Primary Care Needs Assessment

Contents

Introduction

Primary Care as a Pillar for Virginia's Healthy, Connected Communities

Virginia consistently ranks among the top states in a variety of economic indicators; yet, in the realm of health outcomes, Virginia ranks in the middle of the pack. Virginia is working hard to improve its health system, the care it delivers, and the opportunity its citizens have to live long and healthy lives. Over the past few years Virginia has risen to 23rd from 26th among the fifty states and the District of Columbia in the Commonwealth Fund's Health System Scorecard.[i] Despite these improvements, Virginia still has a long way to go to achieve its goal of becoming the healthiest state in the nation.

Virginia's Primary Care Office (PCO) supports this goal by assuring the availability of quality health care to low income, uninsured, isolated, vulnerable and special needs populations and supports services that meet these populations' unique health care needs. Virginia's PCO does this by:

- Fostering collaboration across and within various levels of government, communities, and non-profit organizations,
- Identifying communities with the greatest unmet health care needs, disparities and health workforce shortages; identifying the key barriers to access to health care for these communities; and working toward solutions,
- Supporting the Virginia Community Healthcare Association [Virginia's Primary Care Association (PCA)] by providing information to assist in their development of a plan to manage the growth of health centers in Virginia, and,
- Supporting and enhancing the primary care workforce in the state through shortage designations, recruitment and retention activities, and administration of scholarships and loan repayment programs.

The Commonwealth Fund Scorecard

Virginia's Scores:

Overall Rank: 23

Access: 19
Prevention/Treatment: 21
Avoidable Use/Cost: 28
Healthy Lives: 20
Equity: 24
2010 Baseline Rank: 26

Each year The Commonwealth Fund releases its State Health System Scorecard. Virginia ranks near the middle of the pack overall, among the five separate dimensions, and among most of the Scorecard's 42 indicators. Visit the Commonwealth Fund for more information.

The *Virginia Primary Care Needs Assessment* is being produced in accordance with *Virginia's Plan for Well-Being.* The Plan lays out 13 priority goals, organized into four aims, that address issues significantly impacting the health and well-being of the people of Virginia and provides a framework to guide the development of projects, programs, and policies to advance Virginia's health. The Plan is itself a companion to Virginia's 2016 State Innovation Model Health Improvement Plan, which calls for Accountable Care Communities in Virginia to achieve the triple aim in health care: improving health care quality; improving the health of populations; and reducing the per capita cost of health care. [ii]

Virginia's Plan for Well-Being: Aims & Goals

AIM 1 » Healthy, Connected Communities
  GOAL 1.1 Virginia's Families Maintain Economic Stability
  GOAL 1.2 Virginia's Communities Collaborate to Improve the Population's Health
AIM 2 » Strong Start for Children
  GOAL 2.1 Virginians Plan Their Pregnancies
  GOAL 2.2 Virginia's Children are Prepared to Succeed in Kindergarten
  GOAL 2.3 The Racial Disparity in Virginia's Infant Mortality Rate is Eliminated
AIM 3 » Preventive Actions
  GOAL 3.1 Virginians Follow a Healthy Diet and Live Actively
  GOAL 3.2 Virginia Prevents Nicotine Dependency
  GOAL 3.3 Virginians Are Protected Against Vaccine-Preventable Diseases
  GOAL 3.4 In Virginia, Cancers Are Prevented or Diagnosed at the Earliest Stage
    Possible
  GOAL 3.5 Virginians Have Lifelong Wellness
AIM 4 » System of Health Care
  GOAL 4.1 Virginia Has a Strong Primary Care System Linked to Behavioral Health
    Care, Oral Health Care, and Community Support Systems
  GOAL 4.2 Virginia's Health IT System Connects People, Services and Information to
    Support Optimal Health Outcomes
  GOAL 4.3 Health Care-Associated Infections in Virginia are Prevented and Controlled

Goal 4.1 explicitly recognizes a strong primary care system, integrated across the spectrum of care, as a pillar that supports health and well-being in communities throughout the Commonwealth. Additionally, the Virginia PCO's mission of fostering collaboration, identifying vulnerable populations, and removing barriers to care is intertwined throughout this community-centric plan.

Challenges

Virginia's Primary Care System has an important role to play if Virginia is to become the healthiest state in the nation. Yet it faces a number of challenges to meeting this goal. Virginia's population, including its health provider population, is aging. Virginia's health system is changing in response to growing concerns with cost from patients, employers and policy-makers. Policy choices at the state and federal level are decreasing revenue available to support Virginia's primary care and safety net systems.

Virginia's Aging Population[iii]

Virginia's population is growing older. According to population projections from UVA's Weldon Cooper Center, Virginia's senior population will increase by almost 75% by 2040 while the population over age 85 will more than double. This will have a large impact on Virginia's primary care system and its health workforce. The Institute of Medicine estimates that although persons over age 65 made up only

Virginia's Senior Population[iv]		
	65+	85+
2013	1,105,381	135,747
2040	1,904,270	282,229

12% of the US population in 2008, they accounted for 26% of physician office visits, 35% of hospital stays, 38% of prescription, 38% of EMS calls and 90% of nursing-home use.[v] Success in supporting a growing senior population requires a workforce: a) of sufficient size and productivity, b) that is accessible in the areas where seniors live, and c) trained to meet the needs of the senior community, including both medical needs and supporting services that improve quality of life and continuity of care, such as aging in place and community-based care.

Figure 1: Virginia Population Projections. This graphic shows the changing age structure of Virginia's population. Note the large increases in the 65+ population expected by 2020 & 2040.
Source: Weldon Cooper Center StatCh@t http://statchatva.org/2012/11/20/population-aging-and-growing-dependency/

However, not all areas of Virginia are aging at the same rate. The median age of many of Virginia's urban and suburban areas is stable--or even declining in urban centers. Rural areas, on the other hand are seeing their populations age rapidly.
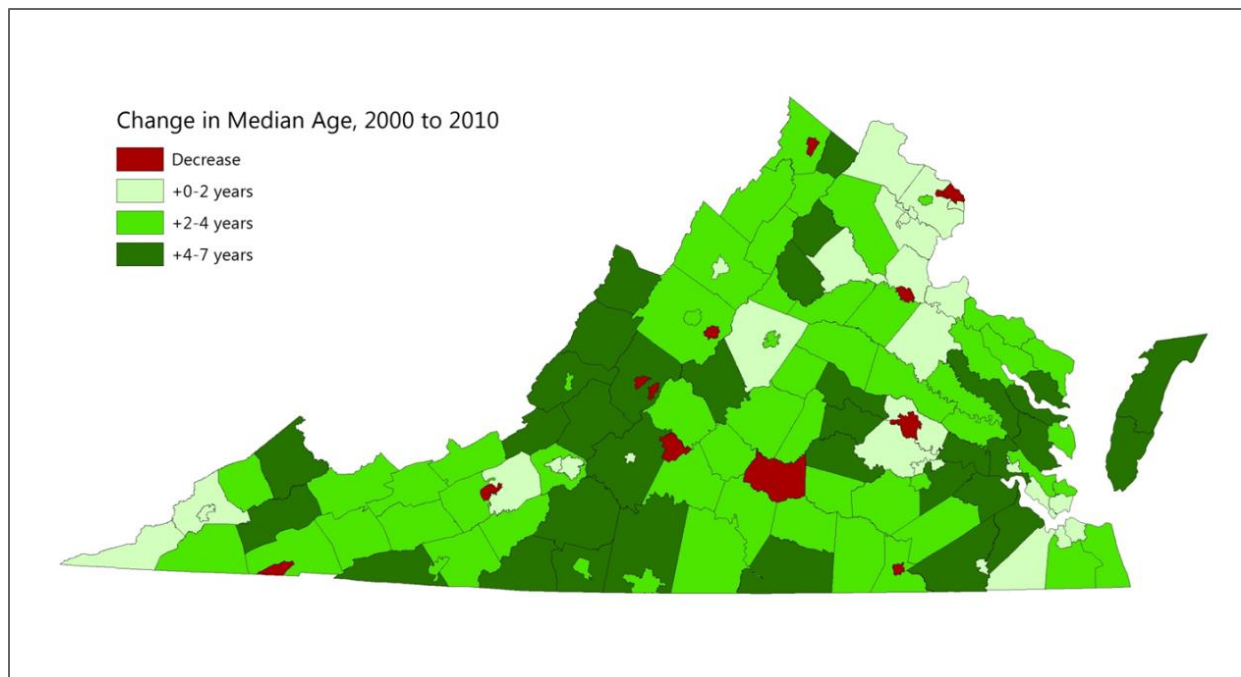
Figure 2: Distribution of Population Age Shifts. Median age in many of Virginia's suburban and urban cities and counties are stable or declining populations in rural areas are aging rapidly.
Source: Luke Juday on StatCh@t, Weldon Cooper Center (http://statchatva.org/2014/08/27/virginia-retirees-headed-for-the-nearby-hills/)

An aging population has a two-fold effect on Virginia's ability to maintain a robust primary care workforce. The first is the increased demand for health services overall, including in primary care, noted above. The second is a shrinking working age population. A large portion of Virginia's physicians, dentists and clinical psychologists are approaching retirement age. According to the latest reports from the Virginia Department of Health Professions' Healthcare Workforce Data Center, 39 percent of physicians, 40 percent of dentists and 44 percent of clinical psychologists are age 55 an over.[vi] These will be more difficult to replace as the working age population shrinks in proportion to the senior population.
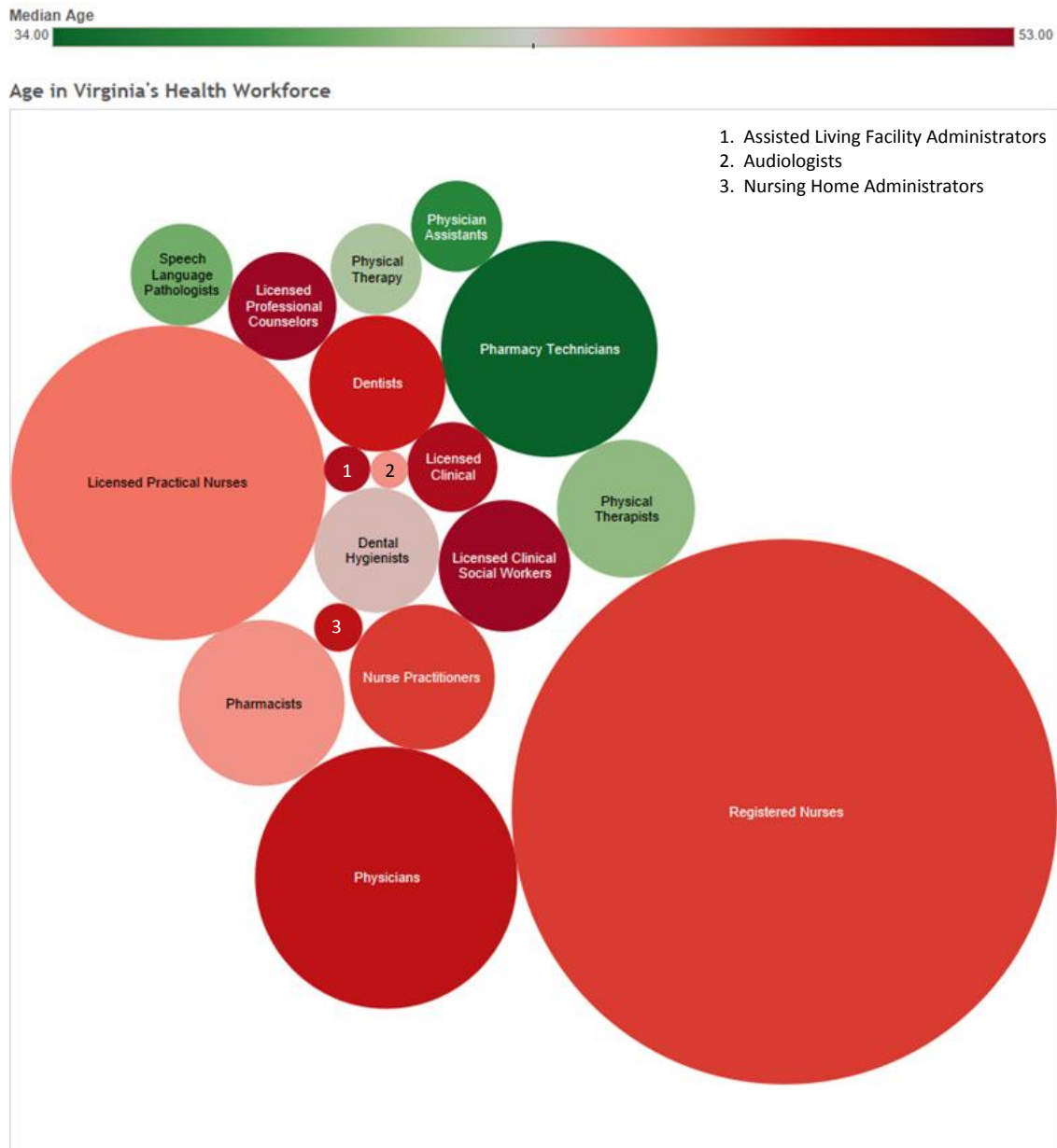
Figure 3: **Median Ages Among Virginia's Health Workforce.** Bubbles are sized by the number of providers and colored by median age. Note that many highly trained professional populations, such as physicians and dentists, are older, while populations of mid-level providers such as physician assistants and dental hygienists tend to be younger. Clinical mental health provider populations are among the oldest.

Source: Virginia Department of Health Professions Healthcare Workforce Data Center.

A Shifting Healthcare Landscape

Policy-makers and organizations have responded to demographic pressure (and cost pressure) in a variety of ways. Educational institutions have responded by increasing, where they can, health professions class sizes. In efforts accelerated by the Affordable Care Act, health systems are emphasizing efficiency in operations across the care spectrum. Closely related to this, health systems are increasingly adopting population health and community-based care models.

