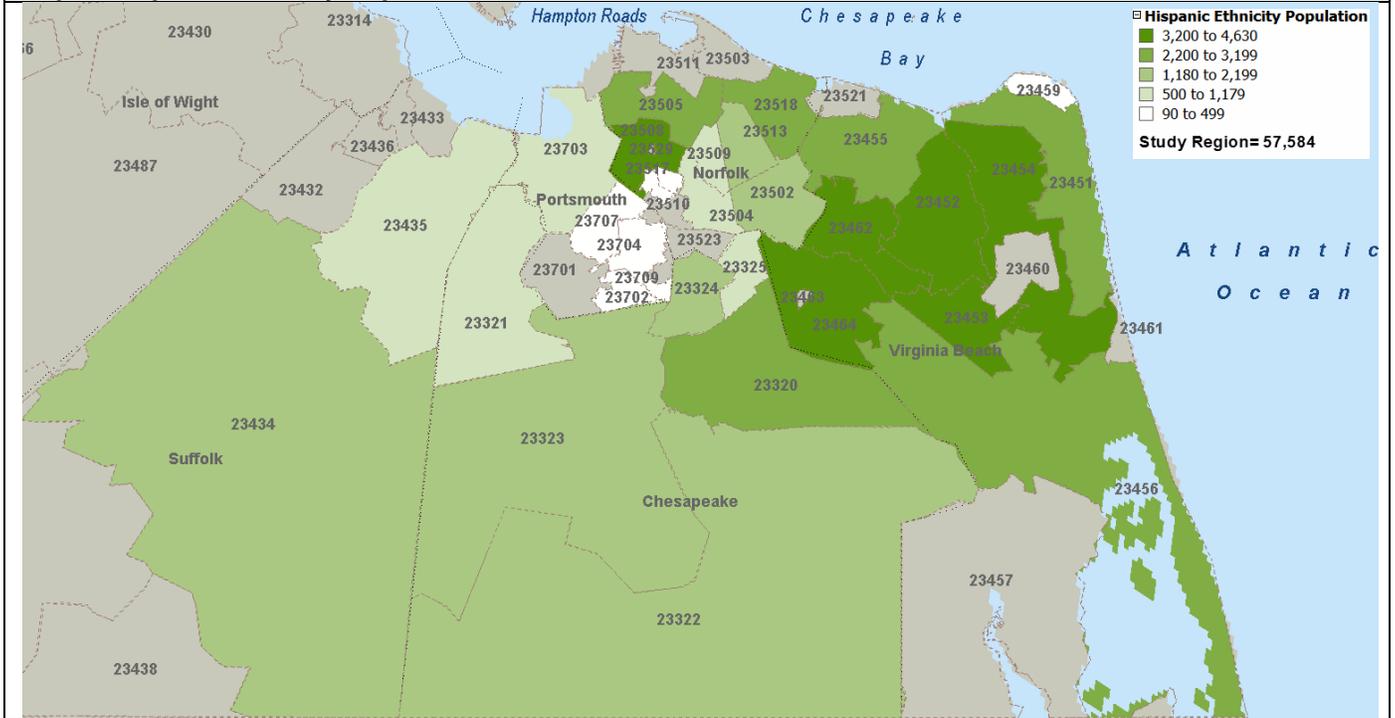


Map 8: Other or Multi-Race Population, 2012



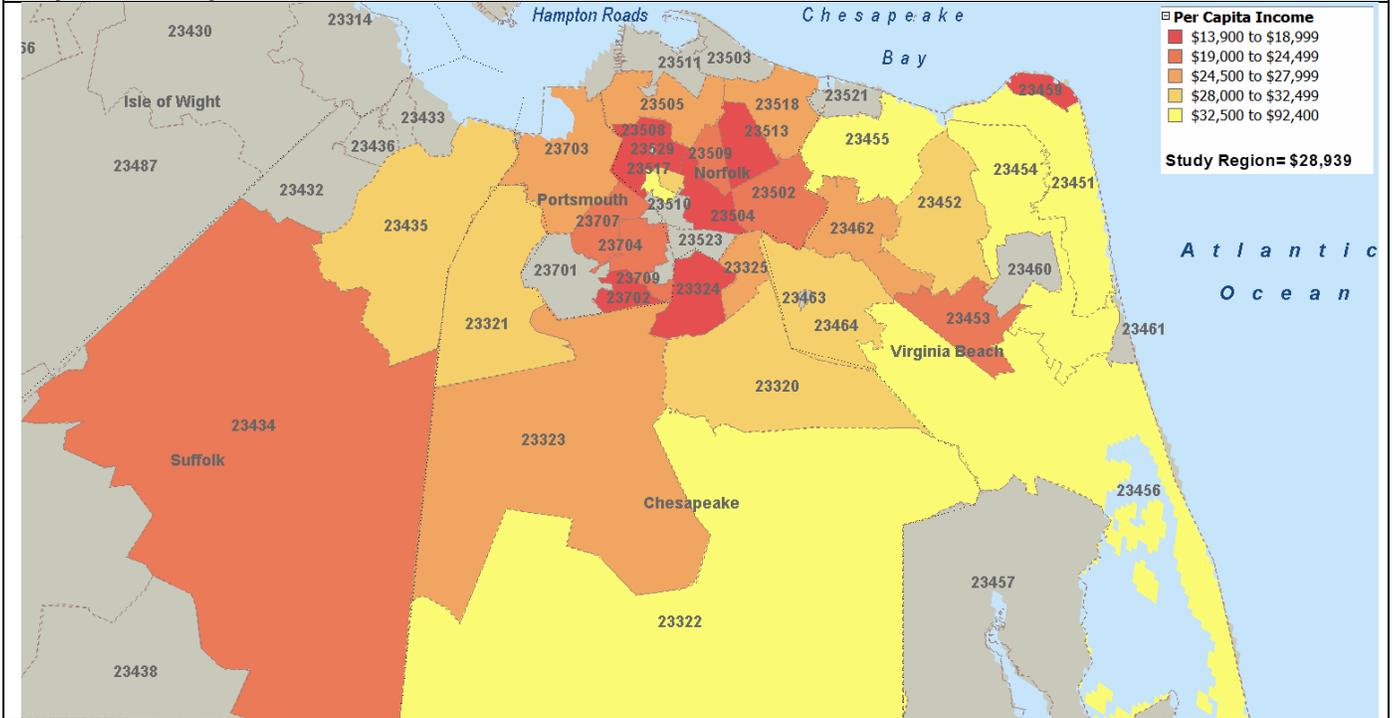
Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 9: Hispanic Ethnicity Population, 2012

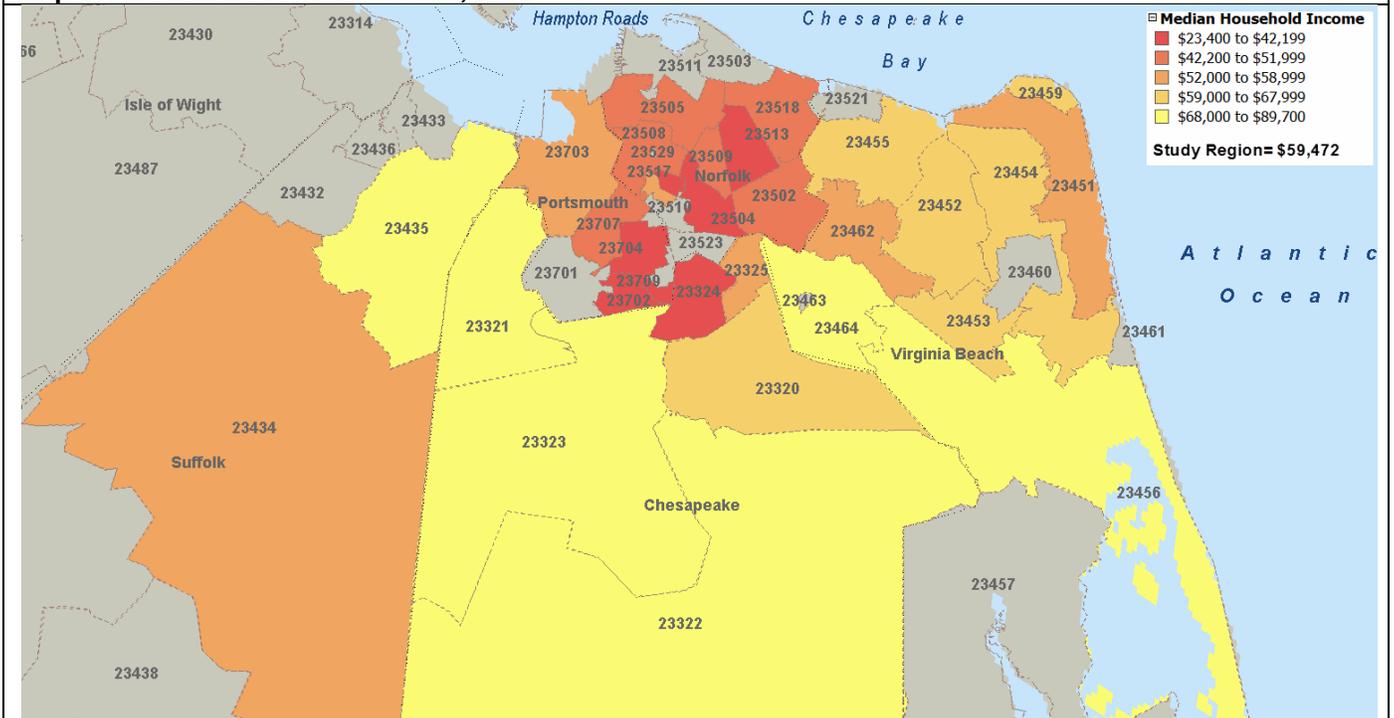


Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 10: Per Capita Income, 2012

