

A Community Health Needs Assessment
Prepared for Crippled Children's Hospital, commonly known as
Children's Hospital of Richmond of the
Virginia Commonwealth University Health System
By Community Health Solutions
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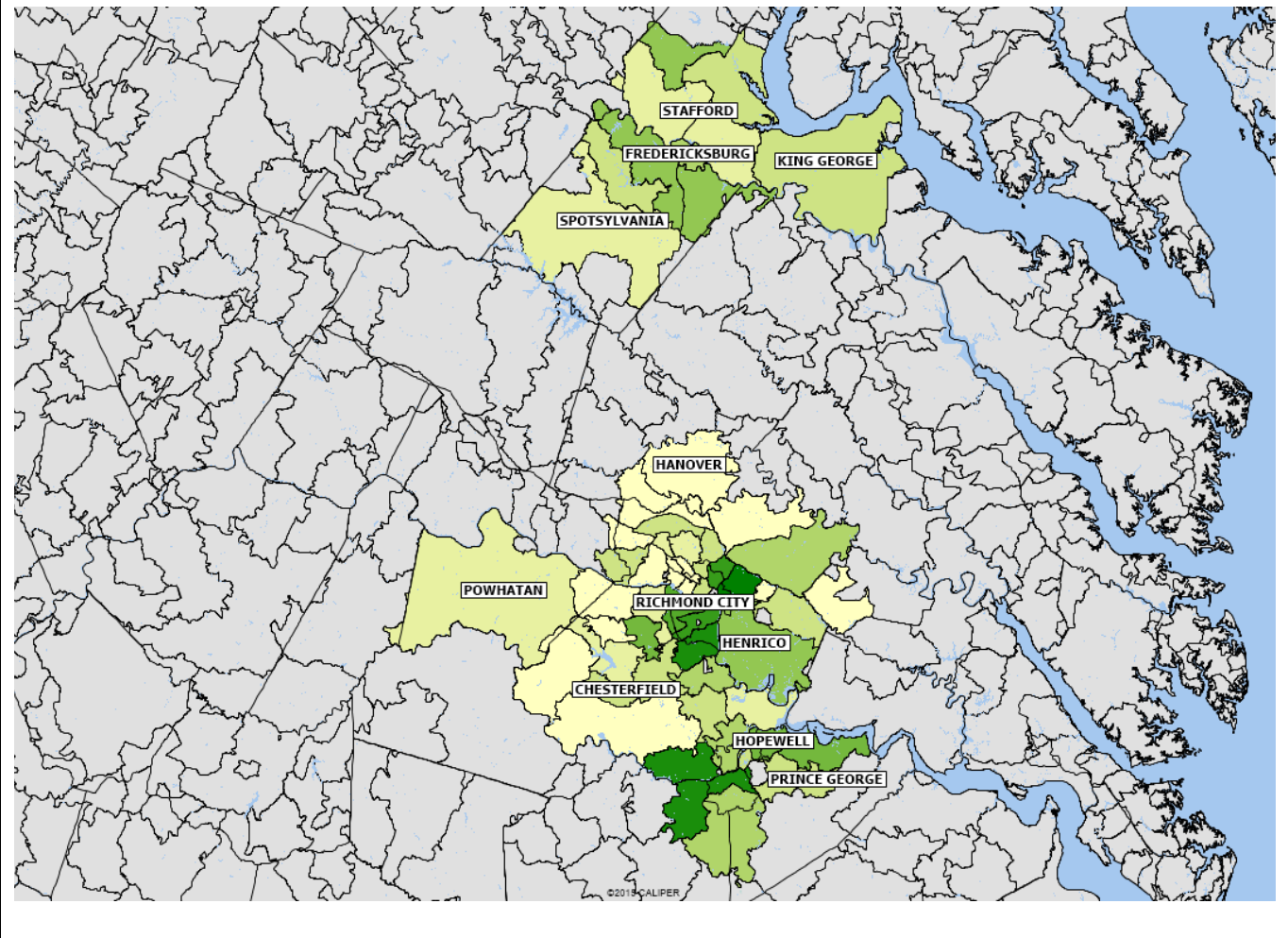
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Executive Summary

The vision of Children’s Hospital of Richmond of the Virginia Commonwealth University Health System is "to be a complete and supportive resource where children and their families find the medical and therapeutic services they need to thrive." With this vision in mind, Children’s Hospital of Richmond of the Virginia Commonwealth University Health System commissioned Community Health Solutions to conduct this community health needs assessment (CHNA).

The study focuses on the Children’s Hospital of Richmond of the Virginia Commonwealth University Health System service area of 51 zip codes adjacent to its six locations. Most of these zip codes fall within the counties of Chesterfield, Hanover, Henrico, King George, Powhatan, Spotsylvania and Stafford; and the cities of Colonial Heights, Fredericksburg, Hopewell, Petersburg and Richmond. The study region is shown in the map below. The study population for this CHNA is residents age 0-21 and their families. The results of the study include two primary components: a ‘Community Insight Profile’ and a ‘Community Indicator Profile. The Community Insight Profile is based on qualitative analyses of two surveys; one for community professionals, and one for parents/caregivers of Children’s Hospital of Richmond of the Virginia Commonwealth University Health System patients. The Community Indicator Profile is based on quantitative analysis of community health status indicators. This Executive Summary outlines major findings, and details are provided in the body of the report.

The Study Region



Part I. Community Insight Profile

In an effort to generate community input for the study, two Community Insight Surveys were conducted, one with a group of community professionals, and one with a group of parents/caregivers of Children's Hospital of Richmond of the Virginia Commonwealth University Health System patients. The purpose of the surveys was to identify support needs for area families. The survey of community professionals was administered via an online survey tool, and the survey of parents/caregivers was administered during check-in/check-out at Children's Hospital of Richmond of the Virginia Commonwealth University Health System facilities. Among the most commonly identified family needs in both surveys were supports for:

- Learning about the child's health and developmental needs;
- Learning specific skills to care for the child; and
- Getting emotional support when the parents/caregivers start to feel overwhelmed.
- Communicating with service providers to help them understand what the child really needs;
- Getting help coordinating services for the child.

Survey respondents also identified additional support needs as described in more detail in *Part I* of the report.

Part II. Community Indicator Profile

The community indicator profile in Part II presents a wide array of quantitative community health indicators for the 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 for children and families, and for which there were readily available data sources. To summarize:

- **Demographic Profile.** As of 2014, the study region included an estimated 412,473 individuals age 0-21. Compared to the Commonwealth of Virginia as a whole for this age group, the study region is more densely populated, and has proportionally more Black/African American residents.
- **Mortality Profile.** In 2013, the study region had 235 total deaths for residents age 0-21. The leading causes of death were related to prematurity and low birth weight; homicide; and motor vehicle traffic accidents. The study region death rates were higher than the statewide rates overall.
- **Maternal and Infant Health Profile.** In 2013, the study region had 16,956 total live births. Compared to Virginia as a whole, study region had a higher rate of non-marital births, and a lower rate of late prenatal care births. The teen pregnancy rate was higher than the statewide rate in five localities (cities of Colonial Heights, Fredericksburg, Hopewell, Petersburg and Richmond). The five-year infant mortality rate was higher than the statewide rate in four localities (Spotsylvania County and the cities of Hopewell, Petersburg and Richmond).
- **Pediatric Quality Indicator Hospitalization Profile.** The Agency for Healthcare Research and Quality (AHRQ) defines a set of conditions (called Pediatric Quality Indicators, or 'PDIs') for which hospitalization for children age 0-17 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. This study focused on five PDI conditions including Pediatric Asthma, Gastroenteritis, Diabetes, Urinary Tract Infection, and Perforated Appendix. Study region residents age 0-17 had 962 PDI discharges for these conditions in 2013. Hospitalization rates for PDI conditions were higher in the study region than for Virginia overall.
- **Behavioral Health Hospitalization Discharge Profile.** Behavioral health hospitalizations provide another important indicator of community health status. In 2013, study region residents age 0-21 had 3,348 hospital discharges from Virginia community hospitals for behavioral health conditions. The leading diagnoses for these hospitalizations were Affective Psychoses; Depressive Disorders-Not Elsewhere Classified; Adjustment Reaction; Schizophrenic Disorders; and Other Nonorganic Psychoses. Hospitalization rates for behavioral health conditions were higher in the study region than for Virginia overall.

- **Injury and Rehabilitation Hospitalization Discharge Profile.** Hospitalizations for injury and rehabilitation are of particular interest for studies of children’s health. This study analyzed hospitalizations for a list of eight diagnoses or procedures selected in consultation with Children’s Hospital of Richmond of the Virginia Commonwealth University Health System staff. In 2013, study region residents age 0-21 had 499 discharges for these diagnoses or procedures. The most common diagnoses/procedures were Physical Therapy, Respiratory Therapy and Rehabilitation and Other Related Procedures; Brain Injury; Care Involving Use of Rehabilitation Procedures; Traumatic Brain Injury; and Stroke. The hospitalization rates for these diagnoses/procedures combined were higher for the study region than for Virginia overall.
- **Youth Health Risk Profile.** The study includes a profile of selected health risks for youth age 10-19. The estimates indicate that substantial numbers of youth in the study region have health risks related to nutrition, body weight, physical activity, tobacco, alcohol and mental health.
- **Special Healthcare Needs Profile.** Special education programs provide specially designed instruction to meet the unique needs of children with disabilities, including instruction conducted in the school setting, in the home, in hospitals, in institutions, and in other settings. Data from the Virginia Department of Education for 2014-2015 indicate that local school divisions provide special education programs for thousands of children with a wide range of disabilities. See the full section for school-based data, and additional community data on the estimated prevalence of autism, developmental delays, and intellectual disability.
- **Uninsured Profile.** At a given point in time in 2014, an estimated 24,002 children age 0-18 in the study region were uninsured. An estimated 50% of the uninsured children had income at or below 200% of the federal poverty level (FPL).
- **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+. Nine of the 12 localities that include the study region have been fully or partially designated as MUAs/MUPs.

Additional Resources

Appendix A provides a set of thematically colored maps displaying variation in selected community health indicators by zip code. The underlying data for these maps are provided in a separate Microsoft Excel file. *Appendix B* provides a list of the data sources used in the analysis contained in this report.

Part I. Community Insight Profile

In an effort to generate community input for the study, two Community Insight Surveys were conducted; one with a group of community professionals, and one with a group of parents/caregivers of Children’s Hospital of Richmond of the Virginia Commonwealth University Health System patients. The purpose of the surveys was to identify support needs for area families that have children with health needs. The survey of community professionals was administered via an online survey tool, and the survey of parents/caregivers was administered during check-in/check-out at Children’s Hospital of Richmond of the Virginia Commonwealth University Health System facilities. The following sections present respondent profiles for each survey, and a summary of the survey results.

A. Respondent Profile for the Community Professional Survey

Twenty-four (24) community professionals completed the survey. *Exhibit I-1* below presents a profile of the survey respondents.

Exhibit I-1
Profile of Respondents to the Community Professional Survey

Survey Respondents by Organization		
<i>Note: A count is provided for organizations with multiple survey respondents.</i>		
<ul style="list-style-type: none"> • Care Connection for Children (5) • Central VA Care Connection for Children • Children's Museum of Richmond • CVS-Omnicare • Department of Behavioral Health Early Intervention • Family Lifeline • Fredericksburg City Public Schools (2) • Greater Richmond ARC 	<ul style="list-style-type: none"> • Pediatrics VCU/Care Connection for Children • Richmond City Health District • Ronald McDonald House Charities of Richmond • VCU School of Dentistry • VCU/Partnership for People with Disabilities • Virginia Treatment Center for Children • Unknown Organization (5) 	
Survey Respondents by Local Perspective		
<i>Note: Respondents selected multiple localities; therefore, the percent total does not equal 100%, and the count total does not equal 24.</i>		
<i>Locality</i>	<i>Response Count #</i>	<i>Response %</i>
Richmond City	17	90%
Hanover County	16	84%
Petersburg City	16	84%
Chesterfield County	15	79%
Henrico County	15	79%
Colonial Heights City	15	79%
Hopewell City	13	68%
King George County	11	58%
Powhatan County	11	58%
Fredericksburg City	9	47%
Spotsylvania County	8	42%
Stafford County	5	26%

B. Respondent Profile for the Parent/Caregiver Survey

One hundred and fifty-two (152) parents/caregivers completed the survey. Survey respondents were asked to provide their zip code, household size, age range and annual household income as part of the survey. A demographic profile of the survey respondents is provided in *Exhibit I-2*.

Exhibit I-2
Profile of Respondents to the Parent/Caregiver Survey

Age	Response Count	Response Percent
18-24	11	8%
25-34	53	36%
35-44	56	38%
45-54	18	12%
55-64	8	6%
65+	0	0%
Household Size		
One Person (only me)	1	1%
Two People	13	9%
Three People	44	29%
Four People	48	32%
Five People	26	17%
More than 5 people	19	13%
Income		
Less than \$25,000	44	30%
\$25,000 - \$34,999	24	16%
\$35,000-\$49,999	20	14%
\$50,000-\$74,999	13	9%
\$75,000 or more	33	22%
Don't know or unsure	13	9%
Locality		
<i>Total</i>	<i>152</i>	<i>100%</i>
Chesterfield County	48	32%
Hanover County	23	15%
Henrico County	15	10%
Charles City County	12	8%
Caroline County	7	5%
Stafford County	7	5%
Culpeper County	6	4%
Brunswick County	5	3%
Amelia County	4	3%
Dinwiddie County	4	3%
Goochland County	4	3%
Fauquier County	3	2%
Richmond City	3	2%
Fairfax City	2	1%
Fredericksburg County	2	1%
Prince William County	2	1%
Buckingham County	1	1%
Charlotte County	1	1%
Lancaster County	1	1%
Louisa County	1	1%
Middlesex County	1	1%
<i>Note: Respondents provided their zip code, which were then matched to a locality. It is important to note some zip code could be allocated to more than one locality, as zip code boundaries often cross city/county borders.</i>		

C. Summary of the Survey Results

Exhibit I-3 presents summary results from the survey of community professionals, and the survey of parents/caregivers. Both surveys asked respondents to identify family support needs from a pre-defined list, and respondents were also invited to identify additional needs at their option. The exhibit shows the number and percent of respondents to the community professional survey who reported serving 'some' or 'many' families needing each support shown. The exhibit also shows the number and percent of parents/caregivers who identified each support as a need for their family. Additional comments from survey respondents are shown in the continuation of the exhibit on the following page.

