

# **Healthcare in the Tri-County Workplace: *A Report on Workforce and Industry Trends and Opportunities, and Career Pathways / Skill Standards***

*Prepared by the Center for Individual & Organizational Effectiveness (C4IOE.com)  
for the Tri-County Workforce Investment Board – Butler, Pennsylvania  
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This Report accompanies a Graphic Model and a Descriptive Model of Healthcare Career Pathways & Skill Standards, which are all available on the Tri-County Workforce Investment Board website.



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## Purpose of Project and Report

This report was developed as the culmination of a research and development project sponsored by the Butler, Pennsylvania based Tri-County Workforce Investment Board, who contracted with Pittsburgh based consulting firm Center for Individual & Organizational Effectiveness, to address key research questions around demographics of the region, Healthcare industry trends and occupational trends on a national, state, regional, and local level, career pathways, training needs, and skill standards (including credentialing) for key Healthcare occupations.

Objectives of the project included: (1) develop industry surveys for the TCWIB to use annually with the industry partnerships regarding their workforce training needs, hiring needs, and occupational and industry trends, (2) research and develop Healthcare career pathways (career models for occupational groups/options) and skill standards (education/training and credentials required for the occupations), (3) research workforce, occupational, and industry trends specifically related to the Healthcare occupations identified and the training required for those roles, and (4) provide some recommendations related to workforce development/training and career paths for the identified key occupations in the Healthcare industry.

## Executive Summary

Healthcare workforce trends and practices in southwestern Pennsylvania and in the Tri-County Workforce Investment Board region tend to follow similar trends and practices at the national and Pennsylvania state level, and are affected by healthcare broad industry issues and changes. Healthcare Career Pathways in the local Tri-County area follow national training standards and credentialing requirements, though licensing standards vary by state.

This report accompanies Healthcare Career Pathways and Skill Standards models (descriptive model and graphic model) that, along with the report, were developed for the purpose of:

- summarizing the changes and challenges in the healthcare industry that are affecting the workforce,
- driving further refinement in the recruitment, training, credentialing, and retention of healthcare employees,
- educating the public / community, students, job candidates, training providers, and employers to provide a better-prepared, more effective and stable workforce and pipeline of candidates, and
- providing a model of career pathways and skill standards that can be used for those above purposes.

Overarching workforce trends that are driving fundamental changes are: Workforce is Aging, Education Gap, Disappearing Soft Skills, Geographic Polarization, Technology Innovation, New Training Opportunities, Social / Health Crises, Capital & Talent Concentration, Employment & Income Structures, and Uncertainty about the Future of the Job Market.

National and state healthcare trends and developments include: Changes in Healthcare Funding, Insurance and Legislation, Supply and Demand in Healthcare, Younger Generations Driving Some Changes, Technology Driving Changes, Changes in Healthcare Occupations and Training, and Growing Healthcare Occupations. Pennsylvania demographics of an aging population is also one of the key drivers in some changes as well.

In Southwestern Pennsylvania in the healthcare support occupations group (SOC codes 31-0000), the occupations with the greatest percent of projected growth in the Pittsburgh metro area, in order by greatest to least growth percentage, are: massage therapists, physical therapy assistants, home health aides, occupational therapy assistants, and physical therapy aides. This growth is expected through 2016, as the population continues to age and the service provided by these occupations continues to increase in demand. (Bureau of Labor Statistics, 2016).

In Southwestern Pennsylvania in the healthcare practitioners and technical occupations group (SOC codes 29-0000), the non-physician / non-doctorate and non-veterinary occupations with the greatest percent of projected growth in the Pittsburgh metro area, in order by greatest to least growth percentage, are: hearing aid specialists, nurse practitioners, therapists – all other, physical therapists, occupational therapists, physician assistants, and EMTs/paramedics. Again, this growth is expected through

2016, as the population continues to age and the service provided by these occupations continues to increase in demand. (BLS, 2016).

In the Tri-County Workforce Investment Board region (Butler, Armstrong and Indiana counties in western Pennsylvania), the healthcare occupations in greatest demand, with the highest number of annual openings are: LPNs, CNAs and RNs. Of healthcare employers in the Tri-County region who responded to a Spring, 2017 workforce development survey, 70% said they see their business expanding from 2017 to 2018, and are projecting to hire managerial, technical professionals, and administrative professionals.

Respondents to the survey also identified a number of industry trends affecting Tri-County healthcare:

- Regulations and reimbursement (decreasing Medicare / Medicaid government funding to employers)
- Insurance changes with managed care (Community Health Choices)
- Decline in workforce numbers
- Opiate epidemic
- Growth of home care following discharge from skilled services, and growth in this healthcare model overall. Home healthcare companies are growing.
- Customer demands exceeding what is covered under health insurance

The greatest workforce specific concerns from employers were: employee retention (employees leave for other jobs) (67%), aging workforce (many skilled people retiring in next few years) (33%), and lack of job readiness among new and potential hires (33%). Also mentioned were: youth pipeline is too small and concerns about the disconnect between schools and employers.

In the area of workforce challenges, a number of employers noted the difficulty in finding entry-level workers with necessary workplace skills, such as Interpersonal skills including interactions with co-workers and supervisors, and job readiness. They are interested in training and education programs where this is more of a focus.

Based on research, six (6) key healthcare occupational clusters in demand or projected to be in demand were developed for the Tri-County area or region:

- Direct Patient Care
- Behavioral Health & Social Work
- Allied Health
- Imaging & Diagnostics
- Business, Health Informatics & Patient Records
- Medical Research & Development

Career Progression or movement within healthcare career pathways almost always includes further education or credentialing to move into different career clusters within healthcare or to progress within a career cluster, such as from a Certified Nursing Assistant to Licensed Practical Nurse to Registered Nurse, or from Physical Therapy Aide to Physical Therapy Assistant to Physical Therapist.

The healthcare industry is expected to outpace all other industry groups in terms of growth across occupations from 2014 through 2024, according to the U.S. Bureau of

Labor Statistics, with employment in the top 9 healthcare occupations alone growing from 1,535,800 to 2,104,500. The healthcare industry also has most of the top projected growth occupations for Pennsylvania. Even with the changes in coverages / insurances / legislation, etc. once someone pursues the education and credentialing required for a particular career, they can be relatively assured of a stable and rewarding career.

The following recommendations regarding healthcare workforce development and response to trends and industry needs have emerged from the research data and qualitative input provided by local and regional employers, educators and service providers:

- Focus on High Priority Occupations and others showing high growth potential. And create pathways to upward mobility.
- More proactively find and attract talent
- Develop more effective retention strategies
- Transition unemployed or underemployed workers into the healthcare field
- Continue preparations for aging workforce
- Continue to refine and develop better alignment between training programs / providers and employer needs (the job openings and skills needed)

Healthcare industry trends and employer and workforce needs have been identified in a number of industry reports nationally and in the state of Pennsylvania, at least since the Affordable Care Act changes. Though some needs (such as nurse and CNA shortages) have been concerns for a longer period. The time for action is at hand. Many reports, including this one, continue to discuss the trends and needs and identify potential actions, but the industry changes and needs are so vast that seeing significant collective industry response to the needs has been challenging.

The response to changes and needs is likely best been seen at regional and local levels, where groups of employers (such as the Tri-County Healthcare Consortium) must continue to tackle healthcare workforce development from the standpoint of further defining and refining the needs, identifying funding and ways of collaborating to purchase training and attract and retain talent, working with state programs and resource partners that support workforce development, reaching out to regional job seekers and workers to provide support along healthcare career pathways and credentialing, and working with training providers to address the training needs.

Healthcare is almost guaranteed to be stable or growing in terms of needs that drive the industry, and will provide the potential for a variety of growing and changing careers for those in the field, provided the industry (employers, resource partners, training providers, and workers), particularly in southwestern Pennsylvania and the Tri-County region, continues to evolve to adapt to change and proactively develops the workforce to meet the identified needs.

## I. Current Landscape: Workforce and Healthcare Trends and Developments

### A. Overarching Workforce Trends

The shifts and disruptions underway in the employment and labor markets have prompted a number of recent in-depth reports and articles on the future of work, many published just in the last 12 months. Following is a look at the top broad workforce trends that are driving fundamental changes.

**Workforce is Aging:**<sup>1</sup> According to the Bureau of Labor Statistics (BLS), by 2024 nearly 25% of the workforce is expected to be 55 years old or older – double the percentage in 1994 (BLS, 2015). The oldest of the country’s estimated 77 million baby boomers began turning age 65, the traditional retirement age, in 2011. Now this generation, born between 1946-1964, has begun to reach retirement age in staggering numbers: approximately 10,000 a day (Heimlich, 2010). As those workers exit the work place, so goes decades of experience and institutional knowledge, some of which cannot be replaced. According to *U.S. News & World Report*, “the U.S. economy will experience a shortfall of 5 million workers with the necessary education and training to fill expected job openings by 2020” (Bidwell, 2013).

The fastest-growing segment of the workforce is, and will continue to be, older workers, as the middle to end of the baby boom generation still has over a decade before many will reach retirement age. Even then, many people are working longer (out of both need and choice) than in the past. This is reflected in BLS projections that the number of workers over age 65 will continue to increase from 18.6% in 2014 to 21.7% in 2024; and the labor rate for those 16-24 years of age will decrease, from 13.7% in 2014 to 11.3 in 2024.

**Education Gap:** By 2020, 65% of an estimated 165 million jobs in the U.S. economy will require some postsecondary education or training beyond high school. (Coulombe, 2016). While nationally there has been a long-term trend of an increasing percentage of the population attending 2 and 4-year colleges, this breaks down unevenly across regions. There is a significant amount of polarization – even at the micro level of city neighborhoods, with some areas increasingly sending children to college and other areas remaining flat or even declining. Metro areas are disproportionately college educated, and white residents still far outpace minorities in college completion rates, though there has been a steady uptick in the number of disadvantaged students attending colleges. Even with areas of progress, it is widely expected that companies will face a persistent skills shortage among highly specialized technical workers and senior managers and executives.

**Disappearing Soft Skills:** There is also what some call a crisis in the lack of soft skills, especially communication skills, among new hires, regardless of educational background. One oft-cited reason for this is the increased use of technological means of communication, rather than face to face conversations. These and other trends have prompted educators and employers to question if traditional education paths are

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<sup>1</sup> Of note is that many emerging economies have the opposite demographic shift – their workforces are youth heavy and will remain so.

preparing young people well enough for workforce needs. Similarly, there is doubt that traditional classroom-style education and training can keep pace with changes in the workplace.

**Geographic Polarization:** Another long-term trend that has accelerated is that wealthy zip codes are getting wealthier and poorer zip codes poorer. More college educated populations live in cities, especially coastal cities. There are growing opportunity and income gaps across the country caused, in part, by growing gaps in average incomes across regional labor markets, with rural areas faring the worst.

**Technology Innovation:** Past advances in technology have clearly brought knowledge and productivity gains and a higher standard of living – but have also spurred worker displacement and chaotic periods of transition. What is different about this current period of innovation is the unprecedented pace and scope of the changes being wrought by digital technology and automation. This is forcing a structural shift in thinking about work itself, the economy and how we use our resources – all foundational building blocks of our society.

As stated in the recent New America / Bloomberg report *Shift: The Commission on Work, Workers and Technology*, “How much and what kind of work will be available over the coming decades will steer our economic growth, our technological progress, our social health, our physical geography, and our political stability” (New America / Bloomberg, 2017).

**New Training Opportunities:** Advances in Virtual Reality and Augmented Reality are increasingly being viewed as offering a new platform for learning/ training. A number of educators point to these technologies, plus online learning in general, as ways to make training more accessible and affordable to more people.

**Social / Health Crises:** A convergence of social and health issues are detrimentally affecting the workforce, such as high incidents of obesity, diabetes, suicide, prescription drug / opioid abuse, and depression/ anxiety. One of the most startling social developments is the falling life expectancy for middle-aged working class white American males since the 1990s.

Less-educated whites (those with a high school degree or less) are unique in this situation. “Life expectancy has been on the rise for a long time for whites with bachelor’s degrees, Hispanics and blacks. In 1999, the mortality rate for whites between 50 and 54 with only high-school degrees was 30 percent lower than the mortality rate of blacks that age. By 2015, it was 30 percent higher” (Smialek, 2017). Nowhere else in the developed world is a group of people losing years off of their life expectancy.

Research by Princeton University’s Anne Case and Angus Deaton points to distress from globalization and technological change as the probable cause for the phenomenon. They cite the cycle of despair experienced by many in this group as “rooted in the massive shifts in the labor market” that left many in the working class unable to find sustaining employment, though many aspects of life feed into the problem.

**Capital and Talent Concentration:** The wealthier and globally connected cities are increasingly nationally and internationally networked and offer more varied and better employment opportunities than the rest of metro areas. This serves a strong pull factor



for brain drain to top cities. Movement from more rural to more urban opportunities has been happening for a long time. What is different is that the competition among metro areas for the best and brightest is shaking out to favor a few super-cities that are particularly attracting the millennial generation. This exacerbates issues with regional income equality and access to opportunities.

***Employment and Income Structures:*** There has been a half century trend away from how much of an individual's earnings are made from a job, versus how much is made through other means, such as financial and real estate investments, task-based work and government programs like Medicaid and social security. According to recent data from the US Bureau of Economic Analysis (BEA), employees earned two-thirds of their income through wages and salaries in the 1960s, and today earn only one-half this way (BEA, 2017).

