

CRITICAL CONDITION

The Urgent Need to Expand Healthcare Education in Central Florida



A report by O-Force:

The Orlando Regional Partnership for Tomorrow's Workforce

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Critical Condition

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Executive Summary

Demand for healthcare services in Central Florida is soaring. To keep pace with the medical needs of its population, the region must substantially increase the healthcare workforce. At present, however, the region's educational institutions have the capacity and resources to produce only a fraction of the healthcare workers that Central Florida needs.

The key driver of demand for healthcare services in Central Florida is the rapid growth and aging of the region's population. Between 2002 and 2010, Central Florida's population will swell by 20 percent, to 2.2 million people. In the same period, the number of people in the region who are 65 years of age and older will increase by 31.5 percent. This latter group constitutes the biggest users of healthcare services.

Meanwhile, much of the region's current healthcare workforce – including nurses, other medical service providers and healthcare educators – is also aging and nearing retirement. This drives the need for new healthcare workers even higher.

In 2002, 58,300 people were providing healthcare services in Central Florida. By 2010 nearly 42,000 more trained workers could be needed to fill all of the region's healthcare jobs.

Central Florida will, as it has always done, meet some of this need by attracting healthcare workers from elsewhere. However, given that there is a shortage of healthcare workers nationwide, the region cannot expect to fill more than a small portion – perhaps 5 percent – of its healthcare job openings in this manner. The bulk of Central Florida's new healthcare workforce will have to be generated locally.

The good news is that many of Central Florida's young people are interested in pursuing healthcare careers. Yet lack of capacity is forcing the region's educational institutions to turn hundreds of qualified applicants away from Healthcare Education. Central Florida's schools do not have enough faculty, classrooms, laboratories, equipment or supplies to meet enrollment demand or the region's healthcare training needs. Not only is the level of funding inadequate, but current State education funding formulae fail to take into account the higher costs of providing Healthcare Education.

The gap between Central Florida's soaring healthcare needs and its capacity to prepare people for healthcare careers leaves thousands of high-paying jobs unfilled and, more importantly, jeopardizes the very well-being of the region's residents and visitors. Healthcare Education in Central Florida is in Critical Condition. Immediate attention is required.

Major Recommendations

This report contains 44 recommendations for closing the healthcare education gap in Central Florida. These recommendations are summarized as follows:

- Expand Healthcare Education capacity, addressing first the demand in post-secondary institutions, then in dual enrollment programs, and finally in high schools. The most substantial need is in post-secondary Registered Nurse education programs, for which capacity should be increased at least 75 percent by 2010.

- Fund Healthcare Education at realistic levels, taking into account actual capital and operating costs and the industry-competitive salaries required to attract qualified healthcare teaching staff.
- Enhance regional coordination among educators, the Healthcare Industry, and public/private agencies.
- Increase programs for career awareness, exploration, advisement and placement at all education levels.
- Create seamless, layered healthcare “career paths,” or programs of study, throughout K-20 education and into the healthcare industry.
- Improve forecasting of healthcare workforce supply and demand.

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SECTION I: Introduction

This study examines current and projected demand for healthcare workers in Central Florida and the capacity of the region's educational institutions to prepare students to meet that demand. For the purposes of the study, Central Florida is defined as Lake, Orange, Osceola, Seminole and Sumter counties.

The shortage of registered nurses in Florida and the United States has been well publicized. Lacking, however, has been sufficient information from which to plan appropriate, long-term educational responses to the nurse shortage in Central Florida. Also lacking has been sufficient information on workforce demand and supply in healthcare occupations other than nursing. This report looks at all healthcare occupations, with one exception, and identifies those for which the need to expand educational program capacity in Central Florida is greatest. The exception is the occupation of physicians, because there currently is no medical school in the region to provide physician training.

The period covered by the study, 2002 to 2010, was dictated by the availability of comparable regional data from the Florida Agency for Workforce Innovation (AWI), the U.S. Census Bureau and other information sources. Many times during the course of our research, healthcare providers and educators in the region told us that they consider AWI's figures on healthcare job growth and openings to be too low. Student placement rates do, indeed, indicate greater demand in some healthcare occupations. Yet, because comprehensive data is not available from other sources, we had no choice but to base this study on AWI estimates. We suggest, though, that readers consider the recommendations in this report to be minimum responses required to meet Central Florida's healthcare workforce needs.

We also acknowledge that some pertinent healthcare workforce issues are not addressed here. For example, the report does not make recommendations on reducing employee turnover in healthcare institutions or recruiting healthcare workers from other locations, including overseas. Clearly, these factors do affect the number of people that Central Florida's educational institutions need to prepare for healthcare occupations. However, the issues mentioned above and many others like them are best addressed internally by healthcare employers. This study considers only the appropriate responses by Central Florida's educational institutions to the region's healthcare workforce needs.

In the study, we also limited our research to the five counties mentioned above. Some readers might argue that the healthcare workforce needs of a broader area should have been considered. We do not disagree. However, the geography of the study was ultimately determined by the geographic territory served by O-Force. O-Force is a not-for-profit organization formed by businesses and educational institutions in the five counties to address Central Florida workforce needs. While many organizations and individuals aided and guided our research, the staff of O-Force is solely responsible for the findings and recommendations presented in this report.

As a final note, O-Force thanks the Board of County Commissioners of Orange County for funding this study. All of Central Florida will benefit from Orange County's investment.

SECTION II: Demand for Healthcare Services

The need for healthcare workers is increasing at an unprecedented rate in Central Florida. Although the same is true across all of Florida and the United States, demand for healthcare services in Central Florida is rising even faster than in much of the rest of the state and nation because of the rapid growth and aging of the region's population.

From 2002 until 2010, the population of the five counties of Central Florida (Lake, Orange, Osceola, Seminole and Sumter) will increase by twenty percent, to nearly 2.2 million people, according to forecasts by the Bureau of Economic and Business Research (BEBR) at the University of Florida. That compares to projected population growth rates of 13.8 percent for Florida as a whole, and seven percent for the United States. This statistic on Central Florida's population growth alone might suggest that the region's healthcare workforce should also grow by twenty percent during the period.

However, analysis of the region's population growth by age indicates a need for an even-larger increase in the healthcare workforce. The largest users of the healthcare services are those 65 years of age and older. In 2002, this group accounted for thirteen percent of the region's population, but forty percent of hospital utilization. By 2010, the population of seniors (65 years and older) is expected to swell by 31.5 percent, according to the BEBR forecast. Only the 45-64 age group will grow faster during this period, foreboding further acceleration in the demand for healthcare services after 2010. That is among the reasons why a recent report by the U.S. Department of Health and Human Services predicts a widening gap between demand for and supply of Registered Nurses through at least 2020 ([see Appendix A](#)).

Age Group	2002	2010	Change	% Change
0 - 14	367,200	410,000	42,800	11.7%
15 - 44	801,600	877,900	76,300	9.5%
45 - 64	420,500	595,700	175,200	41.7%
65+	240,000	315,700	75,700	31.5%
Total	1,829,300	2,199,300	370,000	20.2%

SOURCE: University of Florida (BEBR)

	2002	2010	% Change
U.S. (in millions)	35.30	39.72	12.5%
Florida	2,934,600	3,490,300	18.9%
Central Florida	240,000	315,700	31.5%

SOURCE: University of Florida (BEBR)

Considering the aging of the region's population, it is not surprising that the Florida Agency for Workforce Innovation (AWI) forecasts 30 percent growth in healthcare industry employment in Central Florida in the period 2002-2010. As a point of comparison, total employment in all industries in the region is expected to increase by 20 percent during this same period.

Clearly, healthcare is one of the fastest growing employment sectors of the Central Florida economy. In 2002, more than 68,500 people were employed in the healthcare industry in the

region. By 2010, total employment in the industry is expected to exceed 89,000, according to AWI projections.

Hospital Utilization		
Central Florida 2002		
<u>Age Group</u>	<u>Population Distribution</u>	<u>% of Total Hospital Users</u>
00 - 14	20%	7%
15 - 44	44%	31%
45 - 64	23%	22%
65+	13%	40%
Total	100%	100%

SOURCE: National Center for Health Statistics

However, not everyone employed in the healthcare industry is a healthcare practitioner with specialized training. The industry employs administrative, housekeeping, and other personnel who do not require healthcare-specific education.

In addition, not all healthcare practitioners work in the healthcare industry. Insurance companies, local governments, theme parks, and other businesses also employ healthcare practitioners. Of Central Florida's 12,500 Registered Nurses, for example, 3,000 are employed by business and government. For the purpose of healthcare workforce planning, we must consider healthcare occupations across *all* industries and not just in the healthcare industry. Furthermore, we should subtract from healthcare industry total employment those positions that do not require specialized healthcare training.

With these adjustments made, the AWI data show more than 58,300 healthcare practitioners employed in all sectors of the Central Florida economy in 2002 and 32 percent growth in this category by 2010. In other words, there could be more than 18,600 new healthcare jobs to be filled in Central Florida by 2010.

To this number we must also add healthcare job openings created by retirements and separations. The healthcare industry faces high employee turnover in the next several years, in part because of the age of its workforce. For example, the average age of a nurse in Florida is 47. AWI estimates forty percent turnover in healthcare industry employment during the 2002-2010 time period. Lacking other evidence, we assume the turnover rate will be roughly the same for all healthcare practitioners regardless of where they are employed.

