A Community Health Needs Assessment

Prepared for VCU Health System Tappahannock Hospital

By Community Health Solutions

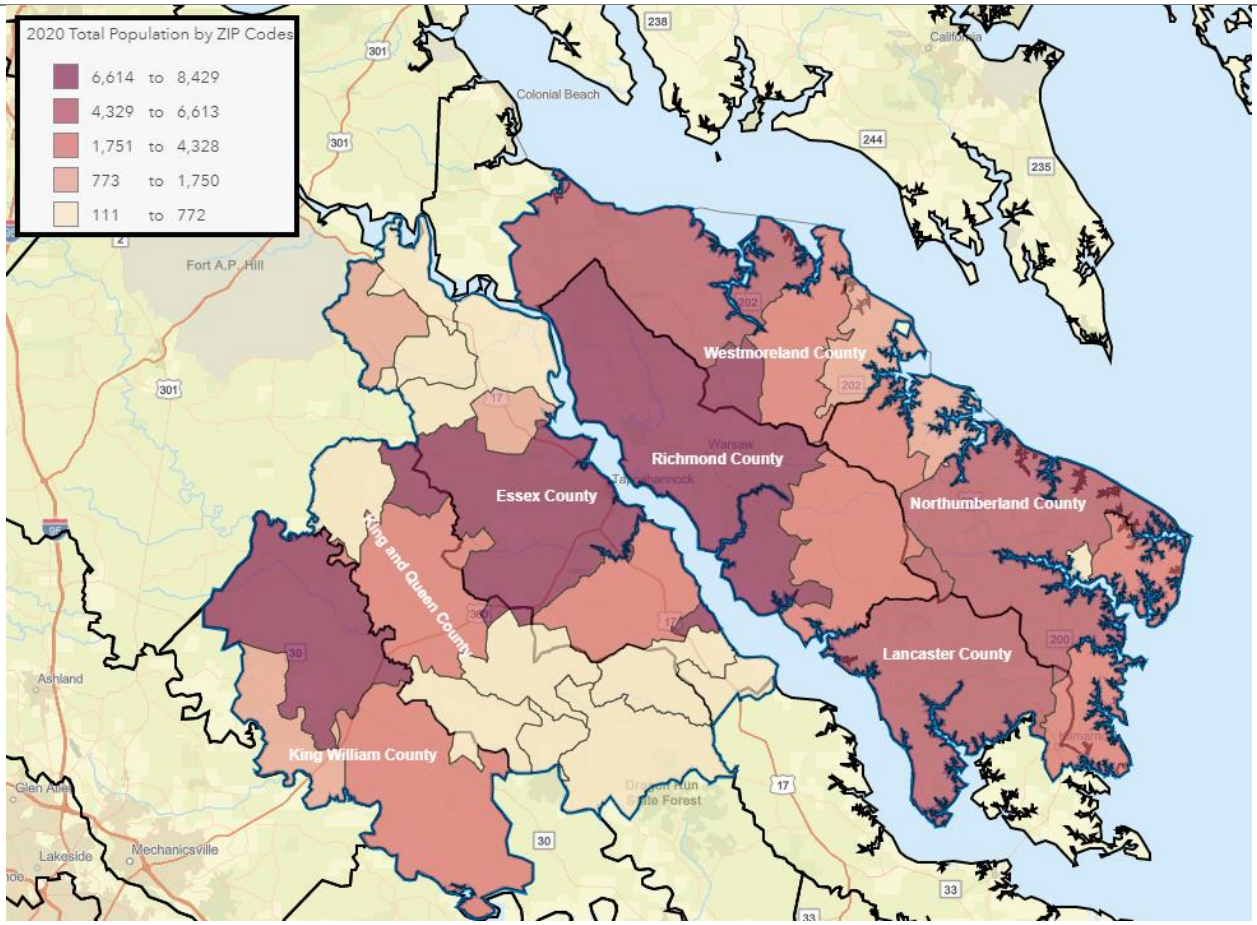
June 18, 2021

Executive Summary

The mission of VCU Health System Tappahannock Hospital (VCUHS Tappahannock Hospital) is to "preserve and restore health for all people of Virginia and beyond through innovation in service, research, and education". With this mission in mind, VCUHS Tappahannock Hospital commissioned Community Health Solutions to conduct this community health needs assessment in 2021.

As shown in the map below, the study focuses on the VCUHS Tappahannock service area of 29 zip codes, most of which fall within Essex, King and Queen, King William, Lancaster, Northumberland, and Westmoreland counties. This region is home to more than 70,000 community members. The CHNA study was designed to provide insight about community health needs and opportunities for community health improvement. Research activities for the study included a survey of community residents, a survey of community professionals, and analysis of a variety of community health indicators.

The Study Region (n=70,309)



This Executive Summary provides an overview of the study results. More detailed analysis is provided in the four sections that follow, including:

- Section 1. Insights from Community Residents
- Section 2. Insights from Community Professionals
- Section 3. Community Indicator Profiles
- Section 4. Social Determinants of Health

Section 1. Summary Insights from Community Residents (Section 1)

Section 1 of the report presents results from the survey of community residents. Insights were collected via surveys administered online (see Section 1 for more detail on the impact of COVID-19 on survey methods). One thousand, five hundred and sixty-five (1,565) community residents submitted a response (although not every respondent answered every question). The respondents provided rich insights about community health in the study region. The summary results are outlined below and presented in more detail in Section 1 of the report.

Demographic Profile

- 1,565 community residents completed the survey
- Respondents were 87% white and 13% minority; and mostly female, upper middle aged (55-74). Thirty-one percent (31%) reported household income under $50,000.

Community Needs Related to COVID-19

- 205 respondents (13%) reported they or an immediate family member lost employment.
- 18 respondents (1%) reported they or an immediate family member lost housing.
- Groups identified as needing extra help due to COVID-19 include elderly; low income; parents with school aged children; and people with limited internet access.
- Among the most commonly identified personal difficulties were feeling lonely or isolated from others; keeping good mental health; keeping good physical health; getting essential supplies; getting health care and keeping good dental health.

Personal Barriers to Healthcare Prior to COVID-19

- The most commonly identified barriers include unavailability of local specialty care; high cost/out of pocket expenses; not knowing which services are available; limited or no insurance coverage; and the inability to get appointments.

Neighborhood and Community Environment Needs

- The most commonly identified neighborhood and community needs include opportunities to participate in community events/activities; spaces for walking; access to public transportation; access to public parks or playgrounds and spaces for biking.

Community Health Care Service Needs

- The most commonly identified health care service needs include affordable health insurance; dental services; primary care services; mental health services and vision services.

VCUHS Tappahannock Hospital Services

- Most respondents (65%) indicated they would value having dermatology services offered locally.
- Less than 40% of respondents indicated they would value having dental care, endocrinology, ENT/audiology, obstetrics/gynecology, neurology, oncology, radiation therapy, psychiatry/mental health, rheumatology, and/or urology services offered locally.

Community Support Service Needs

- Over half (56%) of respondents identified services for older adults as needing strengthening in the community.
- Additional concerns include public transportation; services for adults with disabilities; after school programs; and assisted living services.

Groups Who Need Help Obtaining Better Health

- Commonly mentioned vulnerable populations include the elderly; those with limited access to healthcare services; those with health equity barriers; low income populations; and those with limited access to community and social services.

Ideas and Suggestions for Promoting Better Health

- Commonly mentioned ideas include access to healthcare services; additional community and social services; supports for elderly residents; supports for healthy lifestyles; and COVID-19 response efforts.

Section 2. Summary Insights from Community Professionals (Section 2)

Section 2 of the report presents results from the survey of community professionals. Insights were collected via surveys administered online. A total of 49 individuals submitted a response (although not every respondent answered every question). The summary results are outlined below and presented in more detail in Section 2 of the report.

Organizational Affiliation

- 49 community professionals completed the survey
- Respondents included local representatives from public health, social services, local nonprofits, faith-based organizations, local government, community mental health and the private business community.

Community Needs Related to COVID-19

- 69% reported an increase in clients/consumers who lost employment.
- 33% reported an increase the number of clients/consumers who lost housing.
- Groups identified as needing extra help due to COVID-19 include elderly; parents of school aged children; children learning virtually; unemployed individuals; homeless individuals; low income residents, people with disabilities and people with mental health concerns.
- Among the most identified difficulties were feeling lonely or isolated; keeping good mental health; managing schooling at home for children; getting transportation; and experiencing overall financial hardship.

Community Health Concerns

- The most commonly identified concerns include depression; mental health conditions; aging concerns; diabetes; and high blood pressure.

Community Services that Need Strengthening

- The most commonly mentioned services that need strengthening include behavioral health services; aging services; transportation; employment opportunity/workforce development; long-term care supports and homeless services.

Defining a Healthy Community

- Respondents defined a healthy community as one with access to healthcare; access to community and social services; supports for people with behavioral health concerns; healthy lifestyle supports; and community engagement.

Community Health Assets

- Commonly mentioned community assets include healthcare services; community and social services; healthy lifestyle supports; supports for children and elderly; and supports for people with behavioral health concerns.

Working Together for Community Health Improvement

- Collaboration ideas include community engagement; healthcare services; community and social services; supports for healthy lifestyle; and support for elderly population.

Ideas and Suggestions for Promoting Better Health

- Commonly mentioned ideas include access to healthcare services; supports for people with behavioral health concerns; community and social services; supports for elderly residents; healthy lifestyle supports; and supports for people with lifestyle risks.

Section 3. Summary Insights from Community Indicator Profiles (Section 3)

Section 3 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 and for which there were readily available data sources. The summary results are outlined below and presented in more detail in Section 3 of the report.

Community Demographics

- The total population of the study region is estimated at 70,309 people.
- Children age 0-17 represent 18% of the population.
- Seniors age 65+ represent 25% of the population.
- 29% percent of the population is Black/African American.
- 5% of the population is Hispanic.

Social Determinants of Health

- 13% of households have incomes below poverty.
- 13% of the population age 25+ is without a high school diploma.
- The median household income and per capita income for the study region are below the Virginia statewide averages.

Health Risk Behaviors for Adults

- An estimated 57,722 adults age 18+ reside in the study region.
- Applying health district level or statewide survey data to the local population, an estimated:
  - 67% are overweight or obese.
  - 35% had no physical activity in the past 30 days.
  - 88% consume less than five servings of fruits and vegetables per day.
  - 16% are smokers.
  - 15% are at risk for binge drinking.

Health Risk Behaviors for High School Youth

- An estimated 4,224 youth age 14-19 reside in the study region.
- Applying health district level or statewide survey data to the local population, an estimated:
  - 32% are overweight or obese.
  - 22% have used tobacco or vapor products.
  - 59% do not meet recommendations for physical activity.

Access to Health Care

- An estimated 44,530 individuals age 0-64 lived in the study region in 2019.
- According to health insurance estimates from the US Census Bureau, an estimated 11% of individuals age 0-64 were uninsured at any point in 2019.
- As of 2021, all six counties that overlap with the study region are designated as medically underserved areas by the U.S. Health Resources and Services Administration.

Leading Causes of Death

- In 2019 the five leading causes of death in the study region were heart disease (202), malignant neoplasms (cancer) (180), cerebrovascular disease (stroke) (53), unintentional injury (47) and chronic lower respiratory disease (41).
- Crude mortality rates for the study region were higher than the Virginia rate for causes of death where a rate was calculated.

Maternal and Infant Health

- In 2019 there were 586 total live births, with 69 low weight births, 88 births without early prenatal care, 305 non-marital births, and 29 births to teens.
- The study region had higher rates of low weight births, non-marital births and teen births than Virginia as a whole.
- The five-year average infant mortality rates were higher than the statewide rate for Essex, King and Queen, Lancaster and Northumberland counties.
- The teen pregnancy rates were higher than the statewide average for Lancaster, Northumberland and Westmoreland counties.

Injury and Violence

- In 2018 study region residents had 281 inpatient hospitalizations for injury or violence-related incidents, with the leading causes being firearm (74), traumatic brain injury (57), unintentional fall (50), drug poisoning due to overdose (48), and self-harm (32). Crude hospitalization rates were higher for the study region than Virginia for injury and violence related discharges overall, and for firearm, traumatic brain injury, unintentional fall, and self-harm.

Potentially Avoidable Hospitalizations

- Some specifically-defined hospitalizations are potentially avoidable with adequate access to outpatient care and other health supports.
- In 2019 study region residents had 679 potentially avoidable hospitalizations, with most being for residents age 65+.
- The leading diagnoses for these hospitalizations were congestive heart failure (279), diabetes (128), COPD or asthma in older adults (108), community acquired pneumonia (74), and urinary tract infection (61).
- The crude rates for these hospitalizations were higher in the study region than for Virginia as a whole for all diagnoses where a rate was calculated.

Hospitalizations for Mental Health and Substance Use Diagnoses

- In 2019 residents had 198 hospitalizations for behavioral health conditions in Virginia community hospitals.
- The leading causes of hospitalization were major depressive disorder - recurrent (54), alcohol related disorders (36), bipolar disorder (24), schizophrenia (15), and major depressive disorder, single episode (12).
- The crude rates for most hospitalizations were lower in the study region than for Virginia as a whole for all diagnoses where a rate was calculated.

Section 4. Summary Insights on Social Determinants of Health (Section 4)

Social determinants of health (SDoH) have been defined as the conditions under which people are born, grow, live, work, and age, and include factors such as socioeconomic status, education, employment, social support networks, and neighborhood characteristics.[1] A growing body of research indicates that SDoH can be linked to a lack of opportunity and resources to protect, improve, and maintain health. The impacts of SDoH can be seen in disparities in health status and access to healthcare for individuals and populations.