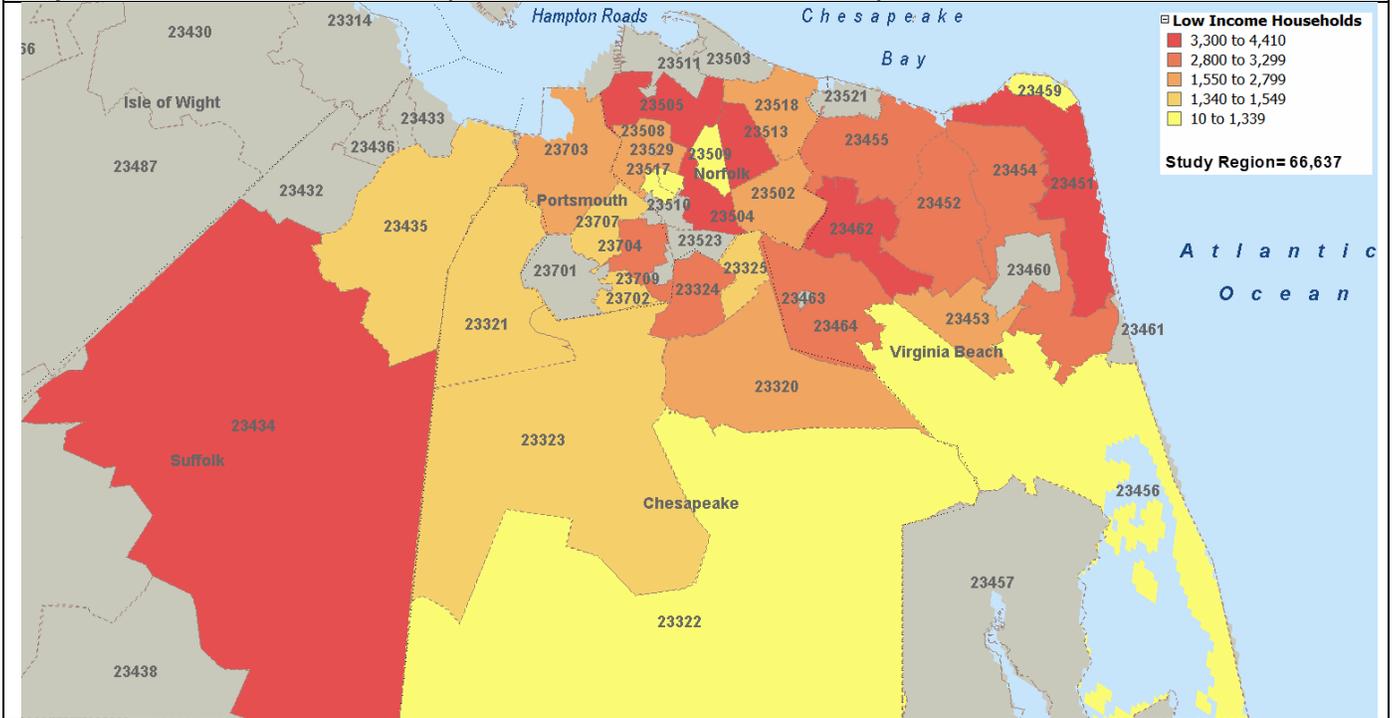


Map 11: Median Household Income, 2012

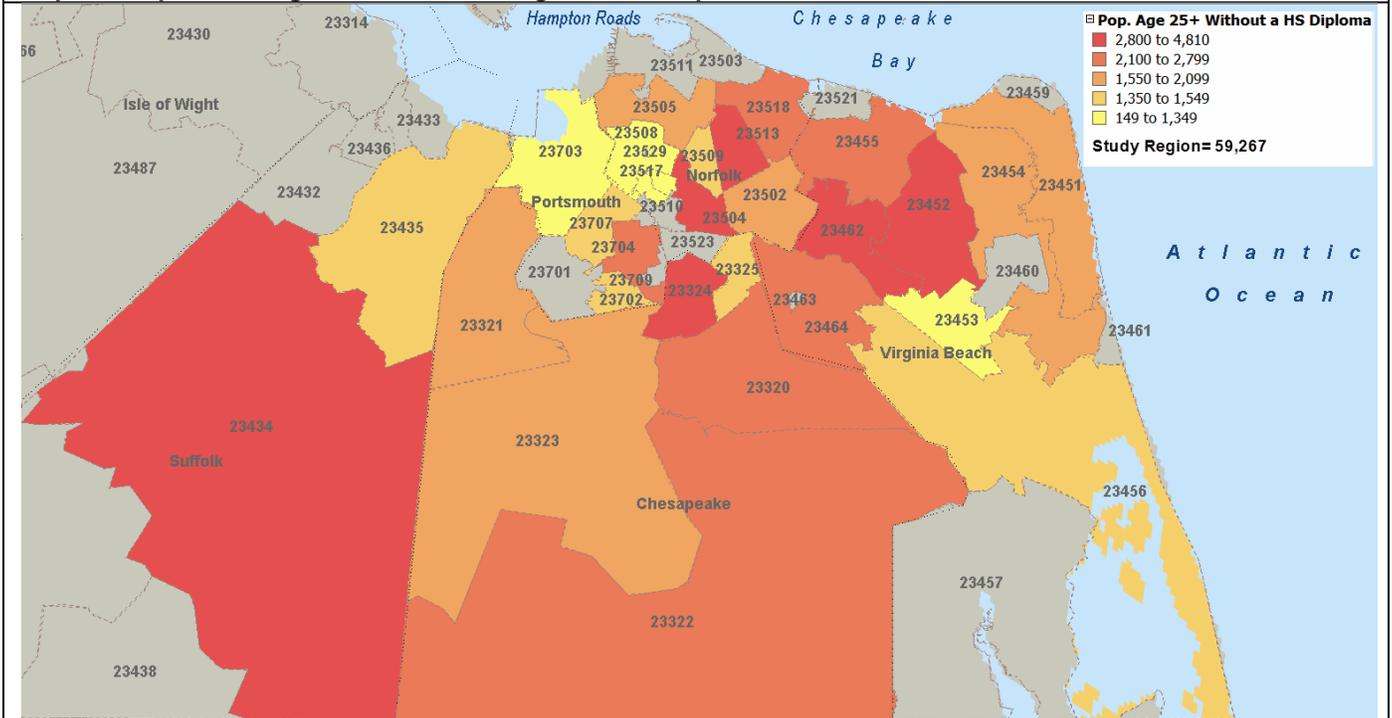


Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 12: Low Income Households (Households with Income <\$25,000), 2012



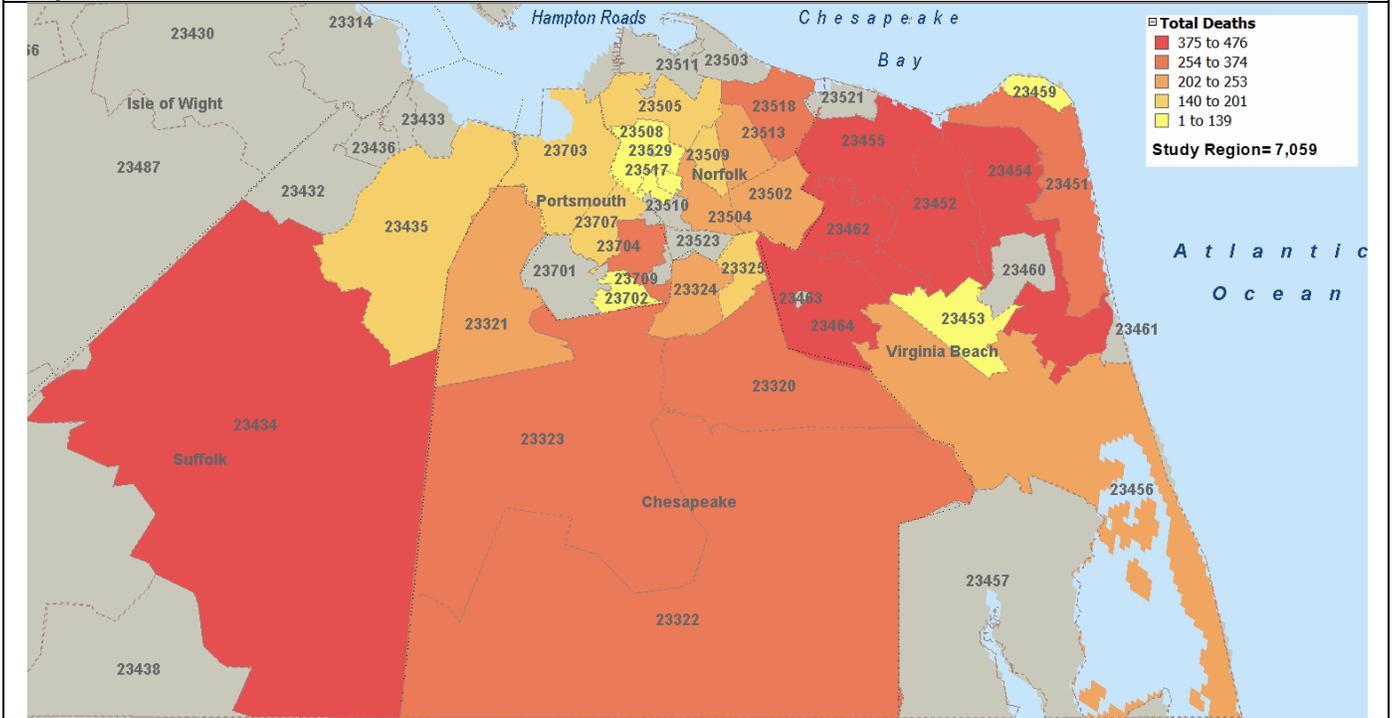
Map 13: Population Age 25+ Without a High School Diploma, 2012



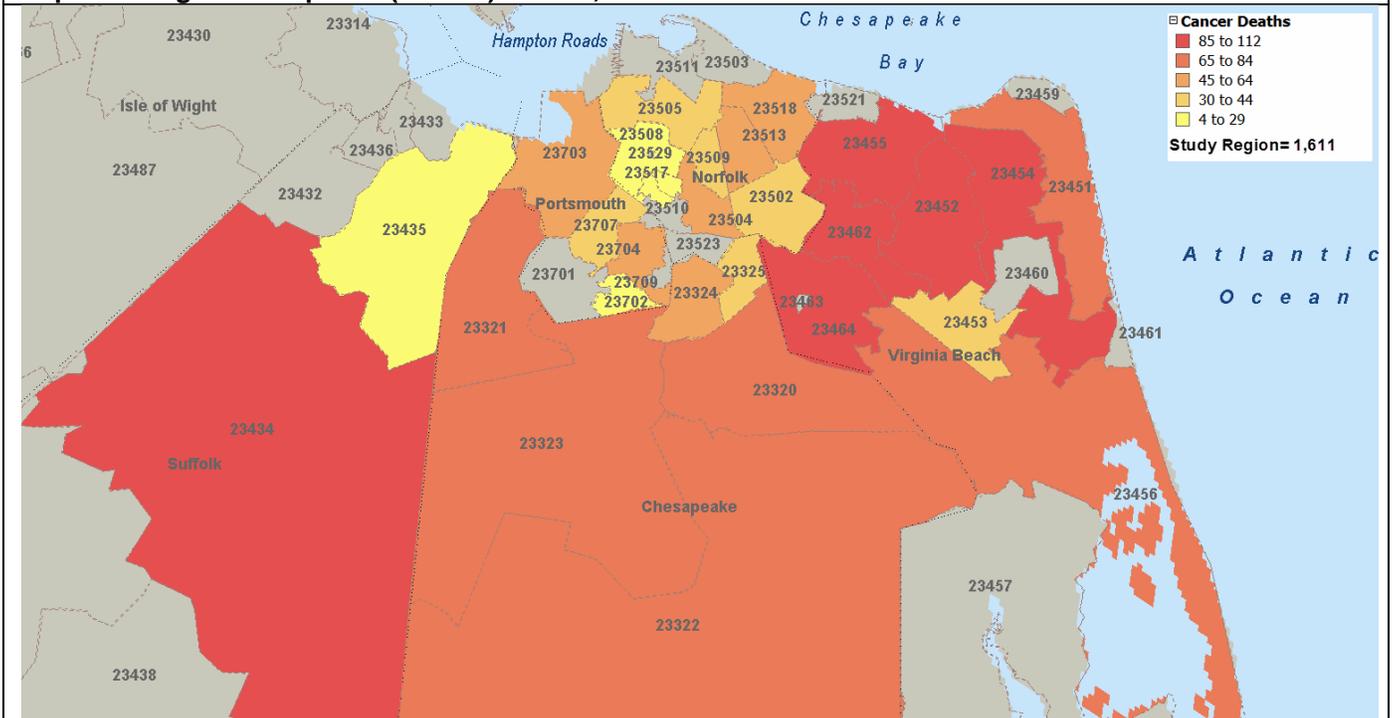
*There were no estimated adults age 25+ without a high school diploma for zip code 23459.

Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 14: Total Deaths, 2011



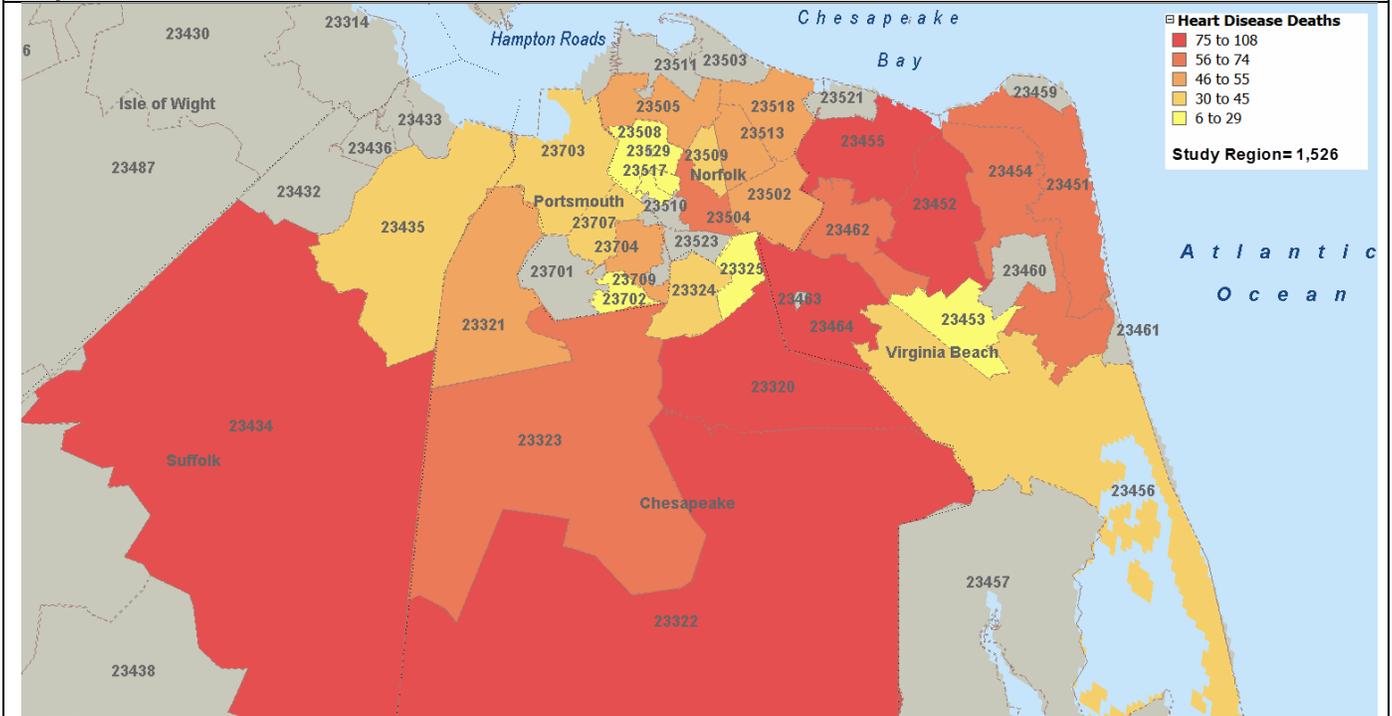
Map 15: Malignant Neoplasm (Cancer) Deaths, 2011*



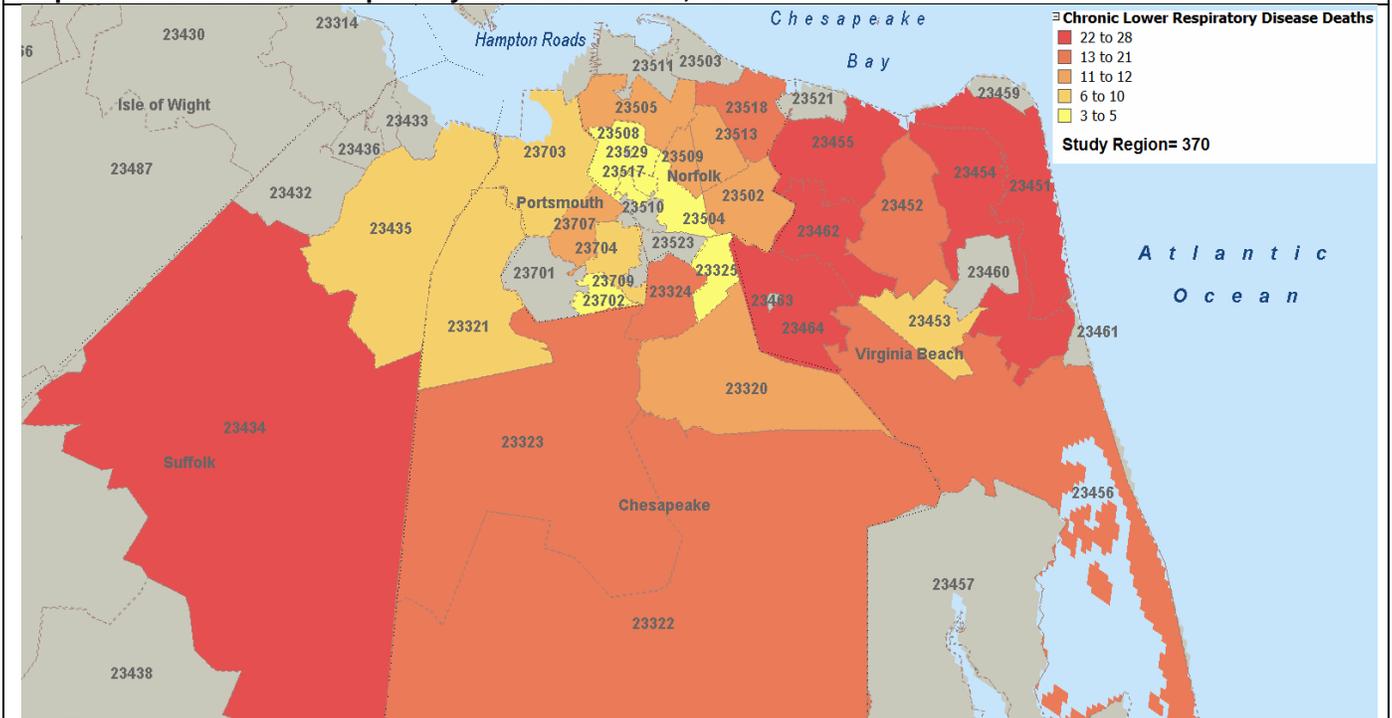
*There were no reported cancer deaths for zip code 23459.

Source: Community Health Solutions analysis of data from the Virginia Department of Health. See Appendix I-D. Data Sources for details.

Map 16: Heart Disease Deaths, 2011*



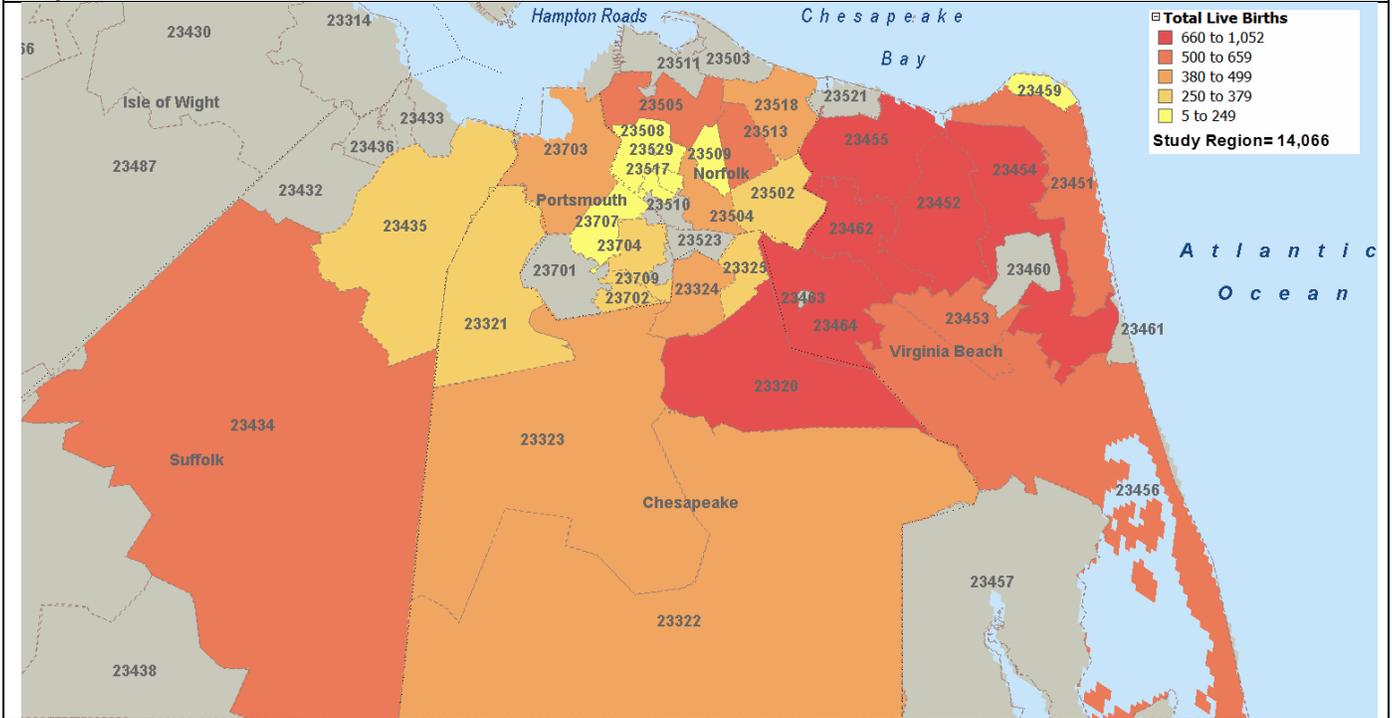
Map 17: Chronic Lower Respiratory Diseases Deaths, 2011*



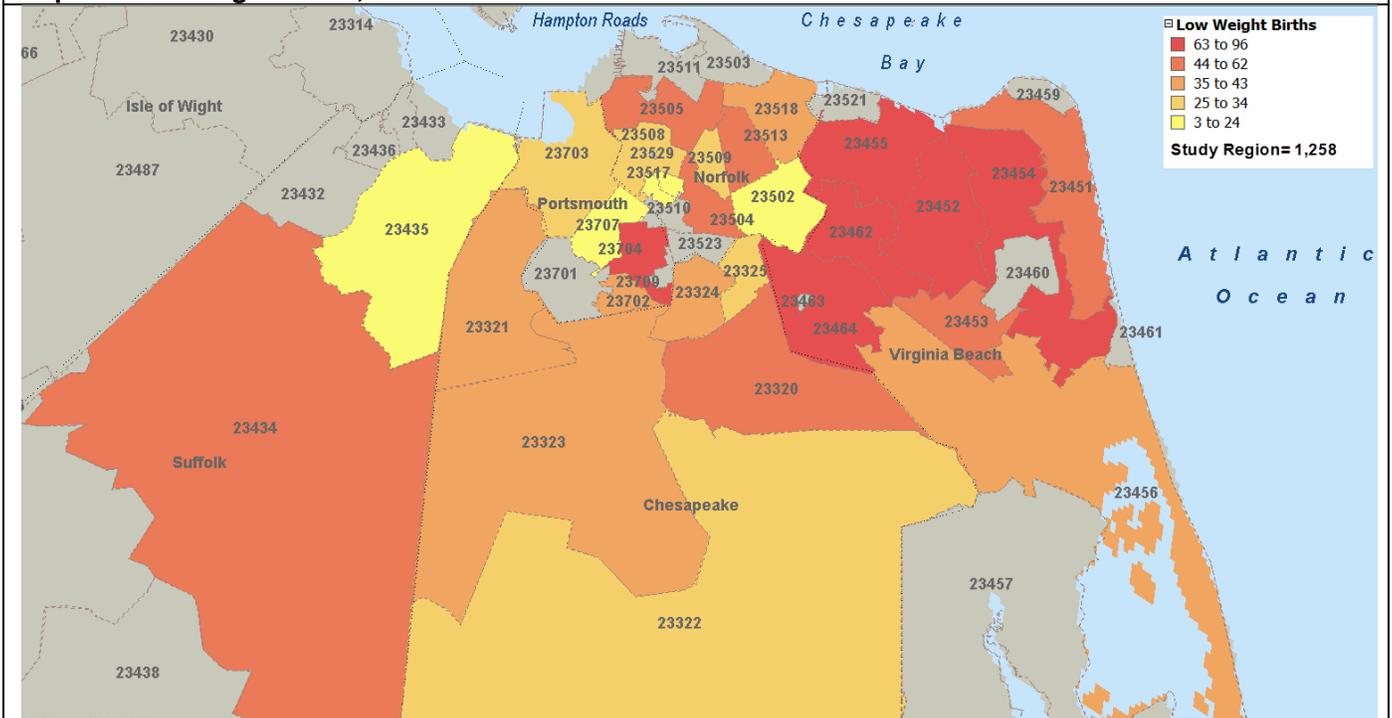
*There were no reported heart disease or chronic lower respiratory diseases deaths for zip code 23459.

