TN Department of Education | College, Career and Technical Education

Diagnostic Services

2017-18 Program of Study	Level 1	Level 2	Level 3	Level 4
Diagnostic Services	Health Science Education (5998)	Diagnostic Medicine (5994) -or- Anatomy and Physiology (3251 or 5991)	Diagnostic Medicine (5994) -or- Anatomy and Physiology (3251 or 5991) **Dual Enrollment** Diagnostic Services (4097)	Cardiovascular Services (6131) -and/or- Clinical Internship (5993) **Dual Enrollment** Diagnostic Services (4097)
				Industry Certification for 6131 Certified EKG Technician

Description

Diagnostic Services is designed to prepare students to pursue careers in the fields of radiology, medical laboratory, optometry, and other patient diagnostic procedures. Upon completion of this course, proficient students will be able to describe new and evolving diagnostic technologies, compare and contrast the features of healthcare systems, explain the legal and ethical ramifications of the healthcare setting, and begin to perform foundational healthcare skills. In addition, students will have the option to complete a clinical internship.

Job Outlook

According to the Bureau of Labor Statistics, employment in diagnostic services careers is projected to grow faster or much faster than average through 2024.[1] US News lists all diagnostic careers reviewed in this report in the top 25 healthcare support jobs in 2016.[2] As shown in **Figure 1**, medical laboratory positions are projected to increase by 3,000 thru 2024. In fact, all occupations listed in **Figure 1** are projected to have an average 3 percent average percent change thru 2024. An increase in the aging population is expected to lead to a greater need to diagnose medical conditions through laboratory procedures, medical imaging, and electrocardiography. All careers in

[1]United States Department of Labor, Bureau of Labor Statistics. (2017, April 26). *Occupational Outlook Handbook, 2016-17 Edition.* Retrieved from http://www.bls.gov/ooh/healthcare/radiologic-technologist.htm

[2] Snider, S. (2016).25 Amazing Health Care Support Jobs for 2016. *US News and World Report*. Retrieved from http://money.usnews.com/money/careers/slideshows/25-amazing-health-care-support-jobs-for-2016

Diagnostic Services are considered to have a bright outlook in Tennessee. [3] Students in the Diagnostic Services cluster are eligible to take the Certified EKG Technician Exam upon completion of the required courses. **Figures 2 and 3** show the projected employment of cardiovascular technologists in Tennessee through 2024 as well as national and state employment data.

Figure 1. Tennessee employment projections for diagnostic medicine occupations[4]

Occupation	2014 Projected Employment	2024 Projected Employment	Total 2014 - 2024 Employment Change	Annual Avg. Percent Change	Median Salary
Phlebotomist	2,950	4,020	1,070	3.1%	$27,420
Medical Laboratory Technician	6,570	8,790	2,220	3.0%	$36,210
Medical Laboratory Technologist	4,480	5,270	780	1.6%	$60,720
Radiologic Technologist	5,680	7,080	1,400	2.2%	$46,030
Cardiovascular Technologists and Technicians	920	1,250	320	3.1%	$46,190
Diagnostic Medical Sonographers	1,460	2,220	760	4.3%	$59,770
Ophthalmic Medical Technician	490	650	160	2.9%	$33,960

[3] United States Department of Labor, Employment and Training Administration. (2016). *Career One Stop.* Retrieved from http://www.onetonline.org/find/bright?b=0

[4] Tennessee Department of Labor & Workforce Development. (2016). *Occupational Projections*. Retrieved from https://www.jobs4tn.gov/vosnet/analyzer/results.aspx?session=occproj

Figure 2. 2024 Projected employment for Cardiovascular Technologists in Tennessee[5]