**Exhibit I-3
Summary of Community Insight Survey Results**

Support for...	Identified as a Need for Many or Some Families in Community Professional Survey	Identified as a Need in Parent/Caregiver Survey
1. Learning about the child's health and developmental needs	24 (100%)	35 (36%)
2. Learning specific skills to care for the child	22 (92%)	32 (33%)
3. Understanding health information and directions provided by the child's service providers	22 (92%)	17 (17%)
4. Communicating with service providers to help them understand what the child really needs	20 (83%)	23 (23%)
5. Getting help around the house so they have time and energy to focus on the child's needs	14 (58%)	32 (33%)
6. Getting emotional support when they start to feel overwhelmed	21 (88%)	35 (36%)
7. Getting help with making appointments for the child	17 (71%)	8 (8%)
8. Getting help with transportation to visits and appointments	20 (83%)	10 (10%)
9. Getting help with coordinating services for the child	20 (83%)	24 (24%)
10. Finding a good primary care provider for the child	17 (71%)	13 (13%)
11. Finding good medical specialists for the child	19 (80%)	29 (30%)
12. Finding a good dentist for the child	16 (67%)	15 (15%)
13. Finding a good counselor or mental health professional for the child	20 (83%)	21 (21%)
14. Getting the prescriptions and health supplies the child needs	19 (79%)	12 (12%)
15. Getting good outpatient hospital care for the child	15 (63%)	11 (11%)
16. Getting good inpatient hospital care for the child	12 (50%)	7 (7%)
17. Getting good home health services for the child	18 (75%)	13 (13%)
18. Getting respite care for me and others who care for the child	18 (75%)	23 (23%)
19. Finding adequate health coverage for the child	17 (71%)	13 (13%)
20. Finding a supportive child care environment for the child	19 (79%)	18 (18%)
21. Finding a supportive school environment for the child	18 (75%)	26 (27%)
22. Finding a supportive after school environment for the child	21 (88%)	22 (22%)
23. Finding a supportive work environment that will allow the parent/caregiver to care for the child	18 (75%)	25 (26%)
24. Finding other services and supports for the child	19 (79%)	20 (20%)

Continued

Exhibit I-3
Summary of Community Insight Survey Results

Additional Comments from Community Professionals

- Affordable housing. Legal assistance for guardianship issues
- Finding care that is affordable. Social supports for families of children with disabilities, including siblings. Help with navigating the many siloed systems in our community. Help with the educational system, especially special education & obtaining medical services within schools. Post-secondary school opportunities, especially for people with disabilities. Transition services - both finding them as well as identifying adult providers to accept caring for young adults with any issues. Ending the Medicaid Waiver waitlist for families of children with disabilities as a means to fund these services. Finding behavioral health services. Finding services for children with multiple disabilities, especially those that include both "medical" and "behavioral" issues. Finding rural services.
- Nurturing parenting skills and 1:1 support for parents and Child-appropriate activities that are not high cost.
- Services specific to age - i.e., Transition aged youth or young child; also trauma based care

Additional Comments from Parents/Caregivers

- A.B.A. coverage by private health insurance
- Autism therapy such as ABA, etc.
- Community activities where I don't have to stay with them to assist/support.
- Community recreational activities that are inclusive. Tutoring to enhance what he is learning at school
- Dr. Bortell is amazing.
- Drop in daycare/sick child daycare on Hull St./Woodlake side of Midlothian.
- Feeding and Behavioral
- Finding area programs for my child outside of the Children Hospital Community Programs
- Getting help in the school to help my child learn better and get extra help.
- I know I may need other services but do not have a clue what they may be
- Interpreter needed for communication and finding good resources near home (dermatologist)
- Lucille O'Neil is so very helpful with information when we need it. The hospital staff and inpatient and outpatient is very good. Thank you!
- Making connections with other parents dealing with the same issues
- Maybe support groups with people her age, especially regarding the lymphedema (age 18 on 7/4)
- Music therapy
- Outpatient therapy in the Hull Street/Brandermill/Woodlake area is needed.
- Providing more summer activities for children especially in rural areas.
- School understanding
- Summer activities and programs.

Part II. Community Indicator Profile

This section of the report provides a quantitative profile of the 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 for children and families, and for which there were readily available data sources.

The results of this profile can be used to evaluate community health status compared to the Commonwealth of Virginia overall. The results can also be helpful for determining the number of people within the study region 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
3. Mortality Profile
4. Maternal and Infant Health Profile
5. Pediatric Quality Indicators Hospitalization Profile
6. Behavioral Health Hospitalization Discharge Profile
7. Rehabilitation Hospitalization Profile
8. Youth Risk Factor Profile
9. Special Health Care Needs Profile
10. Uninsured Profile
11. Medically Underserved Profile

1. Health Demographic Trend Profile

Trends in health-related demographics are instructive for anticipating changes in community health status. Changes in the size of the population, age of the population, 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 II-1*, as of 2014, the study region included an estimated 1,398,622 people, 412,473 of whom were age 0-21. The population age 0-21 is expected to grow by 2% from 2014 to 2019. Focusing on sub-populations, all age groups are expected to grow or remain relatively stable with the exception of the 18-21 population which is expected to decline by 4%. The Asian and Black/African American populations are projected to remain relatively stable from 2014 to 2019; whereas, the White and Hispanic Ethnicity population are projected to increase.

Exhibit II-1
Health Demographic Trend, 2014-2019

Indicator	2010 Census	2014 Estimate	2019 Projection	% Change 2014-2019
Total Population	1,338,945	1,398,622	1,482,206	6%
Total Population Age 0-21	403,676	412,473	420,751	2%
Population Density (per Sq. Mile)	588.8	610.5	646.9	6%
By Age Group				
Children Age 0-2 #	51,013	52,272	56,342	8%
Children Age 3-5 #	52,860	53,963	55,982	4%
Children Age 6-11 #	109,461	111,847	114,478	2%
Children Age 12-14 #	55,639	57,423	59,143	3%
Children Age 15-17 #	59,696	59,508	60,101	1%
Adults Age 18-21 #	75,007	77,460	74,705	-4%
By Race/Ethnicity				
Asian	13,728	17,330	17,310	0%
Black/African American	124,803	129,584	127,805	-1%
White	228,069	215,982	226,796	5%
Hispanic Ethnicity	34,179	40,246	43,243	7%
<i>Note: Hispanic is a classification of ethnicity; therefore, Hispanic individuals are also included in the race categories. Estimates for Other/Multi/Unknown Race excluded from this analysis.</i>				
<i>Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix B. Data Sources for details.</i>				

2. Health Demographic Snapshot

Community health is driven in large part by community demographics. The age, sex, race, ethnicity, and income status of a population are strong predictors of community health status and community health needs. *Exhibit II-2* presents a snapshot of key health-related demographics of the study region.

As of 2014, the study region included an estimated 412,473 people age 0-21. Compared Virginia as a whole, the study region is more densely populated, and has proportionally more Black/African American residents. *Note: Maps 1-6 in Appendix A show the geographic distribution of the population by zip code.*

**Exhibit II-2
Health Demographic Snapshot, 2014**

Indicator	Virginia	Study Region
Counts		
Population Age 0-21	2,361,414	412,473
Children Age 0-2	309,132	52,272
Children Age 3-5	314,688	53,963
Children Age 6-11	629,843	111,847
Children Age 12-14	313,388	57,423
Children Age 15-17	322,283	59,508
Adults Age 18-21	472,092	77,460
Female Population Age 0-21	1,155,897	203,247
Males Population Age 0-21	1,205,517	209,225
Asian Population Age 0-21	153,902	17,330
Black/African American Population Age 0-21	518,280	129,584
White Population Age 0-21	1,447,657	215,982
Hispanic Ethnicity Population Age 0-21	273,587	40,246
Low Income Family Households (Households with Income < \$35,000)	594,201	95,280
Rates		
Population Density (pop. per sq. mile)	206.1	610.5
Children Age 0-2 pct. of Total Pop. Age 0-21	13%	13%
Children Age 3-5 pct. of Total Pop. Age 0-21	13%	13%
Children Age 6-11 pct. of Total Pop. Age 0-21	27%	27%
Children Age 12-14 pct. of Total Pop. Age 0-21	13%	14%
Children Age 15-17 pct. of Total Pop. Age 0-21	14%	14%
Adults Age 18-21 pct. of Total Pop. Age 0-21	20%	19%
Female Pop. Age 0-21 pct. of Total Pop. Age 0-21	49%	49%
Male Pop. Age 0-21 pct. of Total Pop. Age 0-21	51%	51%
Asian Pop. Age 0-21 pct. of Total Pop. Age 0-21	7%	4%
Black/African American Pop. Age 0-21 pct. of Total Pop. Age 0-21	22%	31%
White Pop. Age 0-21 pct. of Total Pop. Age 0-21	61%	52%
Hispanic Ethnicity Pop. Age 0-21 pct. of Total Pop. Age 0-21	12%	10%
Low Income Family Households (Family Households with Income < \$35,000) pct. of Total Family Households	19%	18%

Note: Hispanic is a classification of ethnicity; therefore, Hispanic individuals are also included in the race categories. Estimates for Other/Multi/Unknown Race excluded from this analysis.

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

3. Mortality Profile

As shown in *Exhibit II-3*, in 2013 the study region had 235 total deaths in the 0-21 age group. The leading causes of death were related to prematurity and low birth weight (28); homicide (12); and motor vehicle traffic accidents (10). The study region death rates were higher than the statewide rates overall. *Note: Maps 7-10 in Appendix A show the geographic distribution of deaths by zip code.*

**Exhibit II-3
Mortality Profile (Age 0-21), 2013**

Indicator	Virginia	Study Region
Total Deaths by Age 0-21	1,208	235
Counts by Age Group		
Age 0-2	689	118
Age 3-5	31	5
Age 6-11	68	13
Age 12-14	45	12
Age 15-17	94	19
Age 18-21	281	68
Counts by 10 Leading Causes		
Disorders Related to Short Gestation (Prematurity) and Low Birth Weight, Not Elsewhere Classified Deaths (Infant)	131	28
Homicide Deaths	42	12
Motor Vehicle Traffic Accidents Deaths	60	10
Sudden Infant Death Syndrome	49	9
Suffocation Deaths	29	7
Other Ill-Defined and Unknown Causes of Mortality (Infant)	33	5
Congenital Malformations, Deformations and Chromosomal Abnormalities Deaths (Perinatal)	19	4
Edward's Syndrome Deaths (Infant)	16	3
Fetus Affected by Maternal Complications of Pregnancy Deaths (Perinatal)	24	3
Unintentional Injury Deaths	14	2
Rates per 100,000 by Age Group		
Total Population Age 0-21	51.2	66.6
Age 0-2	222.9	270.5
Age 3-5	9.9	--
Age 6-11	10.8	--
Age 12-14	14.4	--
Age 15-17	29.2	--
Age 18-21	59.5	87.8
<p><i>Note: -- Rates are not calculated where n<30. Motor vehicle traffic accident deaths for residents of the study region, not motor vehicle accident deaths occurring in the study region. Age adjusted death rates were not calculated for this study because the study region is defined by zip codes, and available data are not structured to support calculation of age adjusted death rates at the zip code level. Age group death rates are used as an alternative.</i></p>		
<p><i>Source: Community Health Solutions analysis of mortality data from the Virginia Department of Health. See Appendix B. Data Sources for details.</i></p>		

4. Maternal and Infant Health Profile

As shown in *Exhibit II-4A*, the study region had 16,956 total live births in 2013. Compared to Virginia as a whole, the study region had a higher rate of non-marital births, and a lower rate of late prenatal care births. *Note: Maps 11-14 in Appendix A show the geographic distribution of births by zip code.*

Focusing on teen pregnancy and infant mortality, counts and rates for these indicators are shown at the locality level in *Exhibit II-4B* on the following page. Locality data are used for this analysis because available data are not sufficient to support analysis of rates for these indicators based on zip code boundaries. The teen pregnancy rate was higher than the statewide rate in five localities (cities of Colonial Heights, Fredericksburg, Hopewell, Petersburg and Richmond). The five-year infant mortality rate was higher than the statewide rate in four localities (Spotsylvania County; and the cities of Hopewell, Petersburg and Richmond).