Shifting Health Professions Mix

Many educational and training institutions have responded to projected shortages of health workers by expanding health programs. However, programs vary in how quickly they can expand programs. Training for physicians and dentists, for instance, are expensive, require extensive clinical opportunities and infrastructure, long lead times to develop (followed by long training times for students) and entail large risks if students do not enroll. Relatively speaking, physician assistant, nurse practitioner and dental hygienist programs were able to expand rapidly. In Virginia, 58% of physician assistants are under the age of 40, while over half of nurse practitioners have entered the workforce in just the past 15 years.[vii] The result is that many mid-level and allied health providers

| Projections from the National Center for Health Workforce Analysis http://bhpr.hrsa.gov/healthworkforce/				
	National	% of Workforce	Virginia	% of Workforce
Primary Care (2020)				
Primary Care Physicians	-20,400	-9%	NA	NA
Primary Care Physician Assistants	+11,200	+25%	NA	NA
Primary Care Nurse Practitioners	+7,400	+10%	NA	NA
Direct Access Professionals (2025)				
Optometrists	+2,200	+5%	NA	NA
Pharmacists	+48,900	+14%	NA	NA
Podiatrists	+1,500	+10%	NA	NA
Oral Health (2025)				
Dentists	-15,600	-8%	-230	-4%
Dental Hygienists	+28,100	+14%	+642	+13%
Rehabilitation Therapy (2025)				
Chiropractors	+8,100	+11%	NA	NA
Occupational Therapists	+22,300	+18%	NA	NA
Physical Therapists	+19,100	+8%	NA	NA
Behavioral Health				
Psychologists	-20,600	-11%	NA	NA
Nursing & Allied Health (2025)				
Registered Nurses	+340,000	+9%	+19,400	+18%
Licensed Practical Nurses	+59,000	+6%	+4,480	+13%
Dieticians & Nutritionists	+10,400	+11%	NA	NA
Respiratory Therapists	+51,900	+29%	NA	NA

are ready to fill the workforce holes left by physicians and dentists, at least in the short term. HRSA, for instance, projects a national shortage of primary care physicians by 2020, but large surpluses of physician assistants and nurse practitioners *at current usage levels* (see table). New and innovative ways of safely leveraging the non-physician workforce are required to take advantage of the current workforce structure.[viii]

The American Association of Medical Colleges (AAMC) has committed to increasing the number of medical school graduates by 30 percent above 2002 levels, and are well on the way to meeting that goal.[ix] The number of residency slots has increased by a similar amount.[x] Despite this and expected surpluses in many professions, readers should keep in mind the projections only go to 2025. The aging baby boomer generation should continue to grow demand for health workers well beyond 2025. Boomers will also continue retire from the health workforce, reducing supply just as demand increases. These short-term projections highlight areas of concern. They also provide an indication of the mix of health workers that will be available to meet growing demand. Leveraging this mix requires new models of team-based care, including education, technology and infrastructure to support them.

Shifting Health System Mix

Catching up with a trend that has encompassed most of the United States,[xi] the HealthCare and Social Assistance sector became Virginia's largest employer in 2015.[xii] But the health workforce is not just changing in size, it is changing where and how it serves patients. The mix of jobs continues to shift within the Health Care & Social Assistance sector. While Ambulatory Services has long been the
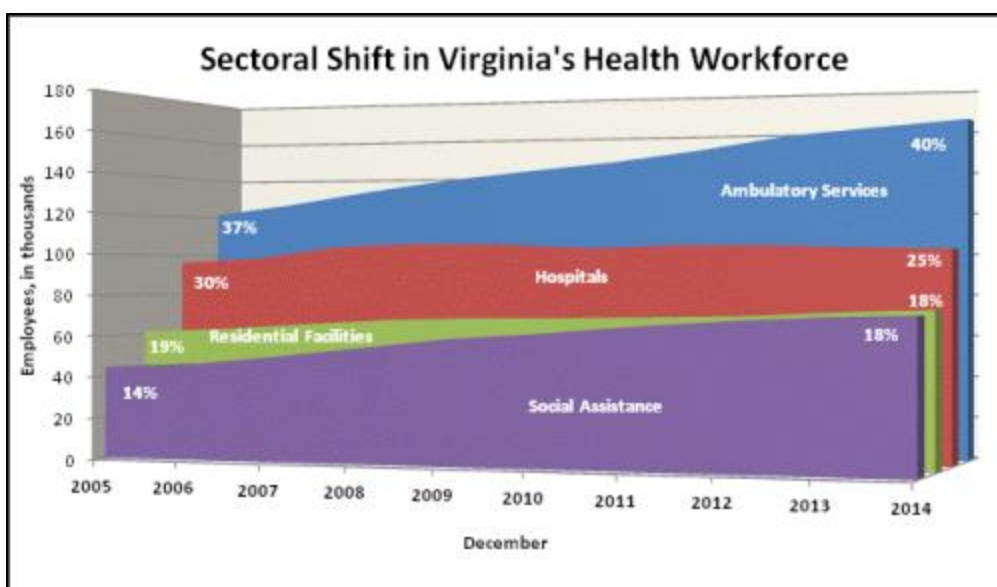
Figure 4: Virginia Changing Health Industry Landscape. This chart tracks changes in Virginia's health workforce from 2005 to 2014. While employment has grown overall, Ambulatory Services and Social Assistance have been gaining employment share, mostly at the expense of the Hospital sector.

Source: Virginia Healthcare Workforce Data Center. http://vahwdc.tumblr.com/post/116296276497/5-years-5-charts-virginias-health-workforce

sector's largest employer, it has gained share over the past 10 years. Social Assistance has been growing rapidly, reaching parity with Nursing Homes & Residential Facilities. However, the most notable shift has been away from Hospitals, which has seen its share of Health jobs shrink from 30% in 2005 to 25% in 2014. Virginia's hospitals have lost jobs in four of the past five calendar years. However, many hospital

jobs may have been reclassified into other sectors, including ambulatory services and social assistance, as hospitals themselves have adopted community-based approaches to serving patients.

The causes of this shift are varied and up for debate but regardless of the reasons for the shift, hospitals are seeing their central role reduced in favor of health systems that reach people in their communities and even their homes. As with the demographic structure of the workforce, the changing structure of the health system suggests a shifting mix of providers, changing provider roles, and a need for education, technology and infrastructure to facilitate new roles.

Challenging Policy Environment

These shifts are occurring in a challenging policy environment. Virginia is one of 19 states that have not adopted Medicaid expansion as of the date of this publication. Whether or not this is the right choice for the Commonwealth it directly affects the resources available to provide health care to vulnerable Virginians. According to a joint study by the Robert Woods Johnson Foundation and the Urban Institute, Virginia will forgo $14.7 billion in Federal Medicaid funding over the ten-year period from 2013 to 2022, or $1.47 billion per year.   Additionally, Virginia is slated to lose $6.2 billion over ten years in federal hospital reimbursement as part of the Affordable Care Act[xiii]—a gap supposed to be filled by increased Medicaid funding.

This loss of federal matching funds comes at a time when Virginia's economy is already absorbing the impact of reduced federal spending. Due to the large military and federal presence in Hampton Roads and Northern Virginia, Virginia's economy is disproportionately linked to Federal spending. [xiv]   Economic Forecasts for Virginia's 2014-2016 Biennial Budget noted that "while Virginia's higher-than-average dependence on federal spending helped Virginia weather the [2007-2009] recession, in FY 2014 it was a liability stemming from federal spending reductions…".[xv]   Revenue forecasts in the 2016-2018 Virginia Executive Budget Document note that the "general fund revenue forecast for FY 2016 through FY 2018 includes slightly below-trend growth that appears to be the new norm for Virginia's economy." [xvi]

Combined, these factors limit the amount of funding available to reduce existing and growing demands on Virginia's primary care system, and to fund improvements in system performance.

The Virginia Statewide Needs Assessment

Within the past year, Virginia's Primary Care Office has experienced extensive, management level turnover. This included a new Primary Care Officer (Heather Anderson) and Data & Designations division manager (Justin Crow). Although new staff has hit the ground running, the turnover represents a huge loss of institutional knowledge and network development. Thus the needs assessment provides a tremendous opportunity for both new and existing PCO staff to gain extensive knowledge of Virginia's primary care system, its strengths and its gaps.

Virginia's Primary Care Office is fortunate to be placed within the same administrative unit as Virginia's State Office of Rural Health and State Office of Minority Health.   Combined, these grant-funded offices make up the Virginia Department of Health's Office of Health Equity and share its mission "to identify

health inequities and their root causes and promote equitable opportunities to be healthy".   This needs assessment will begin by examining the multiple ways Virginia's PCO identifies vulnerable populations and areas of need, and identifies high priority target areas within the state. It will outline our efforts to increase the capacity of Virginia's primary care system through recruitment and retention, increasing capacity and other efforts. In both cases it will identify barriers to meeting these goals and our plans to overcome these barriers.

Identifying Vulnerable Populations

Virginia's Primary Care Office uses a variety of sources to identify shortage areas throughout the state. These include stakeholder input, Federal shortage area designations, identifying vulnerable populations and community health assessments performed by Virginia's Local Health Districts.

Stakeholder Input

Virginia's Primary Care Office holds regular meetings with community stakeholders. Virginia's last stakeholder meeting, meant to provide input on conducting the statewide needs assessment, was held on November 3, 2015. Representatives of the following organizations participated in the all-day session:

Agency Name	Stakeholder type
Virginia Community Healthcare Association	Primary Care Association
Virginia State Office of Rural Health	State Office of Rural Health
Association of free and charitable clinics	Volunteer/faith based or civic organization
Virginia Hospital & Healthcare Association	Community hospitals
Virginia Oral Health Coalition	Oral Health
Virginia Health Care Foundation	Match for SLRP funds
Southwest Virginia Health Authority	Workforce for the underserved
Virginia Dept. of Behavioral Health and developmental services	Mental and Behavioral Health
Virginia Department of Health Professions	Professional Licensure/Health Workforce
Capital AHEC	Area Health Education Center
Eastern Virginia Medical School/Eastern Region AHEC	Medical School/AHEC

This session provided stakeholders with an opportunity to meet Virginia's new primary care officer and other staff, and to discuss goals and priorities for Virginia's primary care office. One of the outcomes of this meeting was a discussion of regions in the state that have persistent difficulty recruiting health

providers. Thomas Gaskins, the Director of Clinical Recruitment Services for Virginia's Primary Care Association, provided the following list of *Persistent Recruiting Challenge Areas (PRCAs)*:

Lenowisco Health District Bland County Clinch River Valley Smyth County Tazewell County Washington County Brunswick County Highland County	Carroll County Patrick County Henry County Buchanan County Dickenson County Wise County City of Emporia	Lee County Scott County Russell County Giles County Southside Richmond Lunenburg County Charlotte County

The Persistent Recruiting Challenge Areas are highlighted in red in maps throughout this document.

Current Shortage Areas

The Virginia PCO's most important method of directing primary care resources is through federal shortage area designations. These include federally-designated Health Professional Shortage Areas (HPSAs) and Medically Underserved Areas (MUAs).
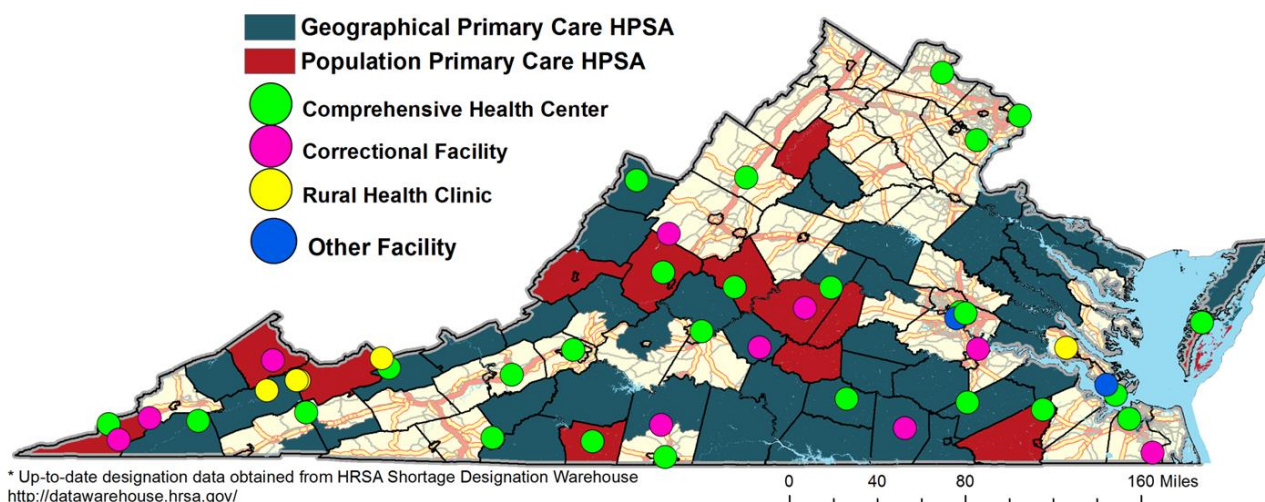
Health Professional Shortage Areas (HPSAs)

HPSAs are Federally designated shortage areas used as a reference for a variety of Federal programs including:

- National Health Service Corps scholarships and loan repayment programs
- Medicare Incentive Program bonus payments
- Certified Rural Health Clinic designation
- Conrad 30 and Appalachian Regional Commission J-1 Visa Waiver programs

HPSAs may refer to a geographic area, a specific population (e.g, low income, Medicaid), or to a specific facility (e.g., correctional facility, state or county mental health hospital, health center). HPSAs may refer to primary care professions, mental health professions, or dental health professions. Currently, Virginia has 247 individual designations in place, including 100 primary care HPSAs, 85 dental HPSAs and 62 mental HPSAs (see table). In total, 1,393,361 of 8,382,993 Virginians lived in areas designated as primary care shortage areas, 1,871,356 in dental HPSAs and 2,233,657 in mental HPSAs. Virginia needs an additional 104.1 primary care physician FTEs, 118.3 dentist FTEs and 24.4 psychiatrists FTEs—perfectly distributed—to remove all shortage designations. Maps of Virginia's HPSA areas appear on the following pages.

