Workforce Solutions

Capital Area Healthcare Industry Analysis

REPORT 1: WORKFORCE SUPPLY AND DEMAND ANALYSIS

JUNE 2018

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ABOUT THE CAPITAL AREA HEALTHCARE INDUSTRY ANALYSIS

Travis County lies at the heart of one of the country's best performing economies. During the past five years, employment in Travis County and the broader Austin metro region has increased at twice the national rate of growth. Since 2012, employers in the Austin metro region have added nearly 170,000 jobs, more than 70% of which have been located within Travis County. During this period, the Healthcare industry grew by 16,000 workers and was one of the largest job creators in the region.

The Workforce Solutions Capital Area Workforce Board (the "Board") serves as the leadership and governing body for the Austin/Travis County workforce system. The Board produced a Master Community Workforce Plan, the overarching vision of which is a more demand-driven workforce system that effectively engages employers, community-based organizations, and educational institutions, and successfully prepares economically disadvantaged residents for good jobs in high-demand, middle-skill occupations. Middle-skill jobs require more than a high school diploma but less than a bachelor's degree.

Given the expected strong demand for Healthcare workers, especially among middle-skill jobs, it is crucial that the region possess a pipeline capable of producing the talent necessary for growth. The Board has collaborated with several regional healthcare workforce development stakeholders to launch a new workforce initiative known as the Central Texas Healthcare Partnership (the "Partnership"). This nascent group of healthcare employers has committed to working together to advance two goals:

1. Identifying shared middle-skill workforce needs that are common among Central Texas healthcare businesses; and
2. Identifying and implementing joint solutions.

In support of these goals and with funding from the Texas Workforce Commission's Texas Industry Partnership program, the Board commissioned a **Healthcare Industry Analysis** to better understand the labor market landscape and discover potential strategies to increase alignment between regional supply and demand for middle-skill healthcare careers.

Report 1 focuses on better understanding the supply and demand dynamics related to high-demand, middle-skill healthcare careers. Report 2 provides a framework of strategic recommendations to address gaps and challenges.

GEOGRAPHY

Although Travis County is the ultimate focus of the Board, the community's labor force extends beyond its borders. According to the US Census Bureau, for example, approximately 45% of all workers in Travis County live elsewhere. College students display a similar level of geographic fluidity, with many graduates from schools outside of Travis County eventually becoming part of the local workforce. To ensure that the analysis reflects this reality, the Healthcare Industry Analysis is conducted for the entire Austin metropolitan area, consisting of Travis County, Williamson County, Bastrop County, Caldwell County, and Fayette County.

Austin Metro

Travis County

City of Austin
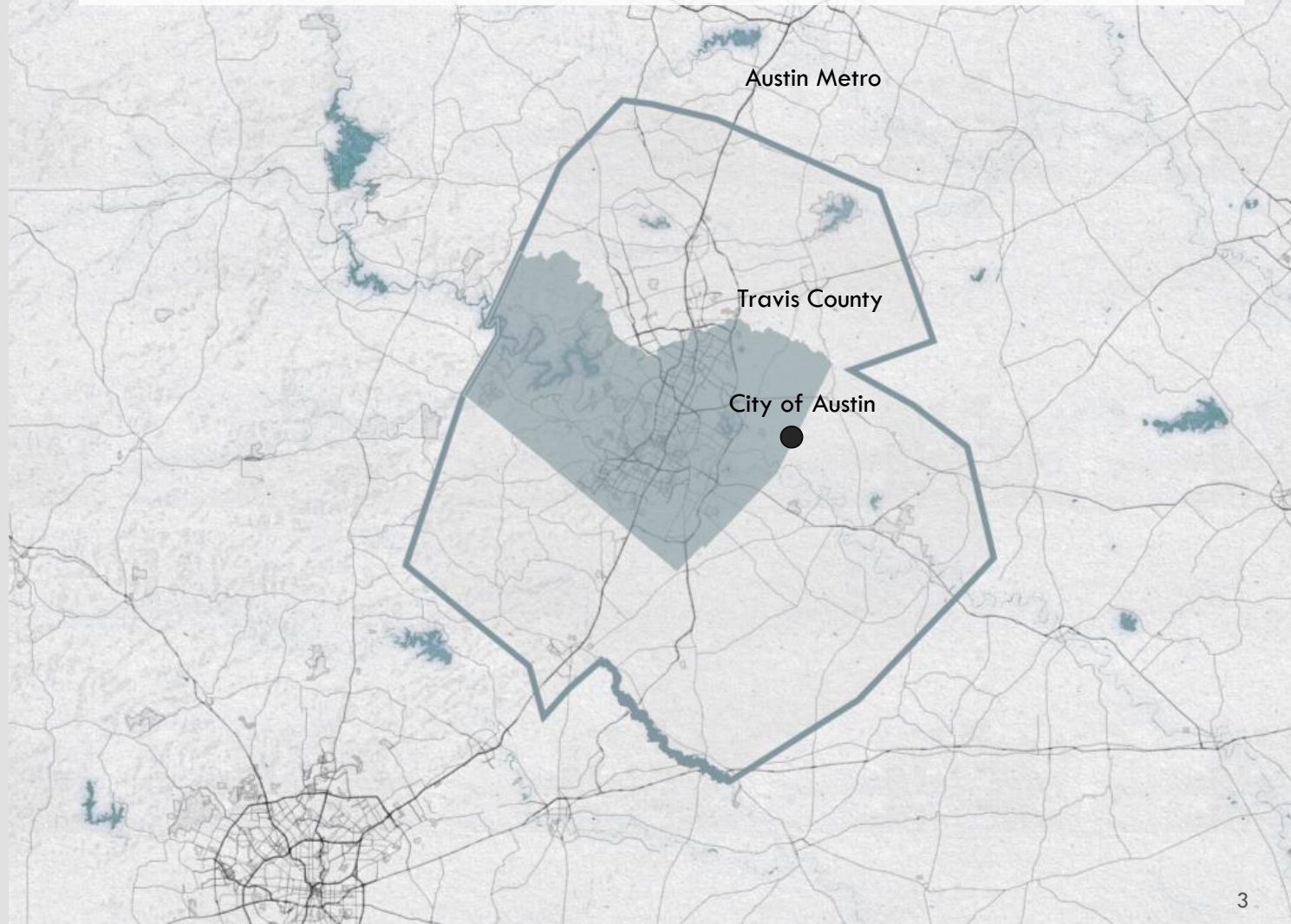
REPORT STRUCTURE

The Master Community Workforce Plan and early convenings of the Central Texas Healthcare Partnership found that middle-skill healthcare occupations are of particular concern in the Austin metro region. The **Healthcare Industry Analysis** provides quantitative validation of those findings by determining the makeup of the metro region's labor force and identifying the occupations that are thriving and those that are undersupplied.

The report begins with a **Workforce Demand Analysis** that places the recent and projected performance of the metro's Healthcare industry within a broader context. The Demand Analysis also includes information on healthcare job posting trends - information that can help identify if local employers are having more difficulty securing talent than in years past.

Next, the **Workforce Supply Analysis** examines the pipeline of workers currently being produced by colleges and universities within the region. The Analysis explores the number of locally-produced graduates by program discipline, as well as the recent growth patterns and overall concentration of degree clusters relative to the national average.

The **Workforce Demand and Supply Gap Analysis** integrates information from the Demand Analysis and the Workforce Supply Analysis and identifies occupations in which existing and emerging talent shortages may limit the area employers' ability to find the workers they need to thrive.

Please see the separate **Data Appendix** report for detailed methodology, occupational and degree cluster information used throughout the report, and additional supporting analyses.

ABOUT THE PROJECT CONSULTING TEAM

CAEL

The Council for Adult and Experiential Learning (CAEL) is a national non-profit organization whose mission is to expand learning opportunities for adults. CAEL works to remove policy and organizational barriers to learning opportunities, identifies and disseminates effective practices, and delivers value-added services.

avalanche CONSULTING

Avalanche Consulting's mission and passion is to help communities become more vibrant and prosperous. We are a leading national consultancy specializing in strategic planning, workforce analyses, and customized research for economic and workforce development organizations.

WORKFORCE SOLUTIONS Capital Area — *Connecting People to Jobs*

Texas Workforce Commission | Michael & Susan Dell Foundation | Ascension | Seton | St. David's HealthCare

WORKFORCE DEMAND

The first step to determining the needs of the Austin metro's healthcare industry is to examine its current workforce. In this section, we examine characteristics such as industry employment growth, and the performance of middle-skill healthcare occupations.

Healthcare is one of the largest industry clusters in both Travis County and the Austin metro. In 2017, healthcare employment in the Austin metro was nearly 70,000 with Travis County representing nearly 75% of all healthcare jobs in the region. In Travis County alone, healthcare employment grew by nearly 6,700 jobs between 2012 and 2017.

Demand for individual occupations can be measured using several metrics, including
- Job growth – How many new jobs are being created each year?
- Job openings – How many positions become available due to retirements or people changing careers?

In the following analysis, we first show the current employment statistics for middle-skill healthcare occupations. We then calculate a 5-year average of new occupational openings due to new job creation (i.e. job growth) and replacement needs due to workers retiring or permanently changing their career (i.e. job openings). Nationally, these openings account for 12% of all jobs and must be filled by new workers - either through post-secondary graduates or through on-the-job training for workers changing careers into the occupation. Locally, these openings must be filled by new workers or an out-sized share of experienced workers flowing into the region.