**Exhibit II-4A
Maternal and Infant Health Profile, 2013**

Indicator	Virginia	Study Region
Counts		
Total Live Births	101,977	16,956
Low Weight Births (under 2,500 grams / 5 lb. 8 oz.)	8,178	1,466
Births Without Early Prenatal Care (No Prenatal Care in First 13 Weeks)	13,435	1,519
Non-Marital Births	35,289	6,993
Live Births to Teens Age 10-19	5,316	970
Live Births to Teens Age 18-19	4,073	709
Live Births to Teens Age 15-17	1,208	252
Live Births to Teens Age <15	35	9
Rates		
Live Births Rate per 1,000 Population	12.3	12.2
Low Weight Births pct. of Total Live Births	8%	9%
Births Without Early Prenatal Care (No Prenatal Care in First 13 Weeks) pct. of Total Live Births	13%	9%
Non-Marital Births pct. of Total Live Births	35%	41%
Live Births to Teens Age 10-19	10.3	10.2
Live Births to Teens Age 18-19	36.4	37.1
Live Births to Teens Age 15-17	8.0	8.7
Live Births to Teens Age <15	0.1	0.2
<i>Source: Community Health Solutions analysis of maternal and infant health data from the Virginia Department of Health. See Appendix B. Data Sources for details.</i>		

**Exhibit II-4B
Teen Pregnancy and Infant Mortality, 2013**

Indicator	Virginia	Chesterfield County	Colonial Heights City	Fredericksburg City	Hanover County	Henrico County	Hopewell City	King George County	Petersburg City	Powhatan County	Richmond City	Spotsylvania County	Stafford County
Teen Pregnancy Counts and Rates													
Total Teenage Pregnancies Age 10-19 (2013)	7,447	243	26	64	76	222	54	20	117	16	489	105	87
Total Pregnancies per 1,000 Female Population Age 10-19 (2013)	14.4	10.1	22.4	29.0	10.4	11.2	41.1	11.7	73.8	9.9	41.3	11.1	7.9
Infant Mortality Counts and Rates													
Total Infant Deaths (2013)	632	122	5	11	17	118	22	5	36	7	164	65	51
Five-Year Infant Mortality Rate per 1,000 Live Births (2013)	6.6	6.6	3.8	5.4	3.8	6.0	11.7	3.3	10.7	6.0	11.0	8.4	6.1
<i>Note: Indicators are shown at the city and county level because data are not available at the zip code level.</i>													
<i>Source: Community Health Solutions analysis of maternal and infant health data from the Virginia Department of Health. See Appendix B. Data Sources for details.</i>													

5. Pediatric Quality Indicator Hospitalization Profile

The Agency for Healthcare Research and Quality (AHRQ) defines a set of conditions (called Pediatric Quality Indicators, or 'PDI') for which hospitalization for children age 0-17 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. This study focused on five PDI conditions including Pediatric Asthma, Gastroenteritis, Diabetes, Urinary Tract Infection, and Perforated Appendix. As shown in *Exhibit II-5*, study region residents age 0-17 had 962 PDI discharges for these conditions in 2013, with Pediatric Asthma (542), Gastroenteritis (191), and Diabetes (93) as the most common diagnoses. Hospitalization rates for PDI conditions were higher in the study region than for Virginia overall. *Note: Map 15 in Appendix A shows the geographic distribution of PDI discharges by zip code.*

Exhibit II-5
Selected Pediatric Quality Indicator Hospitalizations (Age 0-17), 2013

Indicator	Virginia	Study Region
Counts- Age Group		
Age 0-17	2,831	962
Age 0-2	632	211
Age 3-5	679	240
Age 6-11	899	304
Age 12-14	312	119
Age 15-17	309	88
Counts-Diagnosis		
Pediatric Asthma Discharges	1,286	542
Gastroenteritis Discharges	636	191
Diabetes Discharges	269	93
Urinary Tract Infection Discharges	350	89
Perforated Appendix Discharges	290	47
Rates per 100,000- Age Group		
<i>Total Population Age 0-17</i>	149.8	408.4
Age 0-2	204.4	575.6
Age 3-5	215.8	633.0
Age 6-11	142.7	385.7
Age 12-14	99.6	294.4
Age 15-17	95.9	210.9
<i>Note: -- Rates are not calculated where n<30. Age adjusted rates were not calculated for this study because the study region is defined by zip codes, and available data are not structured to support calculation of age adjusted rates at the zip code level. Age group rates are used as an alternative. See Appendix B for details.</i>		
<i>Source: Community Health Solutions analysis of hospital discharge data from Virginia Health Information, Inc. and local demographic estimates from Alteryx, Inc. See Appendix B. Data Sources for details.</i>		

6. Behavioral Health Hospitalization Discharge Profile

Behavioral health hospitalizations provide another important indicator of community health status. As shown in *Exhibit II-6*, in 2013 study region residents age 0-21 had 3,348 hospital discharges for behavioral health conditions. The leading diagnoses for these hospitalizations were Affective Psychoses (1,816); Depressive Disorders-Not Elsewhere Classified (582); Adjustment Reaction (214); Schizophrenic Disorders (164); and Other Nonorganic Psychoses (161). Hospitalization rates for behavioral health conditions were higher in the study region than for Virginia overall. *Note: Map 16 in Appendix A shows the geographic distribution of behavioral health hospitalization discharges by zip code.*

Exhibit II-6
Behavioral Health Hospitalization Discharges (Age 0-21), 2013

Indicator	Virginia	Study Region
Counts by Age		
Age 0-21	11,239	3,348
Age 0-2	26	5
Age 3-5	53	18
Age 6-11	985	353
Age 12-14	2,237	705
Age 15-17	3,450	1,068
Age 18-21	4,488	1,199
Counts by Leading Diagnoses		
Affective Psychoses	7,014	1,816
Depressive Disorder, Not Elsewhere Classified	1,233	582
Adjustment Reaction	601	214
Schizophrenic Disorders	563	164
Other Nonorganic Psychoses	462	161
Neurotic Disorders	309	123
Hyperkinetic Syndrome of Childhood	138	86
Drug Psychoses	225	37
Drug Dependence	97	24
Special Symptoms or Syndromes Not Elsewhere Classified	84	13
Rates per 100,000		
Age 0-21	475.9	949.3
Age 0-2	--	--
Age 3-5	16.8	--
Age 6-11	156.4	383.5
Age 12-14	713.8	1,506.9
Age 15-17	1,070.5	2,223.9
Age 18-21	950.2	1,547.9
<i>Note: -- Rates are not calculated where n<30.</i>		
<i>Source: Community Health Solutions analysis of hospital discharge data from Virginia Health Information and demographic data from Alteryx, Inc. See details on methods in Appendix B.</i>		

7. Injury and Rehabilitation Hospitalization Discharge Profile

Hospitalizations for injury and rehabilitation are of particular interest for studies of children's health. This study analyzed hospitalizations for a list of eight diagnoses or procedures selected in consultation with Children's Hospital of Richmond of the Virginia Commonwealth University Health System staff. As shown in *Exhibit II-7*, in 2013 study region residents age 0-21 had 499 discharges for these diagnoses or procedures. The most common diagnoses/procedures were Physical Therapy, Respiratory Therapy and Rehabilitation and Other Related Procedures (305); Brain Injury (83); Care Involving Use of Rehabilitation Procedures (50); Traumatic Brain Injury (25) and Stroke (19). The hospitalization rates for these diagnoses/procedures combined were higher for the study region than for Virginia overall.

Exhibit II-7
Selected Injury and Rehabilitation Hospitalization Discharges (Age 0-21), 2013

Indicator	Virginia	Study Region
Counts by Age Group		
Age 0-21	2,885	499
Age 0-2	1,717	298
Age 3-5	145	18
Age 6-11	176	28
Age 12-14	126	26
Age 15-17	216	37
Age 18-21	505	92
Counts by Selected Injury and Rehabilitation Diagnoses or Procedures		
Physical therapy, respiratory therapy and rehabilitation, and related procedures	1,889	305
Brain Injury	470	83
Care involving use of rehabilitation procedures	242	50
Traumatic Brain Injury	99	25
Stroke	92	19
Amputations	38	7
Multiple Sclerosis	19	4
Wrist/Hand Fractures	26	3
Rates per 100,000		
Age 0-21	122.2	141.5
Age 0-2	555.4	683.2
Age 3-5	46.1	--
Age 6-11	27.9	--
Age 12-14	40.2	--
Age 15-17	67.0	77.0
Age 18-21	106.9	118.8
<p><i>Note: -- Rates are not calculated where n<30. Children's Hospital of Richmond of the Virginia Commonwealth University Health System selected this set of injury and rehabilitation discharges for analysis. The total of all ages does not add up to the sum of the age groups because an age was not reported for some discharges.</i></p> <p><i>Source: Community Health Solutions analysis of hospital discharge data from Virginia Health Information and demographic data from Alteryx, Inc. See details on methods in Appendix B.</i></p>		

8. Youth Health Risk Factor Profile

This section examines selected health risks for youth age 10-19. 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 II-8 shows estimates indicating that substantial numbers of youth in the study region have health risks related to nutrition, body weight, physical activity, tobacco, alcohol, and mental health. *Note: Map 17 in Appendix A shows the geographic distribution of youth overweight or obese by zip code.*

**Exhibit II-8
Youth Health Risk Factor Profile (2014 Estimates)**

Indicator	Study Region
Counts (Estimates)	
High School Youth Age 14-19	
<i>Total Estimated High School Youth Age 14-19</i>	117,399
Met Guidelines for Fruit and Vegetable Intake	9,668
Overweight or Obese	32,824
Not Meeting Recommendations for Physical Activity in the Past Week	65,227
Used Tobacco in the Past 30 Days	21,310
Had at least One Drink of Alcohol At least One Day in the Past 30 Days	31,922
Felt Sad or Hopeless (almost every day for two or more weeks in a row so that they stopped doing some usual activities)	29,194
Middle School Youth Age 10-14	
<i>Total Estimated Middle School Youth Age 10-14</i>	46,463
Met Guidelines for Fruit and Vegetable Intake	11,234
Did Not Meet Recommendations for Physical Activity in the Past Week	30,596
Used Tobacco in the Past 30 Days	1,094
Rates (Percent Estimates)	
High School Youth Age 14-19	
Met Guidelines for Fruit and Vegetable Intake	8%
Overweight or Obese	28%
Not Meeting Recommendations for Physical Activity in the Past Week	56%
Used Tobacco in the Past 30 Days	18%
Had at least One Drink of Alcohol At least One Day in the Past 30 Days	27%
Felt Sad or Hopeless (almost every day for two or more weeks in a row so that they stopped doing some usual activities)	25%
Middle School Youth Age 10-14	
Met Guidelines for Fruit and Vegetable Intake	24%
Did Not Meet Guidelines Recommendations for Physical Activity in the Past Week	66%
Used Tobacco in the Past 30 Days	2%
<i>Note: Please note that all indicators in this profile are estimates, and therefore subject to estimation error.</i>	
<i>Source: Estimates produced by Community Health Solutions using Youth Risk Behavioral Surveillance System data and local demographic estimates from Alteryx, Inc. See Appendix B. Data Sources for details.</i>	

9. Special Health Care Needs Profile

According to the Virginia Department of Education, "special education means specially designed instruction, at no cost to the parent(s), to meet the unique needs of a child with a disability, including instruction conducted in a classroom, in the home, in hospitals, in institutions, and in other settings and instruction in physical education."¹ As shown in *Exhibit II-9A*, data from the Virginia Department of Education for 2014-2015 indicate that local school divisions provide special education programs for thousands of children with a wide range of disabilities.

**Exhibit II-9A
Special Education Enrollment (Age 0-22), 2014-2015**

Indicators	VA	Chesterfield County	Colonial Heights City of	Fredericksburg City of	Hanover County	Henrico County	Hopewell City of	King George County	Petersburg City of	Powhatan County	Richmond City of	Spotsylvania County	Stafford County
Total Children in Special Education, by Disability													
Autism	17,030	792	30	21	302	654	42	37	48	57	281	293	361
Deaf Blindness	32	0	0	0	0	--	0	--	0	0	0	--	0
Developmental Delay	11,155	305	26	33	62	408	17	52	19	20	294	203	118
Emotional Disturbance	9,209	394	32	29	155	358	35	22	23	32	227	161	147
Hearing Impairments	1,475	33	--	--	17	52	--	--	--	--	33	21	51
Intellectual Disabilities	9,079	469	23	17	66	332	91	31	81	10	325	138	164
Multiple Disabilities	3,356	63	--	--	31	109	11	12	21	--	176	32	46
Other Health Impairments	31,546	1,574	92	82	681	1,613	103	67	135	143	999	499	501
Orthopedic Impairments	771	19	--	--	--	18	--	--	--	--	--	18	20
Specific Learning Disability	53,534	2,156	169	94	725	1,781	141	138	116	128	1,375	832	781
Speech or Language Impairments	24,735	1,259	45	50	359	989	154	92	48	98	476	538	454
Traumatic Brain Injury	392	25	--	0	--	--	--	--	--	--	19	--	13
Visual Impairments	646	10	--	--	--	13	--	--	--	0	--	13	13
<i>Note: -- Counts are not provided where the number of students < 10. Autism can include certain areas under Autism Spectrum Disorder.</i>													
<i>Source: Community Health Solutions analysis of 2014-2015 Virginia Department of Education Special Education Child Count data.</i>													

¹ For a more detailed description, visit the Virginia Department of Education webpage at http://www.doe.virginia.gov/special_ed/index.shtml.

While *Exhibit II-9A* shows school-based data on special health care needs, *Exhibit II-9B* shows selected community-wide estimates for the study region. The estimates shown are for 2014, and include estimated counts and rates of youth age 0-17 with special health care needs related to autism, development delays, and intellectual disability.

Exhibit II-9B
Special Health Care Needs (2014 Estimates for Age 0-17)

Indicator	Study Region
Counts (Estimates)	
<i>Total Youth Age 0-17</i>	335,012
Had Autism-defined as Autism, Asperger's Disorder, pervasive development disorder, or other autism spectrum disorder (told by a doctor or other health professional)	6,419
Had Any Developmental Delay (told by a doctor or other health professional)	16,529
Had an Intellectual Disability (told by a doctor or other health professional)	4,571
Rates (Percent Estimates)	
Had Autism-defined as Autism, Asperger's Disorder, pervasive development disorder, or other autism spectrum disorder (told by a doctor or other health professional)	1%
Had Any Developmental Delay (told by a doctor or other health professional)	2%
Had an Intellectual Disability or Mental Retardation (told by a doctor or other health professional)	1%
<i>Note: All indicators in this profile are estimates, and therefore subject to estimation error.</i>	
<i>Source: Estimates produced by Community Health Solutions using National Survey of Children's Health data and local demographic estimates from Alteryx, Inc. See Appendix B. Data Sources for details.</i>	

10. 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. As shown in *Exhibit II-10* at a given point in time in 2014, an estimated 24,002 children age 0-18 in the study region were uninsured. An estimated 50% of the uninsured children had income at or below 200% of the federal poverty level (FPL). *Note: Maps 18-19 in Appendix A show the geographic distribution of the uninsured population by zip code.*

**Exhibit II-10.
Uninsured Children (Age 0-18) (Synthetic Estimates) 2014**

Indicator	Study Region
Estimated Uninsured Counts and Rate	
Total Children Age 0-18	355,016
Uninsured Children Age 0-18 All Income Levels (Percent)	7%
Uninsured Children Age 0-18 All Income Levels (Count)	24,002
Uninsured Children Age 0-18 <=138% FPL	7,785
Uninsured Children Age 0-18 <=200% FPL	12,049
Uninsured Children Age 0-18 <=250% FPL	14,797
Uninsured Children Age 0-18 <=400% FPL	19,672
<i>Note: Federal poverty level (FPL) categories are cumulative. Please note that all indicators in this profile are estimates, and therefore subject to estimation error.</i>	
<i>Source: Estimates produced by Community Health Solutions using U.S. Census Bureau Small Area Health Insurance Estimates (2014) and local demographic estimates from Alteryx, Inc. See Appendix B for details on methods.</i>	

11. 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 II-11*, nine of the 12 localities that encompass the study region have been fully or partially designated as MUAs/MUPs. For a more detailed description, visit the U.S. Health Resources and Services Administration designation webpage at <http://muafind.hrsa.gov/>.

