

HEALTH SCIENCE IN VIRGINIA

Welcome to the Career Cluster Brief on Health Science in the Commonwealth. Occupations within the Health Science Career Cluster currently make up nearly one in ten Virginia jobs. Students interested in becoming doctors, certified nursing assistants (CNAs), home health aides, Emergency Medicine Technicians (EMTs), health sciences researchers, or other health services professionals can anticipate a favorable job market in the coming years. Careers in the Health Science Career Cluster allow students to put a passion for helping others to work.

The health care sector provides employment for nearly **1 in 10** Virginians.

Health Science is full of opportunities. Students pursuing careers in this field may expect many job opportunities, plenty of career choice, and the option to work in localities all across the Commonwealth. However, the nature of Health Science is projected to change and grow in the coming years. What is on the horizon for Health Science in Virginia? In this brief, we answer that question as we share important numbers, discuss state priorities, and talk about emerging opportunities in Health Science.

HEALTH CARE IN VIRGINIA: MAKING A DIFFERENCE

Health care is fundamental to Virginia's economy. Without good health, workers cannot be productive – and time away from work due to illness limits the success of Virginia's employers. In his platform on health care, Governor McAuliffe has articulated a number of health care priorities for which CTE graduates will be in a great position to help:

- To effectively manage chronic health conditions through more comprehensive and consistent home health care services
- To expand delivery of health care services within rural areas
- To create savings of health care costs by providing community and home care for seniors.

2.2 million
Virginians live with chronic health conditions.

Toll of Chronic Health Conditions

As per the Virginia Department of Health Strategic Plan, 2.2 million Virginians live with chronic health conditions such as heart disease, asthma, cancer, and diabetes. **Chronic diseases account for 60 percent of our nation's medical costs and result in one-third of the years of life lost before age 65.** With proper and regular monitoring; good patient education; and assistance with medications, diet, and exercise, the toll of chronic disease can be decreased in individual lives and in costs to Virginia for extended long term care or emergency procedures.

Challenges of Rural Health Care

The 2009 University of Virginia at Wise Annual Report reveals that residents of Southwest Virginia are 23% more likely to die from heart disease and 30% more likely to die from diabetes than residents in the rest of the Commonwealth. While the Virginia Joint Commission on Health care notes physician shortages throughout Virginia, this group identified in September 2013 that **the physician/population ratio across Virginia is lowest in Southside, Southwest, and the Eastern Shore of Virginia.**

Remote Area Medicine (RAM) and Telemedicine are two initiatives that deliver health services to rural residents while cutting costs for the patients and the health care system. Annual RAM clinics in Southwest Virginia serve 2,600 people in just thirty hours with medical, dental, and vision concerns.

The State Rural Health Plan, part of the Virginia Department of Health Strategic Plan, identifies oral health as a key health condition for attention in rural areas. Dental concerns are especially problematic for children and the elderly, and occur as much as eight times more frequently than asthma, with tooth decay becoming the most common chronic disease among Virginia's children. Water fluoridation, school fluoride rinse programs, and topical fluoride varnishes have significantly lower risks for children. With proper supervision, dental assistants can provide these services, just as home health aides, and certified nurse aides can extend the reach of medical care into schools and rural communities.

Community and Homecare for Seniors

According to the Virginia Division of Aging Services, "As the Baby Boom generation races toward traditional retirement age, the number of older adults in Virginia will reach 1.8 million by 2030 – more than double the population of 2000. **In just two decades, almost one in every five Virginians will be age 65 or older**, with the over 85 age group being the fastest growing segment of the population." In some communities, one in every three citizens will be 65 years old or older. This population boom will require an increasing number of health care professionals to address the health concerns associated with living longer.