Section 4 explores the results of the CHNA study from a SDoH perspective. Part A provides summary insights about SDoH from the survey of community residents. Part B presents a set of maps that show where populations with SDoH risk reside within the counties and the regional overall including low-income households. This type of geographic information can be helpful for planning efforts to reduce health disparities and increase health equity.

[1] American Academy of Family Physicians

Section 1. Insights from Community Residents

To generate community input for the community health needs assessment, a *Community Insight Survey* was conducted with community residents. Insights were collected via surveys administered online. One thousand, five hundred and sixty-five (1,565) community residents submitted a response (although not every respondent answered every question). The respondents provided rich insights about community health in the study region.
This section describes the methods and results of the survey.

Section Outline

A. Survey Methods

VCUHS Tappahannock Hospital began with a goal to conduct an inclusive survey with insights from all demographic groups, including low-income and minority populations. The arrival of COVID-19 and the related protective measures made it impossible to conduct the survey on site at community locations. Consequently, all survey responses reported here were completed online.

We recognize there could be many community members who would have completed a paper survey, including community members with lower income or lack of digital access. This is apparent in the survey results, which are under-representative of low-income and minority households relative to their overall proportion of the population. This occurred despite extra efforts to reach out to members of these population segments.

It should also be noted that the surveys were conducted online using convenience sampling methods. Convenience sampling is a practical approach for obtaining insights from as many people as possible. It differs from probability sampling, which involves random selection of a smaller group of respondents that should be representative of the broader population. The results of a convenience sample are instructive for understanding the scope of issues and opportunities in a community; however, they are not necessarily representative of the entire community.

B. Demographic Profile

Community residents were asked to describe their demographic background. The resulting demographic profile of survey respondents is shown in **Exhibit 1.1**. (See notes in the survey overview regarding under-representation of low income and minority populations). **Exhibit 1.2** on the following page shows the reported zip code of residence for survey respondents.

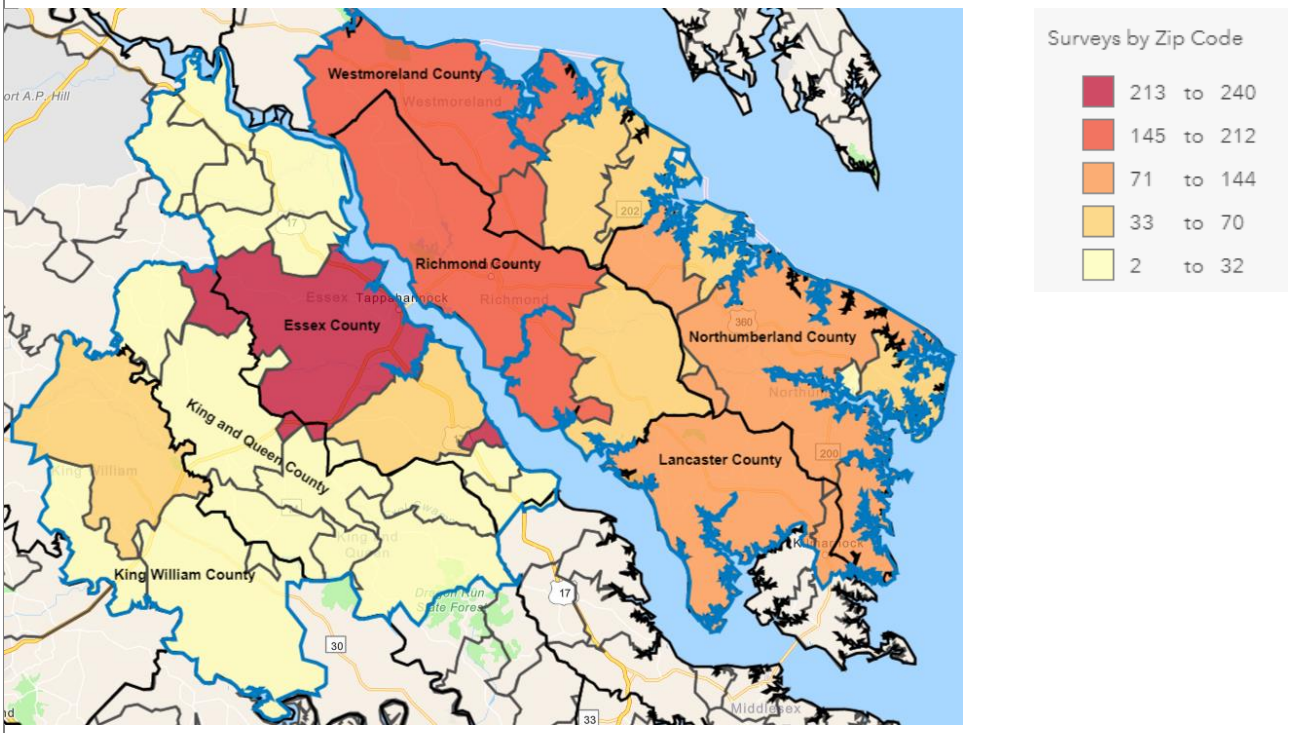
Exhibit 1.1
Demographic Profile
(n=1,565)

Category	Count	Percent
Age (n=1,560)		
18-24	30	2%
25-34	72	5%
35-44	93	6%
45-54	170	11%
55-64	382	24%
65-74	537	34%
75-84	234	15%
85+	42	3%
Race (n=1,551)		
Asian	2	0%
American Indian or Alaska Native	4	0%
Black or African American	170	11%
Multiple Race	21	1%
Pacific Islander	1	0%
White	1,353	87%
Other	0	0%
Ethnicity (n=1,552)		
Hispanic, Latino, or Spanish origin	16	1%
Non-Hispanic, Latino, or Spanish origin	1,536	99%
Gender (n=1,541)		
Female	1,034	67%
Male	507	33%
Unknown	0	0%
Income (n=1,505)		
Less than $25,000	163	11%
$25,000-$34,999	135	9%
$35,000-$49,999	159	11%
$50,000-$74,999	323	21%
$75,000+	620	41%
Don't Know/Not Sure	105	7%

Category	Count	Percent
Education (n=1,558)		
Less than High School	42	3%
High School or GED	285	18%
Some College	383	25%
Associate degree	180	12%
Bachelor's Degree	356	23%
Master's Degree	226	15%
Professional Degree	50	3%
Doctorate	36	2%
Household Size (n=1,558)		
1	265	17%
2	913	59%
3	209	13%
4	96	6%
5	52	3%
More Than 5	23	1%
School Aged Children in the Household (n=1,547)		
Yes	221	14%
No	1,326	86%
Sources of Health Information (n=1,560)		
Health Care Provider (Example: Physician, Nurse Practitioner)	1,429	92%
Online Resources (Example: WebMD)	687	44%
Family Member	335	21%
Urgent Care	240	15%
Friends	226	14%
Hospital Emergency Department	179	11%
Local Health Department	100	6%
Social Media Resources (Example: Facebook)	82	5%
Faith Based Organization	44	3%
Free Clinic	23	1%

Community residents were also asked to indicate the zip code where they live in the study region. The map and table in **Exhibit 1.2** show the number of survey responses received from residents of each zip code. (Please note some zip codes overlap county boundaries.)

Exhibit 1.2
Survey Responses by Zip Code of Residence
(n=1,565)



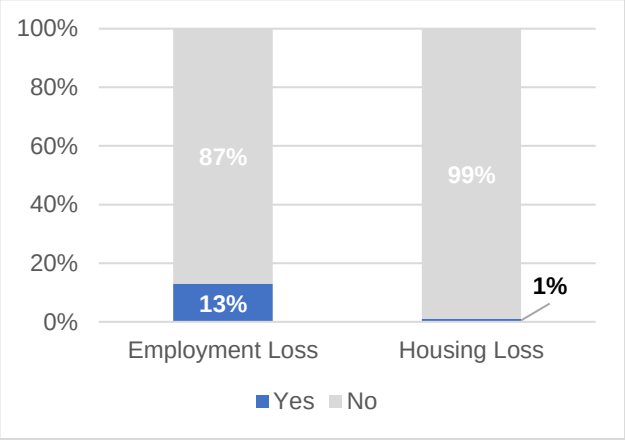
Top 23 Zip Codes (greater than 10 surveys)	Count	Percent
22560 Tappahannock	240	15%
22572 Warsaw	185	12%
22520 Montross	183	12%
22473 Heathsville	107	7%
22503 Lancaster	90	6%
22435 Callao	81	5%
22482 Kilmarnock	79	5%
22511 Lottsburg	63	4%
22469 Hague	61	4%
22539 Reedville	59	4%
22454 Dunnsville	57	4%
22460 Farnham	41	3%
23009 Aylett	39	2%
22488 Kinsale	39	2%
23148 Saint Stephens Church	26	2%
22437 Center Cross	20	1%
22436 Caret	18	1%
23086 King William	18	1%
23023 Bruington	14	1%
22432 Burgess	12	1%
22438 Champlain	12	1%
22504 Laneview	11	1%
22579 Wicomico Church	11	1%

C. Community Needs Related to COVID-19

Community residents were asked to share their insights on community needs specifically related to COVID-19. The results are shown in **Exhibit 1.3**. Two hundred and five (205) (13%) respondents said they or an immediate family member lost employment due to COVID-19, and 18 respondents (1%) reported they or a family member lost housing. Survey respondents identified multiple groups that need extra help due to COVID-19. They also shared their experiences of personal difficulty as shown in the bottom panel.

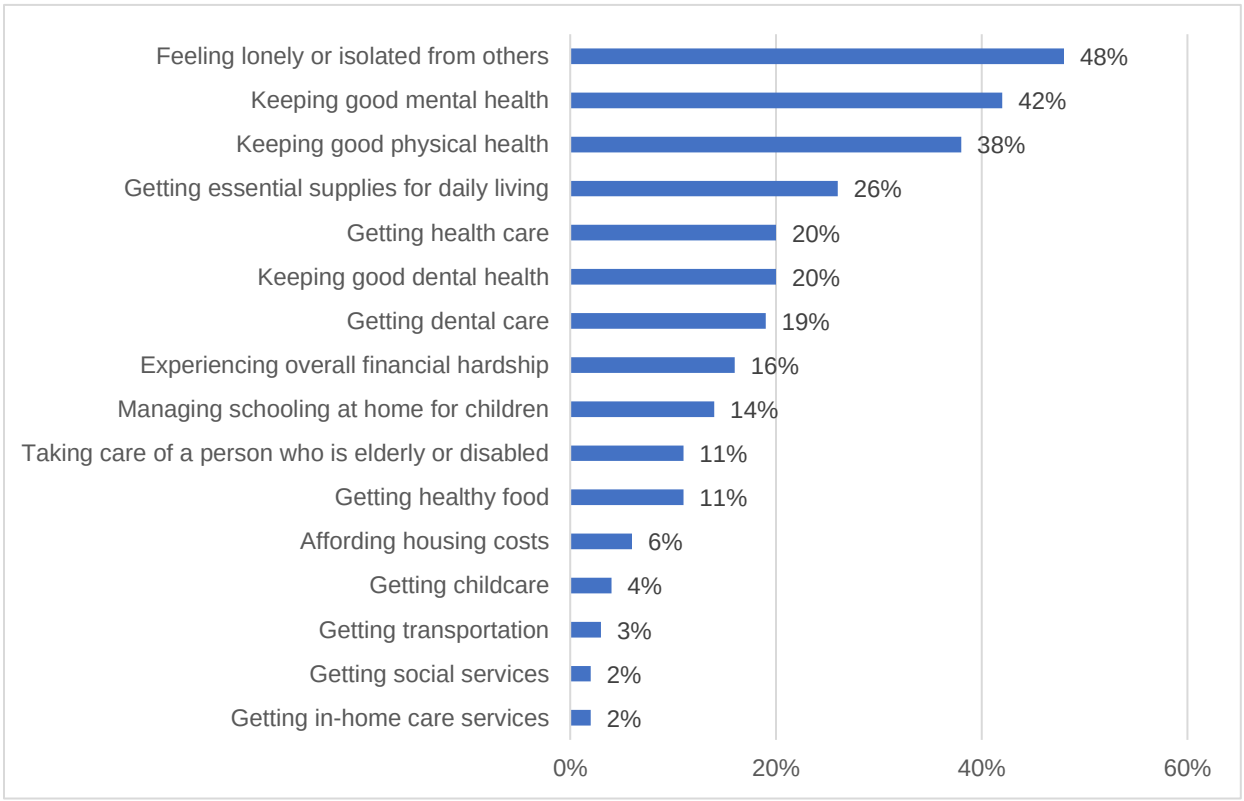
Exhibit 1.3
Community Needs Related to COVID-19

Household/Personal Employment (n=1,562) or Housing Loss (n=1,563)



Groups Who Need Extra Help (n=728)