***Uncertainty about the Future of the Job Market:*** It remains unclear how automation and technology will affect employment structures. What educators and technologists are clearer about is some jobs *will* go away permanently – particularly any job that entails repetitive motion or binary decision-making. But other jobs will be created, for example in designing, operating, maintaining and programming the technology. What is also clear is that this shift in job types, is continuing to move upward in skill level.

Another unknown is whether work and careers will remain concentrated in full time occupations for most workers, or continue to trend towards tasks, projects and “the gig economy” (typically contract employment) where workers often have less security but more flexibility. The percentage of workers in flexible or task-based employment rose from 10 percent in 2005 to fewer than 16 percent in 2015 (Katz and Krueger, 2016).

Recent assessments of task-based employment suggest that it is the middle-earning worker who benefits the most from the opportunities, as well as caregivers and retirees. These groups use the flexibility of the employment model to work alongside other priorities: they may have other jobs, school, or creative pursuits, that require much of their time or they only need supplemental income, like retirees. The group the gig economy helps the least are low-wage earners, as many low-wage jobs that once held some job security and benefits, are now being parsed out as tasks to 3-4 part-time employees with no security or benefits (Heller, 2017).

## **B. National and State Healthcare Trends and Developments**

One thing that can be said of the healthcare industry over the past decade and particularly now even more, is that change is a certainty. After the Affordable Care Act was passed under the President Obama Administration, the healthcare industry changed, however, the net effect on healthcare jobs (in terms of changes to jobs/skills required) was insignificant (Carnevale, 2012). The demand for more healthcare workers has increased though, as evidenced in Pennsylvania and locally in the Tri-County WIB region by the number of job postings and job openings.

***Changes in Healthcare Funding, Insurance and Legislation:*** The way Medicare and Medicaid pay a medical provider for services rendered is changing. Hospitals and doctor offices are receiving less money from these programs. While this should be balanced by an increased number of patients because more people are able to access health care,

this has yet to happen, leaving health providers dealing with a significant crunch. And healthcare providers are still expected to provide healthcare to those without coverage or with limited coverage, yet the government support for doing this has decreased and also is not enough to cover those with limited insurance.

When people say the basic care of people didn't change as related to changes in legislation, funding, and insurance options, they have not considered the issues created with the insurance industry of increased co-pays, premiums, and deductibles and how that affected decisions of patients and treatment teams. The skills and adaptability of workers are thus challenged by having to adapt treatment plans and services to fit within changing insurance coverages (for example reducing physical therapy covered days from 20 to 12 for a particular treatment plan). Productivity of workers is challenged to produce results within shorter periods of time and with less cost. And now, with changes to the healthcare system looming potentially again under the President Trump Administration, the healthcare industry continues to brace for changes, but also has taken proactive steps to ensure there is a capable workforce in place to meet the needs of the U.S. population.

***Supply and Demand in Healthcare:*** In 2010, Healthcare was 18 percent of the U.S. economy, twice as high as in other countries. Because of growing demand for services..... , the demand for healthcare workers will continue to grow in demand. Jobs in the industry will grow from 15.6 million to 19.8 million between 2010 and 2020 (Carnevale, 2012).

Healthcare has the largest proportion of foreign-born and foreign-trained workers in the country (Carnevale, 2012). Due to recent developments with homeland security and concern over various types of work visas, there is anxiety among some communities regarding foreign healthcare workers who may have to return to their countries of origin. This is more likely to affect rural areas more significantly than urban areas, and certain medical specialties where foreign-born professionals make a large portion of the workforce.

Due to workforce turnover, an aging population, changes in healthcare practices and insurance coverage, the demand is outstripping the supply of educated / trained / certified / licensed healthcare workers. Demand for nursing and healthcare support roles continues to expand (Hi-potential job lists – state and Tri-County region, 2017). And staff openings and turnover rates are seen as the norm, not as a short-term trend. So employers are responding in various ways including: offering retention incentives, developing and facilitating their own training programs both to train them the way they want them and to ensure they have a pipeline of trained employees ready to go when needed, and recruiting potential graduates from credentialing programs early in their academic schooling.

As one industry partner said, "Healthcare is a stable career." What this person explained is that there is always going to be a need for trained / credentialed healthcare workers due to humans' need for healthcare (not to mention increasing needs due to various illnesses), and once a person is in the profession, he / she can be assured of career stability. This refers to the likelihood that being laid off due to a downturn in the economy or poor financial performance is less likely in the healthcare industry.

**Younger Generations Driving Some Changes:** Healthcare is also affected by the changing workforce of Millennials (Generation Y (and now Generation Z (just starting to graduate from college)). Generally the effects seen are positive, such as that healthcare leadership has generally been “bureaucratic and traditional style of management..... Frankly, healthcare isn’t known for the quality of its management; healthcare is largely populated by experts in their fields, and that means they’re not great at general management and leadership.” (McNickle, 2012). But Millennials who are more social, open, and connected, are not as likely to accept a hierarchical work environment. And they will naturally encourage more communication and collaboration. Millennials and Generation Z are very adept with social media, which also has implications for openness and transparency to the public. Lastly younger generations are looking for more of a say in the business, they want to know that what they’re doing matters and that they’re part of a larger team. Interesting developments may ensue though when the less social, more independent, Generation Z begins to enter the workforce and how this may lead to balance, or possibly friction.

**Technology Driving Changes:** The health industry lags behind other industries, such as retail and telecommunications, in the deployment of emerging technologies such as artificial intelligence, drones and virtual reality. Yet these technological innovations loom on the health industry’s horizon with great potential to disrupt. 2017 is the year to prepare for the eventual arrival of these technologies and their impacts on business models, operations, workforce needs and cybersecurity risks (Barnes et al, 2017).

From continuing changes in electronic medical records, to chips inserted into the body to transmit data to determine the condition of the patient or medical device, to “tele-health” allowing patients to remain at home while conferring with medical teams, to virtual or augmented reality for fitness and wellness, to drones providing delivery of healthcare goods to customers, to 3D printing being used to develop medical devices, technology continues to drive changes in the industry. And these changes translate to a workforce that must be skilled in the use of the various types of technology and equipment.

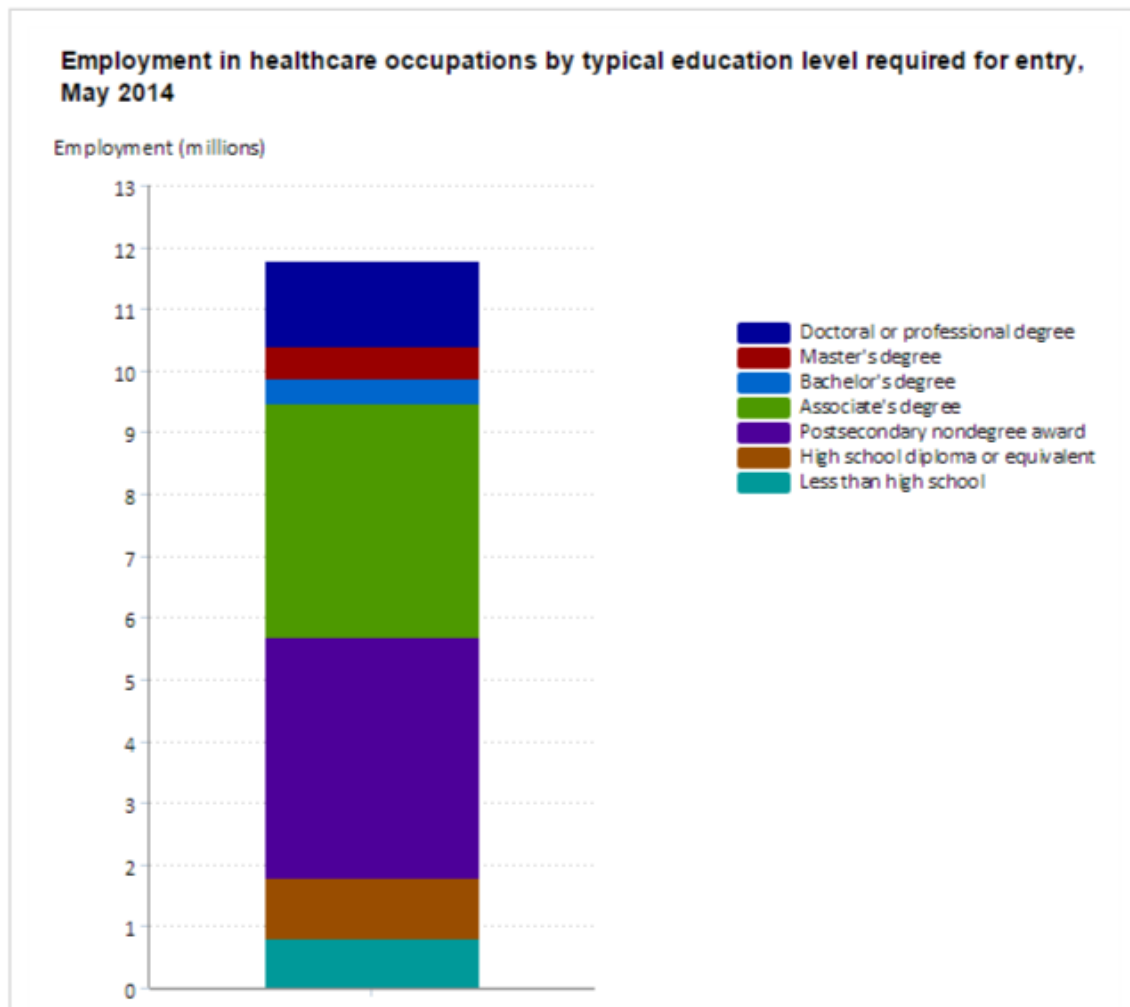
**Changes in Healthcare Occupations and Training:** The healthcare workforce is typically defined as having two labor groups – a high-paid, highly skilled, professional labor group (healthcare professional and technical professions), and a low-paid, low-skilled labor group (healthcare support professions).

Overall, 28 percent of healthcare jobs need graduate degrees – the second highest proportion of all occupations (Carnevale et al, 2012). Some healthcare professions continue to see changes in skill requirements needed. Though a majority of required training remains relatively stable due to heavy credentialing requirements at every level of healthcare occupations.

“Eighty-five percent of healthcare employment was in occupations that typically require some education beyond high school for entry. Occupations that typically require training and a certificate or license beyond high school but not a college degree made up nearly one-third of healthcare employment in May 2014. Nursing assistants and licensed practical and licensed vocational nurses are examples of these occupations.

Occupations that typically require an associate’s degree make up another third of employment. Registered nurses represented about 71 percent of these jobs. Pharmacy technicians and home health aides were the largest group of healthcare occupations that

typically workers need a high school diploma or less.” (US Bureau of Labor Statistics, 2015).



Source: U.S. Bureau of Labor Statistics

And, generally in workforce development, there is a mis-match between the skills of recent high school and college graduates, and the skills needed by various industries, including healthcare. Employers are seeing issues with the lack of “basic” skills of recent graduates – math, writing, speaking, computers, and the need for more students to be interested in technical training and healthcare careers.

However even when there are trained/credentialed workers, most healthcare employers will have a preference for potential workers who have at least several years of experience. Some employers have indicated that they would rather have someone with experience, such as in nursing, due to the liability risk of hiring someone without any experience. They want to see if this person is the type of person who is likely to make errors and cause potential liability concerns for them, so they prefer someone with experience.

Looking ahead to more than just surviving the constancy of change in the healthcare industry, some employers are taking steps to ensure they are viable, have a skilled, retained workforce, and are meeting community needs. These are explored in more detail later in this report.

**Growing Healthcare Occupations:** The U.S. Bureau of Labor Statistics (BLS) --The healthcare and social assistance major sector is expected to become the largest employing major sector during the projections decade, overtaking the state and local government major sector and the professional and business services major sector. Healthcare and social assistance is projected to increase its employment share from 12.0 percent in 2014 to 13.6 percent in 2024.

Healthcare support occupations and healthcare practitioners and technical occupations are projected to be the two fastest growing occupational groups during the 2014 to 2024 projections decade, from all industries' occupational groups. These groups are projected to contribute the most new jobs, with a combined increase of 2.3 million in employment, representing about 1 in 4 new jobs. This growth is expected due to an aging population (baby boomers and population who are living longer) and because federal health insurance reform increased the number of individuals who have access to health insurance. However, there is uncertainty in the industry due to the new U.S. President / administration and congressional thought around the Affordable Care Act.

Healthcare occupations, excluding professional level occupations (physicians) that are predicted to have the most job growth between 2014 and 2024, according to BLS 2015, are: personal care aides, registered nurses, home health aides, nursing assistants, and medical assistants, with projected new jobs totaling 1,646,000. Registered Nurses require some formal education – Associate or Bachelor program, or hospital-based program, Nursing Assistants and Medical Assistants require a postsecondary non-degree certification, and personal care aides and home health aides, though requiring less education to begin the program than the assistants, may also require a CNA (nursing assistant) certification to work in those occupations.

