



# HEALTH SUMMIT SUMMARY

Prepared for Yavapai County Community College District

*Yavapai*  
COLLEGE

February 3, 2016

## **Introduction:**

In 2012 Yavapai College contracted with the SmithGroup/JJR, consultants that specialize in master planning for higher educational institutions, to assist the college in developing its master plan to better meet its mission. The SmithGroup/JJR analyzed the demographics of the college and the communities that the college serves, as well as conducting both focus groups and surveys with its internal and external stakeholders, and using their expertise with state and national trends in higher education master planning to develop concepts of a master plan. These concepts were vetted through several iterations to arrive at a final concept. In the late fall of 2013 the SmithGroup/JJR presented their proposal of a ten year master plan for the college and its programs. In February 2014, the college and its board adopted the plan and started preparations to implement it.

One of the concepts presented as part of the master plan was a “Health Science Center,” a facility specifically intended for health care education. As a state of the art facility it would house the college’s Allied Health, Nursing and other related programs. This facility would include specialized classrooms and labs including classrooms for general education courses, faculty and staff offices, conference rooms and student support areas. This facility would also be utilized by area health care providers as a place for ongoing continuing education, professional development and training. It was proposed that by consolidating college health care programs to one central location where resources could be shared and efficiencies in expenses realized a net cost savings in program operations could be realized. The master plan proposed that this new facility be located in Prescott Valley, based on projected growth of county populations, partnership possibilities with health care providers, municipalities, and Northern Arizona University.

The projected cost to construct such a facility was \$45-50 million, a substantial amount that the college administration realized was beyond its capacity to fund through its capital building process. It was recognized that it would be unlikely that a capital bond would be approved since the country, state and county were still recovering from the great recession. It was also recognized that health care professions and their educational preparation and training were dynamic and the college and communities could benefit from furthering our partnerships with

county health care providers. (Appendix: Health Workforce, Healthy Economy: A Collaborative Project of St. Luke's Health Initiatives, City of Phoenix, Phoenix Workforce Connection and the Maricopa County Department of Public Health. Allied Health Needs Assessment: Maricopa Community College District)

### **Health Care Summits:**

Under the leadership of Yavapai College's President, Dr. Penny Wills, a meeting was held in September, 2013, with selected college personnel that were involved in health care education. This involved the President, Vice President of Instruction and Student Development, Dean of the Science, Health and Public Safety Division, Program Directors for Allied Health, Nursing and Radiological Technology. The meeting agenda was to report on each program, discuss current and future needs for health care education, and the potential for new partnerships. The group determined that a Health Care Summit should be conducted so that the College could be appropriately positioned to meet the future educational needs in health care for its service area. The intent of a Health Care Summit was to broaden perspectives relative to current and emerging health care professions, and determine the educational role Yavapai College would fulfill in meeting those needs. Additionally, the summit intent was to determine if a new single Health Care educational facility would adequately meet the demands of a broader more comprehensive educational plan.

A county wide Health Care Summit was soon organized for January 2014 where CEO's and other administrators representing many of the major health care providers in the county were invited. Summit participants included the following guests:

John Amos, President and Chief Executive Officer, Yavapai Regional Medical Center (YRMC)

Diane Drexler, Chief Nursing Officer, YRMC

Brian DeVries, Manager – Human Resources, YRMC

Donna Jacobs, Chief Executive Officer Northern Arizona VA Health Care System (NAVAHC)

Dr. M. Keith Piatt, M.D., Interim Chief of Staff, NAVAHC

David Warner, Supervisory HR Specialist, NAVAHC

Dr. James T. Johnson, Quality Program SLM, NAVAHC

Jeremy Plumb, Superintendent, Mountain Institute JTED  
 Judy Baum, Chief Executive Officer, Mountain Valley Rehabilitation Hospital  
 Mark Roth, Chief Financial Officer, Mountain Valley Rehabilitation Hospital  
 Yvonne Richard, Public Relations Specialist, Northern Arizona Healthcare  
 Also invited, but not present for this meeting was  
 Barbara Dember, President & Chief Executive Officer, Verde Valley Medical Center

Topics of discussion included:

- Identifying trends in health care and comparing them to local needs.
- Clarifying future workforce educational needs for local health care providers.
- Ascertaining specific health care jobs needed to serve our local communities and the counties outlying rural areas.
- Willingness of participants to partner with YC in a new health care educational facility.

At the conclusion of this meeting all participants expressed a desire for continued involvement with this Health Care Summit, and a future meeting was planned for later in the year with the inclusion of representatives from Northern Arizona University. However, due to the impending retirement of Dr. John Hager, President of NAU, and the subsequent search for a new president, the next summit meeting was postponed for over a year.

The second and expanded Health Care Summit was held in late March, 2015, in Prescott Valley. Attendee's included:

Northern Arizona University:

Dr. Rita Cheng, President  
 Sarah Bickel, Executive Vice President and Chief of Staff  
 Dr. Laura Huenneeke, Provost and Vice President for Academic Affairs  
 Dr. Leslie Schulz, Executive Dean, College of Health and Human Services  
 Debera Thomas, Dean of Nursing  
 Fred Hurst, Senior Vice President, Extended Campuses  
 Karen Appleby, Senior Assistant to Provost

Town of Prescott Valley:

Harvey Skoog, Mayor  
Lora Lee Nye, Vice Mayor  
Larry Tarkowski, Town Manager  
Richard Anderson, Council member  
Marty Grossman, Council member  
Steven Marshall, Council member  
Marnie Uhl, Director for Prescott Valley Chamber

Yavapai County Professional Leaders:

Mike Paredes, Director for Prescott Valley Economic Development Foundation  
Donna Jacobs, Director, Northern Arizona VA Health Care System  
John Amos, Chief Executive Officer, Yavapai Regional Medical Center  
Mark Timm, Director of Human Resources, Yavapai Regional Medical Center  
Judy Baum, Chief Executive Officer, Mountain Valley Rehabilitation Hospital

Yavapai College:

Dr. Penny Wills, President  
Dr. Stuart Blacklaw, Provost & Vice President for Instruction & Student Development  
Scott Farnsworth, Dean for Sciences & Health  
Mary Brown, Director for Nursing Programs  
Nancy Bowers, Director for Allied Health  
Rich LeClair, Director for Radiology Program  
Tania Sheldahl, Dean for Student Development  
Deb McCasland, District Governing Board member  
Steve Irwin, District Governing Board member

This Summit started with opening remarks from both President Wills and President Cheng, with a review of the previous Health Summit meetings. After these comments the discussion included topics of current health care educational programs at NAU and YC, current needs in the local health care workforce, the interest of furthering the current educational partnerships as well as exploring new ones, and the interest and support of local health care providers including the town of Prescott Valley. The results of the discussion are outlined in the following summarization.

- Explore additional education opportunities.
- Build NAU/YC branding and recruitment activities.
- Support local Health Care providers in defining future workforce needs
- Identify the Health Care and Complementary Workforce needs of Yavapai County and the State of Arizona.
  - Considerations
    - cohort size
    - curriculum development to graduation (timeframe)
    - pipeline
    - facilities
    - startup and maintenance cost
    - clinical rotations
    - graduate employment/wages
- Align NAU/YC curriculum.
- Explore concurrent nursing programs.
- Develop alternative health care tracks.
- Research YC's certificates and associate degrees that will apply for NAU's Bachelor of Science in Health Science.
- Explore Yavapai County medical partners' commitment and ability to invest time and resources.
- Establish coordinated advocacy networks.

These action items were further refined into five different initiatives that were explored and reported on during the summer and fall of 2015 (Appendix- Task Force Recommendations)

1. Review appropriate YC certificate and AAS degree programs that may articulate into NAU's Health Science Bachelor of Science.
2. Assess success rates of the joint ADN/BSN Program with NAU.
3. Address Healthcare Workforce Needs for Northern Arizona (Appendix- Healthcare Workforce Demands Analysis)
4. Confirm workforce needs with Hospital CEOs.
5. Review salaries and promotions in relation to continued education in healthcare fields.

This Task Force report was distributed to all participants for their information and input. During the late fall of 2015 Yavapai College concluded that a final Health Summit be convened to review what has transpired over the last several years and

to summarize what is on the horizon for YC in anticipating and meeting the educational needs for the local health care workforce. This would also allow the other participants an opportunity to express their intent for future endeavors and partnerships.

### **Conclusion:**

In an effort to better understand the current and future local workforce educational needs for healthcare, Yavapai College has organized several Health Summits. These meetings involved representatives from the town of Prescott Valley, Northern Arizona University, county wide health care providers, and Yavapai College. Discussions allowed participants to share their perspectives and to offer suggestions. A health care work force needs analysis was conducted by YC's Regional Economic Development Center, which contributed to the information being considered. From these Health Summits the following conclusions are offered:

1. Health care is and will continue to be a strong component of the local economy requiring an educated and skilled workforce.
2. If a new state of the art center for Health Care Workforce education were to be built with partnerships between YC, NAU, area hospitals and municipalities, Prescott Valley appears to be the location of choice, based on current and projected growth of county populations. However, this center will remain in phase III of YC's Master Plan and will primarily be influenced by and dependent upon these partnerships and workforce demands.
3. From the research conducted and reviewed (see appendices) Yavapai College is adequately meeting the local health care workforce education and training needs for which it is accredited to provide, with the exception of Medical Lab Technician. This is a field that should be considered for possible partnership as a joint program between YC and NAU.
4. Northern Arizona University continues to be a willing partner and is the primary leader in offering baccalaureate and graduate degrees in a variety of health care fields to meet the needs in the county and northern Arizona. YC and NAU are working toward a concurrent ADN/BSN program. YC and NAU

will continue to collaborate on joint programs that meet the county's workforce demands in health care.

5. County health care providers are aware of these existing educational programs and are satisfied that they are meeting their primary workforce needs.

Based on these conclusions there is no need to conduct further Health Summits.

# Attachments

1. Yavapai College's Health Summit Task Force Report, 2015
2. Healthcare Workforce Demand Analysis, 2015

# Appendix

1. Health Workforce, Healthy Economy: A Collaborative Project of St. Luke's Health Initiatives, City of Phoenix, Phoenix Workforce Connection and the Maricopa County Department of Public Health
2. Allied Health Needs Assessment: Maricopa Community College District, 2015



# HEALTH SUMMIT TASK FORCE REPORT

Prepared for Yavapai County Community College District

*Yavapai*  
COLLEGE

November 4, 2015

4 November 2015

#### Health Care Summit Task Force Results

Yavapai College has recognized that it plays a vital role in providing higher education and career training opportunities to the communities of Yavapai County. Healthcare has been and continues to be an in-demand field within the county, region and state. Earlier this spring Yavapai College and Northern Arizona University conducted a Healthcare Summit with a variety of business, educational and community representatives. This summit was to garner input from these constituents about current and future educational and training needs for healthcare occupations in the county. From that meeting five areas were identified as requiring further information that would better inform business, educational and civic decision makers as to current and future workforce needs in healthcare. Attached is a report of those findings.

From this report it appears that Yavapai College, along with NAU are well positioned in providing the educational and training opportunities to meet the majority of healthcare needs within the county, particularly in the projected large growth occupations. Future expansion of current offerings or the creation of new educational programs in a healthcare field will require further exploration and feasibility consideration.

Respectfully,

A handwritten signature in black ink, appearing to read "Scott Farnsworth". The signature is written in a cursive, flowing style.

Scott Farnsworth

Interim Vice-President of Instruction and Student Development

## Health Program Collaboration YC/NAU

### Report on Task Force Recommendations

#### Introduction:

In March, 2014, the Presidents of Northern Arizona University and Yavapai College, along with various administrators from these institutions, met with CEO's and HR personnel from county hospitals to discuss the current and emerging health care careers. Also in attendance were representatives from the Town of Prescott Valley. NAU and YC wanted to collaborate on how each could provide the best healthcare educational training for this area. Five different areas of focus were identified for further research and review. Below are the responses for each area.

#### **1. Review appropriate YC certificate and AAS degree programs that may articulate into NAU's Health Science Bachelor of Science.**

The Bachelor of Science degrees offered by NAU were reviewed. Particular attention was given to the online degree programs in Health Sciences, in as much as it allowed place-bound students in Yavapai County the opportunity to complete a BS degree without relocating from their present residences or employment. There are nine different degree options available, with 4 directly related to degree or certificate programs currently being offered at Yavapai College.

#### NAU Online Health Science Bachelor of Science Degree options:

- BS Health Sciences: Allied Health (degree completion program)\*
- BS Health Sciences: Diagnostic Medical Imaging and Therapy (degree completion program)\*
- BS Health Sciences: Medical Assisting (degree completion program) \*
- BS Health Sciences: Physical Therapy Assisting (degree completion program)
- BS Health Sciences: Respiratory Care (degree completion program)
- BIS Speech-Language Sciences and Technology (Interdisciplinary degree)
- BS Health Sciences: Surgical Technology (degree completion program)
- BS Health Sciences: Paramedic Care (degree completion program)\*
- BS Health Sciences: Public Health

\* Relate to Yavapai College degree or certificate programs of study.

#### Conclusion:

There are currently 7 different subspecialty degree completion options available for those employed in Allied Health fields delivering patient care. This can afford those in the county, an opportunity to complete a Bachelor of Science degree online without the necessity to leave their job or residence. Of these 7 options, four of them are directly related to certificate or degree programs at Yavapai College.

## **2. Assess success rates of the joint ADN/BSN Program with NAU.**

Northern Arizona University instituted the Concurrent Enrollment Program (CEP) to earn a Bachelor of Science in Nursing (BSN) during the summer of 2011. From summer 2011 through summer 2013, 314 students of the 463 students who enrolled in the CEP have completed on time; a 68% completion rate. The program has a withdrawal rate of 13%. As of summer 2015, an additional 716 students have enrolled in the CEP and 31 have withdrawn. The majority of students enrolled in this program are attending Associate Degree nursing programs in the Phoenix area.

The Institute of Medicine (IOM) has set a goal that 80% of all practicing nurses in the United States hold a Bachelor's in Nursing by 2020. It is believed that offering Yavapai College Nursing students the opportunity to enroll in the Northern Arizona University Concurrent Enrollment Program, in conjunction with the Yavapai College Nursing Program, will increase the number of BSN prepared nurses in the county. This will help the community meet the IOM goal.