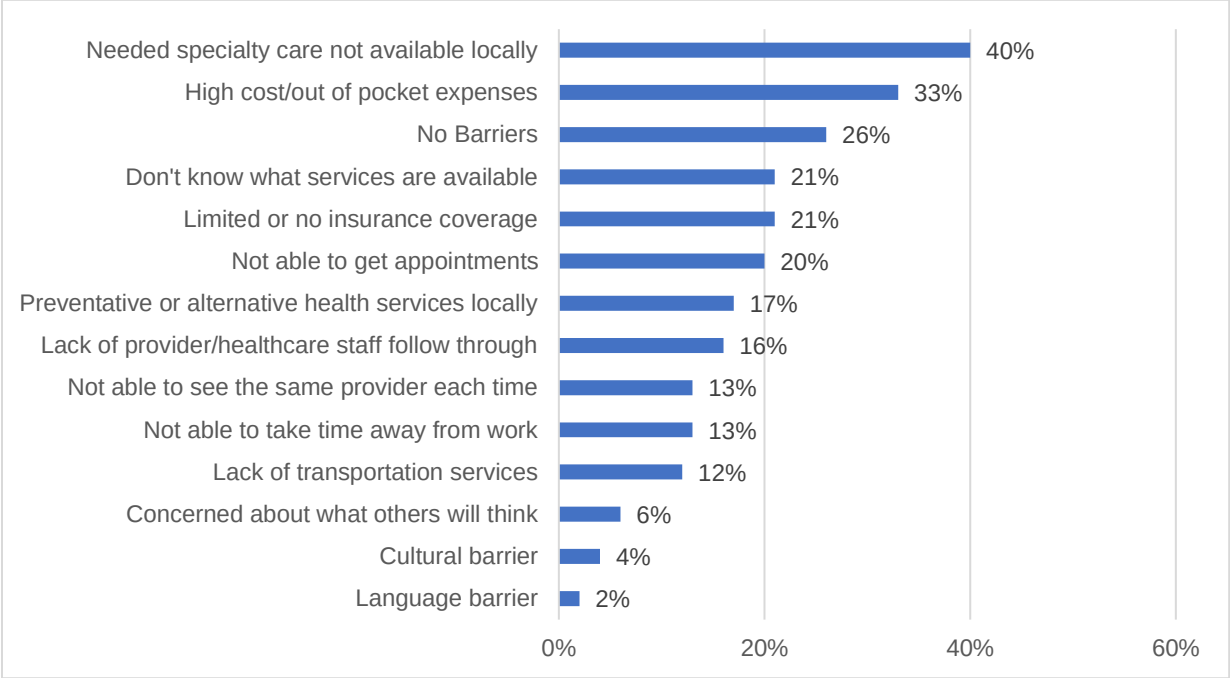
Experiences of Personal Difficulty during COVID-19 (n=948)



D. Personal Barriers to Healthcare Prior to COVID-19

As shown in **Exhibit 1.4**, respondents identified barriers to obtaining the healthcare services they and their immediate family have experienced prior to COVID-19. The most commonly identified barriers include unavailability of local specialty care; high cost/out of pocket expenses; not knowing which services are available; limited or no insurance coverage; and the inability to get appointments. Approximately one-quarter (26%) of respondents did not report barriers to healthcare services.

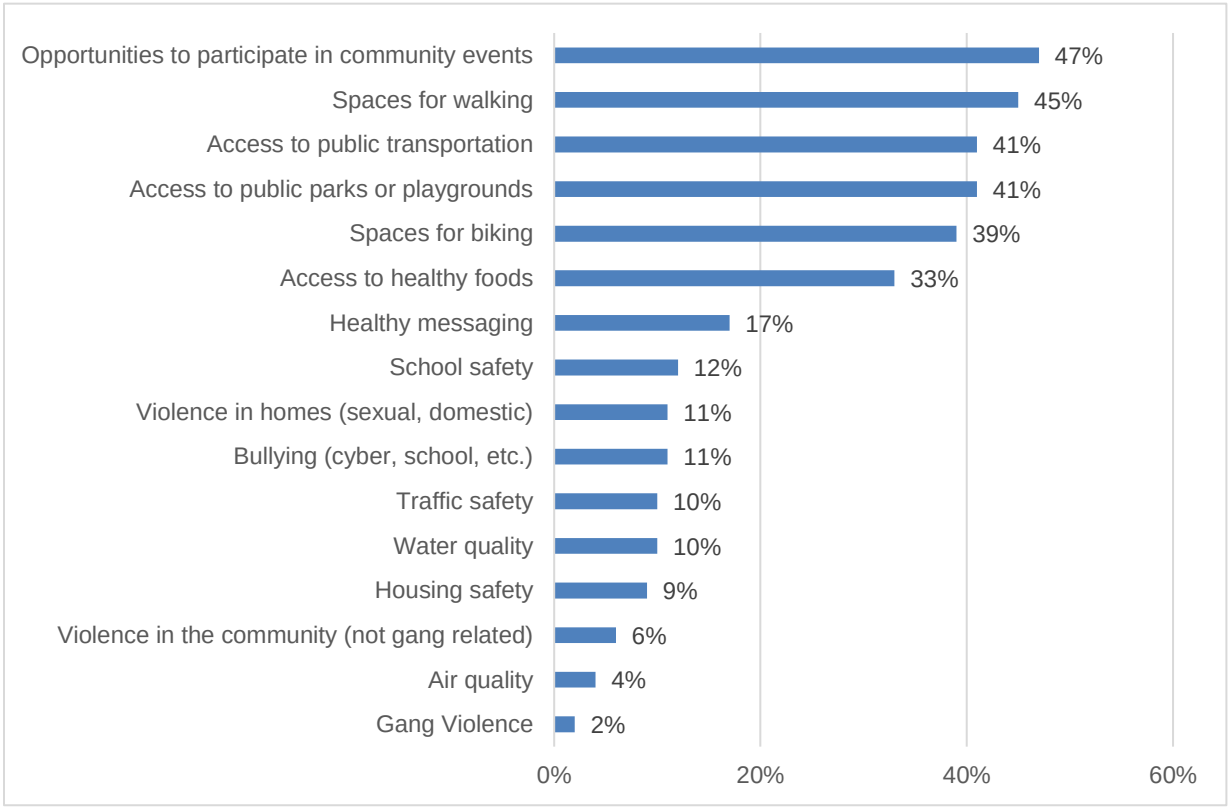
Exhibit 1.4
Barriers to Healthcare Services (n=1,242)



E. Neighborhood and Community Environment

Community residents were asked to review a list of common community health needs and concerns and identify which of these areas need improvement in their community. As shown in **Exhibit 1.5**, the most commonly identified neighborhood and community needs include opportunities to participate in community events/activities; spaces for walking; access to public transportation; access to public parks or playgrounds and spaces for biking.

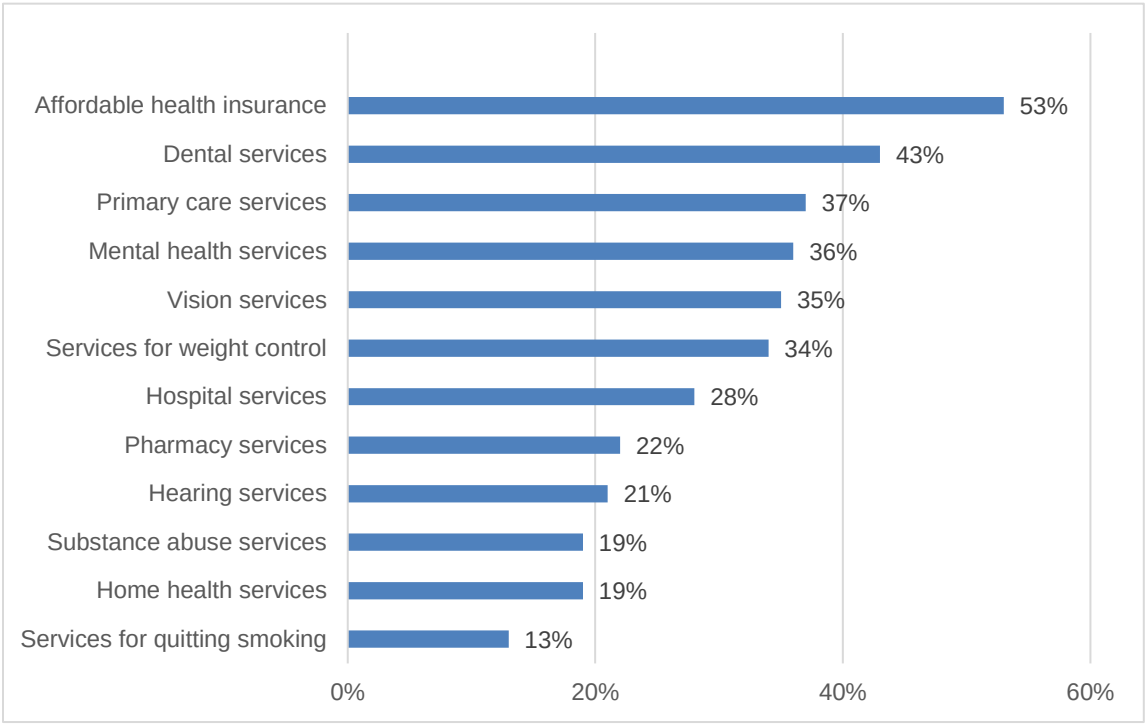
Exhibit 1.5
Neighborhood and Community Environment (n=957)



F. Community Health Care Service Needs

Community residents were asked to review a list of common health services, and identify which services need strengthening in their community. As shown in **Exhibit 1.6,** the most commonly identified health care service needs include affordable health insurance; dental services; primary care services; mental health services and vision services.

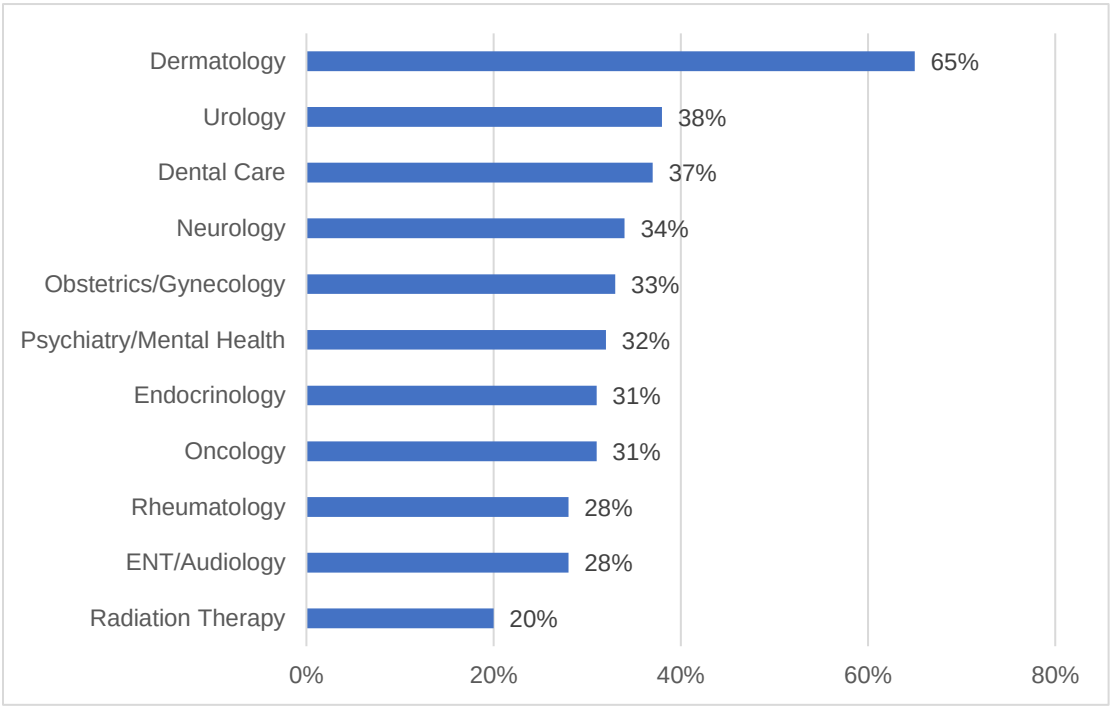
Exhibit 1.6
Health Care Service Needs (n=1,125)



G. VCUHS Tappahannock Hospital Services

Survey respondents were asked what additional hospital services they would most value being offered locally. As shown in **Exhibit 1.7**, most respondents (65%) reported they would value having dermatology services offered locally. Less than 40% reported they would value having dental care, endocrinology, ENT/audiology, obstetrics/gynecology, neurology, oncology, radiation therapy, psychiatry/mental health, rheumatology, and/or urology services offered locally.

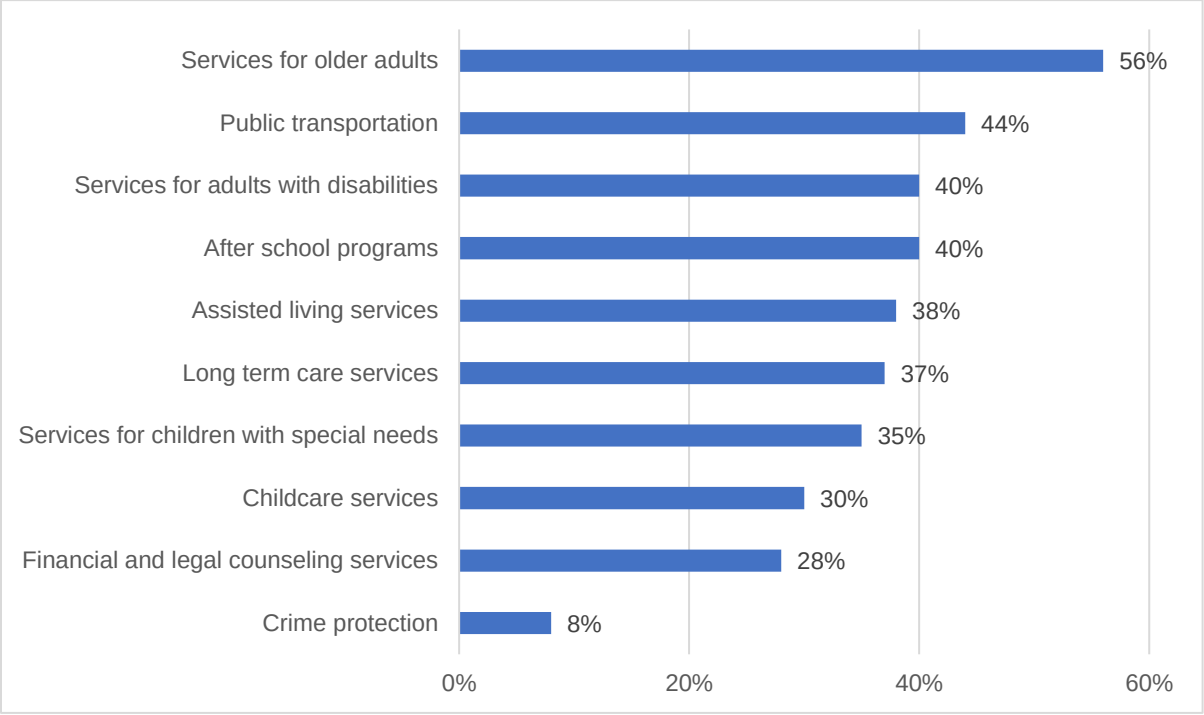
Exhibit 1.7
What Additional Hospital Services Would You Most Value Being Offered Locally?
(n=1,242)



H. Community Support Service Needs

Community residents were asked to review a list of common community support services and identify which of those services need strengthening in their community. As shown in **Exhibit 1.8**, over half (56%) of respondents identified services for older adults as needing strengthening in the community. Other commonly identified services include public transportation; and supports for children, people with disabilities, and older adults.