For every 10 healthcare practitioners working in Central Florida in 2002, seven more will be needed by 2010.

Finally, all of this data together provides a basis for estimating the total number of new healthcare workers that will be needed in Central Florida between 2002 and 2010. That number is 41,900.

Put another way, for every 10 healthcare practitioners working in Central Florida in 2002, seven more will be needed by 2010 to keep pace with the region's soaring demand for healthcare services.

If some find these forecasts to be staggering, consider this: The numbers may be too low. In the next section of this report, we review projected workforce needs by specific healthcare occupations. The data on individual occupations comes from AWI and the U.S. Census Bureau. In the course of our research we asked a panel of Central Florida healthcare employers and educators to examine the numbers. Based on the experience of their individual institutions, panel members said they believe the available data underestimates current and future job openings in many healthcare occupations. The Florida Center for Nursing echoed this concern over AWI's data in the March 2004 edition of its *Update* publication, where it reported that the center's board and staff "believe the current supply figures are overstated (and) the demand figures are understated."

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SECTION III: Critical Need Occupations

The vitality of any industry depends on having a steady stream of new workers or innovative new technologies that increase productivity and reduce staffing needs. Unlike manufacturing, healthcare is not likely to see its workforce needs decline because of the latter. While new technologies are making significant contributions to the quality of care, robotic caregivers are not in the forecast. Furthermore, while medical research and technological developments may be decreasing healthcare workforce needs in some areas, they are actually increasing the healthcare industry's workforce and training needs in others. Nothing on the horizon suggests that healthcare delivery will be significantly less labor intensive tomorrow than it is today. Fact is, the need for trained healthcare workers will grow as demand for healthcare services grows.

At present, the healthcare industry encompasses more than 70 medical occupations. The majority of these require either two years of technical training or up to four years of college education. Healthcare industry staffing is grouped into three classifications. The following shows each category's portion of the total healthcare workforce in Central Florida:

Health Practitioners and Technicians:	48.5%
Health Support Occupations:	25.3%
Medical Office and Administrative Support:	26.2%

Although jobs in Medical Office and Administrative Support include a wide range of business-related skills, many of these positions also require specialized training, tailored to the medical field.

Occupational Title	Employment			Average Annual Openings		
	2002	2010	Annual Percentage Change	Due to Growth	Due to Separations	Total
Medical Records and Health Information Technicians	1,447	2,209	6.58	95	28	123
Medical Assistants	3,021	4,602	6.54	198	70	267
Respiratory Therapists	570	812	5.31	30	13	43
Pharmacy Technicians	1,031	1,461	5.21	54	24	78
Medical and Health Services Managers	2,237	3,139	5.04	113	35	147
Pharmacists	1,739	2,431	4.97	86	47	133
Medical Transcriptionists	592	822	4.86	29	14	43
Home Health Aides	4,228	5,766	4.55	192	49	241
Dental Assistants	1,198	1,626	4.47	54	20	73
Registered Nurses	12,543	16,874	4.32	541	231	773
Dental Hygienists	1,156	1,541	4.16	48	15	64
Physical Therapists	531	701	4.00	21	12	34
Surgeons	504	658	3.82	19	7	26
Nursing Aides, Orderlies, and Attendants	5,987	7,782	3.75	224	71	295
Radiologic Technologists and Technicians	853	1,091	3.49	30	17	47
Family and General Practitioners	853	1,083	3.37	29	12	41
Massage Therapists	722	913	3.31	24	15	39
Medical and Clinical Laboratory Technologists	1,039	1,305	3.20	33	23	56
Licensed Practical and Licensed Vocational Nurses	4,787	5,960	3.06	147	115	262

Source: Agency for Workforce Innovation

This study focuses on the fastest-growing healthcare occupations (shown in the table on the previous page), and examines the availability of training in Central Florida for each of these occupations. These 19 occupations account for three-fourths of Central Florida's healthcare jobs. The table shows current counts and projected needs for the region by 2010.

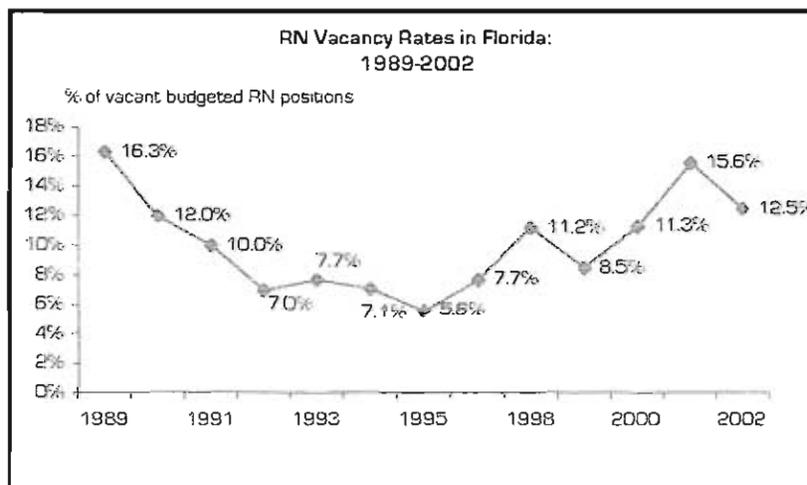
A project steering committee, composed of healthcare educators and industry representatives, reviewed the AWI occupations data and compared it to the hiring and placement experiences of their institutions and education programs currently in place. With the committee's guidance, we identified the following positions as being those for which the need for additional workers should be of greatest concern:

- Registered Nurses and Advanced Registered Nurse Practitioners
- Licensed Practical Nurses
- Pharmacists
- Medical Records/Health Information Technicians
- Med/Clinical Laboratory Technologists
- Med/Clinical Laboratory Technicians
- Dental Hygienists
- Radiologic Technologists and Technicians
- Respiratory Therapists
- Cardiovascular Technologists and Technicians
- Radiation Therapists

Registered Nurses and Advanced Registered Nurse Practitioners

Registered nurses constitute the largest occupation within the Healthcare Industry, one of the industry's fastest-growing occupations, and the healthcare occupation in which the shortage of trained workers is greatest. The entire nation is suffering from a severe nurse shortage, which makes it unlikely that Central Florida would be able to fully address its need for additional nurses by recruiting from other areas.

The shortage of nurses is not new in the Sunshine State, according to staffing surveys by the Florida Hospital Association. As the accompanying chart shows, the state did see a reduction in the nurse vacancy rate in the early 1990s, but the rate has, for the most part, been creeping upward again since the mid-90s.



Notes: Survey was not conducted in 1996

Vacancy rates reflect the percentage of budgeted positions that are not filled

Source: FHA Nurse staffing Surveys, 1989 - 2002

The need for more registered nurses is made particularly acute by the aging of the population. Florida, with the highest percentage of elderly in the nation, ranks 31st in the number of RNs per 100,000 people. By comparison, Pennsylvania, which ranks second in elderly population, has 28 percent more RNs per 100,000 people than does Florida.

The U.S. Census Bureau forecasts 34.5 percent growth in nursing jobs in Central Florida between 2002 and 2010. When job openings due to separations and retirements are factored in, the data indicates a need for more than 6,000 additional nurses in the region in this time period.

Registered Nurses		
Job Openings 2002 - 2010		
Growth + Separations: 6,179		
Employers	#	%
Hospitals	3,528	57.1
Physician's Offices	556	9.0
Nursing Care	352	5.7
Home Health	315	5.1
Employ. Services	185	3.0
All Other	1,243	20.1

Source: U.S. Census Bureau

There are three major educational avenues for becoming a registered nurse: a bachelor's degree, an associate degree, or a career/technical diploma. The Registered Nurse category also includes Advanced Registered Nurse Practitioners (ARNPs: nurses who hold a Master's degree or higher). Florida, unlike many other states, does not permit ARNPs to issue prescriptions for medicines. Elsewhere, ARNPs can set up independent, private practices, serve patients, and write prescriptions, much as physicians do. Here, they must function

under the observation of a licensed physician. This makes Florida an unattractive location for ARNPs and limits the state's ability to recruit and retain nurses with advanced certification. This also limits the state's pool of potential nurse educators, who are required to have at least a Master's degree to teach in post-secondary institutions.

Licensed Practical Nurses

Licensed practical nurses are in high demand in hospitals and nursing care facilities. These essential caregivers numbered 4,787 in Central Florida in 2002. Demand for LPNs is expected to increase 30 percent by 2010. Most of the increase in demand for LPNs will come from nursing care facilities, which will be growing with the aging population.

Licensed Practical Nurses		
Job Openings 2002 - 2010		
Growth + Separations: 2,093		
Employers	#	%
Hospitals	553	26.4
Nursing Care	544	26.0
Physician's Offices	268	12.8
Home Health	151	7.2
Employ. Services	109	5.2
All Other	468	22.4

Source: U.S. Census Bureau

A two-year degree or technical school training of shorter duration is required to become a LPN. Training is available at 1,100 state-approved career and technical schools in Florida. LPN certification is also regarded as an initial step in a career path to becoming a Registered Nurse or higher level healthcare professional.