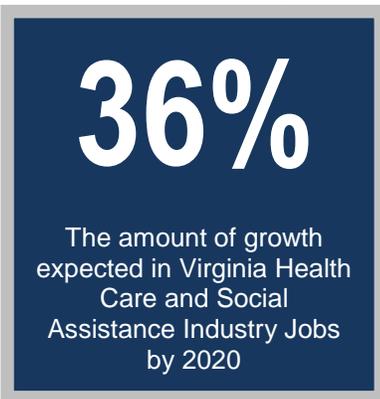


Health care costs for Virginia may be more effectively managed, and elderly citizens more comfortably served, when in-home care is available. Certified Nurse Aides, Certified Medication Aides, and Home Health Aides can make staying at home possible when, under proper supervision, they provide services within their scope of practice including, for example,

- Preventive home mobility assessments
- Medication management and review
- Assistance with meal preparation, bathing, dressing, and exercise

Similarly, these certified health professionals can extend the capacities of Virginia's long-term care facilities to meet the growing needs of older Virginians for care.

EDUCATION, EMPLOYMENT, AND EARNINGS: ANALYZING DATA FROM HEALTH SCIENCE



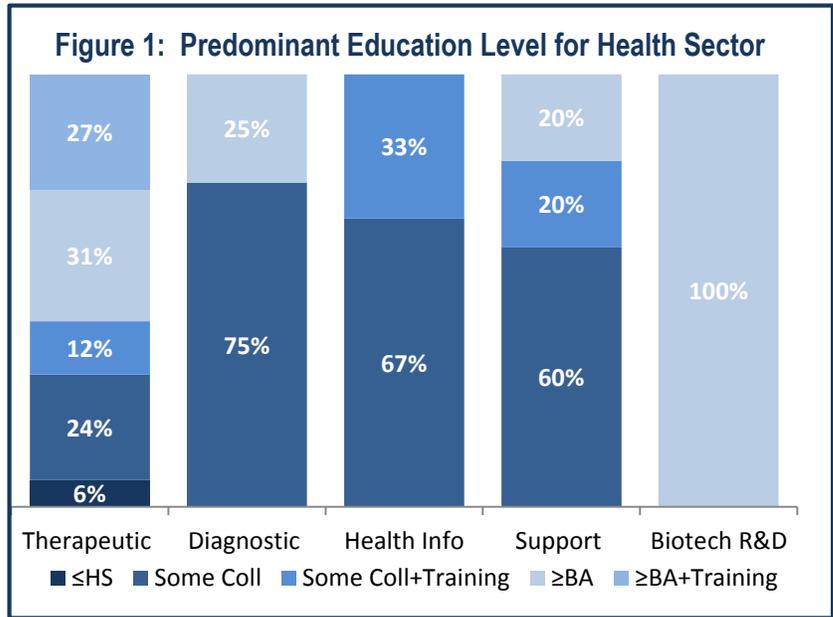
Virginia's health sector has seen significant growth over time; it is projected that this trend will continue. The Virginia Employment Commission—the source for data found in this section—projects that, by 2020, the Health care and Social Assistance Industry will grow by 36%, considerably higher than the growth rate for Virginia employment overall.

What follows is a snapshot of the dynamics within the health industry focusing on the 3 E's of Virginia's health care: **education, employment and earnings.**