Industry sector	Employment	Percent
Hospitals, private, federal, state, and local	6,110,000	39%
Offices of health practitioners	4,057,000	26
Nursing and residential care facilities	3,228,000	20
Home health care services	1,238,000	8
Outpatient, laboratory, and other ambulatory care services	1,194,000	8

\* Health care and related include series CEU6562000101, CEU9091622001, CEU9092262201, and CEU9093262201. Source: U.S. Bureau of Labor Statistics, Current Employment Statistics (wage and salary employment, seasonally adjusted).

2014

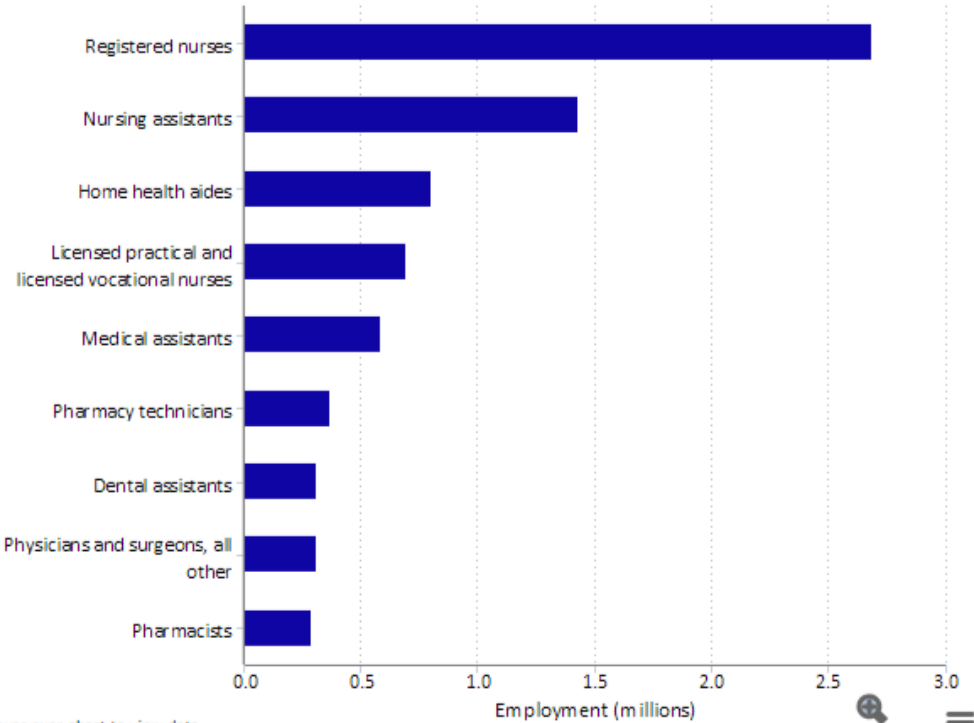
The U.S. Bureau of Labor Statistics (BLS) has a projection of the fastest growing occupations between 2014 and 2024. Healthcare occupations fill 9 of the top 15 fastest growing occupations on that list. (See the nine fastest growing healthcare occupations below according to percentage change / increase).

Occupations	Employment 2014	Employment 2024	Percent Change	Median Pay 2016
Occupational Therapy Assistants	33,000	47,100	42.7	\$59,010
Physical Therapy Assistants	78,700	110,700	40.6	\$56,610
Physical Therapy Aides	50,000	69,500	39	\$25,680
Home Health Aides	913,500	1,261,900	38.1	\$22,600
Nurse Practitioners	126,900	171,700	35.2	\$100,910
Physical Therapists	210,900	282,700	34	\$85,400
Ambulance Drivers and Attendants, Except EMTs	19,600	26,100	33	\$23,850
Occupational Therapy Aides	8,800	11,600	30.6	\$28,330
Physician Assistants	94,400	123,200	30.4	\$101,480

Source: U.S. Bureau of Labor Statistics

The largest groups of healthcare employees (employment), as of May 2014 data from the U.S. Bureau of Labor Statistics, are listed below. Registered nurses have and continue to be the largest employment group in healthcare. However, based on the data above, this employment group will see less growth between 2014 and 2024 than home health aides and occupational and physical therapy assistants.

**Employment in the largest healthcare occupations in the United States, May 2014**



Hover over chart to view data.  
Source: U.S. Bureau of Labor Statistics.

Regarding employment setting, eighty-eight percent of the nation’s 2.7 million registered nurses worked in the healthcare and social assistance industry. About 58 percent of registered nurses worked in general medical and surgical hospitals. Outpatient care centers, nursing care facilities, home healthcare services, and doctors’ offices each employed between 4 and 7 percent of registered nurses. Of the 12 percent of registered nurses employed in industries other than healthcare and social assistance, most worked in federal, state, and local government (excluding state and local government schools and hospitals) or educational services (U.S. Bureau of Labor Statistics, 2015).

**Pennsylvania Demographics:** Pennsylvania has one of the largest populations of older people in the nation, ranking sixth in number of people over 65. It also has one of the lowest in-migration rates of immigrants, particularly in the western half of the state. Combined, these trends lead to an aging and shrinking population.

PA Demographic Snapshot	
Population estimate, 2016	12,784,227
Population estimate, 2015	12,802,503
PA Population by Age Groups (2015 estimate)	
Under 5	5.6%
Under 18	21%
18-64	62%
65+	17%

PA Educational Attainment (age 25 years and over)	
Not a HS graduate	10.3%
High school graduate (includes equivalency)	35.7%
Some college, no degree	16%
Associate's degree	8.3%
Bachelor's degree	18.1%
Graduate or professional degree	11.6%
Percent high school graduate or higher	89.7%
Percent bachelor's degree or higher	29.7%

Source: US Census Bureau, 2016

**Pennsylvania Labor Employment:** Pennsylvania has a total working age population of 6,443,000. The unemployment rate as of March 2017 was 4.8% (311,000 unemployed), slightly higher than the national average of 4.5%. Unemployment is highest among the 16-19 age group (15.3%), and lowest among the group 55+ (4.1%). Unemployment is more than double for black residents (11.2%) than white residents (4.8%) (Workstats, April 2017).

**Pennsylvania Healthcare Industry Trends:** On a meta level, affecting the healthcare industry are external pressures and developments such as an aging workforce that's causing concerns of knowledge transfer from retirees to younger workers, and a growing minority population who influence and shape needs of population groups, and healthcare related legislation. Overlaid onto already significant turnover in some healthcare occupations, is the national trend of increased turnover when people feel that the economy is stable and they can leave their jobs for other opportunities.

According to the Bureau of Labor Statistics, healthcare employment in Pennsylvania, as a percent of total employment is 10.3%. (Bureau of Labor Statistics, State Occupational Employment Statistics Survey, May 2015). Only West Virginia, Rhode Island, Massachusetts, and Maine exceed that state percentage, with the state average at 9%.

However, according to number employed, rather than percentage, the rankings are a bit different, also according to BLS, 2015). But Pennsylvania still ranks 5<sup>th</sup>, both by percentage and by number for healthcare employment.

1. California: 1.1 million
2. Texas: 937,780
3. New York: 894,190
4. Florida: 732,150
5. Pennsylvania: 587,420
6. Ohio: 564,420
7. Illinois: 507,830
8. North Carolina: 417,730
9. Michigan: 412,450
10. New Jersey: 376,070



Here are the 10 states with the least healthcare employment:

1. Wyoming: 21,670
2. Alaska: 26,820
3. Vermont: 27,220
4. North Dakota: 38,600
5. South Dakota: 40,480
6. Delaware: 41,480
7. Montana: 42,510
8. District of Columbia: 45,420
9. Hawaii: 50,640
10. Rhode Island: 53,400

The Pennsylvania State-wide Hi-Potential Occupation list for the Healthcare Industry Cluster includes the following occupations, and employment in those occupations:

**2016 HPO's in the Health Care (HC) Industry Cluster**  
(Highlighted occupations are new additions)

SOC Code	Occupation	Educational Attainment <sup>1</sup>	Industry Cluster Wage, 2015	Job Openings		Percent Employment Change, 2010-2012	Percent Change in Wages, 2013-2015	All Industries	
				Industry Cluster	All Industries			Unempl. Rate, 2011-2015	Completers as Percent of Total Openings
11-9151	Social & Community Service Managers	BD+	\$65,229	103	205	-0.5%	6.2%	5.1%	235.1%
13-1031	Claims Adjusters, Examiners & Investigators	LT OJT	\$61,877	118	352	-1.9%	-0.9%	3.5%	111.9%
21-1011	Substance Abuse & Behavioral Disorder Counselors	BD	\$41,463	277	366	10.5%	8.3%	9.1%	101.1%
21-1015	Rehabilitation Counselors	MD	\$37,628	146	254	1.7%	0.7%	9.1%	217.7%
21-1021	Child, Family & School Social Workers	BD	\$35,733	291	552	-10.3%	-2.4%	3.6%	113.8%
21-1022	Healthcare Social Workers	MD	\$49,677	289	347	-8.1%	3.4%	3.6%	78.4%
21-1023	Mental Health & Substance Abuse Social Workers	BD	\$37,824	282	370	0.6%	-2.8%	3.6%	91.9%
21-1091	Health Educators	BD	\$55,996	85	126	5.8%	7.7%	3.8%	372.2%
21-1093	Social & Human Service Assistants	ST OJT	\$29,238	675	915	17.5%	9.0%	2.2%	43.0%
29-1051	Pharmacists	PROF	\$110,813	303	423	6.6%	3.5%	5.0%	327.2%
29-1071	Physician Assistants	MD	\$87,461	138	145	0.8%	6.8%	1.8%	662.1%
29-1126	Respiratory Therapists	AD	\$58,199	170	177	3.2%	3.2%	1.0%	142.9%
29-1141	Registered Nurses	BD	\$67,088	4,312	4,800	N/A	2.3%	2.2%	233.6%
29-1171	Nurse Practitioners	MD	\$93,124	144	153	N/A	8.8%	0.0%	28.1%
29-2011	Medical & Clinical Laboratory Technologists	BD	\$57,895	183	260	1.6%	7.2%	3.0%	61.2%
29-2012	Medical & Clinical Laboratory Technicians	AD	\$41,402	206	303	-3.2%	8.8%	3.0%	137.6%
29-2021	Dental Hygienists	AD	\$62,767	344	350	0.8%	3.1%	0.0%	83.1%
29-2031	Cardiovascular Technologists & Technicians	AD	\$52,062	114	117	-5.1%	-6.8%	2.8%	106.0%
29-2032	Diagnostic Medical Sonographers	AD	\$64,197	103	133	17.3%	8.6%	2.8%	212.8%
29-2034	Radiologic Technologists	AD	\$56,226	247	295	N/A	4.7%	2.8%	213.9%
29-2041	Emergency Medical Technicians & Paramedics	PS	\$31,294	610	683	6.8%	1.4%	3.9%	34.8%
29-2052	Pharmacy Technicians	MT OJT	\$29,493	241	317	-0.8%	2.0%	1.8%	101.6%
29-2055	Surgical Technologists	PS	\$42,035	117	118	-2.7%	4.0%	1.8%	336.4%
29-2061	Licensed Practical & Licensed Vocational Nurses	PS	\$44,445	1,334	1,615	-5.5%	3.9%	5.9%	136.7%
29-2071	Medical Records & Health Information Technicians	PS	\$38,140	289	337	-2.5%	7.8%	0.0%	145.4%
29-2081	Opticians, Dispensing	LT OJT	\$38,119	105	121	-8.8%	1.6%	0.0%	3.3%
31-1014	Nursing Assistants	PS	\$28,316	1,894	2,160	N/A	2.2%	7.4%	23.3%
31-2011	Occupational Therapy Assistants	AD	\$48,116	115	123	19.7%	-0.2%	0.0%	177.2%
31-2021	Physical Therapist Assistants	AD	\$48,238	207	209	0.0%	9.2%	2.7%	113.4%
31-9091	Dental Assistants	PS	\$34,853	345	357	11.8%	4.4%	2.8%	266.7%
31-9097	Phlebotomists	PS	\$32,178	142	184	N/A	5.9%	6.8%	294.6%
43-1011	Supervisors - Office & Administrative Support Workers	WK EXP	\$55,053	320	1,805	0.9%	5.0%	3.0%	120.4%
43-3011	Bill & Account Collectors	MT OJT	\$37,370	130	553	-9.2%	3.1%	0.0%	5.2%
43-3021	Billing & Posting Clerks	MT OJT	\$34,815	331	827	9.4%	6.0%	1.3%	18.0%
43-4051	Customer Service Representatives	ST OJT	\$36,406	379	3,709	7.1%	2.1%	9.8%	4.9%
43-6013	Medical Secretaries	MT OJT	\$33,651	747	792	14.9%	7.3%	5.4%	42.7%
43-6014	Secretaries	ST OJT	\$34,028	299	2,256	16.0%	4.1%	5.4%	13.7%
43-9041	Insurance Claims & Policy Processing Clerks	MT OJT	\$40,434	167	373	12.1%	-0.2%	6.2%	97.6%

The fastest growing health care jobs in Pennsylvania are home health aides, dental hygienists, dental assistants, medical assistants, EMTs and paramedics, and physician assistants. ([www.healthcarepathway.com](http://www.healthcarepathway.com))

The Pennsylvania Association of Practical Nurse Administrators recently completed a research paper called “Practical Nursing Front & Center” in which they addressed nursing shortages as high as 20% by 2025.