Conclusion:

NAU and YC have already started exploring pathways to market this concurrent enrollment option to the nursing students at YC. This requires Arizona State Board of Nursing review and approval, which is being pursued, and should allow YC Nursing students this option beginning Fall 2016.

## **3. Healthcare Workforce Needs for Northern Arizona.**

Yavapai College's Regional Economic Development Center (YCREDC) conducted a workforce needs analysis through the summer and early fall 2015 focusing on Yavapai County but including all of Northern Arizona. They concluded that the top in-demand occupations are; AAS Nursing, BS Nursing, billing & coding/financial services (industry certified), medical technologists, medical assistants, phlebotomy, radiologic technologists, and pharmacy technicians, certified nursing assistants, caregivers, and non-medical home aids. (Healthcare Workforce Demand Analysis attachment)

Conclusion:

Yavapai and Coconino counties display indisputable growth in healthcare fields over the past five years with expansion expected to continue into the future. Yavapai College and NAU are already positioned in providing educational opportunities for the majority of Nursing and Allied Health related professions identified. Medical Technologists is one program area for the possible opportunity for both YC and NAU to explore for partnership. However, due to the capital investment such a program requires would necessitate further investigation to determine its feasibility.

## **4. Confirmation of Workforce Needs with Hospital CEOs.**

As part of the Healthcare Workforce Demand Analysis conducted by YC's REDC, Administrators with Yavapai Regional Medical Center (YRMC), Veteran's Administration Hospital (VA), and Northern Arizona Healthcare (VVMC) confirmed that those occupations identified in the report as high demand were accurate and reflected the current needs within the county.

Conclusion:

Nurses, billing/coding services, assistants and technicians were confirmed as high demand healthcare occupations for the Yavapai and Coconino counties.

#### **5. Review Premium Pay in relation to Continued Education in Healthcare Fields.**

Certain professions in healthcare require a license or certification to legally practice in Arizona. Some of these licenses and/or certificates have conditions which stipulate ongoing continuing education to maintain relevance and competency within their field. This continuing education is currently not viewed by their employer as moving an employee into a higher salary schedule, but is necessary to meet the ongoing expectations for adequate job performance. The impact that earning a four year degree will have on a student's future earning potential is dependent upon the particular healthcare job(s) that are available in the county and become available in the future, for which they qualify to apply.

County HR personnel from YRMC, VA, VVMC (Northern Arizona Healthcare) were interviewed for this report and stated that each job has a predetermined set of minimum qualifications for that specific position. If a current employee were to further their education (e.g. earning a BS in Health Science-BSHS) it would not equate to an automatic increase in salary. However, if there was a separate job opening where a BSHS was required for employment, then that individual would have the qualifications to be considered as a viable candidate. The HR personnel were asked if current or future positions at their respective facilities require a BSHS degree. They indicated that no current positions have this requirement as it related to caring for patients, and they did not anticipate that this would change. However, for those individuals that may want to move into administrative or management roles, having a BS degree would be desirable.

Conclusion:

Based on current industry practice for allied or assistant positions involved with patient care (Medical or Physical Therapy assistants, Imaging technologists or Surgical technicians, etc.) would not see an automatic salary increase should they pursue a degree in BSHS. This may change if the employee pursued a position in administration/management or if they applied for a different position which required a four year degree. YC and NAU may be able to offer continuing education for those already employed in healthcare occupations, provided that what is offered is approved as continuing education by the licensing or certifying agency

# Healthcare Workforce Demand Analysis

Conducted by the YC Regional Economic Development Center

YAVAPAI COLLEGE  
**YREDC**  
REGIONAL ECONOMIC  
DEVELOPMENT CENTER





The character of employment in the healthcare sector across northern Arizona has become increasingly complex given the evolution of technology, standards and models of care, and population demographics. Workforce needs span all skill and technical levels from science-based technicians to administrative expertise and computer science. As the medical field transitions to an outpatient model of healthcare, labor needs are shifting to accommodate this new demand, meaning that many occupations are experiencing an expansion or adjustment in job duties.

Research included interviews with Northern Arizona Healthcare, Yavapai Regional Medical Center, Yavapai County Health Department, the Community Health Improvement Partners in northern Arizona, and Veteran’s Administration Hospital. Qualitative research identified top in-demand occupations and those with high potential for growth as AAS Nursing, BS Nursing, billing & coding/financial services (industry certified), medical technologists, medical assistants, phlebotomy, radiology, and pharmacy technicians, certified nursing assistants, caregivers, and non-medical home aids. Respiratory therapists and physical therapists were also identified by employers as occupations showing potential for growth.

Medical Assistants were highlighted as an in-demand occupation with managers and recruiters identifying that the local labor pool has been exhausted. Medical financial services and billing and coding occupations are in high demand and show a large potential for upward movement in that career path. These professions were also identified by hospitals as having good potential for registered apprenticeship programs. Although Medical Technologists were recognized as in-demand, the quantity of positions open per annum and the high cost for laboratory training were identified as obstacles to training. Managers noted that an Associates program in biological sciences would create a viable pathway into the career field.



### Occupation Summary for 66 Healthcare Occupations

<b>10,450</b>	<b>12.2%</b>	<b>\$29.85/hr</b>
<b>Jobs (2015)</b>	<b>% Change (2010-2015)</b>	<b>Median Hourly Earnings</b>
4% below National average	Nation: 8.2%	Nation: \$27.56/hr

A total of 66 primary healthcare occupations were analyzed for the Yavapai and Coconino regions. These occupations ranged from entry level to middle skilled technical positions and higher end professional occupations. Yavapai County experienced a 13% increase in employment across these

occupations in the past five years, while Coconino had a 12% increase. Healthcare jobs in Yavapai outnumber those in Coconino by approximately 774 positions. Yavapai County also had a location quotient for these occupations that is greater than one, signifying that there is a concentrated industry, cluster, occupation, and demographic group in the region as compared to the nation. This reveals a unique feature of Yavapai County in comparison to the national average.



**YAVAPAI COUNTY:**  
**TOTAL HEALTHCARE JOBS 5,612**  
**TOTAL GROWTH OVER 5 YEARS 631 JOBS**

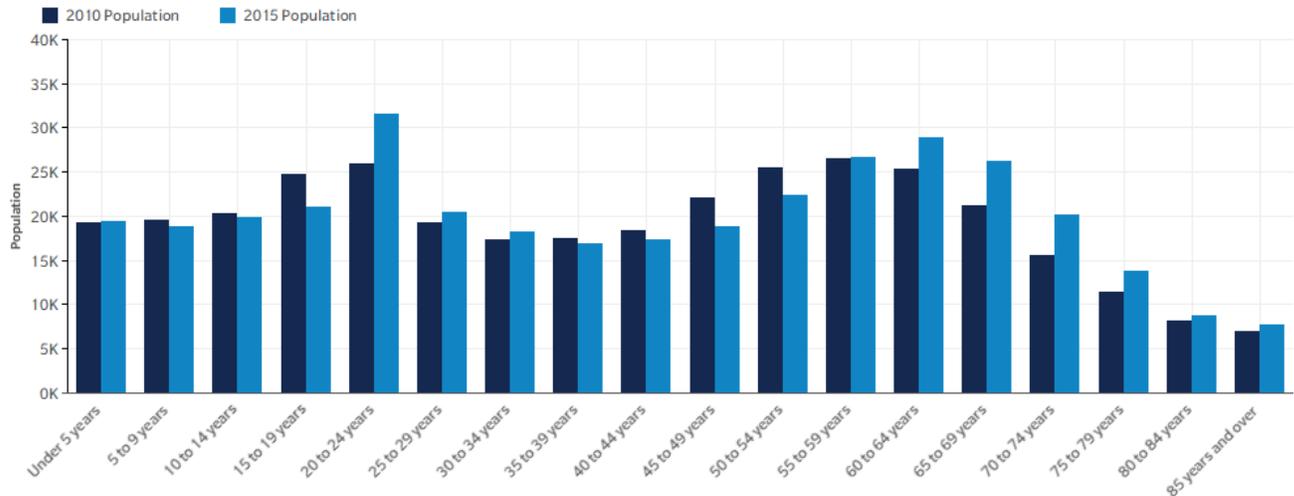
**COCONINO COUNTY:**  
**TOTAL HEALTHCARE JOBS 4,838**  
**TOTAL GROWTH OVER 5 YEARS 503 JOBS**



County	County Name	2014 Avg. Hourly Earnings	2010 Jobs	2015 Jobs	2010 - 2015 Change	2010 - 2015 % Change	Annual Openings	2015 Location Quotient
4005	Coconino County, AZ	\$31.53	4,335	4,838	503	12%	240	0.90
4025	Yavapai County, AZ	\$29.37	4,981	5,612	631	13%	285	1.02
	Total	\$30.39	9,316	10,450	1,134	12%	525	

Between 2010 and 2015 in Yavapai County alone, there was a 22% increase in those ages 65-69, a 29% increase in ages 70-74, and a 20% increase in those 75-79 years of age. Table 1 itemizes both Yavapai and Coconino Counties by age group, signifying an increasing demand for healthcare services due to demographic aging.

**Table 1 Population in Yavapai & Coconino Counties by Age Cohort**



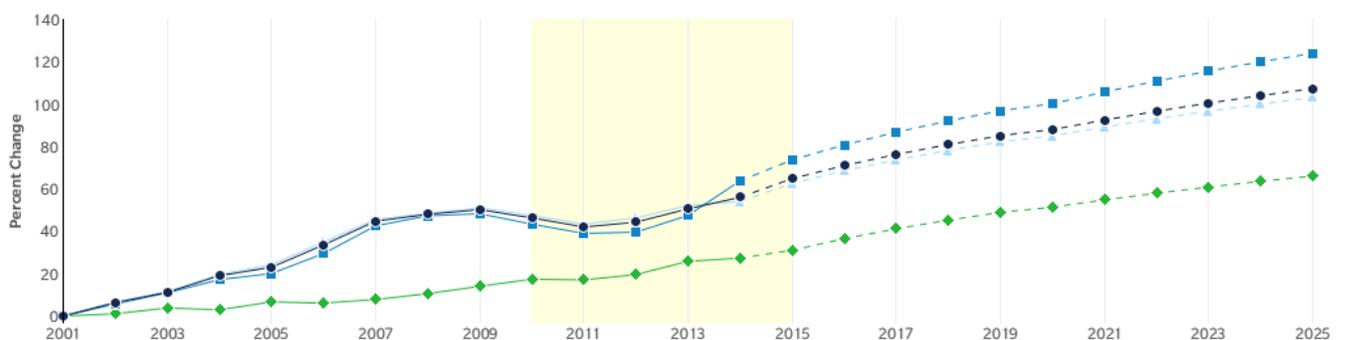
Age Cohort	2010 Population	2015 Population	Change	% Change	2010 % of Cohort
Under 5 years	19,323	19,390	67	0%	5.60%
5 to 9 years	19,597	18,819	-778	-4%	5.68%
10 to 14 years	20,273	19,922	-351	-2%	5.88%
15 to 19 years	24,714	21,024	-3,690	-15%	7.17%
20 to 24 years	25,968	31,607	5,639	22%	7.53%
25 to 29 years	19,330	20,383	1,053	5%	5.60%
30 to 34 years	17,286	18,295	1,009	6%	5.01%
35 to 39 years	17,411	16,921	-490	-3%	5.05%
40 to 44 years	18,298	17,380	-918	-5%	5.31%
45 to 49 years	22,114	18,854	-3,260	-15%	6.41%
50 to 54 years	25,456	22,361	-3,095	-12%	7.38%
55 to 59 years	26,526	26,602	76	0%	7.69%
60 to 64 years	25,289	28,924	3,635	14%	7.33%

Age Cohort	2010 Population	2015 Population	Change	% Change	2010 % of Cohort
65 to 69 years	21,178	26,229	5,051	24%	6.14%
70 to 74 years	15,615	20,169	4,554	29%	4.53%
75 to 79 years	11,388	13,749	2,361	21%	3.30%
80 to 84 years	8,115	8,751	636	8%	2.35%
85 years and over	7,035	7,778	743	11%	2.04%
Total	344,917	357,158	12,241	4%	100.00%

Given the unique character of the east and west sides of Yavapai County (Verde Valley and Quad City respectively) and Coconino County, understanding the flow of jobs among the areas may assist in identifying where growth is occurring at a faster rate than the region as a whole. The regional trends in Table 2 highlight the growth in the Greater Verde Valley over the past five years as the top location for new jobs in the healthcare sector.

Over the past five years, employment in the 66 occupation categories listed in Table 3 have experienced a 12.7% and 11.6% increase in Yavapai and Coconino Counties respectively. Since 2013, the eastern part of Yavapai County, known as the Greater Verde Valley, has seen a 17.8% increase in employment across these occupations.