Exhibit 1.8
Community Services that Need Strengthening
(n=945)



I. In Their Own Words – Insights from Community Residents

Community residents were asked to share in their own words their insights on the health and well-being of their community. **Exhibit 1.9** presents a summary of the **most common themes** and the associated number of responses. The most common themes are provided as a summary illustration, but they do not represent all the responses provided. The detailed responses are provided under separate cover.

Exhibit 1.9
In their Own Words – Insights from Community Resident Survey Respondents

1. Are there particular groups of people within your neighborhood or community who need extra help during COVID-19? (n=865)				
200 Elderly Population	51 Populations with Health Equity Barriers	42 Low Income Population	35 Child Population; Community and Social Services	12 Minority Population

2. Are there particular groups of people within your neighborhood or community who need help obtaining better health? (n=526)				
199 Elderly Population	149 Those with Limited Access to Healthcare Services	109 Populations with Health Equity Barriers	80 Low Income Population	79 Those with Limited Access to Community and Social Services

3. Do you have any ideas on how VCUHS Tappahannock Hospital and its partners can help you and others in your neighborhood achieve better health? (n=566)				
334 Healthcare Services	67 Community and Social Services	58 Supports for Elderly Residents	34 Supports for Healthy Lifestyles	27 COVID-19 Response Efforts

Section 2. Insights from Community Professionals

In addition to the survey of community residents described in Section 1, a second *Community Insight Survey* was conducted with a group of community professionals identified by VCUHS Tappahannock Hospital staff. This section describes the methods, summary results, and detailed results for each section of the survey.

Section Outline

A. Survey Methods

The survey was conducted online with a pool of potential respondents identified by VCUHS Tappahannock Hospital from their existing lists of community contacts. These included local representatives from public health, social services, local nonprofits, faith-based organizations, local government, community mental health and the private business community. One section of the survey included questions about community needs related to COVID-19. The other sections asked respondents for their insights about community health issues beyond COVID-19. A total of 49 individuals submitted a response (although not every respondent answered every question).

B. Organizational Affiliation and Geographic Perspective

Survey responses were received from 49 community professionals from the organizations listed in **Exhibit 2.1**. Each respondent was asked to describe their geographic perspective in terms of the counties for which they would share insights on the survey. Most respondents identified multiple counties.

Exhibit 2.1
Organizational Affiliation and Geographic Perspective
(n=49)

By Organization
(A count denotes multiple respondents from the same organization. Some respondent represented multiple organizations.)

- Bay Aging (10)
- Bay Rivers Telehealth Alliance
- Bay Transit (2)
- Carrington Place Of Tappahannock (2)
- Central Virginia Health Services
- Central Virginia Health Services-Caroline
- Central Virginia Health Services-King William (4)
- Central Virginia Health Services-Westmoreland (2)
- Essex County School Board
- Lancaster County Social Services
- Lancaster Sheriff's Office
- Ledwith-Lewis Free Clinic
- Mayor of Tappahannock
- Middle Peninsula-Northern Neck Community Service Board (13)
- Middle Peninsula-Northern Neck Community Service Board GCC
- Northern Neck- Middlesex Free Health Clinic
- Northumberland Department of Social Services
- Richmond County Department of Social Services (2)
- Riverland Insurers
- SIFA, Corp
- Three Rivers Health District
- Town of Warsaw
- VCU
- VCU Tappahannock Hospital (2)
- VCU Tappahannock Hospital Board

By Geographic Perspective
(Can select multiple)

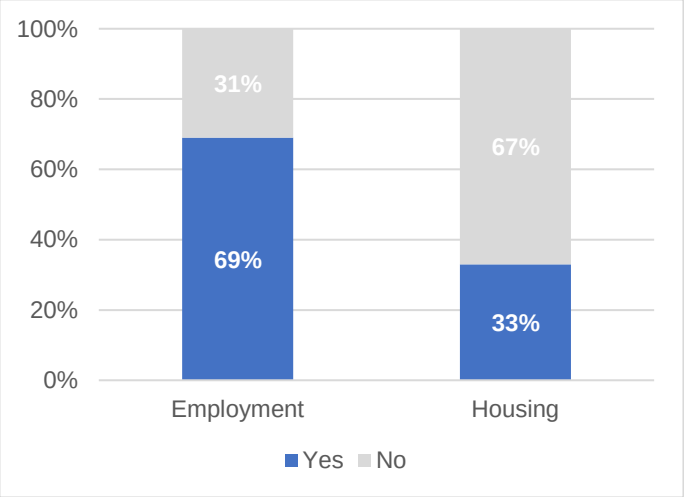
Essex County	84%
Lancaster County	80%
Northumberland County	80%
Richmond County	86%
Westmoreland County	82%
King and Queen County	71%
King William County	71%

C. Community Needs Related to COVID-19

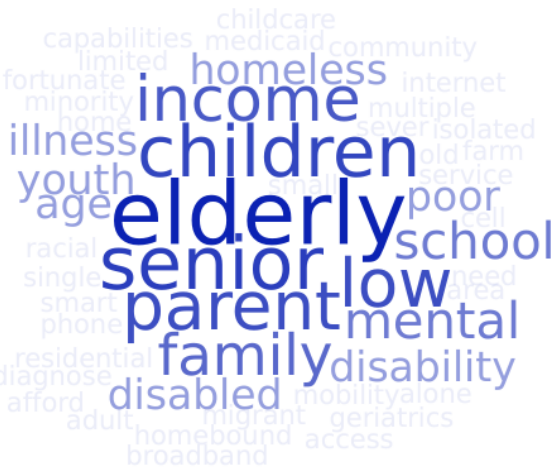
Community professionals were asked to share their insights on community needs specifically related to COVID-19. As shown in **Exhibit 2.2**, 69% said they have seen an increase in employment loss due to COVID-19, and 33% said they have seen an increase in housing loss. Survey respondents identified multiple groups that need extra help due to COVID-19. They also shared their perceptions of client/consumer difficulty as shown in the bottom panel.

Exhibit 2.2
Community Needs Related to COVID-19

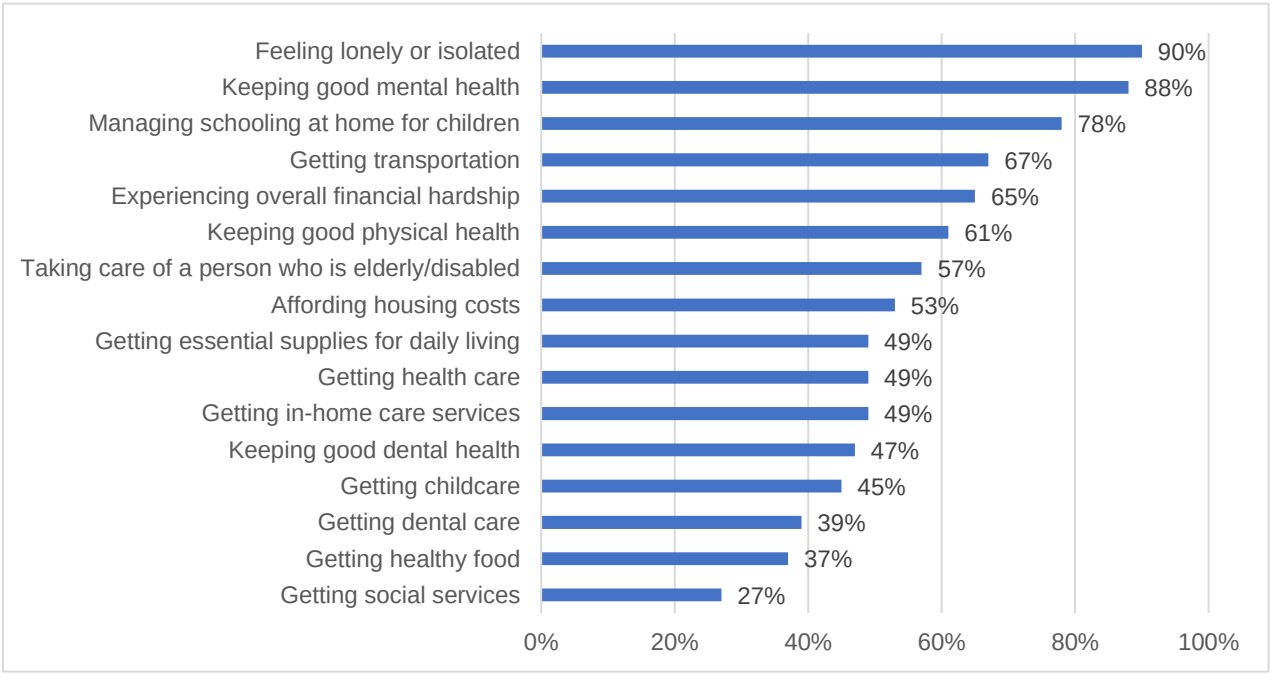
Increase in Client/Consumer Employment (n=49) or Housing Loss (n=49)



Groups Who Need Extra Help (n=41)



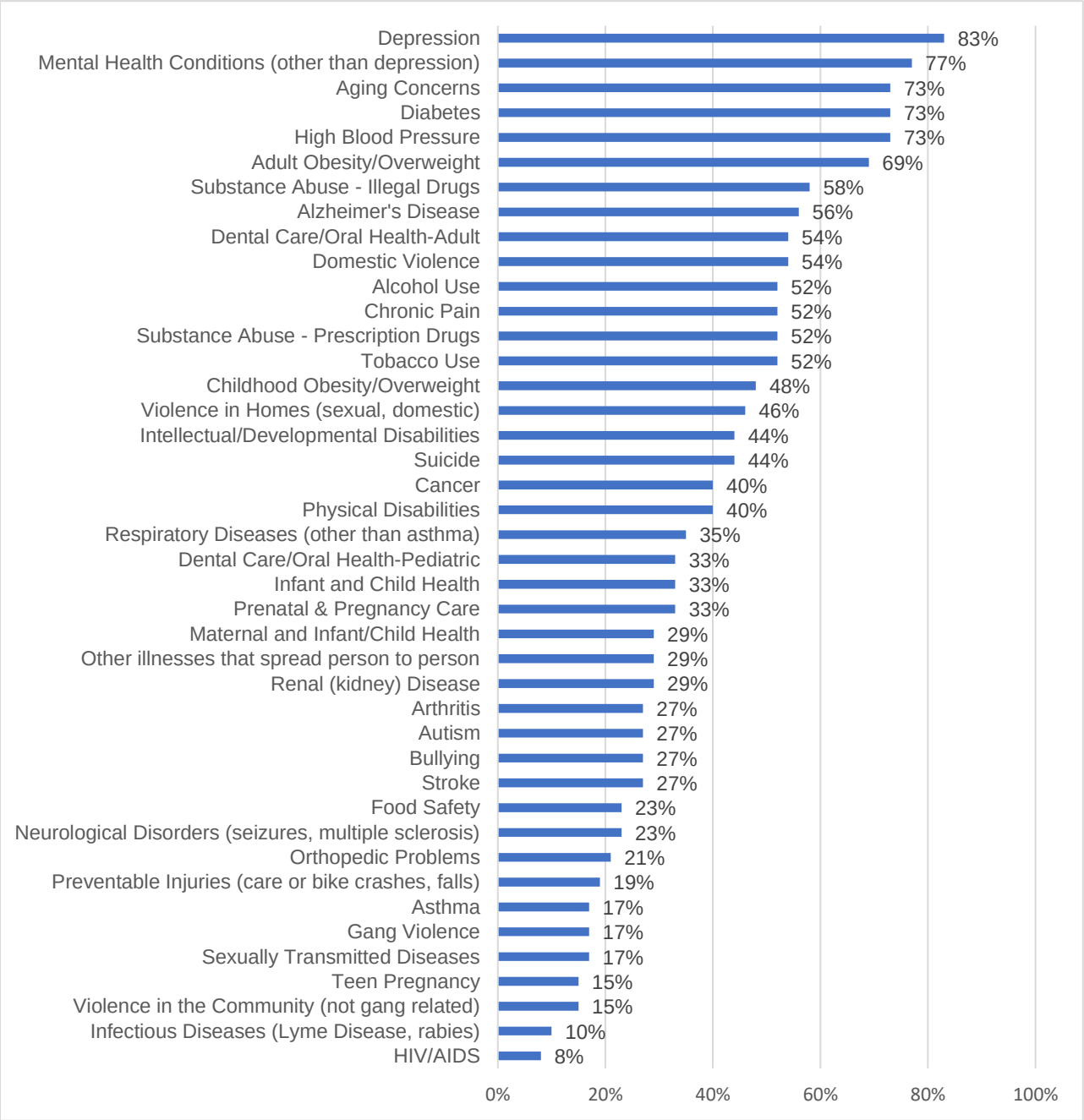
Client/Consumer Difficulties (n=49)



D. Community Health Concerns

Community professionals were asked to review a list of common community health needs and identify which of these needs are present in their community. As shown in **Exhibit 2.3**, the most commonly identified concerns were depression; mental health conditions; aging concerns; diabetes; and high blood pressure.