**Exhibit II-11.
Medically Underserved Areas**

Locality	MUA designation	Census Tracts
Chesterfield County	Partial	2 of 71 Census Tracts
Colonial Heights City of	None	----
Fredericksburg City of	Partial	1 of 6 Census Tracts
Hanover County	None	----
Henrico County	Partial	2 of 64 Census Tracts
Hopewell City of	None	----
King George County	Full	5 of 5 Census Tracts
Petersburg City of	Full	11 of 11 Census Tracts
Powhatan County	Full	5 of 5 Census Tracts
Richmond City of	Partial	14 of 66 Census Tracts
Spotsylvania County	Partial	1 of 30 Census Tracts
Stafford County	Full	27 or 27 Census Tracts

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

APPENDIX A: Zip Code Level Maps for the Study Region

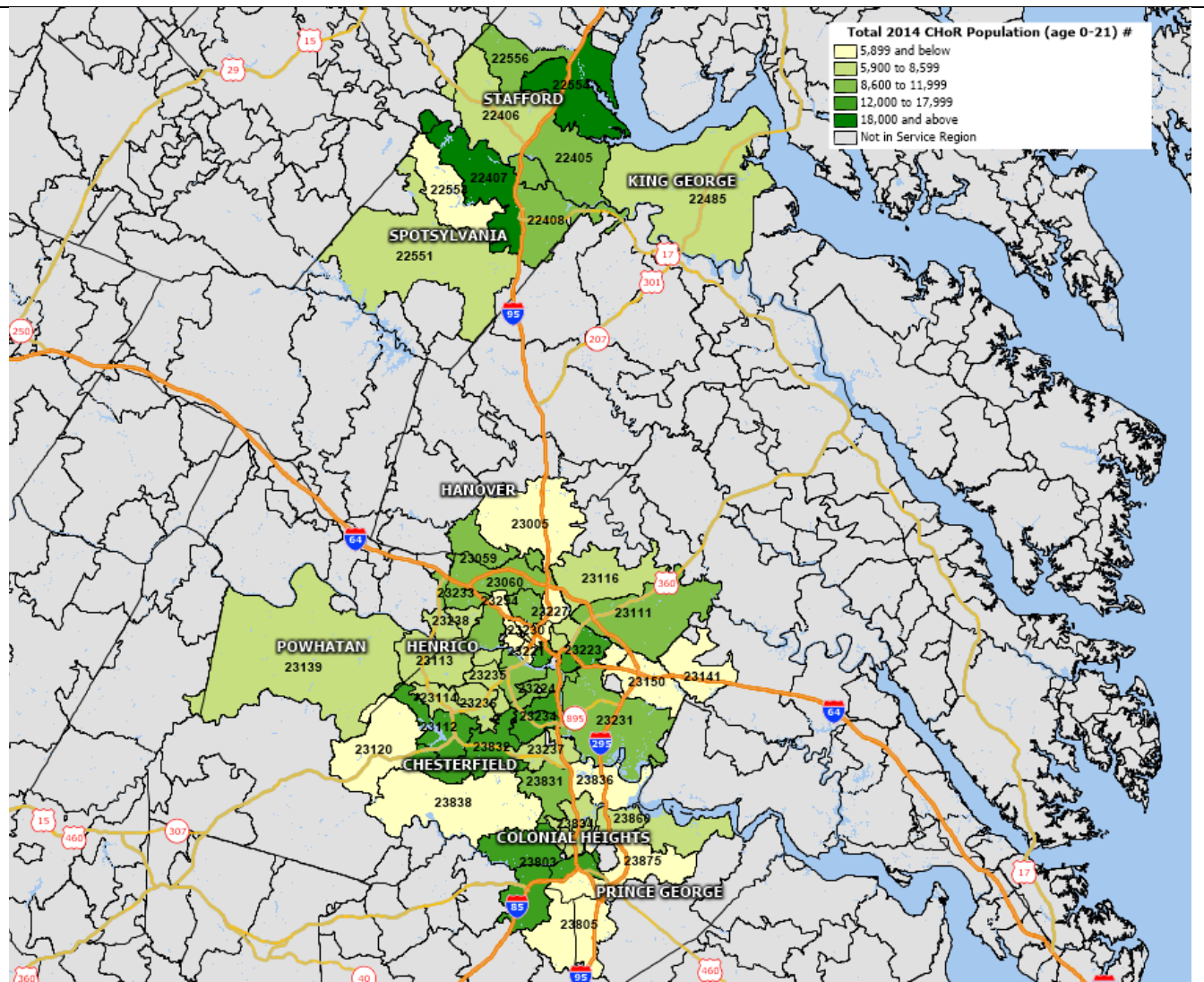
The zip code level maps in this section illustrate the geographic distribution of the study region population on key demographic and health indicators. The results can also be used alongside the Community Insight Survey (Part I) and the Community Indicator Profile (Part II) to help inform plans for community 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 2013/2014:

1. Total Population (Age 0-21), 2014	11. Total Live Births, 2013
2. Asian Population (Age 0-21), 2014	12. Low Weight Births, 2013
3. Black/African American Population (Age 0-21), 2014	13. Births Without Early Prenatal Care (No Prenatal Care in the First 13 Weeks), 2013
4. White Population Age (Age 0-21), 2014	14. Births to Teen Mothers Under Age 18, 2013
5. Hispanic Ethnicity Population Age (Age 0-21), 2014	15. Pediatric Quality Indicator Hospitalization Discharges (Ages 0-17), 2013
6. Low Income Family Households (Family Households with Income <\$35,000), 2014	16. Behavioral Health (BH) Hospitalization Discharges (Ages 0-21), 2013
7. Total Deaths (Age 0-21), 2013	17. Estimated Youth Age 14-19 Overweight or Obese, 2014
8. Disorders Related to Short Gestation (Prematurity) and Low Birth Weight, Not Elsewhere Classified Deaths, 2013	18. Estimated Uninsured Children Age 0-18, 2014
9. Homicide Deaths (Age 0-21), 2013	19. Estimated Uninsured Children Age 0-18 with Income <=200% Federal Poverty Level, 2014
10. Motor Vehicle Accident Deaths (Age 0-21), 2013	Zip Code Map Table

Technical Notes

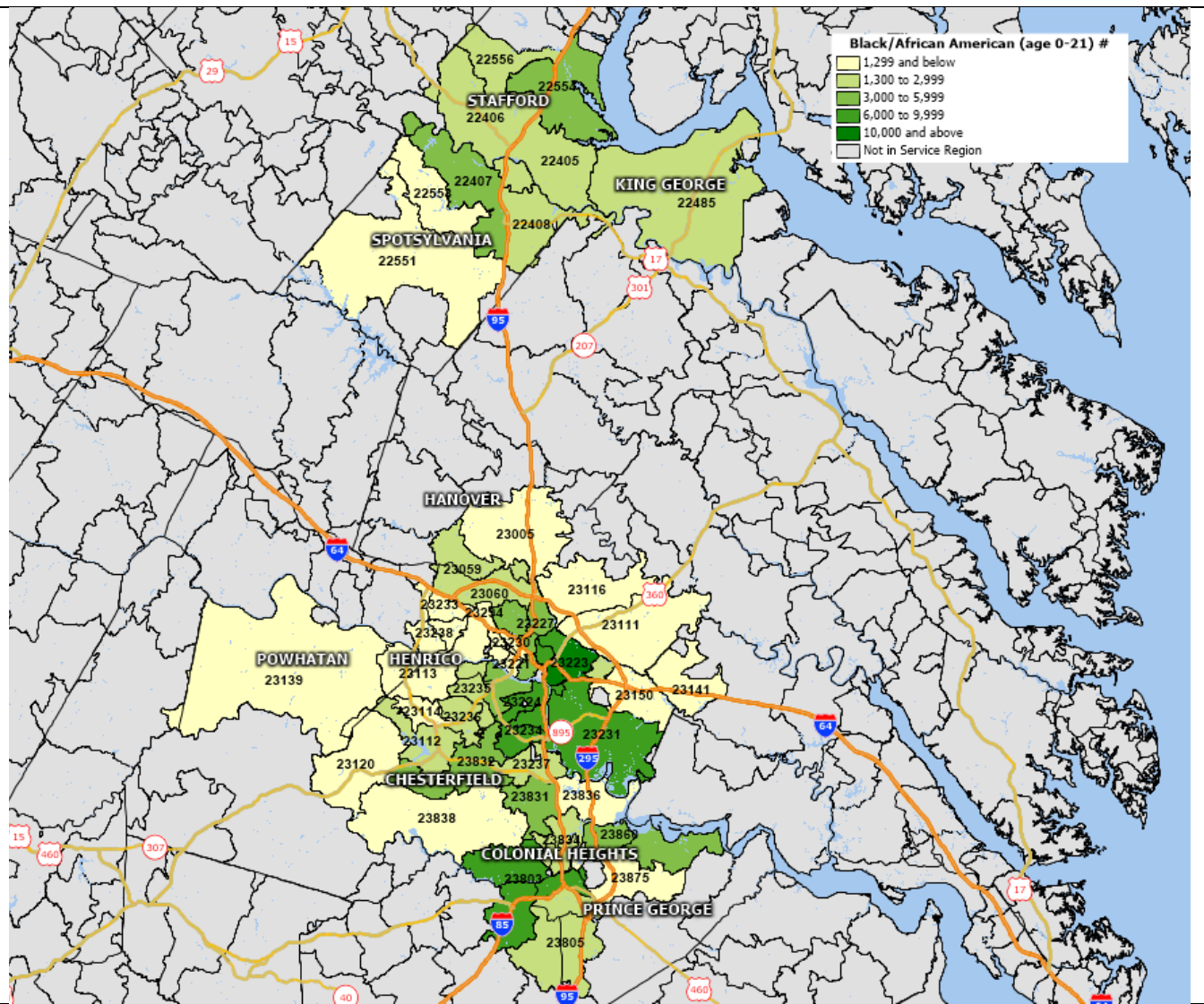
1. The study focuses on the Children’s Hospital of Richmond of the Virginia Commonwealth University Health System service area of 51 zip codes most of which fall within the counties of Chesterfield, Hanover, Henrico, King George, Powhatan, Spotsylvania and Stafford; and the cities of Colonial Heights, Fredericksburg, Hopewell, Petersburg and Richmond. Because zip code boundaries do not automatically align with city/county boundaries, there are some zip codes that extend beyond the county boundaries.
2. 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 natural breaks.
4. Study region zip codes with zero values are noted.

Map 1: Total Population (Age 0-21), 2014



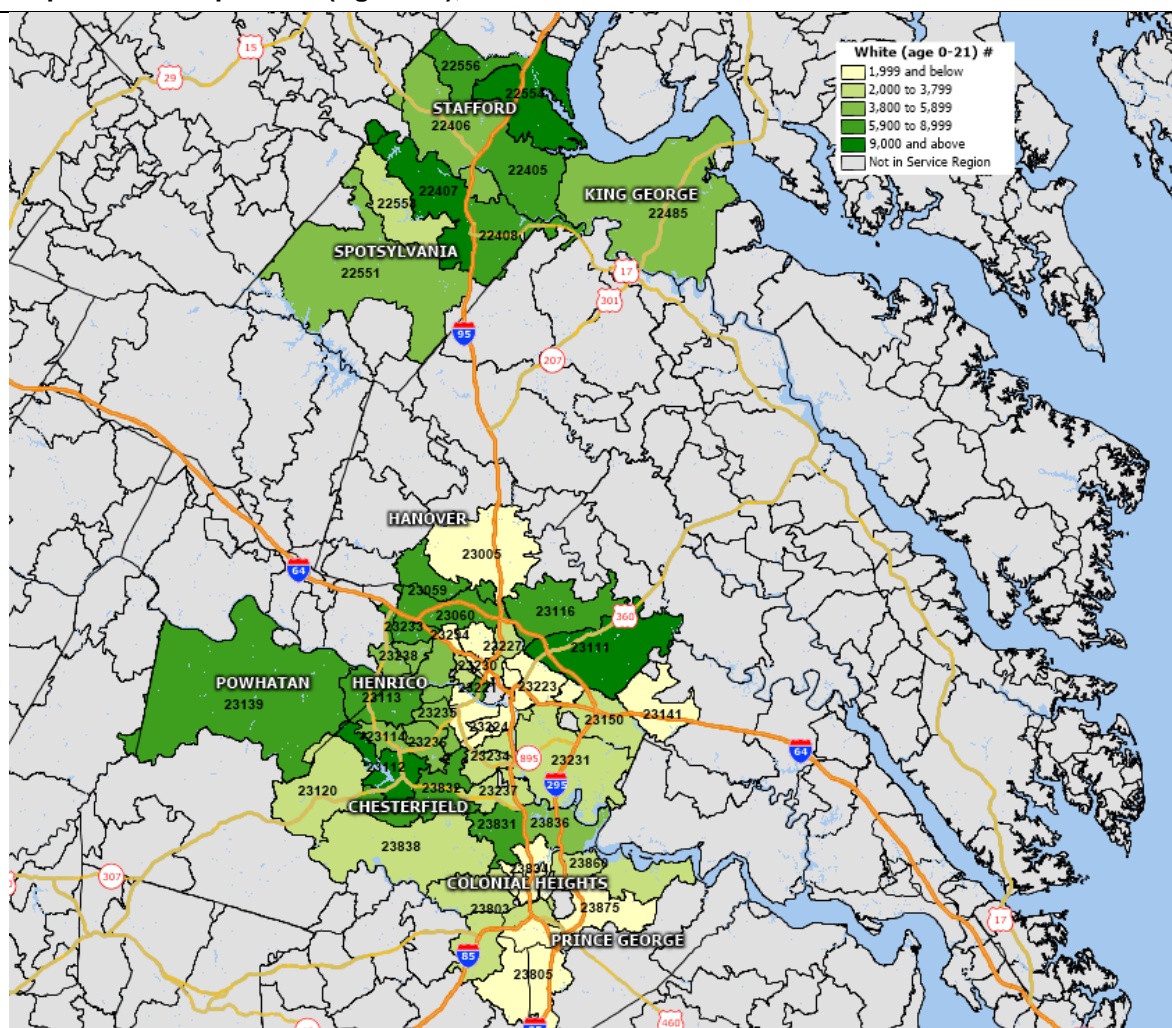
Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix B. Data Sources for details.