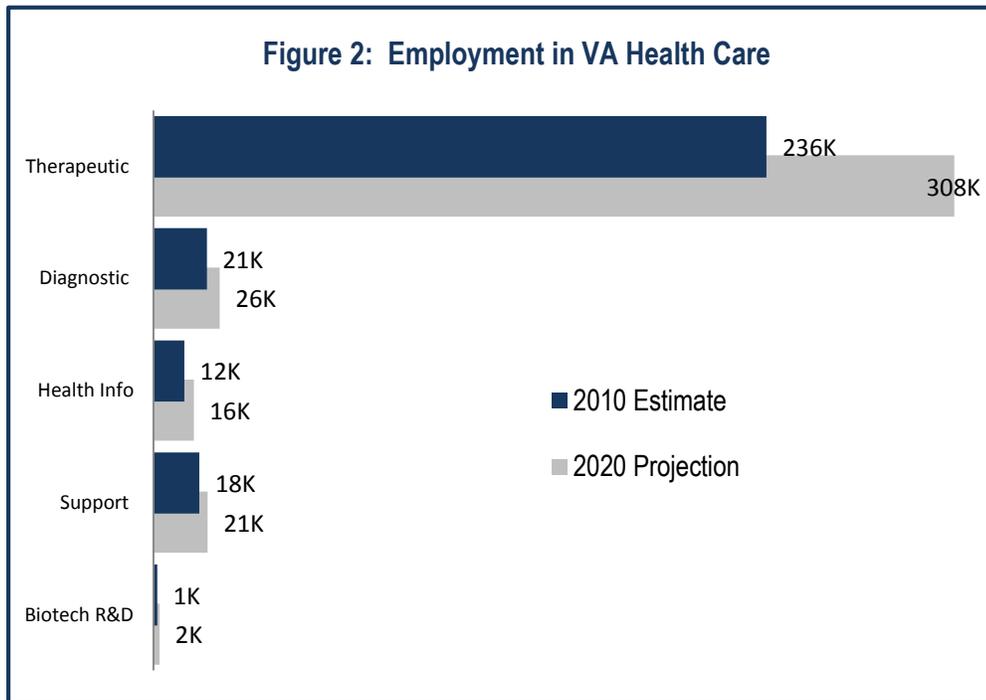
Education

In the health sector, the predominant level of education and training differ quite a bit by specific occupation as seen in Figure 1.

- **Therapeutic Services** specialization includes a variety of occupations and sub-specialties. As a result, there is wide range of education attained by workers in this area.
- **Biotechnology R&D**, on the other hand, requires specific training, and most of the employees typically have a Bachelor’s degree or higher.



In 2010, nearly 11,000 degrees and about as many non-degree certificates were conferred on individuals working in Virginia’s health professions. Adequate educational infrastructure will be crucial to meet the growing health care demands of Virginians.



Employment

Employment in the health care industry has been rising for decades all across the U.S. and 2020 projections for the Commonwealth reflect similar trends, shown in Figure 2.

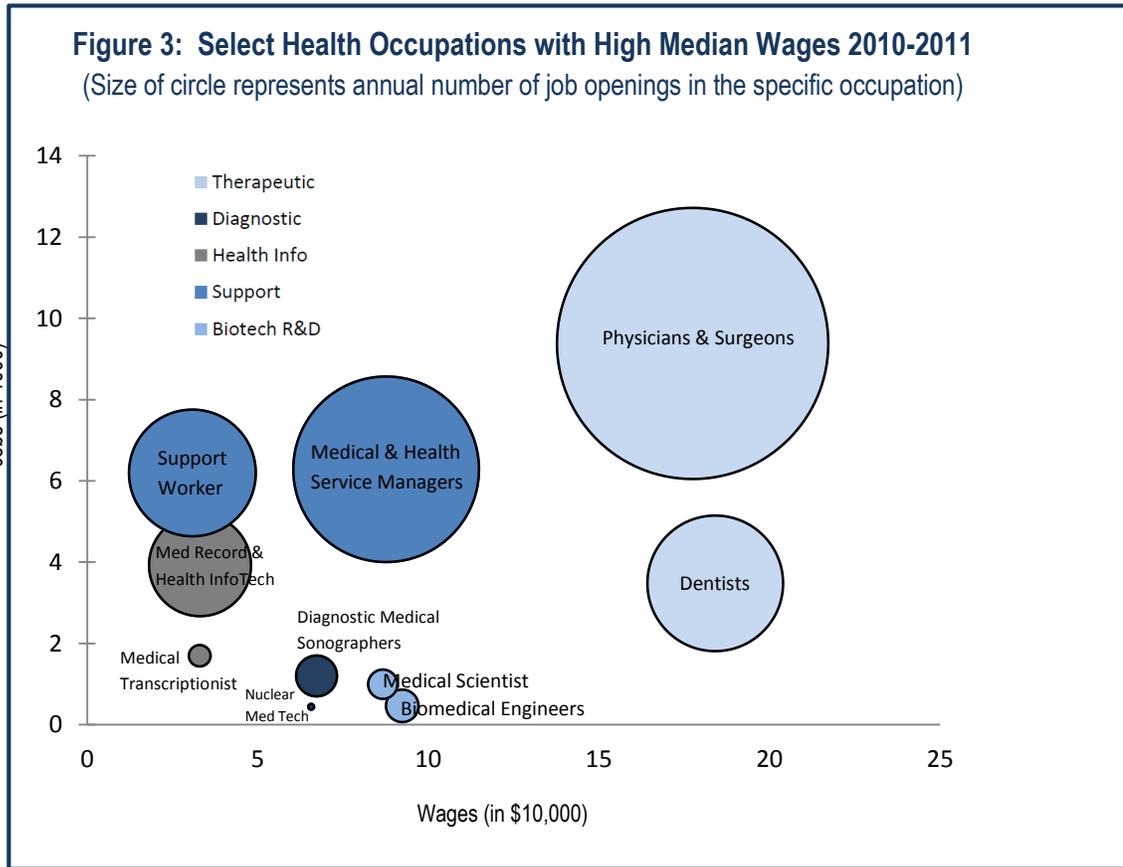
Comparing the employment estimates of 2010 to the 2020 projections shows **that all five pathways will see growth**. Therapeutic Services will employ the maximum number of people at 308,000, but Biotechnology R&D is projected to grow the fastest,