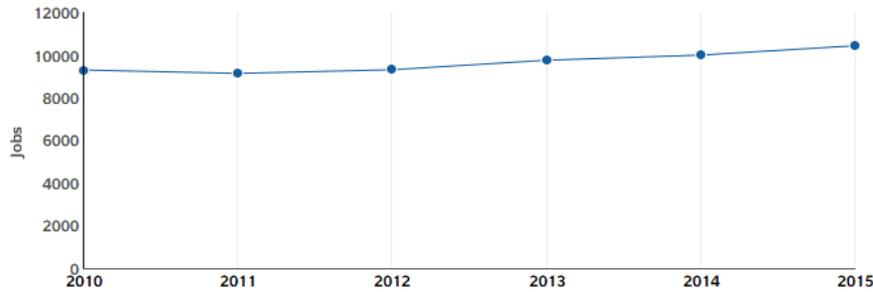
**Table 2 Regional Trends**



Region	2010 Jobs	2015 Jobs	Change	% Change
● Yavapai County	4,981	5,612	631	12.7%
● Greater Verde Valley	1,237	1,499	262	21.2%
● QuadCityArea	3,662	4,038	376	10.3%
● Coconino County, AZ	4,335	4,838	503	11.6%

**Table 3 Occupation Specific Growth in Yavapai & Coconino Counties**

9,316	10,450	1,135	12.2%
2010 Jobs	2015 Jobs	Change (2010-2015)	% Change (2010-2015)



Occupation	2010 Jobs	2015 Jobs	Change	% Change
Medical and Health Services Managers (11-9111)	296	336	40	14%
Emergency Management Directors (11-9161)	9	10	1	11%
Dietitians and Nutritionists (29-1031)	60	71	11	18%
Pharmacists (29-1051)	212	238	26	12%
Anesthesiologists (29-1061)	63	65	2	3%
Family and General Practitioners (29-1062)	193	193	0	0%
Internists, General (29-1063)	21	22	1	5%
Obstetricians and Gynecologists (29-1064)	10	11	1	10%
Pediatricians, General (29-1065)	39	40	1	3%
Psychiatrists (29-1066)	25	32	7	28%
Surgeons (29-1067)	24	26	2	8%

<b>Occupation</b>	<b>2010 Jobs</b>	<b>2015 Jobs</b>	<b>Change</b>	<b>% Change</b>
Physicians and Surgeons, All Other (29-1069)	271	279	8	3%
Physician Assistants (29-1071)	81	88	7	9%
Occupational Therapists (29-1122)	76	90	14	18%
Physical Therapists (29-1123)	182	222	40	22%
Radiation Therapists (29-1124)	15	16	1	7%
Recreational Therapists (29-1125)	7	6	-1	-14%
Respiratory Therapists (29-1126)	112	127	15	13%
Speech-Language Pathologists (29-1127)	116	122	6	5%
Exercise Physiologists (29-1128)	9	11	2	22%
Therapists, All Other (29-1129)	29	36	7	24%
Registered Nurses (29-1141)	2,186	2,410	224	10%
Nurse Anesthetists (29-1151)	14	14	0	0%
Nurse Practitioners (29-1171)	113	129	16	14%
Health Diagnosing and Treating Practitioners, All Other (29-1199)	39	39	0	0%
Medical and Clinical Laboratory Technologists (29-2011)	156	166	10	6%
Medical and Clinical Laboratory Technicians (29-2012)	136	171	35	26%

<b>Occupation</b>	<b>2010 Jobs</b>	<b>2015 Jobs</b>	<b>Change</b>	<b>% Change</b>
Cardiovascular Technologists and Technicians (29-2031)	31	35	4	13%
Diagnostic Medical Sonographers (29-2032)	52	62	10	19%
Nuclear Medicine Technologists (29-2033)	16	17	1	6%
Radiologic Technologists (29-2034)	165	172	7	4%
Magnetic Resonance Imaging Technologists (29-2035)	49	57	8	16%
Emergency Medical Technicians and Paramedics (29-2041)	453	526	73	16%
Dietetic Technicians (29-2051)	38	50	12	32%
Pharmacy Technicians (29-2052)	260	298	38	15%
Psychiatric Technicians (29-2053)	18	20	2	11%
Respiratory Therapy Technicians (29-2054)	16	18	2	13%
Surgical Technologists (29-2055)	69	78	9	13%
Veterinary Technologists and Technicians (29-2056)	128	164	36	28%
Ophthalmic Medical Technicians (29-2057)	21	22	1	5%
Licensed Practical and Licensed Vocational Nurses (29-2061)	242	266	24	10%

<b>Occupation</b>	<b>2010 Jobs</b>	<b>2015 Jobs</b>	<b>Change</b>	<b>% Change</b>
Medical Records and Health Information Technicians (29-2032071)		237	34	17%
Orthotists and Prosthetists (29-2091)	14	18	4	29%
Hearing Aid Specialists (29-2092)	15	19	4	27%
Health Technologists and Technicians, All Other (29-2099)	130	143	13	10%
Occupational Health and Safety Specialists (29-9011)	70	77	7	10%
Occupational Health and Safety Technicians (29-9012)	7	9	2	29%
Athletic Trainers (29-9091)	17	19	2	12%
Genetic Counselors (29-9092)	2	2	0	0%
Healthcare Practitioners and Technical Workers, All Other (29-9099)	27	29	2	7%
Home Health Aides (31-1011)	466	444	-22	-5%
Psychiatric Aides (31-1013)	11	9	-2	-18%
Nursing Assistants (31-1014)	857	1,124	267	31%
Orderlies (31-1015)	30	35	5	17%
Occupational Therapy Assistants (31-2011)	12	15	3	25%
Occupational Therapy Aides (31-2012)	3	3	0	0%
Physical Therapist Assistants (31-2021)	37	45	8	22%

<b>Occupation</b>	<b>2010 Jobs</b>	<b>2015 Jobs</b>	<b>Change</b>	<b>% Change</b>
Physical Therapist Aides (31-2022)	66	81	15	23%
Dental Assistants (31-9091)	360	377	17	5%
Medical Assistants (31-9092)	605	633	28	5%
Medical Equipment Preparers (31-9093)	50	59	9	18%
Medical Transcriptionists (31-9094)	54	60	6	11%
Pharmacy Aides (31-9095)	10	10	0	0%
Veterinary Assistants and Laboratory Animal Caretakers (31-9096)	69	89	20	29%
Phlebotomists (31-9097)	71	77	6	8%
Healthcare Support Workers, All Other (31-9099)	81	81	0	0%

In preparation for future needs, the age breakdown for employees in the primary occupations in the healthcare field is a relevant factor. As of 2015, 23.4% of employees in the occupations listed are above the age of 55, signaling the need to prepare a labor force to enter middle and higher skilled professions. There is good traction with 24-44 year olds in the field, though the increasing age demographics of populations in the study area identify the need for a continuous pipeline of students into the field.

**Table 4 Occupation Age Breakdown**



	Age	2015 Jobs	2015 Percent
●	14-18	43	0.4%
●	19-24	766	7.3% ■
●	25-34	2,424	23.2% ■■
●	35-44	2,310	22.1% ■■
●	45-54	2,468	23.6% ■■
●	55-64	1,961	18.8% ■■
●	65+	479	4.6% ■

The medical industry is moving closer towards a home-based healthcare model given the increasing costs associated with acute care treatment and recidivism into hospital emergency rooms. Acute care and long-term care represent two ends of the spectrum in the continuum of care. Acute care is medical care designed to treat and/or cure an acute condition, for example, a heart attack or stroke. Treatment is usually provided by a doctor in a hospital. Long-term care, on the other hand, includes skilled, therapeutic and personal care services and supports that may be needed by a person whose physical and/or mental condition limits their ability to function independently. As such, there is a

big difference between acute care and long-term care in terms of who receives care, where and by whom the care is provided, the care need, the goal of care and how care is paid for. This shift in services has increased the demand for Home Health Aids, including caregivers and non-medical home aids, and Physical Therapists. Although the quantity of jobs decreased by 20 in the study area over the past five years, demand in the Verde Valley increased by 10 jobs, justifying the need for short-term training in these fields in the Verde communities.

Variable	Acute Care	Long-term Care
Demographic	Anyone	Primarily the elderly and those with disabilities
Provider	Hospitals, out-patient clinics, physician offices, physicians, nurse practitioners	Skilled nursing homes, assisted living facilities, group homes, home care, nurses, therapists, paraprofessionals
Care Need	Acute conditions, infections, diseases, accidents	Functional limitations due to chronic conditions, recovery process or permanent disability
Goal of Care	Treatment and cure	Functional improvement through therapy and/or ongoing assistance with functional limitations to achieve the highest quality of life possible
Payer	Medical insurance, Medicare, Medicaid, the Veterans Administration	Private pay, Medicare, Medicaid, long-term care insurance, Veterans Administration, Veteran's benefits and pensions, some employer-provided medical insurance

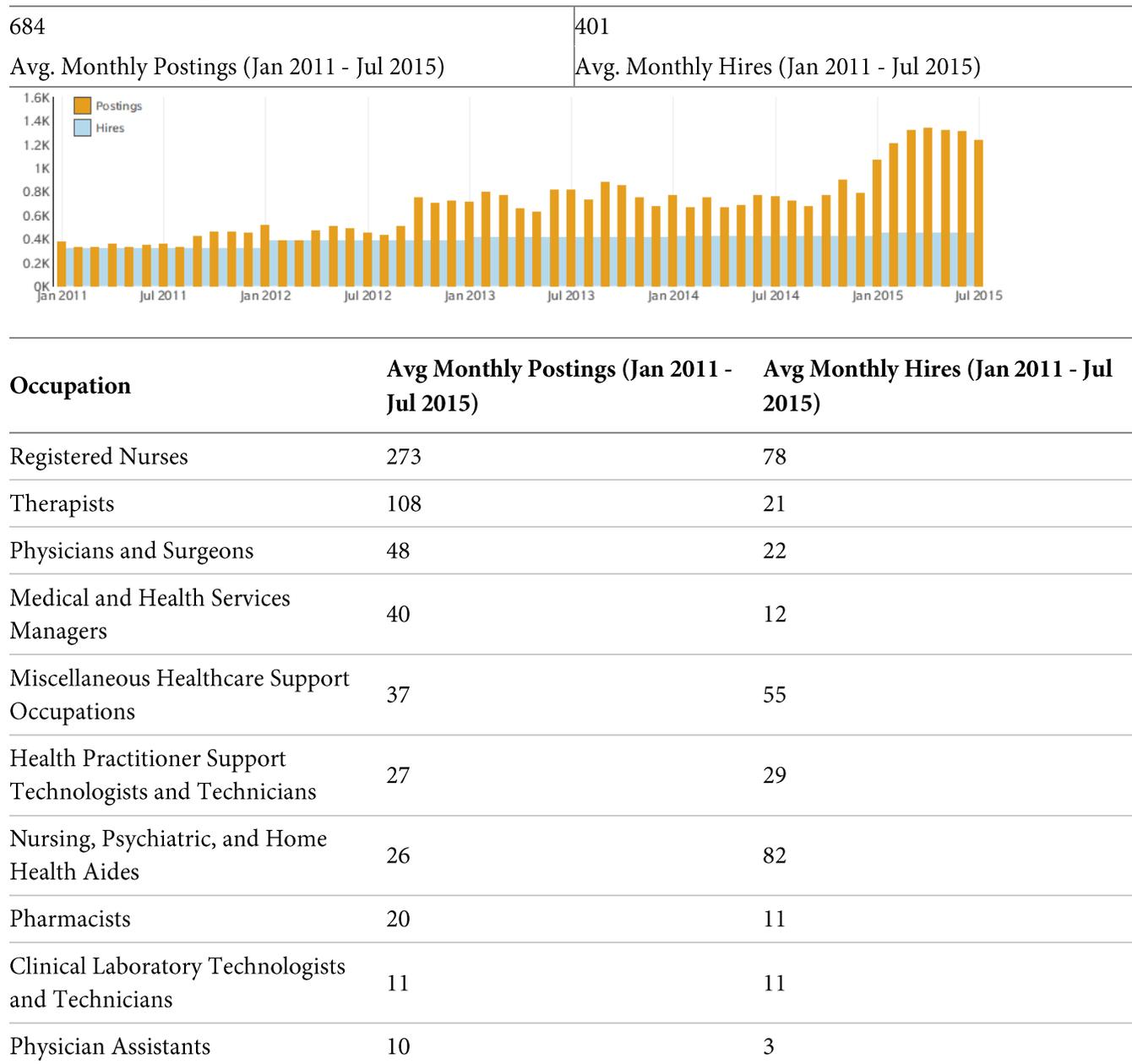
Source: Elder Care Sources, LLC

**Table 5 Top Industries Employing 66 Primary Occupations**

Industry	Occupation Group Jobs in Industry (2015)	% of Occupation Group in Industry (2015)	% of Total Jobs in Industry (2015)
General Medical and Surgical Hospitals	3,504	33.5%	62.9%
Offices of Physicians (except Mental Health Specialists)	1,174	11.2%	53.3%
Nursing Care Facilities (Skilled Nursing Facilities)	1,048	10.0%	62.7%
Federal Government, Civilian, Excluding Postal Service	406	3.9%	11.1%
Home Health Care Services	402	3.8%	44.8%

Current labor market information garnered through available job posting and hiring data shows that actual “postings” of jobs has increased substantially since 2013, though hires have remained at a steady pace. Employers identified the increase in postings as a result of high turnover due to improvement in the overall economy and workers having a greater choice for opportunity. To combat the competitive nature of the industry, employers are keeping postings up for frequently open or for “hard-to-recruit” positions.

**Table 6 Postings vs. Hires**



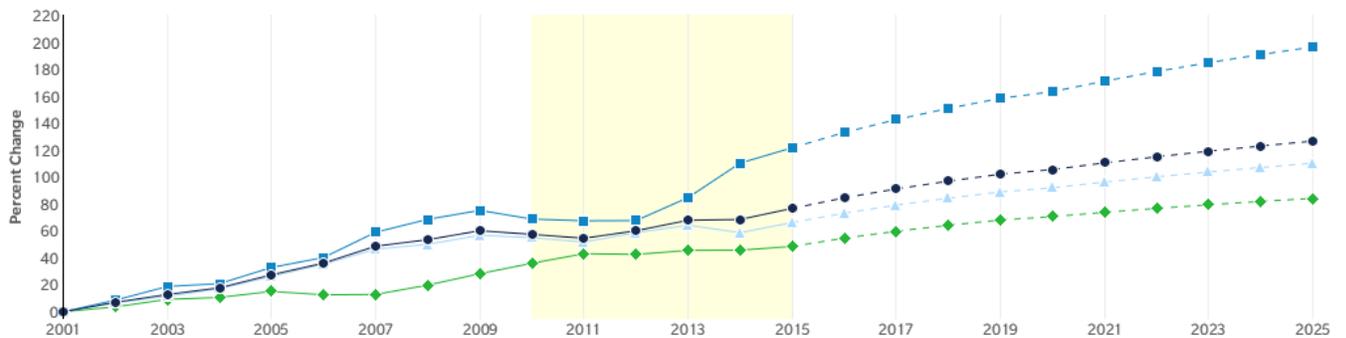
<b>Occupation</b>	<b>Avg Monthly Postings (Jan 2011 - Jul 2015)</b>	<b>Avg Monthly Hires (Jan 2011 - Jul 2015)</b>
Occupational Therapy Assistants and Aides	10	1
Physical Therapist Assistants and Aides	10	5
Licensed Practical and Licensed Vocational Nurses	10	13
Nurse Practitioners	10	5
Diagnostic Related Technologists and Technicians	10	10
Medical Records and Health Information Technicians	9	9
Occupational Health and Safety Specialists and Technicians	7	3
Miscellaneous Health Technologists and Technicians	7	6
Emergency Medical Technicians and Paramedics	6	20
Dietitians and Nutritionists	4	3
Emergency Management Directors	1	0
Miscellaneous Health Practitioners and Technical Workers	0	2
Miscellaneous Health Diagnosing and Treating Practitioners	0	1
Nurse Anesthetists	0	0

Industry needs for the healthcare sector expand beyond traditional healthcare occupations to include administrative support and computer and information systems analysts, technicians, managers, and environmental and nutrition services. Analyzing the growth of industry sub-sectors, or the supportive infrastructure for healthcare, can help identify those outlying occupations that have a high potential for growth.