HPSA Geography Type	Primary Care HPSA	Dental HPSA	Mental HPSA
Comprehensive Health Center	26	26	26
Correctional Facility	10	4	15
HPSA Geographic	30	10	6
HPSA Geographic High Needs	15	9	10
HPSA Population	12	35	4
Other Facility	2	0	0
Rural Health Clinic	5	1	1
Total # of Designation	100	85	62

Virginia Primary Care Professional * Shortage Areas (HPSA) **

Legend:
- Geographical Primary Care HPSA
- Population Primary Care HPSA
- Comprehensive Health Center
- Correctional Facility
- Rural Health Clinic
- Other Facility

0   40   80   160 Miles

* Up-to-date designation data obtained from HRSA Shortage Designation Warehouse
http://datawarehouse.hrsa.gov/

** Health Professional Shortage Areas (HPSAs) are designated by HRSA as having shortages of primary care and may be geographic (a county or service area), demographic (low income population) or institutional (comprehensive health center, federally qualified health center or other public facility).
The Dark blue color on the map shows the HRSA shortage area of county or service area (Geographic) for primary care while the Red color shows the Low-income population areas (Population).

Virginia Dental Health Professional * Shortage Areas (HPSA) **

Legend:
- Geographical Dental HPSA
- Population Dental HPSA
- Comprehensive Health Center
- Correctional Facility
- Rural Health Clinic

0   40   80   160 Miles

* Up-to-date designation data obtained from HRSA Shortage Designation Warehouse
http://datawarehouse.hrsa.gov/
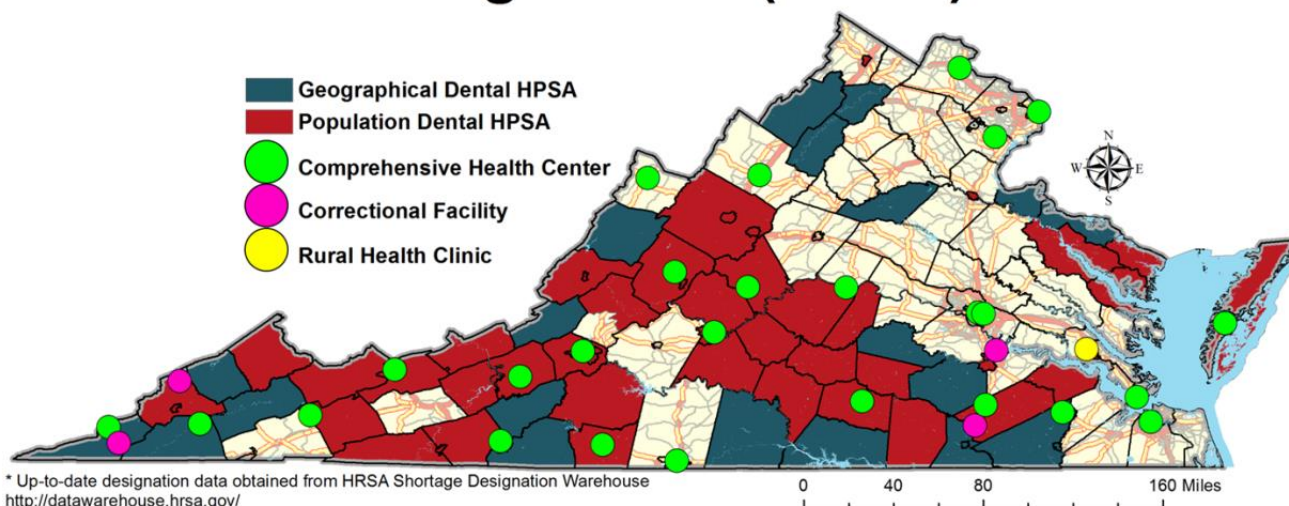
** Health Professional Shortage Areas (HPSAs) are designated by HRSA as having shortages of dental care and may be geographic (a county or service area), demographic (low income population) or institutional (comprehensive health center, federally qualified health center or other public facility).
The Dark blue color on the map shows the HRSA shortage area of county or service area (Geographic) for dental care while the Red color shows the Low-income population areas (Population).
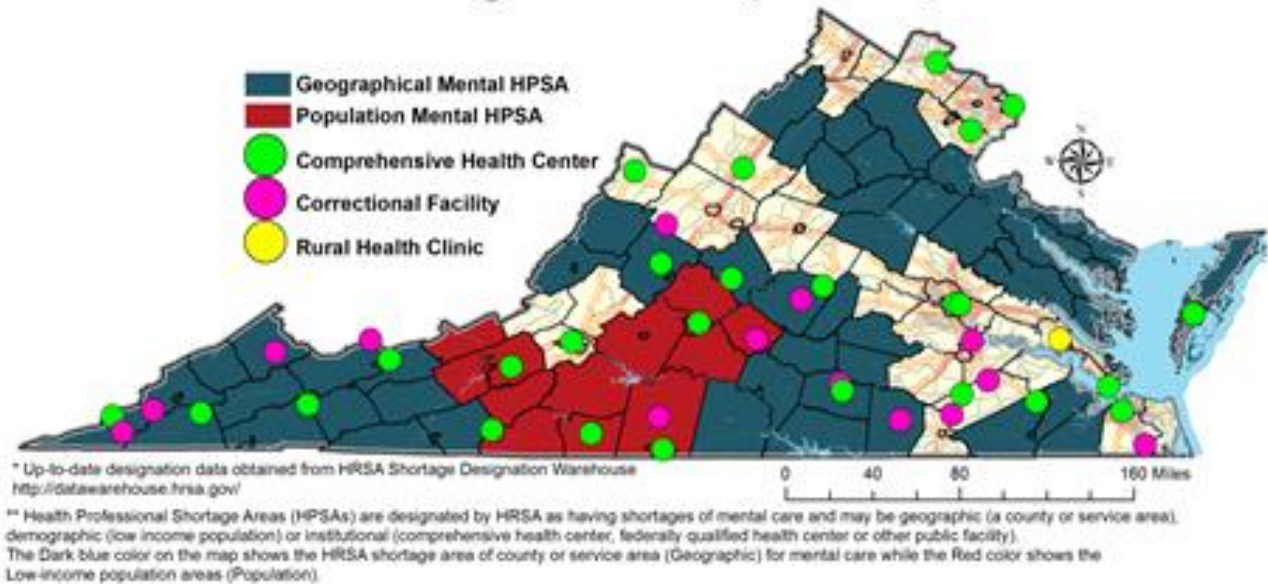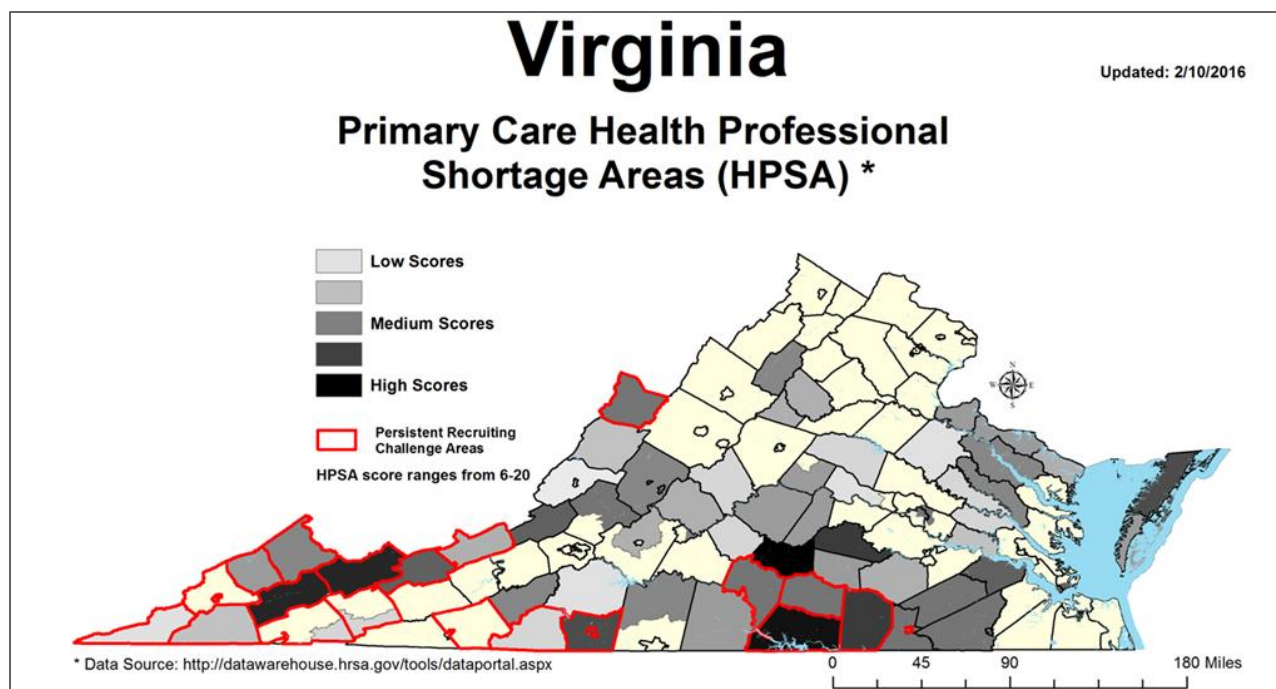
Virginia Mental Health Professional * Shortage Areas (HPSA) **

Primary Care HPSAs are assigned scores ranging from 0 to 26, with zero being no shortage and 26 being the highest possible shortage. HPSA scores are determined mostly by population-to-provider ratios, but other factors such as poverty level, infant health and the accessibility of providers outside of the HPSA also play a role. Virginia's primary care HPSAs, colored by score, are mapped on the next page.

Some programs (but not all) that reference HPSAs use the score as an eligibility threshold or priority ranking. The National Health Service Corps Loan Repayment Program, for instance, provides higher reimbursement to participants working in areas or facilities with a score of 14 or higher. The NHSC also uses HPSA scores to prioritize applicants.

National Health Service Corps Loan Repayment Program: Benefits		
Commitment	2-Years, full-time	2-Years half-time
HPSA Score 14 or higher	Up to $50,000	Up to $25,000
HPSA Score 13 or lower	Up to $30,000	Up to $15,000

Virginia

Updated: 2/10/2016

Primary Care Health Professional Shortage Areas (HPSA) *

Low Scores
Medium Scores
High Scores
Persistent Recruiting Challenge Areas

HPSA score ranges from 6-20

* Data Source: http://datawarehouse.hrsa.gov/tools/dataportal.aspx

0   45   90   180 Miles

Primary Care HPSA's capture most of the areas Virginia's Primary Care Association identified as PRCAs. Some areas of Southwest Virginia, however, are not currently designated as Primary Care HPSAs or have low HPSA scores. Stakeholders note that distance and drive time calculations used to identify HPSAs may be inaccurate due to the mountainous terrain.

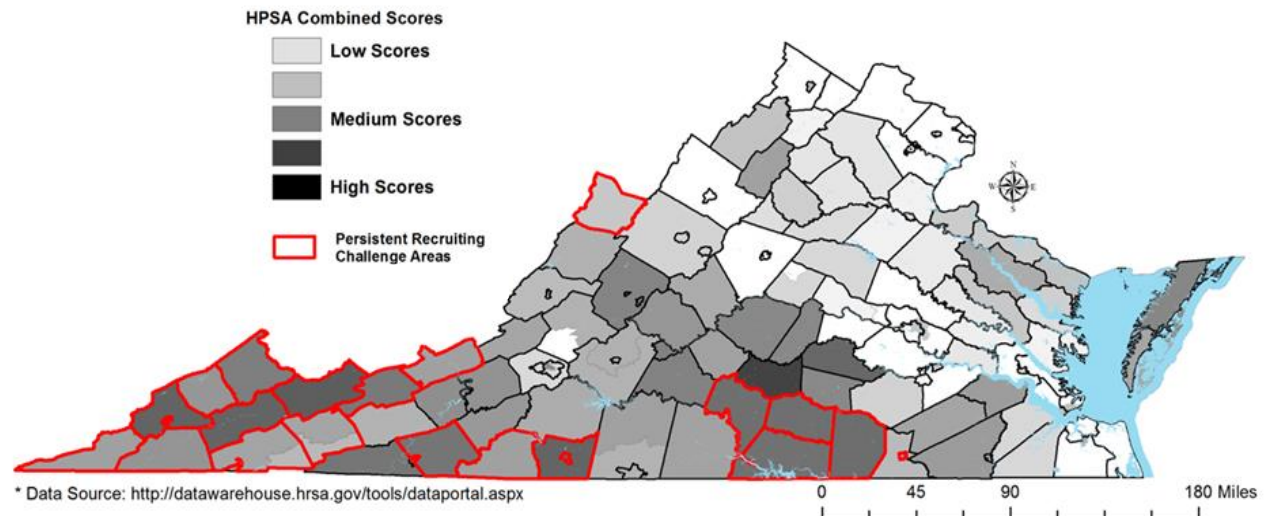*Overlapping HPSA's (Primary Care, Dental, Mental)*

Many areas of the state with shortages in one professional domain also suffer from shortages in other professional domains. These overlapping shortage areas compound difficulties residents have in accessing providers and maintaining their health. For instance, research indicates that poor oral health can exacerbate a variety of chronic health conditions managed by primary care physicians, including diabetes and heart disease, as well as premature birth and low birth weight in pregnant women.[xvii] Additionally, offices and facilities in areas with overlapping shortages may have difficulty implementing integrated care programs as they may struggle to recruit providers from the multiple professions required. The map on the next page shows the sum of HPSA score for all designations in the area.

Virginia

Overlapping Shortage Areas

* Data Source: http://datawarehouse.hrsa.gov/tools/dataportal.aspx

Demographics of Virginia's HPSAs

HPSA Geography Type	Virginia	Primary Care HPSA	Dental HPSA	Mental HPSA
Socioeconomic Indicators				
Poverty (Total Population)	11.5%	18.7%	17.5%	15.1%
Children (Under 18)	15.2%	27.0%	23.5%	19.9%
Uninsured	12.1%	14.5%	13.4%	12.7%
Less than High School Education	11.6%	19.4%	17.4%	16.3%
Unemployment	6.9%	5.5%	4.7%	4.7%
Demographics				
White Population	71.9%	67.3%	79.5%	79.1%
Black Population	20.8%	29.2%	16.4%	16.2%
Other	7.3%	3.5%	4.1%	4.7%

Facilities

Several types of facilities may also be designated as HPSAs, including some facilities that are automatically designated. Safety net facilities such as Federally Qualified Health Centers (FQHC) and Rural Health Clinics (RHC) are prominent members of this group, which also includes Federal & State Prisons, State Mental Health Hospitals and other non-profit and public facilities.