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Pharmacists

Pharmacists Job Openings 2002 - 2010 Growth + Separations: 1,064		
Top 5 Employers	#	%
Health & Per. Care Stores	460	43.2
Hospitals	232	21.8
Grocery Stores	93	8.7
Federal Government	23	2.2
Physician's Offices	23	2.2
All Other	233	21.9

Source: U.S. Census Bureau

An aging population will require more prescription medicines. That is one of the reasons drug stores are multiplying in Central Florida and across the country. It is also one of the reasons why demand for pharmacists is soaring. If current growth in demand continues, Central Florida will need an average of 133 pharmacists per year between now and 2010.

Pharmacists must graduate from an accredited college of pharmacy, serve an internship under a licensed

pharmacist, and pass a state licensing examination. Central Florida does not have a college of pharmacy. The region's nearest education resource for pharmacists is the University of Florida in Gainesville. However, the University's pharmacy school recently established a residency program in Apopka, from which it intends to graduate about 50 students per year.

Pharmacy technician is another high-demand occupation in Central Florida, according to AWI data. However, because pharmacy technicians require relatively brief and low-level training, the study steering committee did not consider this to be an occupation of special concern.

Medical Records/Health Information Technicians

Demand for medical records technicians and health information technicians is being driven by soaring requirements for patient information. People in these positions organize and evaluate patient healthcare records for completeness and accuracy. This is one of the few healthcare occupations in which there is little or no direct contact with patients.

A medical records or health information technician must have knowledge of anatomy, physiology, medical terminology and computer science, among other subjects. An associate degree is the minimum requirement for these positions, and many people in these occupations have baccalaureate degrees.

Medical Records/Health Information Technicians Job Openings 2002 - 2010 Growth + Separations: 986		
Top 5 Employers	#	%
Hospitals	349	35.4
Physician's Offices	275	27.9
Nursing Care	77	7.8
Outpatient Care	40	4.1
Federal Government	28	2.8
All Other	217	22.0

Source: U.S. Census Bureau

More than 62 percent of medical records personnel are employed either at hospitals or physicians' offices. Future job prospects in the occupation look very good as the need for information services continues to expand, particularly in physicians' offices.

Medical and Clinical Laboratory Technologists

Medical and Clinical Laboratory Technologists		
Job openings 2002 - 2010		
Growth + Separations: 448		
Top 5 Employers	#	%
Hospitals	267	59.6
Med/Diagnostic Labs	64	14.3
Physician's Offices	45	10.0
Federal Government	15	3.4
Other Ambulatory Care	10	2.2
All other	47	10.5

Source: U.S. Census Bureau

Laboratory testing plays a crucial role in the detection, diagnosis, and treatment of disease. Medical and clinical laboratory technologists examine and analyze body fluids, tissues, and cells. Clinical laboratory technologists usually have a bachelor's degree, with a major in medical technology or one of the life sciences.

Medical and Clinical Laboratory Technicians

A two-year associate degree program prepares students to become medical and clinical laboratory technicians. The duties of these laboratory technicians are similar to those of the technologists discussed in the previous paragraph. Yet, the technician jobs pay considerably less.

For that reason, most students interested in the field have opted to pursue the four-year bachelor's degree program to become technologists, rather than the two-year path to become technicians. The region's only clinical laboratory technician education program – that offered by Valencia Community College – closed because of low enrollment and Valencia does not plan to reopen the program.

Medical and Clinical Laboratory Technicians		
Job openings 2002 - 2010		
Growth + Separations: 616		
Top 5 Employers	#	%
Hospitals	367	59.6
Med/Diagnostic Labs	87	14.1
Physician's Offices	62	10.1
Federal Government	20	3.2
Other Ambulatory Care	14	2.3
All other	66	10.7

Source: U.S. Census Bureau

Still, demand for technicians is expected to climb as the volume of laboratory tests increases from population growth and the development of new types of testing. The vast majority of these positions are in hospitals, which report that they are having to employ higher-paid technologists for work that could be performed by technicians.

Dental Hygienists		
Job openings 2002 - 2010		
Growth + Separations: 505		
Top 5 Employers	#	%
Dentist's Office	474	93.8
Physician's Offices	6	1.2
Federal Government	6	1.2
Colleges & Universities	4	0.8
Hospitals	4	0.8
All Other	11	2.2

Source: U.S. Census Bureau

Dental Hygienists

Anyone who has had to reschedule a dental cleaning knows first-hand of the shortages of this field in Central Florida. "We can see you in two months, but we'll put you on our list to call if we get a cancellation," is the routine response of the office receptionist.

Population growth is one factor driving demand for dental hygienists in Central Florida. Another factor is improved dental health. More people have dental health

insurance and are visiting dentists more often. As a result, they retain their natural teeth longer and also continue to visit dentists later in life. Dental hygienists provide dental prophylactic treatments and instruct groups and individuals in the care of the teeth and mouth.

As the above chart shows, the overwhelming majority of dental hygienists work in dentists' offices. Demand for dental hygienists could exceed current educational institution training capacity by 83 percent by 2010.

Radiologic Technologists and Technicians

Older persons are the primary users of the diagnostic procedures conducted by "Rad Techs." Growth in the 65-plus age group will drive demand for workers in this specialty.

Radiologic Technologists and Technicians Job Openings 2002 - 2010 Growth + Separations: 374		
Top 5 Employers	#	%
Hospitals	216	57.7
Physician's Offices	95	25.3
Mod/Diagnostic Labs	27	7.2
Outpatient Care	6	1.6
Federal Government	6	1.6
All other	4	6.6

Source: U.S. Census Bureau

Radiologic technologists and technicians take x-rays and administer non-radioactive materials into patients' bloodstreams for diagnostic purposes. Some "rad techs" specialize in diagnostic imaging technologies, such as computerized tomography and magnetic resonance imaging.

The greatest need for radiologic technologists and technicians is in hospitals. However, employment opportunities at physician offices and clinics, including diagnostic imaging

centers, are increasing as more people opt for outpatient services. Anecdotal evidence gathered in the course of this study suggests job openings for Rad Techs may exceed estimates shown here.

Respiratory Therapists

Respiratory therapists evaluate, treat and care for patients with breathing disorders. The supply of workers in this occupation could fall 65 percent short by 2010 if educational programs in this field are not expanded.

Respiratory Therapists work primarily in hospitals, with only about 20 percent employed at other facilities. Through 2010, hospitals will continue to employ more than eight out of 10 respiratory therapists, but a growing number will work in respiratory therapy clinics, nursing homes, home health agencies and medical firms that supply respiratory equipment for home use. Employment opportunities will be best for therapists with cardiopulmonary care skills or experience working with newborns and infants.

Respiratory Therapists Job openings 2002 - 2010 Growth + Separations: 344		
Top Employers	#	%
Hospitals	286	83.1
Consumer Rental	9	2.6
Physician's Offices	9	2.6
Nursing Care	8	2.4
All Other	32	9.3

Source: U.S. Census Bureau

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Cardiovascular Technologists and Technicians

Because of the growth of the 65-plus age group, demand for Cardiovascular Technologist and Technicians is expected to soar 140 percent by 2010. These specialists assist physicians in diagnosing and treating cardiac and vascular ailments.

Roughly 73 percent of cardiovascular technologists work in hospitals, in both inpatient and outpatient settings. While the actual number of job openings is low compared to those in other healthcare occupations, the relative rise in demand is substantial.

Cardiovascular Technologists and Technicians Job openings 2002 - 2010 Growth + Separations: 192

Top 5 Employers	#	%
Hospitals	140	72.9
Physician's Offices	25	13.0
Federal Government	9	4.7
Med/Diagnostic Labs	4	2.1
Outpatient Care	3	1.6
All Other	11	5.7

Source: U.S. Census Bureau

Radiation Therapists

Radiation Therapists Job openings 2002 - 2010 Growth + Separations: 32

Top Employers	#	%
Hospitals	21	65.6
Physician's Offices	7	21.9
Outpatient Care	2	6.3
All Other	2	6.3

Source: U.S. Census Bureau

Radiation is used to treat more and more conditions and to extend the life spans of the terminally ill. Radiation therapists provide patients with treatments prescribed by their radiologists. Demand is substantial because of the high incidence of illnesses requiring radiation treatment. Most radiation therapists work in hospitals, medical centers and outpatient clinics.

Of all the data in this report, the estimates of current and projected job openings for radiation therapists raised the most questions from the study steering committee. Information from AWI and the U.S. Bureau of Labor Statistics indicates little job growth in the field from 2002 to 2010. Yet, hospitals and healthcare educators report that radiation therapy jobs are difficult to fill and the placement rate for graduating radiation therapists is 100 percent. The discrepancy may be due, in part, to recent advances in medical technology that are raising demand for radiation treatment services far beyond levels suggested by the historical record of employment growth in the occupation.

Staffing shortages are already a reality

Although this report and the data above focus on the future, any one who has sought emergency medical treatment in Central Florida can attest that the region already suffers from a shortage of healthcare workers. The Healthcare Industry is attempting to address current conditions in many ways, including through the use of temporary help, internships, aggressive employee recruitment, signing bonuses, cross training, and voluntary and mandatory overtime. (Noteworthy is the fact that the states of New Jersey and Washington have banned mandatory overtime because of concerns over patient safety.)