HEALTHCARE OCCUPATION EMPLOYMENT 2012 – 2017

Legend: Travis County, Austin Metro
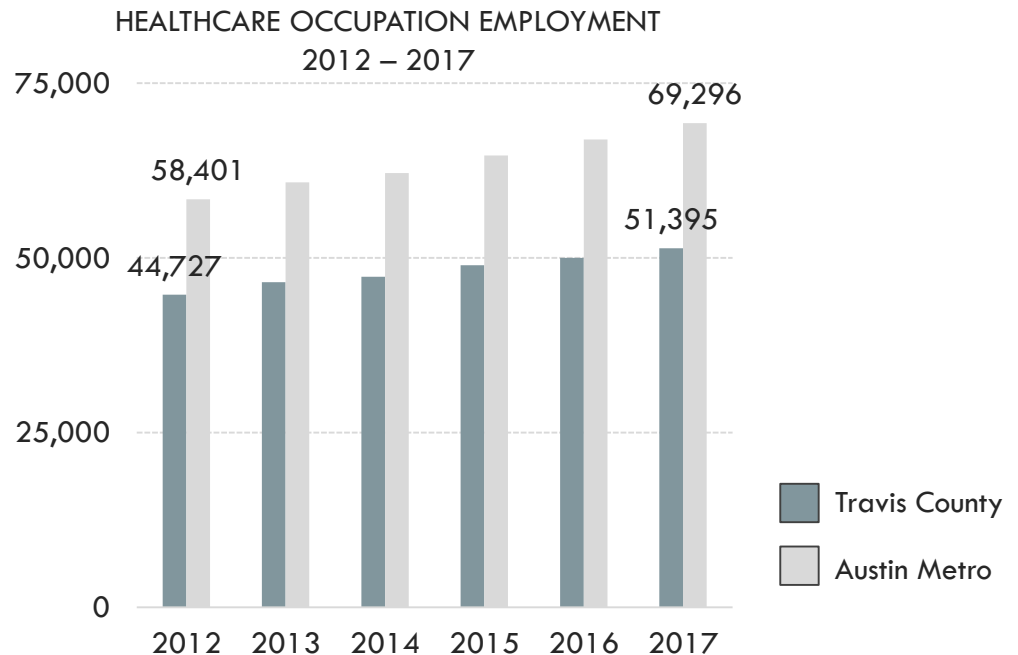
Middle-Skill Healthcare Occupation Employment Volume

The Austin metro is home to nearly 50,000 *middle-skill* healthcare positions. Unsurprisingly, Registered Nurses represent the single-largest middle-skill healthcare occupation by a significant margin, with nearly 14,000 Registered Nurses, representing 28% of all middle-skill healthcare occupations. Licensed Practical and Vocational Nurses and Nursing Assistants account for another 9,500 workers. Medical Assistants total nearly 4,000 workers and Home Health Aides number 3,600.

AUSTIN METRO HEALTHCARE EMPLOYMENT BY MIDDLE-SKILL OCCUPATION
2017

Occupation	Employment
Registered Nurses*	13,963
Nursing Assistants	5,768
Medical Assistants	3,812
Licensed Practical and Licensed Vocational Nurses	3,733
Home Health Aides	3,572
Pharmacy Technicians	2,297
Dental Assistants	2,207
Medical Records and Health Information Technicians	1,403
Dental Hygienists	1,289
Emergency Medical Technicians and Paramedics	1,220
Psychiatric Aides	1,187
Radiologic Technologists	1,039
Medical and Clinical Laboratory Technicians	913
Phlebotomists*	792
Surgical Technologists	696
Respiratory Therapists	579
Diagnostic Medical Sonographers	443
Psychiatric Technicians	394
Physical Therapist Assistants	360
Medical Equipment Preparers	345
Cardiovascular Technologists and Technicians	296
Ophthalmic Medical Technicians	281
Physical Therapist Aides	247
Orderlies	232
Medical Transcriptionists	216

SOURCE: AVALANCHE CONSULTING / JOBSEQ

Note: The above graphic represents the top middle-skill healthcare occupations by 2017 employment volume. See separate Data Appendix for a full list of middle-skill occupations in the region.
*Data on Registered Nurses include both middle-skill and more advanced positions.
**Phlebotomists, along with EKG techs (not shown above), are increasingly being absorbed into other healthcare occupations. For example, many Medical Assistant education programs require students also obtain Phlebotomy and EKG certifications.

Workforce Supply and Demand Methodology

Below is a table showing the projected annual job opportunities for middle-skill healthcare occupations in the Austin metro, along with their components – net new jobs created and "job openings". Nurses (RN, LPN) and Nursing Support (Nursing Assistants, Home Health Aides, Medical Assistants) show the largest numbers of new jobs and job openings, showing an increase in demand for positions along a direct patient care career pathway. Allied Health positions, including dental support and a range of technologist/technician jobs (e.g. Pharmacy, EMT, Medical Records) show large growth in numbers.

PROJECTED OCCUPATIONAL OPENINGS AUSTIN METRO
2017-2022 ANNUAL AVERAGE

Occupational Code	Occupation Name	New Jobs	Job Openings	Total
29-1141	Registered Nurses*	466	1,159	1,625
31-1014	Nursing Assistants	171	1,397	1,569
31-1011	Home Health Aides	205	907	1,113
31-9092	Medical Assistants	173	572	745
29-2061	Licensed Practical and Licensed Vocational Nurses	118	416	534
31-9091	Dental Assistants	83	267	350
31-1013	Psychiatric Aides	30	285	316
29-2052	Pharmacy Technicians	67	231	297
29-2071	Medical Records and Health Information Technicians	48	211	258
29-2021	Dental Hygienists	49	141	190
29-2041	Emergency Medical Technicians and Paramedics	42	124	166
31-9097	Phlebotomists**	36	122	158
29-2034	Radiologic Technologists	33	105	138
29-2055	Surgical Technologists	22	76	98
29-2012	Medical and Clinical Laboratory Technicians	30	61	92
31-2021	Physical Therapy Assistants	18	73	91
29-1126	Respiratory Therapists	23	47	70
29-2032	Diagnostic Medical Sonographers	19	45	64
31-1015	Orderlies	6	56	62
31-9093	Medical Equipment Preparers	10	52	62

SOURCE: AVALANCHE CONSULTING / JOBSEQ

Note: Totals may not equal 100% due to rounding
*Data on Registered Nurses include both middle-skill and more advanced positions.
**Phlebotomists, along with EKG techs (not shown above), are increasingly being absorbed into other healthcare occupations. For example, many Medical Assistant education programs require students also obtain Phlebotomy and EKG certifications.

Workforce Supply and Demand Methodology

The below table is continued from the previous page showing the projected annual job opportunities for additional middle-skill healthcare occupations in the Austin metro, along with their components – net new jobs created and "job openings". Jobs showing growth in smaller volumes (below 60 positions a year, on average) include many of the more specialized technologist/technician occupations (Ophthalmic, Cardiovascular, MRI and Nuclear Medicine). These occupations, while still growing, account for smaller shares of the middle-skill healthcare workforce.
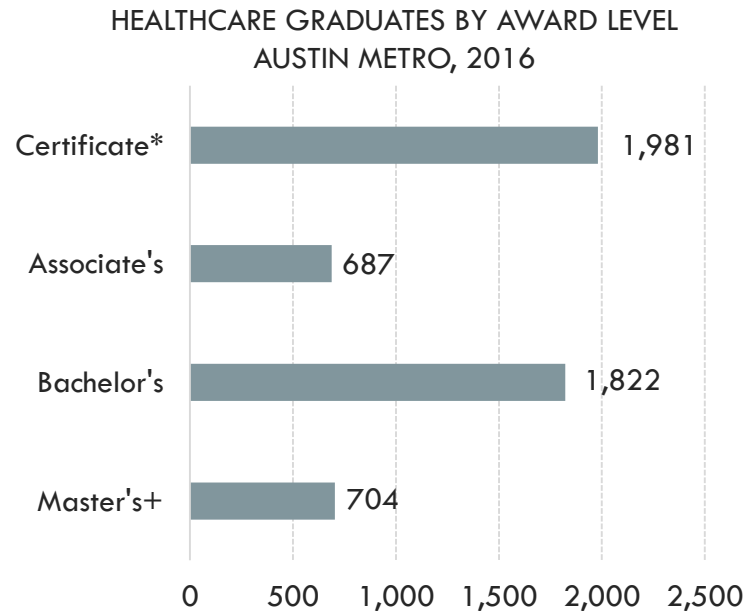
PROJECTED OCCUPATIONAL OPENINGS AUSTIN METRO
2017-2022 ANNUAL AVERAGE

Occupational Code	Occupation Name	New Jobs	Job Openings	Total
29-2053	Psychiatric Technicians	11	43	54
31-2022	Physical Therapy Aides	12	33	45
31-2011	Occupational Therapy Assistants	8	33	41
29-2057	Ophthalmic Medical Technicians	10	31	41
31-9094	Medical Transcriptionists	5	32	38
29-2031	Cardiovascular Technologists and Technicians	8	29	37
31-9095	Pharmacy Aides	2	31	33
29-9012	Occupational Health and Safety Technicians	4	22	26
29-2051	Dietary Technicians	5	18	23
29-2035	Magnetic Resonance Imaging Technologists	6	16	21
29-2033	Nuclear Medicine Technologists	2	9	11
29-1124	Radiation Therapists	3	8	11
31-2012	Occupational Therapy Aides	2	7	9
29-2092	Hearing Aid Specialists	1	5	7
29-2054	Respiratory Therapy Technicians	-3	5	2

SOURCE: AVALANCHE CONSULTING / JOBSEQ

Note: Totals may not equal 100% due to rounding

WORKFORCE SUPPLY

Travis County and the broader Austin metro have numerous colleges and universities, but are these students pursuing degrees aligned with the needs of healthcare employers, particularly for middle skill positions? Our analysis examines growth trends of degree clusters, including their overall size, growth trajectories, and looks at the available program completion numbers for middle-skill healthcare education and training programs within the Austin metro region.