with an anticipated 100 percent turnover rate. The latter health service area is expected to employ about twice as many people in 2020 as it did in 2010.

Earnings

Earnings in the health care sector vary across occupations. Figure 3 focuses on the top two wage-earning occupations in each pathway. Some careers, such as Dentistry or Biomedical Engineering, may have higher wages but employ fewer people; others,

such as Health Support and Medical Records & Health Information offer jobs to a greater number of people, but have lower wage-earning potential.



Growth and the Role of CTE

The health care industry is projected to face a shortage of 16,000 workers in Northern Virginia by 2020 as per the report on “Health Care Workforce Shortage: An Analysis of the Scope and Impact on Northern Virginia”.

From the growth perspective, **occupations under Therapeutic Services and Support Services are forecast to have maximum annual job openings.** With well over 100,000 prospective employment opportunities in Virginia health care between 2010 and 2020, investing in education and training will be crucial for Virginia's future. CTE programs can play a pivotal role in preparing potential entrants for the health sector.

\$28 billion

Estimated economic impact of health care industry in the Commonwealth in 2011

Powell, Robert. Virginia Business Magazine. March, 2013.

HEALTH SCIENCE AND TECHNOLOGY: WHAT'S HAPPENING IN VIRGINIA?

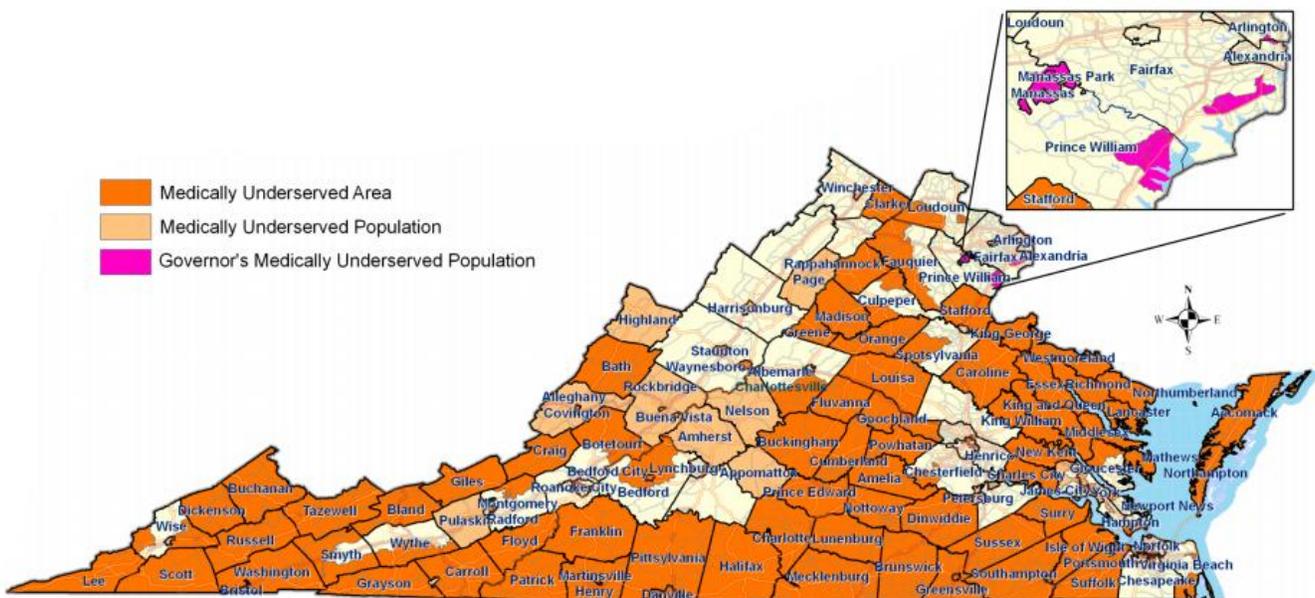
In an effort to improve rural health outcomes, decrease hospital readmission rates, and generally serve the public with high quality health care, telehealth programs and services are gaining popularity across the nation. Virginia is at the forefront of this application of technology.

Telehealth, frequently referred to as telemedicine, is the practice of health care at a distance. Health care makes use of technology in many ways, but *telehealth* specifically refers to communication between two or more individuals not physically in the same place in order to treat a patient or to educate other providers. Examples include:

- Consultations between a patient and his physician
- The transmission of images such as MRI results between specialists
- An interpreter “dialing in” to an exam room where the doctor and patient do not share a common language