According to [healthcarepathway.com](http://healthcarepathway.com), the largest healthcare employers in Pennsylvania are:

- **University of Pittsburgh Medical Center:** Located in Pittsburgh and one of the largest employers in the state with over 50,000 people, UPMC provides health care for over 4 million people each year in western Pennsylvania.
- **Geisinger Health System:** Geisinger Health system consists of 40 sites based in the greater Danville area. It employs nearly 12,000 people.
- **Penn State Children’s Hospital:** Located in Hershey and part of the Penn State Hershey Medical Center, this highly ranked hospital employs 8,000 people.
- **Temple University (physicians group):** A group of approximately 400 physicians affiliated with the University’s Medical School, it is located in Philadelphia employs 8,000.
- **Penn State Hershey Medical Center:** Located in Hershey, it employs 7,500 people. In 2007 it achieved Magnet Recognition, which is one of the highest honors for the nursing profession.
- **Wellspan Health:** This consists of two hospitals, York Hospital and Gettysburg Hospital. Located in York, employs a total of 8,000 people.

***Pennsylvania Healthcare – Rural:*** In 2010, the Rural Health Care Association published a report “Pennsylvania Rural Health Care” that served to outline some of the challenges facing Pennsylvania regarding healthcare since 48 of Pennsylvania’s counties are considered to be “rural” based on population density, and four counties are 100 percent rural.

Rural areas deal with both health worker shortages and populations that are generally older, sicker, and poorer. Because of this, and though it’s needed by the population, healthcare providers are less able to provide reduced funding, and are more dependent on, and vulnerable to changes in, government programs and support.

Wages for rural workers are generally about 2% less than similar occupations in urban areas. According to the U.S. census Bureau, 2006, those who work in rural counties, most likely work for employers who employ fewer than 10 workers. In many rural counties, the largest employers tend to be either hospitals or schools; they are among the top five employers in more than 77 percent of the states 48 rural counties. Also nearly 15% of the rural residents who are 25 years or older, do not have a high school diploma or equivalent. Only 18% have a four-year college degree or higher.

Healthcare is important to the economy anywhere, but especially in rural areas where every dollar spent on healthcare rolls over about 1.5 times in a rural economy, and every 5 jobs in healthcare generate 4 jobs in the local economy (RHCA, 2010). Closure of a local hospital significantly affects the local economy, including the attraction and retention of other businesses, and thus jobs.

Pennsylvania has a critical care physician shortage and misdistribution, with more being located in urban areas. Several areas of Pennsylvania have been designated as: Health Professional Shortage Area (HPSA) and Medically Underserved Area or Population

(MUA or MUP). Twenty-two percent of Pennsylvania’s population resides in an area designated as a HPSA or MUA (RHCA, 2010).

The reason this is important is that in addition to recruiting physicians to serve in Pennsylvania, including foreign-born physicians, professionals such as Physician Assistant (PA), Certified Registered Nurse Practitioner (CRNP) and Nurse Mid-wife (CNM) are being called upon more to provide primary and critical care. Pennsylvania is the third largest employer of non-physician clinicians (RHCA, 2010).

The last key point is that both the technology of broadband internet access into rural areas, and the skill development of workers to implement the use of electronic medical records and tele-health, to serve underserved rural populations wherever they are, must occur to expand the role of healthcare professionals serving rural Pennsylvania.

**C. Southwestern Pennsylvania Healthcare Trends and Developments**

**Southwestern Pennsylvania Demographics:** The southwest Pennsylvania workforce, encompassing a 10-county area<sup>2</sup>, is an important part of the larger economic engine for the state. According to the 2017 Southwest Planning Region Transitional Regional Plan (Southwest Planning Committee), the Southwestern Pennsylvania region is home to nearly 2,500,000 residents, which represents, about 20% of the state’s population. The labor force continues to grow in the region and has, like Pennsylvania, experienced a decrease in unemployment. Mirroring the larger state and national trends, the regional workforce is aging.

**Population Trends - 1990-2015**

An affiliate of the Allegheny Conference

Area	2015	2010	2000	1990	Comp. Annual % Change '10-'15	Comp. Annual % Change '00-'10	Comp. Annual % Change '90-'00
Pennsylvania	12,802,503	12,702,379	12,281,054	11,881,643	0.2%	0.3%	0.3%
10-County Region	2,565,612	2,574,959	2,656,007	2,694,079	-0.1%	-0.3%	-0.1%
Pittsburgh MSA*	2,353,045	2,356,285	2,431,087	2,468,289	0.0%	-0.3%	-0.2%
Allegheny County	1,230,459	1,223,348	1,281,666	1,336,449	0.1%	-0.5%	-0.4%
Armstrong County	67,052	68,941	72,392	73,478	-0.6%	-0.5%	-0.1%
Beaver County	168,871	170,539	181,412	186,093	-0.2%	-0.6%	-0.3%
Butler County	186,818	183,862	174,083	152,013	0.3%	0.5%	1.4%
Fayette County	133,628	136,606	148,644	145,351	-0.4%	-0.8%	0.2%
Greene County	37,519	38,686	40,672	39,550	-0.6%	-0.5%	0.3%
Indiana County	86,966	88,880	89,605	89,994	-0.4%	-0.1%	0.0%
Lawrence County	88,082	91,108	94,643	96,246	-0.7%	-0.4%	-0.2%
Washington County	208,261	207,820	202,897	204,584	0.0%	0.2%	-0.1%
Westmoreland County	357,956	365,169	369,993	370,321	-0.4%	-0.1%	0.0%
City of Pittsburgh	304,391	305,704	334,563	369,879	-0.1%	-0.9%	-1.0%

\* MSA (Metropolitan Statistical Area includes these counties: Allegheny, Armstrong, Beaver, Butler, Fayette, Washington, and Westmoreland.)

Source: U.S. Census Bureau, Decennial Census, Population Estimates  
Last Updated: 07.25.2016

<sup>2</sup> Note: When discussing the southwestern Pennsylvania region, most data in this section uses the aggregated 10-county model consisting of Allegheny, Armstrong, Beaver, Butler, Fayette, Greene, Indiana, Lawrence, Washington and Westmoreland counties as its regional catchment area. This is commonly used by local economic development entities like the Allegheny Conference on Community Development and Pittsburgh Today’s benchmarking data. In a few places, where noted, data was only available for the Pittsburgh MSA, which is comprised of seven counties: Allegheny, Armstrong, Beaver, Butler, Fayette, Washington and Westmoreland.

**Southwestern Pennsylvania Educational Attainment:** High school graduation rates for the Pittsburgh 7-county MSA have been increasing, but the rates of 26 area districts still fall well below the national average. The 2010-11 regional high school graduation rate was 86% and in 2013-14 it has increased to 90%. While the Pittsburgh area produces a high number of graduates of two and four year colleges, talent retention is among the lowest of major cities in the country (Florida, 2016). The Pittsburgh area has a 33% retention rate of bachelor’s degree graduates, a much lower percentage than sub-baccalaureate graduates with a 79% retention rate. One factor relative to low retention is that many of the most commonly awarded degrees do not align directly with regional demand (Burning Glass, 2016).

Large disparities in educational attainment exist when viewed across regional racial and ethnic lines, with African Americans and Hispanics having much lower completion rates than white residents (Sustainable Pittsburgh, 2016). For example, The Pittsburgh Regional Quality of Life Survey reports that 18% of African Americans have a Bachelor’s degree or higher degree compared to 41% of white residents (UCSUR, 2016).

<b>SWPA Educational Attainment (18 years or older)</b>	
Less than HS degree	6.7%
HS degree or equivalent	30.5%
Some college or Associates degree	25.9%
Bachelor’s degree or higher	36.9%

*Source: US Census Bureau, 2014 data*

**Southwestern Pennsylvania wages:** According to Southwest Planning Committee’s research, the region’s jobs are concentrated in occupations that pay between \$8.50 and \$15 an hour. About 40% pay below \$15, while 9% pay over \$35 an hour. Nearly 30% of jobs overall, representing opportunities in the high growth industries previously described: HealthCare, Construction, Energy, and Information Technology, pay \$15.01-\$25/hr., which represents the self-sufficient wage held by each of the four local areas.

**Southwestern Pennsylvania Industries:** According to the Southwest Planning Committee’s planning research, the core industries offering the highest rate of employment throughout the region are:

- Health Care (196,444 jobs, 16.9% of jobs)
- Retail Trade (134,275 jobs; 11.5% of jobs)
- Government (123,051 jobs, 10.6% of jobs)
- Accommodation and Food Services (101,721 jobs, 8.7% of jobs)
- Manufacturing (90,779 jobs, 7.8% of jobs)

**Southwestern Pennsylvania Healthcare Workforce & In-Demand Occupations:**

The number of healthcare employees at nursing and residential facilities is still nearly twice as high in Butler and Beaver counties than it is in the SWPA region as a whole (updated original source Three Rivers WIB, 2003).

Below is the number of people employed in the two healthcare occupations groups designated by the Bureau of Labor Statistics for the Pittsburgh MSA region, as of 2016.

<b>Pittsburgh MSA by Healthcare Occupation Group (as of 2016)</b>		
<b>Occupation</b>	<b>Number Employed</b>	<b>Location Quotient*</b>
1. Healthcare Practitioners and Technical Occupations	80,427	1.17
2. Healthcare Support Occupations	42,272	1.21
<b>TOTAL</b>	<b>66,048</b>	<b>0.86</b>

*\*The Location Quotient is a measure of the concentration of employment in a particular occupation relative to the national average. A Location Quotient above 1.0 indicates an above average concentration.*

*Source: Pittsburgh Regional Alliance, BLS (data as of October 2016)*

Regionally, healthcare jobs most in demand, as identified from employers, are: CNAs, LPNs, home health aides / personal care attendants, and many of the therapeutic modalities (such as physical, speech / hearing, occupational, etc.)

Below are two tables (BLS, 2016) that outline the growth of healthcare occupations in the Pittsburgh Metro region, in two occupational groups: (1) healthcare support occupations and (2) healthcare practitioners and technical occupations.

In the healthcare support occupations group (table below), the occupations with the greatest percent of projected growth in the Pittsburgh metro area, in order, are: massage therapists, physical therapy assistants, home health aides, occupational therapy assistants, and physical therapy aides. This growth is expected through 2016, as the population continues to age and the service provided by these occupations continues to increase in demand.

31-0000 HEALTHCARE SUPPORT OCCUPATIONS		JOB GROWTH				
SOC	Description	2016 Jobs	2026 Jobs	2016 - 2026 Change	2016 - 2026 % Change	Annual Openings
<b>31-0000</b>	<b>Healthcare Support Occupations</b>	<b>36,696</b>	<b>42,204</b>	<b>5,508</b>	<b>15%</b>	<b>1,470</b>
31-1011	Home Health Aides	7,131	8,979	1,848	26%	372
31-1013	Psychiatric Aides	374	350	(24)	(6%)	10
31-1014	Nursing Assistants	13,649	15,419	1,770	13%	509
31-1015	Orderlies	851	893	42	5%	25
31-2011	Occupational Therapy Assistants	621	781	160	26%	37
31-2012	Occupational Therapy Aides	135	160	25	19%	7
31-2021	Physical Therapist Assistants	918	1,165	247	27%	56
31-2022	Physical Therapist Aides	739	916	177	24%	43
31-9011	Massage Therapists	355	468	113	32%	14
31-9091	Dental Assistants	2,074	2,273	199	10%	74
31-9092	Medical Assistants	6,196	6,923	727	12%	212
31-9093	Medical Equipment Preparers	510	547	37	7%	15
31-9094	Medical Transcriptionists	650	575	(75)	(12%)	13
31-9095	Pharmacy Aides	352	331	(21)	(6%)	8
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	491	585	94	19%	21
31-9097	Phlebotomists	1,092	1,223	131	12%	38
31-9099	Healthcare Support Workers, All Other	558	616	58	10%	18

Source: Bureau of Labor Statistics, 2016

Region	2016 Jobs	2026 Jobs	Change	% Change
• Pittsburgh Metro Area	36,696	42,204	5,508	15.0%
• Pennsylvania	205,220	238,937	33,717	16.4%
• United States	4,229,482	5,118,534	889,052	21.0%

In the healthcare practitioners and technical occupations group (table below), the non-physician/non-doctorate and non-veterinary occupations with the greatest percent of projected growth in the Pittsburgh metro area, in order, are: hearing aid specialists, nurse practitioners, therapists – all other, physical therapists, occupational therapists, physician assistants, and EMTs/paramedics. Again, this growth is expected through 2016, as the population continues to age and the service provided by these occupations continues to increase in demand.