Map 3: Black/African American Population (Age 0-21), 2014



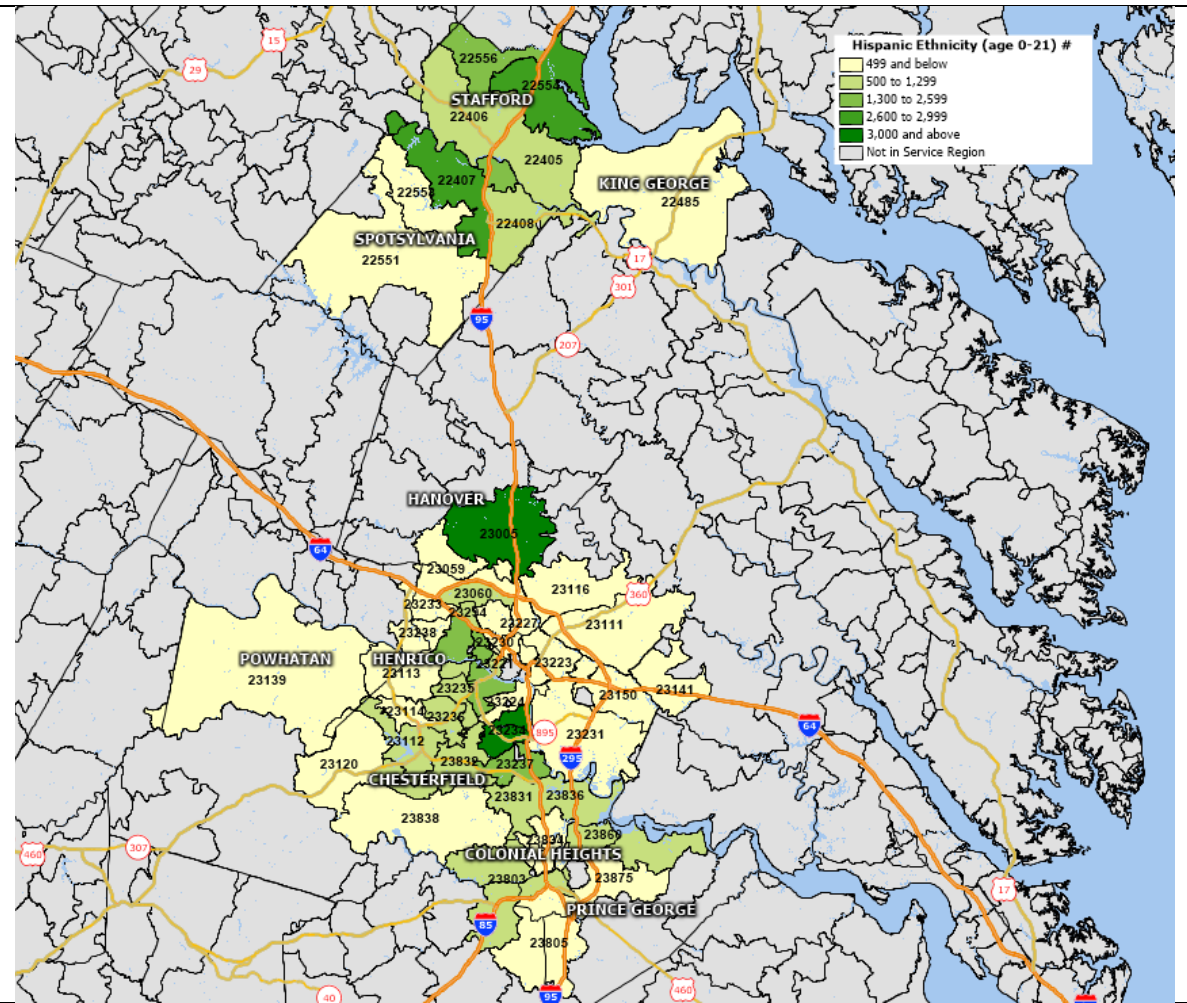
Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix B. Data Sources for details.

Map 4: White Population (Age 0-21), 2014



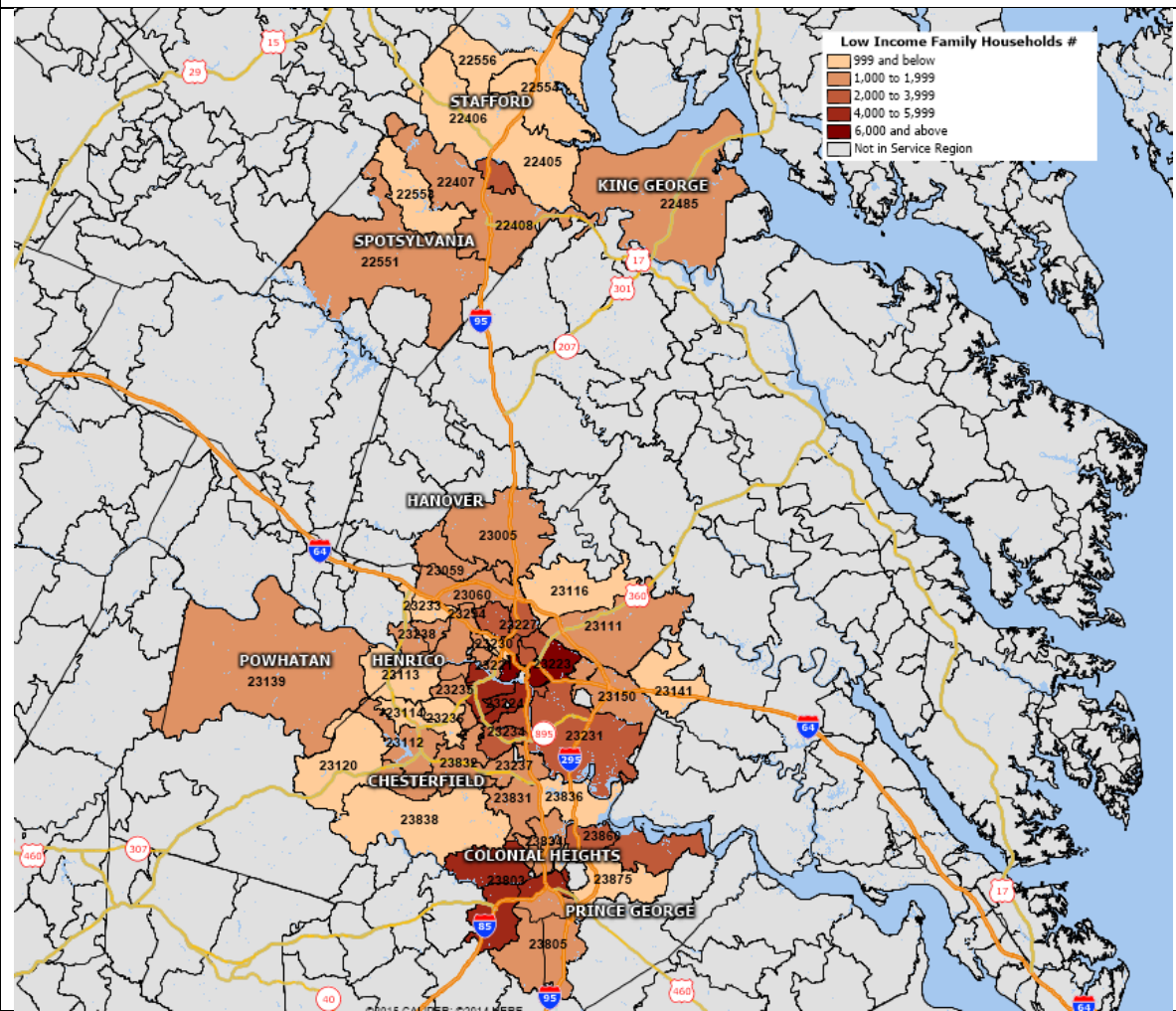
Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix B. Data Sources for details.

Map 5: Hispanic Ethnicity Population (Age 0-21), 2014



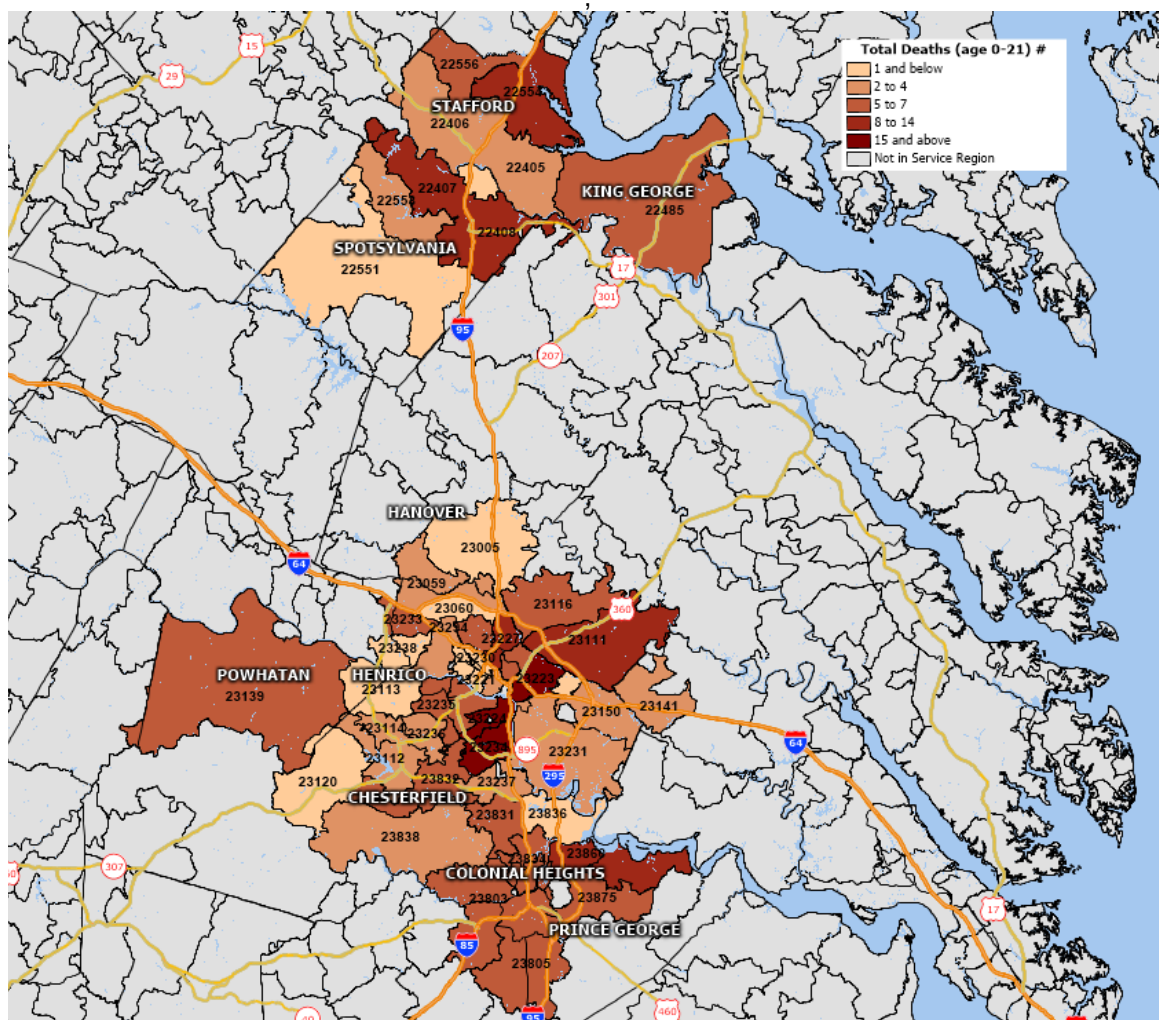
Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix B. Data Sources for details.

Map 6: Low Income Family Households (Family Households with Income <\$35,000), 2014



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

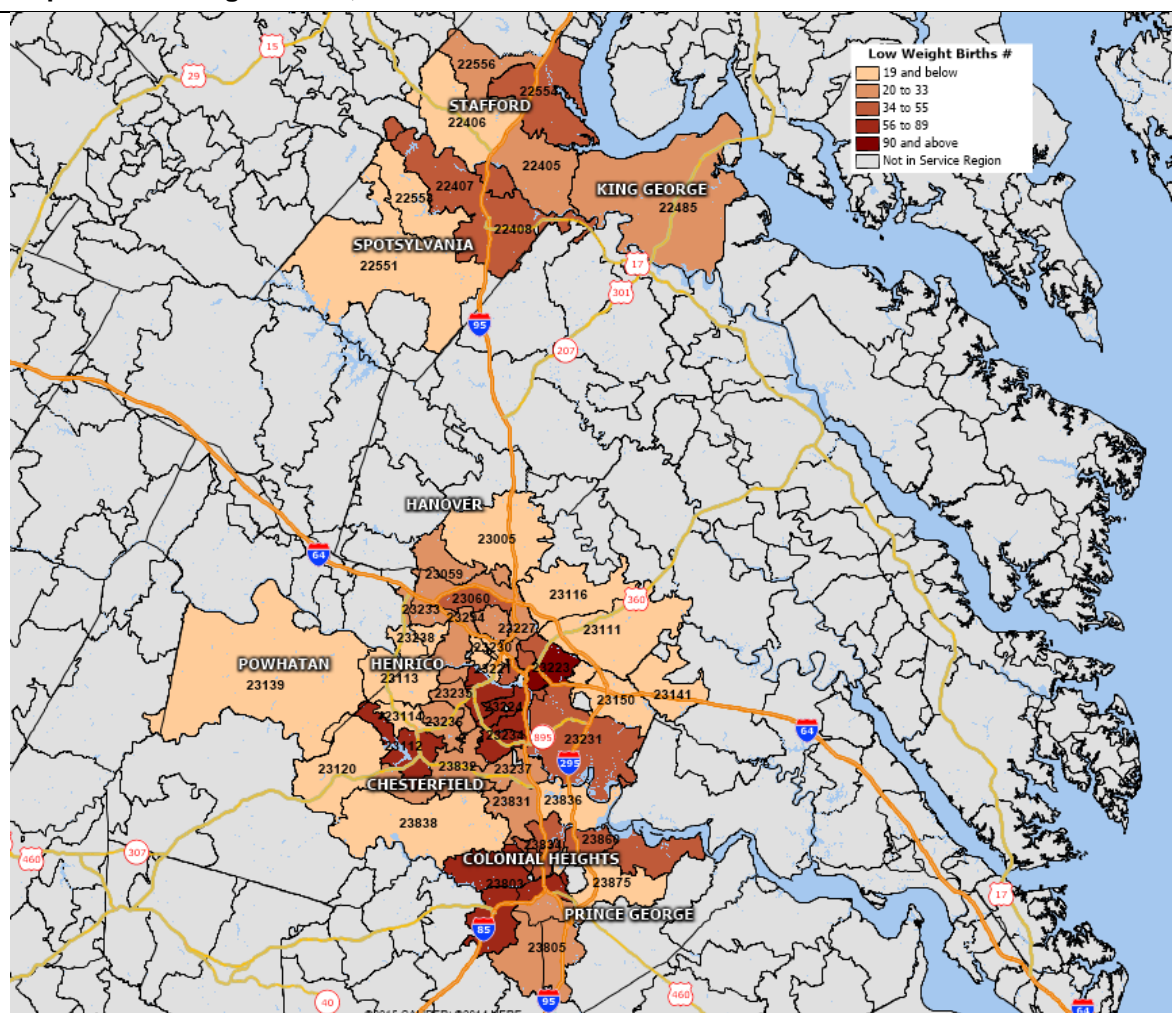
Map 7: Total Deaths (Age 0-21), 2013



Note: There were no reported deaths for zip codes 22401, 23005, 23075, 23113, 23120, 23221, 23226, 23230, 23238, and 23836.