## Industry Summary for Healthcare Yavapai & Coconino Counties

<b>13,572</b>	<b>10.8%</b>	<b>\$59,342</b>
<b>Jobs (2015)</b>	<b>% Change (2010-2015)</b>	<b>Avg. Earnings Per Job (2015)</b>
2% below National average	Nation: 12.4%	Nation: \$64,195

**Table 7 Regional Trends in Healthcare Industry Subsectors Over 5 Years**



Region	2010 Jobs	2015 Jobs	Change	% Change
● Yavapai County	6,247	7,012	765	12.2%
● Greater Verde Valley	1,342	1,762	420	31.3%
● QuadCityArea	4,861	5,211	350	7.2%
● Coconino County, AZ	6,008	6,560	552	9.2%

**Table 8 Primary Healthcare Industry Subsectors**

Code	Description
524114	Direct Health and Medical Insurance Carriers
541380	Testing Laboratories

<b>Code</b>	<b>Description</b>
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)
621111	Offices of Physicians (except Mental Health Specialists)
621491	HMO Medical Centers
621493	Freestanding Ambulatory Surgical and Emergency Centers
621511	Medical Laboratories
621610	Home Health Care Services
621910	Ambulance Services
622110	General Medical and Surgical Hospitals
622310	Specialty (except Psychiatric and Substance Abuse) Hospitals
623110	Nursing Care Facilities (Skilled Nursing Facilities)
623311	Continuing Care Retirement Communities
623312	Assisted Living Facilities for the Elderly
623990	Other Residential Care Facilities
624120	Services for the Elderly and Persons with Disabilities
624210	Community Food Services
902622	Hospitals (State Government)
903622	Hospitals (Local Government)

**Table 9 Top Occupations Employed by Healthcare Industry Subsectors**

<b>Description</b>	<b>Employed in Industry Group (2015)</b>	<b>% of Total Jobs in Industry Group (2015)</b>
Registered Nurses	1,990	14.7%
Personal Care Aides	1,524	11.2%
Nursing Assistants	999	7.4%
Medical Secretaries	900	6.6%
Medical Assistants	491	3.6%

In Yavapai County, the top ten occupations by quantity of jobs span retail, food preparation and service, maintenance and cleaning, health diagnosis and treatment practitioners, administrative support, and other personal care service workers. Of these top ten occupations, health diagnosing and treating practitioners lead the pack as the highest paid professions in Yavapai County at \$48.61 per hour. These positions along with personal care occupations also topped the list for greatest increase in jobs based on past trends, with a 3% increase in total jobs expected by 2016.

**Table 10 Largest Occupations by Job Count & Wages**



Occupation	2015 Jobs	2016 Jobs	Change in Jobs (2015-2016)	% Change	2014 Median Hourly Earnings
Retail Sales Workers	5,217	5,291	74	1%	\$9.97
Construction Trades Workers	3,337	3,106	-231	-7%	\$16.61
Food and Beverage Serving Workers	3,179	3,257	78	2%	\$8.92
Information and Record Clerks	2,520	2,531	11	0%	\$13.29
Building Cleaning and Pest Control Workers	2,435	2,441	6	0%	\$9.97
Health Diagnosing and Treating Practitioners	2,383	2,456	73	3%	\$48.61
Secretaries and Administrative Assistants	2,239	2,249	11	0%	\$15.43
Motor Vehicle Operators	2,098	2,109	11	1%	\$14.44

Occupation	2015 Jobs	2016 Jobs	Change in Jobs (2015-2016)	% Change	2014 Median Hourly Earnings
Cooks and Food Preparation Workers	1,876	1,916	41	2%	\$10.08
Other Personal Care and Service	1,760	1,805	45	3%	\$9.75

The overview of top occupations in Yavapai County by 2 digit federal Standard Occupational Classification codes identifies healthcare practitioners and technical occupations in the field to be the best return on average hourly earnings at \$39.27 and the greatest quantity of jobs in the region with a total of 3,942 expected by 2016. Management occupations, professional, technical and scientific occupations, education, social service, maintenance and production occupations, agriculture, and retail sales and food service fill out the remaining top occupations by wage and quantity of jobs for the county. Health support occupations also fair well with a \$14.24 average wage and the largest expected growth in jobs at 4% by 2016.



**Table 11 Top 23 Yavapai County Occupations by Jobs Count**

Description	2014 Avg. Hourly Earnings	2015 Jobs	2016 Jobs	2015 - 2016 Change	2015 - 2016 % Change	Annual Openings
Healthcare Practitioners and Technical Occupations	\$39.27	3,816	3,942	126	3%	210
Management Occupations	\$34.37	3,247	3,244	(3)	(0%)	99
Legal Occupations	\$30.30	395	395	0	0%	Insf. Data
Architecture and Engineering Occupations	\$29.15	585	579	(6)	(1%)	19
Life, Physical, and Social Science Occupations	\$26.75	488	495	7	1%	22
Computer and Mathematical Occupations	\$26.72	630	641	11	2%	23

Business and Financial Operations Occupations	\$25.71	1,968	1,978	10	1%	66
Protective Service Occupations	\$22.38	2,191	2,201	10	0%	78
Community and Social Service Occupations	\$20.86	1,505	1,549	44	3%	79
Education, Training, and Library Occupations	\$20.14	4,213	4,269	56	1%	145
Installation, Maintenance, and Repair Occupations	\$17.97	3,123	3,137	14	0%	105
Construction and Extraction Occupations	\$17.89	4,276	4,014	(262)	(6%)	76
Military occupations	\$16.52	483	483	0	0%	11
Arts, Design, Entertainment, Sports, and Media Occupations	\$16.33	1,434	1,442	8	1%	50
Production Occupations	\$16.09	2,885	2,942	57	2%	141
Office and Administrative Support Occupations	\$15.13	10,243	10,277	34	0%	294
Transportation and Material Moving Occupations	\$14.67	4,224	4,251	27	1%	142
Farming, Fishing, and Forestry Occupations	\$14.67	288	292	4	1%	13
Healthcare Support Occupations	\$14.24	2,154	2,240	86	4%	132
Sales and Related Occupations	\$13.70	8,310	8,379	69	1%	370
Building and Grounds Cleaning and Maintenance Occupations	\$10.84	3,673	3,682	9	0%	99
Personal Care and Service Occupations	\$10.51	3,056	3,121	65	2%	140
Food Preparation and Serving Related Occupations	\$10.50	6,832	6,979	147	2%	409

## Summary

Yavapai and Coconino counties display indisputable growth in the healthcare field over the past five years with expansion expected to continue into the future.

Employment in the sector affords a range of wage opportunities from the entry level home health aid to the middle-skilled technician, and further professional level occupations.

The largest growth in jobs over the past five years was seen in Nursing Assistants, Registered Nurses, EMT and paramedic, Medical and Health Service Managers, Physical Therapists, Medical and Clinical Laboratory Technicians, Pharmacy Technicians, and Medical Assistants respectively.

Managers and health advocates clearly articulated the need to move forward into a new era of healthcare that is holistic and inclusive of access to healthy foods, exercise, and preventative medicine. This initiative incorporates multiple industry sectors and additional occupations in the agricultural, fitness, transportation, and health fields.

Yavapai County in particular displays increasing demand for a variety of healthcare occupations which correspond to high wages that ripple through the economy, churning the economic engine and fulfilling the needs of the growing constituency to create a healthy community foundation. Continued programming and expansion of current educational services is a viable and sustainable strategy economically and socially, serving the needs of community members and increasing the economic vitality of the region.

## YAVAPAI COUNTY TOP IN-DEMAND OCCUPATIONS:

RETAIL & HOSPITALITY  
ADMINISTRATIVE & OFFICE WORKERS  
NURSING AND HOME HEALTH AIDS  
REGISTERED NURSES  
PERSONAL CARE AIDS  
GENERAL OPERATIONS MANAGERS  
MANUFACTURING & MAINTENANCE TECHNICIANS  
AUTOMOTIVE TECHNICIANS  
ACCOUNTING  
OFFICE SUPERVISORS  
MISCELLANEOUS HEALTHCARE SUPPORT OCCUPTIONS



# Special Thanks

Yavapai Regional Medical Center  
Northern Arizona Healthcare  
VA Hospital

Yavapai County Healthcare Department  
Community Health Improvement Partners  
Yavapai County Food Plan Team  
Yavapai College Allied Health Faculty

## Appendix A Parameters

### Regions

Code Description

4005 Coconino County, AZ

4025 Yavapai County, AZ

### Timeframe

2010 - 2015

### Datarun

2015.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed

## Appendix B Sources

### Occupation Data

EMSI occupation employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level EMSI earnings by industry.

### Location Quotient

Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique in comparison to the national average.

### Job Postings Data

In partnership with EMSI's parent company CareerBuilder and other third party aggregators, EMSI collects its job postings data by scraping approximately 30,000 websites. EMSI then cleans the data and applies a two-step deduplication process to present an estimate of total unique postings. Normalization of data fields is performed using machine-learning technologies, which leverage not just job postings data but also CareerBuilder's extensive database of résumés and profiles.

### Hires Data

EMSI produces hires data using a proprietary methodology which incorporates data from the Quarterly Workforce indicators (QWI) and American Community Survey (ACS).

### Institution Data

The institution data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

### Completers Data

The completers data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

### Staffing Patterns Data

The staffing pattern data in this report are compiled from several sources using a specialized process. For QCEW and Non-QCEW Employees classes of worker, sources include Occupational Employment Statistics, the National Industry-Occupation Employment Matrix, and the American Community Survey. For the Self-Employed and Extended Proprietors classes of worker, the primary source is the American Community Survey, with a small amount of information from Occupational Employment Statistics.

### Industry Data

EMSI industry data have various sources depending on the class of worker. (1) For QCEW Employees, EMSI

primarily uses the QCEW (Quarterly Census of Employment and Wages), with supplemental estimates from County Business Patterns and Current Employment Statistics. (2) Non-QCEW employees data are based on a number of sources including QCEW, Current Employment Statistics, County Business Patterns, BEA State and Local Personal Income reports, the National Industry-Occupation Employment Matrix (NIOEM), the American Community Survey, and Railroad Retirement Board statistics. (3) Self-Employed and Extended Proprietor classes of worker data are primarily based on the American Community Survey, Nonemployer Statistics, and BEA State and Local Personal Income Reports. Projections for QCEW and Non-QCEW Employees are informed by NIOEM and long-term industry projections published by individual states.

## State Data Sources

This report uses state data from the following agencies: Arizona Department of Administration, Office of Employment and Population Statistics

**ARIZONA HEALTH FUTURES**  
*Policy Primers: a nonpartisan  
 guide to a better understanding  
 of key terms and issues in the  
 Arizona health policy landscape.*

# Health Workforce, Healthy Economy

**A Collaborative Project of St. Luke's Health Initiatives,  
 City of Phoenix, Phoenix Workforce Connection and the  
 Maricopa County Department of Public Health**

Arizona has wrestled with creating a highly paid workforce for decades. Even when the economy was strong and housing starts were rising, policymakers, educators, business leaders and engaged Arizonans sought ways to create jobs that would drive future economic growth.

The Great Recession heightened and sharpened the focus on developing high-paying jobs in growing sectors. Increasingly, policymakers and business leaders began focusing on the healthcare sector as a key area for potential economic growth.

While Arizona was slowly recovering from the severe economic downturn, substantial changes in healthcare were emerging. The restoration and expansion of Medicaid coverage and the implementation of the Patient Protection and Affordable Care Act meant that more people were likely to be insured, potentially increasing the demand for healthcare in the future. Simultaneously, changes in healthcare delivery were becoming apparent (such as increased emphasis on primary care and integrated care) that have the potential to shift future health professional and training needs. These changes, coupled with a long-standing concern about access to care in rural areas and increased demand for healthcare due to an aging population, resulted in heightened emphasis on access to care, including how to address existing and future healthcare workforce needs.

# What is the Linchpin Holding Together the Dual Challenges of Economic Development and Access to Care?

## Workforce.

Growing, training and retaining needed healthcare workers are promising strategies for stimulating and stabilizing economic development. Identifying needed healthcare workers – both in terms of types of needed health professionals and gaps in the geographic distribution of health professionals – is an important precursor to developing strategies to effectively meet our state’s future workforce and economic development needs.

This report is an important first step to identifying those needs. It provides a glimpse of what we know – and do not know – about existing gaps in our healthcare workforce. Gathering data from a variety of sources, this report provides information on the number of health professionals in a variety of areas, including ratios of various health professionals to the population at large. Regional and geographic data is included where available.

In many instances, more information will be needed to further refine our understanding of our state’s health workforce needs. Additional data collection may be required. We may also need to refine our understanding of how future healthcare workforce needs may be different than the demands that exist today. Finally, states and localities may have to identify and refine strategies to address our workforce needs. This may include: 1) ensuring that an adequate number of training opportunities exist for needed health professionals; 2) incentivizing health professionals to practice in underserved communities or professions; and 3) leveraging funding to address shortage areas.

This report aims to advance our understanding of our state’s health workforce needs. By doing so, we hope that Arizonans recognize the unique opportunity to simultaneously improve access to healthcare while growing high-paying jobs in the process.

### Methodology and Report Limitations

Attempting to define and count the entire healthcare workforce can be daunting. The healthcare workforce is broad in scope. It includes much more than doctors, nurses and dentists. For the purposes of this report, we loosely define healthcare workers as those who are licensed or certified to provide health or allied health services. There are many Arizonans employed among these various health professions. However, information on those professionals is extremely limited. Appendix I provides the best data available on a broad section of healthcare professionals in Arizona.