29-0000 HEALTHCARE PRACTITIONERS AND TECHNICAL OCCUPATIONS		JOB GROWTH				
SOC	Description	2016 Jobs	2026 Jobs	2016 - 2026 Change	2016 - 2026 % Change	Annual Openings
<b>29-0000</b>	<b>Healthcare Practitioners and Technical Occupations</b>	<b>80,899</b>	<b>88,658</b>	<b>7,759</b>	<b>10%</b>	<b>2,716</b>
29-1011	Chiropractors	496	527	31	6%	13
29-1021	Dentists, General	820	894	74	9%	25
29-1022	Oral and Maxillofacial Surgeons	5	11	-	-	-
29-1023	Orthodontists	18	21	3	17%	-
29-1024	Prosthodontists	5	5	-	-	-
29-1029	Dentists, All Other Specialists	17	19	2	12%	-
29-1031	Dietitians and Nutritionists	528	581	53	10%	10
29-1041	Optometrists	486	550	64	13%	26
29-1051	Pharmacists	2,813	2,731	(82)	(3%)	68
29-1061	Anesthesiologists	276	312	36	13%	12
29-1062	Family and General Practitioners	422	474	52	12%	18
29-1063	Internists, General	84	105	21	25%	5
29-1064	Obstetricians and Gynecologists	55	67	12	22%	3
29-1065	Pediatricians, General	85	100	15	18%	4
29-1066	Psychiatrists	120	131	11	9%	5
29-1067	Surgeons	190	222	32	17%	9
29-1069	Physicians and Surgeons, All Other	3,899	4,200	301	8%	141
29-1071	Physician Assistants	1,168	1,372	204	17%	50
29-1081	Podiatrists	88	92	4	5%	2
29-1122	Occupational Therapists	1,546	1,804	258	17%	59
29-1123	Physical Therapists	2,659	3,216	557	21%	136
29-1124	Radiation Therapists	83	95	12	14%	3
29-1125	Recreational Therapists	184	194	10	5%	5
29-1126	Respiratory Therapists	1,353	1,508	155	11%	50
29-1127	Speech-Language Pathologists	1,137	1,324	187	16%	51
29-1128	Exercise Physiologists	54	56	2	4%	-
29-1129	Therapists, All Other	42	52	10	24%	2
29-1131	Veterinarians	498	581	83	17%	17
29-1141	Registered Nurses	31,407	34,170	2,763	9%	1,060
29-1151	Nurse Anesthetists	876	942	66	8%	28
29-1161	Nurse Midwives	29	33	4	14%	1
29-1171	Nurse Practitioners	862	1,083	221	26%	46
29-1181	Audiologists	134	159	25	19%	6
29-1199	Health Diagnosing and Treating Practitioners, All Other	207	231	24	12%	8
29-2011	Medical and Clinical Laboratory Technologists	1,706	1,813	107	6%	54
29-2012	Medical and Clinical Laboratory Technicians	1,596	1,731	135	8%	54
29-2021	Dental Hygienists	2,134	2,295	161	8%	53
29-2031	Cardiovascular Technologists and Technicians	632	713	81	13%	21
29-2032	Diagnostic Medical Sonographers	534	611	77	14%	19
29-2033	Nuclear Medicine Technologists	222	214	(8)	(4%)	4
29-2034	Radiologic Technologists	2,609	2,659	50	2%	58
29-2035	Magnetic Resonance Imaging Technologists	236	244	8	3%	6
29-2041	Emergency Medical Technicians and Paramedics	2,407	2,775	368	15%	80
29-2051	Dietetic Technicians	413	441	28	7%	7
29-2052	Pharmacy Technicians	2,664	2,729	65	2%	38
29-2053	Psychiatric Technicians	345	294	(51)	(15%)	4
29-2054	Respiratory Therapy Technicians	67	61	(6)	(9%)	-
29-2055	Surgical Technologists	823	884	61	7%	15
29-2056	Veterinary Technologists and Technicians	1,158	1,398	240	21%	37
29-2057	Ophthalmic Medical Technicians	367	418	51	14%	9
29-2061	Licensed Practical and Licensed Vocational Nurses	6,282	6,985	703	11%	261
29-2071	Medical Records and Health Information Technicians	1,216	1,353	137	11%	43
29-2081	Opticians, Dispensing	824	946	122	15%	36
29-2091	Orthotists and Prosthetists	77	85	8	10%	2
29-2092	Hearing Aid Specialists	18	25	7	39%	-
29-2099	Health Technologists and Technicians, All Other	673	770	97	14%	17
29-9011	Occupational Health and Safety Specialists	619	651	32	5%	16
29-9012	Occupational Health and Safety Technicians	121	129	8	7%	3

Source: Bureau of Labor Statistics, 2016

Region	2016 Jobs	2026 Jobs	Change	% Change
• Pittsburgh Metro Area	80,899	88,658	7,759	9.6%
• Pennsylvania	384,708	428,626	43,918	11.4%
• United States	8,342,161	9,691,350	1,349,189	16.2%

**Southwestern Pennsylvania Healthcare Trends:** There is a diversity of healthcare occupations in the region, with the largest number of persons employed in the following occupations: registered nurses, licensed practical and licensed vocational nurses, and physicians, followed by pharmacists. (Pittsburgh Regional Alliance, 2016).

Healthcare has the largest percentage of foreign-born and foreign-trained workers in the U.S. (of all industries). This is reflected similarly in southwestern PA, which although a predominantly U.S. born population regionally, has a large percentage of foreign-born and foreign-trained workers.

Nothing has changed significantly in the training requirements for LPNs and RNs in the past 15 years. However, there's a bill involving the State Board of Education's efforts to revise requirements for LPN and RN training. They are focusing on a more seamless transition from LPN to RN. Also it involves education requirements for LPNs to have two science courses (including lab) and two maths, among other coursework requirements.

"In healthcare and healthcare delivery, the trend is expansion in home care. Home care divisions and companies are popping up everywhere. The LPN program at Lenape Technical School in Ford City, Pennsylvania, gets a lot of calls from these companies. This trend is due to the interest from the Baby Boomer generation in not wanting to be 'institutionalized' (enter a retirement home during later years) – they want to stay home. This is also stemming from changes in the Affordable Care Act" (Doms, 2017).

**Southwestern Pennsylvania Healthcare Industry:** Top healthcare organizations in the 10-county region can be looked at in three categories: Physician Groups, Elder Care Providers, and Hospital Organizations. The top 5 southwestern Pennsylvania employers in each category are presented below.

Top 5 Pittsburgh Region Physician Groups (ranked by number of physicians)		
Name	# of local employees	Location Base
1. UPMC Physician Services	65,000	Pittsburgh
2. Allegheny Clinic – Allegheny Health Network	4,753	Pittsburgh
3. Excelsa Health Medical Group	815	Greensburg
4. BHS Medical Providers (Butler Health System)	N/A	Butler
5. Heritage Valley Health	808	Beaver

Source: Pittsburgh Business Times, May 2017



<b>Top 5 Pittsburgh Region Elder Care Providers (ranked by beds / units in local area)</b>		
<i>Name</i>	<i># of local employees</i>	<i>Location Base</i>
1. Presbyterian SeniorCare Network	1,591	Oakmont
2. UPMC Senior Communities	1,385	Pittsburgh
3. Concordia Lutheran Ministries	N/A	Cabot
4. HCR ManorCare	1,190	Based in Toledo, OH
5. Lutheran SeniorLife	1,500	Mars

*Source: Pittsburgh Business Times, May 2017*

<b>Top 5 Pittsburgh Region Hospital Organizations (ranked by net patient revenue '15-'16)</b>		
<i>Name</i>	<i># of local employees</i>	<i>Location Base</i>
1. UPMC	46,480	Pittsburgh
2. Allegheny Health Network	17,032	Pittsburgh
3. Excela Health	4,940	Greensburg
4. Heritage Valley Health System	3,517	Beaver
5. Butler Health System	2,331	Butler

*Source: Pittsburgh Business Times, May 2017*

## **D. Tri-County Workforce and Healthcare Trends and Developments**

**Tri-County population:** The age of Pennsylvania residents skews older than in most of the country. This is particularly true for the Pittsburgh region, and the Tri-County area follows that trend, with Armstrong County showing the greatest aging population. The Pittsburgh area was hit with a confluence of events that are playing out now in demographics shifts: a very high percentage of older people who age in place versus an outmigration of the young (this has stemmed in recent years in the City of Pittsburgh but persists in many of the outlying area counties). A major outmigration occurred in the 1980s and 90s, due to the collapse of the steel industry, resulting in a ‘missing generation’ that, had they stayed, would now have children entering the workforce. Add to that the national trend of baby boomers retiring – which one Tri-County employer referred to as creating a “Swiss cheese” effect among the workforce. A SHRM-AARP survey conducted on this topic found “that many US organizations are largely unprepared for the brain drain and skills void that talented, retiring workers will leave.”

These trends are reflected in US Census Bureau data.

Area	Total Population	Median Age	Population by age category					
			18-64 Years	Under 5	5-19	20-34	35-64	65+
Armstrong	67,052	46.1	40,148	3,314	10,994	10,608	28,269	13,867
Butler	186,818	43.2	115,858	9,357	34,810	31,733	78,384	32,534
Indiana	86,966	39.1	55,829	4,262	16,230	19,543	31,654	15,217
10-county	2,565,612	42.9	1,592,530	131,634	428,057	493,525	1,032,646	479,750
PA	12,802,503	40.7	7,932,441	714,912	2326414	2516,542	5,064,841	2,179,788

Source: US Census Bureau, Population Estimates (2015 data, updated June 2016)

### **Tri-County employment:**

Industry in the Tri-County area is currently dominated by:

- 1) education and health services
- 2) trade, transportation and utilities
- 3) professional and business services.

Top occupations predicted to grow between 2014-2024 in the three county area are: Retail Salespersons, Cashiers, Combined Food Preparation and Serving Workers, Waiters and Waitresses, and Registered Nurses (Tri-County Workforce Development Board, 2017).

- Covering the 12-month period of April 2016 to Mar 2017, Armstrong County’s labor force of 33,000 had a higher unemployment rate (6.25%) than the state (4.8%).
- Butler County’s labor force of 98,100 has a slightly lower unemployment rate (4.6%) than the state (4.8%).
- Indiana County’s labor force of 39,600 has a higher unemployment rate (6.1%) than the state (4.8%).

In the aggregate, the number of people age 55 - 69 is increasing in the Tri-County region while the number of people under the age of 54 is decreasing. Over the past five years the regional population has expanded due to significant growth in Butler County, while population rates in Armstrong and Indiana counties have declined slightly.

**Tri-County Educational Attainment:**

In the Tri-County region, educational attainment is lowest in Armstrong County and highest in Butler County. The percentage of residents 25 or older that earned a bachelor’s degree or higher is greatest in Butler (32.3%) and educational attainment is most diversified in Indiana.

<b>Tri-County Educational Attainment (25 years and older, 2015)</b>			
	<i>Armstrong</i>	<i>Butler</i>	<i>Indiana</i>
Less than HS degree	11.1%	6.9%	11.5%
HS degree or equivalent	49.4%	34.9%	43.9%
Some college	15.6%	16.5%	14.0%
Associates degree	8.9%	9.4%	8.0%
Bachelor’s degree	10.5%	21.1%	13.5%
Graduate or professional degree	4.4%	11.2%	9.1%

Source: US Census, American Fact Finder, 2017

**Tri-County Healthcare:**

Butler Healthcare Providers (Butler Hospital), Concordia Lutheran Health & Human Care, Butler Medical Providers, Passavant Retirement & Health Center, Sunnyview Nursing & Rehabilitation, and UPMC Passavant are in the top 50 healthcare related employers for Butler County. While the following healthcare industries are listed in the top 21 for Butler County in terms of employment: (organized by NAICS code category; Center for Workforce Information & Analysis, PA Department of Labor & Industry, 2016.

[www.workstats.dli.pa.gov](http://www.workstats.dli.pa.gov)

- Community Care Facilities for the Elderly
- Offices of Physicians (it should be notes that the Hospital is likely in this group)
- Nursing Care Facilities
- Home Health Care Services
- Offices of Other Health Practitioners

Indiana Regional Medical Center, Presbyterian Homes, Indiana Healthcare Physician Services, Salisbury Behavioral Health, Senior Choice, Community Guidance Center, Visiting Nurse Association of Indiana County, Ambulance Service Management Corp, and Accessibilities are in the top 50 healthcare related employers for Indiana County. While the following healthcare industries are listed in the top 21 for Indiana County in terms of employment:

- General Medical and Surgical Hospitals
- Offices of Physicians
- Individual and Family Services
- Nursing Care Facilities
- Community Care Facilities for the Elderly

Armstrong County Memorial Hospital, Sugar Creek Rest, Family Counseling Center, Kittanning Care Center, and Lifesteps are in the top 50 healthcare related employers for Armstrong County. While the following healthcare industries are listed in the top 20 for Armstrong County in terms of employment:

- General Medical and Surgical Hospitals
- Individual and Family Services
- Nursing Care Facilities
- Residential Mental Retardation, Mental Health and Substance Abuse Facilities
- Outpatient Care Centers
- Offices of Physicians
- Offices of Other Healthcare Practitioners

The table below lists the high priority occupations for the Tri-County Workforce Investment Area. Those with the highest number of annual openings are: LPNs, CNAs (Certified Nursing Assistants) and RNs.