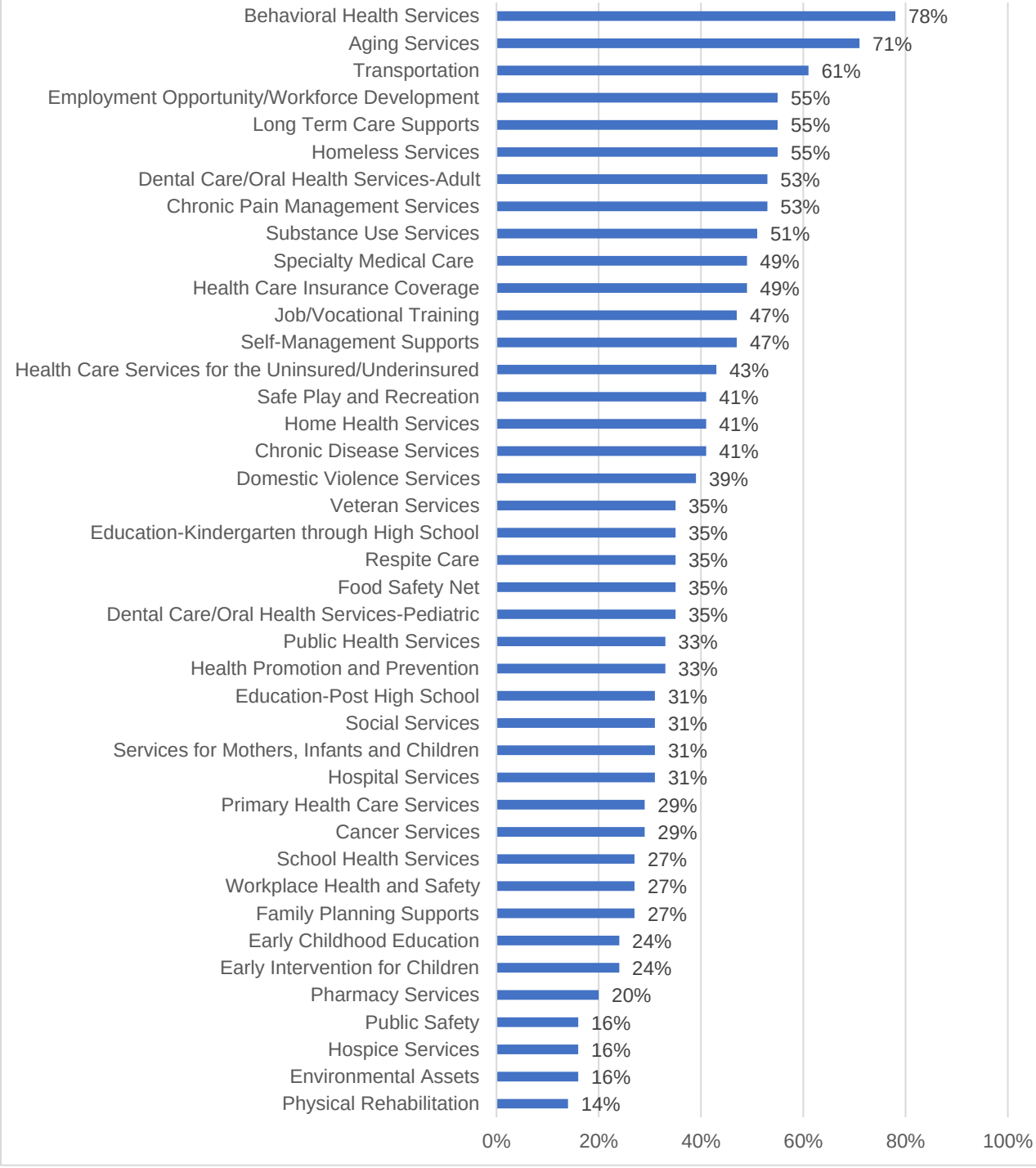
Exhibit 2.3
Community Health Concerns
(n=48)



E. Services and Supports that Need Strengthening

Community professionals were asked to review a list of common community services and supports and identify which of those services need strengthening in their community. As shown in **Exhibit 2.4**, the most commonly mentioned services that need strengthening include behavioral health services; aging services; transportation; employment opportunity/workforce development; long-term care supports and homeless services.

Exhibit 2.4
Services and Supports that Need Strengthening
(n=49)



F. In Their Own Words – Insights from Community Professionals

Community professionals were asked to share in their own words their insights on the health and well-being of their community. **Exhibit 2.5** provides a summary of the **most common themes** and the associated number of responses. The most common themes are provided as a summary illustration, but they do not represent all the responses provided. The detailed responses are provided under separate cover.

Exhibit 2.5
In their Own Words – Insights from Community Professionals

1. In your own words, how would you define the idea of a "healthy community"? (n=37)				
21 Access to Healthcare Services	15 Access to Community and Social Services	8 Supports for People with Behavioral Health Concerns	6 Supports for People with Lifestyle Risk Factors	4 Community Engagement; Supports for Elderly Population; Health Equity

2. In your view, what are the most important health assets within the community? (n=36)				
26 Healthcare Services	20 Community and Social Services	14 Healthy Lifestyle Supports	8 Supports for Elderly Residents; Supports for Children	7 Supports for People with Behavioral Health Concerns

3. Are there any new health issues within the community that may not be widely known yet, but could cause serious harm today or in the future? Please describe. (n=24)				
9 Behavioral Health Issues	8 COVID-19 Issues	7 Community and Social Services; Healthcare Services	4 Child Health Issues	2 Senior Health Issues

4. Please share your ideas about how people could work together to promote optimal health in the community (n=33)				
12 Community Engagement	10 Healthcare Services	8 Community and Social Services	5 Supports for Healthy Lifestyle	4 Supports for Elderly Residents

5. Please share your additional ideas or suggestions (n=13)		
5 Health Care Services	3 Supports for Peope with Behavioral Health Concerns	2 Community and Social Services; Supports for Elderly Residents; Healthy Lifestyle Supports; Supports for People with Lifestyle Risk Factors

Section 3. Community Indicator Profiles

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 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 affected by specific health concerns. In addition, the results can be used alongside the survey results to help inform action plans for community health improvement.

Section Outline

The community data profiles are organized into two sections as outlined below. Health factors include demographics and other factors that can influence health status and access to health care for community populations. Health outcomes are indicators of the health status of community members.

Health Factor Profiles	Health Outcome Profiles
A. Community Demographics B. Social Determinants of Health C. Health Risk Behaviors for Adults D. Health Risk Behaviors for Youth E. Access to Health Care	F. Leading Causes of Death G. Maternal and Infant Health H. Injury and Violence I. Preventable Hospitalizations J. Mental Health and Substance Use Hospitalizations

A. Health Factors: Community Demographics

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 3.0**, as of 2020, the study region included an estimated 70,309 people. The population is expected to increase to 73,201 by 2025. Focusing on trends from 2020 to 2025, projections indicate the population age 18-29 will decline by 10%, and the population age 65+ will grow by 17%. Focusing on race and ethnicity, all of the listed population segments are projected to grow, with the highest growth rates in the Asian population, the other or multi-race population, and the Hispanic population.

Exhibit 3.0
Community Demographics-Trend (2010-2020)

Indicator		2010 Census	2020 Estimate	2025 Projection	% Change 2020-2025
Total Population	Population	62,665	70,309	73,201	4%
	Households	25,387	28,577	29,757	4%
Age	Children Age 0-17	12,332	12,587	13,084	4%
	Adults Age 18-29	7,609	8,187	7,340	-10%
	Adults Age 30-44	10,392	11,807	12,881	9%
	Adults Age 45-64	19,433	20,118	19,279	-4%
	Seniors Age 65+	12,899	17,610	20,617	17%
Race	Asian	305	554	692	25%
	Black/African American	19,019	20,344	20,596	1%
	White	40,876	45,670	47,427	4%
	Other or Multi-Race	2,235	3,741	4,486	20%
Ethnicity	Hispanic Ethnicity	2,200	3,317	3,952	19%

Source: Community Health Solutions analysis of data from US Census Bureau and ESRI. See Appendix A: Data Sources for details

Exhibit 3.1 provides a demographic profile snapshot of key health-related demographics of the study region. As of 2020, the study region included an estimated 70,309 people. As illustrated by the population rates shown in the lower part of the Exhibit, compared to Virginia as a whole, the study region is more rural, older, and has proportionally more Black/African American residents.

Exhibit 3.1
Community Demographics-Snapshot (2020)

Indicator		Study Region Total	Virginia
Estimated Counts			
Total Population	Population	70,309	8,684,166
Age	Children Age 0-17	12,587	1,857,391
	Adults Age 18-29	8,187	1,425,254
	Adults Age 30-44	11,807	1,728,750
	Adults Age 45-64	20,118	2,272,656
	Seniors Age 65+	17,610	1,400,115
Sex	Female	35,335	4,411,676
	Male	34,974	4,272,490
Race	Asian	554	609,644
	Black/African American	20,344	1,687,062
	White	45,670	5,667,763
	Other or Multi-Race	3,741	719,697
Ethnicity	Hispanic Ethnicity	3,317	880,213
Estimated Rates			
Total Population	Population Density (pop. per sq. mile)	53.3	219.9
Age	Children Age 0-17 pct. of Total Pop.	18%	21%
	Adults Age 18-29 pct. of Total Pop.	12%	16%
	Adults Age 30-44 pct. of Total Pop.	17%	20%
	Adults Age 45-64 pct. of Total Pop.	29%	26%
	Seniors Age 65+ pct. of Total Pop.	25%	16%
Sex	Female pct. of Total Pop.	50%	51%
	Male pct. of Total Pop.	50%	49%
Race	Asian pct. of Total Pop.	1%	7%
	Black/African American pct. of Total Pop.	29%	19%
	White pct. of Total Pop.	65%	65%
	Other or Multi-Race pct. of Total Pop.	5%	8%
Ethnicity	Hispanic Ethnicity pct. of Total Pop.	5%	10%

Source: Community Health Solutions analysis of data from ESRI. See Appendix A: Data Sources for details

B. Health Factors: Social Determinants of Health

Exhibit 3.2 shows selected social determinants of health for residents of the study region versus Virginia as a whole. Social determinants of health are social and economic factors that can influence health and access to health care for individuals and populations. These factors can impact an individual's health status and access to health services and supports. The results show there are substantial numbers of community residents with low income, without a high school diploma, with food insecurity, and housing problems.

Exhibit 3.2
Social Determinants of Health (Various Years)

Indicator		Study Region Total	Virginia
Estimated Counts			
Income	Households with Incomes Below the Poverty Level (2019)	3,309	323,273
Education	Population Age 25+ Without a High School Diploma (2020)	6,908	593,336
Estimated Rates			
Income	Households with Incomes Below the Poverty Level (2019) pct. of Total Household for Which Poverty Status is Determined (2019)	13%	10%
	Median Household Income (2020)	$55,907	$73,543
	Per Capita Income (2020)	$29,939	$40,095
Education	Population Age 25+ Without a High School Diploma pct. of Total Pop. Age 25+ (2020)	13%	10%

Source: Community Health Solutions analysis of data from US Census Bureau and ESRI. See Appendix A: Data Sources for details.

C. Health Factors: Risk Behaviors for Adults

Exhibit 3.3 shows selected health risk behaviors for adult residents of the study region versus Virginia as a whole. Health risk behaviors include lifestyle factors that can influence health including development of chronic disease. Please note that these figures are estimates derived by applying 2018/2019 health district estimates to 2020 local demographics for the study region. They are subject to error and presented for planning purposes only. The results show there are substantial numbers of community residents who could reduce their health risks by improving their diet, reducing their body weight, engaging in physical activity, reducing alcohol consumption, and ceasing smoking.

Exhibit 3.3
Adult Health Risk Behaviors (2020 Estimates)

Indicator		Study Region Total	Virginia
Counts			
Total Estimated Adults age 18+		57,722	6,826,775
Lifestyle Risk Factors	Less than Five Servings of Fruits and Vegetables Per Day	6,927	5,734,491
	Overweight or Obese	38,674	4,505,672
	No Physical Activity in the Past 30 Days	20,203	1,706,694
	At-risk for Binge Drinking[2]	8,658	1,024,016
	Smoker	9,236	955,749
Chronic Conditions[3]	High Cholesterol	19,625	2,252,836
	High Blood Pressure	19,625	2,321,104
	Arthritis	16,162	1,774,962
	Diabetes	6,927	750,945
General Health Status	Fair or Poor Health Status	13,276	1,160,552
Rates			
Lifestyle Risk Factors	Less than Five Servings of Fruits and Vegetables Per Day	88%	84%
	Overweight or Obese	67%	66%
	No Physical Activity in the Past 30 Days	35%	25%
	At-risk for Binge Drinking	15%	15%
	Smoker	16%	14%
Chronic Conditions	High Cholesterol	34%	33%
	High Blood Pressure	34%	34%
	Arthritis	28%	26%
	Diabetes	12%	11%
General Health Status	Fair or Poor Health Status	23%	17%

Source: Community Health Solutions analysis of data from Virginia Department of Health Behavioral Risk Factor Surveillance System and demographic estimates from ESRI. See Appendix A: Data Sources for details

[2] Males having five or more drinks on one occasion, females having four or more drinks on one occasion.
[3] As told by a doctor or other health professional

D. Health Factors: Risk Behaviors for Youth

Exhibit 3.4 shows selected health risk behaviors for youth residents of the study region versus Virginia as a whole. Please note that all indicators in this profile are based on 2019 health district or statewide estimates applied to 2020 regional demographics for the study region. They are subject to error and presented for planning purposes only. The results show there are substantial numbers of community youth who could reduce their health risks by avoiding tobacco and vapor products, engaging in more physical activity, and sustaining healthier body weight.