Virginia's Safety Net

Virginia's safety net is an essential part of Virginia's primary care system, serving uninsured, underserved and other vulnerable populations, both within and outside of geographic and population HPSAs. Although a variety of facilities, including hospitals, local health districts, independent providers, and others, support primary care in Virginia, Virginia's PCO works most closely with FQHCs, RHCs and Virginia's Free Clinics (Virginia does not have any FQHC Look-A-Likes). Among these, Free Clinics are not auto-HPSAs.
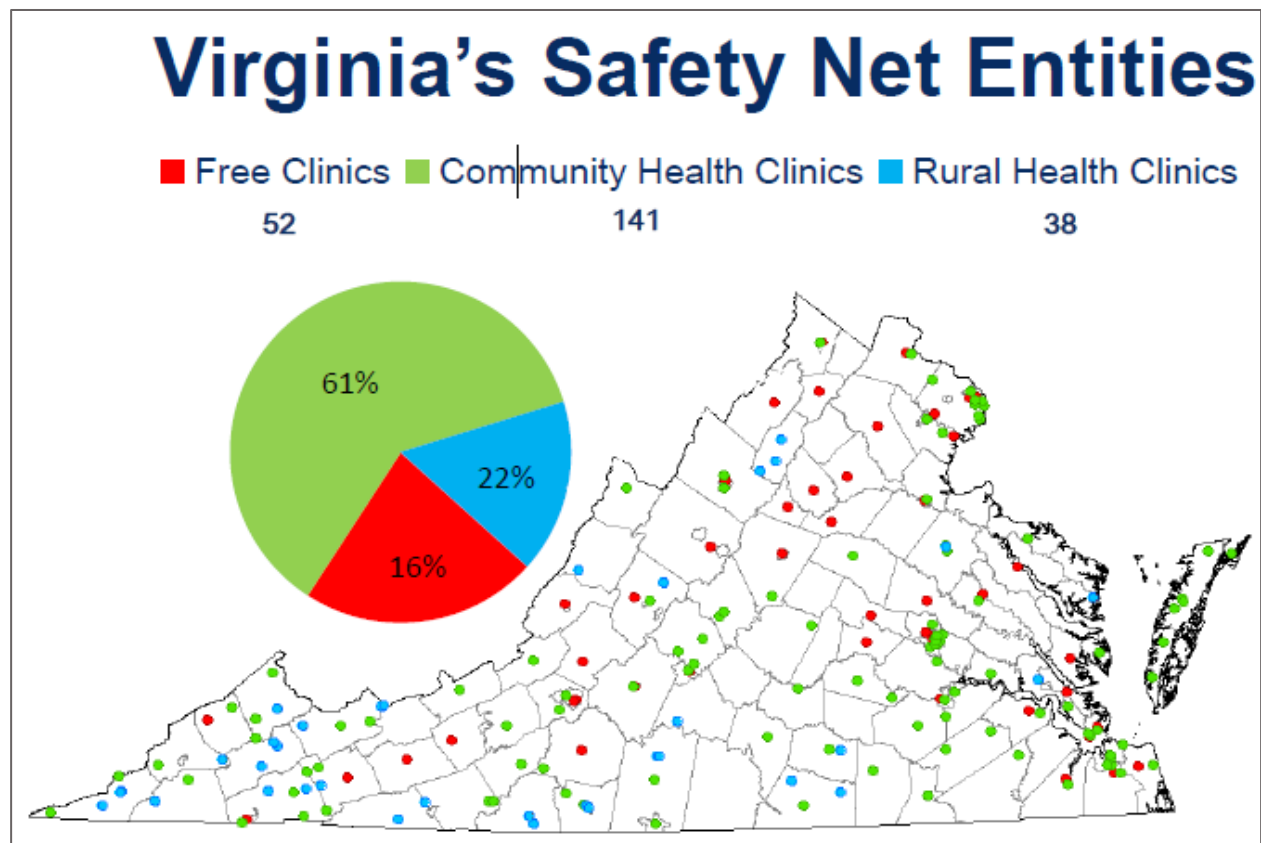
Many of Virginia's auto-HPSA scores have not been updated in over a decade, while few Free Clinics are currently designated as "other facilities" (see below). Virginia has made a renewed effort to update these scores and increase the number of Free Clinics designated by application, focusing first on PCRAs.

The PCO has, for instance, updated scores for Southwest Virginia Community Health Systems, Inc. and Stone Mountain Health Services, both of which operate multiple facilities in Southwest Virginia.

Consistently measuring the access to safety net services is a key goal of Virginia's PCO. A study conducted by graduate students from Virginia Commonwealth University's L. Douglas Wilder School of Government and Public Affairs on behalf of Virginia's PCO found that safety net facilities collected key data. However, Virginia's FQHCs collected data at the organization level rather than the site level, making it difficult to precisely measure access. Organization-level data collection is driven by the Uniform Data System (UDS) which requires organization-level data submissions.[xviii]

Correctional Facilities

Virginia's PCO has also expanded its effort to designate Virginia's Federal & State correctional facilities. Currently, 10 facilities have primary care designations, four dental and 15 mental health. Of special note, however, are Virginia's Juvenile Correctional Centers (JCCs). Stakeholders from the Virginia Department of Juvenile Justice have contacted the Virginia PCO on multiple occasions due to difficulty recruiting health providers. Virginia's two state JCCs, however, each only have about 170 inmates, short of the 250 threshold needed to qualify for a HPSA designation. This is a persistent and insurmountable barrier to providing care to this vulnerable population.[xix]

Chronic Shortage Areas

Several areas currently designated as primary care HPSAs were first designated decades ago. This includes eight localities designated in the 1970s, six in the 1980s and eight in the 1990s.These represent areas of persistent need in Virginia.
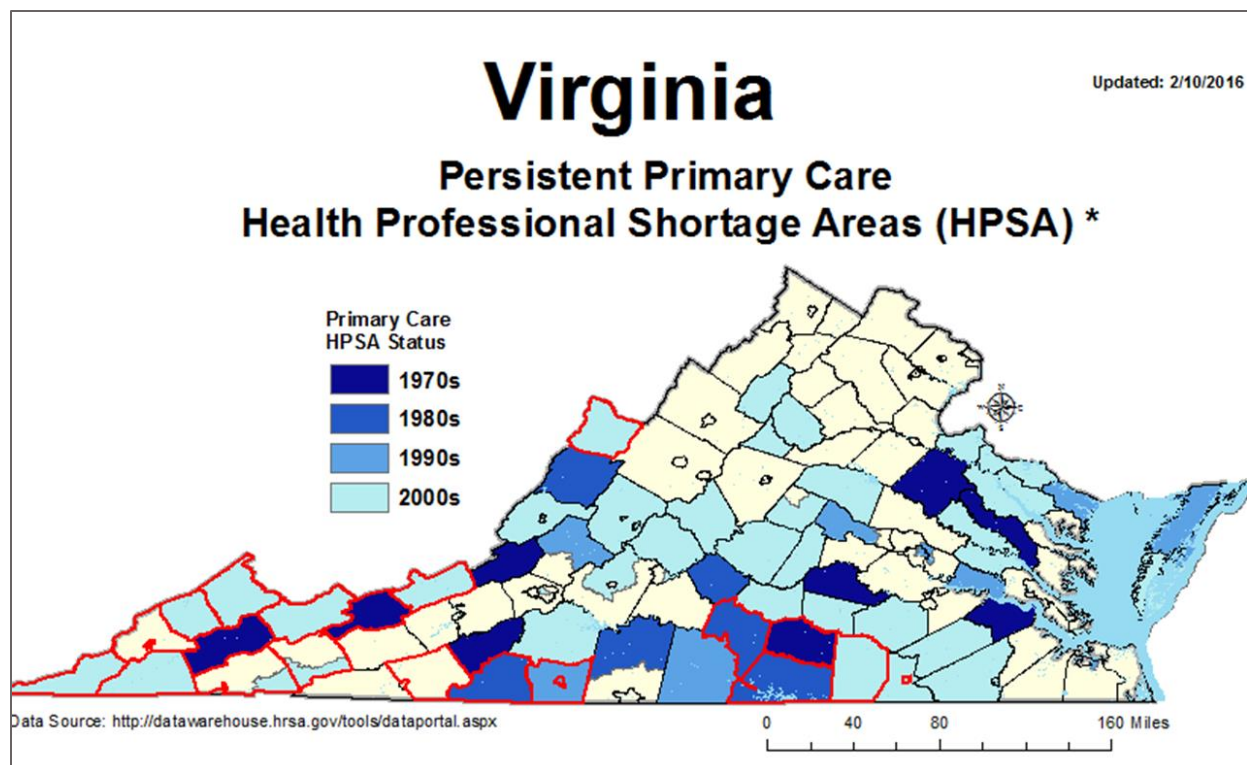
Medically Underserved Areas/Populations

Medically Underserved Areas/Populations (MUA/P) are a separate Federal shortage designation. MUA/Ps are similar to HPSAs, but include infant mortality, poverty and population age as integral parts of the scoring system. MUA/Ps are not periodically reviewed or updated, meaning many MUA/Ps are out of date. This limits their usefulness at identifying areas of need. Nevertheless MUA/Ps are still an eligibility option for FQHCs and RHCs.
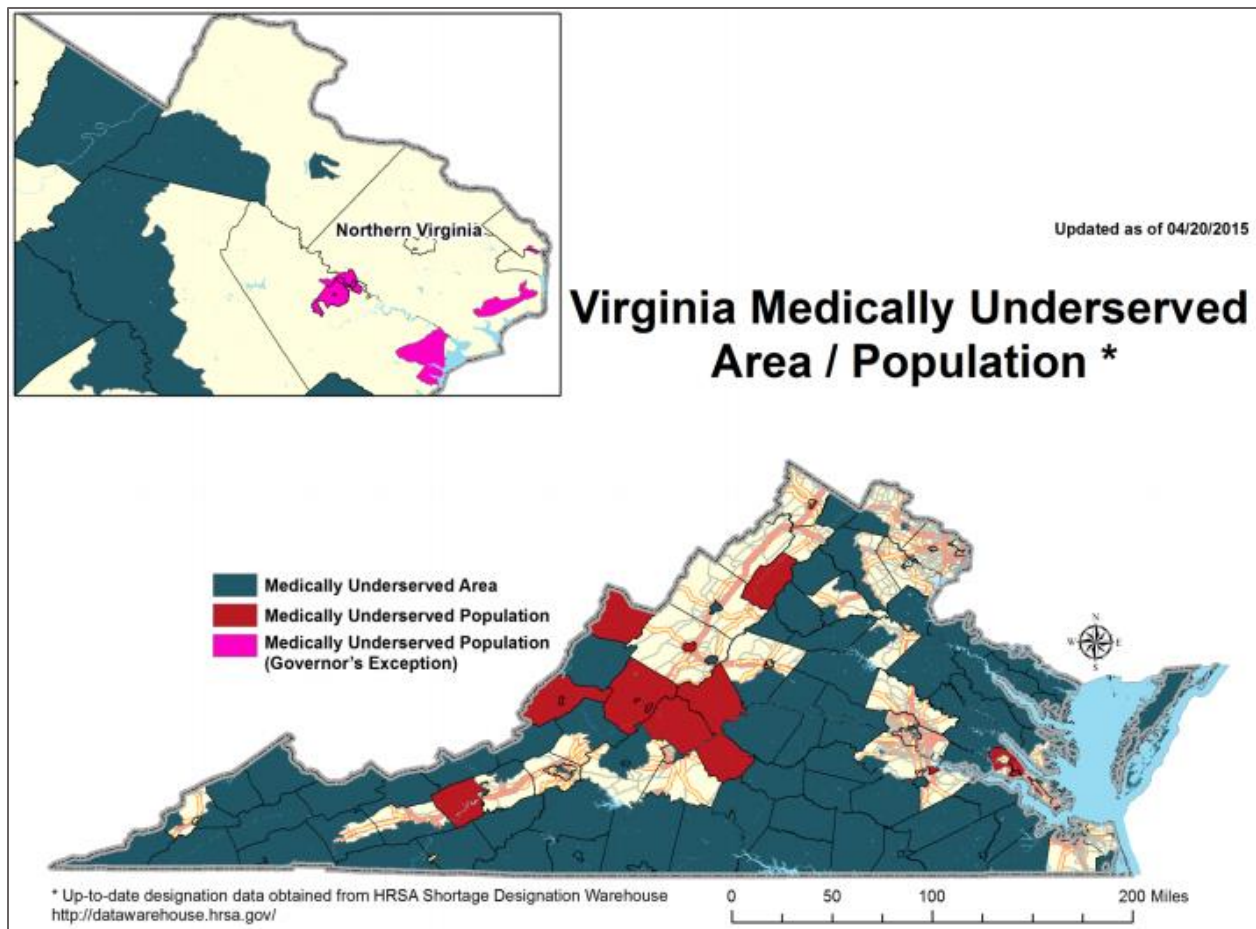
Identifying vulnerable populations

Virginia's PCO uses a variety of methods to identify and target vulnerable populations in Virginia. Chief among these is VDH OHE's Health Opportunity Index (HOI), a multivariate index examining the Social Determinants of Health (SDOH) at the Census Tract level throughout Virginia. VDH is also standardizing the data available for Community Health Assessments (CHA) performed by local health districts. Finally, Virginia's PCO uses the Agency for Healthcare Research & Quality's Prevention Quality Indicators to identify High Priority Target Areas for PCO programs and efforts.

Virginia Health Opportunity Index

The Virginia Department of Health – Office of Health Equity (VDH-OHE) has developed the Health Opportunity Index (HOI) to help communities understand the many factors determining health, so they can work to improve the health outcomes for all their residents. The HOI is a composite measure of the Social Determinants of Health (the social, economic, educational, demographic, and environmental factors that relate to a community's well-being and the health status of a population). It is comprised of 13 indicators, organized into four profiles, that reflect a broad array of social determinants of health:

The Community Environmental Profile
(1) Air Quality
(2) Population Churning
(3) Population Weighted Density
(4) Walkability

The Consumer Opportunity Profile
(5) Affordability
(6) Education
(7) Food Accessibility
(8) Material Deprivation

Economic Opportunity Profile
(9) Employment Access
(10) Income Inequality
(11) Job Participation

Wellness Disparity Profile
(12) Access to Care
(13) Segregation

The Virginia HOI is presented online (https://www.vdh.virginia.gov/OHE/hoi/) allowing stakeholders to examine their communities in depth using several dashboards. The HOI dashboards are also a part of VDH's standardized Community Health Assessment dashboards (see next section).