Source: Community Health Solutions analysis of data from the Virginia Department of Health. See Appendix I-D. Data Sources for details.

Map 18: Total Live Births, 2011



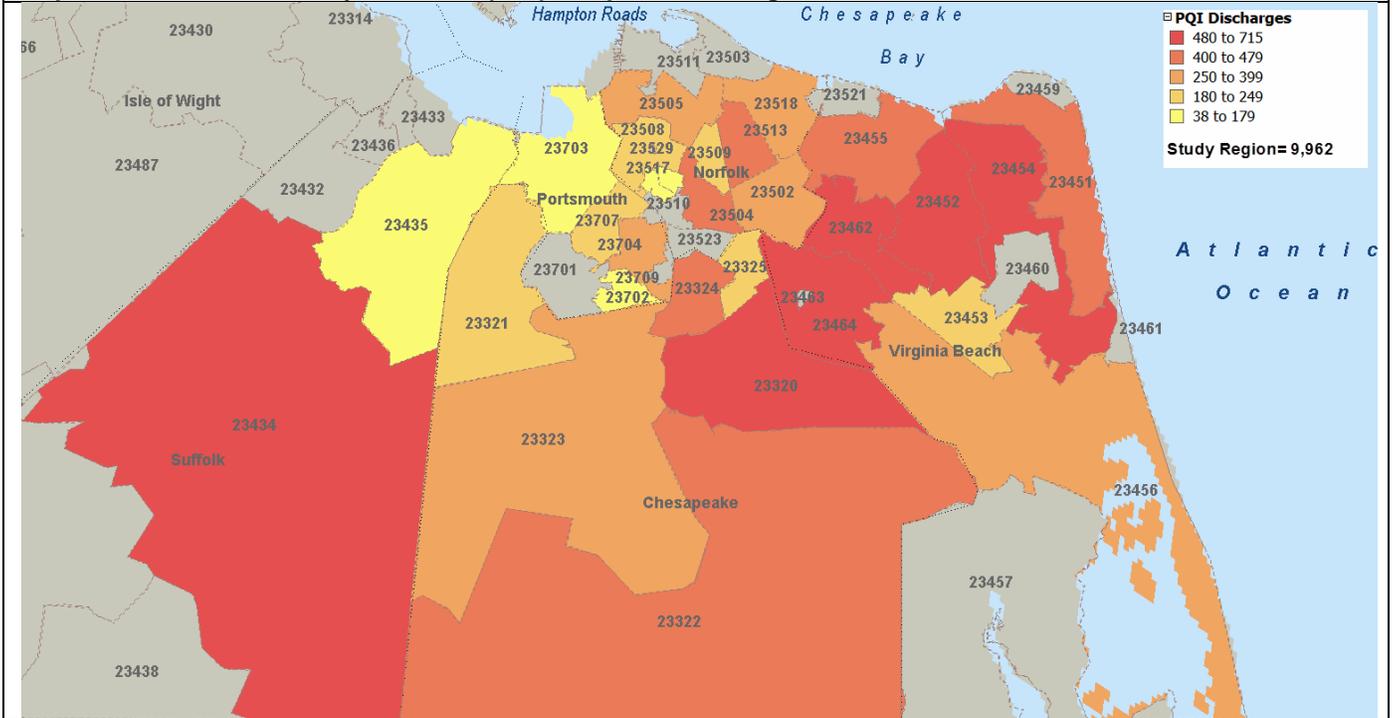
Map 19: Low Weight Births, 2011*



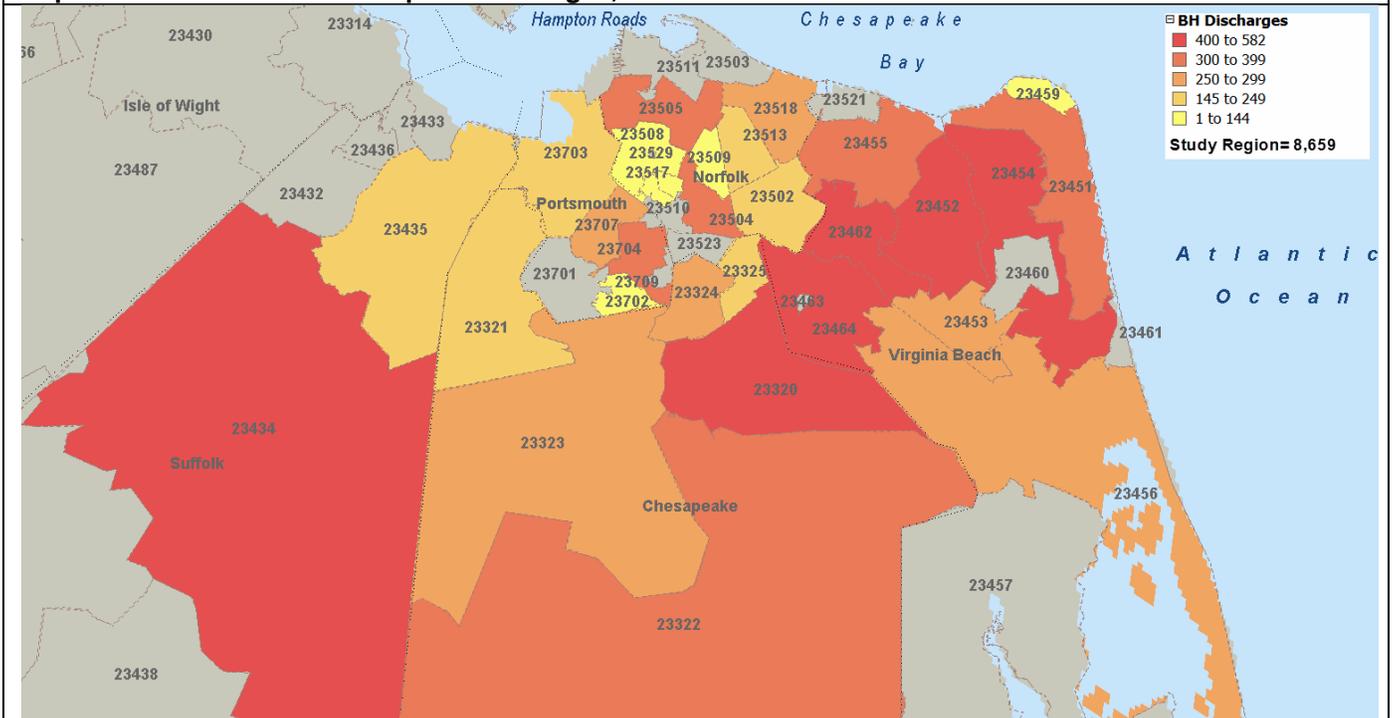
*There were no reported low weight births for zip code 23459.

Source: Community Health Solutions analysis of data from the Virginia Department of Health. See Appendix I-D. Data Sources for details.

Map 22: Prevention Quality Indicator (PQI) Hospital Discharges, 2011*



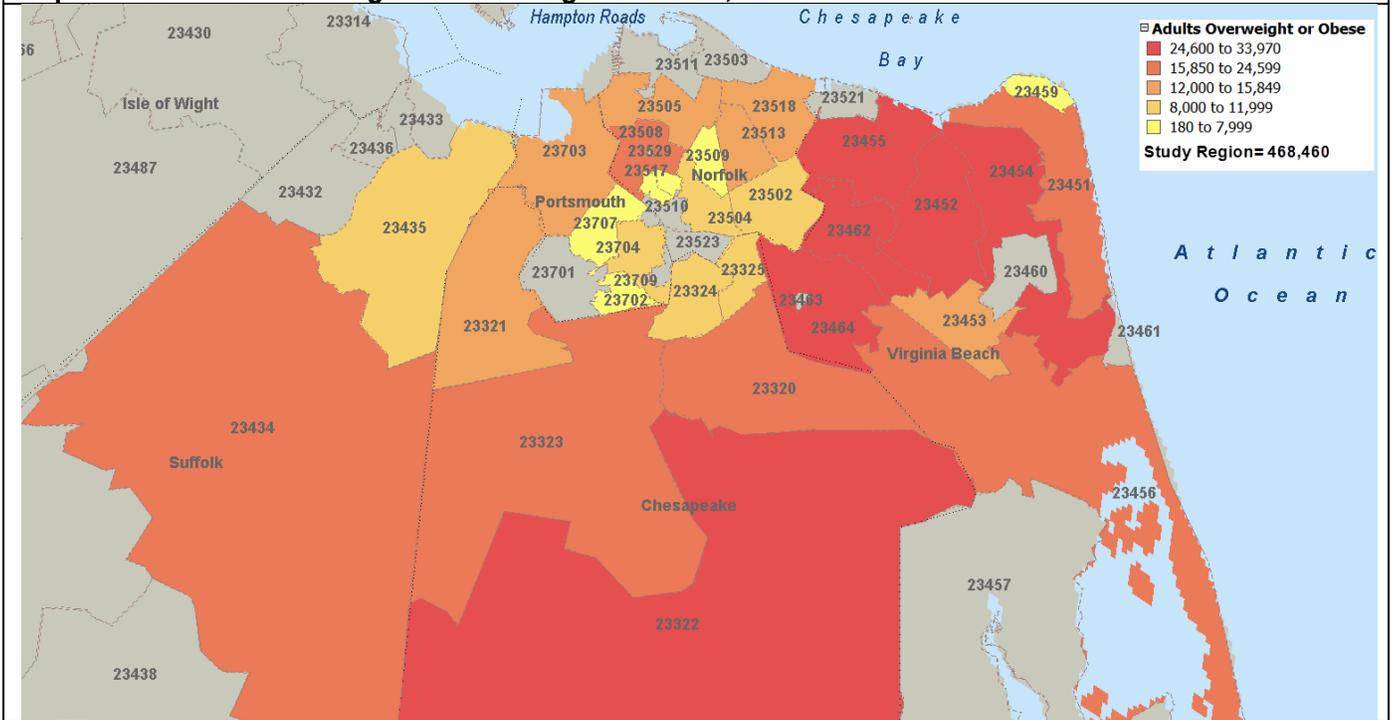
Map 23: Behavioral Health Hospital Discharges, 2011