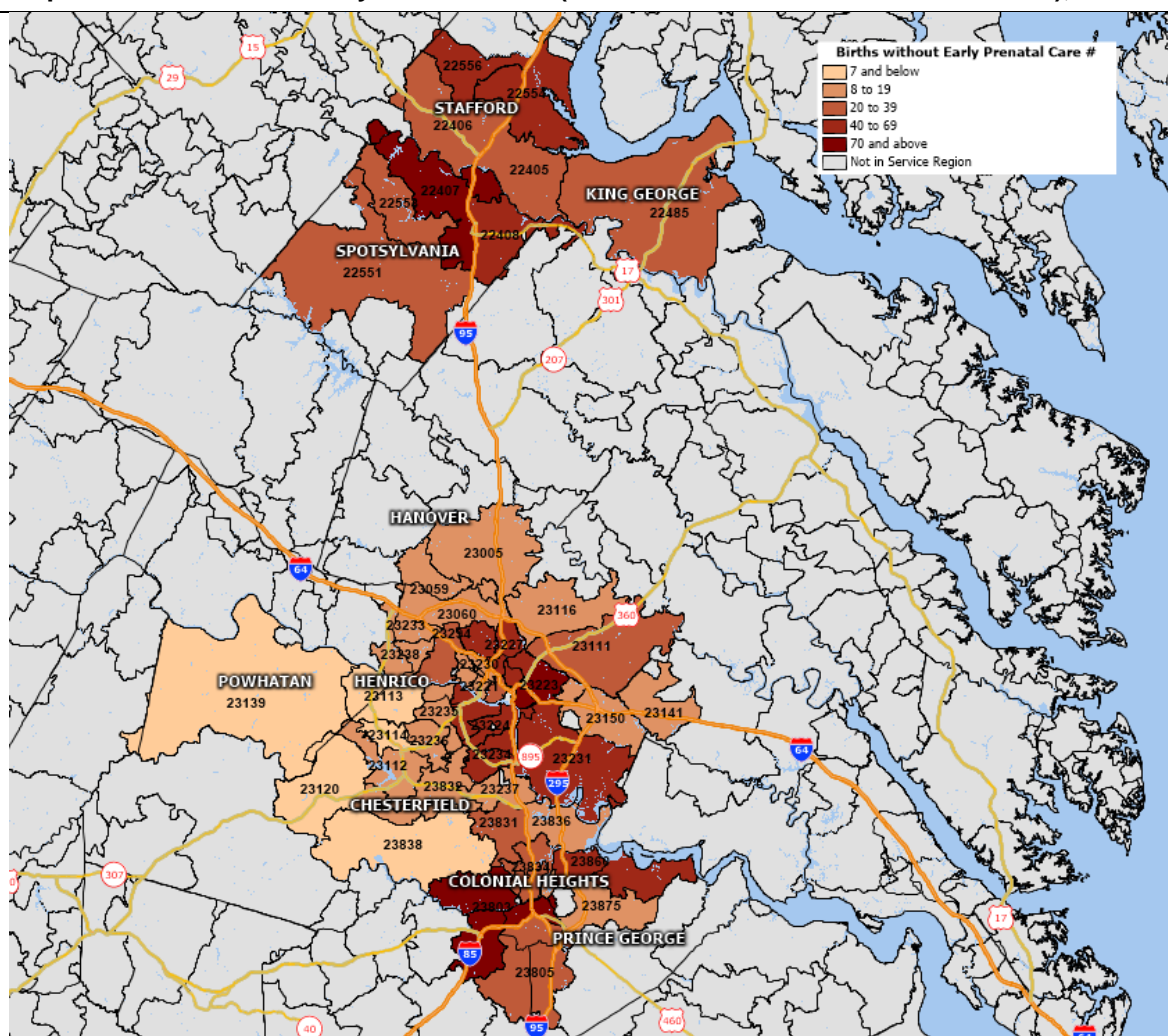
Source: Community Health Solutions analysis of estimates from Alteryx, Inc. See Appendix B. Data Sources for details.

Map 12: Low Weight Births, 2013



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

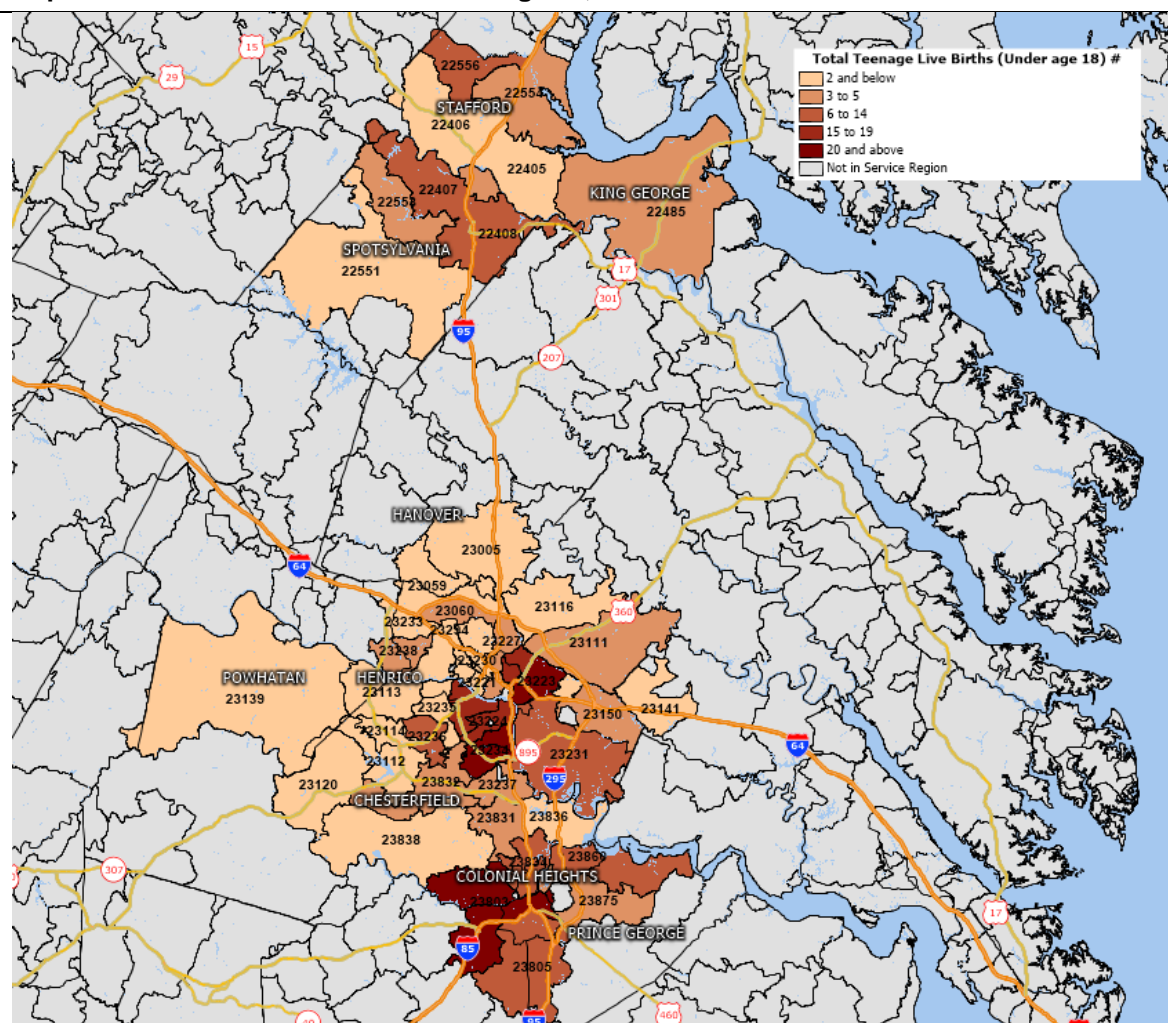
Map 13: Births Without Early Prenatal Care (No Prenatal Care in the First 13 Weeks), 2013



Note: There were no reported births without early prenatal care for zip code 23120.

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

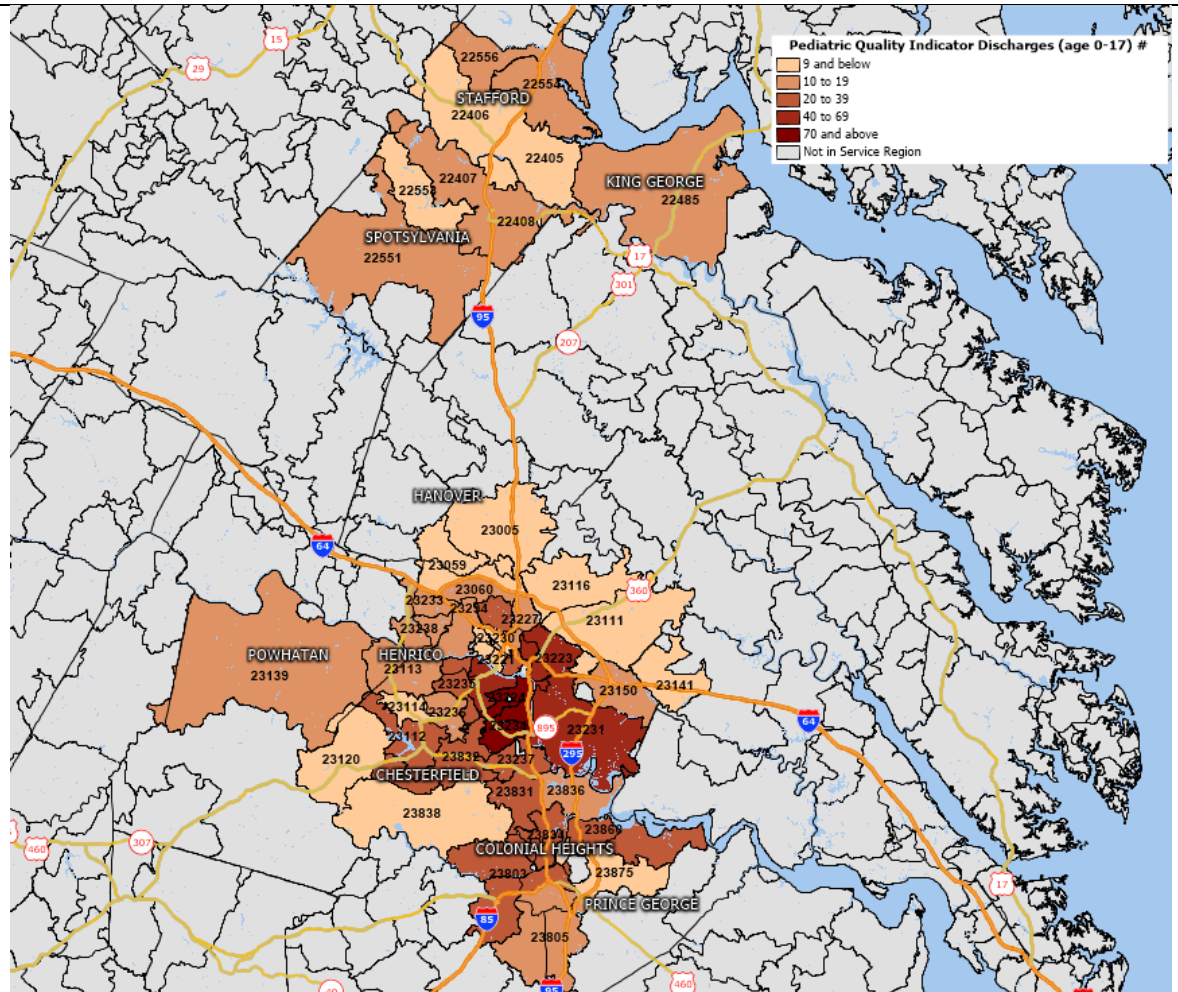
Map 14: Births to Teen Mothers Under Age 18, 2013



Note: There were no reported births to teen mothers under age 18 for zip codes 23120, 23838, 23114, 23141, and 23059