Community Health Assessments

For the past few years Virginia's Local Health Districts (LHDs) have been conducting Community Health Assessments (CHAs) that identify key health needs through data, analysis and multisector collaborations with stakeholders. LHDs have been conducting CHA's independently, in some cases developing their own measures, data sources and definitions. VDH has begun to standardize the data element of CHAs, combining data from several concept areas into a centrally-located database with associated dashboards. Once finalized, these dashboards will be available internally to VDH staff and LHDs, with plans to place the dashboard on the VDH website sometime in the future. The CHA dashboard will be an essential tool for accessing standardized data about health in Virginia's communities.
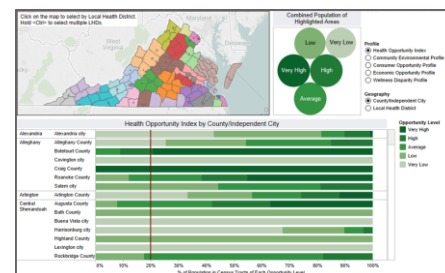
HOI Dashboards

We designed the Health Opportunity Index to provide stakeholders with multiple perspectives on the Social Determinants of Health. Our dashboards reflect this versatility.
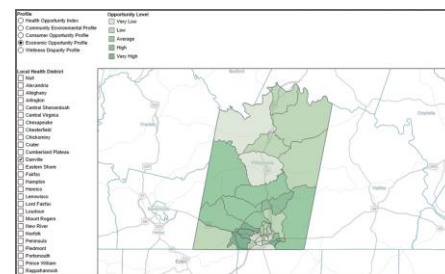
Counties
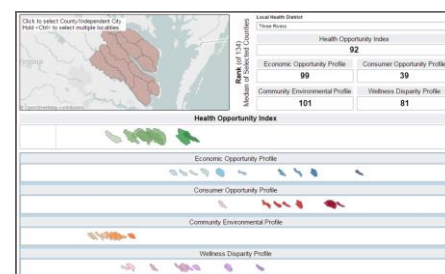
Local Health Districts

Census Tracts

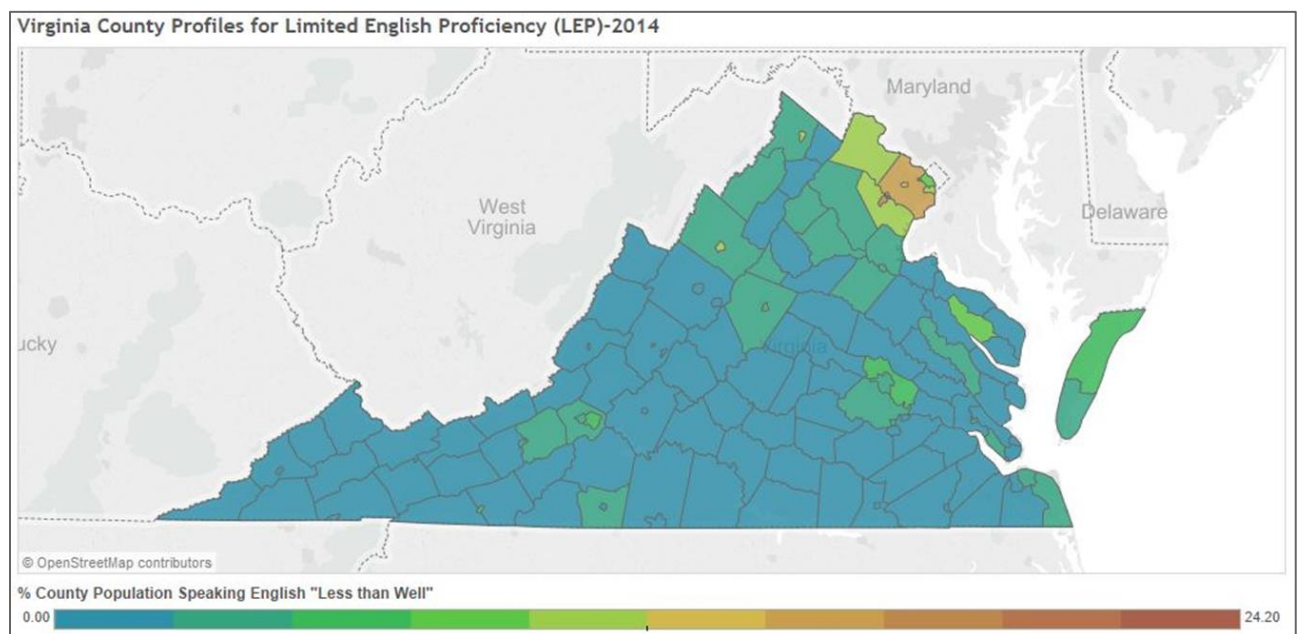

Visit
https://www.vdh.virginia.gov/omhhe/hoi/

To explore the HOI

The CHA dashboards will continue to add new data elements, but will initially include diverse data elements pertaining to:

- Demographics
- Social Determinants of Health
- Environmental Health
- Health Behaviors
- Causes of Death
- Maternal and Child Health

- Cancers
- Chronic Disease
- Injury & Violence
- Communicable Disease
- Mental Health

Virginia County Profiles for Limited English Proficiency (LEP)-2014

% County Population Speaking English "Less than Well"

0.00 — 24.20

A Map from Virginia's Language Needs Assessment Dashboards showing the Limited English Proficient Population by Virginia county and independent city. This dashboard will be included along with other CHA dashboards. Dashboards include interactive maps, charts and tables that users can use to zoom in on specific areas or information of interest.

Medicaid & Uninsured Population

Virginia is one of 19 states that have chosen not to expand Medicaid under provisions of the Affordable Care Act. Whatever the broader wisdom of this policy, it means that Virginia has a comparatively larger uninsured population than other states, with a similar impact on Virginia's safety net system. In 2013, over 12% of Virginia's population was uninsured, including over 14% of Virginia's nonelderly population. Approximately 1.3 million Virginians were enrolled in Medicaid at some point in 2013.[xx] Almost three quarters of Virginia's uninsured are part of working families. An estimated 366,000 additional Virginians would be eligible for Medicaid if Virginia adopted Medicaid under the ACA to 138% of the Federal Poverty Level, including 221,000 ineligible for subsidies in the ACA's health insurance marketplace. [xxi]
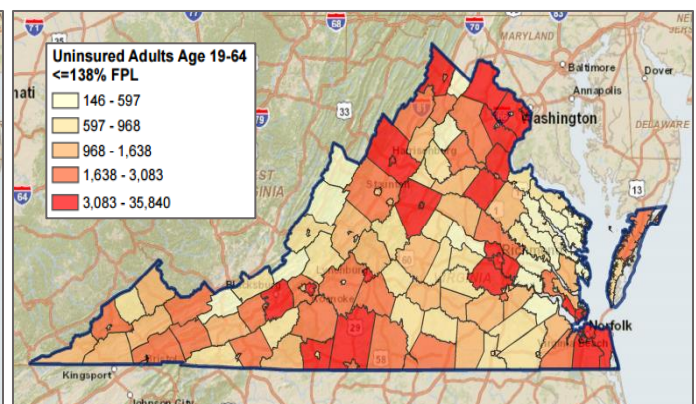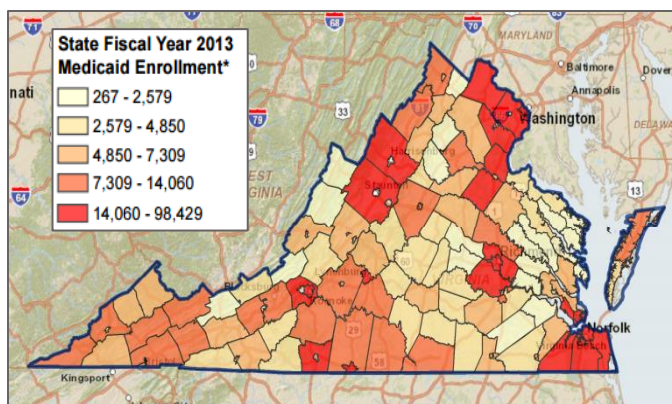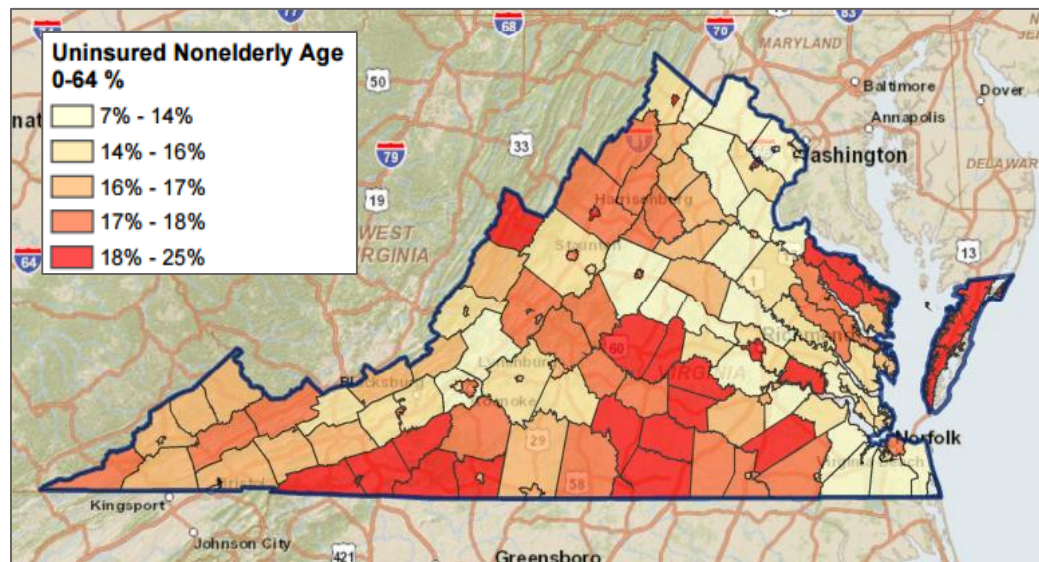
Prevention Quality Indicators

The VDH-OHE uses the Agency for Healthcare Research and Quality's (AHRQ) Prevention Quality Indicators (PQI's) for Avoidable Hospital Stays to identify areas that may lack adequate primary care resources. ARHQ describes PQI's as:
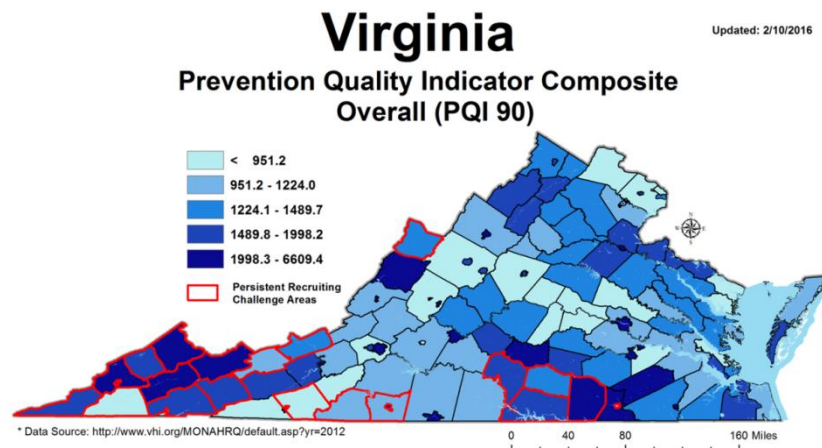
> …a set of measures that can be used with hospital inpatient discharge data to identify quality of care for "ambulatory care sensitive conditions." These are conditions for which good outpatient care can potentially prevent the need for hospitalization or for which early intervention can prevent complications or more severe disease. The PQIs are population based and adjusted for covariates.
>
> Even though these indicators are based on hospital inpatient data, they provide insight into the community health care system or services outside the hospital setting. For example, patients with diabetes may be hospitalized for diabetic complications if their conditions are not adequately monitored or if they do not receive the patient education needed for appropriate self-management.
>
> The PQIs can be used as a "screening tool" to help flag potential health care quality problem areas that need further investigation; provide a quick check on primary care access or outpatient services in a community by using patient data found in a typical hospital discharge abstract; and, help public health agencies, State data organizations, health care systems, and others interested in improving health care quality in their communities.
>
> With high-quality, community-based primary care, hospitalization for these illnesses often can be avoided. Although other factors outside the direct control of the health care system, such as poor environmental conditions or lack of patient adherence to treatment recommendations, can result in hospitalization, the PQIs provide a good starting point for assessing quality of health services in the community. Because the PQIs are calculated using readily available hospital administrative data, they are an easy-to-use and inexpensive screening tool. They can be used to provide a window into the community — to identify unmet community health care needs, to monitor how well complications from a number of common conditions are being avoided in the outpatient setting, and to compare performance of local health care systems across communities.

Virginia Health Information reports Avoidable Hospital Stays for a variety of individual acute and chronic conditions and in composites for acute conditions, chronic conditions and an overall composite. VDH-OHE recently installed AHRQ's Monarch system which will allow us to examine PQI's at the census tract level, improving our ability to target resources.

Identifying Priority Target Areas: The Conrad-30 Program

VDH-OHE uses the resources listed in this document to identify High Priority Target Areas for PCO programs. The Conrad-30 program's discretionary slots provide an example of our methods.

The Conrad-30 Program
The Conrad-30 Waiver Program is a great resource that brings high-quality foreign physicians to the Commonwealth. International Medical Graduates (IMGs) may complete their graduate medical or residency training in the United States using a J-1 Visa, which lets them remain in the United States during their studies.* However, after finishing school, they must return to their home country for two years before they may return to the U.S. Conrad-30 waives this requirement for a limited number of IMGs who agree to serve underserved populations. Conrad-30, named for the number of open slots per state, prioritizes primary care physicians (PCP), with most of the slots dedicated to PCPs working in Federally-designated shortage areas. Within those 30, each state is allotted up to 10 "flex slots" that gives flexibility in the specialty and work areas. Virginia allocates five discretionary slots to specific high priority specialties and work areas.