SOC Code	SOC Title	Educational Attainment	Wages (2014)			Employment			
			Annual Average	Entry Level	Exper. Level	Estimated 2012	Projected 2022	Percent Change	Annual Openings
21-1011	Substance Abuse & Behavioral Disorder Counselors	MT OJT	\$42,140	\$33,840	\$46,300	90	100	11.1%	3
21-1022	Healthcare Social Workers	MD	\$52,220	\$38,350	\$59,150	290	380	31.0%	14
21-1023	Mental Health & Substance Abuse Social Workers	BD	\$31,150	\$22,980	\$35,240	340	400	17.6%	13
21-1091	Health Educators	BD	\$50,180	\$33,050	\$58,750	60	80	33.3%	4
21-1093	Social & Human Service Assistants	ST OJT	\$28,520	\$18,680	\$33,440	250	280	12.0%	10
29-1051	Pharmacists	PROF	\$110,650	\$88,240	\$121,860	290	310	6.9%	9
29-1071	Physician Assistants	MD	\$83,310	\$69,820	\$90,050	100	110	10.0%	3
29-1126	Respiratory Therapists	AD	\$54,600	\$50,930	\$56,440	80	90	12.5%	2
29-1141	Registered Nurses	AD	\$62,850	\$50,790	\$68,890	2,250	2,840	26.2%	103
29-1171	Nurse Practitioners	MD	\$90,220	\$76,740	\$96,950	50	60	20.0%	2
29-2011	Medical & Clinical Laboratory Technologists	BD	\$54,100	\$33,820	\$64,240	110	120	9.1%	4
29-2012	Medical & Clinical Laboratory Technicians	AD	\$38,510	\$28,050	\$43,730	60	80	33.3%	4
29-2021	Dental Hygienists	AD	\$49,650	\$38,930	\$55,000	270	330	22.2%	13
29-2031	Cardiovascular Technologists & Technicians	AD	\$39,250	\$29,000	\$44,370	50	70	40.0%	3
29-2032	Diagnostic Medical Sonographers	AD	\$56,400	\$53,180	\$58,010	30	50	66.7%	2
29-2034	Radiologic Technologists	AD	\$47,900	\$36,080	\$53,810	270	330	22.2%	10
29-2041	Emergency Medical Technicians & Paramedics	PS	\$33,400	\$28,290	\$35,950	310	400	29.0%	17
29-2052	Pharmacy Technicians	MT OJT	\$25,540	\$19,660	\$28,480	360	380	5.6%	6
29-2055	Surgical Technologists	PS	\$39,620	\$32,700	\$43,090	80	100	25.0%	3
29-2056	Veterinary Technologists & Technicians	AD	\$26,400	\$21,840	\$28,680	40	40	0.0%	1
29-2061	Licensed Practical & Licensed Vocational Nurses	PS	\$39,230	\$32,450	\$42,620	690	940	36.2%	41
29-2071	Medical Records & Health Information Technicians	PS	\$39,360	\$28,320	\$44,890	100	120	20.0%	5
29-2081	Opticians, Dispensing	LT OJT	\$27,160	\$18,820	\$31,340	20	30	50.0%	1
31-1014	Nursing Assistants	PS	\$26,400	\$21,340	\$28,930	1,260	1,480	17.5%	45
31-2011	Occupational Therapy Assistants	AD	\$46,670	\$39,990	\$50,010	30	40	33.3%	2
31-2021	Physical Therapist Assistants	AD	\$40,450	\$34,470	\$43,440	170	220	29.4%	9
31-9091	Dental Assistants	PS	\$26,760	\$17,550	\$31,380	230	260	13.0%	8
31-9092	Medical Assistants	PS	\$26,700	\$21,050	\$29,520	450	560	24.4%	19
31-9097	Phlebotomists	PS	N/A	N/A	N/A	70	90	28.6%	3

## **E. Key Findings and Challenges for Tri-County Healthcare**

In March-April 2017 C4IOE / TCWIB asked members of the Tri-County Healthcare Consortium (Industry Partnership) to respond to an online survey regarding workforce training needs, hiring trends, and industry trends. C4IOE, in partnership with the Tri-County Workforce Investment Board, conducted a workforce survey for the healthcare industry in the Tri-County region. There were 25 respondents, though some did not respond to every question on the survey. The respondents were split 50 / 50 between employers and education providers / resource partners, though there were a few more education providers than resource partners who responded. Though not statistically significant to represent the entire healthcare employer or education provider / resource community, there are still some interesting findings and comments obtained during the survey process.

***Hiring projections:*** Of the responding employers, 70% said they see their business expanding from 2017 to 2018, and are projecting to hire managerial, technical professionals, and administrative professionals. Particular positions called out for hire this year are pharmacist, technicians, billing, Registered Nurse (RN), Licensed Practical Nurse (LPN), Physical Therapist, Occupational Therapist, Speech Therapist, Certified Nursing Assistants (CNAs), Recovery Specialist, Case Manager, Personal Care Attendants (not certified), and Social Workers. Responses regarding the amount of potential new hires were not statistically significant, however the majority of respondents said either 1-5 or 6-12 new hires in the coming year. Worth noting is that two employers project hiring more than 50 new employees in the coming year. The survey does not provide detail analysis of whether these are new roles or projected replacements of retiring or exiting employees.

Regarding particular certified and/or licensed (credentialed) projected new hires in the coming year, the most mentioned roles (in terms of number of times selected) for Tri-County region (among this employer group) are: BSN / MSN (bachelor / masters level registered nurse), CNAs (this is the 2nd top need), LPN / LVN (this is the top need mentioned), Nurse Manager / Nurse Practitioner, and Social Worker. A few other credentialed roles were mentioned to a lesser degree.

Although the number of healthcare survey respondents was not statistically significant to draw quantitative conclusions for the Tri-County region, the results provided qualitative information and served to shed light on how local developments relate to national and regional trends. Key findings from the survey and from interviews with local employers and education providers include:

***Healthcare Industry trends:*** Respondents identified a number of industry trends affecting Tri-County healthcare:

- Regulations and reimbursement (decreasing Medicare / Medicaid government funding to employers)
- Insurance changes with managed care
  - Community HealthChoices is a new initiative that will use managed care organizations (MCOs) to coordinate physical health care and long-term services and supports (LTSS) for older persons, persons with physical disabilities, and Pennsylvanians who are dually eligible for Medicare and Medicaid (dual eligible).

- The Commonwealth has agreed to move forward and negotiate agreements with three managed care organizations (MCOs) for Community HealthChoices (CHC). (PRNewswire – US Newswire, 2016). The following MCOs were selected for negotiations on a statewide basis:
    - AmeriHealth Caritas
    - Pennsylvania Health and Wellness (Centene)
    - UPMC for You
  - The Commonwealth is requiring physical health and mental health providers to work together, and skilled care providers and home care services or retirement homes to work together. Bundled payments is how they will pay, and so for instance a local hospital is contracted with home health agencies and they have to share the bundled payment.
- Decline in workforce numbers
- Opiate epidemic
  - According to Butler County Business Matters newspaper (Koop, 2017), which runs healthcare features twice per year, the drug problem has created a significant issues and challenges for healthcare providers. Butler Hospital just received a grant and hired former addicts to their workforce, to be mentors to people in the hospital.
- Growth of home care following discharge from skilled services
  - Example: In-patients at hospital don't want to have to pay large co-pays, so they are signing themselves out against medical advice. This is one reason for continuing growth in home health care.
- Customer demands exceeding what is covered under health insurance

**Workforce challenges:** The greatest workforce specific concerns from employers were: employee retention (employees leave for other jobs) (67%), aging workforce (many skilled people retiring in next few years) (33%), and lack of job readiness among new and potential hires (33%). Also mentioned were: youth pipeline is too small and concerns about the disconnect between schools and employers.

One Tri-County employer said that much of the reason for the high turnover among CNAs is their personal life issues (things outside of work such as no childcare while they attend classes or work). This is of issue if they are not ready to learn and ready to work. The lack of job readiness is being addressed by at least one local employer who says that they hire already certified Home Health Aides, because they feel that those new employees take the job more seriously than those who are not certified when they start. Another employer teaches job readiness and life skills to CNAs, in addition to the technical skills.

Educators / Resource Partners specific concerns about workforce development are: aging workforce (100%), lack of funds for more / better training (67%), and tied for third are employee retention, youth pipeline is too small, and lack of job readiness among new and potential hires.

**Workforce Shortage:** Shortage of CNAs, LPNs and RNs (usually there's a shortage in at least one of those occupations). According to a Tri-County employer who participates in the healthcare industry partnership for the region, said that 12-15 employers in Butler

County alone need CNAs. There were about 400 openings on Monster.com in May for LPNs. Lenape Technical School in Ford City, PA gets calls weekly from employers wanting to hire LPNs. Also, employers want to be able to control their workforce pipeline and have people ready to bring into the organization when needed. Everyone is competing for the same people.

And according to Lenape Technical School as well as industry and occupation trends, “Home Healthcare delivery trend is expanding. Home Healthcare companies are popping up everywhere. Our LPN program (at Lenape) gets a lot of calls from Home Health companies looking for LPNs.” (Doms, 2017).

Filling entry level positions is a challenge, specifically CNAs. Some issues that are creating the shortage: significant turnover in this occupation, physical demands of the job, and relatively low pay. Training incumbent CNAs is not sufficient to meet the need. So employers in the Tri-County Healthcare Consortium provide scholarships to train those interested in becoming CNAs, as well as to fill the demand for other health care workers, including RNs and LPNs. Employers also provide sites for training such as student clinicals, offer job shadowing, and pairing students with nurse managers on rotations. Both LPNs and RNs receive nurse’s aide training during schooling, which allows them to be employed as CNAs.

**Skill needs:**

The 2016 regional Inflection Point Report identified the top ten baseline skills in demand in the workforce as, respectively: communication skills, troubleshooting, organizational skills, preventative maintenance, computer skills, writing, problem solving, customer service, detail-orientation, and Microsoft Office.

Following are the technical skills and workplace skills (which is mainly soft skills and job skills) that healthcare employers who responded to the Tri-County WIB 2017 survey identified as most needed:

	<b>Top Needed Technical Skills</b>
Needed now	5-Star Rating for Nursing Homes, Alzheimer’s Disease, Budgeting & Financial Management, De-escalation Techniques to Prevent an Emergency, Dementia, Families and Customer Service, Patients and Customer Service, Understanding Burnout and Compassion Fatigue, Working with Family Members of Patient (any disease)
Needed in next 12 months	Anti-Psychotic Medications and Dealing with Behavior, Blood Borne Pathogens, Clinical / Medical Ethics, Corporate compliance, Diabetes care, End of Life care, Fall Prevention, HIPAA & Ethical considerations, IV Certification, Medication Administration & Safety, Pain Management, Recognizing Abuse & Neglect, Wound Care Certification
Needed in next 2-5 years	Budgeting & Financial Management, Corporate compliance, Grant management, Hospice care, IV Certification

	Top Needed Workplace Skills
Needed now	Conflict resolution, Customer service, Employee Engagement / Retention, Organizing skills, Research & planning skills, Team Building / Team work skills, Time management / Productivity / Efficiency
Needed in next 12 months	Communication, Critical thinking skills, Cultural competence / Diversity, Facilitation / Presentations / Train the Trainer, Harassment Prevention, Media relations, OSHA related topics, Problem solving & Decision making, Project management, Public speaking, Supervisor / Manager / Leadership
Needed in next 2-5 years	Conflict resolution, Creativity / Innovation, Culture change / Management of Change, Hiring Practices, Media relations, Problem solving & Decision making

**Skills gap:** Regarding skill gaps, communication, interaction with others, dealing with difficult residents / family, (and customer services) are all mentioned as current skill gaps.

**Lack of workplace skills:** In the area of workforce challenges, a number of employers noted the difficulty in finding entry-level workers with necessary workplace skills, such as Interpersonal skills including interactions with co-workers and supervisors, and job readiness. They are interested in training and education programs where this is more of a focus. Also as mentioned, customer service and team building / teamwork skills were a defined by a number of employers. The focus on customer service, particularly with the concept of “healthcare concierges” and the demands that patients are making of healthcare providers, is something especially needed within training programs, and this mirrors regional reports on skill needs.

**Workforce training:** Overall satisfaction with current workforce training programs was mixed. Some respondents cited a need for greater coordination and collaboration between employers and educators, and some mentioned a need for community based CNA programs, and that a larger capacity is needed in local RN and LPN programs.

Training providers and educational institutions, in some cases appear to be at maximum capacity for their programs, though one local Technical school for training LPNs said the program is not at capacity, but that the issue is recruiting enough students into the program. Employers feel there is a greater need for hiring in some of these roles that is not being met by the training providers / educational institutions, regardless of whether it is a capacity issue. As mentioned previously, some employers have taken steps to develop both certified and non-certified training programs for positions such as CNAs and Personal Care Attendants.

Various providers are also affected by supply and demand – one provider will offer a program at less cost than another, and the latter will discontinue due to the competition. But if the first stops offering the program, the original one may offer that program again. This also has a detrimental effect on the long-term public knowledge of available programs, and public views of program stability, reputation and longevity, which then in turn affects matriculation rates for programs and schools.

An interesting note about the survey and the providers / resource partners response to the question, “Do you think there is a shortage of training programs for the healthcare skills and certifications needed?” was 83% “No.” The other 17% was attributed to one



comment that there is a need to help fund training programs for healthcare workers. So essentially the answer to that question (for those who responded) is 100% “No.” Given what the employers are saying (mentioned in prior paragraphs), this could indicate some of the disconnect mentioned by employers between employers and training providers.