These strategies fall short of filling gaps today. They cannot be regarded as solutions for the increased healthcare staffing needs of 2010. Nor can increased recruitment of healthcare workers from other regions be viewed as a viable, long-term strategy. The entire country is afflicted by a worsening shortage of healthcare workers. Excess healthcare workers in substantial numbers are simply not available anywhere. Central Florida's leading healthcare employers report that they currently fill only about 5 percent of their job openings with recruits from elsewhere. Given the nationwide competition for healthcare workers, a substantial increase in that percentage is unlikely.

The bulk of Central Florida's future healthcare workforce must be provided by the region's own education and training programs. In Section IV of this report, we examine the current capacity of Central Florida's education system to meet the region's healthcare workforce needs.

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Section IV: Current Healthcare Education Capacity

At first glance, Central Florida seemingly offers ample training opportunities for people interested in healthcare careers. Four-year degree programs in nursing and other healthcare occupations are offered by the University of Central Florida and the Florida Hospital College of Health Sciences. Certificate and two-year degree programs in several health fields are offered by Lake-Sumter, Seminole and Valencia community colleges. Still other healthcare education programs, including some providing career certification, are offered by technical schools and high schools in the school districts of Lake, Orange, Osceola, Seminole and Sumter counties. In addition to these are healthcare training programs offered by numerous private post-secondary technical schools in the region.

Available evidence also suggests that large numbers of students are interested in pursuing healthcare careers – enough, perhaps, to meet Central Florida's rising healthcare workforce needs. Focus groups conducted as part of this study, applications to the region's many healthcare programs, and national surveys all indicate high interest in healthcare careers.

Yet development of Central Florida's healthcare workforce is being thwarted by a lack of capacity in the region's healthcare education programs. Even as the shortage of healthcare workers in the region grows, Central Florida's educational institutions are turning away qualified applicants for healthcare training programs because of inadequate funding, facilities, equipment and faculty. In this section, we examine the current capability of Central Florida's healthcare education programs to address the region's rising healthcare workforce needs.

Post-Secondary Healthcare Education Training Limited by Funding

Current capacity depresses enrollments

In 2002, the University of Central Florida awarded Bachelor of Science degrees in Nursing (BSN) to 95 graduates at its Orange and Brevard county campuses. That same year, the two campuses had 626 qualified applicants for the BSN program. The program had to turn away 450 of these potential nurses for lack of capacity. In 2003, it had 835 qualified applicants for 169 openings; 666 potential nurses were turned away.

What happened to the 1,100 would-be nurses who couldn't get into the UCF program? A few may have been able to enroll in nursing programs offered by other schools, and a few may have entered training for other healthcare occupations. However, based on evidence collected for this study, we can only surmise that most were forced to pursue career training in other fields, because capacity constraints are forcing virtually every healthcare education program in the region to turn away students.

For example:

- In 2002, 32 people applied for admission to UCF's Radiologic Science program. Only 16 were accepted. In 2003, the program could admit only 15 of 48 applicants.
- In 2003, Valencia Community College's various healthcare programs had more than 600 qualified applicants, but could admit just 160.
- That same year, Winter Park Tech had room for only 40 of 64 dual-enrollment applicants interested in its Medical Assisting program.

As part of the research for this study, we inventoried all of the K-20 healthcare education programs in the five-county region of Central Florida (Lake, Orange, Osceola, Seminole and Sumter counties). We compared the total number of graduates or completers being produced by these program to AWI's estimates of average annual job openings for the 11 healthcare occupations identified as being most critical by a steering committee of healthcare practitioners and educators. The table below shows our findings.

Healthcare Services: Demand vs. Supply

Healthcare/Educational Shortages 2002-2010	Annual Grads	Average Annual Job Openings	Minimum Capacity Increase Needed	Education Level *
Registered Nurse and Advanced Nurse Practitioner	442	773	75%	6/5/4
Licensed Practical Nurse	203	261	28%	7
Pharmacist	50	134	168%	1
Medical Records/Health Information Technician	43	123	186%	6/5
Medical/Clinical Laboratory Technologist	24	56	133%	5
Medical/Clinical Laboratory Technician		77	—	6
Dental Hygienist	35	64	83%	6
Radiologic Technologist & Technician**	53	47	0%	6/5
Respiratory Therapist	26	43	65%	6/5
Cardiovascular Technologist & Technician	10	24	140%	6
Radiation Therapist**	10	4	0%	6

*** Education/Training Codes:**

- | | | |
|-------------------------------------|---|--|
| 1 = First Professional Degree | 5 = Bachelor's Degree | 9 = Long-Term On-the-Job Training |
| 2 = Doctoral Degree | 6 = Associate's Degree | 10 = Moderate-Term On-the-Job Training |
| 3 = Master's Degree | 7 = Post-Secondary Vocational Training | 11 = Short-Term On-the-Job Training |
| 4 = Work Experience plus Bachelor's | 8 = Work Experience in Related Occupation | |

SOURCE: Florida Agency for Workforce Innovation

** AWI data shown here is much lower than Central Florida healthcare practitioners' and educators' estimates of demand for these occupations.

The inventory revealed that the number of graduates from Central Florida's healthcare education programs falls well below demand for at least nine of the 11 critical occupations. For example, the region's Registered Nurse education programs would have to produce 331 more graduates each year (an increase of 75 percent) to fill all of the region's job openings for Registered Nurses. In some categories, the region is producing fewer than half of the number of graduates needed.

In the case of Radiation Therapists and Radiologic Technologists and Technicians, AWI's estimates of annual jobs openings suggest that the number of graduates is more than sufficient. However, anecdotal evidence from the study steering committee and other sources indicates

that the actual number of job openings in these fields could be much larger than AWI estimates. Given this conflicting information, it appears that demand for Radiation Therapists and Radiologic Technologists and Technicians warrants further study.

Expansion plans hindered by lack of funds and faculty

Many of Central Florida's educational institutions have plans on the drawing board to expand healthcare programs. Valencia Community College plans to enlarge its Registered Nurse enrollment to 500, from the current 300, in the next few years. Seminole Community College wants to expand its nursing program as well. The University of Central Florida wants to grow its doctoral program in nursing and add healthcare education programs and student capacity on its regional campuses. And Osceola County Public Schools hopes to add dental hygiene to its secondary healthcare programs.

All of these plans are contingent, however, upon the institutions being able to obtain sufficient funds for facilities, equipment and faculty. Funding is the primary reason why existing healthcare education suppliers are not able to meet market demands.

The District Workforce Development Centers (Tech Schools) in the region are under particularly tight financial constraints. Like many educational institutions, the Tech Schools had to scale back because of post-9/11 state budget cuts. While reductions in K-12, university and community college budgets have since been restored, the Tech Schools have yet to see funding levels return to pre-9/11 levels. These institutions prepare LPNs, Medical Records and Medical Information Technologists and other critical technical/medical specialists whose training requirements are below the baccalaureate and associate degree levels. Like many of the other educational institutions, the Tech Schools also have waiting lists of students seeking to enroll in their healthcare training programs. In some cases, funding cuts forced lay-offs and early retirements of highly valued, hard-to-replace healthcare faculty at the Tech Schools.

All of the educational institutions in the region report difficulty in recruiting and retaining healthcare faculty. Healthcare curricula generally require more instructors than do other educational programs, partly because of the amount of laboratory work students must do. Clinicals – supervised, on-the-job training, working with real patients, or real lab cases – are also required before students can be certified in most healthcare professions, and this, too, adds to the demand for faculty.

Educational institutions face multiple challenges in finding and retaining enough instructors for healthcare programs:

- Faculty certification requirements: State regulatory boards establish certification requirements for instructors in all healthcare training programs. In some cases, these requirements are so restrictive that they prevent would-be faculty with subject knowledge from teaching even basic healthcare courses. For example, most medical doctors and retired military medics cannot be certified as instructors for nursing programs because they lack the recognized academic training.
- A shortage of nurses with advanced degrees: To teach in a nursing program, a nurse must have at least a master's degree. According to a 2003 report by the Florida Center for Nursing, only 10 percent of Florida's licensed nurses hold advanced degrees.

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- **Low salaries:** The same credentials that qualify healthcare professionals to teach also qualify them for positions in the healthcare industry that pay considerably more than they could make as teachers. To become teachers, most healthcare professionals currently working in the industry would first have to invest in further education and then take pay cuts.

While low teaching salaries impede faculty recruitment in many other fields, this problem is particularly severe in healthcare education simply because of the shortage of both healthcare workers and healthcare educators. A lack of healthcare faculty leads to a lack of healthcare workers, which leads to a lack of health care or, at the least, to a lack of *quality* health care.

Pending retirements will also impact teaching ranks. In 2002, the mean age of Central Florida's full-time nursing faculty holding doctoral degrees was 53.5 years, according to the Florida Council of Nursing Education Administrators. The mean age of full-time faculty with master's degrees was 48.8 years. The exodus of these soon-to-be retirees will worsen an already critical void in the profession.