In 2016, the Austin metro produced over 5,200* graduates from post-secondary healthcare programs at all credential levels. Certificates (for-credit and non-credit at ACC, Goodwill, and Skillpoint Alliance) account for nearly 40% of all graduates and are likely larger when considering other non-credit programs in the region. Associate degrees account for another 13% of all programs.

HEALTHCARE GRADUATES BY AWARD LEVEL
AUSTIN METRO, 2016

Award Level	Graduates
Certificate*	1,981
Associate's	687
Bachelor's	1,822
Master's+	704

In addition to examining postsecondary education institutions, we surveyed local Independent School Districts (ISDs) to determine healthcare program offerings at the postsecondary education level. All five of the ISDs that responded to the survey reported that at least one school in their district offers healthcare education programming. All five offer Career and Technical Education (CTE) programming, and most (4 out of 5) offer career exploration and advising. 4 of the 5 institutions offer industry credentials in at least one of the following: Nursing Assistance, Pharmacy Tech, and Medical Assistance. Many of the ISDs reported that more than 1 school offers healthcare programming available to over 100 high school students.

SOURCE: AVALANCHE CONSULTING / US DEPT OF EDUCATION / NON-CREDIT PROVIDERS

*Data includes 732 graduates from non-credit programs at ACC, Goodwill, and Skillpoint Alliance in 2017. Historical data is not available, so growth calculations only include for-credit graduates.

Institutions in the Austin Metro – Healthcare Graduates

While nearly two dozen educational institutions report healthcare graduates within the Austin metro, talent production is highly concentrated. The Austin Community College (ACC) is responsible for nearly 40% of all sub-baccalaureate healthcare graduates (for which we have data in the region), and nearly 80% of Associate's degrees. Awards at the certificate level are more distributed. Three leading non-credit certificate providers are ACC, Goodwill, and Skillpoint Alliance.

HEALTHCARE SUB-BACCALAUREATE GRADUATES FROM POSTSECONDARY EDUCATION INSTITUTIONS IN THE AUSTIN METRO
2016

Institution	2016 Total	Non-Credit Certificate*	For-Credit Certificate	Associate
Austin Community College	953	285	120	548
Goodwill	607	381	226	
Everest Institute-Austin (Closed)	226		226	
The College of Health Care Professions-Austin	192		174	18
Virginia College-Austin	181		86	95
Southern Careers Institute-Austin	140		140	
CyberTex Institute of Technology	93		93	
Skillpoint Alliance	66	66		
South University-Austin	12			12
National American University-Austin	8		1	7
National American University-Georgetown	8		2	6
National American University-Austin South	2		1	1
Texas State University	**			
Central Texas Nurse Network	**			

Note: Many Non-Credit programs do not report their statistics to the US Dept. of Education. The above includes select non-credit programs for which data were available.
*Data for non-credit is 2017
**May offer sub-baccalaureate programs for which no data is available

HEALTHCARE CREDENTIAL OFFERINGS FROM POSTSECONDARY EDUCATION INSTITUTIONS IN THE AUSTIN METRO

NC = Non-Credit Training C1 = Certificate, <1 Year C2 = Certificate, 1<2 Years A = Associates	ACC	Goodwill	Everest Institute (Closed)	College of Health Care Professions	Virginia College	Southern Careers Institute	CyberTex	Skillpoint Alliance	South University	National American University*	Texas State**	Central TX Nurse Network**
RN	A											
Nursing Aides/Assistants	NC	NC					`	NC				NC**
Home Health Aides		NC										
Medical Assistants	NC	NC	C2	C2	C2	C2	C1		A- 12	A	NC**	
LPN/LVN	C2	NC					NC*					
Dental Assistants	NC		C2	C2							NC**	
Psychiatric Aides	A, C2											
Pharmacy Technicians/Aides	C2	NC			C2	C1				A	NC**	NC**
Medical Records and Health Information Technicians	A, C2, NC		C2	C2	C2	C2				A, C2	NC**	
Dental Hygienists	A											
EMT/ Paramedic	A, C2									A		
Phlebotomy	NC	NC										NC**
Radiologic/Nuclear Technologists & Therapists (MRI)	A, C2, C1			C2								
Surgical Technologists	A, C2				A							
Medical and Clinical Laboratory Technicians	A, C2, C1											
Physical Therapist Assistants	A			C1								
Respiratory Technicians & Therapists					A							
Diagnostic Medical Sonographers	A, C1			A, PA	A							
Occupational Therapy Assistants	A											
Ophthalmic Medical Technicians	NC											
Cardiovascular Technologists and Technicians					A					A		
Physical Therapist Aides											NC**	
Medical Transcriptionist											NC**	
Medical Secretaries	NC		C2		A							

SOURCE: AVALANCHE CONSULTING / US DEPT OF EDUCATION / NON-CREDIT PROVIDERS/ CAEL ANALYSIS

Note: Many Non-Credit programs do not report their statistics to the US Dept. of Education. The above includes select non-credit programs for which data were available.

*Austin, South Austin, and Georgetown campuses

**May offer sub-baccalaureate programs for which no data is available

Workforce Supply Challenges

Education and training provider in the region report many successes in healthcare programming, such as significant student interest in healthcare careers and successful employer engagement, but have also identified several key challenges to growing and sustaining the supply of a locally trained healthcare workforce.

Training providers report that access to, and making programmatic decisions on, labor market information is commonplace across healthcare programs. More than other industries in the region, Healthcare employers engage with training providers through formal and informal partnerships, CEO and healthcare leadership involvement, and advisory committees to help develop and tailor program offerings towards what occupations that employers currently and will need in the future. Training providers also gain real-time labor market feedback through current students enrolled in clinical and internship programs. Obtaining access to and gathering feedback from alumni of healthcare training programs appears to be a larger challenge.

Training providers characterize enrollment in healthcare programs as strong due to an "infinite supply" of people wanting to work in healthcare. Programs across providers like ACC, Skillpoint Alliance, and Goodwill are at capacity, creating fierce competition for the most popular programs at the larger training providers. Prospective students of programs at capacity are often provided with career exploration services and encouraged to enroll in other healthcare programs, however it is critical to improve processes that identify students' appropriate career pathways early to increase chances of completion and employment placement, and create more space in at-capacity programs. Providers report ongoing barriers to program completion that many students struggle with are common issues such as transportation, dependent care, and managing school around work schedules. Some providers partner with community-based organizations to fill that gap and provide semi-wraparound services to students.

Barriers to program capacity and scale are driven by program placement in clinical space, particularly in nursing programs. The Austin metro region is unique among larger metropolitans in its shortage of hospital systems available for placement. Training providers report that managing this task is becoming increasingly complex, particularly as the local four-year institutions increase enrollment in bachelor's degree programs in nursing and other healthcare specialties, which in some cases may take precedent for placement availability. Sub-baccalaureate institutions report addressing this issue through various methods, such as expanding simulation labs in programming. However, this limits students' exposure to work experience and connection to employers. Another common issue, if secondary relative to placement capacity, is the availability and supply of qualified faculty – specifically in the "bottleneck" courses such as anatomy and physiology.

WORKFORCE SUPPLY-DEMAND GAPS: VOLUME

Regional talent ecosystems thrive when local skills production is aligned with the labor demand. The Workforce Supply and Demand Analysis examines the current ability of local post-secondary institutions within the Austin metro Region to meet the needs of local employers. In this analysis we identify occupations expected to fuel local employment gains in the years ahead as well as the number of locally-awarded post-secondary degrees in aligned fields and identify occupations with potential future shortages—or at least those where the supply of local graduates is insufficient to meet projected demand.