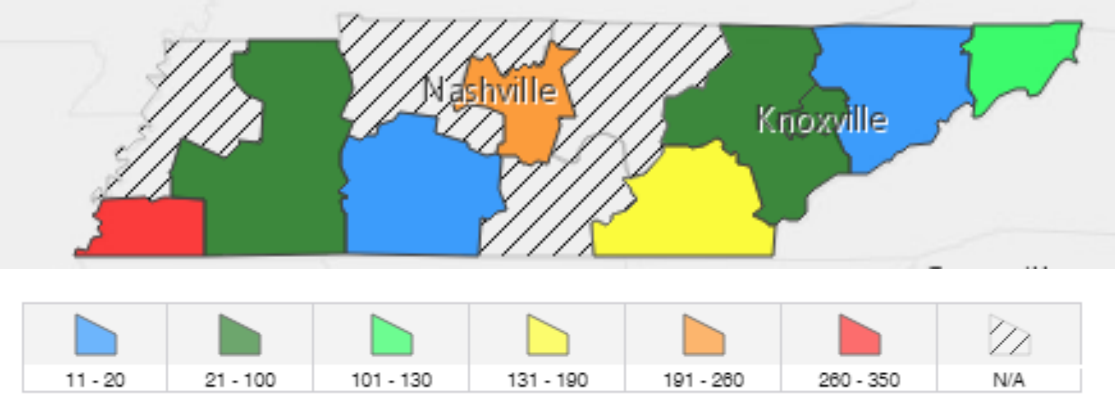


Figure 3. State and national trends for cardiovascular technologist with positive projections 2014-24[6]

National	Employment		Percent Change	Projected Annual Job Openings
	2014	2024		
Cardiovascular Technologist	52,000	63,500	22%	2,140
Tennessee18	**Employment**		**Percent Change**	**Projected Annual Job Openings**
	2014	**2024**		
Cardiovascular Technologist	920	1,250	35%	50

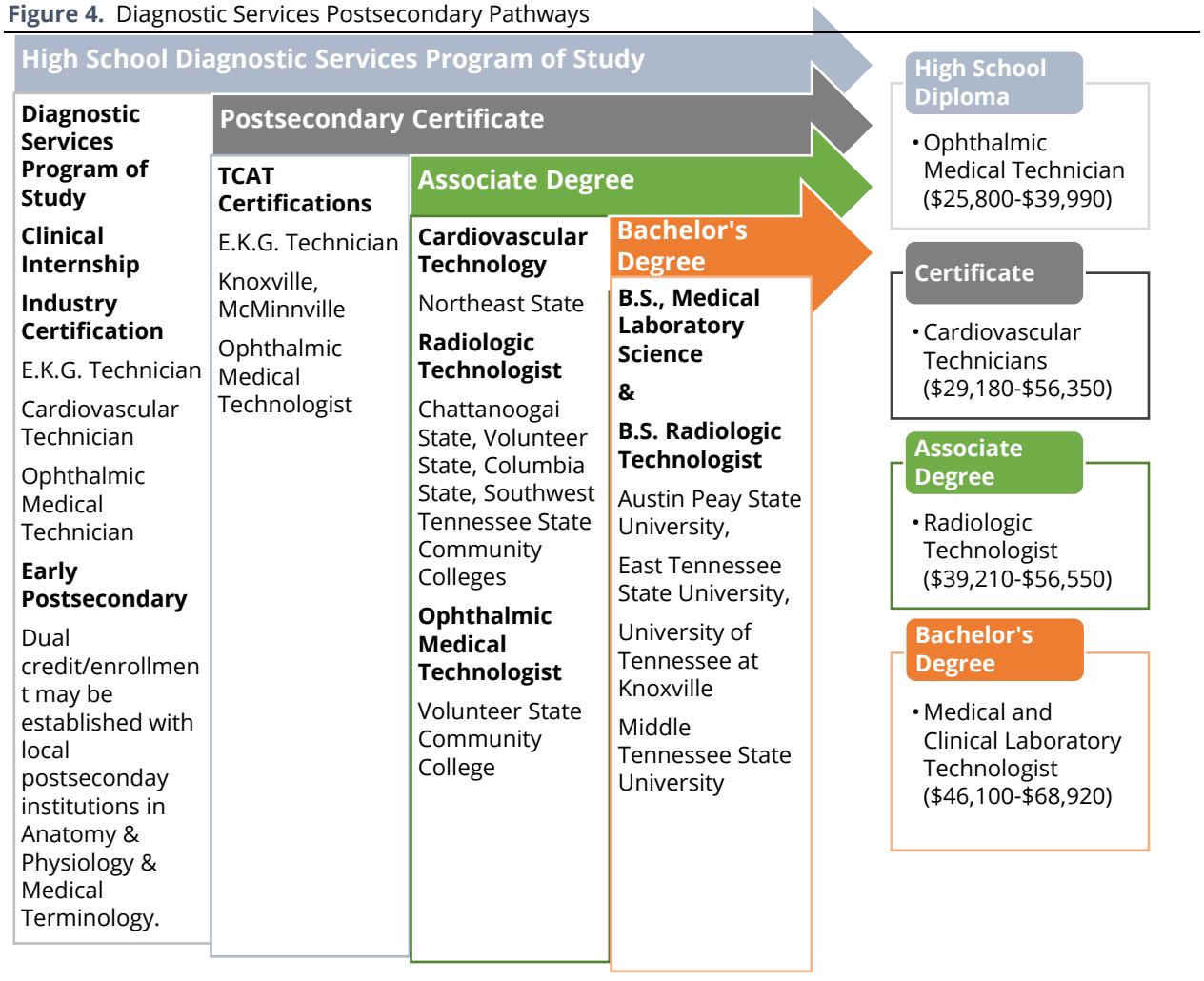
[5] Tennessee Department of Labor & Workforce Development, Jobs4TN Online. (2016). *Labor Supply and Demand for Tennessee.* Retrieved from https://www.jobs4tn.gov/vosnet/Default.aspx