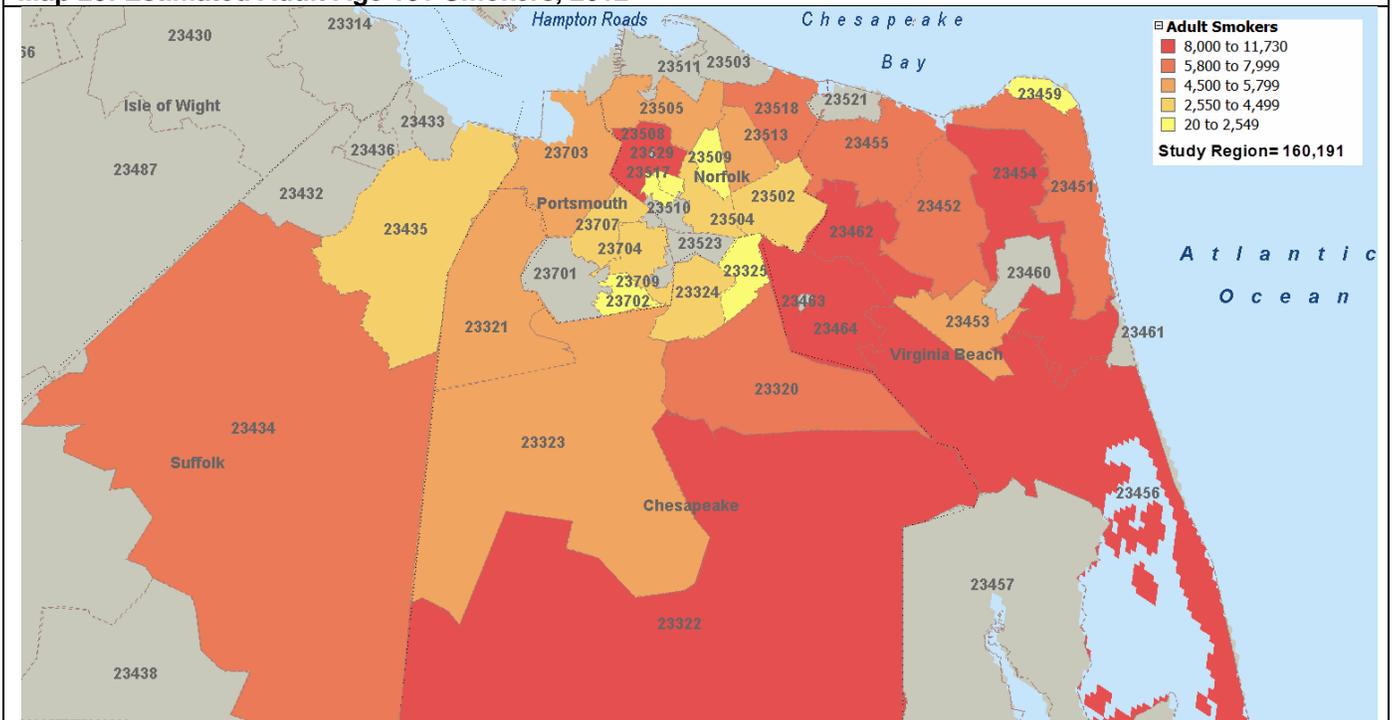
*There were no reported PQI hospital discharges for zip code 23459.

Source: Community Health Solutions analysis of hospital discharge data from Virginia Health Information, Inc. See Appendix I-D. Data Sources for details.

Map 24: Estimated Adults Age 18+ Overweight or Obese, 2012

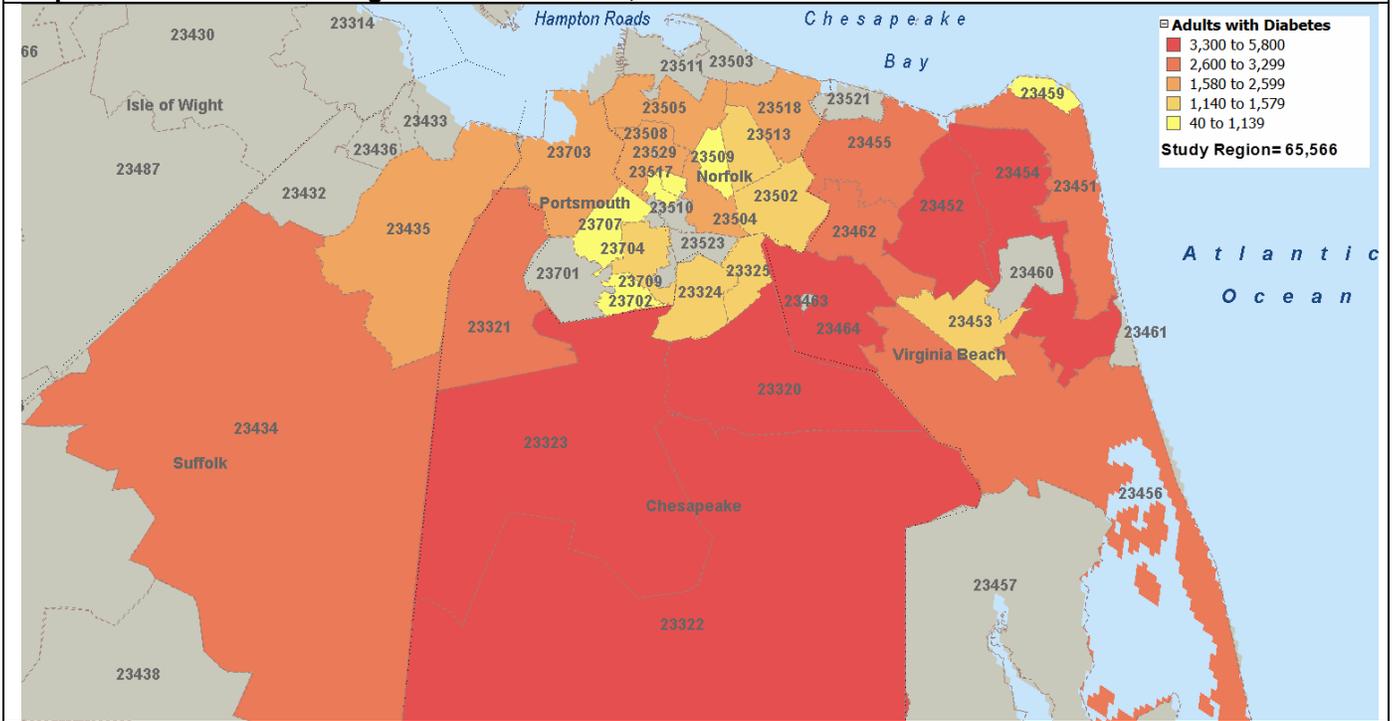


Map 25: Estimated Adult Age 18+ Smokers, 2012

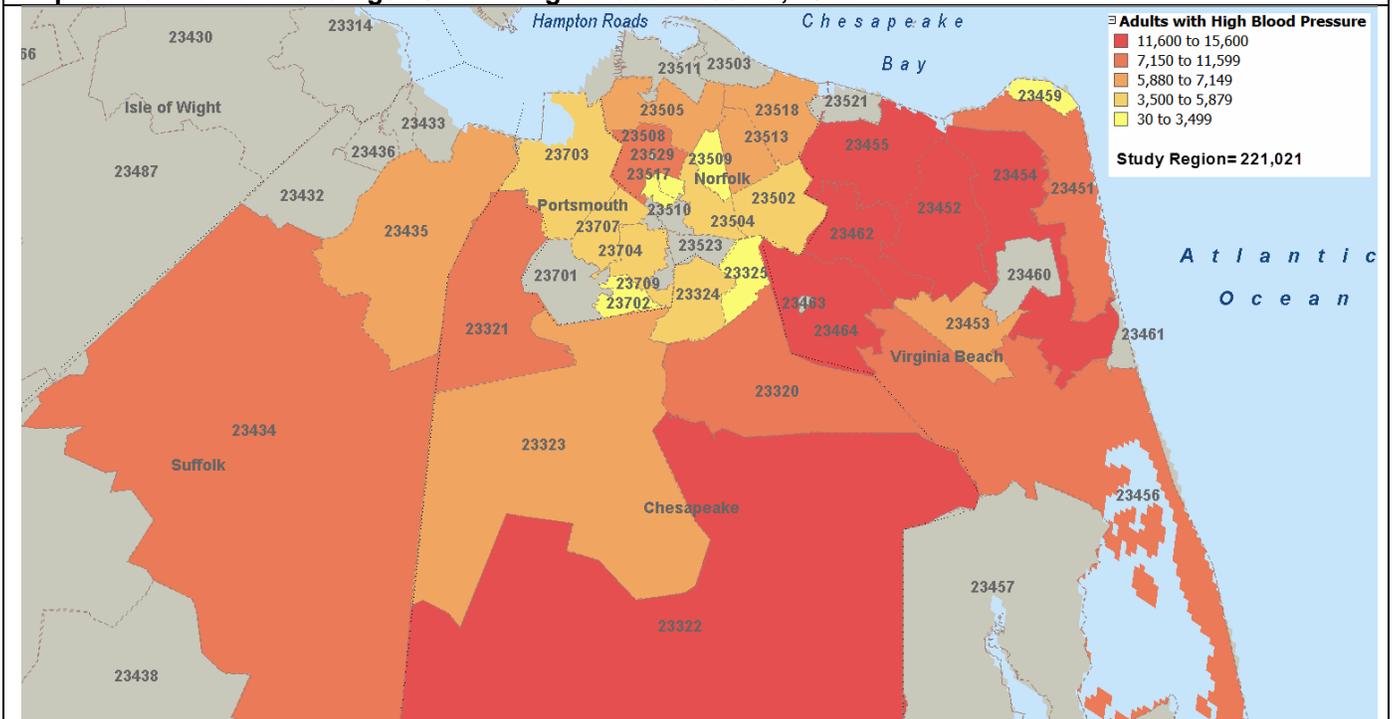


Source: Estimates based on Community Health Solutions analysis of Virginia Behavioral Risk Factor Surveillance System data and estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 26: Estimated Adults Age 18+ with Diabetes, 2012