This analysis views the gaps between available workforce through two dimensions: **Volume** and **Supply Ratio.**

- **Volume** measures the number of job openings minus the number of graduates from local training programs. The largest volume gaps in the region are **Nursing Aides, Registered Nurses, and LPN/LVNs.**

GAPS BETWEEN SUPPLY AND DEMAND
MIDDLE-SKILL HEALTHCARE OCCUPATIONS*

Largest Gaps	• Nursing Aide, Orderlies & Attendants	• Registered Nurses
Moderate Gaps	• LPN/LVN • Medical Assistants • Dental Assistants • Pharmacy Technicians/Aides • Dental Hygienists	• Ophthalmic Medical Technicians • Medical Records & Health Information Technicians • Phlebotomists
Smallest Gaps	• Physical Therapist Assistants • Surgical Technologists • Radiologic/Nuclear Technologists & Therapists • Medical & Clinical Laboratory Technicians	• Cardiovascular Technologists & Technicians** • Occupational Therapy Assistants • Magnetic Resonance Imaging Technologists** • Respiratory Technicians & Therapists
Oversupply	• Diagnostic Medical Sonographers	

* Occupations for which there was insufficient data not listed
** Small gap, but severely undersupplied

WORKFORCE SUPPLY-DEMAND GAPS: SUPPLY RATIO

- The **Ratio** measures the number of graduates versus the demand for jobs. The most severely undersupplied as a share of demand (less than 20%) are **Ophthalmic Medical Technicians, Dental Hygienists, Cardiovascular Technologists and Technicians,** and **Magnetic Resonance Imaging Technologists.**
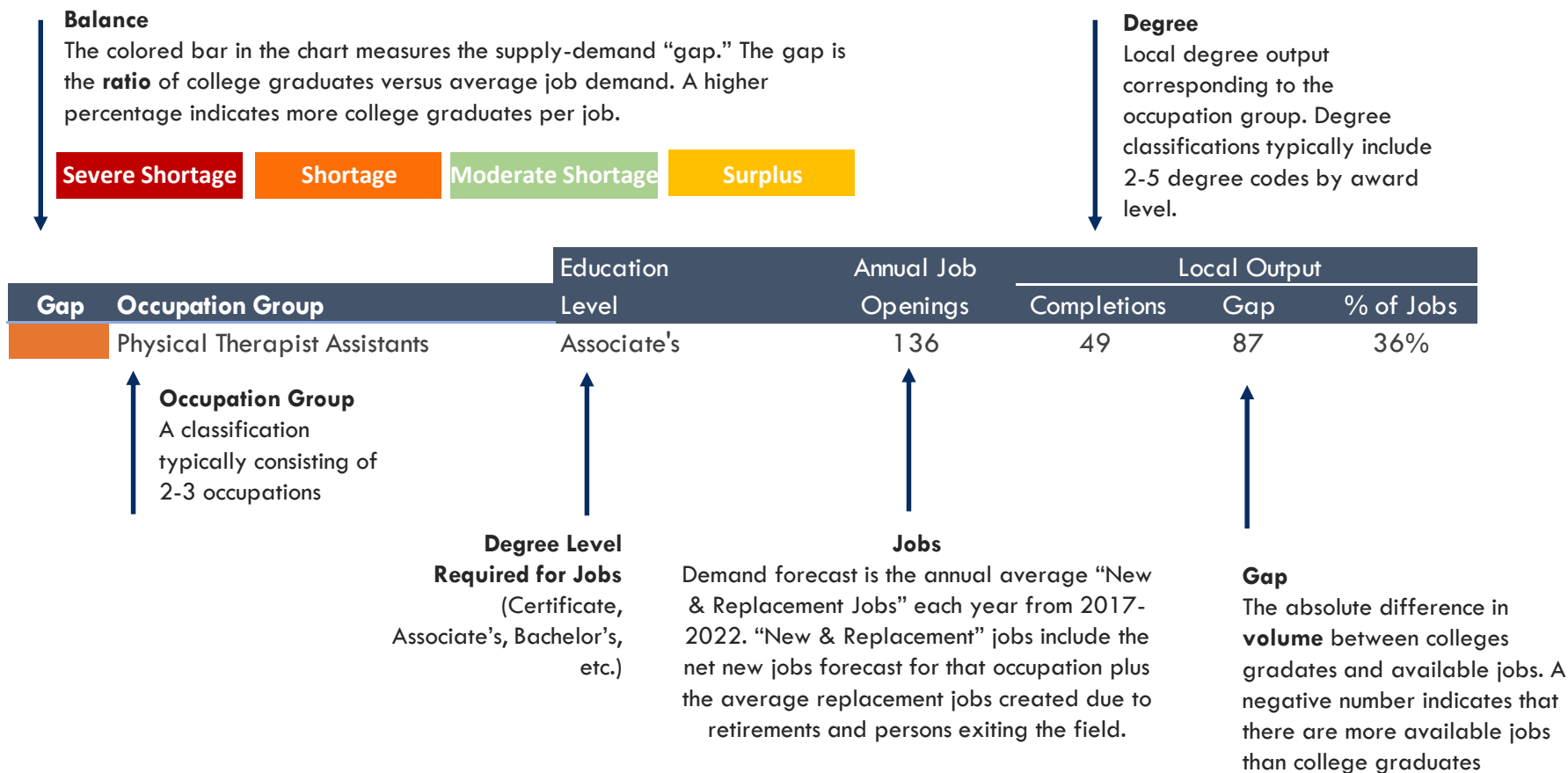
Taking these two measures into consideration allows an understanding of both the occupations with the largest gaps *and* those with the most severe undersupply ratio, without discounting occupations that may be a smaller, but still critical field within healthcare. Below, these two measures are combined. **Bolded** occupations indicate that the gap between supply and demand is at least 50 jobs annually. Within the five ratio groups, occupations are sorted according to the volume gap.

The following pages provide more detailed information on each of the below occupations.

OVER/UNDERSUPPLY RATIO

SEVERE SHORTAGE
- **Dental Hygienists**
- **Ophthalmic Medical Technicians**
- Cardiovascular Technologists & Technicians
- Magnetic Resonance Imaging Technologists

SHORTAGE
- **Nursing Aide, Orderlies & Attendants**
- **Registered Nurses**
- **Licensed Practical/Vocational Nurses**
- **Dental Assistants**
- **Pharmacy Technicians/Aides**
- **Phlebotomists**
- **Physical Therapist Assistants**
- Occupational Therapy Assistants

MODERATE SHORTAGE
- **Medical Assistants**
- **Medical Records & Health Information Technicians**
- Surgical Technologists
- Radiologic/Nuclear Technologists & Therapists
- Medical & Clinical Laboratory Technicians
- Respiratory Technicians & Therapists

SURPLUS
- Diagnostic Sonographers

UNKNOWN
- **Home Health Aides**
- **Psychiatric Aides**
- **Emergency Medical Technicians & Paramedics**
- **Psychiatric Technicians**
- Medical Transcriptionists
- Occupational Therapy Aides

Note: Severe Shortage = <20%; Shortage = 20-50%; Moderate Shortage = 50-100%; Sup"Unknown" indicates that available data is insufficient to calculate a rati in the case of non-credit training.

Workforce Supply-Demand Conditions Tables

While some degrees are precisely designed for a single occupation, matching other disciplines is less straightforward. In addition, the degree's award level will affect its match with an occupation. For example, a certificate or two-year Associate's degree in computer science may only qualify someone for a computer support position, while a Bachelor's degree in computer science is preparation for a computer programmer position. Specific to health care, a Psychology graduate with a Bachelor's degree is not qualified to practice (without additional education). Unlike other supply-demand taxonomies in use today, this taxonomy extends to matching degrees and occupations at each education level (certificates, Associate's, Bachelor's, Master's and Doctorate).

Balance
The colored bar in the chart measures the supply-demand "gap." The gap is the **ratio** of college graduates versus average job demand. A higher percentage indicates more college graduates per job.

| Severe Shortage | Shortage | Moderate Shortage | Surplus |

Degree
Local degree output corresponding to the occupation group. Degree classifications typically include 2-5 degree codes by award level.

Gap	Occupation Group	Education Level	Annual Job Openings	Local Output		
				Completions	Gap	% of Jobs
	Physical Therapist Assistants	Associate's	136	49	87	36%

Occupation Group
A classification typically consisting of 2-3 occupations

Degree Level Required for Jobs
(Certificate, Associate's, Bachelor's, etc.)

Jobs
Demand forecast is the annual average "New & Replacement Jobs" each year from 2017-2022. "New & Replacement" jobs include the net new jobs forecast for that occupation plus the average replacement jobs created due to retirements and persons exiting the field.