Exhibit 3.4
High School Youth Health Risk Behaviors (2020 Estimates)

Indicator		Study Region Total	Virginia
Counts			
Total Estimated High School Youth Age 14-19		4,224	652,253
Lifestyle Risk Factors	Used tobacco or vapor products in the past month	929	150,018
	Not Meeting Recommendations for Physical Activity in the Past Week	2,492	384,829
Chronic Conditions	Asthma	1,056	136,973
	Overweight or Obese	1,352	202,198
Rates			
Lifestyle Risk Factors	Used tobacco or vapor products	22%	23%
	Not Meeting Recommendations for Physical Activity in the Past Week	59%	59%
Chronic Conditions	Asthma	25%	21%
	Overweight or Obese	32%	31%

Source: Community Health Solutions analysis of data from Virginia Department of Health Youth Risk Behavior Surveillance System and demographic estimates from ESRI. See Appendix A: Data Sources for details

E. Health Factors: Access to Health Care

Access to health care is essential for individual and population health. **Exhibit 3.5** provides indicators of access to health insurance for community residents. As shown, an estimated 4,751 community members age 0-64 may lack health coverage. Looking beyond health coverage, **Exhibit 3.6** shows all six counties that overlap with the study region have been designated as medically underserved areas by the U.S. Health Resources and Services Administration. The designations are based on several factors including primary care provider supply, infant mortality, prevalence of poverty and the prevalence of seniors age 65+.

Exhibit 3.5
Uninsured Population (2019 Estimates)

Indicator	Study Region Total	Virginia
Estimated Counts - Population		
Total Population Age 0-64	44,530	6,989,043
Total Population Age 0-18	11,802	1,981,506
Total Population Age 19-64	32,728	5,007,537
Estimated Counts - Uninsured		
Uninsured Population Age 0-64	4,751	696,457
Uninsured Population Age 0-18	443	99,819
Uninsured Population Age 19-64	4,308	596,638
Estimated Rates - Uninsured		
Uninsured Population Age 0-64	11%	10%
Uninsured Population Age 0-18	4%	5%
Uninsured Population Age 19-64	13%	12%

Notes: These data may reflect conservative estimates of health coverage for 2018. Readers are encouraged to review current data on Medicaid Expansion enrollment that which updated on a regular basis. Click here view the Department of Medical Assistance Services Medicaid Expansion Access Dashboard.

Source: Community Health Solutions analysis of data from ACS. See Appendix A: Data Sources for details

Exhibit 3.6
Medically Underserved Areas/Populations

Locality	Index of Medical Underservice Score (0= Highest Need 100 =Lowest Need)	Rural Status
Essex County	61.2	Rural
King and Queen County	61.7	Non-Rural
King William County	56.6	Partially Rural
Lancaster County	55.4	Rural
Northumberland County	49.6	Rural
Westmoreland County	59.8	Rural

Source: Community Health Solutions analysis of data from Health Resources and Services Administration. See Appendix A: Data Sources for details

F. Health Outcomes: Leading Causes of Death

Exhibit 3.7 shows the leading causes of death for residents of the study region versus Virginia as a whole. In 2019 the five leading causes of death in the study region were heart disease (202), malignant neoplasms (cancer) (180), cerebrovascular disease (stroke) (53), unintentional injury (47) and chronic lower respiratory disease (41). Crude mortality rates for the study region were higher than the Virginia rate for causes of death where a rate was calculated.

Exhibit 3.7
Mortality (2019)

Indicator	Study Region	Virginia
Counts		
Total Deaths by All Causes	877	70,359
Heart Disease	202	15,061
Malignant Neoplasms (Cancer)	180	15,049
Cerebrovascular Disease (Stroke)	53	3,823
Unintentional Injury	47	3,997
Chronic Lower Respiratory	41	3,666
Alzheimer's Disease	40	2,632
Diabetes	34	2,352
Nephritis and Nephrosis	18	1,662
Chronic Liver Disease	16	1,038
Septicemia	16	1086
Suicide	16	1,137
Influenza and Pneumonia	11	1,103
Parkinson's Disease	10	894
Primary Hypertension	7	817
Rates (Crude Rate Per 100,000 Population)		
Total Deaths by All Causes	1,448.7	824.3
Heart Disease	333.7	176.5
Malignant Neoplasms (Cancer)	297.3	176.3
Cerebrovascular Disease (Stroke0	87.5	44.8
Unintentional Injury	77.6	46.8
Chronic Lower Respiratory	67.7	42.9
Alzheimer's Disease	66.1	30.8
Diabetes	56.2	27.6
Nephritis and Nephrosis	--	19.5
Chronic Liver Disease	--	12.2
Septicemia	--	12.7
Suicide	--	13.3
Influenza and Pneumonia	--	12.9
Parkinson's Disease	--	10.5
Primary Hypertension	--	9.6

-- Rates are not calculated where the number of cases is less than 30.
Source: Community Health Solutions analysis of data from the Virginia Department of Health.
See Appendix A: Data Sources for details

G. Health Outcomes: Maternal and Infant Health

Exhibits 3.8a-c show indicators of maternal and infant health for residents of the study region versus Virginia as a whole. As shown in **Exhibit 3.8a**, in 2019 there were 586 total live births, with 69 low weight births, 88 births without early prenatal care, 305 non-marital births, and 29 births to teens. The study region had higher rates of low weight births, non-marital births and teen births than Virginia as a whole.

Exhibit 3.8a
Maternal and Infant Health (2019)

Indicator	Study Region	Virginia
Counts		
Total Live Births	586	97,434
Low Weight Births	69	8,162
Births Without Early Prenatal Care (No Care in the First 13 Weeks)	88	16,122
Non-Marital Births	305	34,196
Teenage Births (Age 10-19)	29	3,587
Teenage Births (Age 18-19)	29	2,748
Teenage Births (Age 15-17)	0	811
Teenage Births (Age <15)	0	28
Rates		
Live Birth Rate per 1,000 Population	9.7	11.4
Low Weight Births as a pct. of Total Births	12%	8%
Births Without Early Prenatal Care as a pct. Of Total Births	15%	17%
Non-Marital Births as a pct. of Total Births	52%	35%
Teenage Births (Age 10-19) Rate per 1,000 Females age 10-19	8.1	6.8
Teenage Births (Age 18-19)	44.5	24.6
Teenage Births (Age 15-17)	0.0	5.2
Teenage Births (Age <15)	0.0	0.1

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

For technical reasons, it was not possible to calculate teen pregnancy rates or five-year infant mortality rates at the zip code level.[4] As an approximation, **Exhibits 3.8b and 3.8c** on the following page shows county-level counts and rates of infant mortality and teen pregnancy for the six counties that overlap the study region.

- **Exhibits 3.8b** shows counts and rates of infant mortality in the region. The five-year average infant mortality rates were higher than the statewide rate for Essex, King and Queen, Lancaster and Northumberland counties.
- **Exhibit 3c** shows counts and rates of teen pregnancy in 2019. The teen pregnancy rates were higher than the statewide average for Lancaster, Northumberland and Westmoreland counties.

[4] Infant mortality and teen pregnancy rates were not calculated for this study region because the study region is defined by zip codes, and available data are not structured to support calculation of rates at the zip code level. City/county level rates are provided as an alternative.

Exhibit 3.8b
Infant Mortality (2015-2019)

Indicator	Essex	King and Queen	King William	Lancaster	Northumberland	Westmoreland	Virginia
Counts							
Five Year Infant Deaths (2015-2019)	7	3	4	4	3	4	2,917
Rates							
Five-Year Average Infant Mortality Rate per 1,000 Live Births (2015-2019)	12.9	8.9	4.1	9.4	7.2	4.5	5.8

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

Exhibit 3.8c
Teen Pregnancy (2019)

Indicator	Essex	King and Queen	King William	Lancaster	Northumberland	Westmoreland	Virginia
Counts							
Total Teenage (age 10-19) Pregnancies (2019)	5	3	6	8	9	13	4,825
Rates							
Teenage (age 10-19) Pregnancy Rate per 1,000 Teenage Female Population (2019)	7.8	9.0	3.8	16.9	16.5	12.6	9.2

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

H. Heath Outcomes: Injury and Violence Hospitalizations

Exhibit 3.9 shows hospitalizations due to selected causes of injury and violence for residents of the study region versus Virginia as a whole. In 2018 study region residents had 281 inpatient hospitalizations for injury or violence-related incidents, with the leading causes being firearm (74), traumatic brain injury (57), unintentional fall (50), drug poisoning due to overdose (48), and self-harm (32). Crude hospitalization rates were higher for the study region than Virginia for injury and violence related discharges overall, and for firearm, traumatic brain injury, unintentional fall, and self-harm.

Exhibit 3.9
Injury and Violence-Hospitalization (2018)

Indicator	Study Region	Virginia
Counts		
Injury and Violence Related Discharges (All)	281	32,021
Firearm	74	6,156
Traumatic Brain Injury	57	5,438
Unintentional Fall	50	7,234
Drug Poisoning (Overdose)	48	7,155
Self-harm	32	3,622
Motor Vehicle Injury	11	881
Poisoning (non-drug)	8	1,310
Assault	1	225
Rates- Population		
Injury and Violence Related Discharges (All)	464.2	375.2
Firearm	122.2	72.1
Traumatic Brain Injury	94.2	63.7
Unintentional Fall	82.6	84.8
Drug Poisoning (Overdose)	79.3	83.8
Self-harm	52.9	42.4
Motor Vehicle Injury	--	10.3
Poisoning (non-drug)	--	15.3
Assault	--	2.6

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

Source: Community Health Solutions analysis of data from Virginia Health Information, Inc. and demographic estimates from ESRI. See Appendix A: Data Sources for details

I. Health Outcomes: Potentially Avoidable Hospitalizations

Exhibit 3.10 shows indicators of potentially avoidable hospitalizations for residents of the study region versus Virginia as a whole. These hospitalizations are potentially avoidable with adequate access to outpatient care and other health supports. Cases are defined as *Prevention Quality Indicator (PQI)* discharged using specific diagnosis and procedure codes as noted in **Appendix A**.

In 2019 study region residents had 679 potentially avoidable hospitalizations, with most being for residents age 65+. The leading diagnoses for these hospitalizations were congestive heart failure (279), diabetes (128), COPD or asthma in older adults (108), community acquired pneumonia (74), and urinary tract infection (61). The crude rates for these hospitalizations were higher in study region than for Virginia as a whole for all diagnoses where a rate was calculated.

Exhibit 3.10
Potentially Avoidable Hospitalizations (2019)

Indicator	Study Region	Virginia
Counts		
Prevention Quality Indicator (PQI) Discharges (All)	679	72,248
Congestive Heart Failure	279	26,675
Diabetes	128	13,561
COPD or Asthma in Older Adults	108	12,198
Community Acquired Pneumonia	74	8,514
Urinary Tract Infection	61	7,481
Hypertension	26	3,292
Asthma in Younger Adults	3	538
Rates-Crude Rate Per 100,000 Population		
Prevention Quality Indicator (PQI) Discharges (All)	1,121.6	846.4
Congestive Heart Failure	460.9	312.5
Diabetes	211.4	158.9
COPD or Asthma in Older Adults	178.4	142.9
Community Acquired Pneumonia	122.2	99.7
Urinary Tract Infection	100.8	87.6
Hypertension	--	38.6
Asthma in Younger Adults	--	6.3

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

Source: Community Health Solutions analysis of data from Virginia Health Information, Inc. and demographic estimates from ESRI. See Appendix A: Data Sources for details

J. Health Outcomes: Mental Health and Substance Use Hospitalizations

Exhibit 3.11 shows residents of the study region had 198 discharges from Virginia community hospitals for behavioral health conditions in 2019. The leading causes of hospitalization were major depressive disorder - recurrent (54), alcohol related disorders (36), bipolar disorder (24), schizophrenia (15), and major depressive disorder, single episode (12). The crude rates for most hospitalizations were lower in the study region than for Virginia as a whole for all diagnoses where a rate was calculated.

Exhibit 3.11
Hospitalizations for Mental Health and Substance Use Diagnoses (2019)

Indicator	Study Region	Virginia
Counts-Total Discharges by Diagnosis		
Total Discharges by All Diagnoses	198	68,583
Counts-Total Discharges by Leading 11 Diagnoses		
Major depressive disorder, recurrent	54	17,148
Alcohol related disorders	36	9,436
Bipolar disorder	24	10,137
Schizophrenia	15	3,229
Major depressive disorder, single episode	14	6,790
Schizoaffective disorders	12	6,521
Reaction to severe stress, and adjustment disorders	6	2,287
Opioid related disorders	4	2,011
Persistent mood [affective] disorders	4	1,931
Unspecified mood [affective] disorder	3	1,485
Unspecified psychosis not due to a substance or known physiological condition	2	1,004
Rates- Population		
Total Discharges	327.1	796.8
Major depressive disorder, recurrent	89.2	197.5
Alcohol related disorders	59.5	108.7
Bipolar disorder	--	116.7
Schizophrenia	--	37.2
Major depressive disorder, single episode	--	78.2
Schizoaffective disorders	--	75.1
Reaction to severe stress, and adjustment disorders	--	26.3
Opioid related disorders	--	23.2
Persistent mood [affective] disorders	--	22.2
Unspecified mood [affective] disorder	--	17.1
Unspecified psychosis not due to a substance or known physiological condition	--	11.6

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

Source: Community Health Solutions analysis of data from Virginia Health Information, Inc. and demographic estimates from ESRI. See Appendix A: Data Sources for details

Section 4. Exploring Social Determinants of Health

Section Outline

Social determinants of health (SDoH) have been defined as the conditions under which people are born, grow, live, work, and age, and include factors such as socioeconomic status, education, employment, social support networks, and neighborhood characteristics.[5] A growing body of research indicates that SDoH can be linked to a lack of opportunity and resources to protect, improve, and maintain health. The impacts of SDoH can be seen in disparities in health status and access to healthcare for individuals and populations.