This assessment specifically provides data on licensed professions. Even when looking at licensed individuals, there are no clear, undisputed figures on the number of health professionals by specialty. Additionally, challenges in collecting data are numerous, including:

- renewal cycles that can impact real-time data collection;
- licensing reciprocity with other states;
- professionals holding active licenses in more than one state;
- data not reflecting Full-Time Equivalent (FTE) information for professionals; and
- inability to identify licensees who provide direct patient care.

*(There is) a unique opportunity to simultaneously improve access to healthcare while growing high paying jobs in the process.*

However, a number of surveys, assessments and reporting have been completed that provide insight and obtainable data on Arizona’s healthcare workforce. This summary pulls together those figures to provide the best available information. It is organized by profession. Recognizing that there is often conflicting data, all information is sourced. When data permits, information is also presented to highlight workforce in both rural and urban settings statewide. Data indicating shortages can potentially identify a need to explore increasing the workforce, or even to redistribute the existing workforce.

When available, the most recent administrative data on licensees is also provided with a focus on licensees practicing in the state. However, there is one critical caveat that must be kept in mind when reviewing licensing data. An active license does not necessarily mean that the licensee is practicing directly in healthcare delivery or even practicing at all. As with all data presented, it is designed to provide a best available estimate of different specialties.

Bureau of Labor Statistics (BLS) data is also presented. This data measures employed personnel by surveying establishments covered by employment insurance. As a result, licensing data can, and often does, conflict with BLS data. Both are presented to ensure a more complete picture.

When available, national provider-to-population ratios are presented to give national context. However, as with any national comparison, it does not tell the entire story in that it cannot account for the nuances and differences among states in delivery systems and population health needs.

Finally, it is also important to highlight that this summary does not, and cannot, encompass all of the work currently being done by stakeholders, and specifically the state universities, around healthcare workforce and access.

We look at this report as an important first step to understanding Arizona’s health workforce needs.



# Overview of Arizona's Health Workforce Needs

In 2004, the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), declared Arizona's healthcare workforce 49th among states in per capita employment.<sup>1</sup> While a majority of states report shortages, there are unique Arizona characteristics that individualize and heighten the challenge of recruiting and retaining a robust healthcare workforce.

## Arizona's Unique Circumstances

Who we are as a state – our erratic spurts of growth and unique population characteristics – creates particular challenges for recruiting and retaining an adequate healthcare workforce.

Arizona's population growth has been substantial over the years. While the explosive expansion of just a few years ago is no longer a given, the U.S. Census reports that Arizona's population increased at a rate of 3.7 percent between April 2010 and July 2013.<sup>2</sup> Population projections estimate the state's total population will increase by 2.3 million by 2030.<sup>3</sup> That population includes a significant and growing proportion of older adults. With an estimated 15.4 percent of Arizonans 65 years or older (higher than the national average<sup>4</sup>), the unique healthcare challenges of a "graying" population are acute.

The impact of aging Baby Boomers is not only a concern for such patients, but also for healthcare professionals. One assessment estimated that 51 percent of Arizona's practicing physicians are 50 years or older.<sup>5</sup> As with many healthcare challenges, this potentially could have a much greater impact in rural communities because a larger proportion of this group practices in Arizona's rural counties.<sup>6</sup>

Arizona's geography and population distribution also create challenges. While most Arizonans live in urban areas, more than half of Arizona's geography is designated by the federal government as frontier or remote. Statewide, there are 56.3 persons per square mile, compared with a national average of 87.4.<sup>7</sup> Two counties – Maricopa and Pima – are home to large urban areas and have the greatest concentration of both population and healthcare professionals. Rural counties tend to be older, less healthy and poorer.<sup>8</sup>

Arizona is also home to a large American Indian population, which has higher incidences of diabetes, heart disease and obesity.<sup>9</sup> Finally, Arizona shares a border with Mexico, and border communities have some of the "highest rates of poverty, unemployment, uninsured people, and lack of access to health care in the nation."<sup>10</sup>

## National and State Challenges

In addition to demographic challenges, expansion of health coverage is likely to result in increased demand for healthcare services, potentially straining already existing workforce shortages. While it is unclear what specific effect the Patient Protection and Affordable Care Act will have on Arizona's healthcare system, recent history suggests it may result in increased demand for healthcare. Massachusetts, which implemented expanded statewide healthcare coverage in 2006, experienced a 31 percent increase in patient care at community health centers in the years following implementation (specifically calendar years 2005 to 2009).<sup>11</sup> As more Arizonans gain access to covered medical care, it stands to reason the demands on the professionals who provide that care will continue to increase. Further, as more individuals become covered, it may mean that different professionals are needed to deliver that care.

*According to the Arizona Department of Health Services, Arizona needs a total of 442 primary care professionals, 441 dentists and 204 psychiatrists to eliminate Health Shortage Area designations.*

In Arizona, the restoration and expansion of Medicaid also plays into both supply and demand concerns for healthcare. As with the Patient Protection and Affordable Care Act, it is likely that there will be more Arizonans who will seek care from healthcare professionals as coverage increases.

Adding to these challenges, many regions of our state are defined as Medically Underserved Areas (AzMUAs) or Health Professional Shortage Areas (HPSAs).

A region is deemed medically underserved based on criteria such as the availability of services based on the population to primary care ratio; the area's geographic accessibility to health-care services; and the percentage of the area's population that is at or below a designated federal poverty level.<sup>12</sup> Looking at the designation of medically underserved areas in Arizona (see Appendix II), the extent of the problem is clear: AzMUAs encompass most of Arizona's geographic area, including the entirety of Apache, Cochise, Graham, Greenlee, La Paz, Navajo and Yuma counties. There are also AzMUAs in every county, including in the urban area of Maricopa County.

Of particular concern as the state population grows is access to primary care. As with the AzMUA designation, much of the state is currently designated as a Primary Care Health Professional Shortage Area (see Appendix III). "Primary Care HPSA designations refer to a shortage of non-federal doctors of allopathic or osteopathic medicine providing direct care in the fields of family practice, general practice, pediatrics, internal medicine (outpatient based) and obstetrics gynecology."<sup>13</sup> Further, "Primary medical care professionals in contiguous areas are over-utilized, excessively distant, or inaccessible to the population of the area under consideration."<sup>14</sup> The Primary Care HPSA designation utilizes the population-to-primary care physician ratio. To be designated as a HPSA, the ratio must be at least 3,500:1 for a determined geographic designation; 3,000:1 for a geographic designation with unusually high needs such as a poverty rate of 20 percent or greater; or 3,000:1 for a determined population group designation.<sup>15</sup> All of Apache, Cochise, Graham, Greenlee, La Paz and Yuma counties are designated as Primary Care HPSAs. Additionally, large areas of Coconino, Gila, Mohave, Navajo and Pima counties are designated as Primary Care HPSAs. Just like the AzMUA designation, there are also urban areas of Maricopa County that are defined as Primary Care HPSAs. According to the Arizona Department of Health Services, "As of June, 2014, there are a total of 418 federally designated Health Professional Shortage Areas (HPSAs). Arizona needs a total of 1,087 full-time providers to practice in underserved areas (442 primary care, 441 dentists, and 204 psychiatrists) to eliminate these designations."<sup>16</sup>

*Arizona needs a total of 1,087 full-time primary care and other providers to practice in underserved areas.*

Source: Arizona Department of Health Services, as of June 2014.



## A Closer Look at Workforce Needs

To better understand specific workforce shortages by profession and geographic area, existing information from a variety of published sources was analyzed. Below you will find a summary of what we know (and by inference, what we don't know) about workforce needs among various health professions.

### Pharmacists and Pharmacy Technicians

Data indicates the number of Arizona pharmacists is increasing. However, with the state's growing population – and specifically the growing, aging population – there is still concern that the number of licensed pharmacists will not be enough to meet demand.

As each section will demonstrate, when comparing workforce data, depending on the source or point-in-time measured, statistics can vary. However, the most recent data available provides:

- Pharmacy is the third-largest health profession in the U.S.<sup>17</sup>
- Per the Bureau of Labor Statistics (BLS), which bases its estimates on surveying establishments covered by unemployment insurance, in 2012, Arizona had 5,260 pharmacists and 6,740 pharmacy technicians.<sup>18</sup>
- Per the Arizona State Board of Pharmacy, in 2011, there were 6,131 active, licensed pharmacists in Arizona, an increase of 11 percent from 2008; there also were 9,345 active, licensed pharmacy technicians in Arizona, an increase of 29 percent from 2008.<sup>19</sup>



#### Active, Licensed Pharmacists per 100,000, by County

COUNTY	2010 RATIO
Apache	18.1
Cochise	35.7
Coconino	80.2
Gila	59.7
Graham	64.7
Greenlee	0.0
La Paz	14.7
Maricopa	105.8
Mohave	60.9
Navajo	43.7
Pima	110.8
Pinal	38.6
Santa Cruz	29.5
Yavapai	73.9
Yuma	40.7

Source: Tabor, J. and H.J. Eng, 2012. *Arizona Rural Health Workforce Trend Analysis 2007-2010*. Arizona Area Health Education Centers and Center for Rural Health, the University of Arizona. Tucson, Arizona. pp138.

While there are healthcare specialties seeing stagnation or loss, pharmacy is one specialty where growth is anticipated. One estimate projected a 23 percent growth in pharmacist positions between 2010 and 2020 with 240 anticipated annual openings in Arizona.<sup>20</sup> An April 2009 report from the Center for Health Information & Research at Arizona State University cited U.S. Census data from 2006 that anticipated growth in the number of pharmacists in the 10 years between 2006 and 2016.<sup>21</sup> However, even with this continued growth, a shortage was still considered possible.<sup>22</sup> Driving this concern was the issue of “the growing and aging population, growth in prescription medication use, and (the) evolving role of pharmacists with more responsibility on disease medication management and patient counseling.”<sup>23</sup>

#### Data by County: Pharmacists

The most recent figures available to examine the pharmacy workforce by county are from a study using 2010 data. At that time, it was determined there were 5,933 active Arizona licensed pharmacists and 8,679 pharmacy technicians.<sup>24</sup>

Examining professionals-to-population ratios, the report found that in 2010, the statewide ratio of pharmacists per 100,000 population was 93.0, up from 86.0 in 2007. In that same timeframe, La Paz County had the largest percentage increase (from 4.8 to 14.7) and Pinal County saw the largest percentage decrease from (47 to 39).<sup>25</sup>

# Greenlee County had no practicing pharmacists from 2007 through 2010.

Source: Tabor, J. and H.J. Eng, 2012. *Arizona Rural Health Workforce Trend Analysis 2007-2010*. Arizona Area Health Education Centers and Center for Rural Health, the University of Arizona. Tucson, Arizona. pp138.

National comparative data are limited, however, the national ratio in 2008 was reported as 79.5 per 100,000, which compared to an Arizona ratio of 79.4.<sup>26</sup>

This statewide assessment also determined that in 2010, 93.4 percent of pharmacists and 91 percent of pharmacy technicians were located in urban areas. Inequalities between counties were most pronounced when comparing Pima County, with 111 pharmacists per 100,000 population to Greenlee County, who had no practicing pharmacists from 2007 through 2010.<sup>27</sup>

Additionally, 2008 survey data indicated the state's pharmacy workforce is younger, with a plurality of respondents aged 30 to 40.<sup>28</sup> A 2009 report surveyed pharmacists and pharmacy technicians in Maricopa County and also found pharmacists in the county tended to be younger – with 54 percent 44 years or younger.<sup>29</sup>

## Data by County: Pharmacy Technicians

The statewide ratio for pharmacy technicians per 100,000 increased from 112 in 2007 to 135 in 2010. Additionally, all counties saw an increase in the ratio for technicians in that timeframe. Greenlee County had the smallest ratio in 2010 at 23.9 and Maricopa had the largest at 155.1.<sup>30</sup>

## Framing the Data

Trying to frame these workforce numbers can be difficult. However, a 2009 report examining 2008 license renewal data stated, “The ratio of pharmacist to population in Arizona is higher than the national average and the predicted trend is for it to remain so. The increase may not however, represent a sufficient increase to offset increase in demand for services associated with the rapid aging of Arizona's population.” This same assessment determined that the shortage of pharmacists was the most severe in rural areas.<sup>31</sup> Using 2008 data, this study determined the statewide ratio of pharmacists per 100,000 was 79.4 compared to a national average of 79.5.<sup>32</sup>

This is demonstrative of the difficulty in identifying consistent data. The ratio of pharmacists identified in this report using 2008 data was 79.4,<sup>33</sup> lower than the ratio of 86 pharmacists in 2007 from the 2010 workforce study.<sup>34</sup>

Projection data available published in 2009 estimated:

- Arizona's ratio of pharmacists to residents will continue to be higher than the national through 2020; however
- When projecting the ratio of active pharmacists per 100,000 population age 65 or older, we fall behind the national average.<sup>35</sup>

*The shortage of pharmacists was the most severe in rural areas.*

*In 2008, the statewide ratio of pharmacists per 100,000 was 79.4, compared to a national average of 79.5.*

Source: Johnson WG, Wilson BL, Edge M, Qiu Y, Oliver EL, Russell KM. (April 2009). *The Arizona health care workforce: nurses, pharmacists, & physician assistants*. (Prepared under contract with the Arizona Hospital and Healthcare Association.) Phoenix, AZ: Center for Health Information & Research, Arizona State University.

## Nurses and Certified Nursing Assistants

Perhaps the most robust and conflicting data surrounds nursing. Up until recently, there was substantial concern about both a national and state nursing shortage, however more recent data indicate it is possible Arizona now could be experiencing a nursing surplus.

Nursing professionals include registered nurses (RNs), licensed practical nurses (LPNs) and advance practice nurses (APNs). Nurses serve in a variety of settings and in certain instances provide primary care. According to the most recent data on nursing professionals:

- Per administrative licensing data, in 2013 there were 65,213 RNs with active licenses in Arizona; 9,838 active LPNs; and 4,253 active APNs. This is a total nursing workforce of 79,304, and a 17 percent increase in the total workforce between 2008 and 2013.<sup>36</sup>
- According to BLS 2012 survey data, there were 45,600 RNs, 6,440 LPNs and licensed vocational nurses, 1,900 nurse practitioners and 440 nurse anesthetists.<sup>37</sup>

### Active, Licensed RNs per 100,000, by County

COUNTY	2010 RATIO
Apache	384
Cochise	665
Coconino	1,116
Gila	713
Graham	808
Greenlee	383
La Paz	284
Maricopa	901
Mohave	737
Navajo	608
Pima	1,017
Pinal	670
Santa Cruz	293
Yavapai	991
Yuma	558

Source: Tabor, J. and H.J. Eng, 2012. *Arizona Rural Health Workforce Trend Analysis 2007-2010*. Arizona Area Health Education Centers and Center for Rural Health, the University of Arizona. Tucson, Arizona. pp138.