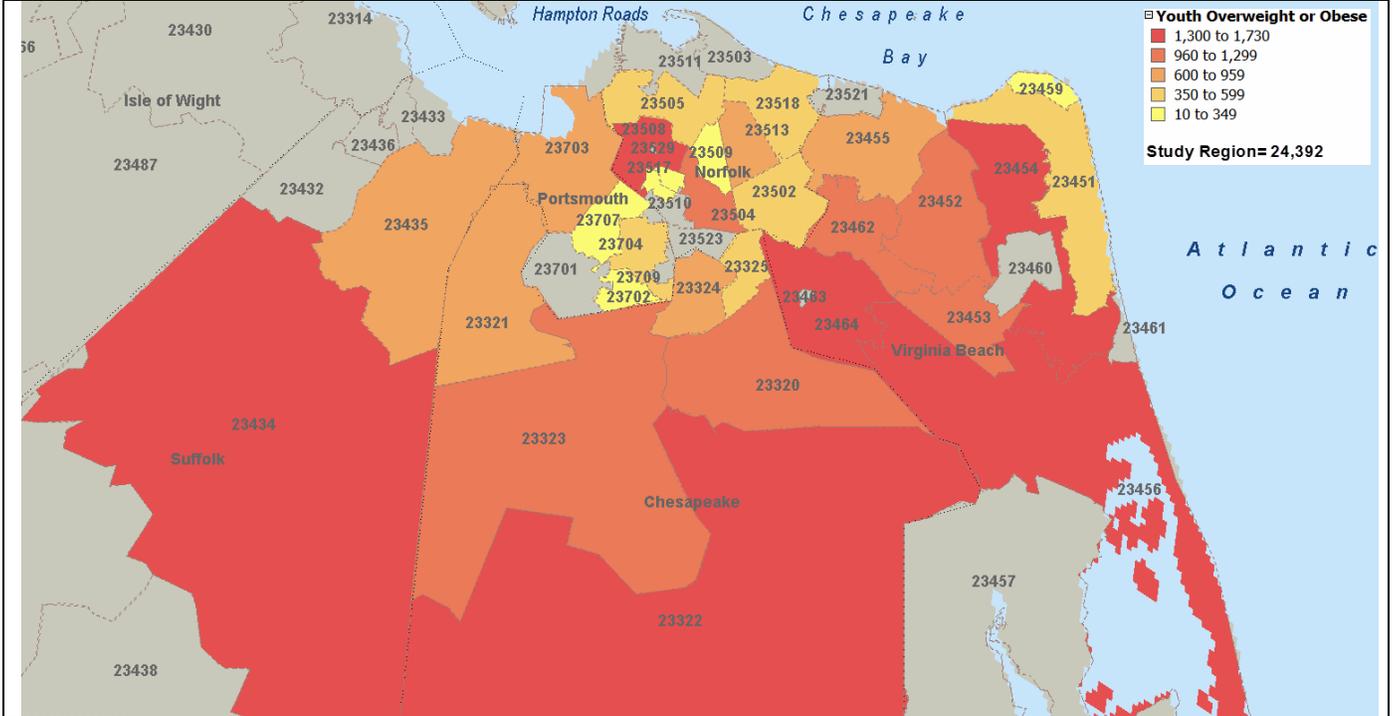


Map 27: Estimated Adults Age 18+ with High Blood Pressure, 2012

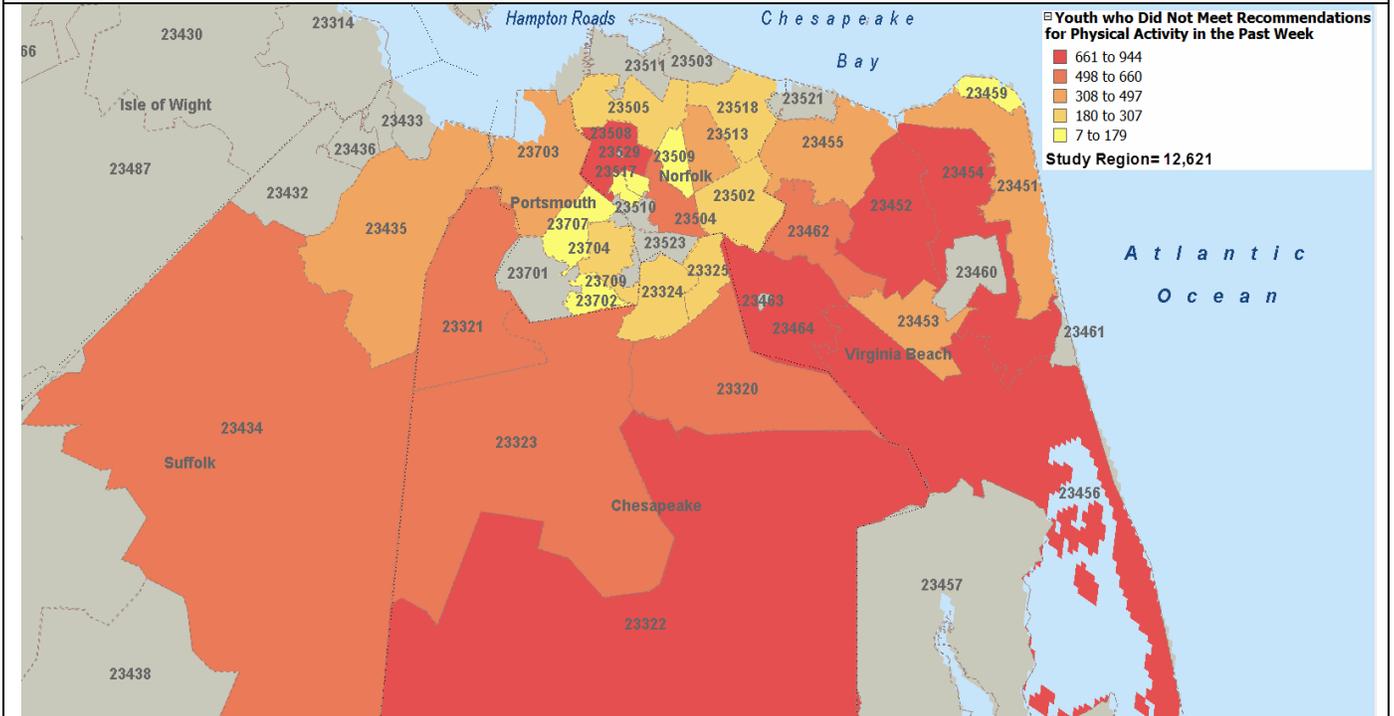


Source: Estimates based on Community Health Solutions analysis of Virginia Behavioral Risk Factor Surveillance System data and estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 28: Estimated Youth Age 14-19 Overweight or Obese, 2012

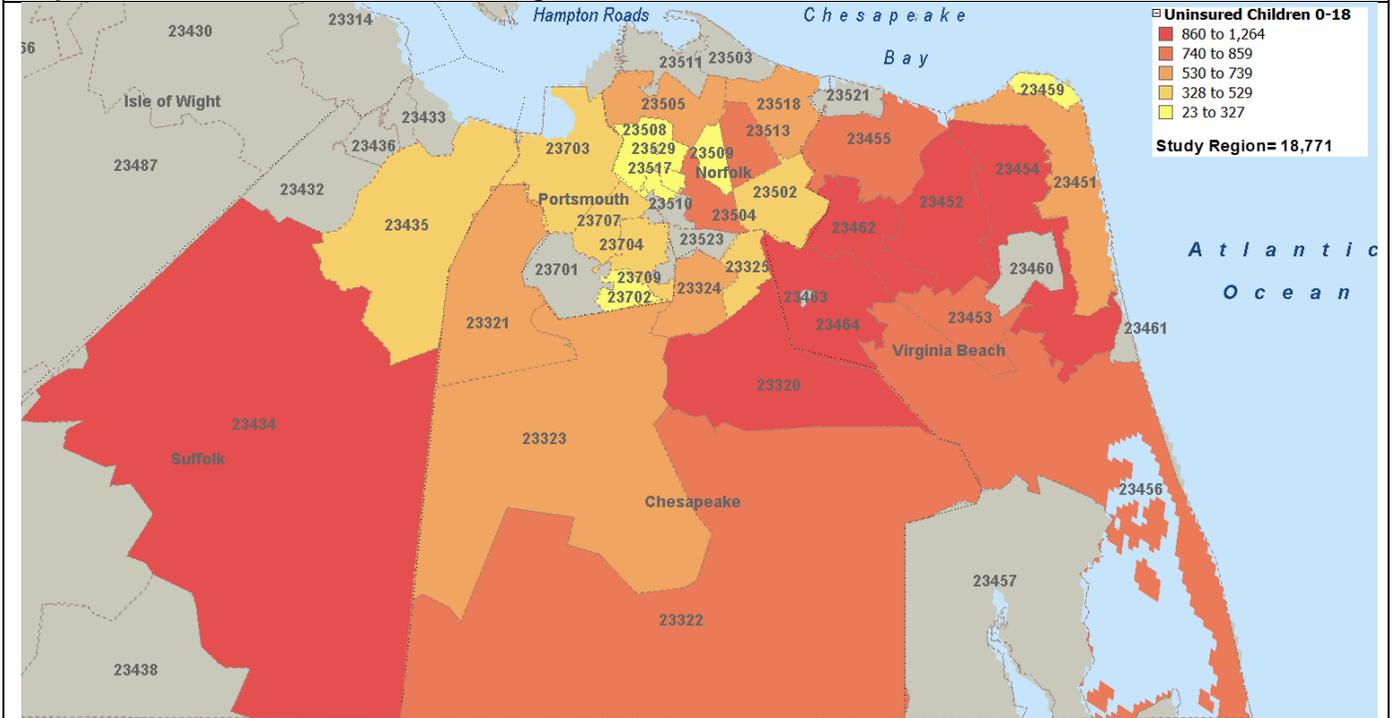


Map 29: Estimated Youth Age 14-19 Not Meeting Recommendations for Physical Activity in the Past Week, 2012

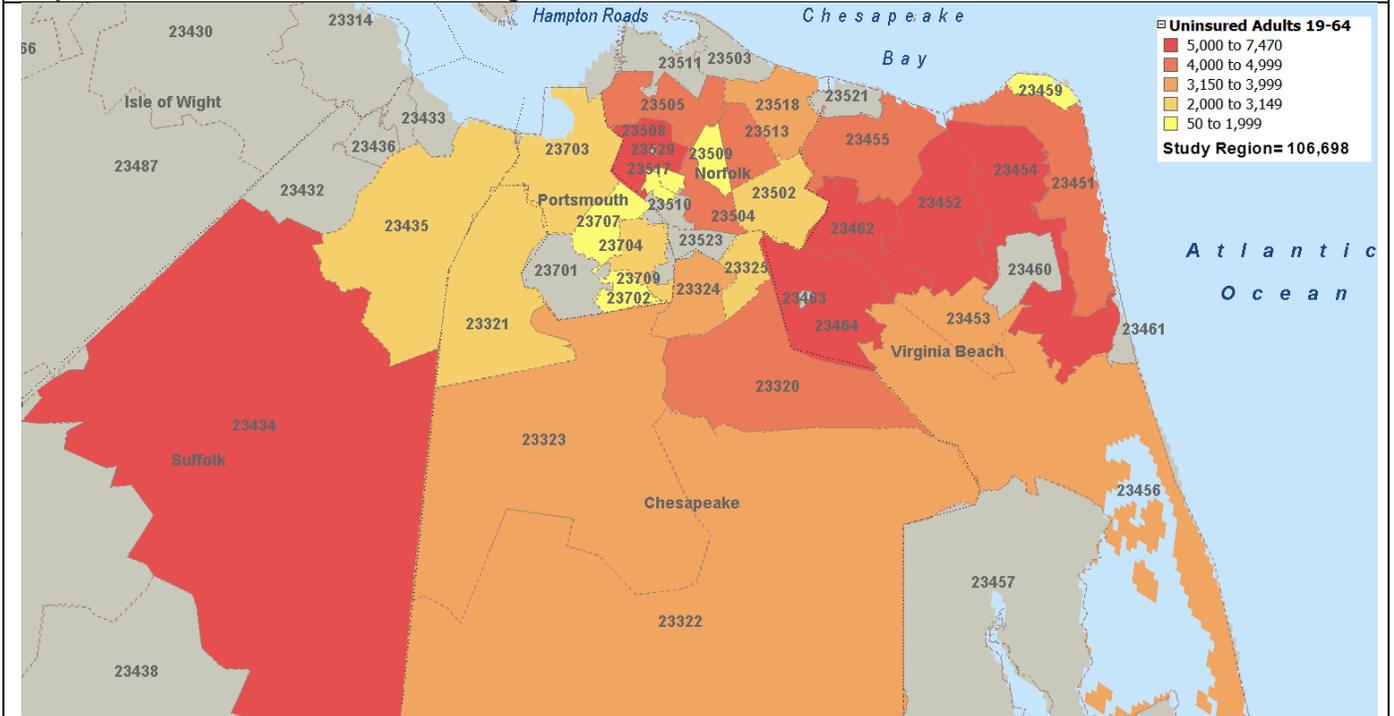


Source: Estimates based on Community Health Solutions analysis of Virginia Youth Risk Behavioral Surveillance System data And estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

Map 30: Estimated Uninsured Children Age 0-18, 2012



Map 31: Estimated Uninsured Adults Age 19-64, 2012



Source: Community Health Solutions estimates based on Community Health Solutions analysis of Profile of the Uninsured report produced for Virginia Health Care Foundation by the Urban Institute and estimates from Alteryx, Inc. See Appendix I-D. Data Sources for details.