Healthcare education costs exceed State funding

Healthcare Education requires low student-teacher ratios, well-equipped laboratories and supervised clinical experience in real-world settings. All of this makes healthcare training more costly than most other instructional programs. Yet, Florida's funding formulae for schools do not take into account the higher costs of healthcare education. With rare exceptions, public education institutions in Florida receive a fixed amount for each full-time student enrolled, regardless of that student's field of study. Schools get the same amount in State funding for teaching history as they do for teaching clinical laboratory technology.

As Sanford Shugart, president of Valencia Community College, sees it, his institution loses money on every nurse it trains. He estimates that it costs Valencia roughly \$9,000 more to train a Registered Nurse than the institution receives in tuition and state fees. If he follows through with his plan to expand Valencia's nursing program, he will have to do so by essentially siphoning off dollars from the community college's other programs.

Actual costs of healthcare education vary from program to program and institution to institution, and depend on such factors as the duration of training, the amount of laboratory space and equipment required, and the number of faculty. Still, virtually all healthcare education costs more per student than Florida's funding formulae recognize. These funding formulae act, then, as a disincentive to the necessary expansion of Central Florida's healthcare education programs.

K-12 Healthcare Education

Healthcare Workforce Crisis Starts Early

Central Florida's entry-level healthcare providers of 2010 are 6th and 7th graders today. Will enough of them be ready and willing to meet the demand? No, unless changes take place quickly.

Even when young people express interest in medical careers, few can name roles beyond "nurse" and "doctor." "Brain surgeon" and "sports doctors" get occasional mentions. Yet, the U.S. Bureau of Labor Statistics lists more than 70 different occupational titles within the medical field.

Students are not the only ones who cannot relate to the complexity of today's healthcare delivery system. Few teachers and counselors can name more than half a dozen medical careers at less than the M.D. level, and recent research shows that teachers and counselors (in that order) play a major role in guiding students' career choices.

Like engineering, computer technology, and other emerging high-tech industries, the healthcare industry has grown beyond the casual knowledge of those who are guiding our youth. However, even more than engineering and computer technology, healthcare will impact the quality of life of all residents of Central Florida.

Career education remains elusive, sporadic in K-8.

Despite decades of urging by educational reformers, business and even political leaders, and occasional grants from the U.S. Department of Education, career education remains only a blip on the radar screen of most Central Florida's K-8 classrooms. Exposure to the world of work is often limited to experiences such as these:

- (a) "our community helpers," (i.e., firemen, policemen, crossing guards, teachers, nurses) in the elementary grades;
- (b) a few Career Days during one week per year in upper elementary, when speakers are invited to present a 20-40 minute talk to the class on their occupation; and
- (c) Ground Hog Day, a nationally promoted event where middle and high school students accompany, or "job shadow," a worker for one or half a day.

Other than these special events, little is done to incorporate careers into daily classrooms to demonstrate, for example, what clinical laboratory technicians do and how they need math to perform their jobs.

Many factors contribute to this void, including the fact that most K-8 teachers have limited exposure to today's high-tech healthcare industry. They simply do not know the vast array of occupations that have emerged with technological progress. With school districts' tight budgets getting tighter with every new student, staff development in career education is a low priority.

It should not be surprising, then, that few students can name any medical careers beyond the most visible. K-8 educators in Central Florida must become active participants in preparing learners for healthcare careers.

Healthcare Careers attractive to secondary school students

Nationally and locally, secondary students are interested in pursuing healthcare careers. A recent national survey by Junior Achievement found "Medicine" to be the second most popular career choice (after Business) among teenagers. Our research indicates Central Florida high school students also find healthcare careers to be attractive.

This study included focus group interviews with students at University and Jones high schools in Orange County, two schools with dissimilar demographics. Neither of these high schools currently offers healthcare career programs. In addition, a survey questionnaire was administered to 135 students from these schools and 100 students from Osceola High School.

Of the survey respondents, nearly 60 percent expressed strong interest in healthcare careers. The students could not, however, name many actual healthcare job titles. They said they believe healthcare careers offer good salaries and job security. Asked to name aptitudes for

success in healthcare, students listed the following: responsible, problem-solver, organized, work well under pressure, ability to multi-task, possess good verbal and written communication skills, flexible in work hours, and have a commitment to lifelong learning.

Students also felt healthcare professions are somewhat prestigious. However, they commonly had no concept of wages associated with careers, and did not correlate the number of years of education required with earnings or job satisfaction.

Of those students interested in pursuing healthcare careers, nearly four out of five said they have a family member or friend working in the healthcare industry. Among students not interested in healthcare careers, the percentage with family or friends in healthcare was much lower. This suggests that the current healthcare workforce plays an important role in influencing the career decisions of the next generation.

Secondary healthcare programs fall far short of meeting demand.

All five school districts in Central Florida offer healthcare career classes in secondary schools. Approximately 2,150 students are enrolled in these classes, or just over 2 percent of the region's combined secondary school population.

Central Florida Secondary Healthcare Education			
Counties	Healthcare Classes	Enrollment	Secondary Population
Orange	21	1,068	48,100
Seminole	1	430	19,100
Osceola	6	170	13,200
Lake	9	439	9,400
Sumter	1	40	1,700
TOTALS	38	2,147	91,500

Our focus group and survey findings indicate potential enrollment in secondary school healthcare career programs could be much higher. If only one-fourth of the students expressing interest in healthcare careers actually took healthcare career classes, enrollment in these classes would top 13,000. As it is, several of the schools where healthcare programs and classes are offered reported that they are turning

away students for lack of capacity. Lack of funding and faculty is a barrier in secondary school Healthcare Education, just as it is at the post-secondary level.

The adjacent table breaks down the number of courses offered by healthcare occupational specialty. In some cases, classes with different names may teach the same or similar content.

Sixteen of the programs listed are high school based, with only high school students enrolled in them. Twenty-two of these listings are dual enrollments at District Workforce Education Centers (Tech Schools), with both secondary and post-secondary students in the same class.

For more complete details on enrollments and sites of secondary school healthcare programs, see [Appendix B](#).

Courses Offered by Title	
Allied Health Assistant	5
Basic X-ray Technician	1
Dental Assistant	1
EMT	2
Health Academy	3
Health Science	3
Health Unit Coordinator	2
Medical Assistant	2
Medical Coder/Biller	1
Medical Lab Assistant	1
Medical Magnet	2
Medical Records Transcribing	1
Medical Secretary	1
Nursing Assistant	4
Paramedic	1
Patient Care Technician	2
Pharmacy Technician	1
Practical Nursing	3
Sports Medicine	1
Surgical Technician	1
NUMBER OF CLASSES	38
NUMBER OF STUDENTS	2,147

Secondary healthcare programs vary in scope, size and quality.

The above programs represent a diversity of delivery models, including single stand-alone courses, Academies, Magnet Programs, and dual enrollment programs between high schools and community colleges or the Tech Schools. The comparative success of these different approaches has yet to be studied, but all show promise in getting a new crop of young people into the healthcare workforce.

While every school may have its own unique version of one of these delivery models, the following describes the general characteristics of each:

Healthcare Academies integrate academics around the career focus, have 40-120 students working and learning together and sharing the same teachers, and prescribe a core course of study students follow in most of their classes. Sometimes called “schools-within-schools,” academies are most successful in large high schools, where instructional scheduling can be more flexible. Academy students value the identification and cohesiveness this model brings to a large school. Academies are the only model to be researched, *per se*. Statewide data show academy students achieve and attend school more than their peers.

Magnet Programs are career or interest focused programs, which attract students from outside the school’s assigned geographic attendance zone, providing maximum efficiency for the program dollar. Healthcare and Engineering are popular for this model, because of the high start-up costs of programs in these fields. Students may start in Academies or Magnet Programs in the 10th grade. Magnet Programs that require students to meet occupational licensing criteria before graduating boast placement rates in either the workplace and/or continued learning of nearly 100 percent.

Dual enrollment programs are those in which secondary students can qualify for post-secondary credit hours while still in high school. Classes can be conducted at the high school or on the post-secondary campuses. Teaching often results from collaboration between secondary and post-secondary staff. Academics are demanding. Therefore, successful program completers are guaranteed admittance to the post-secondary healthcare program. Occupational placements run high. Secondary students in these programs pay nothing for the post-secondary credit hours, making dual enrollment popular with parents who know about it!

Ten years of statewide data confirm what common sense would suppose: Graduates of high school healthcare classes who enroll in post-secondary Healthcare Education need less post-secondary remediation (and, therefore, enter the workforce earlier) and generally out-perform post-secondary students with no prior healthcare instruction. High school Healthcare Education graduates also tend to be more career-focused and goal-driven, according to their post-secondary instructors. (For further information on the characteristics of successful secondary school healthcare education programs, see [Appendix C.](#))

The connections between post-secondary and secondary are often cited as contributors to the success. Anecdotal evidence from last year’s dual-enrollment partnership between Valencia Community College and the Orange and Osceola schools districts, called *Pathways into Nursing*, shows all but one graduate successfully pursued a career or continued education in nursing this year. Tech Centers report close to 100 percent placement of their dual enrollment graduates.

The only drawback to these secondary healthcare programs seems to be their high cost for schools and districts, as cited by administrators, i.e., equipping, maintaining and updating labs; funding for recurring, consumable supplies; finding and hiring qualified staff; finding clinical

opportunities, and providing transportation and supervision for same. However, the long-term benefit in terms of meeting the region's healthcare workforce needs justifies the additional investment in Healthcare Education at the secondary school level.