The Arizona State Board of Nursing (AZBN) tracks a variety of data on the nursing workforce to assess needs and opportunities. One item is nursing program enrollment, utilized to get a sense of the “pipeline” for nursing professionals. For calendar years 2007 through 2010, there was year-to-year growth in nursing enrollment for RNs and LPNs combined. Enrollment dipped slightly in 2011, but increased again in 2012 by 1.3 percent. Since 2010, total state-wide program enrollment has been at least 6,800 individuals.<sup>38</sup>

When examining the data more closely to compare RN to LPN enrollment, the AZBN found a slight increase in 2012 over 2011 in RN enrollments, which the Board described as “stagnant.” Meanwhile, there was a 22 percent decrease in LPN enrollments between 2011 and 2012.<sup>39</sup> A component of this was the significant decrease in LPN program admissions those two years, resulting in the lowest enrollment since 2004.<sup>40</sup>

### Data by County: RNs

The most recent nursing data available by county is from 2010. It is important to note that nurses can have more than one license type, so this analysis merged the data and the license which would most likely carry the highest wage was assigned to eliminate potential double-counting of licensees.<sup>41</sup>

In 2010 there were a total of 55,936 RNs with active Arizona licenses, 90 percent of whom were located in urban areas.<sup>42</sup> The total number of RNs increased by over 2,000 between 2007 and 2010, with 1,937 employed in urban areas.<sup>43</sup> The 2010 statewide RN to 100,000 population ratio was 872, a decrease from 874 in 2007.<sup>44</sup>

For the RN workforce, much of the research material provided focused on a desired RN to 100,000 population ratio of 825. This national comparative does not provide guiding ratios by nursing specialization or license type such as LPN, nurse practitioner or certified nurse anesthetist. In one Arizona-specific assessment, it was estimated the goal of 825 per 100,000

population would be met by 2017.<sup>45</sup> This goal was then adopted by the Arizona Hospital and Healthcare Association.<sup>46</sup> Of note, once adopted, the national average ratio increased to 841.<sup>47</sup>

The study broke the state into four geographic classifications: urban, large rural town areas, small rural town areas and isolated rural town areas. Looking at the ratio of RNs to 100,000 population in 2010 by geographic classification showed:

- Urban: 922 RNs per 100,000
- Large rural town: 689 RNs per 100,000
- Small rural town: 570 RNs per 100,000
- Isolated small rural town: 377 RNs per 100,000<sup>48</sup>

These ratios demonstrate the additional challenge in recruiting and retaining healthcare professionals in rural areas, which encompass the vast geographic majority of Arizona.

Coconino County had the highest ratio per 100,000 with 1,116; La Paz County had the lowest at 284. Between 2007 and 2010, Pinal County experienced the largest decrease in RN-to-population ratio, while Greenlee County experienced the largest county increase in the ratio.<sup>49</sup>

### **Data by County: LPNs**

For licensed practical nurses in 2010, 88 percent of the 8,846 practiced in urban areas. From 2007 to 2010 the study found the number of LPNs decreased by 676 statewide. The ratio of LPNs per 100,000 population dropped between 2007 and 2010 to 138 from 154.<sup>50</sup> Further, La Paz was the only county that experienced an increase in their LPN-to-population ratio between 2007 and 2010.<sup>51</sup>

### **Data by County: APNs**

Advanced practice nurses are RNs with additional training and licensure and can practice in a variety of settings. One study using 2008 renewal cycle data estimated that 92.5 percent of APNs work in direct patient care.<sup>52</sup>

The 2010 assessment by county examined four specific APN license types: certified registered nurse anesthetists (CRNAs); nurse practitioners (NPs); certified nurse midwives (CNMs); and clinical nurse specialists (CNSs).

**Certified Registered Nurse Anesthetists:** In 2010, there were 310 CRNAs statewide with active Arizona licenses. This is an increase of 50 CRNAs statewide between 2007 and 2010. The study found 85.5 percent of CRNAs were in urban areas, and the largest increase in CRNAs between 2007 and 2010 was also in urban areas at 24.4 percent.<sup>53</sup> In 2010, the statewide ratio for CRNAs was 4.8 per 100,000.<sup>54</sup>

**Nurse Practitioners:** In 2013, there were 3,068 NPs in the state, with the majority in urban areas.<sup>55</sup> 2013 survey data also indicated that many NPs are approaching retirement, with about 31 percent of survey respondents stating they were over age 55.<sup>56</sup> Further, the 2013 assessment looked at NPs trained in the state and found “the yearly increase in Arizona NPs is only slightly due to the production and retention of Arizona-trained NPs. The steady annual increase in number of NPs licensed in Arizona is primarily from out-of-state recruitment.”<sup>57</sup> One potential reason for this could be that Arizona is one of only 18 states that allow NPs to practice without physician supervision.<sup>58</sup>

*Perhaps the most robust and conflicting data surrounds nursing. Up until recently, there was substantial concern about both a national and state nursing shortage. However, more recent data indicate it is possible Arizona now could be experiencing a nursing surplus.*

*It's not just the sheer volume of RNs that should be considered when determining if there is sufficient supply. It is also important to consider whether available nurses have the right level of training.*

2010 data, which examine NPs by county, found nurse practitioners outnumbered physician assistants by more than 1,000 licensed individuals for a total of 2,957 NPs – an important comparative since both professions are critical to providing primary care, especially in rural areas.<sup>59</sup> Between 2007 and 2010 the NP ratio rose from 37 to 46 per 100,000 statewide. Apache County saw the largest increase in its provider ratio.<sup>60</sup> This compares to a 2013 provider-to-population ratio of 30 per 100,000,<sup>61</sup> lower than the 2010 ratio, even though 2013 data indicates there were more NPs statewide than in 2010. A 2013 assessment found Arizona's NP ratio of 30 per 100,000 to be lower than the national average of 58.<sup>62</sup>

However, another assessment of 2008 renewal data on APNs and NPs determined the ratio of nurse practitioners to population was higher in Arizona than the nation, while all other APN specialty groups were below the national average.<sup>63</sup>

In 2013, there were five Arizona NP programs approved by the AZBN and accredited.<sup>64</sup>

**Certified Nurse Midwives:** In 2013, there were 182 CNMs with an active license and practice address in Arizona.<sup>65</sup> The 2013 data also indicated that retiring CNMs could be a future concern for healthcare delivery. Specifically, 70 percent of rural CNMs were age 55 or older and the ratio of CNMs is higher in rural areas. As a result, retirement of CNM professionals could have a disproportionate impact on rural communities.<sup>66</sup> Additionally, Arizona has no in-state CNM training programs.<sup>67</sup>

To examine CNM data by county, 2010 data needs to be reviewed. In 2010, there were 140 certified nurse midwives statewide, with 85 percent located in urban areas.<sup>68</sup> The statewide ratio was 11.1 to 100,000 women of childbearing age (15-44). There were no CNMs in the years between 2007 and 2010 in Gila, Greenlee, La Paz or Santa Cruz counties. Additionally, there were no CNMs in Cochise County 2007 through 2008 or in 2010.<sup>69</sup>

**Clinical Nurse Specialists:** In 2010, there were 122 CNSs statewide. The ratio of CNSs to 100,000 population was 1.9. The counties of Apache, Gila, Graham, Greenlee, La Paz, Santa Cruz and Yuma had no CNSs any of the four years from 2007 to 2010.<sup>70</sup>

### **Data by County: Certified Nursing Assistants**

Certified Nursing Assistants (CNAs) are “persons who assist individuals with healthcare needs that are associated with daily living and provide bedside care, including basic nursing procedures, all under the supervision of an RN or LPN.”<sup>71</sup>

In 2010, there were 24,564 CNAs statewide and 81 percent were located in urban areas. There was a 16 percent increase in the number of CNAs between 2007 and 2010.<sup>72</sup> The statewide ratio in 2010 was 383 CNAs per 100,000 population.<sup>73</sup> No national comparative ratio was found. Greenlee County had the largest population ratio increase in CNAs between 2007 and 2010 and the urban areas had lower CNA ratios than the other three geographic designations of large rural town, small rural town and isolated small rural town.<sup>74</sup>



## Shortage or Surplus?

In 2004, HRSA stated that Arizona was 45th in the nation for nursing ratios.<sup>75</sup> In 2012, the AZBN published the *Arizona State Board of Nursing Summary and Analysis of Annual Reports from Arizona Nursing Education Programs Calendar Year 2012*. This summary addressed the size of the current and future RN workforce, noting a 166 percent increase in the number of graduates from RN programs between 2002 and 2012.<sup>76</sup> However, AZBN noted that it is not just sheer volume of RNs that should be considered when determining if there is sufficient supply. The AZBN report cited research that recommends 80 percent of RNs have a baccalaureate degree and/or the minimum ratio of bachelor-level nurses to associate-level nurses should be 60/40.<sup>77</sup> By either measure, in 2012 the AZBN concluded, “The AZ RN workforce may be educationally unprepared to meet future health care needs with only 32.5 percent of newly licensed nurses educated at BSN level and 54 percent of all RNs educated at the bachelor’s level or higher, not necessarily in nursing.”<sup>78</sup> Additionally, approximately 45 percent of RNs have a bachelor degree or higher specifically in nursing.<sup>79</sup>

The report concluded: “There is expected to be a shortage of registered nurses in the Western states, including Arizona, within the next decade. Due to the complexity of health care, the nursing workforce must be educated beyond the associate-degree level.”<sup>80</sup>

However, while the AZBN expected a shortage as recently as 2012, in 2009 it received conflicting feedback about the supply and demand for RNs in the state. It is important to note, while data indicates a recognized increase in the number of individuals with active RN licenses, this does not necessarily translate into RNs employed directly in healthcare, or even actively engaged in the workforce.

In addition to admissions, enrollment and administrative data, the AZBN annually surveys all Arizona nurses recently licensed by exam. The survey was created in 2009 in response to national survey data that indicated new nurses were having difficulty finding employment. The Arizona report provided, “We recruited persons into the profession with promises of easy employment, job mobility and high salaries. Then the economy took an unprecedented nose-dive and suddenly we have an oversupply of novice nurses.”<sup>81</sup> AZBN continued to survey newly licensed nurses and found:

- In 2010, 21 percent of respondents were not practicing. Length of licensure was a factor, with 67 percent of non-practicing nurses licensed three months or less. The reason most cited by non-practicing nurses (85 percent) was “not enough jobs for new RN grads in the area.”<sup>82</sup>
- In 2011, 17 percent of respondents were not practicing and 91 percent of those respondents indicated it was because of a lack of jobs.<sup>83</sup>
- In 2012, 21 percent of respondents were not practicing and 56 percent of those not practicing indicated it was because of a lack of jobs.<sup>84</sup>

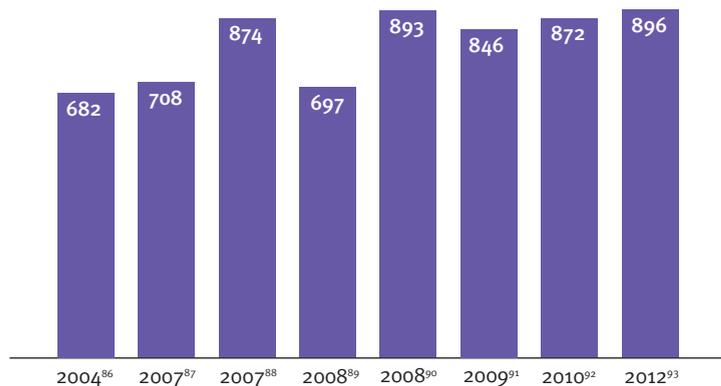
After years of focus and effort to address a nursing shortage, a nursing workforce study published in December 2013 found “the predictions did not include the effects of the economic recession that began in 2007-2008,” and “the 2017 target ratio of 825 registered nurses per 100,000 population was reached in 2010 and continues to increase.”<sup>85</sup> It is worth noting, that nursing shortages have tended to dissipate during times of economic downturn and often have returned when the economy improves.

*“The AZ RN workforce may be educationally unprepared to meet future health care needs with only 32.5 percent of newly licensed nurses educated at BSN level and 54 percent of all RNs educated at the bachelor’s level or higher, not necessarily in nursing.”*

Source: Randolph, Pamela K. 2012. *Arizona State Board of Nursing Summary and Analysis of Annual Reports from Arizona Nursing Education Programs Calendar Year 2012*. Arizona State Board of Nursing.

Trying to assess the most accurate ratio is one of the primary challenges when examining RN workforce data. The chart below highlights some of the conflicting ratios reported at different times, from different sources, in just the last decade. These ratio differences can reflect the challenges previously identified with workforce data collection. For example, some may utilize data for all licensed nurses, while some may estimate ratios utilizing only estimated employed nurses. However, it is still valuable to examine the data and compare.