APPENDIX II-C. Riverside Behavioral Health Center Supplemental Study Region Census Tracts Ranked on the Health Opportunity Index

Notes:				
<ul style="list-style-type: none"> ▪ <i>Census Tracts are based on Year 2000 US Census Boundaries.</i> ▪ <i>The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health.</i> ▪ <i>The HOI Ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.</i> ▪ <i>The HOI Quintile is from 1- to 5, where the 5th quintile indicates a lower opportunity for health.</i> 				
Census Tract	Locality	Statewide HOI Score	Statewide HOI Ranking	Statewide HOI Quintile
51710004200	Norfolk, City of	0.188677	2	5th
51710004100	Norfolk, City of	0.282864	3	5th
51710004400	Norfolk, City of	0.355485	4	5th
51710004800	Norfolk, City of	0.390318	10	5th
51710005200	Norfolk, City of	0.428881	16	5th
51710004700	Norfolk, City of	0.429141	17	5th
51740211400	Portsmouth, City of	0.43911	19	5th
51710004300	Norfolk, City of	0.451041	21	5th
51710002500	Norfolk, City of	0.46164	22	5th
51710003501	Norfolk, City of	0.505196	36	5th
51710001400	Norfolk, City of	0.512932	37	5th
51740212100	Portsmouth, City of	0.513712	38	5th
51710001100	Norfolk, City of	0.518303	41	5th
51710004600	Norfolk, City of	0.524583	46	5th
51710001600	Norfolk, City of	0.525892	47	5th
51710005701	Norfolk, City of	0.53262	51	5th
51710006501	Norfolk, City of	0.538259	52	5th
51710005901	Norfolk, City of	0.539652	53	5th
51710003502	Norfolk, City of	0.542497	54	5th
51740211100	Portsmouth, City of	0.542867	55	5th
51710001300	Norfolk, City of	0.545662	59	5th
51710002900	Norfolk, City of	0.547963	61	5th
51710005300	Norfolk, City of	0.554147	65	5th
51710002600	Norfolk, City of	0.555656	68	5th
51710000900	Norfolk, City of	0.560498	71	5th
51710006700	Norfolk, City of	0.56883	77	5th
51710000201	Norfolk, City of	0.570701	78	5th
51740211900	Portsmouth, City of	0.571473	79	5th
51550020100	Chesapeake, City of	0.572321	82	5th
51710002700	Norfolk, City of	0.573077	84	5th
51810040402	Virginia Beach, City of	0.578324	87	5th
51810045810	Virginia Beach, City of	0.578345	88	5th
51710006502	Norfolk, City of	0.58028	90	5th
51550020502	Chesapeake, City of	0.58279	92	5th
51810040000	Virginia Beach, City of	0.588315	99	5th
51550020501	Chesapeake, City of	0.5926	105	5th
51740212400	Portsmouth, City of	0.592811	106	5th
51710007001	Norfolk, City of	0.593326	108	5th
51710004900	Norfolk, City of	0.598214	115	5th
51740211800	Portsmouth, City of	0.60004	119	5th
51550020300	Chesapeake, City of	0.600558	120	5th
51710003400	Norfolk, City of	0.601649	121	5th
51810040600	Virginia Beach, City of	0.60246	123	5th
51810043200	Virginia Beach, City of	0.603374	125	5th
51710005800	Norfolk, City of	0.604454	128	5th
51800065400	Suffolk, City of	0.605899	129	5th
51810044805	Virginia Beach, City of	0.607031	130	5th
51710006604	Norfolk, City of	0.607561	131	5th
51710005000	Norfolk, City of	0.610098	134	5th
51710000600	Norfolk, City of	0.610346	135	5th

Source: Virginia Department of Health's Virginia Health Equity Report, 2012. See Appendix I-D. Data Sources for details.

APPENDIX II-C. Riverside Behavioral Health Center Supplemental Study Region
 Census Tracts Ranked on the Health Opportunity Index (continued)

Notes:

- *Census Tracts are based on Year 2000 US Census Boundaries.*
- *The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health.*
- *The HOI Ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.*
- *The HOI Quintile is from 1- to 5, where the 5th quintile indicates a lower opportunity for health.*

Census Tract	Locality	Statewide HOI Score	Statewide HOI Ranking	Statewide HOI Quintile
51710003200	Norfolk, City of	0.612125	139	5th
51810040200	Virginia Beach, City of	0.613173	142	5th
51740212000	Portsmouth, City of	0.615731	146	5th
51710003100	Norfolk, City of	0.616053	148	5th
51740210500	Portsmouth, City of	0.617952	152	5th
51740212600	Portsmouth, City of	0.619367	154	5th
51710005100	Norfolk, City of	0.619726	156	5th
51710005902	Norfolk, City of	0.620023	158	5th
51550020200	Chesapeake, City of	0.621326	160	5th
51710000800	Norfolk, City of	0.622027	162	5th
51800065100	Suffolk, City of	0.62483	169	5th
51710000500	Norfolk, City of	0.625696	170	5th
51740212300	Portsmouth, City of	0.626282	171	5th
51810045000	Virginia Beach, City of	0.627103	173	5th
51710005903	Norfolk, City of	0.627232	174	5th
51550020700	Chesapeake, City of	0.627517	175	5th
51810044807	Virginia Beach, City of	0.628923	177	5th
51810045602	Virginia Beach, City of	0.629573	178	5th
51710000100	Norfolk, City of	0.630053	180	5th
51740210700	Portsmouth, City of	0.631498	183	5th
51810040403	Virginia Beach, City of	0.636261	190	5th
51710005500	Norfolk, City of	0.645032	208	5th
51810045414	Virginia Beach, City of	0.645469	211	5th
51800065300	Suffolk, City of	0.645943	212	5th
51800065500	Suffolk, City of	0.649042	215	5th
51740213101	Portsmouth, City of	0.649126	216	5th
51810045200	Virginia Beach, City of	0.649498	219	5th
51710006901	Norfolk, City of	0.651675	221	5th
51810046213	Virginia Beach, City of	0.651897	222	5th
51710006300	Norfolk, City of	0.652224	223	5th
51710005602	Norfolk, City of	0.655051	227	5th
51710006100	Norfolk, City of	0.657011	232	5th
51710006606	Norfolk, City of	0.658623	234	5th
51740212500	Portsmouth, City of	0.659608	237	5th
51740211500	Portsmouth, City of	0.659863	240	5th
51710006200	Norfolk, City of	0.661954	244	5th
51810044806	Virginia Beach, City of	0.662071	245	5th
51710003300	Norfolk, City of	0.662535	246	5th
51550020400	Chesapeake, City of	0.66505	252	5th
51710001700	Norfolk, City of	0.665667	254	5th
51710000202	Norfolk, City of	0.668354	258	5th
51740211700	Portsmouth, City of	0.670596	262	5th
51810046205	Virginia Beach, City of	0.670872	263	5th
51710000300	Norfolk, City of	0.670956	265	5th
51810040801	Virginia Beach, City of	0.671403	268	5th
51810045406	Virginia Beach, City of	0.672218	272	5th
51810044001	Virginia Beach, City of	0.675586	283	5th
51810042802	Virginia Beach, City of	0.677113	286	5th
51810045405	Virginia Beach, City of	0.677676	288	5th
51810044200	Virginia Beach, City of	0.679524	293	5th
51740210900	Portsmouth, City of	0.681463	295	5th
51810046013	Virginia Beach, City of	0.681939	299	5th

Source: Virginia Department of Health's Virginia Health Equity Report, 2012. See Appendix I-D. Data Sources for details.

APPENDIX II-C. Riverside Behavioral Health Center Supplemental Study Region Census Tracts Ranked on the Health Opportunity Index (continued)

Notes:

- *Census Tracts are based on Year 2000 US Census Boundaries.*
- *The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health.*
- *The HOI Ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.*
- *The HOI Quintile is from 1- to 5, where the 5th quintile indicates a lower opportunity for health.*

Census Tract	Locality	Statewide HOI Score	Statewide HOI Ranking	Statewide HOI Quintile
51710000400	Norfolk, City of	0.684209	305	4th
51810041801	Virginia Beach, City of	0.685391	308	4th
51810045809	Virginia Beach, City of	0.686041	310	4th
51810045807	Virginia Beach, City of	0.689277	317	4th
51810046012	Virginia Beach, City of	0.69055	321	4th
51810041004	Virginia Beach, City of	0.692535	325	4th
51550021403	Chesapeake, City of	0.69344	327	4th
51810045806	Virginia Beach, City of	0.694974	331	4th
51710005702	Norfolk, City of	0.697633	340	4th
51740210200	Portsmouth, City of	0.699696	344	4th
51810045808	Virginia Beach, City of	0.700016	345	4th
51550020002	Chesapeake, City of	0.701363	348	4th
51710006605	Norfolk, City of	0.702577	354	4th
51810040802	Virginia Beach, City of	0.704782	359	4th
51740210600	Portsmouth, City of	0.705092	361	4th
51710006000	Norfolk, City of	0.705361	364	4th
51810041002	Virginia Beach, City of	0.706657	368	4th
51810046219	Virginia Beach, City of	0.708055	372	4th
51810046010	Virginia Beach, City of	0.709387	378	4th
51710000700	Norfolk, City of	0.710907	387	4th
51710003700	Norfolk, City of	0.712557	397	4th
51810041003	Virginia Beach, City of	0.712592	398	4th
51710006601	Norfolk, City of	0.716892	413	4th
51710004500	Norfolk, City of	0.717466	415	4th
51550020003	Chesapeake, City of	0.718406	416	4th
51740212800	Portsmouth, City of	0.71948	421	4th
51810042600	Virginia Beach, City of	0.720796	428	4th
51550021602	Chesapeake, City of	0.722476	431	4th
51710006607	Norfolk, City of	0.724561	438	4th
51710001500	Norfolk, City of	0.724761	439	4th
51810045408	Virginia Beach, City of	0.726175	450	4th
51710007002	Norfolk, City of	0.726398	452	4th
51710005601	Norfolk, City of	0.72806	458	4th
51740211600	Portsmouth, City of	0.729466	462	4th
51740212701	Portsmouth, City of	0.729685	463	4th
51550020903	Chesapeake, City of	0.730041	465	4th
51550020901	Chesapeake, City of	0.730605	468	4th
51740210300	Portsmouth, City of	0.733518	480	4th
51710002800	Norfolk, City of	0.735496	490	4th
51800075600	Suffolk, City of	0.735953	492	4th
51810046217	Virginia Beach, City of	0.736425	495	4th
51810045415	Virginia Beach, City of	0.73727	496	4th
51710004002	Norfolk, City of	0.740715	517	4th
51810042400	Virginia Beach, City of	0.741639	521	4th
51710001200	Norfolk, City of	0.742733	525	4th
51810045407	Virginia Beach, City of	0.744889	537	4th
51810046215	Virginia Beach, City of	0.745727	542	4th
51710006400	Norfolk, City of	0.746425	545	4th
51810046005	Virginia Beach, City of	0.747107	550	4th
51550021401	Chesapeake, City of	0.747783	553	4th
51550021404	Chesapeake, City of	0.748316	555	4th
51810045805	Virginia Beach, City of	0.749832	564	4th

Source: Virginia Department of Health's Virginia Health Equity Report, 2012. See Appendix I-D. Data Sources for details.