Telehealth technology makes health care accessible to patients living far away from hospitals and health care facilities. This is particularly important for residents living in the rural regions of Southside and Southwest Virginia, since the majority of localities in this part of the Commonwealth have been designated as *Medically Underserved Areas* by the U.S. Department of Health and Human Services. In fact, in late 2012, **the majority of all counties in Virginia are designated as either *Medically Underserved Areas (MUAs)*, or as having *Medically Underserved Populations (MUPs)*.** According to the U.S. Health Resources and Services Administration, this means that these areas have too few primary care providers for either the overall population (MUAs) or for specific sub-groups with economic or language barriers (MUPs). These areas and populations also have high infant mortality, high poverty and/or high elderly population.

Map of Virginia's Medically Underserved Areas/Populations



Source: [Virginia Department of Health, Shortage Designations and Maps](#)

February 2014

In 2013, University of Virginia Center for Telehealth received a grant to develop a telehealth training institute in partnership with the New College Institute in Martinsville. This center, known as the *Southside Telehealth Training Academy and Resource Center (STAR)*, is currently enrolling students and will certify participants as Telehealth Technologists, allowing them to assist in providing remote care for patients and support for physicians. According to a February, 2013 *Martinsville Bulletin* interview of New College Institute Executive Director William Wampler, while the training is geared toward educating medical professionals, including EMTs and home health aides, “it will be open to others who want to learn the technology.”

The Telehealth Network Grant Program, part of the U.S. Department of Health and Human Services, reports that between 2004 and 2010, over half of the people educated at telehealth centers such as STAR were neither doctors nor nurses; participants included allied health students, certified pharmacy technicians, community health aides and health-related professionals.

The Health Science Cluster currently supports coursework in technology assessment, though it is considered part of the Biotechnology Research and Development Pathway. **In consideration of the growing need for telehealth professionals, be they health care providers or in health care support roles, it is important to continue the technological education of all students in the Health Science Cluster.** Career and Technical Education students or graduates interested in serving the needs of rural communities will benefit from strong computer skills, as well as an understanding of the growing connection between rural health care and technology.