Arizona Ratio of RNs to 100,000 Residents



There seems to be an emerging belief that after years of a nursing shortage, Arizona is now dealing with a surplus, with a 2012 estimated RN to 100,000 population ratio of 896.<sup>94</sup> The study that identified this apparent surplus also identified possible contributors, including Arizona going from one of the most rapidly growing states in the nation to suffering a drastic decline in population growth beginning in 2008-2009.<sup>95</sup> The report continues, “Furthermore, the population declined in absolute terms between 2009-2010 and growth rates in subsequent years are low. Between 2007-2011 the RN workforce increased, respectively by 4.5 percent,

3.5 percent and 2.7 percent. In absolute terms the number of RNs employed in nursing jobs increased from 48,300 in 2008 to 54,100 in 2011.”<sup>96</sup>

The study concluded that the “primary impact of the recession on the employment of RNs, including employment in health care in a nursing job, occurred in 2008,” and that while Arizona is seeing a slow but steady population growth again, the RN labor force in 2012 was “one of the highest rates in recent years. The ratios of RNs to population levels exceed conventional targets for an adequate supply of RNs and first-time applications have not slowed. Taken together, these facts suggest the possibility of a surplus of RNs in the near future.”<sup>97</sup>

The increase in the RN workforce in 2012 was the next to highest rate in five years and “a continuation of these trends predicts that a surplus of RNs could occur in the next two-three years unless the aging population combines with other factors such as increased health care coverage increase the demand for care among the members of a more slowly growing population.”<sup>98</sup>

### Allopathic (MD) and Osteopathic (DO) Physicians

This section summarizes the data available for both MDs and DOs. Where data were available regarding specialties such as primary care or obstetrics and gynecology, it is also presented. As with all segments of the healthcare workforce, concerns about physician shortages in Arizona are long-standing. There is particular concern regarding the size and reach of the primary care workforce, which includes physician assistants and nurse practitioners. Specifically:

- Per administrative licensing data, in 2013 there were 13,517 active MDs and 1,952 active DOs practicing in Arizona for a total physician workforce of 15,469.<sup>99</sup>
- Based on administrative licensing data, growth in the number of active, licensed DOs in Arizona has been slow. Between 2004 and 2013, the number of active, licensed DOs increased by 715 and the DO workforce saw a 58 percent growth in this same timeframe.<sup>100</sup>

- Growth in MDs has been relatively slow and steady; however between 2008 and 2009, the number of active licensed MDs actually dropped by over 200, and then was relatively stagnant between 2009 and 2010. There has been upward growth since 2010. The number of active licensed MDs has increased by 2,730 between 2004 and 2013. This is an increase of 25 percent.<sup>101</sup>
- The overall physician workforce – MDs and DOs – has increased by 3,445 licenses and by 29 percent between 2004 and 2013.<sup>102</sup>

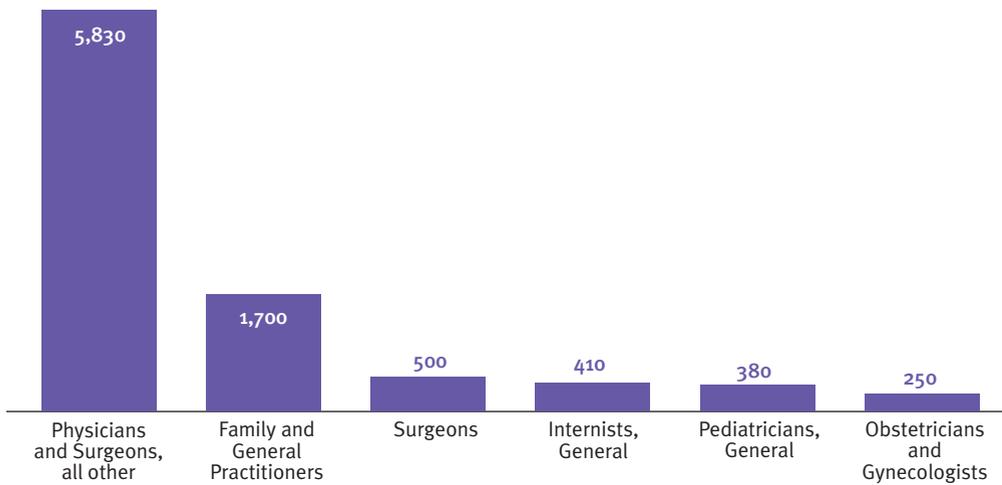
BLS data (employment data based on surveying establishments covered by unemployment insurance), which does not break out by MD or DO classification, provides survey data on a variety of physician specialties. This 2012 data is not meant to be inclusive of all specialties, but to provide another snapshot of the estimated coverage of physicians in Arizona.



*Arizona had a ratio of 230.9 active physicians per 100,000 population, ranking the state 32nd nationally.*

Source: 2013 State Physician Workforce Databook.

Physician Specialties, Estimated Number by Occupation



Source: Johnson, WG, Linan, M (March 2014). *Phoenix Healthcare Sector Partnership Inventory of Information on the Healthcare Workforce in Arizona*. College of Health Solutions. Arizona State University.

Concerns about a physician shortage in Arizona are not new. Despite the increase in the physician workforce outpacing the increase in the population in the decade of 1994-2004, in 2004, the state’s physician to population ratio of 207 to 100,000 was well below the 2004 national average of 283.<sup>103</sup> And while the ratio increased between 2004 and 2005 to 219, it still fell below the national average.<sup>104</sup> To provide national context, according to the *2013 State Physician Workforce Databook*, in 2012, there were 260.5 total active physicians per 100,000 population in the U.S.<sup>105</sup>

Another concern is the lack of homegrown physicians. The state concern is not the quality of out-of-state-trained physicians, but instead the lost economic opportunity to create high-paying jobs for Arizona residents.

Sources: Johnson, WG, Rimsza M, Garcy A, Grossman M. 2005. The Arizona physician workforce study part 1: The numbers of practicing physicians 1992-2004. Tempe (AZ). Center for Health Information & Research, Arizona State University.

### Data by County: MDs and DOs

In 2004, physician shortages were most acute in rural communities. Pima County’s physician-to-population ratio was 276 to 100,000 population, compared to Apache County, which experienced a coverage ratio of 48 to 100,000.<sup>106</sup> Disparities continued in 2005, with a ratio of 292 in Pima County compared to 50 in Apache County.<sup>107</sup>

### Active, Licensed Physicians per 100,000, by Geographic Classification

CLASSIFICATION	2010 RATIO
Urban	250.3
Large Rural Town	151.4
Small Rural Town	119.8
Isolated Small Rural Town	69.9

Source: Tabor, J. and H.J. Eng, 2012. *Arizona Rural Health Workforce Trend Analysis 2007-2010*. Arizona Area Health Education Centers and Center for Rural Health, the University of Arizona. Tucson, Arizona. pp138.

Examining 2010 data provides the capacity to look at licensees more recently by geographic area. Using this data, it was calculated that in 2010, there were 14,839 physicians with active Arizona licenses.<sup>108</sup> Between 2007 and 2010, allopathic physicians had a greater increase in numbers, but a smaller percentage increase when compared to osteopathic doctors.<sup>109</sup> Additionally, 92 percent of physicians were located in urban areas.<sup>110</sup>

Examining the physician to 100,000 population ratio in 2010, it was estimated there were 231.4 physicians for every 100,000 Arizonans statewide.<sup>111</sup> From 2007 to 2010, Pinal County experienced the largest decrease in ratio and Apache County had the largest increase in ratio. In 2010, Pima County had a ratio of 301 at the high end and Pinal County had the lowest at 56.8.<sup>112</sup>

### Framing the Data

To provide national context, according to the 2013 State Physician Workforce Databook, in 2012 there were 260.5 total active physicians per 100,000 population in the U.S.<sup>113</sup> Arizona had a ratio of 230.9 per 100,000, ranking the state 32nd nationally.<sup>114</sup> The national rate of physicians in active patient care was 225.6 per 100,000 in 2012; Arizona had an estimated rate of 206.6, ranking Arizona 31st nationally.<sup>115</sup>

Another concern is the lack of homegrown physicians. The concern is not the quality of out-of-state-trained physicians, but instead the lost economic opportunity to create high-paying jobs for Arizona residents. In 2004, approximately 90 percent of Arizona allopathic doctors were not trained in Arizona.<sup>116</sup> In 2008, nearly 31 percent of Arizona primary care physicians were foreign-trained.<sup>117</sup> The *2013 State Physician Workforce Databook* estimated that nationally 24.1 percent of physicians were International Medical Graduates; the Arizona estimate was 22.9 percent, ranking the state 16th nationally.<sup>118</sup>

Retention of physicians is as important as growing a strong workforce. Understanding what motivates physicians to leave Arizona is another important component of framing the data. A 2008 survey of allopathic physicians who still retained an Arizona license but opted to practice out of state sought answers as to why those physicians left. For those who responded, the two most common reasons identified for leaving were “wanted to be closer to friends/family” and “better salary/reimbursement in other state.”<sup>119</sup> The survey also discovered, “another interesting and unexpected finding is the number of physicians who indicated they were unable to find a position in their specialty in Arizona. Given the existence of a physician shortage in the state, the responses deserve additional attention to determine the reasons for the physicians’ inability to find a position in Arizona.”<sup>120</sup>

The survey respondents also expressed the “importance of a concern with the quality of children’s schools.” The report continued, “The influence is not typically mentioned in discussions of attracting or retaining physicians in a state or the differences between rural and urban settings. The relatively high rank of the influence is more significant when one recognizes that the responses are not, as yet, adjusted for the ages or marital status of the respondents.”<sup>121</sup>

## Primary Care Physicians

Much of Arizona falls within a currently designated Primary Care Health Professional Shortage Area (HPSA) (see Appendix III).

“Primary Care HPSA designations refer to a shortage of non-federal doctors of allopathic or osteopathic medicine providing direct care in the fields of family practice, general practice, pediatrics, internal medicine (outpatient based) and obstetrics gynecology.” Further, “Primary medical care professionals in contiguous areas are over-utilized, excessively distant, or inaccessible to the population of the area under consideration.”<sup>122</sup>

The Primary Care HPSA designation utilizes the population-to-primary care physician ratio. To be designated as a HPSA the ratio must be at least 3,500:1 for a determined geographic designation; 3,000:1 for a geographic designation with unusually high needs such as a poverty rate of 20 percent or greater; or 3,000:1 for determined population group designation.<sup>123</sup> The entirety of Apache, Cochise, Graham, Greenlee, La Paz and Yuma counties are considered Primary Care HPSAs. Additionally, a large portion of Coconino, Gila, Mohave, Navajo and Pima counties are considered HPSAs.

HPSAs are not just found in Arizona’s rural areas. When considering areas that include low-income populations, there are portions of Phoenix, including Central and South Phoenix, as well as Avondale, Tolleson and Glendale, that qualify. According to the Arizona Department of Health Services, “Arizona needs a total of 442 primary care professionals to practice in underserved areas to eliminate existing health professional shortage area designations.”<sup>124</sup>

## Active, Licensed Primary Care DOs & MDs per 100,000, by County

COUNTY	2010 RATIO
Apache	27.9
Cochise	49.3
Coconino	99.5
Gila	74.7
Graham	78.1
Greenlee	47.9
La Paz	58.7
Maricopa	84.3
Mohave	57.9
Navajo	66.9
Pima	97.8
Pinal	32.3
Santa Cruz	48.5
Yavapai	72.5
Yuma	64.6

Source: Tabor, J. and H.J. Eng, 2012. *Arizona Rural Health Workforce Trend Analysis 2007-2010*. Arizona Area Health Education Centers and Center for Rural Health, the University of Arizona. Tucson, Arizona. pp138.

*Primary care coverage is of particular concern for rural areas. In 2010, 89 percent of primary care doctors served in urban areas and there were 79.6 primary care doctors per 100,000 population statewide.*

Source: Tabor, J. and H.J. Eng, 2012. *Arizona Rural Health Workforce Trend Analysis 2007-2010*. Arizona Area Health Education Centers and Center for Rural Health, the University of Arizona. Tucson, Arizona. pp138.



Looking at the primary care workforce a decade ago, it was estimated that in 2004, approximately 41 percent of Arizona's doctors were primary care physicians.<sup>125</sup> No national comparative was provided. In 2008, survey data estimated that the percentage of physicians practicing in primary care remained relatively unchanged from 2004.<sup>126</sup> Specifically, "Based on our surveys, the percent of physicians in primary care increased from 37.4 percent in 2004 to 39.3 percent in 2008. However, the percent of physicians in primary care ranges from 40 percent to 41 percent if both MDs and DOs in primary care are included."<sup>127</sup> In 2008, this percentage translated to approximately 6,300 doctors.<sup>128</sup>

By 2010, it was estimated nearly a third of all Arizona physicians practiced in primary care – a total of 5,106 professionals.<sup>129</sup> At that time, there were almost twice as many non-primary care doctors compared to primary care physicians.<sup>130</sup> Between 2007 and 2010, there was a greater increase in the number of non-primary care doctors compared to primary care – 620 non-primary care compared to 554 primary care.<sup>131</sup> No national comparative was found.

Physician assistants (PAs) and nurse practitioners (NPs) can, and often do, provide primary care, especially in rural communities. Between 2007 and 2010, the percent growth in both numbers and coverage for PAs and NPs was more than double primary care doctors.<sup>132</sup> Between 2007 and 2010, there was a 12 percent increase in the number of primary care physicians.<sup>133</sup>

### **Data by County: Primary Care Physicians**

Primary care coverage is of particular concern for rural areas. In 2010, 89 percent of primary care doctors served in urban areas and there were 79.6 primary care doctors per 100,000 statewide.<sup>134</sup> The disparities between the counties were notable, with Coconino County having the highest ratio at 99.5 primary care doctors per 100,000; and Apache County the lowest at 27.9.<sup>135</sup>

### **Framing the Data: Primary Care Doctors**

Examining primary care data is becoming even more important as the demand for primary care services are likely to increase as new models of healthcare delivery are implemented.

Even though the 2007 to 2010 data comparisons pointed to growth in the number of primary care physicians in Arizona, 2012 data indicated coverage may be decreasing:

- The number of osteopathic primary care doctors per 100,000 was static between 2006 and 2010; the ratio also decreased from 14.6 per 100,000 in 2010 to 14.2 in 2011.<sup>136</sup>
- The number of non-primary care DOs per 100,000 residents exceeded the ratio for primary care DOs for the first time in 2011.<sup>137</sup> However, it is important to note, "the 2006 to 2010 static trend does not appear for primary care and non-primary care allopathic physicians."<sup>138</sup>

To provide national context, according to the *2013 State Physician Workforce Databook*, in 2012, there were 90.1 primary care physicians per 100,000.<sup>139</sup> Arizona had a ratio of 79.2 primary care physicians per 100,000, ranking 36th.<sup>140</sup> The national rate of primary care doctors in active patient care per 100,000 was 80.7.<sup>141</sup> Arizona's rate was 72.1, ranking 37th nationally.<sup>142</sup>

## Arizona's ratio of non-primary care doctors to 100,000 population was 151.8 per 100,000; markedly higher than the 2010 primary care physician ratio of 79.6.

Source: Tabor, J. and H.J. Eng, 2012. *Arizona Rural Health Workforce Trend Analysis 2007-2010*. Arizona Area Health Education Centers and Center for Rural Health, the University of Arizona. Tucson, Arizona. pp138.