**Funding:** Regarding funding, training providers / resource partners commented that there are a lot of resources and training available to the community at no charge (and it would be helpful for employers to know this). This is a hurdle and disconnect for those who are unemployed or underemployed who want to pursue a career in healthcare. Since almost all healthcare roles require some post-secondary education or higher, certification, and sometimes licensure (all of which come at a price), unemployed and underemployed people may not pursue healthcare because they are unable to afford the education and credentialing that goes along with a career in this field. According to local Tri-County employers, many will try to manage a full-time job while pursuing education, and sometimes the required clinicals (experience with patients) required for a healthcare career. Providers are also saying that some of them can customize programs to employer needs and their employees don’t have to attend “canned” programs.

The Tri-County Healthcare Consortium (Industry Partnership) also provides benefits to employers and employees including:

1. Reduced training costs through available funding
2. Many employers participate, and so this benefits all members
3. They give awards to people who are in the industry and going on to school
4. They give an award to high school senior going on to healthcare career
5. They pay for some necessary testing, like for CNA test.
6. There’s collaboration of people around the table, it helps them keep finger on pulse of what’s happening in facilities

Starting in 2005, Pennsylvania General Assembly allocated funds to establish employer led partnerships in key industries through the state that would focus mainly on enhancing the skills and advancement opportunities of incumbent workers. Healthcare is one of these key industries.

The Tri-County WIB has applied annually to the state for funding for the Tri-County Healthcare Consortium (Industry partnership). To date the WIB has trained more than 4100 people and received about 1.8 million. Healthcare employers have contributed about 1.9 million in cash and in-kind funds. Employers are required to match dollar for dollar.

Also, due to the fact that healthcare is an industry where typically there is a patient to staff ratio that must be maintained at some level for the adequate provision of care, employers have mentioned the difficulty in their employees being able to attend and complete programs for higher credentialing. Suggestions include offering several sections of courses at different times of the day for those who work shifts, and splitting up long training programs (e.g. those that are a day in length) to smaller sessions, so to ease the burden of staff being away to attend programs.

According to employers, the top barriers to employees attending training are: can’t be absent from shift / work responsibilities (67%), training / class times are inconvenient (67%), training / classes too far away (44%), and not enough funds to cover all employees we would like to train (44%).

According to educators and resource partners, the top barriers to employees attending training are: no childcare available (83%) (childcare concern was not mentioned at all by employers), can't be absent from shift / work responsibilities (67%), lack of transportation (50%), and expense / cost of education.

***Training & Workforce constraints:*** Educators and resource partners identified the top two training constraints as: “my students face personal barriers (i.e. no child care, no transportation, no free time)” and “lack of funds.” This echoes what was summarized in the recent report published by the Federal Reserve Bank of Cleveland’s Economic Development Department on the Tri-County Healthcare Industry Partnership which listed the following constraints related to employers having a trained workforce: funding, and turnover / retention issues.

*Note: A more complete summary of findings is available on the TCWIB website.*

## II. Addressing the Needs and Challenges of Healthcare in the Tri-County Area

### A. Opportunities to Strengthen Healthcare in Tri-County Region

Following are observations and opportunities for Tri-County stakeholders to consider for strengthening the area's healthcare workforce. These were derived from a combination of one-on-one interviews with area healthcare providers and training professionals, and lessons learned from other geographic areas.

**Scarcity mentality:** There is a limited pool of talent in the Tri-County area and some employers and trainers spoke about this causing a scarcity mentality around labor issues. Some employers are fearful of losing employees to the competition or job opportunities in neighboring counties. In reaction, they make choices in the short term that can hurt them in the medium and long term, like not sending employees to group trainings because they fear such visibility will cause them to be poached by someone else.

**Education and training:** The skills gap in healthcare will persist and a large percentage of local survey respondents as well as national reports believe it will get worse in the next few years. This suggests new ways for addressing the skills shortage are needed. Generally in healthcare, some combination of education / training, credentialing and experience is required for employment, and particularly career progression.

Healthcare roles require increased digital skills overall, especially as technological and regulatory changes impact the industry. With the increase in electronic medical records and online patient portals, employers expect staff to be able to interact with computers and digital records (Burning Glass Technologies, 2015).

**Hard and soft:** Healthcare tends to poach STEM-educated employees from other industries due to higher wages and different work values in healthcare. (Carnevale et al). While demand for technical skills like STEM will remain high in industries like healthcare, manufacturing and IT/technology, and in healthcare workers need specialized technical education, certification and licensing, employers highly emphasize the need for students and workers to develop soft skills, such as communication, decision-making, problem solving, customer service, getting along with others, leadership, etc. As one Tri-County employer noted: "There's a saying that goes, 'You can get a job with your hard skills, and you can lose it with your soft skills.'"

Representatives from the healthcare sector noted their industry is experiencing a paradigm shift to a customer service driven model. Positions at all ends of the healthcare spectrum, from physicians to laboratory technicians to certified nursing assistants, now have increasing potential to be customer facing, and the need to communicate and provide customer service will only increase (Burning Glass Technologies, 2015).

A number of local employers in the Tri-County region also responded "communication and customer service" when asked what other basic skills employees need to improve other than business writing, math, and basic computer skills.

**Supply and demand of skills:** Both Tri-County area employers and national reports found that colleges and training centers need to better align their teaching approaches

and programs they offer, to rapidly changing workforce needs. There are issues with this however, because some colleges are concerned about financial issues and are looking to increase the number of admitted students in total, and into certain programs. That may not always align with employer needs and what the colleges find financially possible.

When possible, ways of doing this were suggested:

- offer training in packages that are smaller, faster, and more relevant to immediate needs in the labor market;
- better connect students to career opportunities by inviting them to the workplace for workplace tours and mentoring opportunities; and
- workforce data should be more widely shared to help align the supply and demand of skills.

***Adjusting staff and community view of “healthcare services”:*** The form of healthcare (the way it is provided to patients/consumer) is changing. Already, due to a number of factors such, more people accessing healthcare due to Affordable Care Act, so patients are having difficulty getting appointments with primary & specialist physicians and are going to urgent care centers instead, changes in technology and improved ability to diagnose issues and treat patients even remotely via phone and online technology, changes in funding and insurance, and other factors, healthcare experts predict that healthcare will become more “drive-through” in nature. Patients will be treated more and more on an out-patient, individual, or at home basis, using technology to both diagnose earlier, and prescribe treatment more efficiently than in the past. Butler County Business Matters said the tele-health practices are being used especially with Veterans through the Veterans Administration Hospital in Butler. They will use SKYPE for people who can’t leave the house, and can take heart rate and blood pressure remotely (Koop, 2017).

These changes mean that employers / healthcare providers will need to educate staff to adjust how they provide treatment to patients, ensure they have the technology skills needed, and provide information to patients and the community to ensure acceptance of new practices.

## **B. Developing High-demand Skills and Career Pathways:**

Based on our research, C4IOE identified six (6) key healthcare occupational clusters in demand or projected to be in demand in the Tri-County area or region. Following are the clusters and sample occupations for each. Almost all of these professions are on the Pennsylvania hi-priority occupation (HPO) list, and most are on the Tri-County hi-priority occupation list.

Of course physicians and doctorate level healthcare providers are very important and needed for the provision of services, and shortage of these is noted in the Rural Medicine section earlier in this paper. However, the Healthcare Career Pathways developed for the purpose of this project do not include the physician / doctorate level healthcare provider career options. These were excluded for several reasons:

- At that level, none of those professions appear on the Tri-County or State Hi-Priority List except for Pharmacist (which is not included in this Career Pathways model).

- Although APRN (Advance Practice Registered Nurse, sometimes referred to a DNP [with doctorate which is mostly required now), does typically need a doctorate degree, it was still included in this Career Pathways model because it is on the State Hi-Priority list, and only more recently has the industry been looking for a doctorate degree from practitioners in this occupation.

Top Healthcare clusters currently in the Tri-County area:

- **Direct Patient Care:**
  - Advanced Practice Registered Nurse (Nurse Midwife, Nurse Practitioner)
  - Physician Assistant
  - Nurse Manager
  - Registered Nurse
  - Licensed Practical & Licensed Vocational Nurse
  - EMT and Paramedic
  - Certified Nursing Assistant (CNA)
  - Home Health Aide / Personal Care Attendant
  - Medical Assistant
  - Radiation Therapist
  - Respiratory Therapist
  - Dental Assistants & Hygienist
- **Behavioral Health & Social Work:**
  - Psychiatric Technician and Aide
  - Counselor
  - Healthcare Social Worker
  - Substance Abuse & Behavior Disorder Counselor
- **Allied Health:**
  - Occupational Therapy Assistant and Aide
  - Occupational Therapist
  - Physical Therapist
  - Physical Therapy Assistant and Aide
  - Dispensing Optician
  - Orthotist & Prosthetist
  - Ophthalmic Medical Assistant
  - Pharmacy Technician
  - Recreational Therapist
  - Speech / Language Pathologist
  - Audiologist
  - Surgical Technologist
  - Nutritionist / Dietician
  - Dietary Aide
- **Imaging & Diagnostics:**
  - Nuclear Medicine Technologist
  - Diagnostic Medical Sonographer
  - Cardiovascular Technologist / Technician
  - Phlebotomist
  - Radiology Technician
  - EKG Technician

- MRI Technologist
- ***Business, Health Informatics & Patient Records***
  - Medical Practice Manager
  - Physician's Office Assistant or Secretary
  - Health Care or Hospital Administrator
  - Health Educator
  - Medical Records and Health Information Technician
  - Health Information Specialist
  - Medical Transcriptionist
  - Medical Coding & Billing
  - Cancer Registrar
- ***Medical Research & Development***
  - Medical and Clinical Laboratory Technologist & Technician
  - Dental Laboratory Technician
  - Cytotechnologist
  - Blood Bank Specialist

The Healthcare profession offers a wide variety of career paths and entry points to those paths, though it is important to note that career advancement within Healthcare in most cases involves education and potential credentialing / licensing at each upward or lateral career change/progression. In addition, more jobs are emerging at the intersection of technology / information technology and healthcare.

Professionals who pursue a career in healthcare can look at specializing in one area of what is referred to as the "Continuum of Care" (also called "Womb to Tomb") including healthcare services in: prenatal care/healthy birth, health promotion, primary disease prevention, diagnosis of disease, treatment of acute disease, secondary disease prevention, tertiary disease prevention, treatment of chronic illness or disease, rehabilitative care, long-term care, palliative care.

Typically there are credentials / skill standards required for most Healthcare roles, though some entry level roles do not require specific credentialing.

In the Direct Patient Care Cluster, the occupational path leads from Home Health Aide to Physician Assistant (PA-C) or Nurse Practitioner (DNP, APRN or CNM). At the most entry level role, education required is a high school diploma or GED. At the most senior level, Nurse Practitioner, today persons in that role are generally required to have a doctorate degree. There are occupations that require a post-secondary certificate or hospital certification program like Licensed Practical Nurse (LPN), some that require an associate's or bachelor's degree like Registered Nurse (RN), and some a Master's degree like Physician Assistant or Nurse Manager. There are also a variety of credentials across the professions in this cluster including: DNP, APRN or CNM (Certified Nurse Manager) in addition to RN license, & 2<sup>nd</sup> License, (for Manager), CNS, Physician Assistant Certified PA-C, & Licensing, CRT / RRT (respiratory therapist), CST/NCCT (Surgical Technologist), CNA Certificate / License, and Dental Assistant certification/license. All of these roles require certification and state licensing except for the entry level Home Health Aide / Personal Care Attendant.

Local Tri-County employers and national reports both talk about the Upskilling that is occurring in the Direct Patient Care cluster – LPNs are pursuing education for RN, RN with Associate's is pursuing Bachelor's or Master's degree. This is already occurring. In some cases, employers are driving this such as when an employer will only hire a certified Home Health Aide, so candidates would have had to complete that before applying for the job.

In the Behavioral Health & Social Work Cluster, a Healthcare Social worker requires a master's degree and typically the C-SWHC certification. Substance Abuse Counselors must be licensed in many states and will generally have a masters or bachelor's degree, though some states do not require education beyond high school, nor licensing. Some states require a Psychiatric Technician license. Psychiatric Aides only need a high school education, and do not require licensing.

The Allied Health Cluster includes most of the therapeutic professions and a few other applied roles such as surgical technologist (which also appears in the Direct Patient Care Cluster) and pharmacy technician. Occupational therapists, Speech /Language Pathologists (Therapists) (CCC-SLP), Physical Therapists, and Orthotist / Prosthetist, all require certification. All but the Orthotist / Prosthetist require state licensure. All but the Physical Therapist, which requires a doctorate degree, require a master's degree. Most Recreational Therapists have Bachelor's degrees and they can become a Certified Recreational Therapist, though this is generally optional. Occupational and Physical Therapy Assistants, as well as a Respiratory Therapist are certified and state licensed and generally have Associate's degrees. A Surgical Technologist generally will complete a non-degree certificate program and obtain either the CST or NCCT certification. To become a Pharmacy Technician, a high school diploma or GED is needed, with certification as a Pharmacy Tech optional generally. Physical Therapy and Occupational Therapy Aides are not certified or licensed and need a high school education.