Identifying Target Areas
Virginia's Conrad-30 Waiver Program is administered by the Virginia Department of Health – Office of Health Equity (VDH-OHE) health workforce division, led by Health Workforce Specialist, Olivette Burroughs. Olivette consults with stakeholders, including Virginia's Primary Care Association (PCA), to identify specialties and areas of need.
Stakeholder consultations are essential for this program, but it is equally important to have data to support discretionary selections. Working with Olivette, VDH-OHE's data unit identified three data sources to guide the placement of discretionary Conrad-30 physicians:

- Avoidable Hospital Stays (reported by Virginia Health Information): These are stays that could be avoided with high-quality medical care outside of the hospital, usually primary care. While not always avoidable, rates of these stays should decrease when quality health care is available and accessible within a community. Avoidable hospital stays are cataloged by condition, including composite groups such as lung conditions or chronic disease composites.

- The Virginia Health Opportunity Index (HOI) 1.0: The first version of the Virginia HOI was released in 2010. Like its successor, it offered a broad examination of the opportunity Virginians have to live a long and healthy life, based on where they live.

- Physician Full-Time Equivalency Units (FTEs): VDH-OHE's data unit maintains an up-to-date database on physicians and other health professionals using data collected from the Virginia Department of Health Professions. The database includes specialty, work hours and other data.

These three sources identify vulnerable populations that could benefit from increased access to physicians. Since avoidable hospital stays are available at the county level, we aggregated Census Tract level estimates for the Virginia HOI and physician FTEs to the county level. Areas that scored lowest among these three sources and were identified as high need areas by Virginia's PCA were selected for discretionary slots.

The Target Areas

Ultimately, three areas were identified as high priority for Pulmonologists, two for Obstetrician/Gynecologists and one for Primary Care. With the exception of one area in Southwest Virginia identified for Pulmonologists, all other identified areas were in Southside Virginia. While there is broad need for physician services across Virginia, these areas stood out based on their high rates of avoidable hospitalizations.

Emporia and its surrounding counties, was a target area identified as high priority for all three specialists, while the Martinsville/Danville area was identified as a high priority target area for pulmonogists and OBGYNs.

The Results

Olivette is accepting applications for its Conrad-30 discretionary slots through August 2016. Physicians who fill these positions in Virginia know that they will serve vulnerable populations with a demonstrated need for their services. The Conrad-30 program demonstrates how the Virginia HOI, when used in conjunction with other data sources and stakeholder input, could help programs and policymakers target resources. Utilizing the Virginia HOI helps the Conrad-30 program ensure Virginians who face added barriers to better health based on where they live are considered in the analysis for physician placement. This sets a fair and adequate baseline of access to care for all regions of Virginia, and contributes to ongoing efforts to make Virginia the healthiest state in the nation.

* International Medical Graduates are defined as individuals who are not U.S. citizens but are accepted to pursue graduate medical training or residency in the United States. They may use a J-1 Visa or a H-1B1 Visa.
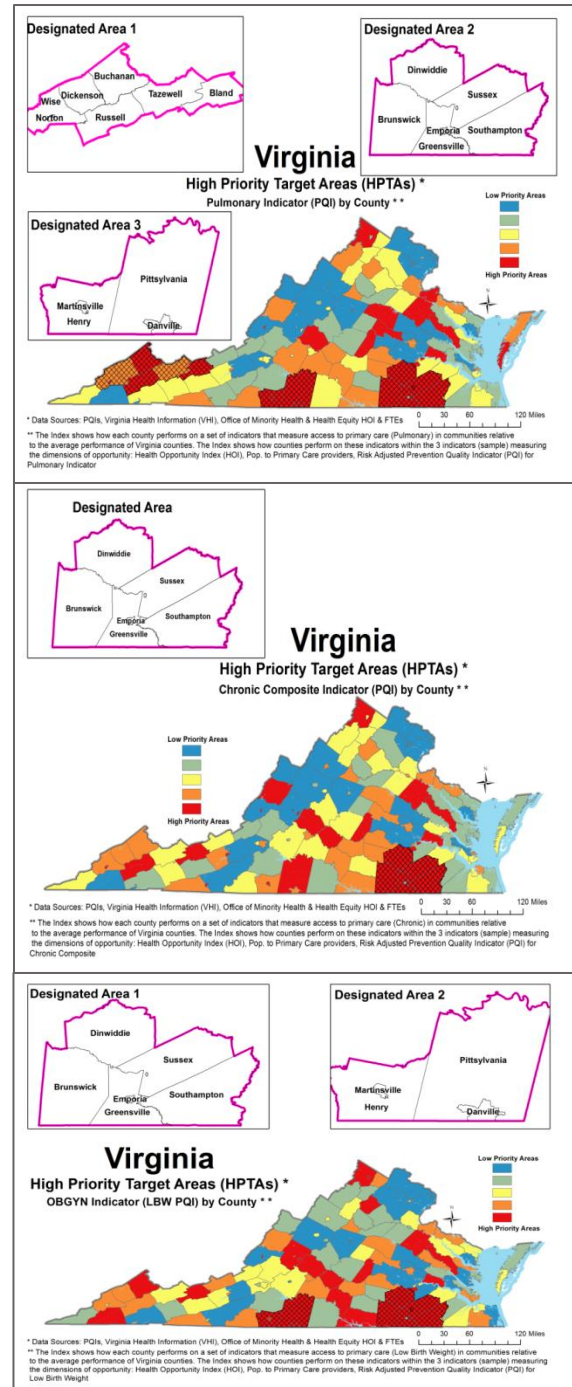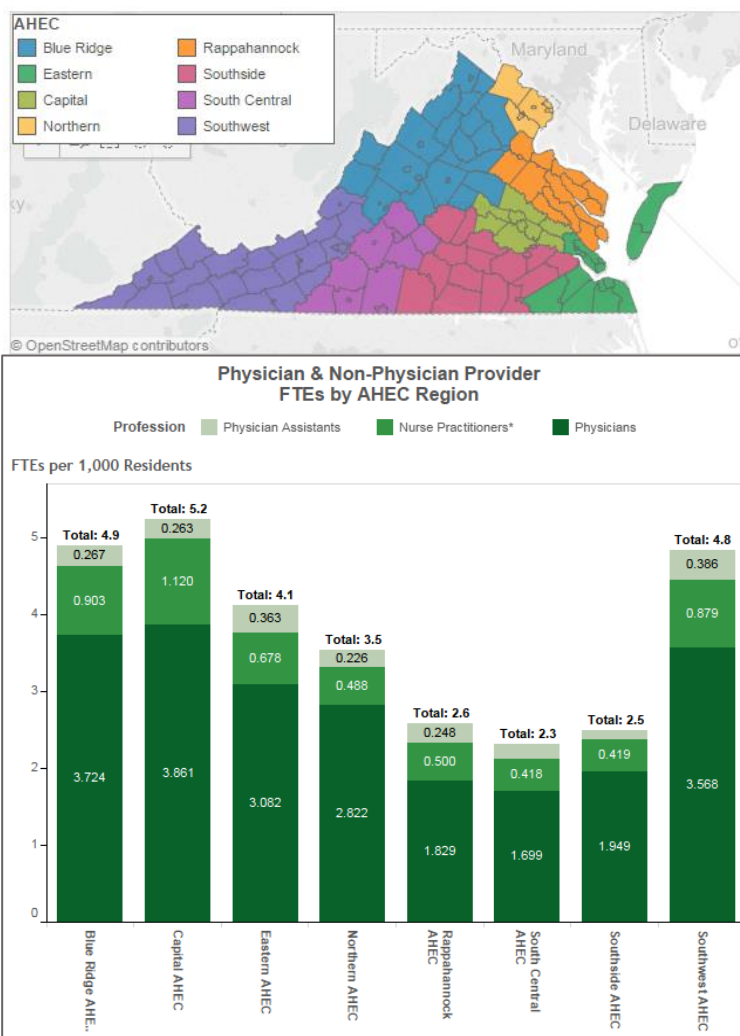
Recruitment & Retention

Current Data

Virginia's DHP Healthcare Workforce Data Center administers surveys to health professionals during the license renewal process, collecting data on a variety of factors. According to the latest HWDC survey results, Virginia has 3.14 physician Full-Time Equivalency Units (FTEs, defined as a 2,000 hour year), 0.71 nurse practitioner FTEs and 0.28 physician assistant FTEs per 1,000 residents. Since states do not collect data consistently, it is difficult to compare these numbers nationally. However, we are able to examine geographic disparities within Virginia. A quick examination of Virginia's Area Health Education Center (AHEC) regions[xxii] illustrates the disparities (see chart). Importantly, AHEC regions with low physician FTEs also tend to have low nurse practitioner and physician assistant FTEs per capita.

Figure 5 : Physician & Non-Physician Provider FTEs by AHEC Region: The number of FTEs per 1,000 residents varies widely across regions.
Source: Virginia Healthcare Workforce Data Center.
vahwdc.tumblr.com/RegionalCareforce

Pipeline Data

Virginia competes in a national market for health care providers. Physicians in particular tend to move to Virginia from other states. Fewer than one in four physicians completed either high school or undergraduate degrees in Virginia, while about half of Virginia's nurse practitioners and physician assistants completed one or the other in Virginia. About half of Virginia's physicians do, however, have a background in a region consisting of Virginia, Washington DC, New York, Pennsylvania, Maryland & North Carolina.

Education in Virginia	Physicians	Nurse Practitioners	Physician Assistants
High School	21%	43%	42%
Professional	22%	48%	36%
Residency	27%	NA	NA

Source: Virginia DHP Healthcare Workforce Data Center.

Where were Virginia's Physicians Trained?						
Education	**Virginia**	**Border State**	**VA & Bordering**	**NY & PA**	**Regional***	**International**
High School	20%	12%	32%	15%	47%	20%
Undergraduate	19%	16%	35%	14%	49%	17%
Medical School	20%	18%	38%	13%	51%	21%
Residency	27%	23%	50%	17%	67%	NA

*Virginia, Washington DC, New York, Pennsylvania, Maryland & North Carolina.

Source: Virginia DHP Healthcare Workforce Data Center

Physician training in Virginia

Virginia hosts six medical schools, four schools of allopathic medicine and two schools of osteopathic medicine. Combined, these schools matriculate 911 medical students each year.

Virginia also hosts 558 medical residency slots, 530 of which were filled in the National Resident Matching Program's Main Residency Match. This means that Virginia suffers a net export of at least 353 medical students, about 39%, annually to out of state residencies. Of these, 302 are in primary care-related specialties (internal medicine, family medicine, pediatrics and obstetrics/gynecology), 295 were filled.

Medical Schools	2010 (Matriculants, class of 2014)	2014 (Matriculants, class of 2018)
Eastern Virginia Medical School	118	146
University of Virginia School of Medicine	148	156
Virginia Commonwealth University School of Medicine	200	216
Edward Via Virginia College of Osteopathic Medicine	189	189
Virginia Tech Carilion School of Medicine	42	42
Liberty University School of Osteopathic Medicine	0	162
Annual Slots	**697**	**911**

Virginia Primary Care Residency Slots			
Specialty	**Slots**	**# Filled**	**% Filled**
Primary Care	**302**	**295**	**100%**
Internal Medicine (PGY-1)	135	134	99%
Internal Medicine/Emergency	2	2	100%
Internal Medicine/Pediatrics (PGY-1)	4	4	100%
Family Medicine (PGY-1)	66	60	91%
OB/GYN (PGY-1)	27	27	100%
Pediatrics (PGY-1)	68	68	100%
Some Notable Specialties			
Emergency Medicine (PGY-1)	38	38	100%
Psychiatry (PGY-1)	31	31	100%
Surgery-General (PGY-1)	46	35	76%

VDH-OHE Programs

VDH-OHE provides administrative and technical assistance for several recruitment and retention programs including:

- The Conrad 30 J-1 Visa Waiver Program
- NHSC Virginia State Loan Repayment Program (VA-SLRP)
- NHSC Loan Repayment & Scholarship Programs