APPENDIX II-C. Riverside Behavioral Health Center Supplemental Study Region Census Tracts Ranked on the Health Opportunity Index (continued)

Notes:				
<ul style="list-style-type: none"> ▪ <i>Census Tracts are based on Year 2000 US Census Boundaries.</i> ▪ <i>The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health.</i> ▪ <i>The HOI Ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.</i> ▪ <i>The HOI Quintile is from 1- to 5, where the 5th quintile indicates a lower opportunity for health.</i> 				
Census Tract	Locality	Statewide HOI Score	Statewide HOI Ranking	Statewide HOI Quintile
51810044808	Virginia Beach, City of	0.750848	574	4th
51710006902	Norfolk, City of	0.75184	578	4th
51740213103	Portsmouth, City of	0.758895	619	3rd
51550020805	Chesapeake, City of	0.759305	620	3rd
51710003000	Norfolk, City of	0.759484	622	3rd
51710002000	Norfolk, City of	0.760046	626	3rd
51710006603	Norfolk, City of	0.761031	628	3rd
51740210400	Portsmouth, City of	0.76121	629	3rd
51810042801	Virginia Beach, City of	0.763256	642	3rd
51740212702	Portsmouth, City of	0.763452	643	3rd
51810046207	Virginia Beach, City of	0.763645	644	3rd
51810045801	Virginia Beach, City of	0.764307	648	3rd
51710003600	Norfolk, City of	0.764674	649	3rd
51710006602	Norfolk, City of	0.766766	663	3rd
51810046008	Virginia Beach, City of	0.767212	668	3rd
51710006800	Norfolk, City of	0.767461	673	3rd
51550020801	Chesapeake, City of	0.770197	689	3rd
51550020001	Chesapeake, City of	0.770387	691	3rd
51810046216	Virginia Beach, City of	0.772647	701	3rd
51550021102	Chesapeake, City of	0.774771	710	3rd
51550020807	Chesapeake, City of	0.779363	729	3rd
51810046009	Virginia Beach, City of	0.781224	744	3rd
51550020600	Chesapeake, City of	0.781789	748	3rd
51810045419	Virginia Beach, City of	0.783728	756	3rd
51810046011	Virginia Beach, City of	0.786715	772	3rd
51810040404	Virginia Beach, City of	0.787715	780	3rd
51800075500	Suffolk, City of	0.78789	782	3rd
51550021501	Chesapeake, City of	0.788545	787	3rd
51740213001	Portsmouth, City of	0.792732	813	3rd
51740213002	Portsmouth, City of	0.792832	815	3rd
51810045803	Virginia Beach, City of	0.793368	818	3rd
51550020904	Chesapeake, City of	0.795438	829	3rd
51800075800	Suffolk, City of	0.795586	830	3rd
51550020806	Chesapeake, City of	0.796557	834	3rd
51800065200	Suffolk, City of	0.79789	844	3rd
51810046214	Virginia Beach, City of	0.798548	847	3rd
51550021005	Chesapeake, City of	0.799164	853	3rd
51550021301	Chesapeake, City of	0.799533	856	3rd
51810046218	Virginia Beach, City of	0.800398	866	3rd
51740212900	Portsmouth, City of	0.801376	873	3rd
51550021302	Chesapeake, City of	0.801717	875	3rd
51550021402	Chesapeake, City of	0.802035	878	3rd
51810044402	Virginia Beach, City of	0.802865	884	3rd
51810046206	Virginia Beach, City of	0.806143	905	3rd
51810046204	Virginia Beach, City of	0.806886	910	3rd
51740213104	Portsmouth, City of	0.807034	914	2nd
51810046211	Virginia Beach, City of	0.807416	916	2nd
51810044002	Virginia Beach, City of	0.807702	919	2nd
51710003900	Norfolk, City of	0.810159	940	2nd
51810046212	Virginia Beach, City of	0.810274	941	2nd
51810045418	Virginia Beach, City of	0.811628	951	2nd

Source: Virginia Department of Health's Virginia Health Equity Report, 2012. See Appendix I-D. Data Sources for details.

APPENDIX II-C. Riverside Behavioral Health Center Supplemental Study Region Census Tracts Ranked on the Health Opportunity Index (continued)

Notes:

- *Census Tracts are based on Year 2000 US Census Boundaries.*
- *The HOI score is on a scale of 0 to 1 where a lower score indicates a lower opportunity for health.*
- *The HOI Ranking is from 1 to 1,523, where a lower ranking indicates a lower opportunity for health.*
- *The HOI Quintile is from 1- to 5, where the 5th quintile indicates a lower opportunity for health.*

Census Tract	Locality	Statewide HOI Score	Statewide HOI Ranking	Statewide HOI Quintile
51800075100	Suffolk, City of	0.811634	952	2nd
51710002300	Norfolk, City of	0.812396	958	2nd
51550021004	Chesapeake, City of	0.81553	978	2nd
51810045416	Virginia Beach, City of	0.819847	1005	2nd
51810041200	Virginia Beach, City of	0.821633	1017	2nd
51710003800	Norfolk, City of	0.822489	1023	2nd
51800075700	Suffolk, City of	0.825832	1038	2nd
51550021008	Chesapeake, City of	0.828992	1061	2nd
51810046006	Virginia Beach, City of	0.833286	1095	2nd
51550021200	Chesapeake, City of	0.838514	1125	2nd
51710001900	Norfolk, City of	0.83864	1130	2nd
51710004001	Norfolk, City of	0.839428	1137	2nd
51810046002	Virginia Beach, City of	0.840605	1145	2nd
51800075400	Suffolk, City of	0.842345	1155	2nd
51710002100	Norfolk, City of	0.843685	1162	2nd
51810045417	Virginia Beach, City of	0.845348	1181	2nd
51810041802	Virginia Beach, City of	0.847775	1191	2nd
51710001800	Norfolk, City of	0.849392	1198	2nd
51810045601	Virginia Beach, City of	0.852441	1211	2nd
51800075200	Suffolk, City of	0.85309	1217	1st
51550021007	Chesapeake, City of	0.853616	1220	1st
51810045410	Virginia Beach, City of	0.855743	1234	1st
51810042202	Virginia Beach, City of	0.860382	1264	1st
51550021502	Chesapeake, City of	0.860702	1266	1st
51810043001	Virginia Beach, City of	0.860801	1267	1st
51550020804	Chesapeake, City of	0.862849	1280	1st
51550021101	Chesapeake, City of	0.867298	1302	1st
51810042201	Virginia Beach, City of	0.87113	1319	1st
51810041600	Virginia Beach, City of	0.873192	1332	1st
51810045420	Virginia Beach, City of	0.875316	1338	1st
51550021601	Chesapeake, City of	0.876829	1343	1st
51710002200	Norfolk, City of	0.876901	1345	1st
51810046400	Virginia Beach, City of	0.878438	1355	1st
51810041400	Virginia Beach, City of	0.881845	1367	1st
51800075300	Suffolk, City of	0.883907	1374	1st
51550021006	Chesapeake, City of	0.889305	1393	1st
51810045412	Virginia Beach, City of	0.903126	1425	1st
51810044401	Virginia Beach, City of	0.90502	1428	1st
51710002400	Norfolk, City of	0.918944	1457	1st
51810044600	Virginia Beach, City of	0.929287	1478	1st
51550021009	Chesapeake, City of	0.937906	1487	1st
51810043400	Virginia Beach, City of	0.941353	1490	1st
51810043800	Virginia Beach, City of	0.947249	1494	1st
51810043600	Virginia Beach, City of	0.948101	1496	1st
51810042000	Virginia Beach, City of	0.954171	1501	1st
51810043002	Virginia Beach, City of	0.955173	1502	1st

Source: Virginia Department of Health's Virginia Health Equity Report, 2012. See Appendix I-D. Data Sources for details.

Appendix II-D. Data Sources

Section	Source
Community Insight Profile	
5) Survey Respondents 6) Community Health Concerns 7) Community Service Gaps 8) APPENDIX II-A. Community Insight Profile-Additional Ideas and Suggestions for Improving Community Health	Community Health Solutions analysis of <i>Community Insight</i> survey responses submitted by community stakeholders.
Community Indicator Profile	
12) Health Demographic Trend Profile 13) Health Demographic Snapshot (also Appendix II-B. Maps 1-13)	Community Health Solutions analysis of population estimates from Alteryx, Inc. (2012 and 2017). Alteryx, Inc., is a commercial vendor of demographic data. Note that demographic estimates may vary from other sources of local demographic indicators.
14) Mortality Profile (also Appendix II-B. Maps 14-17)	Virginia Department of Health death record data (2011). Locality level counts and rates were obtained by Virginia Department of Health. The combined RBHC supplemental study region counts and rates, plus zip code level counts were analyzed by Community Health Solutions.
15) Maternal and Infant Health Profile (also Appendix II-B. Maps 18-21)	Virginia Department of Health death record data (2011). Locality level counts and rates were obtained by Virginia Department of Health. The combined RBHC supplemental study region counts and rates, plus zip code level counts were analyzed by Community Health Solutions.
16) Preventable Hospitalization Profile (also Appendix II-B. Map 22) 17) Behavioral Health Hospitalization Profile (also Appendix II-B. Map 23)	Community Health Solutions analysis of hospital discharge data from the Virginia Health Information (VHI) dataset (January 1-December 31, 2011) and demographic data from Alteryx, Inc. (2011). Data include discharges for Virginia residents from Virginia hospitals reporting to Virginia Health Information, Inc. These data do not include discharges from state behavioral health facilities or federal (military) facilities. Data reported are based on the patient's primary diagnosis. <i>NOTE: Virginia Health Information (VHI) requires the following statement to be included in all reports utilizing its data: VHI has provided non-confidential patient level information used in this report which was compiled in accordance with Virginia law. VHI has no authority to independently verify this data. By accepting this report the requester agrees to assume all risks that may be associated with or arise from the use of inaccurately submitted data. VHI edits data received and is responsible for the accuracy of assembling this information, but does not represent that the subsequent use of this data was appropriate or endorse or support any conclusions or inferences that may be drawn from the use of this data.</i>
18) Adult Health Risk Factor Profile (also Appendix II-B. Maps 24-27)	Estimates of chronic disease and risk behaviors for adults 18+ are based on Community Health Solutions analysis of: <ul style="list-style-type: none"> • A multi-year dataset (2006-2010) from the Virginia Behavioral Risk Factor Surveillance System (BRFSS). For more information on BRFSS visit: http://www.cdc.gov/brfss/about/index.htm • Estimates from Alteryx, Inc. (2012) Estimates are used when there are no primary sources of data available at the local level. The statistical model to produce the estimates was developed by Community Health Solutions. The estimates are for planning purposes only and are not guaranteed for accuracy. The table does not include a comparison to Virginia statewide rates because the local estimates were derived from state-level data. Differences between local rates and state rates may reflect estimation error rather than valid differences.

<p>19) Youth Health Risk Factor Profile (also Appendix II-B. Maps 28)</p>	<p>Estimates of risk behaviors for children age 14-19 are based on Community Health Solutions analysis of:</p> <ul style="list-style-type: none"> • National and statewide Virginia Youth Risk Behavioral Surveillance System from the Centers for Disease Control (2011). For more information on YRBSS visit: http://www.cdc.gov/HealthyYouth/yrebs/index.htm • Estimates from Alteryx, Inc. (2012). <p>Estimates are used when there are no primary sources of data available at the local level. The statistical model to produce the estimates was developed by Community Health Solutions. The estimates are for planning purposes only and are not guaranteed for accuracy. The table does not include a comparison to Virginia statewide rates because the local estimates were derived from state-level data. Differences between local rates and state rates may reflect estimation error rather than valid differences.</p>
<p>20) Uninsured Profile (also Appendix II-B. Maps 30-31)</p>	<p>Estimates of uninsured nonelderly age 0-64 are based on Community Health Solutions analysis of:</p> <ul style="list-style-type: none"> • <i>Profile of the Uninsured</i> report produced for Virginia Health Care Foundation by the Urban Institute (2011) • Estimates from Alteryx, Inc. (2012) <p>Estimates are used when there are no primary sources of data available at the local level. The statistical model to produce the estimates was developed by Community Health Solutions. The estimates are for planning purposes only and are not guaranteed for accuracy. The table does not include a comparison to Virginia statewide rates because the local estimates were derived from state-level data. Differences between local rates and state rates may reflect estimation error rather than valid differences.</p>
<p>21) Medically Underserved Profile</p>	<p>Community Health Solutions analysis of U.S. Health Resources and Services Administration data. For more information visit: http://muafind.hrsa.gov/.</p>
<p>22) Health Opportunity Index Profile (also Appendix II-C)</p>	<p>Virginia Department of Health's <i>Virginia Health Equity Report 2012</i>. http://www.vdh.virginia.gov/OMHHE/2012report.htm</p>