In the Imaging & Diagnostics Cluster, the Nuclear Medicine Technologist, Diagnostic Medical Sonographer, Cardiovascular Technologist or Radiologic Technologist all carry certifications, generally through an Associate's degree (required for Nuclear Medicine Technologist and Radiologic Technologist) or a non-degree certificate program. Some states also require licensing for people working in these occupations. The Phlebotomy Technician occupation is also an occupation where people will need to complete a non-degree certificate program and become certified. A Cardiographic Technician / EKG Technician will have a high school education, and certification.

In the Business, Health Informatics & Patient Records Cluster, those with Master's degrees include Health Care Administrators and Health Education Specialists / Educators (though this latter role may also just have a Bachelor's degree). Both have certifications. For those Health Care Administrators who manage retirement / group homes, they must also be licensed. Someone working in Medical Billing and Coding has a variety of certification options including: CPC, CPC-H, CPC-P, CCA & CCS. A Medical Records & Health Information Technician or a Medical Transcriptionist generally require a post-secondary certification through a non-degree certificate program. And to work as a Medical Office Assistant or Medical Assistant, a high school education is needed. Though to work as a Medical Assistant, generally certification is required: CMA, RMA, NCMA, CCMA or CMAA.

In the Medical Research & Development Cluster, individuals will need at least a post-secondary certificate, at a minimum, to pursue any of the occupations in this cluster. At the Bachelor's degree level, the Medical / Clinical Lab Technologist, Cytotechnologist (SCT or CT) or Blood Bank Technology Specialist (BB or SBB) are all certified. Some states also license the Medical / Clinical Lab Technologist. A certified Medical / Clinical Lab Technician needs an Associate's degree or non-degree certificate and in some states, licensure.

It is important to note that the healthcare industry has most of the top projected growth occupations for Pennsylvania. Several professionals in this field noted that it is a very stable industry from the standpoint of people always needing healthcare, and in particular now with aging population (Baby Boomers), people living longer, and the need for healthcare services. Particularly home health care and a variety of outpatient therapies are high-growth areas. However, due to changes in regulations, changes and uncertainty in insurance / Medicare / Medicaid and the current ACA (Affordable Care Act), professionals in the healthcare industry may have to adapt treatment plans, use technology to increase efficiency, and find other ways to reduce cost. But generally once someone pursues the education and credentialing required for a particular career, they can be relatively assured of a stable and rewarding career.



### III. Recommendations

The following recommendations regarding healthcare workforce development and response to trends and industry needs have emerged from the research data and qualitative input provided by local and regional employers, educators and service providers.

#### 1. ***Focus on High Priority Occupations and others showing high growth potential. And create Pathways to upward mobility.***

As described in the previous section, High Priority Occupations and job growth projections in healthcare outline areas of employment growth for the Tri-County workforce. Action areas include, ensuring strong alignment between industry demand and skills-training opportunities; communicating these needs to students, educators and workers; create pathways to outline paths for healthcare career advancement and entry into healthcare and use these pathways to educate students, the community, and providers, and proactively preparing for changes in area occupations – such as the need for new skills in the area where technology and healthcare meet, which is really across all Healthcare occupational clusters and not just in the Electronic Patient Records area.

For training / education providers, this means ensuring that there are programs in place to support the high priority occupations in need by local Tri-County employers. An example of something that is in need currently by employers, and yet there's a shortage of local programs available, is for CNAs (Certified Nursing Assistant). Also, there is a significant shortage of LPNs, though the media has not covered this as much lately.

Where funding is available, it should be spent on the high priority occupations. These are the occupations most in demand and with the most potential growth. Supporting these programs and students of these programs financially, through state funding, private grants, or employer / consortium grants should be the focus.

#### 2. ***More proactively find and attract talent:***

Instead of listing a job and waiting for the perfect employee to apply, bring the employer to the talent pool. Employers can be proactive in investing in and cultivating the labor market in their area, and some Tri-County employers have been engaging directly with schools and training facilities. Employers can play a bigger role in a number of ways:

- Communicate the job opportunities and the value of healthcare careers to students and young workers. Send seasoned employees to speak as ambassadors for the industry; attend job fairs, school science fairs, and other such events where talent coalesces.
- Visit post-secondary certificate program and degree program classes and speak directly to students/workers about the opportunities available; speak to guidance counselors, career advisors, and job retraining facilities about exactly what positions and skills employers are seeking.

- a. Seek to develop professional networking relationships with post-secondary certificate and degree program students (pending school / employer policies).
  - b. Proactively use social media to set up professional networking groups that provide information to followers/members, and provide career information. (Static websites that provide information “waiting” for job seekers to come to the site, are not enough).
- Ensure easy access to workforce demand and occupational career data to help more students select courses of study aligned to industry demand.
  - Due to the high turnover in some healthcare occupations, and scarcity of candidates to fill those roles in some areas, create an extra shift of workers (labor pool) to cover vacations, overtime, high demand times, and turnover.
  - Marketing for some LPN and CNA programs has been mainly word of mouth. This needs to change if training providers/educational institutions and employers hope to increase the pipeline of potential candidates into these programs.
  - Reach out through channels that connect to people of color to more proactively recruit people of color into the healthcare field in the region. Currently the healthcare candidates in lower, entry level roles does not represent the population of the region. Though as mentioned previously, there are more people of color, and people of different nationalities in professional and physician roles in healthcare, particularly in rural areas of Pennsylvania.

3. ***Develop More effective retention strategies:***

Finding and attracting talented new hires is only half of the equation. Employers must do more to retain their employees. Given that many leave their first role out of schooling relatively quickly, more needs to be done by the employer to ease the transition from school to work. Since employers have identified “job readiness” as a key issue, employers should focus on creating programming and support structures to ensure they develop this “readiness” in new employees and to help with their assimilation into the organization. Actions could include: developing a longer and more in depth orientation program for new employees. Employers fall short in onboarding employees effectively, and a poorly onboarding employee is generally a short-tenure employee. Employers need to build the base of comfort and skills in employees that are new to the field or to work.

Mentoring programs can also help in this area, where new employees feel overwhelmed, the mentor can help to provide assurance, some training, ideas for handling difficult situations, etc. Local employers have also identified this last skill, handling difficult situations and people, as something in which new employees especially, but all employees too, are lacking. Turnover increases when people are frustrated with a situation or people and do not have the skills to handle those. So spending some time training and mentoring people in this area could also have significant returns for retention.

4. ***Transition Unemployed or Underemployed workers into the healthcare field:***

Given the high demand and high growth for the next 10 years of the Home Health Care / Personal Care Attendant role in particular, and the fact that this role does not

require and formal credential, create opportunities for unemployed and underemployed people to transition to the healthcare field. Creating opportunities for this role may essentially involve an orientation to healthcare and on the job training. The issue seems to be communicating the benefits to this potential labor pool, as well as that some may not have the interest / fit / personality for healthcare / personal attendant work.

For positions that require more education, funding will be the main hurdle for transitioning unemployed and underemployed workers into educational programs to prepare them for these higher level roles. Though some employers, across the U.S. and in the Tri-County region, have created training programs (both those ending with testing for certification and non-certifying program paths) to improve the pipeline of trained workers to their organizations.

5. ***Continue preparations for aging workforce:*** It is important for employers to be fully aware of the various ways the trends and demographic shifts noted in this report will influence their organizations. Though employers seem to be aware of the potential issues, few have taken significant steps to deal with this issue. For example, employers may need to:

- Conduct a workforce needs assessment to analyze the impact of workers age 50 and older who will be leaving/ retiring from a company/ organization. Consider tracking the percentage of employees eligible to retire in the next few years and develop a human resources continuity plan that helps target and train replacements.
- Adjust their recruiting and retention strategies to specifically target older workers and offer flexible work arrangements for this group.
- Identify the skills and experience most valued in older employees and ensure this knowledge and practical know-how is being transferred to new generations of workers.

Additional strategies to handle a high number of employee retirements include:

- increase training and cross-training
- develop knowledge transfer plans to transfer institutional knowledge from retiring employees to younger employees
- plan who will move into management roles in the next few years and start their training now
- seek new employees from existing employee networks
- build training guides for specific roles where the incumbent employee may be retiring or leaving
- hire retired employees as part-time workers
- hire temporary workers

6. ***Continue to refine and develop better alignment between training programs / providers and employer needs (the job openings and skills needed):***

Given all of the ongoing changes with legislation and regulations and funding / insurances, etc., not to mention potential changes with training requirements (if they pass in Pennsylvania) regarding RN and LPN training, and requirements outlined across the board – nationally, state-wide, regionally, and locally for “soft-skill”

training in addition to technical training for healthcare employees, there needs to be better alignment and calibration / assessment of needs of employers and their employees and job candidates.

Employers are calling for more alignment and involvement in the design of programs. First, employers want programs for training the roles they most need to fill. Second, they want the programs to focus on soft skills in addition to technical skills (specifically things like customer service, communication, dealing with difficult situations and people, etc.) Third, they want to be directly involved in providing input into the design or modification of programs to meet their needs. Fourth, they want to have more communication with the training program staff to ensure continued alignment, and to ensure they can benefit from recruiting from these programs.

Though given that some educational institutions are struggling financially, and they willingly admit to continuing programs that fill the rosters, rather than in some cases continuing or developing programs that employers want/need, there also needs to be some change in the way employers support the institutions who are working to develop more aligned programming. Employers need to be more accountable to supporting those training programs, private providers or educational institutions.

There are models of this nationally that provide various examples of how employers can support training providers, and not just in healthcare. For instance, at Bidwell Training Center / Manchester Bidwell Corporation, several of the adult training programs were started with and /or supported by partnerships with employers.

- The healthcare training programs that Bidwell provides are in cooperation with (and feed employment for) several area employers. The employers in turn have provided financial support, and in-kind and financial support for Bidwell in the form of classroom educators, clinical experiences for students, and in some cases equipment for training purposes.
- Bidwell has also done this with their horticulture program and recording studio, where employers provided the initial know-how for starting a horticulture program at Bidwell, and provided recording equipment and studio for student training purposes at Bidwell (though it is also leased to professional artists).

The point is that there needs to be a greater mutual support developed between employers and training providers, to their mutual benefit.

## **Conclusion**

Healthcare industry trends and employer and workforce needs have been identified in a number of industry reports nationally and in the state of Pennsylvania, even since the Affordable Care Act changes. Though some needs (such as nurse and CNA shortages) have been concerns for a longer period. The time for action is at hand. Many reports, including this one, continue to discuss the trends and needs and identify potential actions, but the industry changes and needs are so vast that seeing significant collective industry response to the needs has been challenging. The response to changes and needs is likely best been seen at regional and local levels, where groups of employers (such as the Tri-County Healthcare Consortium) must continue to tackle healthcare workforce development from the standpoint of further defining and refining the needs, identifying funding and ways of collaborating to purchase training and attract and retain

talent, working with state programs and resource partners that support workforce development, reaching out to regional job seekers and workers to provide support along healthcare career pathways and credentialing, and working with training providers to address the training needs. Healthcare is fairly guaranteed to be stable or growing in terms of needs that drive the industry, and will provide the potential for a variety of growing and changing careers for those in the field, provided the industry (employers, resource partners, training providers, and workers), particularly in southwestern Pennsylvania and the Tri-County region, continues to evolve to adapt to change and proactively develops the workforce to meet the identified needs.

## IV. Appendices

### Appendix 1: Report Methodology

This report addresses key research questions around demographics of the region, industry trends and occupational trends on a national, state, regional, and local level, career pathways, training needs, and skill standards (including credentialing) for key occupations. Additionally, the report describes the Healthcare related Career Pathways / Skill standards model that was developed as part of this process, and provides recommendations related to career paths, workforce development and training for this industry in the local TCWIB region.

Research for this report consists of a mix of primary and secondary source material. Secondary sources include national, state, regional and local and research reports, print news articles and on-air news segments, and data sets from government agencies and economic development entities. Primary sources include a mix of one-on-one interviews and an online survey developed by C4IOE and administered in April 2017. The survey was sent to employers, education providers and job-related service providers in the Tri-County region that are part of the Healthcare Industry Partnership. There were 25 respondents to the healthcare workforce survey, though some did not answer all questions. The survey results are available on the TCWIB website: [www.tricountywib.org](http://www.tricountywib.org) The reports and the Career Pathways / Skill Standards models are also available on this website.

## **Appendix 2: About C4IOE / About TCWIB**

### About C4IOE

C4IOE is a management consulting firm, founded in 1998, which provides services to businesses, individuals, government and nonprofit organizations. Our services include: human resources strategies/processes, social entrepreneurship/ventures, performance improvement, training and curriculum design, change management, organization development, process redesign, non-profit planning and management, strategic planning, operational planning, technical writing, and other organizational initiatives and practices, for the purposes of improving performance of, and creating positive change in individuals and organizations.

### About Tri-County Workforce Investment Board (TCWIB)

The mission of the Tri-County Workforce Investment Board, Inc. is to provide responsive and innovative leadership that meets the current and future needs of employers and job seekers. The vision of the Tri-County Workforce Investment Board, Inc. is that the local area will be a destination of choice for employers and job seekers, where existing businesses experience growth and where new businesses are eager to locate because of the excellent job opportunities, economic vitality, quality of life and the presence of a skilled workforce. The Tri-County Workforce Investment Board, Inc. is comprised of 29 volunteer members from Armstrong, Butler, and Indiana counties. Members are community leaders with policy and decision making experience.

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