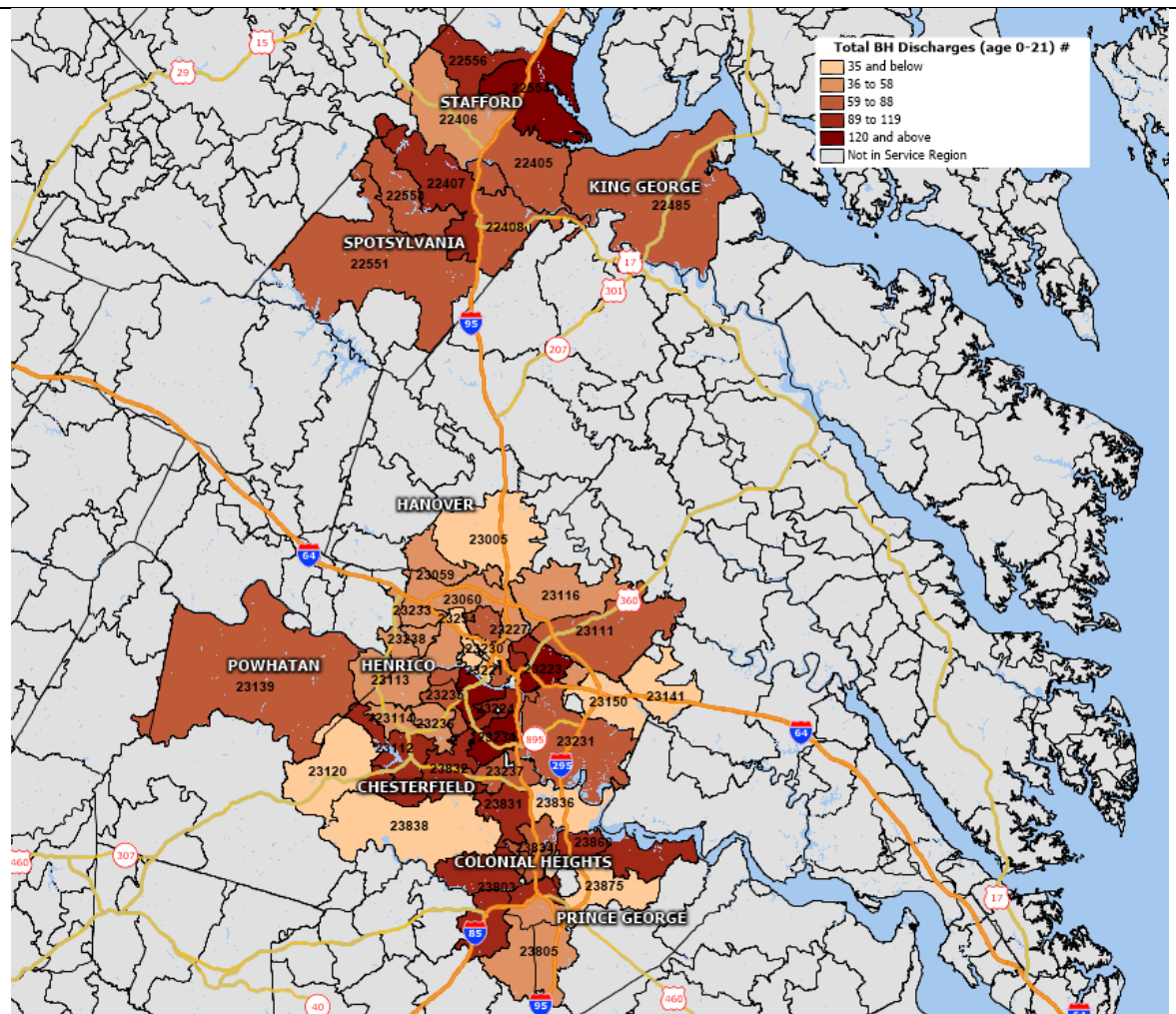
Source: Community Health Solutions analysis of data from the Virginia Department of Health. See Appendix B. Data Sources for details

Map 15: Pediatric Quality Indicator Discharges (Age 0-17), 2013



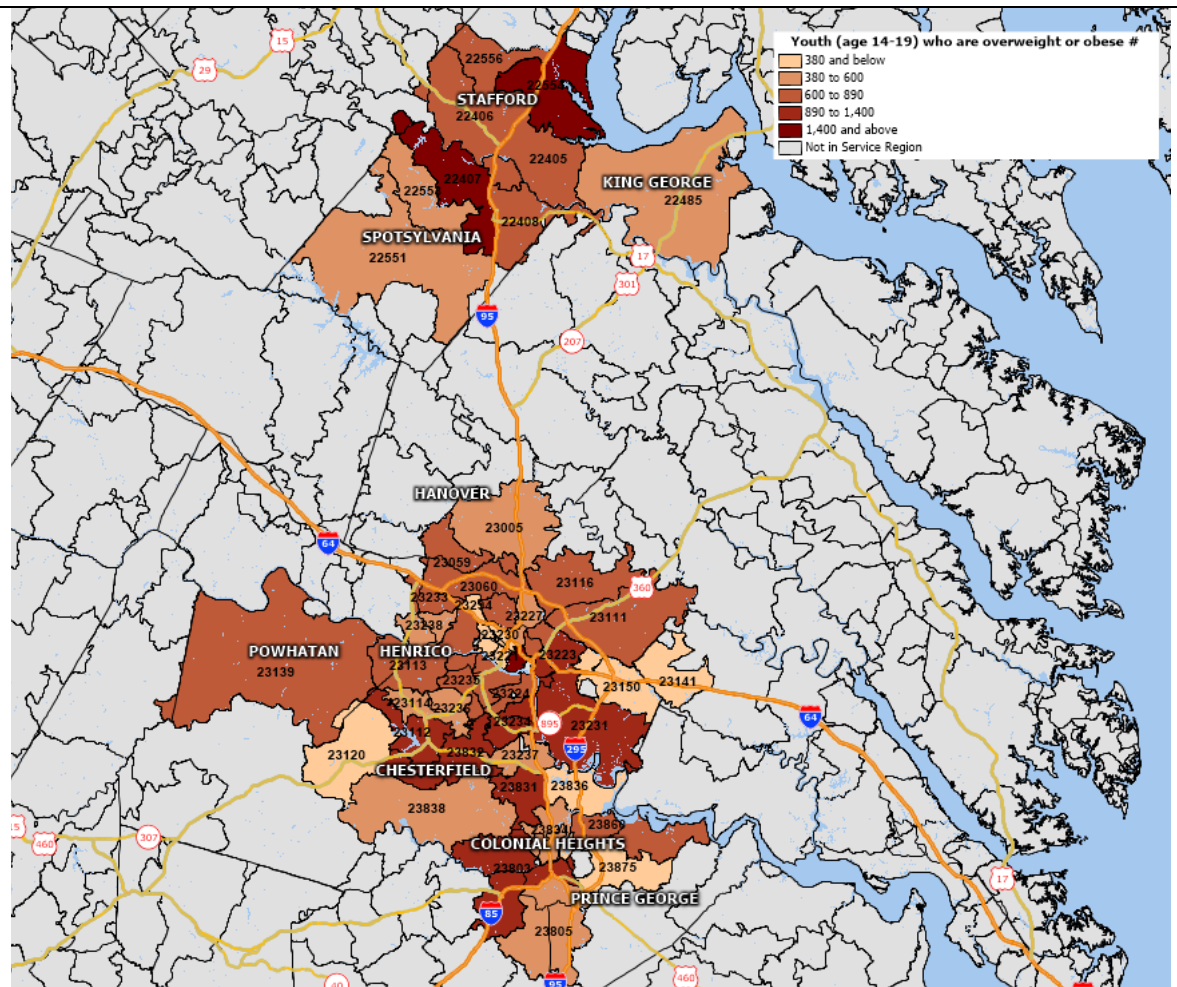
Source: Community Health Solutions analysis of hospital discharge data from Virginia Health Information. See details on methods in Appendix B.

Map 16: Behavioral Health Hospitalization Discharges (Age 0-21), 2013



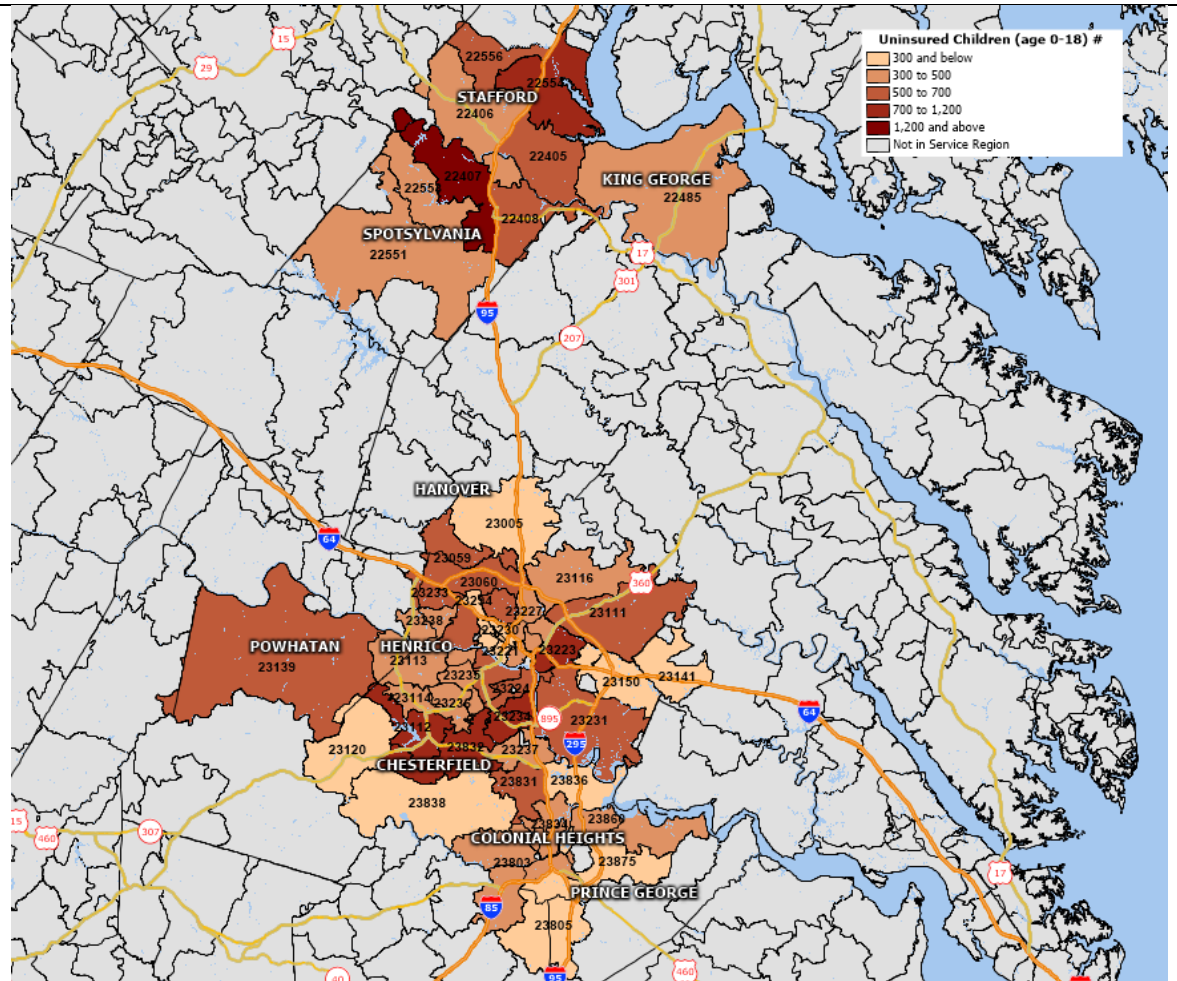
Source: Community Health Solutions analysis of hospital discharge data from Virginia Health Information. See details on methods in Appendix B.

Map 17: Estimated Youth Age 14-19 Overweight or Obese, 2014



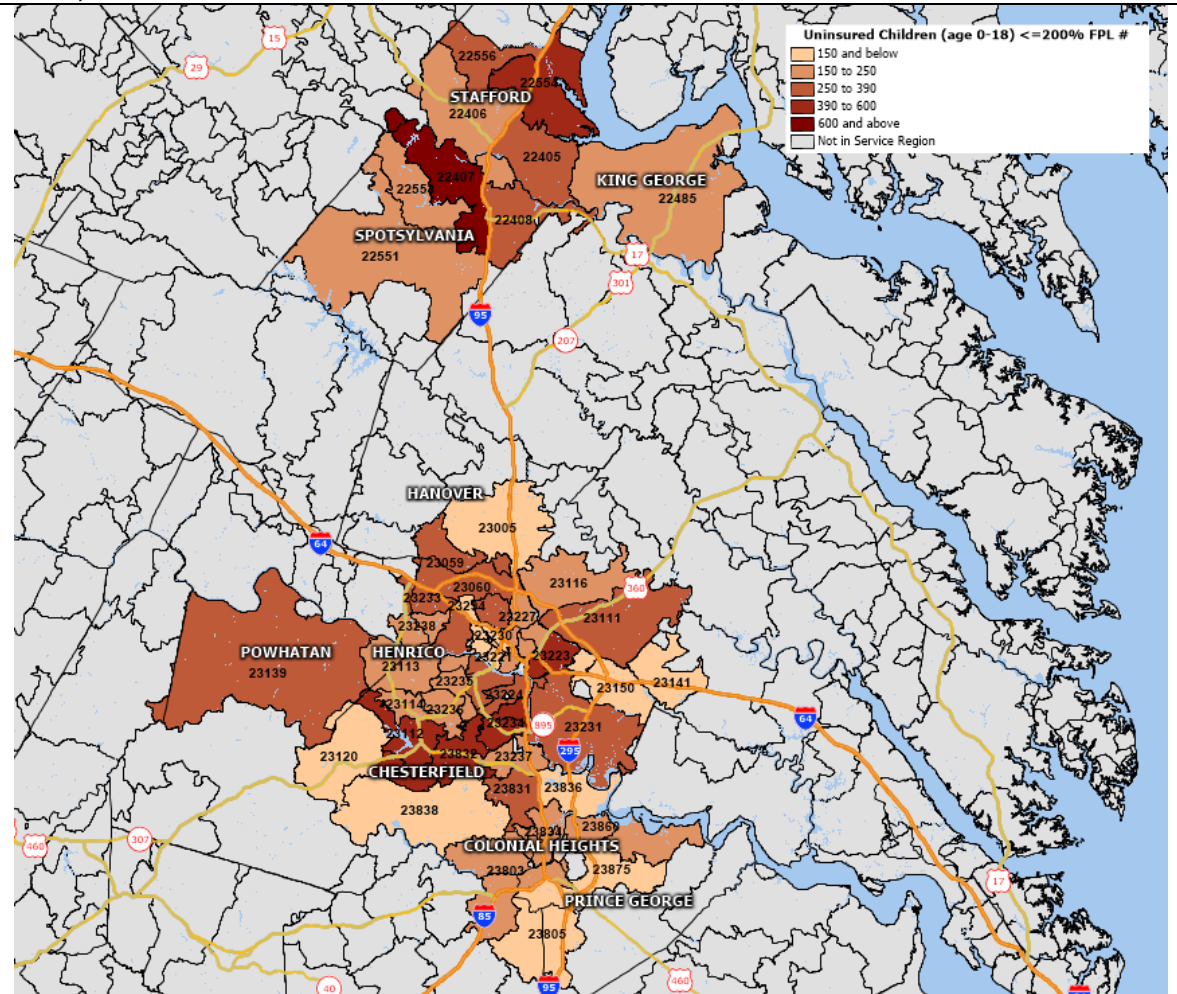
Source: Estimates based on Community Health Solutions analysis of Virginia Youth Risk Behavioral Surveillance System data and estimates from Alteryx, Inc. See Appendix B. Data Sources for details.