Conrad 30 J-1 Visa Program

The Conrad-30 Waiver Program is a great resource that brings high-quality foreign physicians to the Commonwealth. International Medical Graduates (IMGs) may complete their graduate medical or residency training in the United States using a J-1 Visa, which lets them remain in the United States during their studies.* International Medical Graduates are defined as individuals who are not U.S. citizens but are accepted to pursue graduate medical training or residency in the United States. They may use a J-1 Visa or an H-1B1 Visa. With 30 slots available, each state is allotted up to 10 "flex slots" that gives flexibility in the specialty and work areas. Virginia allocates five discretionary slots to specific high priority specialties and work areas. For the 2014-2015 program year Virginia hosted 31 Conrad-30 physicians, including 17 in primary care-related specialties.
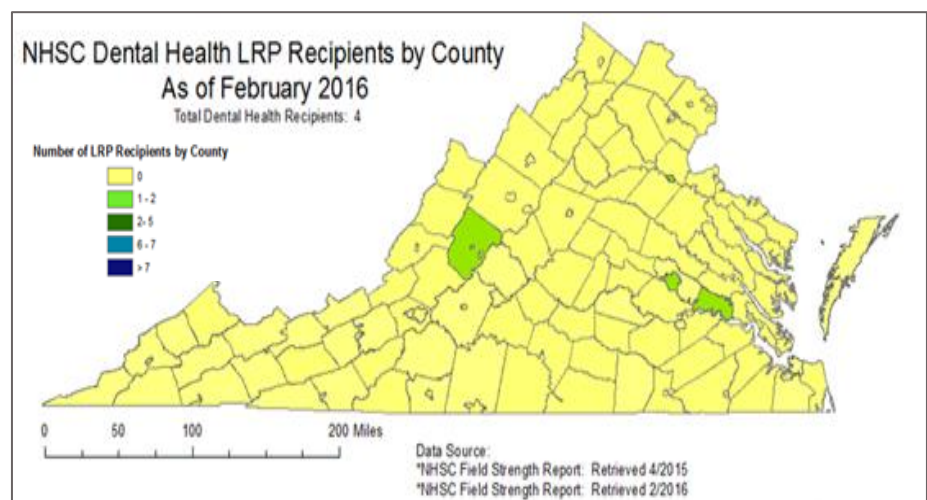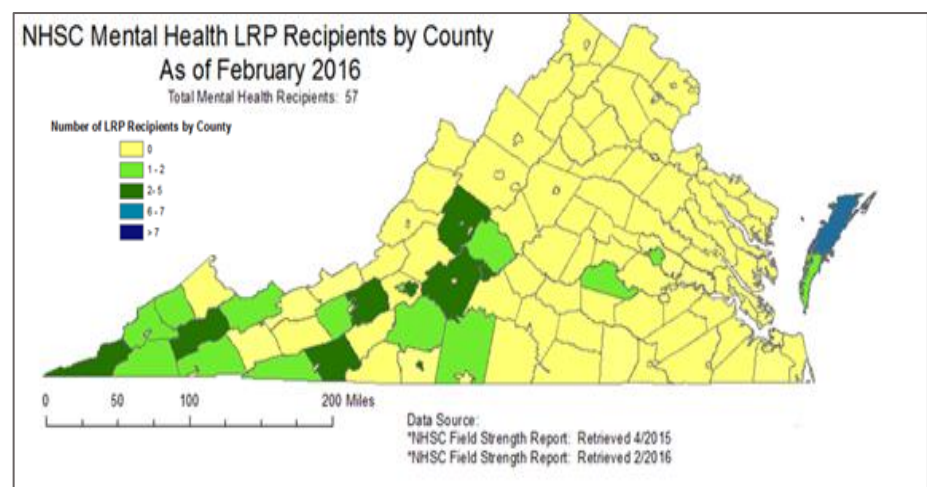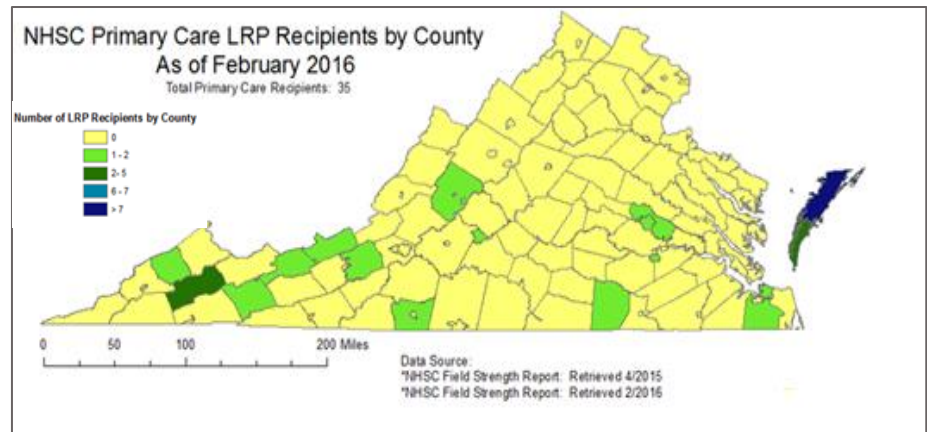
NHSC Virginia State Loan Repayment Program

The NHSC VA-SLRP program is a loan repayment program funded by HRSA and administered by VDH-OHE that incentivizes providers to work in designated HPSAs. Unlike other NHSC programs, which HRSA funds in their entirety, the VA-SLRP program requires community matching funds. Virginia previously provided state funds for this match; however, the General Assembly cut this funding due to budget shortfalls. Currently, the Virginia Health Care Foundation (VHCF) has provided matching funds in the interim but it is unknown for how long they can sustain this program.

The program is available to a wide variety of provider types. Outside of the HPSA requirement, providers are able to work at any site or facility. Virginia hosted 12 SLRP participants in the 2014-2015 program year, including three family medicine physicians, two family nurse practitioners, three dentists three mental health providers and a pharmacist. These providers received a total of $634,750 in loan repayment, including $317,550 in matching funds from VHCF. For the 2016 program year, funds from HRSA were limited to $150,000, for a total of $300,000 including the VHCF match. The application period opened in January and all of the funding was allocated in January. VDH-OHE is seeking additional funding from HRSA to fund existing and expected applicants for the application period, which runs through august, 2016.

NHSC Programs

VDH-OHE provides technical assistance for several National Health Service Corps (NHSC) programs that support recruitment and retention in underserved areas. These include the NHSC Scholarship Program, Loan Repayment Program (LRP) and NURSE Corps. VDH-OHE helps eligible sites apply to become NHSC approved sites and providers apply to become NHSC participants. Program recipients must work in NHSC-approved sites. These sites must be located in a designated HPSA, among other requirements. As of February 2016, Virginia hosted 35 NHSC LRP primary care providers, 57 mental health providers and 4 dental providers in areas of high need throughout Virginia.

NHSC Primary Care LRP Recipients by County
As of February 2016
Total Primary Care Recipients: 35

NHSC Mental Health LRP Recipients by County
As of February 2016
Total Mental Health Recipients: 57

NHSC Dental Health LRP Recipients by County
As of February 2016
Total Dental Health Recipients: 4

Vacancies

Despite these programs, Virginia's NHSC-approved sites have 41 vacancies listed on the NHSC Jobs Center as of February 2016, up from 34 in March 2015. Additionally, the Virginia Employment Commission lists 119 openings for Family Medicine and General Practitioners, 61 for Pediatricians, 206 for Psychiatrists, 709 for Nurse Practitioners and 205 for Physician Assistants as of March 1, 2016.[xxiii]
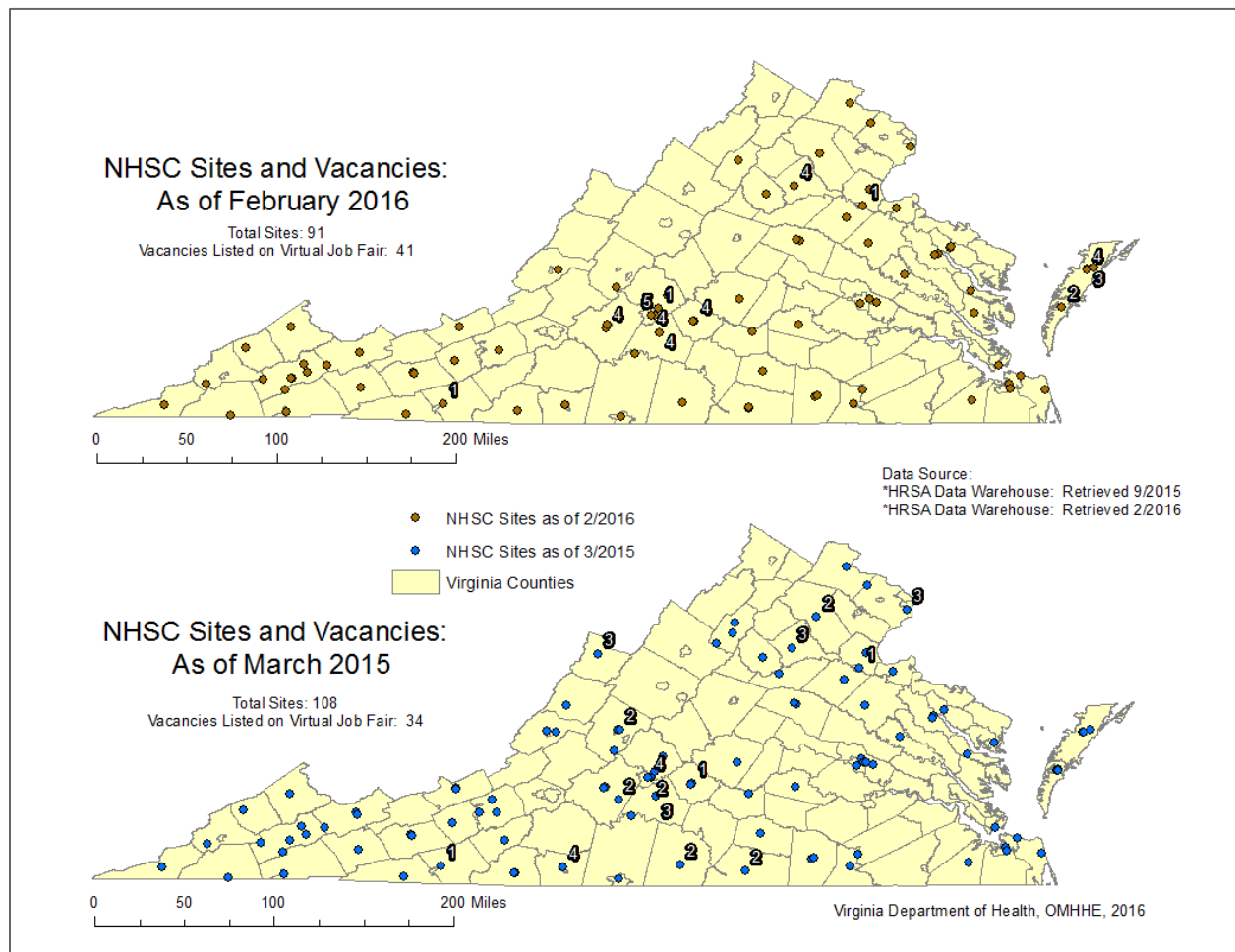
Challenges to Recruitment & Retention

Workforce Diversity

VDH-OHE is dedicated to ensuring that Virginia's primary care system provides Culturally & Linguistically Accessible Services (CLAS). One part of that effort is recruiting providers from populations they serve. In particular, increasing the number of providers

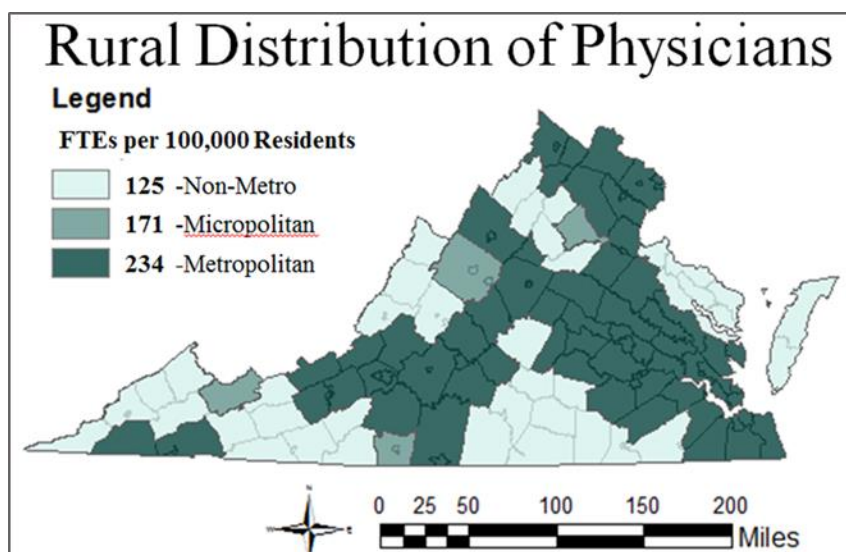| Race/ Ethnicity	Virginia Population*	Physician Workforce	Physician Assistant Workforce	Nurse Practitioner Workforce
White	64%	67%	84%	85%
Black	19%	7%	6%	7%
Asian	6%	17%	4%	4%
Hispanic	8%	3%	4%	2%
Other/2 or more	3%	6%	2%	2%

* US Census Data, 2011 Vintage.
Source: Virginia DHP Healthcare Workforce Data Center

from underserved and minority communities may increase the number of providers who position themselves to serve these communities, reducing disparities in access to care. According to the latest published results from the DHP HWDC, African-Americans and Hispanics are underrepresented in Virginia's physician, physician assistant and nurse practitioner workforce (see table). In particular, African-Americans make up 19% of Virginia's population but only 6-7% of Virginia's physician and non-physician provider workforce.

Rural Retention

Like many states, Virginia struggles to recruit and retain physicians and other health care providers in rural areas of the state. The three AHEC regions with the lowest physician and non-physician provider FTE totals are largely rural areas. The dearth of providers extends into the oral and mental health fields as well. Most of the PRCAs identified by Virginia's PCA also occur in rural areas.

Rural Distribution of Physicians
Legend
FTEs per 100,000 Residents
125 - Non-Metro
171 - Micropolitan
234 - Metropolitan

Proportion of Virginia's population in…	Urban Areas	Rural Areas
Providers		
Physicians	92%	8%
Nurse Practitioners	90%	10%
Physician Assistants	93%	7%
Demographics		
Population	87%	13%
Below 100% FPL	80%	20%
Below 200% FPL	80%	20%
Senior Citizens	81%	19%

Sources: Virginia DHP Healthcare Workforce Data Center & US Census Bureau.

Currently, fewer than 10% of physicians, nurse practitioners and physician assistants work in non-Metro areas of Virginia. Meanwhile, Virginia's rural areas account for 13% of Virginia's population, 20% of Virginians living below 100% of the Federal Poverty Level (FPL), 20% of Virginians living below 200% of FPL and 19% of Virginia's senior citizens. Overall, Virginia's non-metro areas have 1.25 physician FTEs per 1,000 residents while micropolitan areas had 1.71 and metropolitan areas had 2.34.[xxiv]

There is some evidence that providers serving in Virginia's rural areas are more likely to have had a rural background. For instance, 56% of physicians, 29% of physician assistants and 51% of nurse practitioners in Virginia's largely rural Southwest Virginia AHEC region report having had a rural childhood, compared to 10%, 19% and 18%, respectively, from Virginia's largely urban and suburban Northern AHEC region. Nevertheless, only 15% of physicians, 13% of physician assistants and 20% of nurse practitioners who self-reported having a rural childhood currently work primarily in a non-metro area of Virginia.[xxv]

Barriers to Recruitment & Retention

In addition to identifying Persistent Recruitment Challenge Areas, Virginia's PCA identified the following barriers to recruitment & retention in PRCAs.