In the next section of this report, we detail recommendations for expanding and improving Healthcare Education in Central Florida.

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SECTION V: Recommendations for Closing the Gap

Action by four distinct entities will be required to close the gap between Central Florida's healthcare workforce needs and the training capacity of the region's educational institutions. Those entities are State Government, Post-Secondary Education, K-12 Education, and the Healthcare Industry. Some steps can be taken within the region by schools and by the Healthcare Industry to improve preparation of future healthcare workers. However, little can be accomplished without additional money for Healthcare Education. For that reason, our recommendations start with actions by State Government to provide adequate Healthcare Education funding.

Recommendations for State Government

While this report addresses only Central Florida's healthcare workforce needs, our research indicates that healthcare workforce shortfalls exist everywhere in Florida and not just in this region. The issues raised here should be of statewide concern. Therefore, we encourage the Governor and Legislature to provide additional funding for Healthcare Education in Central Florida and, in doing so, to also examine the needs of Florida as a whole.

A. Supporting Current Programs

1. Establish categorical funding to cover the higher recurring costs of Healthcare Education programs. Healthcare Education costs more than most other instructional programs because of its consumable supplies, equipment needs, laboratory maintenance, and so forth. Formulae for funding these programs must reflect this reality, as they do in funding for Special Education. Actual costs depend on the particular healthcare occupation for which students are being trained. A regional industry-education panel could assist in determining appropriate funding for each program. (See recommendations 21 and 31).
2. Restore Healthcare Education funding to District Workforce Education Centers. Commonly called Tech Schools, these local school district training centers supply a substantial number of healthcare workers in critical areas. While post 9/11 budget cuts have been substantially restored for community colleges, universities, and K-12 education, funding for District Workforce Education Centers has not recovered. Meanwhile, the training of potential healthcare workers, particularly at the non-degreed levels, has been substantially reduced.
3. Provide for adequate staffing to meet instructional, clinical supervision, academic and guidance needs of existing healthcare education programs. Some currently operating programs are understaffed. Curriculum deficiencies are the result. Again, a regional industry-education panel might review the essentials for staffing any certified healthcare education program.
4. Adjust healthcare educators' salaries to be more competitive with industry compensation rates. The impending retirements of much of the current nursing faculty will require recruitment of replacements. Existing programs could fold without salary enhancements. The need to offer industry-

competitive salaries is already recognized in the compensation rates for faculty of colleges of medicine, business and other specialized fields. Market reality dictates that funding formulae be modified if qualified teachers are to be recruited for all of Healthcare Education.

5. Provide financial-need-based grants and scholarships for qualified applicants for education programs addressing critical healthcare occupation needs. Education costs should not be a barrier to preparing students for healthcare occupations of critical need.
6. Fund grants for additional personnel at educational and healthcare institutions to act as mentors and internship coaches for the next generation of healthcare professionals.

B. Expanding Programs and Enrollments

7. Fund a grant to expand clinicals. Healthcare education program enrollments are being restricted, in part, by the limited number of clinical experiences currently available in Central Florida. Money should be allocated for researching and designing innovative options to current practices for providing hands-on learning for healthcare students.
8. Fund expansion of programs for Healthcare Education to meet proven enrollment demands. Post-secondary institutions with sizeable waiting lists and plans for expansion should be funded to meet market demand, outside the normal post-secondary funding formula. In the case of Healthcare Education, the needs are anything but normal.

This recommendation includes funding for expansion of dual enrollment opportunities at high schools and Tech Schools. Expanding dual enrollment programs would increase student access to healthcare occupation training and lessen the demand for additional facilities at community colleges.

A third emphasis of this funding should be on expanding secondary school Healthcare Academies and Magnet Programs that are articulated with post-secondary curricula and offer entry-level healthcare career certification.

A criterion for all program funding should be assurance of program quality in terms of market demand, i.e., outcomes and follow-up. Are graduates of a program successful? How is success measured? To what extent do programs meet recognized standards of excellence? Do the programs have third-party review teams? In other words, all applications for funding should have an evaluative component by which institutions justify their expenditures and promote their programs.

9. Support a grant for curriculum specialists to incorporate healthcare career exploration into existing Health courses. "Health" is often mandated as a separate course on personal health or taught as a part of "The Wheel" (a smorgasbord of curricula) at most of the region's middle schools. Integrating healthcare career exploration into these courses would ensure student exposure to the wide range of health careers and help them become better consumers of healthcare services without adding to the already crowded middle school curriculum. The grant should also include

scholarships and training to bring current "Health" instructors up to speed, and to incorporate the concept of healthcare career exploration into teacher education programs.

10. Provide support to a regional post-secondary teacher education agency to develop and conduct workshops on integrating careers and career exploration into academics, focusing on high-need occupations such as healthcare. The Math and Science Professional Development (MSPD) workshops at the University of Central Florida's Academy for Teaching, Learning and Leadership provide an excellent example of a comprehensive "teach-the-teacher" model for diffusing innovative practices.
11. Fund a grant to delineate technical, SCANS*, and computer competencies required for on-the-job success in each of the critical healthcare fields. These competency lists would provide the basis for:
 - (a) reviewing, and possibly streamlining licensing requirements,
 - (b) healthcare teacher certification via non-traditional routes,
 - (c) the Healthcare Education courses of study in the next recommendation.

* (SCANS are the "soft" skills identified as being essential for success on the job by a U.S. Department of Labor Study in the early 1990s. The study was conducted by the Secretary's Commission on Achieving Necessary Skills [SCANS].)
12. Fund a grant to research and develop Healthcare Programs of Study, beginning in the 8th grade, for each of the region's healthcare occupations of critical need. The Programs of Study would outline which courses a student should take, at which level, for preparation for such careers as Certified Nurse Assistant, Registered Nurse, and Medical Records Technician. Programs of Study would emphasize the rigorous Math and Science, beginning with Algebra in 8th grade, required for success in secondary healthcare education. They would also cover the interpersonal-relations, business and computer skills needed for today's healthcare careers.
13. Fund the middle school (8th/9th grade) healthcare curriculum developed by the Florida Department of Education, Workforce Development, in collaboration with industry, to help young people assess their interest in (and prepare for) a secondary healthcare major. This curriculum should be fully funded to support staff training and implementation.

Funding to schools and healthcare facilities must reflect the real costs of maintaining a well-educated, competent workforce capable of delivering safe, high-quality patient care.

C. Revising Current Regulations

Florida's regulatory board and agencies also have a role to play in expanding and enhancing Healthcare Education. The following recommendations are offered to the appropriate regulatory boards:

14. Review and update current healthcare licensing requirements to eliminate any duplication or outdated requirements, and ensure that requirements match today's on-the-job performance expectations. (See

recommendation 11 above.) Funds must then be allocated for modifying pre-service healthcare curriculum to reflect changes.

15. Explore options to the degreed Registered Nurse path to certification for teaching healthcare. Such an option might be qualifying military-trained medical personnel and health/science teachers to teach middle- and secondary-school healthcare exploratory courses through six-week healthcare internships. Medical doctors, retired or otherwise, could also be certified to teach Nursing through similar routes. In the best of all worlds, all preparatory experiences for healthcare instructors would be the same. However, the growing demand for a trained healthcare workforce requires explorations of alternative routes to the certification of healthcare teachers.
16. Take a leadership role in developing a marketing plan to promote healthcare careers to young people and older workers seeking second careers in Florida.
17. Encourage schools to adopt a reform model, such as the Southern Regional Education Board's (SREB) *High Schools That Work* and *Making Middle Grades Work*. Both of these models use a career focus and a rigorous academic core to boost student achievement, retention and preparation for post-secondary success. Several Healthcare Academies and Magnets in Florida have already embraced the guiding principles of these proven reform models. Florida should remain an active player in the SREB Consortium.

Recommendations for Post-Secondary Education

Post-secondary education provides a bridge from secondary preparation for entry-level employment to the highest rungs of the healthcare professional ladder. Post-secondary education includes School District Workforce Education Centers, Community Colleges, training offerings within the healthcare industry and four-year degree programs at universities. These represent a diverse range of resources and learning opportunities. The findings of this report lead to the following post-secondary education recommendations:

18. Establish a source of targeted recurring funding to provide community colleges and universities with the fiscal stability they need to plan for long-term expansion of healthcare education programs.
19. Develop scholarship and incentive programs to encourage pursuit of graduate nursing degrees that prepare individuals to become healthcare faculty at universities and community colleges.
20. Develop recruitment strategies to target BSN graduates ready to make career change and individuals who have left nursing. Increase accessibility through alternative methods of program delivery.
21. Establish a Regional Post-Secondary Healthcare Education Consortium. Representation should include all post-secondary education providers, the Healthcare Industry, health and wellness centers in other industries, secondary feeder programs, consumer and licensing agencies, and governmental decision-makers. Such a group could be the best agency to address critical region-wide concerns, such as the following:

- Expanding post-secondary healthcare education opportunities while minimizing redundancies;
- Marketing within and outside Central Florida for healthcare instructors;
- Coordinating and identifying appropriate options for clinical sites for nursing and allied health students, including some 24-hour operations;
- Coordinating placements after program completion;
- Documenting areas of critical shortages, publicizing supply and demand;
- Collaborating on use of facilities and staff;
- Coordinating on-line instruction; and
- Promoting credit-bearing and/or stipend-supported middle and high school educator workshops and on-site (or on-line) learning labs to increase educator awareness of today's healthcare careers and the rigor and relevance of academics in all levels of the medical profession.