Gap
The absolute difference in **volume** between colleges gradates and available jobs. A negative number indicates that there are more available jobs than college graduates

Supply-Demand Conditions- All

Occupation Group	Edu. Level	Annual Job Openings	Completions	Gap #	% of Jobs
Nursing Aide, Orderlies & Attendants	Certificate	1,631	332	1,299	20%
Registered Nurses	Assoc>Bach	1,625	514	1,111	32%
Licensed Practical and Licensed Vocational Nurses	Certificate	534	155	379	29%
Medical Assistants	Certificate	745	475	270	64%
Dental Assistants	Certificate	350	90	260	26%
Pharmacy Technicians/Aides	Certificate	330	81	249	25%
Dental Hygienists	Associate's	190	13	177	7%
Ophthalmic Medical Technicians	Certificate	141	5	136	4%
Medical Records and Health Information Technicians	Certificate	258	142	116	55%
Phlebotomists	Certificate	158	51	107	32%
Physical Therapist Assistants	Associate's	136	49	87	36%
Surgical Technologists	Certificate	98	50	48	51%
Radiologic/Nuclear Technologists & Therapists	Associate's	160	113	47	71%
Medical and Clinical Laboratory Technicians	Associate's	92	47	45	51%
Cardiovascular Technologists and Technicians	Associate's	37	4	33	11%
Occupational Therapy Assistants	Associate's	41	14	27	34%
Magnetic Resonance Imaging Technologists	Associate's	21	3	18	14%
Respiratory Technicians & Therapists	Associate's	72	57	15	79%
Diagnostic Medical Sonographers	Associate's	64	80	-16	126%
Home Health Aides	Certificate	1,113	28	1,085	3%
Psychiatric Aides	Certificate	316	0	316	0%
Emergency Medical Technicians and Paramedics	Certificate	166	23	143	14%
Psychiatric Technicians	Certificate	54	0	54	0%
Medical Transcriptionists	Certificate	38	0	38	0%
Occupational Therapy Aides	Certificate	9	0	9	0%

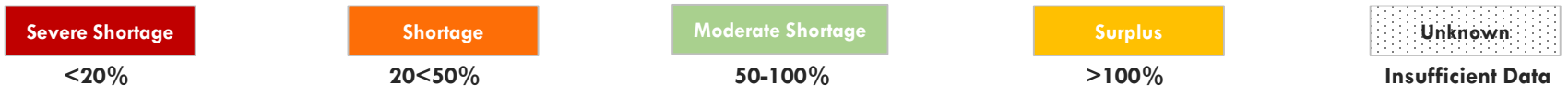| Severe Shortage	Shortage	Moderate Shortage	Surplus	Unknown
<20%	20<50%	50-100%	>100%	Insufficient Data

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Supply-Demand Conditions – Severe Shortage by Ratio

Severe Shortage: local graduates comprise 20% to 50% of job openings

- Dental Hygienists and Ophthalmic Medical Technicians both have severe shortages with gaps of more than 100 jobs. Dental Hygienists in particular were identified by education and training providers as an in-demand program area with limited capacity.
- Cardiovascular Technologists and Technicians are seeing severe shortages by **ratio** but their demand and gap **volumes** are relatively low. This occupation was identified as a high workforce challenge area by Partnership employers, indicating that the demand for this job may be increasing or there are other elements besides volume making it a challenge to hire
- MRI technologists indicate severe shortages but their **volume** indicates these challenges are less significant in the field.

WORKFORCE SUPPLY- DEMAND CONDITIONS TABLE- SEVERE SHORTAGE OCCUPATIONS

Gap	Occupation Group	Edu. Level	Annual Job Openings	Completions	Gap #	% of Jobs
	Dental Hygienists	Associate's	190	13	177	7%
	Ophthalmic Medical Technicians	Certificate	141	5	136	4%
	Cardiovascular Technologists and Technicians	Associate's	37	4	33	11%
	Magnetic Resonance Imaging Technologists	Associate's	21	3	18	14%

Severe Shortage	Shortage	Moderate Shortage	Surplus	Unknown
<20%	20<50%	50-100%	>100%	Insufficient Data

Supply-Demand Conditions – Severe Shortage by Ratio

Dental Hygienists and Ophthalmic Technicians show large gaps in both **ratio** and **volume** of supply compared to demand, but have also seen wages decline over the last five years. Education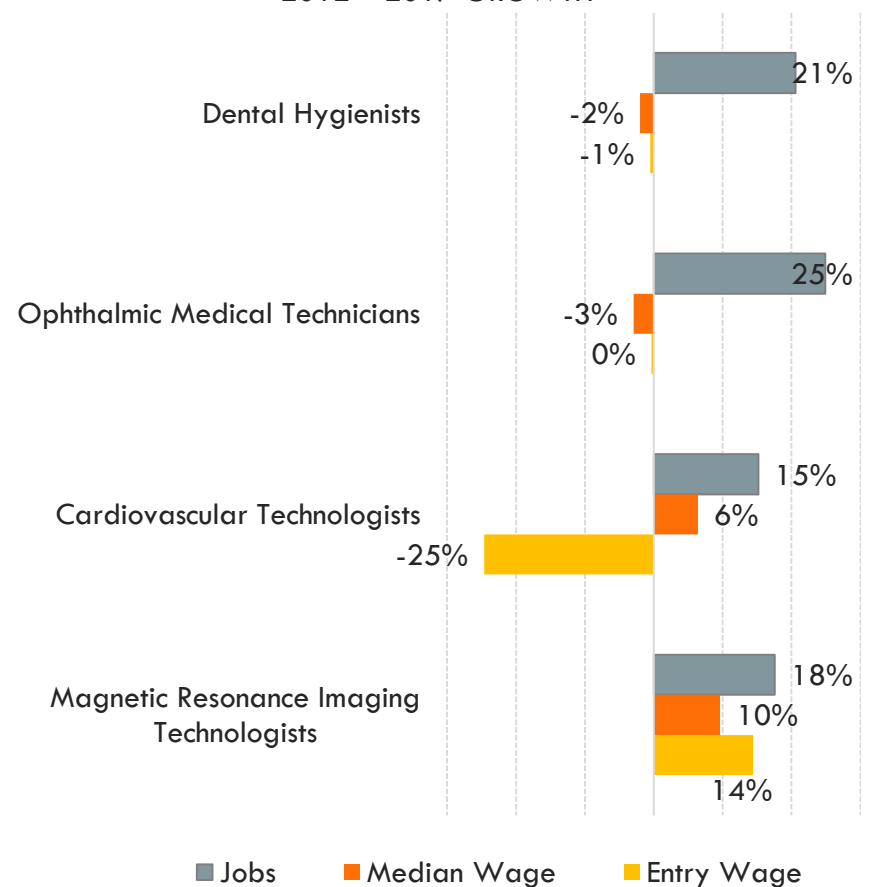 and training providers, however, report significant interest from students and potential students for Dental Hygienist programming. Similarly, Cardiovascular Technologists were reported to be difficult to hire by the Partnership but entry level wages over the 2012-2017 time period decreased by 25%.

SUPPLY / DEMAND GAP CONDITIONS
PROJECTED ANNUAL OPENINGS VS. GRADUATES
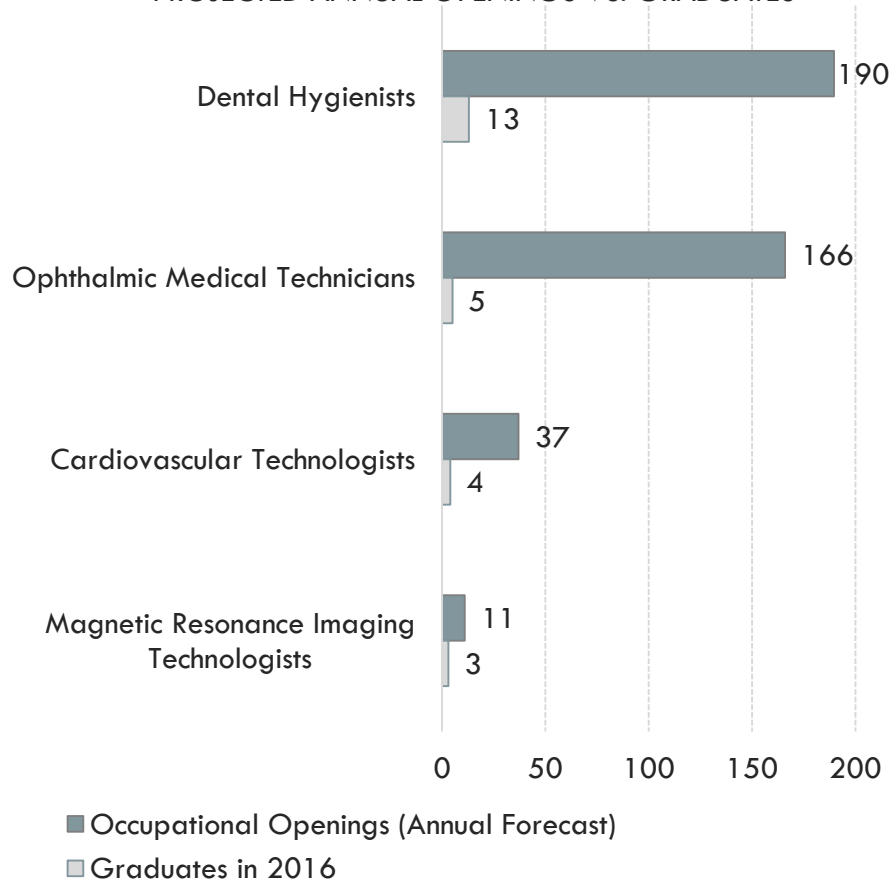
- Dental Hygienists: 190 / 13
- Ophthalmic Medical Technicians: 166 / 5
- Cardiovascular Technologists: 37 / 4
- Magnetic Resonance Imaging Technologists: 11 / 3

(Axis: 0, 50, 100, 150, 200)

■ Occupational Openings (Annual Forecast)
☐ Graduates in 2016

AUSTIN METRO COUNTY MEDICAL OCCUPATION GROUPS
2012 – 2017 GROWTH

- Dental Hygienists: Jobs 21%, Median Wage -2%, Entry Wage -1%
- Ophthalmic Medical Technicians: Jobs 25%, Median Wage -3%, Entry Wage 0%
- Cardiovascular Technologists: Jobs 15%, Median Wage 6%, Entry Wage -25%
- Magnetic Resonance Imaging Technologists: Jobs 18%, Median Wage 10%, Entry Wage 14%

■ Jobs ■ Median Wage ■ Entry Wage

SOURCE: AVALANCHE CONSULTING ANALYSIS

Note: Registered Nurses includes both middle-skill and more advanced positions.