This section explores the results of the CHNA study from an SDoH perspective. Part A provides summary insights about SDoH from the survey of community residents. Part B presents a demographic profile of the region that may be helpful for understanding where populations with SDoH risk reside. This type of information can be helpful for planning efforts to reduce health disparities and increase health equity.

A. Insights from Surveys of Community Residents

Community residents were asked if there are particular groups of people within their neighborhood or community who need help obtaining better health. As shown in **Exhibit 4.1**, the most frequently identified populations are shown in the exhibit below, along with a list of specific mentions. Members of these populations have one or more social determinants of health that could influence their health status and access to health services and supports. The list is consistent with research on populations at higher risk for health challenges because of one or more social determinants of health.

Exhibit 4.1
Insights about Vulnerable Populations from Community Residents

Most Frequently Identified Populations in the Survey of Community Residents (n=526)				
199 Elderly Population	149 Those with Limited Access to Healthcare Services	109 Populations with Health Equity Barriers	80 Low Income Population	79 Those with Limited Access to Community and Social Services

Specific Populations Identified

- Children
- Elderly
- Hispanic/Latino
- Homeless
- Immigrants
- Low-income
- Parents homeschooling children
- People of color
- People with disabilities
- People with mental health conditions
- People with substance use problems
- People with transportation access needs
- Unemployed
- Underinsured/Uninsured

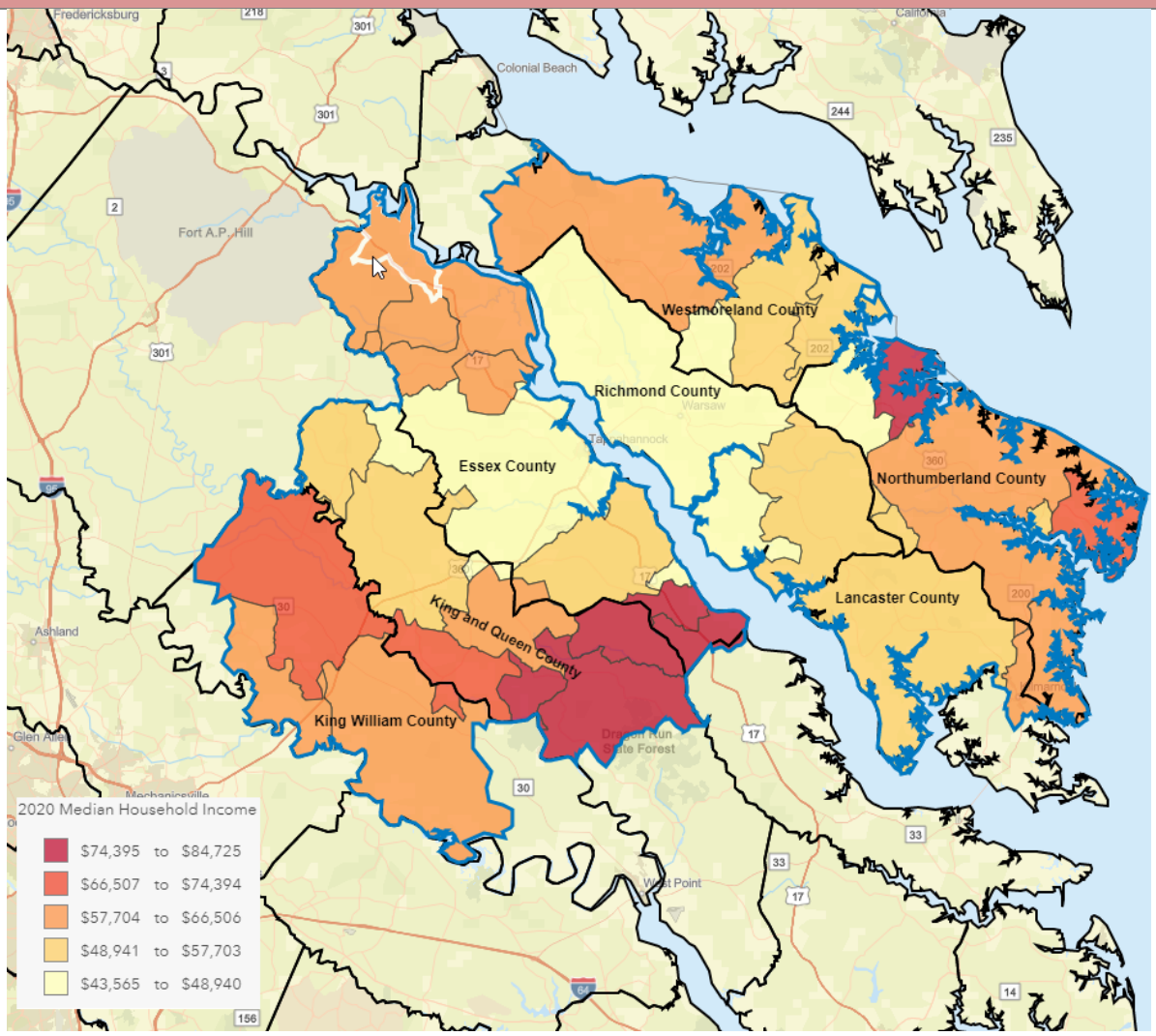
[5] American Academy of Family Physicians

B. Community Mapping of SDoH Indicators

For purposes of assessment and planning it is helpful to understand where populations with SDoH risk factors reside in the community. The following exhibits provide maps and data for four SDoH indicators including low income, minority status, disability, and aging. There are many additional SDoH indicators not shown here. The indicators shown are intended as a starting point for further analysis of SDoH factors in local communities.

Exhibit 4.2 shows the estimated median household income at the zip code level as of 2020. The range varies from a low of $43,565 to a high of $84,725.

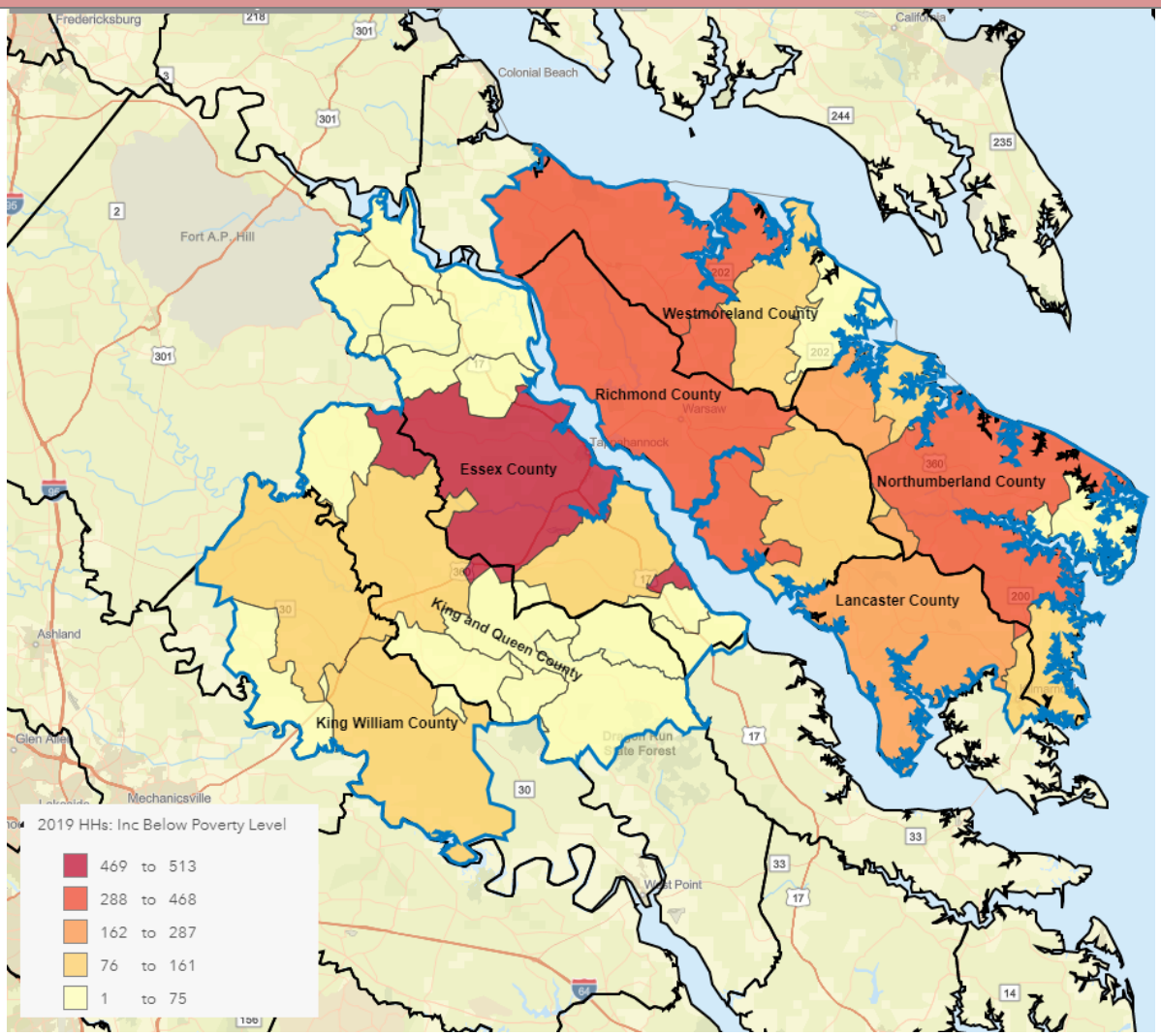
Exhibit 4.2
Median Household Income (2020 Estimates)



Source: CHS analysis of estimates provided by ESRI.

Exhibit 4.3 shows the estimated number of households with income below poverty as of 2019. A total of 3,309 households in the region had income below poverty. The range varies from a low of one to a high of 513 households per zip code.

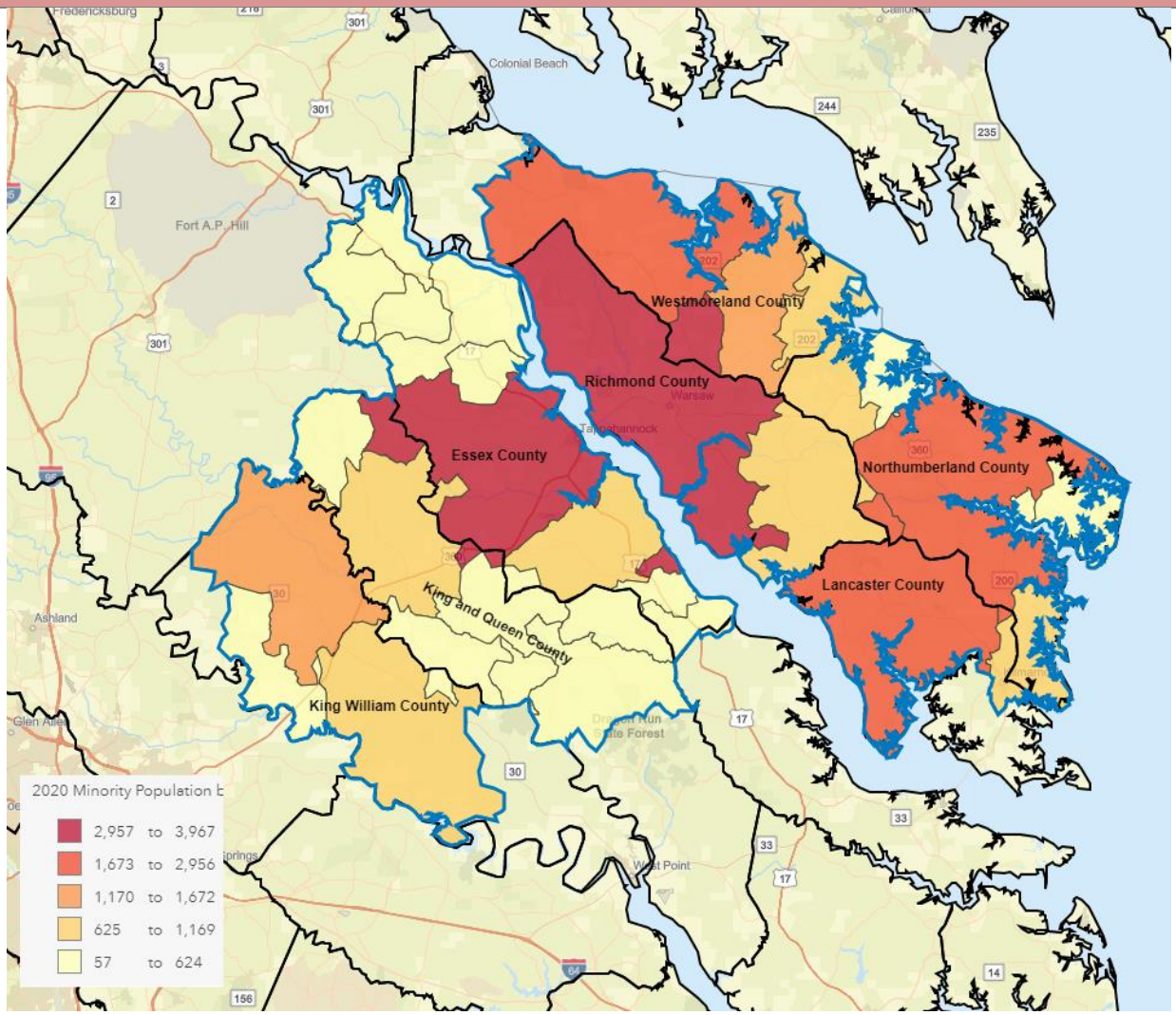
Exhibit 4.3
Number of Households with Income Below Poverty (2019 Estimates)



Source: CHS analysis of estimates provided by ESRI.