- Low pay
- Limited incentive opportunities
- HPSA scores do not accurately reflect those areas
- Underdeveloped communities with little or no amenities
- Lack of provider support for call/specialty networks
- There is nothing that promotes retention
- There is nothing that attracts the providers to the areas[xxvi]

Salaries are a persistent barrier to recruitment and retention efforts in low income and underserved areas. In particular, salaries for primary care physicians often lag those of other specialties. According to the Medscape Physician Compensation Report, primary care physicians earn, on average, $195,000 annually compared to $284,000 for physicians in other specialties.[xxvii]

Rural and underserved areas often lack the professional, social and cultural resources that highly educated professionals desire. Aggravating this is the growing tendency for persons to marry within their own educational brackets. Known as the "two-body problem", the result is that communities often need to provide work opportunities for two highly educated professionals. This can be challenging for any small community, especially rural communities where jobs in professional and technical services may be sparse. Annnie Rorem and Luke Juday of the University of Virginia's Weldon Cooper Center note that regional cooperation in recruiting professionals may help, since a broader area may offer more opportunities. They also note that telework is another option for spouses in areas with access to broadband.[xxviii]
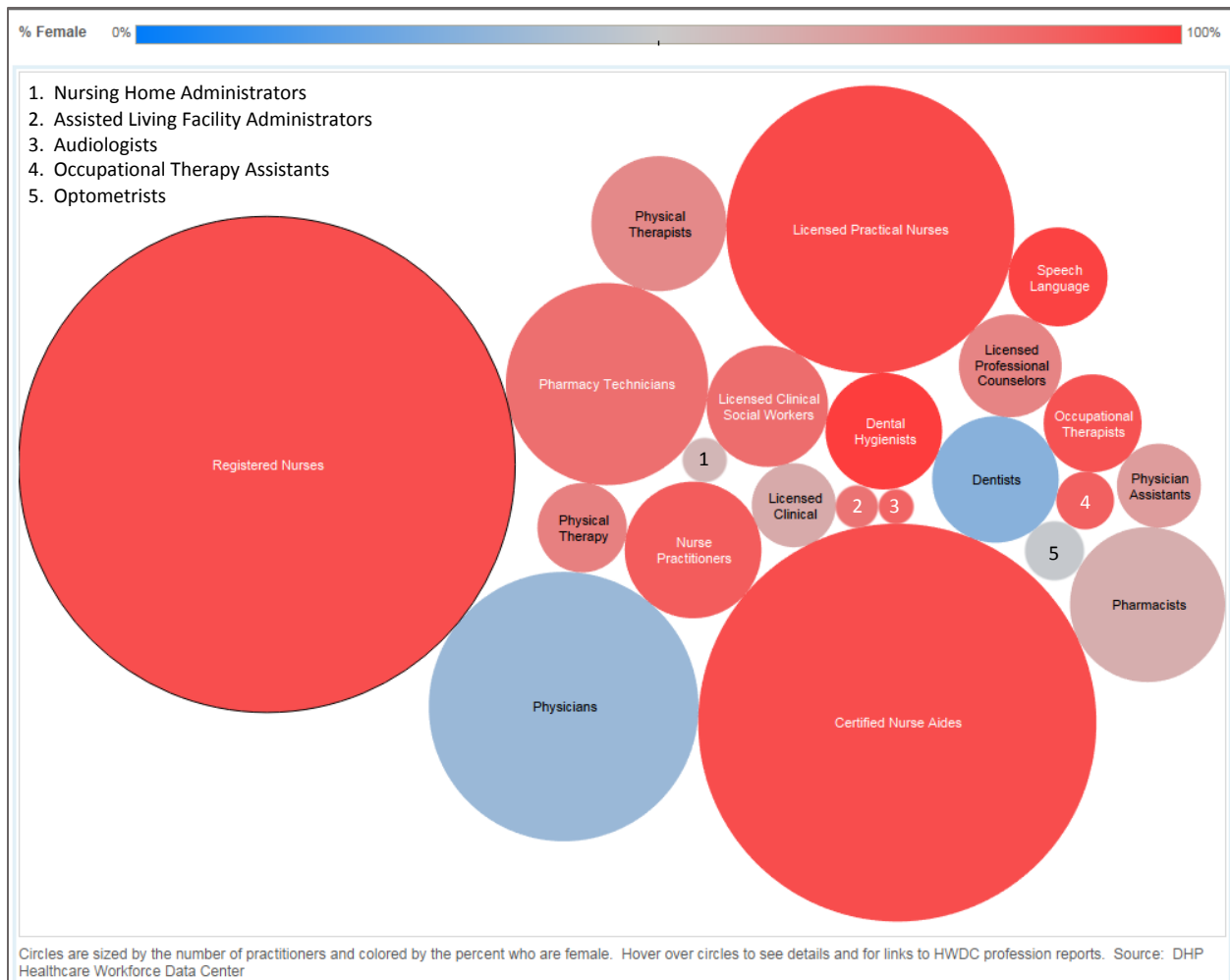
Rural Virginia's Top 5 Industries by Employment		
Employment Rank	Industry	Employment
1	State & Local Gov't	70,974
2	Retail Trade	55,434
3	HC&SA	50,265
4	Manufacturing	48,416
5	Food & Lodging	30,692

Rural Virginia's top 5 industires by employment in 2013 does not include professional and technical services.
Source: Virginia DHP Healthcare Workforce Data Center.
http://vahwdc.tumblr.com/post/109207065520/health-cares-economic-impact-on-rural-communities

Communities may also seek couples consisting of two healthcare providers, especially since health care facilities are often major employers in rural communities where they exist. However, this may prove challenging as well. The health workforce is overwhelmingly female, particularly among the very large nursing workforce. Only Virginia's physician and dentist workforces remain mostly male. With these professions reaching gender parity among medical and dental graduates. Increasing the number of men in Virginia's health workforce (particularly nursing) might facilitate recruitment of two health provider couples (and complete the health workforce's journey towards gender parity).

% Female 0% ▬▬▬▬▬▬▬▬▬▬ 100%

1. Nursing Home Administrators
2. Assisted Living Facility Administrators
3. Audiologists
4. Occupational Therapy Assistants
5. Optometrists

Circles are sized by the number of practitioners and colored by the percent who are female. Hover over circles to see details and for links to HWDC profession reports. Source: DHP Healthcare Workforce Data Center

The Gender Distribution of Virginia's Health Workforce by Profession (2013). With the exception of Physicians, Dentists and Optometrists, Virginia's health workforce is mostly female.
Source: Virginia DHP Healthcare Workforce Data Center. *http://vahwdc.tumblr.com/post/85913622875/womens-health-week-in-virginia*

Integrated Care

Virginia's Plan for Well-Being Goal 4.1 is "Virginia has a strong primary care system linked to behavioral health care, oral health care and community support systems". Virginia's safety net clinics have largely embraced the concept of integrated care. However, the long-term success of these efforts requires an adequate workforce and a supportive regulatory environment. Currently, many areas of Virginia have overlapping primary care, mental and/or dental health HPSAs. This includes many of Virginia's PRCAs (see map next page)..

Virginia is making great strides in improving its integrated care regulatory framework. In 2011, Virginia expanded remote practice for nurse practitioners, allowing a physician to work with up to six nurse practitioners remotely as part of a patient care team.[xxix] In 2009, Virginia began experimenting with remote supervision of public health dental hygienists in specific high needs areas of Virginia, known as the public health protocol. Over the next few years this successful program was made available to public health dental hygienists throughout Virginia. The 2016 General Assembly passed Senate Bill 712
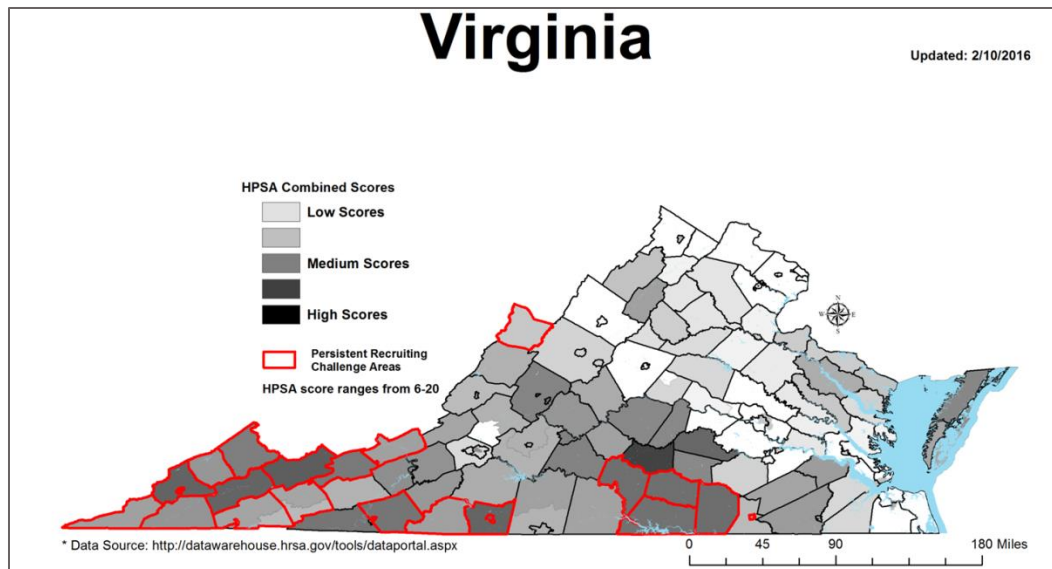
Combined HPSA scores in Virginia. This map shows the summed scores of primary care, dental and mental health HPSAs in Virginia. Although the scoring methods for each are different, the combined scores show areas where it is difficult to recruit all health providers. This complicates efforts to provide integrated care across the care continuum.

(SB712) in both chambers. If signed by the Governor, SB 712 will expand remote supervision to a wider array of health facilities, including to community health centers, charitable safety net facilities, free clinics and long-term care facilities. A dentist must examine patients seen by dental hygienists practicing under the parameters of SB 712 after 90 days. The public health protocol does not include this provision and it may complicate access for already underserved populations. Nevertheless, the expansion of remote supervision for dental hygienists should increase patient access to preventive cleaning and screening and pave the way for integrated primary and oral health care models in Virginia.[xxx]

Telehealth
Telehealth provides another opportunity to increase access to providers in underserved areas. Telehealth can increase access to specialty and behavioral health care and allow remote supervision of providers. However, telehealth requires three things: 1) sites with technology and broadband connectivity, 2) a supportive regulatory environment, and 3) providers trained to practice using telehealth. Virginia's PCO office continues to seek opportunities to support telehealth in Virginia.

Strategy
The Virginia PCO's new management team continues to develop its strategy to support Virginia's primary care system and access to primary care services among underserved communities.

Increase Stakeholder Collaboration in PCO Planning and Activities
Virginia's new management team is dedicated to increasing collaboration with primary care stakeholders throughout Virginia, particularly Virginia's safety net providers and those involved in health workforce. Collaboration will ensure that we are meeting the needs of Virginia's primary care community and maximizes the impact of limited resources.

Virginia held its first stakeholder meeting under its new management team in November. Another stakeholder meeting is planned for this spring. VDH-OHE is also working with the Virginia Community Healthcare Association and the Virginia Health Workforce Development Authority to plan a statewide safety net career fair. The fair is planned for the fall and is aimed at recruiting providers in the PCRAs. Finally, VDH-OHE meets every two months with the Virginia Healthcare Workforce Data Center to coordinate activities.

The Primary Care Needs Assessment document will provide a framework for collaboration. Updated on an ongoing basis, it will help the PCO and primary care community identify gaps and needs, and to develop strategies to address those needs.

Develop a multi-source provider database

Virginia is in a unique position to address the workforce data needs of public and private stakeholders at the local level. The Virginia Department of Health Professions' Healthcare Workforce Data Center (DHP HWDC) collects a broad array of data on health professionals through a voluntary survey administered during the license renewal process. This data includes demographic data, including sex, race and ethnicity, economic characteristics, practice characteristics, future plans and other information. Moreover, DHP HWDC collects data for a variety of health professions using a consistent methodology and a standard survey template. This allows for direct comparisons and integrated analysis of programs across professions.

DHP HWDC and VDH OHE have entered into an MOU allowing confidential sharing of HWDC survey data. VDH OHE has begun integrating this data into its HPSA designation process, linking it with National Provider Identifier (NPI) from HRSA Bureau of Health Workforce's Shortage Designation Management System (SDMS). VDH-OHE is also pursuing Medicaid provider data from the Virginia Department of Medical Assistance Services. VDH- OHE is currently recruiting a part-time health economist whose focus will be on formalizing and automating the integration of these three data sources to create a consistent and periodically-updated database of Virginia's Health Providers. This database will be used to better inform HPSA designation processes within the state. We will then leverage VDH OHE's work modeling demand using the Health Opportunity Index against specific health outcomes to create an oral health demand model for Virginia.

Combined, these two granular sources of supply and demand data will also provide the foundation for the Virginia Oral Health Supply & Demand Model, which will help us to pinpoint gaps in our primary care system. We will eventually develop a fully integrated health workforce model that can account for multi-professional analysis of integrated and team-based care models. VDH OHE is currently working with the Governor's Data Internship Program (GDIP) for demand-side modeling using the Health Opportunity Index. The GDIP program matches PhD students and faculty in data analytics programs to state agencies with data analysis and modeling projects. We hope to continue working with the GDIP program as we develop these models. Once developed, VDH OHE maintains the models, usually delivered as stand-alone statistical packages in R, SPSS or other software, and uses them for analysis and periodic projections.

Increase outreach to providers

Virginia's PCO office has increased its outreach to providers over the past year, attending several recruiting events throughout Virginia. This effort resulted in Virginia using its allotted VA-SLRP funds within the first month of the eight-month application period. The data & designation division is also increasing its outreach, informing stakeholders about HPSA designations and the NHSC Site Approval process. In particular, staff has been in contact with representatives of Virginia's Community Service Boards, State Mental Health Hospitals and Correctional Facilities to pursue facility designations for these organizations and to encourage applications for NHSC site approval. This outreach has been particularly successful among correctional facilities.

Conclusion

Over the next few years Virginia's PCO will continue its mission to support the Commonwealth's primary care system. The Primary Care Needs Assessment will act as a framework for renewed collaboration with stakeholders and basis for identifying gaps and needs. It will also inform policy makers and communities about the primary care needs in Virginia. Renewed collaboration and periodic review of gaps and need will allow us to target areas of the greatest need with grant funds. It will allow us to prioritize shortage area designation and review activities. Overall, we hope these efforts will enable us to better recruit and retain providers in Virginia, particularly its underserved area, improving the primary care services available to all Virginians.

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