Supply-Demand Conditions – Shortage by Ratio

Shortage: local graduates comprise 20% to 50% of job openings

- Nursing Support (Aides, Assistants) have the most severe shortage by **volume** (1,365 jobs) with Registered Nurses having the second (1,111 jobs), however these positions are listed as "shortage" since the large employment **volume** means a lower **ratio**. This analysis may overestimate the shortage, particularly for Nursing Support, as some non-credit training data (including those at local ISDs), may not be included. It is important to note that this data analysis includes both middle-skill and more advanced RN positions; however employers in the Partnership have indicated that Associate-level RN positions are a particular challenge. More employer validation will be required to determine what proportion of this gap is middle-skill.

- Licensed Practical and Licensed Vocational Nurses were identified as a challenge by Partnership employers. This analysis classifies them as "severe" by **ratio**, and the **volume** indicates significant gaps as well. Some for-profit program data was unavailable, potentially overestimating the gap.

- Dental Assistants, Pharmacy Aides/Technicians, and Phlebotomists are seeing shortages with gaps ranging from 100-260 jobs. All three occupations were identified as of interest in the Master Plan. Phlebotomists are increasingly being absorbed into other healthcare occupations. For example, many Medical Assistant education programs require students also obtain Phlebotomy and EKG certifications. Some education and training providers for Pharmacy Technicians, including secondary programs at local ISDs, offer training programs not included in this analysis, which may overestimate shortages.

- Physical and Occupational Therapy Assistants are seeing shortages, but their **volume** (particularly Occupational) are low enough to be less significant to the field. Physical Therapy Assistants were identified as of interest in the Master Plan and may warrant additional analysis and employer validation.

WORKFORCE SUPPLY- DEMAND CONDITIONS TABLE- SHORTAGE OCCUPATIONS

Gap	Occupation Group	Edu. Level	Annual Job Openings	Completions	Gap #	% of Jobs
	Nursing Aide, Orderlies & Attendants	Certificate	1,631	332	1,299	20%
	Registered Nurses	Assoc>Bach	1,625	514	1,111	32%
	Licensed Practical and Licensed Vocational Nurses	Certificate	534	155	379	29%
	Dental Assistants	Certificate	350	90	260	26%
	Pharmacy Technicians/Aides	Certificate	330	81	249	25%
	Phlebotomists	Certificate	158	51	107	32%
	Physical Therapist Assistants	Associate's	136	49	87	36%
	Occupational Therapy Assistants	Associate's	41	14	27	34%

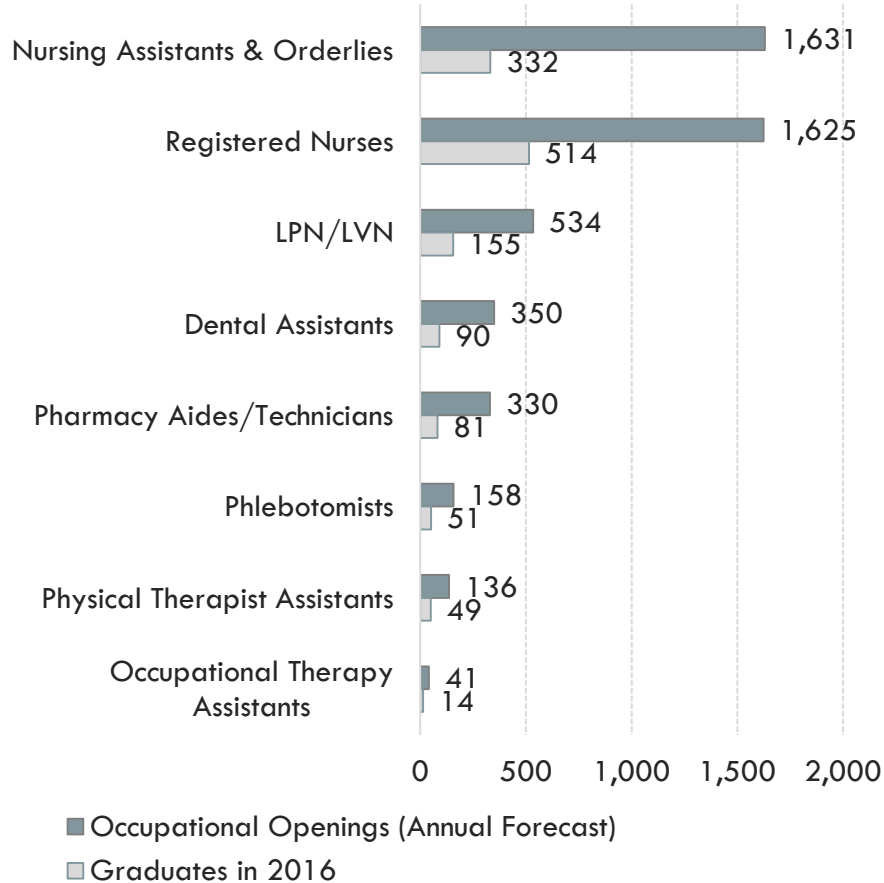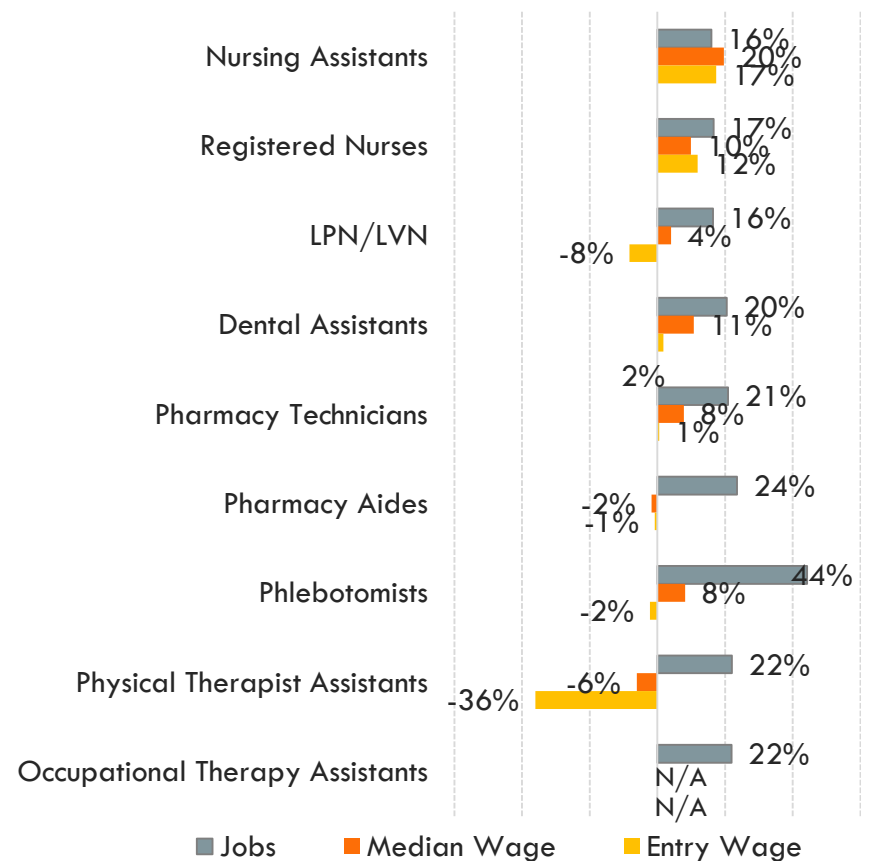| Severe Shortage	Shortage	Moderate Shortage	Surplus	Unknown
<20%	20<50%	50-100%	>100%	Insufficient Data

Supply-Demand Conditions – Shortage by Ratio

Nursing Aides and Registered Nurses are severely underserved by local graduate output. While all occupations experienced high job growth, large wage growth for Nursing Assistants and Registered Nurses indicates demand significantly outstrips supply. Licensed Practical Nurses are severely underserved by local graduate output, however entry level wages were in decline. The large growth for Pharmacy Technicians, coupled with its median wage increase indicates another occupation that is in high demand without an associated supply.

SUPPLY / DEMAND GAP CONDITIONS
PROJECTED ANNUAL OPENINGS VS. GRADUATES

Occupation	Occupational Openings (Annual Forecast)	Graduates in 2016
Nursing Assistants & Orderlies	1,631	332
Registered Nurses	1,625	514
LPN/LVN	534	155
Dental Assistants	350	90
Pharmacy Aides/Technicians	330	81
Phlebotomists	158	51
Physical Therapist Assistants	136	49
Occupational Therapy Assistants	41	14

■ Occupational Openings (Annual Forecast)
□ Graduates in 2016

AUSTIN METRO COUNTY MEDICAL OCCUPATION GROUPS
2012 – 2017 GROWTH

Occupation	Jobs	Median Wage	Entry Wage
Nursing Assistants	16%	20%	17%
Registered Nurses	17%	10%	12%
LPN/LVN	16%	4%	-8%
Dental Assistants	20%	11%	2%
Pharmacy Technicians	21%	8%	1%
Pharmacy Aides	24%	-2%	-1%
Phlebotomists	44%	8%	-2%
Physical Therapist Assistants	22%	-6%	-36%
Occupational Therapy Assistants	22%	N/A	N/A

■ Jobs ■ Median Wage ■ Entry Wage

Note: Demand for Registered Nurses includes both middle-skill and more advanced positions.