[6] United States Department of Labor, Employment and Training Administration. (2016). *Career One Stop.* Retrieved from https://www.onetonline.org/link/summary/29-2031.00

Postsecondary Opportunities

Medical Imaging is a path in Diagnostic Services that has many on-ramps. The path begins with an associate degree in radiography. From there, a student may choose to enter the workforce or enter a certificate program in either sonography or magnetic resonance imaging. If a student prefers to continue his or her education, there are several bachelor's degree programs across the state. Another path with several on-ramps is in medical laboratory science. This path begins with a certificate in Phlebotomy. While working as a phlebotomist, students can enter a medical laboratory technician program for an associate degree then move on to a bachelor's degree to become a medical laboratory technologist. **Figure 4** shows entry level positions for students who have completed the Diagnostics Services program of study and passed the industry certification to become a certified electrocardiographic technician. This certification and a robust portfolio should improve a student's employability should he or she choose to enter the workforce upon graduation from high school. This would also be an excellent employment opportunity for students wishing to work while pursuing postsecondary education.

Figure 4. Diagnostic Services Postsecondary Pathways



Current Secondary Landscape

In the 2014-15 school year, 82 schools in Tennessee offered courses in the Diagnostic Services program of study. Of the 13,624 students who were enrolled in a Health Science course, only 64 students were enrolled in Cardiovascular Services, a new course. In the 2015-16 SY, that number had increased to 217. The number of schools offering a Diagnostic Services program of study increased over the past four years. **Figure 5** shows the open enrollment analysis for 2014-15 to 2017-18 as well student enrollment for 2014-15 through 2016-17 in the Diagnostic Services POS.

Figure 5. Open Enrollment Analysis[7]

SY	Diagnostic Services
2013-14	No data
2014-15	82
2015-16	81
2016-17	96
2017-18	116

Student Enrollment

SY	Health Science Education	Anatomy & Physiology	Diagnostic Medicine	Cardiovascular Services
2013-14	13622	3914	3583	n.a.
2014-15	13624	3782	3206	64
2015-16	14563	3990	2997	217
2016-17				

Diagnostic Services Concentrators

SY	Diagnostic Services Concentrators
2013-14	639
2014-15	816
2015-16	790
2016-17	

[7] Tennessee Department of Education. (2017). *Student Enrollment Data*. Retrieved from Author's calculation of student enrollment data.

Recommendations

To more clearly align with industry, the department recommends changing all language in the Diagnostic Medicine course from *radiology* to *imaging*. No other changes are recommended.

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Tennessee Department of Labor & Workforce Development, Jobs4TN Online. (2016). *Employment Wage and Data*. Retrieved from https://www.jobs4tn.gov/vosnet/analyzer/results.aspx?session=occproj

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