22. Expand and promote the University of Central Florida's innovative program to accelerate RN degree completion for students with BS degrees in other fields.
23. Collect and publicize placement, follow-up and customer satisfaction data to determine how well post-secondary education "products" meet the needs of employers. Curriculum must be data-driven and undergo continuous review, reflecting changes in licensing and industry, to deliver "the essentials" for success in a constantly changing environment.
24. Include instruction on "learning how to learn," on-line learning and other techniques of self-directed professional development to provide students with the lifelong skills required to adjust to the rapidly changing nature of modern healthcare technology and to stay current with medical advances.
25. Establish a source for recurring funding to attract and compensate qualified nursing faculty.
26. Identify increased capital outlay resources to be dedicated to construction of new or renovated classroom and laboratory space for increased program capacity.
27. Expand dual enrollment instruction to allow more high school students to take courses for post-secondary credit in healthcare programs.
28. Encourage healthcare employers to "loan" healthcare professionals to schools to cover gaps in secondary and post-secondary faculty and clinical staffing.

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Recommendations for K-12 Education

K-12 Schools are the feeder systems for the future healthcare workforce. As elementary students become aware of the world around them, as middle school students begin exploring the world of work, and as high school students develop specific skills and competencies, the wide variety of healthcare careers should be among those critical need areas receiving heavy emphasis. Post-secondary education is too late to develop the in-depth understanding and interest in science, math and human relations that students need for success in healthcare professions. The following are our recommendations for K-12 schools:

29. Expand dual enrollments and other partnerships with tech centers and community/four-year colleges to increase opportunities for secondary learners to earn post-secondary credits in healthcare fields.
30. Emphasize careers, especially in areas of critical need such as healthcare, throughout education, thus rendering healthcare and other career education seamless through all levels, from elementary awareness of what workers do in various areas of healthcare to the study for medical specializations. Exit options at various points along the career ladder should lead to occupational licensing certification and employment.

Career specialists should be in place at all levels of education, coordinating career and academic awareness, exploration, assessment, planning, parent involvement and placement. Career advisement should be based on helping students assess and plan for the realities of today's workplace, emphasizing areas of critical need, e.g. healthcare, engineering, technology.

On-going workshops should also be provided to link educators with the realities of today's workforce demands. Educators need to understand (and share with students) the relevance of the academics they teach to the 21st century.

31. Establish a Regional Healthcare Program Coordinating Council, including district-level healthcare curriculum and guidance leaders (K-12), industry representatives, school placement personnel, recent graduates of healthcare programs and current students from different types of programs.

This Regional Council should: agree on uniform professional and clinical standards for students (e.g. call-in policies, dress codes); coordinate clinicals, other work experience and placement into the workforce; collect data on program outcomes, supply/demand, and placement, and guide marketing initiatives to attract more students into the field at the secondary level and increase awareness of post-secondary options. The Council should also be a forum for sharing best practices for dissemination to the grass-roots level, a need identified by many healthcare instructors.

32. The Regional Council, a post-secondary/secondary/industry consortium or individual healthcare programs should create rigorous programs of study, emphasizing high level math and science, beginning in 8th grade and continuing throughout high school and beyond, to direct interested and qualified young people to careers in the healthcare industry. Programs of study should include the demonstration of core competencies necessary for success in the field.

33. Strongly urge, if not require, secondary healthcare students to obtain appropriate healthcare occupational certification prior to program completion. This would enable them to work in the field even as they go on to pursue post-secondary education.
34. Adopt a vision that all program completers will be ready for success in the industry and in post-secondary Healthcare Education.
35. Collect and publicize data on the adequacy and effectiveness of current secondary healthcare programs. Continual program improvement should be data driven and reflect the latest advances in technology.
36. Use the characteristics of effective programs, as documented in [Appendix C](#) of this report, to assess and enhance on-going operations in secondary Healthcare Education.

Recommendations for the Healthcare Industry

The Healthcare Industry, through its hospitals and professional associations, is and can continue doing much with our educational institutions to improve outreach and training. Specific recommendations for the industry are to:

37. Develop active partnerships with school districts and post-secondary institutions to educate middle, high and post-secondary students on the opportunities and rewards of healthcare careers. Outreach activities directed toward elementary and middle school students should be enhanced.
38. Help schools plan healthcare career education that targets traditionally under represented ethnic groups or genders.
39. Create an interagency, interdepartmental Regional Healthcare Recruitment Task Force to review school linkages with area-wide recruitment and placement plans, and provide suggestions for promoting each individual employee's role in the recruitment of future healthcare students. (The latter recommendation stems from the high school focus group data that inferred the influence of family and friends on career choices.)
40. Use current web sites and mass communications to stimulate interest in healthcare careers, featuring, among other marketing ideas, "Success Stories" of diverse healthcare professionals. Market such career materials to schools and teachers.
41. Establish career ladders with linkages to post-secondary training to enhance professional growth and internal recruitment. Expedite advancement on the nurse career ladder: AS nurse-BS nurse-MS nurse.
42. Establish a reliable method of reporting supply and demand data for the region's healthcare industry. Publicize this information to schools and teachers.

SECTION VI: Conclusions

Central Florida does not have enough trained workers to deliver essential healthcare services today. By 2010, the healthcare worker shortage will be even worse, unless action is taken immediately to expand healthcare education in the region's schools. This study identified nine critical healthcare occupations for which there is a clear need to expand training programs. Topping the list is Registered Nurses, the largest occupational group within the Healthcare Industry. National research findings leave no doubt that a shortage of Registered Nurses adversely affects the quality of healthcare delivery. However, shortages in other essential healthcare occupations must also be addressed.

Any effort to prepare more Central Floridians for careers in healthcare should start at the post-secondary education level, where capacity constraints are most severe. There is little point in putting more middle and high school students on the education path to healthcare careers when the region's post-secondary training programs already have more qualified applicants than they can accommodate. Once capacity is expanded at the post-secondary level, the focus should then move upstream, first to dual enrollment healthcare programs, and then into high schools and middle schools. The flow of students into healthcare education at all levels must ultimately be increased to meet the soaring demand for healthcare services in the region.

The healthcare education gap is first and foremost a public health issue, affecting the well-being of Central Floridians. However, this is also an economic issue. Most of the critical-need healthcare occupations pay wages well above the average for all jobs in the region. Leaving positions unfilled because of worker shortages costs Central Florida millions of dollars in lost wages. Furthermore, the shortage of healthcare workers could hamper other economic development efforts in the region. How many desirable companies would choose to locate to an area where healthcare services are inadequate?

It might be argued that the healthcare worker shortage is a statewide issue to be addressed by elected leaders in Tallahassee. Certainly, action by the Governor and Legislature will be required to properly fund Healthcare Education in Central Florida and elsewhere in the State. But Central Florida cannot sit idle, waiting for state leaders to respond. Too much is at stake. **The region must marshal its influence and deliver a message to Tallahassee that the gap in healthcare education is a critical condition in urgent need of attention. At the same time, the region can take some steps on its own to improve Healthcare Education. Those steps are detailed in the recommendations section of this report.**

Our study of Healthcare Education looked at the period of 2002 to 2010. From all indications, demand for healthcare services will rise even faster in the next decade. For that reason, there can be no delay in expanding educational capacity to prepare more people for careers in healthcare. The region is already behind in meeting its healthcare workforce needs. The challenge will only escalate with time. We must act now.