Supply-Demand Conditions – Moderate Shortage and Surplus by Ratio

Moderate Shortage: local graduates comprise 50%-100% of job openings

- Medical Assistants have a relatively large shortage by **volume** (270 jobs), however this position is listed as "moderate shortage" since the large employment volume means a lower **ratio**. Medical Assistants were identified as a workforce challenge by Partnership employers, indicating that the demand for this job may be increasing or there are other elements besides volume making it a challenge to hire. Some education and training providers, including secondary programs at local ISDs, offer training programs not included in this analysis, which may overestimate shortages.
- Medical Records occupations were identified as of interest in the Master Plan and see a relatively high **volume** (116 jobs). There are several non-credit training options for which we did not receive data, potentially overestimating the shortage.
- Surgical and Radiology Technologists were identified as workforce challenges by Partnership employers. **Ratios** of graduates to job openings are approximately 50 and 70% respectively. Both gap **volumes** are approximately 50 jobs. Additional analysis and employer validation may be beneficial.

Surplus: local graduates comprise more than100% of job openings

- Diagnostic Medical Sonographers are the only middle-skill occupation that saw a surplus. They were not identified by the Partnership as a workforce challenge.

WORKFORCE SUPPLY- DEMAND CONDITIONS TABLE- MODERATE SHORTAGE/SURPLUS OCCUPATIONS

Gap	Occupation Group	Edu. Level	Annual Job Openings	Completions	Gap #	% of Jobs
	Medical Assistants	Certificate	745	475	270	64%
	Medical Records and Health Information Technicians	Certificate	258	142	116	55%
	Surgical Technologists	Certificate	98	50	48	51%
	Radiologic/Nuclear Technologists & Therapists	Associate's	160	113	47	71%
	Medical and Clinical Laboratory Technicians	Associate's	92	47	45	51%
	Respiratory Technicians & Therapists	Associate's	72	57	15	79%
	Diagnostic Medical Sonographers	Associate's	64	80	-16	126%

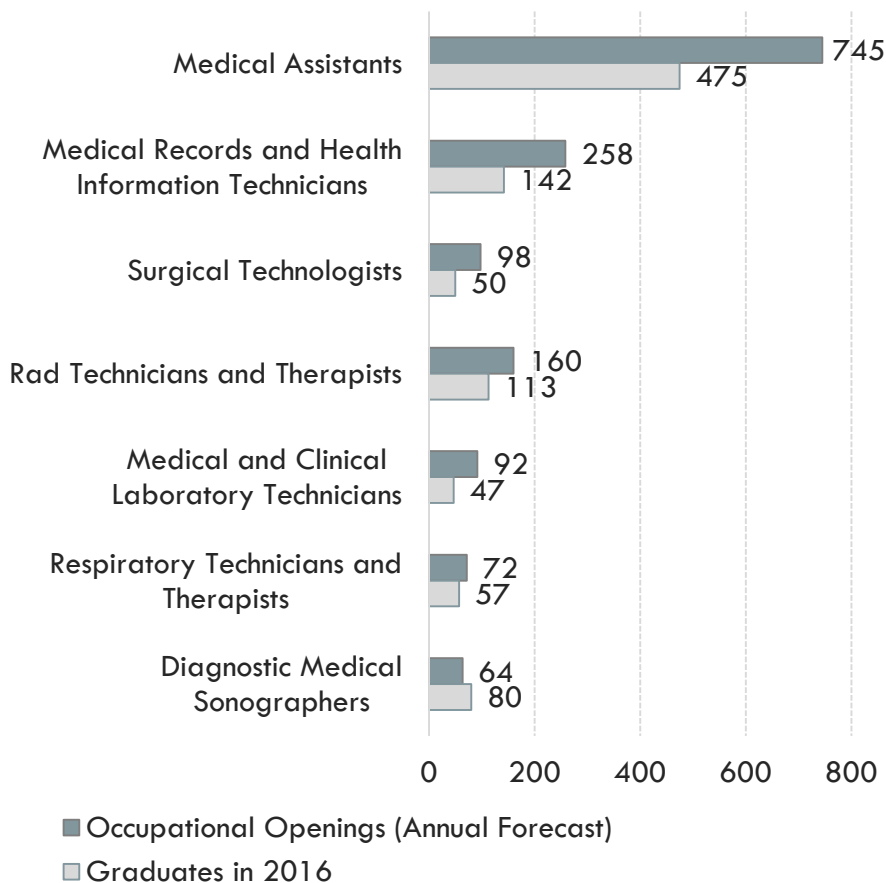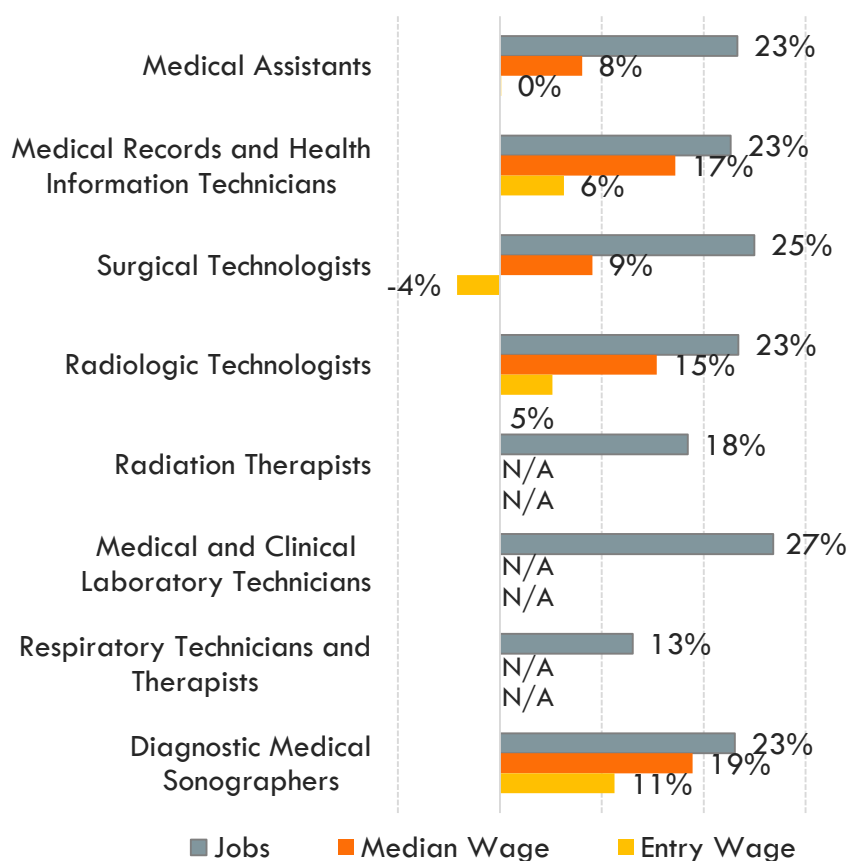| Severe Shortage	Shortage	Moderate Shortage	Surplus	Unknown
<20%	20<50%	50-100%	>100%	Insufficient Data

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Supply-Demand Conditions – Moderate Shortage and Surplus by Ratio

Medical Assisting graduate output, with nearly 750 graduates in 2016, appears to meet local demand by **ratio** of annual openings to local graduates, however it is important to note the **volume** of that gap is 270 jobs. Medical Records and Health Information Technicians are also categorized as moderate shortage by **ratio**, and, while there is a **volume** gap, this may be addressed by non-credit training for which we do not have credit, such as Texas State University's online programs.

SUPPLY / DEMAND GAP CONDITIONS
PROJECTED ANNUAL OPENINGS VS. GRADUATES

Occupation	Occupational Openings (Annual Forecast)	Graduates in 2016
Medical Assistants	745	475
Medical Records and Health Information Technicians	258	142
Surgical Technologists	98	50
Rad Technicians and Therapists	160	113
Medical and Clinical Laboratory Technicians	92	47
Respiratory Technicians and Therapists	72	57
Diagnostic Medical Sonographers	64	80

■ Occupational Openings (Annual Forecast)
☐ Graduates in 2016

AUSTIN METRO COUNTY MEDICAL OCCUPATION GROUPS
2012 – 2017 GROWTH

Occupation	Jobs	Median Wage	Entry Wage
Medical Assistants	23%	8%	0%
Medical Records and Health Information Technicians	23%	17%	6%
Surgical Technologists	25%	9%	-4%
Radiologic Technologists	23%	15%	5%
Radiation Therapists	18%	N/A	N/A
Medical and Clinical Laboratory Technicians	27%	N/A	N/A
Respiratory Technicians and Therapists	13%	N/A	N/A
Diagnostic Medical Sonographers	23%	19%	11%

■ Jobs ■ Median Wage ■ Entry Wage

SOURCE: AVALANCHE CONSULTING ANALYSIS

Note: Registered Nurses includes both middle-skill and more advanced positions.