Exhibit 4.4 shows the estimated number of minority residents as of 2020. In this analysis, minority residents include people of races other than White, plus people of Hispanic ethnicity. A total of 27,956 minority residents live within the study region. The range varies from a low of 57 to a high of 3,967 minority residents per zip code.

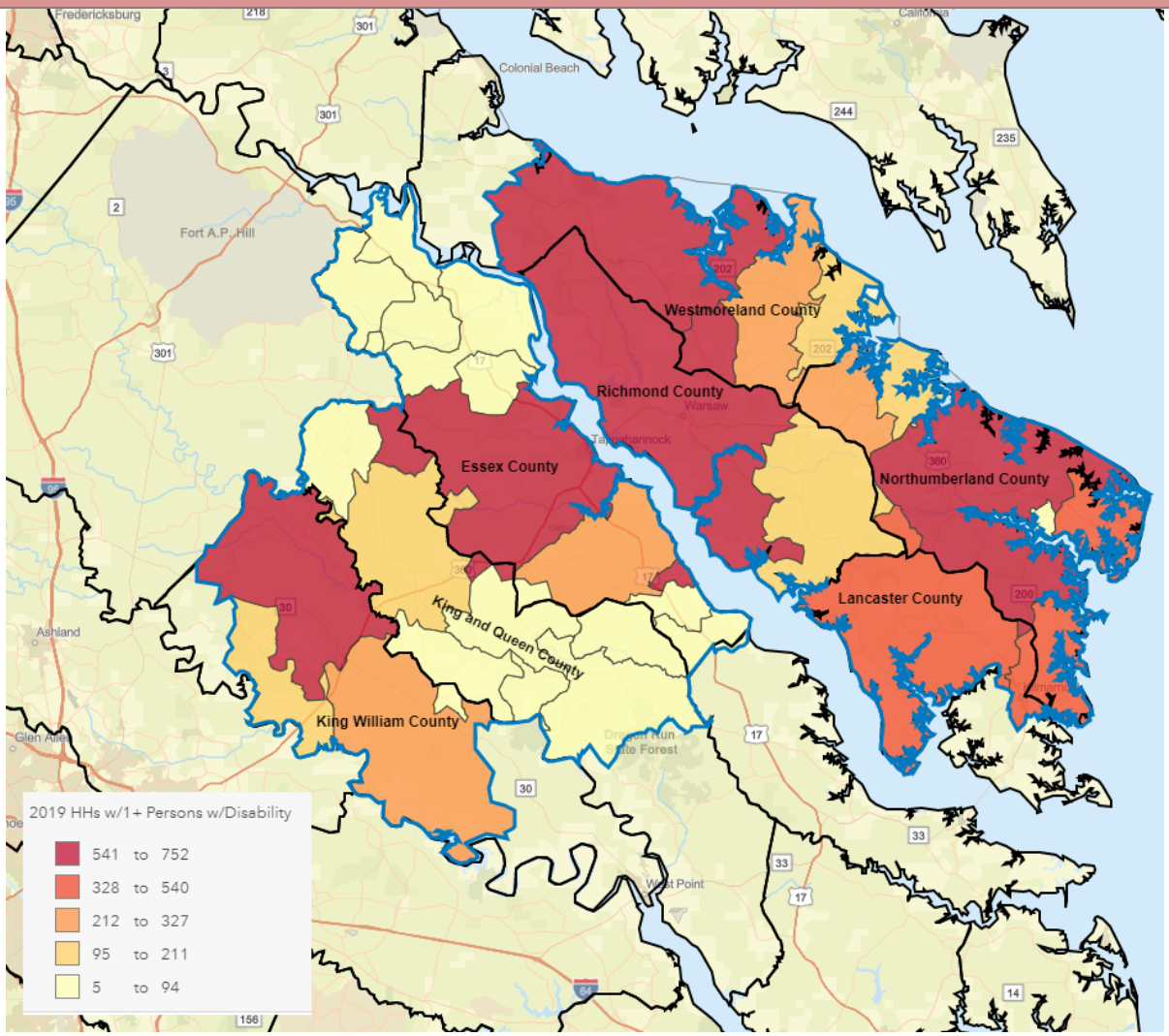
Exhibit 4.4
Number of Minority Residents (2020 Estimates)



Source: CHS analysis of estimates provided by ESRI.

Exhibit 4.5 shows the estimated number of households having one or more members with a disability as of 2019. A total of 6,907 households met this definition. The range varies from a low of five to a high of 752 households per zip code

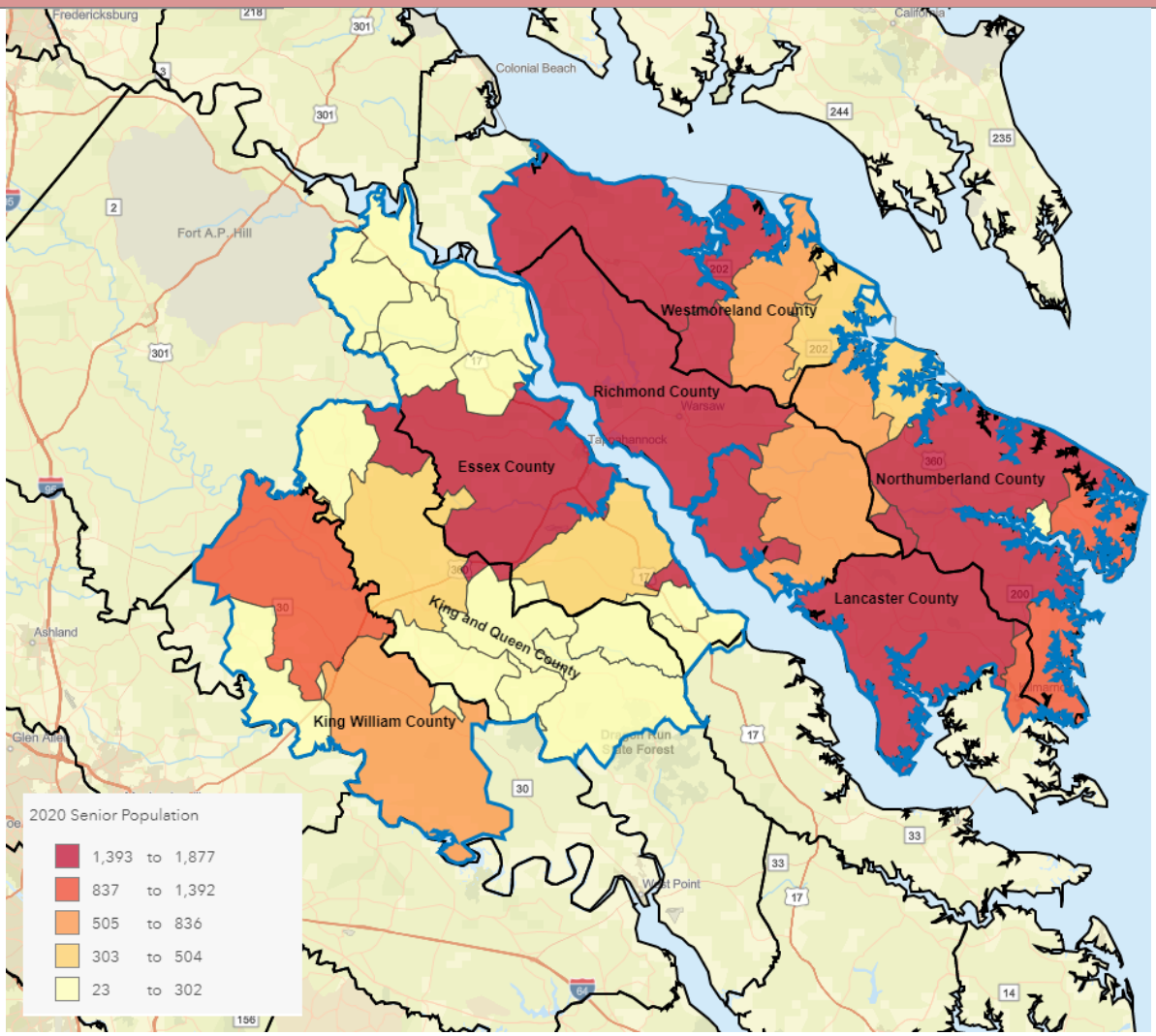
Exhibit 4.5
Households with 1+ Persons with a Disability (2019 Estimates)



Source: CHS analysis of estimates provided by ESRI based on American Community Survey Data. Disability types include: hearing difficulty, vision difficulty, cognitive difficulty, ambulatory difficulty, self-care difficulty, and independent living difficulty.

Exhibit 4.6 shows the estimated population age 65+ as of 2020. The estimates indicate there are 17,610 residents age 65+ in the study region. The range varies from a low of 23 to a high of 1,877 residents age 65+ per zip code.

Exhibit 4.6
Population Age 65+ (2020 Estimates)



Source: CHS analysis of estimates provided by ESRI.

Appendix A: Data Sources

Profile	Source
Section 1. Insights from Community Residents	Community Health Solutions analysis of Community Insight survey responses submitted by community residents conducted in February-April 2021.
Section 2. Insights from Community Professionals	Community Health Solutions analysis of Community Insight survey responses submitted by community professionals conducted in February-April 2021.
Section 3. Community Indicator Profiles	
A. Community Demographics	Community Health Solutions analysis of demographic estimates from ESRI. (2020 and 2025).
B. Social Determinants of Health	Community Health Solutions analysis of data from ESRI (2019 and 2020).
C. Health Risk Behaviors for Adults	Estimates of chronic disease and risk behaviors for adults 18+ were produced by Community Health Solutions using: ☐ Data from the Virginia Behavioral Risk Factor Surveillance System (2018/2019) ☐ Local demographic estimates from ESRI (2020). 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. Local health district and statewide rates were used to render estimates at the zip code level. Therefore, direct comparisons of local estimates with state estimates are not recommended. Because of data limitations, it is not possible to assign specific margins of error or levels of significance to these statistical estimates.
D. Health Risk Behaviors for Youth	Estimates of chronic disease and risk behaviors for high school youth age 14-19 were produced by Community Health Solutions using: ☐ Data from the Virginia Youth Risk Behavioral Surveillance System from the Centers for Disease Control (2019). https://www.vdh.virginia.gov/content/uploads/sites/69/2020/06/2019VAH-Summary-Tables.pdf ☐ Local demographic estimates from ESRI (2020). 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. Local health district and statewide rates were used to render estimates at the zip code level. Therefore, direct comparisons of local estimates with state estimates are not recommended. Because of data limitations, it is not possible to assign specific margins of error or levels of significance to these statistical estimates.
E. Access to Health Care-Uninsured Population	Community Health Solutions analysis of demographic estimates from US Census Bureau (2019). Differences between local rates and state rates may reflect estimation error rather than valid differences. Therefore, direct comparisons of local estimates with state estimates are not recommended. These data may reflect conservative estimates of health coverage for 2019. Readers are encouraged to review current data on Medicaid Expansion enrollment that which updated on a regular basis. Click here view the Department of Medical Assistance Services Medicaid Expansion Access Dashboard.
Access to Health Care-Medically Underserved Areas/Populations	Community Health Solutions analysis of U.S. Health Resources and Services Administration data. For more information, visit: https://data.hrsa.gov/tools/shortage-area/mua-find

Profile	Source
F. Leading Causes of Death	Data were obtained from the Virginia Department of Health (2019)
G. Maternal and Infant Health	Data were obtained from the Virginia Department of Health (2019)
H. Injury and Violence-Hospitalization	Community Health Solutions analysis of hospital discharge data from the Virginia Health Information (VHI) 2018 dataset and demographic estimates from ESRI (2018). Data include discharges for Virginia residents from Virginia hospitals reporting to Virginia Health Information, Inc. The analysis includes records of discharges of Virginia residents from Virginia hospitals excluding state and federal facilities. Data reported are based on the patient's primary diagnosis. Injury and Violence definitions were developed using coding methodology from the Healthcare Cost and Utilization Project (HCUP) Clinical Classifications Software Refined (CCSR) for International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)-coded diagnoses https://www.hcup-us.ahrq.gov/toolssoftware/ccsr/DXCCSR-User-Guide.pdf 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. Potentially Avoidable Hospitalizations	Community Health Solutions analysis of hospital discharge data from the Virginia Health Information (VHI) 2019 dataset and demographic estimates from ESRI (2020). Data include discharges for Virginia residents from Virginia hospitals reporting to Virginia Health Information, Inc.) The analysis includes records of discharges of Virginia residents from Virginia hospitals excluding state and federal facilities. Data reported are based on the patient's primary diagnosis. Potentially Avoidable Hospitalizations-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 four diabetes related PQI indicators which have been combined into one for the report. For more information, visit the AHRQ website at http://www.qualityindicators.ahrq.gov/modules/pqi_overview.aspx 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.

Profile	Source
J. Mental Health and Substance Use: Hospitalizations	Community Health Solutions analysis of hospital discharge data from the Virginia Health Information (VHI) 2019 dataset and demographic estimates from ESRI (2020). Data include discharges for Virginia residents from Virginia hospitals reporting to Virginia Health Information, Inc.) The analysis includes records of discharges of Virginia residents from Virginia hospitals excluding state and federal facilities. Data reported are based on the patient's primary diagnosis. 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.
Section 4. Social Determinants of Health	Community Health Solutions analysis of Community Insight survey responses submitted by community residents conducted in February-April 2021. Community Health Solutions analysis of demographic estimates from ESRI. (2020).