Map 18: Estimated Uninsured Children Age 0-18, 2014



Source: Estimates of uninsured are based on Community Health Solutions analysis of U.S. Census Bureau Small Area Health Insurance Estimates (2013) and demographic data from Alteryx, Inc. (2014). See Appendix B. Data Sources for details.

Map 19: Estimated Uninsured Children Age 0-18 with Income <=200% Federal Poverty Level, 2014



Source: Estimates of uninsured are based on Community Health Solutions analysis of U.S. Census Bureau Small Area Health Insurance Estimates (2013) and demographic data from Alteryx, Inc. (2014). See Appendix B. Data Sources for details.

Zip Code Map Table

Zip Code	Total Population (age 0-21)	Asian Population (age 0-21) #	Black/African American Population (age 0-21) #	White Population (age 0-21) #	Hispanic Population (age 0-21) #	Low Income (less than \$20,000) Family Households #	Total Deaths (Age 0-21)	Prematurity (and Low Birth Weight) Not Classified Deaths (Infant)	Homicide Deaths (Age 0-21)	Motor Vehicle Accidents Deaths (Age 0-21)	Births without Prenatal Care in the First 13 Weeks #	Low Weight Births (under 2,500 grams/5 lbs 8 oz.) #	Total Behavioral Health Hospitalizati.	Total Live Births #	Pediatric Hospitalizati.	Total Live Births (Under age 16) #	Uninsured Children (age 0-18)	Uninsured <20% FPL (age 0-18)	Youth who are overweight or obese (age 14-19) #
22401	9,717	369	2,768	5,380	1,330	3,014	0	0	0	0	70	36	66	413	9	5	469	235	768
22405	9,484	222	1,460	6,983	863	949	3	1	0	0	38	22	82	353	7	2	504	253	760
22406	7,512	221	1,917	4,688	835	738	2	0	0	0	29	17	40	262	7	2	398	200	622
22407	18,419	576	3,789	11,740	2,687	1,997	9	1	0	0	83	49	118	694	18	8	1,299	652	1,534
22408	9,415	263	2,138	6,307	1,052	1,211	9	0	0	0	49	36	68	396	16	7	673	338	704
22485	7,597	89	1,518	5,473	447	1,185	6	0	2	2	29	30	76	283	12	4	409	205	551
22551	5,993	74	660	4,751	360	1,045	1	0	0	0	30	14	61	202	11	2	420	211	464
22553	4,622	92	622	3,491	361	410	3	0	0	0	26	11	60	180	5	3	325	163	381
22554	18,966	547	4,121	12,175	2,765	877	11	0	0	0	63	50	146	731	16	3	1,005	504	1,629
22556	9,758	331	1,879	6,256	1,646	711	5	0	0	0	51	23	95	359	13	7	518	260	820
23005	4,958	75	829	248	3,731	1,244	0	0	0	0	14	9	23	124	5	1	221	111	435
23059	11,407	1,866	2,064	5,988	593	1,629	1	1	0	0	17	24	49	358	8	0	632	317	754
23060	10,393	1,866	2,064	5,988	593	1,629	1	1	0	0	18	41	44	438	16	4	660	331	680
23075	3,011	11	2,202	561	115	1,087	0	0	0	0	18	10	38	133	9	1	186	94	276
23111	10,866	214	1,068	9,078	438	1,711	8	2	0	1	33	15	68	340	9	5	576	289	805
23112	14,191	717	2,092	10,498	888	1,251	4	0	0	0	12	56	116	586	27	2	888	446	1,065
23113	7,113	346	363	6,140	234	695	0	0	0	0	1	9	48	156	12	1	442	222	615
23114	6,078	545	658	4,751	249	563	4	0	0	0	1	18	41	207	6	0	386	194	413
23116	8,465	169	507	7,444	232	773	5	0	0	0	11	18	51	238	8	1	452	227	697
23120	3,078	134	241	2,641	97	168	0	0	0	0	0	3	15	79	2	0	194	98	265
23139	7,131	58	888	5,905	209	1,162	6	0	0	0	3	17	74	212	11	2	556	279	627
23141	1,857	24	169	1,566	56	300	2	0	0	0	8	5	24	61	4	0	148	75	143
23150	3,299	50	1,052	2,077	177	1,018	2	0	0	0	11	10	30	142	4	0	203	102	238
23220	13,638	1,344	5,079	13,638	6,862	4	1	0	0	0	22	36	82	241	27	4	315	158	1,492
23221	2,252	41	184	6,386	647	1,731	0	0	0	0	10	5	11	150	2	1	117	58	107
23222	7,534	52	6,227	1,879	107	3,975	7	0	0	0	48	34	98	345	43	17	393	197	677
23223	14,332	44	12,545	471	219	7,477	17	6	1	0	92	98	175	722	44	25	879	441	1,165
23224	11,222	64	8,169	889	483	5,792	15	4	2	0	61	68	105	658	86	18	601	302	780
23225	9,868	141	5,513	1,001	2,004	5,458	7	1	2	0	51	62	129	656	50	15	529	256	654
23226	3,842	197	236	2,721	1,474	1,290	0	0	0	0	13	18	17	251	8	1	210	105	202
23227	5,280	136	3,297	3,166	252	3,124	10	0	0	0	54	30	80	348	13	4	324	162	393
23228	8,781	410	3,200	1,470	309	3,608	5	0	0	0	29	20	49	400	13	1	573	288	705
23229	9,147	420	952	3,882	1,614	1,869	3	0	0	0	0	20	49	400	13	1	573	288	705
23230	1,159	120	192	656	178	756	0	0	0	0	10	5	14	82	3	1	69	35	69
23231	10,753	50	7,858	2,480	398	3,232	2	0	0	0	55	42	76	403	44	7	661	332	989
23233	8,681	1,078	450	6,891	366	760	5	0	0	0	11	20	36	318	13	1	544	273	713
23234	13,500	336	7,332	2,671	3,610	3,856	15	1	1	1	53	69	130	706	79	22	836	420	1,053
23235	7,732	255	1,746	4,961	780	1,486	6	1	0	0	15	20	73	316	32	2	483	243	694
23236	6,935	262	1,783	4,223	640	690	2	0	0	0	13	29	47	300	19	9	429	215	549
23237	6,558	94	1,900	3,359	1,383	1,410	3	1	0	0	14	26	59	303	23	5	402	202	514
23238	6,155	284	930	4,619	356	1,176	0	0	0	0	13	12	41	206	13	4	364	193	480
23294	4,366	992	1,100	1,859	537	1,439	3	2	0	0	27	28	33	358	12	2	272	137	240
23803	12,268	69	7,922	3,135	709	4,683	7	1	2	0	92	76	114	566	32	22	497	249	1,096
23805	4,943	60	2,896	1,549	207	1,145	5	0	0	0	39	32	45	241	15	6	295	148	428
23831	10,541	251	3,245	6,212	1,107	1,787	7	0	1	1	23	25	98	421	28	3	653	328	890
23832	12,598	420	4,047	7,043	1,132	1,137	6	1	0	1	19	31	89	428	23	3	788	396	1,012
23834	7,460	210	2,057	422	10	1,620	6	1	0	1	28	40	74	332	23	6	459	231	573
23836	3,686	278	959	4,602	564	430	0	0	0	0	9	10	33	133	11	2	229	115	309
23838	4,411	66	530	2,273	270	323	2	2	0	0	1	17	30	126	6	0	272	136	381
23860	8,246	56	3,675	3,644	720	2,804	9	1	0	0	48	46	95	397	22	11	491	247	627
23875	3,254	53	1,149	1,733	329	540	5	0	0	0	11	13	31	107	7	3	196	98	285

APPENDIX B: Data Sources

Section	Source
Part I: Community Insight Profile	
1) Community Professional Survey 2) Parent/Caregiver Survey	Community Health Solutions analysis of <i>Community Insight Survey</i> responses submitted by community professionals and parent/caregivers of Children's Hospital of Richmond of the Virginia Commonwealth University Health System patients.
Part II: Community Indicator Profile	
1) Health Demographic Trend Profile 2) Health Demographic Snapshot Appendix A: Maps 1-6	Community Health Solutions analysis of population estimates from Alteryx, Inc. (2014 and 2019). Alteryx, Inc., a commercial vendor of demographic data. Note that demographic estimates may vary from other sources of local demographic indicators.
3) Mortality Profile Appendix A: Maps 8-10	Community Health Solutions analysis of Virginia Department of Health death record data (2013). The study region counts and rates were produced by Community Health Solutions.
4) Maternal and Infant Health Profile Appendix A: Maps 11-14	Community Health Solutions analysis of Virginia Department of Health birth record data (2013). The study region counts and rates were produced by Community Health Solutions.
5) Pediatric Quality Indicators Hospitalization Profile 6) Behavioral Health Hospitalization Profile 7) Injury and Rehabilitation Hospitalization Profile Appendix A: Maps 15-16	<p>Community Health Solutions analysis of hospital discharge data from the Virginia Health Information (VHI) dataset (January 1-December 31, 2014) and demographic data from Alteryx, Inc. (2014). 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.</p> <p>Pediatric Quality Indicators Hospitalization- The Agency for Healthcare Research and Quality (AHRQ) defines a set of conditions (called Pediatric Quality Indicators, or 'PDIs') for which hospitalization should be avoidable with proper outpatient health care for pediatric patients age 0-17. The PDI definitions are detailed in their specification of ICD-9 diagnosis codes and procedure codes. Not every hospital admission for bacterial pneumonia, etc. is included in the PDI definition; only those meeting the detailed specifications. Only PDIs specific to Pediatric Quality Indicators hospitalizations are included in this report. PDIs focused on potentially preventable complications and iatrogenic events for pediatric patients treated in hospitals were excluded. For more information, visit the AHRQ website at http://www.qualityindicators.ahrq.gov/Modules/pdi_overview.aspx.</p> <p>Behavioral Health Hospitalizations- Behavioral health data reported are based on the patient's primary diagnosis.</p> <p>Rehabilitation Hospitalizations- Injury and rehabilitation data reported are based on the patient's primary diagnosis/procedure code. This study analyzed hospitalizations for a list of eight diagnoses or procedures selected in consultation with Children's Hospital of Richmond of the Virginia Commonwealth University Health System staff.</p> <p><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></p>

<p>8) Youth Health Risk Factor Profile Appendix A: Map 17</p>	<p>Estimates of risk behaviors for youth age 14-19 and 10-14 were produced by Community Health Solutions using:</p> <ul style="list-style-type: none"> • Data from the Virginia Youth Risk Behavioral Surveillance System from the Centers for Disease Control (2013). For more information on YRBSS visit: http://www.cdc.gov/HealthyYouth/yrbs/index.htm • Local demographic estimates from Alteryx, Inc. (2014). <p>Estimates are used when there are no primary sources of data available at the local level. The estimates are for planning purposes only and are not guaranteed for accuracy. The statistical model to produce the local estimates was developed by Community Health Solutions. In this model, state-level data were used to predict local counts and rates, with adjustments for local demographics. Consequently, differences between local rates and state rates may reflect estimation error rather than valid differences. Therefore, state-level estimates are not provided in this report. Because of data limitations, it is not possible to assign specific margins of error or levels of significance to these statistical estimates. Likewise, it is not possible to calculate the statistical significance of differences between local rates and state rates.</p>
<p>9) Special Healthcare Needs Profile</p>	<ul style="list-style-type: none"> • Community Health Solutions analysis of 2013-2014 Virginia Department of Education, Special Education Child Count data. • Statewide Virginia results from the National Survey of Children's Health (2011-2012) • Local demographic estimates from Alteryx, Inc. (2014). <p>Estimates are used when there are no primary sources of data available at the local level. The estimates are for planning purposes only and are not guaranteed for accuracy. The statistical model to produce the local estimates was developed by Community Health Solutions. In this model, state-level data were used to predict local counts and rates, with adjustments for local demographics. Consequently, differences between local rates and state rates may reflect estimation error rather than valid differences. Therefore, state-level estimates are not provided in this report. Because of data limitations, it is not possible to assign specific margins of error or levels of significance to these statistical estimates. Likewise, it is not possible to calculate the statistical significance of differences between local rates and state rates.</p>
<p>10) Uninsured Profile Appendix A: Maps 18-19</p>	<p>Estimates of uninsured nonelderly age 0-64 were produced by Community Health Solutions using:</p> <ul style="list-style-type: none"> • U.S. Census Bureau Small Area Health Insurance Estimates (2013). For more information, visit: http://www.census.gov/did/www/sahie/data/index.html. • Local demographic estimates from Alteryx, Inc. (2014) <p>Estimates are used when there are no primary sources of data available at the local level. The estimates are for planning purposes only and are not guaranteed for accuracy. The statistical model to produce the local estimates was developed by Community Health Solutions. In this model, prior year locality-level rates were used to predict current year local level counts and rates, with adjustments for local demographics. Because of data limitations, it is not possible to assign specific margins of error or levels of significance to these statistical estimates. Likewise, it is not possible to calculate the statistical significance of differences between local rates and state rates. Additionally, populations in group living quarters (e.g. colleges) and undocumented populations may not be adequately addressed in this model.</p>
<p>11) 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>