Supply-Demand Conditions – Unknown

Unknown: cannot calculate the **ratio** of local graduates to job openings either because the occupation does not necessarily require postsecondary education and training or requires training for which we don't have data, such as non-credit training

- Home Health Aides, EMT/Paramedics, and Medical Transcriptionists may require postsecondary training for which data was not available. The Board provides non-credit training for EMT/Paramedics in particular. This analysis includes select non-credit training data, but lack of sufficient data means that we cannot calculate an accurate **ratio**. Additional analysis or employer validation may be necessary.
- Other occupations may not require postsecondary training, though it can lead to increased employment opportunities. In this case, it's difficult to calculate an accurate **ratio**. Additional analysis or employer validation may be necessary.

WORKFORCE SUPPLY- DEMAND CONDITIONS TABLE- "UNKNOWN" OCCUPATIONS

	Occupation Group	Edu. Level	Annual Job Openings	Completions	Gap #	% of Jobs
UNK	Home Health Aides	Certificate	1,113	28	1,085	3%
UNK	Psychiatric Aides	Certificate	316	0	316	0%
UNK	Emergency Medical Technicians and Paramedics	Certificate	166	23	143	14%
UNK	Psychiatric Technicians	Certificate	54	0	54	0%
UNK	Medical Transcriptionists	Certificate	38	0	38	0%
UNK	Occupational Therapy Aides	Certificate	9	0	9	0%

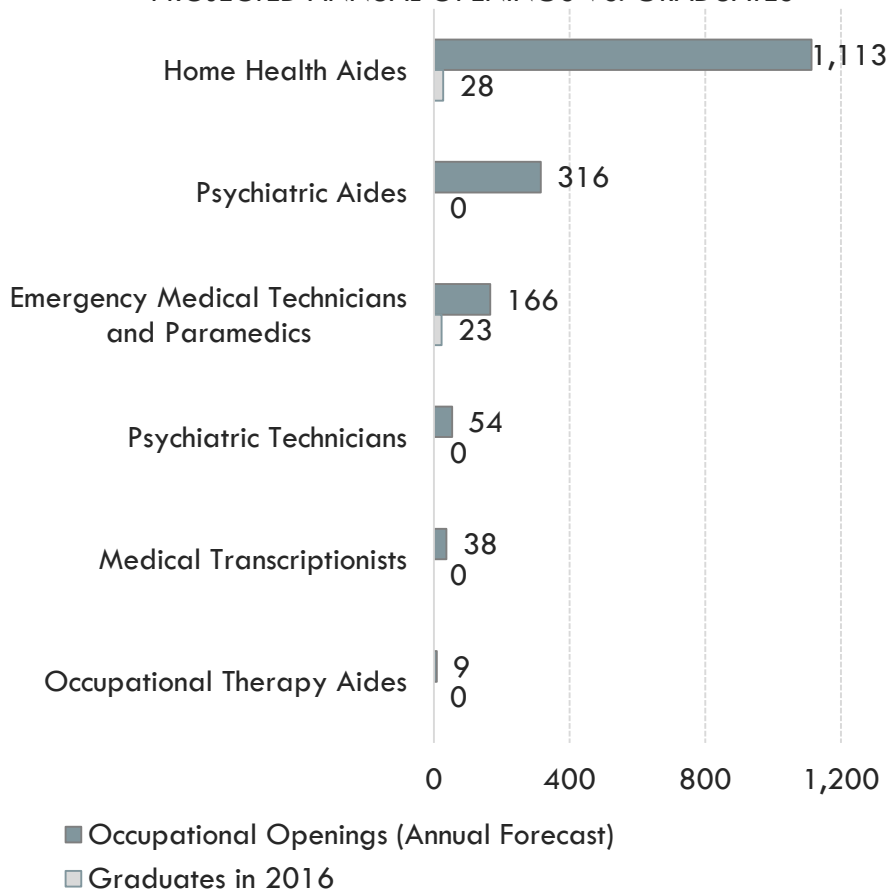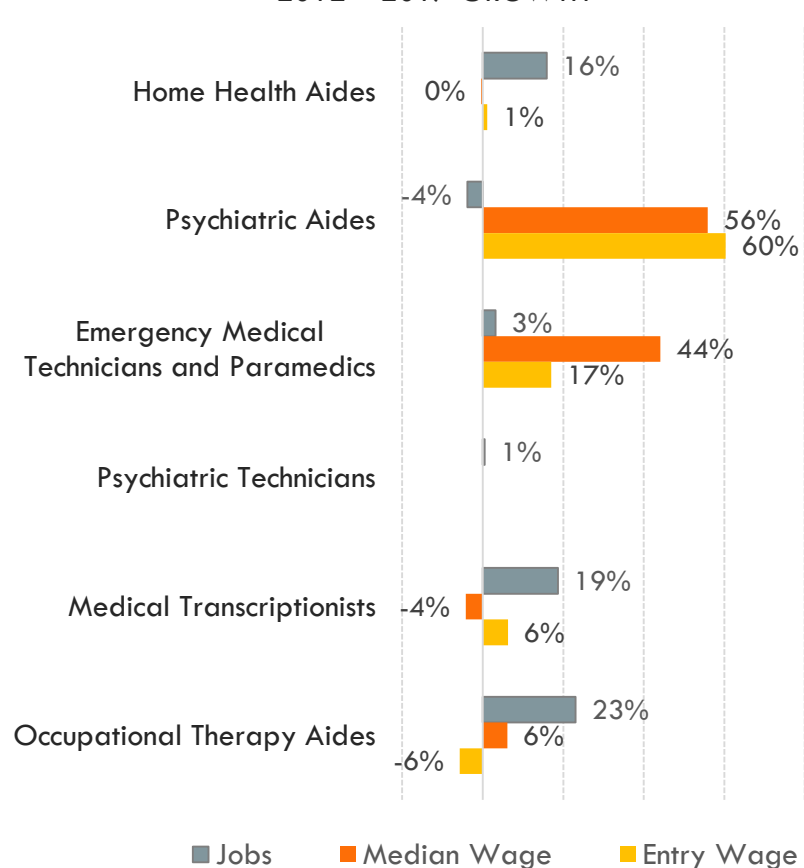| Severe Shortage	Shortage	Moderate Shortage	Surplus	Unknown
<20%	20<50%	50-100%	>100%	Insufficient Data

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Supply-Demand Conditions – Unknown

Home Health Aides are severely underserved by local graduate output though the availability of non-credit courses may help fill the gap. EMT's are also in shortage, but may be overestimated due to private training offered through local and regional municipalities such as Workforce Boards and Fire Departments. While all occupations experienced high job growth, large wage growth for EMT's indicates demand significantly outstrips supply.

SUPPLY / DEMAND GAP CONDITIONS
PROJECTED ANNUAL OPENINGS VS. GRADUATES

Occupation	Occupational Openings (Annual Forecast)	Graduates in 2016
Home Health Aides	1,113	28
Psychiatric Aides	316	0
Emergency Medical Technicians and Paramedics	166	23
Psychiatric Technicians	54	0
Medical Transcriptionists	38	0
Occupational Therapy Aides	9	0

■ Occupational Openings (Annual Forecast)
☐ Graduates in 2016

AUSTIN METRO COUNTY MEDICAL OCCUPATION GROUPS
2012 – 2017 GROWTH

Occupation	Jobs	Median Wage	Entry Wage
Home Health Aides	16%	0%	1%
Psychiatric Aides	-4%	56%	60%
Emergency Medical Technicians and Paramedics	3%	44%	17%
Psychiatric Technicians	1%		
Medical Transcriptionists	19%	-4%	6%
Occupational Therapy Aides	23%	6%	-6%

■ Jobs   ■ Median Wage   ■ Entry Wage

SOURCE: AVALANCHE CONSULTING ANALYSIS

Note: Registered Nurses includes both middle-skill and more advanced positions.

WORKFORCE SUPPLY-DEMAND GAPS

Travis County and the broader Austin region are blessed with numerous post-secondary institutions. Each year, these schools produce tens of thousands of graduates. In 2016, universities and colleges in the region produced approximately 4,500 post-secondary Healthcare graduates across all award levels, nearly 2,000 of which were at the Certificate (for-credit) or Associate's level. Still, healthcare graduate levels are far lower than US levels on a per capita basis across all degree levels.

The alignment between demand forecasts and local education and training graduates show one side of a workforce supply-demand analysis. Marrying this analysis with feedback from employer and education and training stakeholders allows us to see a clearer picture of the alignment for middle-skill healthcare occupations in the region. This analysis was able to validate many of the assumptions of the Board and the Partnership's initial work as well as add occupations to the list for additional exploration. Occupations of particular interest include

- Nursing Assistants
- Registered Nurses
- Dental Hygienists and Assistants
- Licensed Practical and Licensed Vocational Nurses
- Home Health Aides
- Ophthalmic Medical Technicians
- Pharmacy Aides and Technicians
- EMTs/Paramedics

Some strategies to expanding a healthy local workforce pipeline for these target middle skill occupations identified during this analysis include,

- Identifying solutions to education and training capacity issues. For example, career awareness and early intervention in career planning, referring students from at capacity program and/or institutions to those with additional capacity, increasing placement opportunities for clinical and internship programs, particularly for sub-baccalaureate programs.
- Determining career pathways from lower wage middle skill healthcare occupations to more sustainable ones. For example, some employers are working with education and training providers to upskill and increase access to additional credentials for incumbent workers
- Developing partnerships with both secondary and postsecondary education providers to share data on completions, enrollment, capacity.