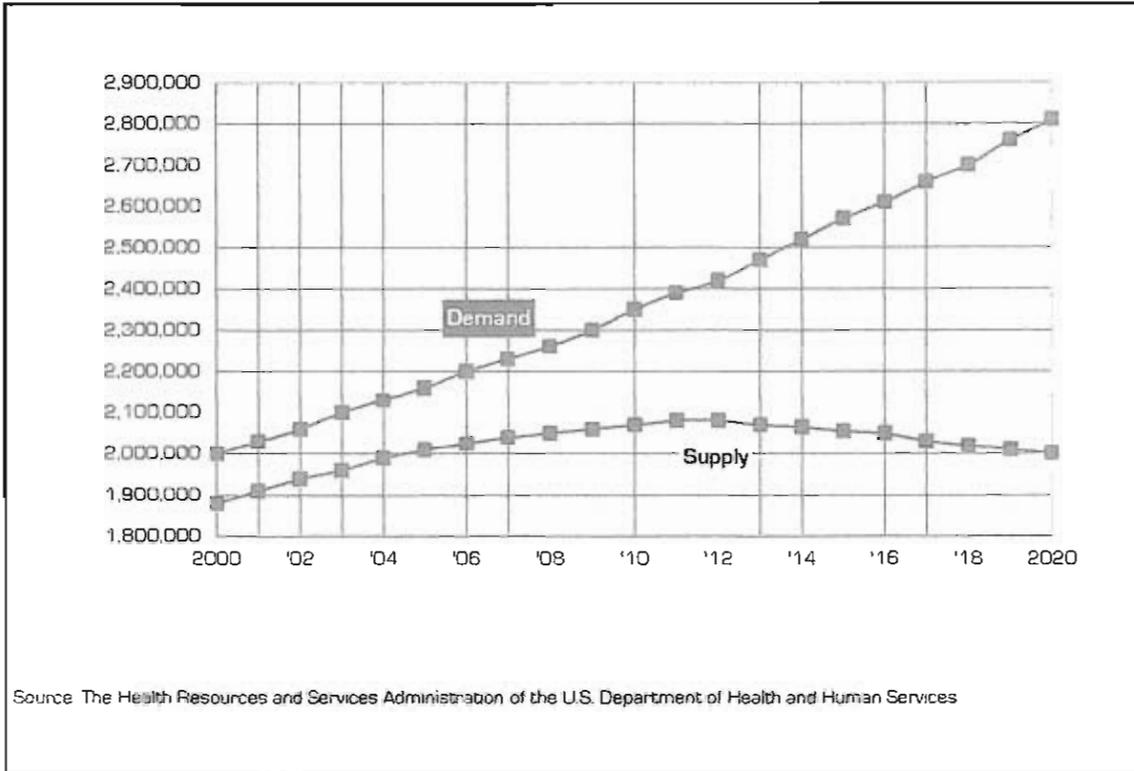
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Appendices

Appendix A

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Registered Nurses: National Supply and Demand, 2000-2020



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Appendix B

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Central Florida Secondary Healthcare Education Programs		
School	Program	Enrollment 2003
ORANGE COUNTY		
Boone High	Health Academy	28
Cypress Creek High	Allied Health Assistant	72
Dr. Phillips High	Medical Magnet	84
Apopka High	Medical Magnet	240
Jones High	Sports Medicine & Management	61
Mid-Florida Tech	EMT basic	102
	Health Science	9
Orlando Tech	Dental Assistant	278
	Medical Lab Assistant	
	Surgical Technology	
	Practical Nursing	
	Patient Care Tech	
	Health Unit Coordinator	
Westside Tech	Pharmacy Technician	30
Winter Park Tech	Patient Care Technician	164
	Basic X-Ray Machine Operator	
	Medical Assistant	
	Medical Records Transcribing	
	Medical Coding	
SEMINOLE COUNTY		
Seminole High	Health Career Academy	430
OSCEOLA COUNTY		
Gateway High	Nursing Assistant	34
Poinciana High	Allied Health Assistant	29
Osceola High	Health Science Academy	20
St. Cloud High	Certified Nursing Assistant	42
TECO	Practical Nursing	25
	Patient Care Tech	20
LAKE COUNTY		
East Ridge High	Nursing Assistant	150
Leesburg High	Allied Health Assistant	52
Umatilla High	Health Science	78
	Allied Health Assistant	12
Lake Technical Center	EMT	29
	Nursing Assistant (high school)	33
	Medical Assistant	15
	Paramedic	13
	Practical Nursing	57
SUMTER COUNTY		
South Sumter High School	Allied Health Assistant	40
Approximate Total		2107

Appendix C

Characteristics of Effective Healthcare Education Programs

By Deede Sharpe, M.Ed.

Veteran classroom observers can describe the feelings of confidence and purpose exhibited by students in extremely effective high school programs. The challenge is to identify and promote the teaching strategies responsible for that pride and excitement. Visits to Healthcare Education programs in the region and state, and fourteen years of research presented in the Southern Regional Education Board's *High Schools That Work*, contribute to the characteristics of highly successful Healthcare Education programs listed here.

This list might prove useful in program design, monitoring, evaluation and improvement, as well as teacher education. The first item, quality staffing, is the most important. Without quality staffing the others are difficult, if not impossible, to achieve.

- The program employs an adequate number of enthusiastic, knowledgeable, caring teachers to cover classes, labs and clinicals. While this would appear to be a "given," it is surprising to see programs not staffed for the work to be done. As in any field where industry jobs far out-pay teaching jobs, healthcare teachers seem to be devoted and effective. It is a sad disservice to teachers and students alike when one or two instructors are asked to do the work of four or five. Not all instructors have to be school employees. One Magnet Program solves staff shortages by using volunteer pharmacists to teach medications, three days a week.
- The content of the courses taught follows the Florida Department of Education Curriculum Framework, as cited under the occupational area: Health Science Education. This curriculum also specifies the SCANS competencies noted next. (SCANS refers to the findings of a U.S. Department of Labor study, conducted by the Secretary's Commission on Achieving Necessary Skills, on core competencies considered essential for success in employment.)
- SCANS competencies (the people skills of communications, problem-solving, cooperating with others, resource management, etc.) are taught, practiced often and always graded, along with the technical skills. As in any service industry, technical skills can get you hired; the lack of people skills can get you fired!
- Expectations are high. Industry standards and procedures dictate classroom operations. In the selection process, would-be healthcare students must submit applications, teacher references and "interview for the job." Applicants' achievement and attendance records are considered.
- The course itself is patterned after actual employment settings. Independent study and personal professional development are required,

just as they are of all medical personnel. Professional dress days come at least once per week, and students are graded on adherence to dress codes.

Students missing class are required to *call in* and expected to *check logs* upon their return to determine the work and assignments they missed. The teacher does not remind them - *catching up* becomes their own responsibility. In other words: classroom rules, regulations, expectations and operations replicate those of the healthcare workplace as closely as possible.

- Learning is active, i.e., project-based learning, discovery learning, learning by doing. Students are actively engaged, and take responsibility for their own progress. The teacher is a coach, rather than a full-time lecturer.
- Technology is linked to learning. Students are required to log onto web sites for assignments and to use technology to compile and file reports.
- Academics are integrated into Healthcare Education. Students do not study chemistry as a separate and purely abstract course; they study chemistry as healthcare workers need it and use it to perform essential tasks.
- There is no such thing as a below average grade. In the real world, performances can exceed, meet or fail expectations. The latter can have deadly consequences in the Healthcare Industry. Only the first two levels of performance are acceptable. Therefore, strong programs give only three grades: A (exceeds expectations), B (meets expectations) and F or NYA (not yet achieved mastery). Students who do not perform at Levels A or B are counseled and tutored. If they then do not meet standards, they are dropped from the program and referred to other, less demanding fields. Students are well aware of the grading system and what it takes to get an A or B.
- Licensing in one medical field or another is a requirement for program completion. This ensures that graduates will be employable, regardless of their circumstances after high school. These high-standard Healthcare Education programs have two equally important goals: All graduates will be (1) licensed to perform needed services in the Healthcare Industry, and (2) successful in continued learning, without remediation. These goals are clearly stated and understood by all students and parents before they enter the program.
- Exploratory opportunities are available throughout the early stages of the students' learning experiences. Students are continually exposed to a wide variety of medical careers and learning opportunities. The program stresses that no healthcare employee works alone. No one career is healthcare. Every lesson emphasizes related medical functions. This approach constantly presents other healthcare roles students might pursue, and engenders respect for future colleagues.
- Guidance is a key part of the program. Certain high school guidance counselors are identified and trained in working with healthcare learners, their parents and the industry. They make students and parents aware of student progress and options. They assist with finding on-the-job training,

employment and continued learning opportunities. Students are responsible for scheduling regular appointments with their counselors. They can "lose points" by failing this responsibility.

- Students and post-secondary staff (especially in dual enrollment programs) meet regularly for briefings on Healthcare Industry demands and expectations. Post-secondary and industry personnel are very active partners, often teaching and advising in the programs.
- Students and teachers are active in the Health Occupations Students of America (HOSA) organization, "whose mission is to promote career opportunities in health care and to enhance the delivery of quality health care to all people." HOSA holds conferences and competitions at the local, regional, State and national levels to promote professionalism, leadership, organizational and communications skills among its members. The benefits of HOSA and other occupational student organizations have been well documented by the Association for Career and Technical Education (ACTE) and others.
- Students collect materials that document what they have accomplished in their studies. Competency checklists are signed and dated by instructors when student demonstrate mastery of a required skill. Student projects are photographed and described in writing. These notebooks become portfolios that students take with them on employment and post-secondary interviews.
- The program judges itself by and bases improvements on documented outcomes. How many of their program completers are successful in the industry and/or post-secondary programs? How do they know? How do these outcomes compare with those of other programs and classes? What do they need to do differently? What other audiences ought they to be reaching? In other words, program improvement is continuous and based on outcome data. Individually, students know where they stand at all times as they progress through the system. Report cards hold no surprises.
- The program has an on-going marketing plan to strengthen communications throughout the school, community and industry. Healthcare Education has earned an excellent reputation through its programs and successes, and everyone knows it! Middle school students and parents are aware of what they must study, how hard they must work and the attendance records they must compile, if they are to be successful applicants into Healthcare Education.

No one secondary school healthcare education program we studied in Central Florida has all of these elements, although several come very close. Rather than *Magnet versus Academy*, our discussions could well focus on these program elements and how schools could use these outstanding practices, even in a stand-alone course, to continually upgrade and expand Healthcare Education.

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Appendix D

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