### Data by County: Non-Primary Care Doctors & Specialists

In 2010, the Arizona ratio of non-primary care doctors to 100,000 population was 151.8 per 100,000; markedly higher than the 2010 primary care physician ratio of 79.6.<sup>143</sup> Additionally, in 2010, 93 percent of non-primary care doctors were located in urban areas.<sup>144</sup> County specific data include:

- Between 2007 and 2010, Cochise County had the largest percentage decrease in ratio for non-primary care doctors and Graham County had the largest increase. In 2010, Pima County had the largest ratio at 203.1 per 100,000; Pinal County had the lowest at 24.5.<sup>145</sup>
- In 2010 there were a total of 784 obstetrics and gynecology physicians in Arizona.<sup>146</sup> For OB/GYNs the ratio utilized was the number of OB/GYNs per 100,000 women of child-bearing age (15-44). Using this metric, statewide the ratio rose from 60.2 to 62.0 per 100,000 women of childbearing age between 2007 and 2010.<sup>147</sup>
- The counties experiencing the largest decreases in OB/GYN to population ratio were Apache and Cochise; the counties with the largest increases were Pinal and Graham.<sup>148</sup> Examining individual county ratios in 2010, the county with the highest ratio of OB/GYNs to women of child-bearing age was Coconino at 73.1 per 100,000; the lowest was Greenlee County, who had zero OB/GYNs every year from 2007 through 2010.<sup>149</sup>

### Physician Assistants

Physician assistants (PAs) serve a growing role in providing primary care. Specifically, “physician assistants are a very important component of the health care workforce since they disproportionately practice in rural areas, partially compensating for the pronounced shortage of physicians in these areas.”<sup>150</sup>

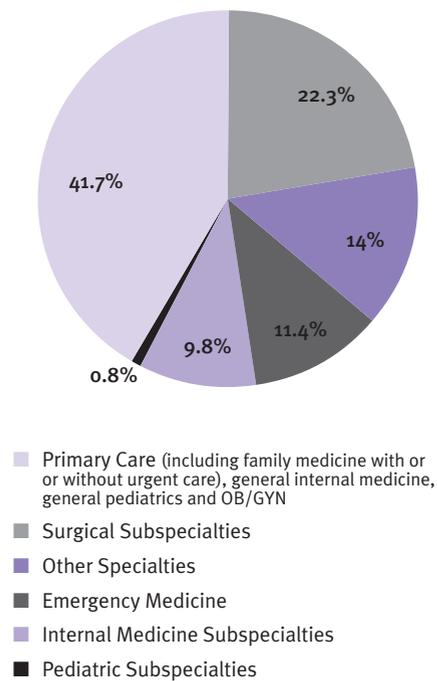
According to national data referenced in a 2009 state workforce study, it is estimated that “nationally approximately 37 percent of PAs practiced in primary care in 2008.”<sup>151</sup> 2013 data provided by the American Academy of Physician Assistants (AAPA) Annual Survey estimated Arizona PA specialties. No corresponding national survey data were provided. The AAPA estimated that 47.3 percent of Arizona PAs practiced in a physician group or solo practice.<sup>152</sup>

PA data is provided below, starting with the most recent, for years 2008 and 2010-2013. There appears to be some inconsistencies – certain years appear to have fewer PAs than prior years – however, all years are presented to provide the broadest insight into PA data.

*The national rate of primary care doctors in active patient care per 100,000 population was 80.7. Arizona's rate was 72.1, ranking 37th nationally.*

Source: 2013 State Physician Workforce Databook.

### Estimated Percent of Physician Assistants Practicing by Specialty Area



Source: The 2013 American Academy of Physician Assistants Annual Survey. Arizona State Practice Profile. Available at <http://www.aapa.org/threeColumnLanding.aspx?id=328>

Examining the number of PAs practicing in Arizona, the most recent figure available reports that in 2013 there were 2,005 PAs with an active license and practice address in Arizona, the majority of whom resided in urban areas (89 percent).<sup>153</sup>

2013 data estimated there were 28 PAs in Arizona per 100,000 population, slightly higher than the national average of 27.<sup>154</sup> Twenty-two states had higher provider to population ratios.<sup>155</sup> While the 2013 data does not provide ratio data by county it does provide comparative data based on rural urban commuting area classification:

- Urban: 32.2 PAs per 100,000
- Large Rural Town: 29.1 PAs per 100,000
- Small Rural Town: 25.1 PAs per 100,000
- Isolated Small Rural Town: 19.6 PAs per 100,000<sup>156</sup>

2012 BLS data estimated Arizona had 1,610 physician assistants; administrative licensing data for 2012 provided that 3,256 PAs had an active license.<sup>157</sup> Unfortunately, the 2012 administrative data does not distinguish how many of those licensees were active in Arizona versus licensed in Arizona. Per 2011 data, there were 1,746 active PA licensees.<sup>158</sup>

2013 survey data also estimated that the majority of PAs in the state were under 40 and that “the age distribution is similar for urban and rural areas.”<sup>159</sup> The survey further found that while the majority of PAs in Arizona were trained in other states, “the annual increase in PAs can be attributed to the production and retention of Arizona-trained PAs.”<sup>160</sup>

### Data by County: Physician Assistant

To provide insight as where PAs practice in the state, 2010 figures need to be examined. The rural workforce study breaking out PAs by county found a total of 1,833 active PAs licensed in Arizona in 2010, compared to 1,457 in 2008.<sup>161</sup>

The number of active PAs increased 26 percent between 2007 and 2010, and 86 percent of PAs in 2010 were located in urban areas.<sup>162</sup>

The statewide ratio of PAs per 100,000 population increased from 24 to 29 between 2007 and 2010. Greenlee County had the highest PA to resident ratio at 47.9 per 100,000; Santa Cruz County was the lowest at zero.<sup>163</sup>

**Arizona had 32 physician assistants for every 100,000 population, higher than the national average or 27 per 100,000 in 2010.**

Source: The Henry J. Kaiser Family Foundation. State Health Facts.

## Framing the Data

Citing national projections, the Center for Health Information & Research at Arizona State University in 2009 indicated that after a rapid expansion of PAs that stabilized in the 1990s, “the number of PAs entering the workforce is expected to increase by 27 percent by the year 2016 (Occupational Outlook Handbook, 2008-2009 Edition, 2007).”<sup>164</sup> Utilizing 2010 data, *State Health Facts* estimated Arizona had 32 physician assistants for every 100,000 population, higher than the national average of 27 per 100,000.<sup>165</sup> While the state average is higher than the national, this may be because these health professionals are serving to fill gaps in areas where health shortages exist, particularly areas experiencing primary care physician shortages.

In 2013, there were three accredited PA programs in the state, namely the Arizona School of Health Sciences, Midwestern University, and Northern Arizona University.<sup>166</sup>

## Psychiatrists, Psychologists and Behavioral Health Professionals

There is no question Arizona is experiencing a statewide shortage in mental health and behavioral health providers. However, specific data on this segment of the healthcare workforce is limited. According to the state’s Mental Health Professional Shortage Areas map (see Appendix IV), the entire state of Arizona is currently designated as a shortage area.

### Psychiatrists

The data on the number of licensed Arizona psychiatrists can vary depending on the source. Per BLS data for Arizona, in 2012 there were 500 psychiatrists employed statewide. The data also identified 1,350 psychiatric technicians employed.<sup>167</sup>

Beyond the high-level estimates provided by BLS, the most recent assessment of the size of the state’s psychiatric workforce examined health professionals by county. This report found:

- There were 748 licensed active psychiatric physicians statewide in 2010, 36 more psychiatrists than in 2007.<sup>168</sup>
- In 2010, 94 percent were located in urban areas, with both Graham and La Paz counties having no active psychiatrist.<sup>169</sup>
- The statewide ratio of psychiatrists per 100,000 population increased from 11.5 in 2007 to 11.7 in 2010.<sup>170</sup>
- Pima County had the highest ratio in 2010 at 18.9. Also, from 2007 to 2010, six of Arizona’s 15 counties saw a decrease in the ratio of psychiatrists to population.<sup>171</sup>

Data from 2004 indicates that this segment of the healthcare workforce has fallen behind the pace of population growth. A 2004 report of the statewide psychiatric workforce found there were 691 active psychiatrists statewide and a statewide ratio of 12.03 psychiatrists per 100,000 population.<sup>172</sup> While the total number of psychiatrists increased between 2004 and 2008, the ratio decreased.

The most recent national comparative was for the year 2000, with a professional to population ratio of 16.5 psychiatrists per 100,000.<sup>173</sup> This is higher than Arizona’s 2010 ratio.

According to the Arizona Department of Health Services, “Arizona needs a total of 204 psychiatrists to practice in underserved areas to eliminate the medically underserved area, medically underserved population and health professional shortage designations.”<sup>174</sup>



*There is no question Arizona is experiencing a statewide shortage in mental health and behavioral health providers.*

## Psychologists

The most recent data on psychologists is from 2010, when there were 1,424 licensed active psychologists.<sup>175</sup> This was nearly double the number of 2010 licensed active psychiatrists identified in the same report.<sup>176</sup>

This study also found 95 percent of psychologists were in urban areas and there was an increase statewide of only two psychologists between 2007 and 2010.<sup>177</sup> During this same timeframe, the ratio of psychologists per 100,000 decreased from 23 to 22.2.<sup>178</sup>

As with many of the healthcare professions discussed in this summary, there were notable inequalities among Arizona's counties. For example, in 2010, Coconino County's ratio of psychologists to population was 55 per 100,000; Greenlee and La Paz counties had no psychologists.<sup>179</sup>

## Behavioral Health Professionals

According to a 2012 performance audit of the Arizona Board of Behavioral Health Examiners conducted by the Office of the Auditor General, in May of 2012 there were 8,639 active behavioral health licensees.<sup>180</sup> There are ten license types issued by the board in four areas: counseling, marriage and family therapy, social work and substance abuse counseling.<sup>181</sup> Specifically:

- Counseling licensees, including associate and professional counselor: 3,167
- Marriage and family therapy licensees, including associate and marriage and family therapist: 445
- Social work licensees, including bachelor, master and clinical social worker: 3,405
- Substance abuse counseling licensees, including substance abuse technician, associate substance abuse counselor and independent substance abuse counselor: 1,622<sup>182</sup>

Unfortunately, the 2012 data is not broken out geographically. The only data provided to do so examined behavioral health professionals by county in 2002. At that time there were 5,545 behavioral health professionals statewide.<sup>183</sup> In 2002, 82 percent of behavioral health professionals were in urban counties and there were 101.32 behavioral health professionals per 100,000 population statewide.<sup>184</sup> No national comparative was provided.

## Dentists and Dental Hygienists

While discussions regarding healthcare access may often fail to mention oral health, access to consistent preventative dental care, as well as treatment when needed, is part of overall health.

### Dentists

The Dental Health Professional Shortage Areas (HPSA) map (see Appendix V) shows a sizable portion of the state's geographic area is currently designated as a Dental HPSA, including the entirety of Graham, Greenlee, La Paz, Santa Cruz and Yuma counties. According to the Arizona Department of Health Services, "Arizona needs a total of 441 dentists to practice in underserved areas to eliminate existing dental health professional shortage area designations."<sup>185</sup>

Per BLS numbers for Arizona, in 2012, there were a total of 2,440 general dentists employed statewide; 130 orthodontists; and 140 dentists comprising all other specialties.<sup>186</sup> The data also identified 3,390 dental hygienists. Additionally, there were 6,160 dental assistants.<sup>187</sup>



*A sizable portion of the state’s geographic area is currently designated as a Dental HPSA, including the entirety of Graham, Greenlee, La Paz, Santa Cruz and Yuma counties.*

Source: Arizona Department of Health Services

### Data by County: Dentists

The most recent assessment examining dental services by county uses 2010 data. One particular issue with the data on dental health providers that the report authors identified was a change in 2010 in the way licensees reported information on multiple practice locations. In the past, dentists could report practicing in more than one place allowing for “more precise estimates of workforce coverage, especially in rural areas.” In 2010, the board data only provided one practice location. This didn’t impact statewide reporting, but did impact finer geographic reporting with “under-reporting in rural areas likely” because dentists often work at more than one location.<sup>188</sup>

In 2010, there were 3,558 active licensed dentists with a dip in the number of licensed dentists between 2009 and 2010 – a decrease of 75 licensees – after an increase of 101 licensees between 2007 and 2009.<sup>189</sup>

In 2010, 92 percent of dentists reported working in urban areas.<sup>190</sup> Specifically, 91 percent of general dentists and 96 percent of specialist dentists practiced in urban areas.<sup>191</sup> The study estimated that statewide coverage for all dentists “peaked” in 2009 at 57 per 100,000, and dropped to 55.5 per 100,000 in 2010.<sup>192</sup> The National Center for Health Statistics estimated Arizona had 54.7 dentists per 100,000 in 2010, but did not provide a national comparative.<sup>193</sup>

Coconino County had the highest ratio in 2010 at 76.5 per 100,000; La Paz County had the lowest at 4.9.<sup>194</sup> Eleven counties saw a percentage drop in the ratio of dentists to population from 2007 to 2010, with La Paz experiencing the largest drop at 66.4 percent.<sup>195</sup> The four counties experiencing growth between 2007 and 2010 were Coconino, Greenlee, Maricopa and Yavapai.<sup>196</sup>

In 2010, 82 percent of active dentists were general and the ratio of general dentists to population was 45.3 per 100,000. The ratio of specialist dentists to population was 10.2 per 100,000.<sup>197</sup> Greenlee County had no specialist dentists in the years 2007 through 2010 and La Paz County had no specialist dentists 2008 through 2010.<sup>198</sup>

### Dental Hygienists<sup>199</sup>

There were 3,200 active hygienists licensed in Arizona in 2010, with 91.4 percent located in urban areas. The number of licensed hygienists increased by 362 between 2007 and 2010, with a 2010 statewide ratio of 50 to 100,000 population. Apache County had the greatest percentage increase in the hygienist ratio at 94 percent with a 2010 ratio of 14.0. Coconino County had the highest ratio in 2010 at 77.2 hygienists per 100,000; La Paz and Greenlee counties had no dental hygienists.

### Active, Licensed Dentists per 100,000, by County

COUNTY	2010 RATIO
Apache	16.7
Cochise	31.9
Coconino	76.5
Gila	35.5
Graham	51.2
Greenlee	23.9
La Paz	4.9
Maricopa	64.5
Mohave	36.0
Navajo	38.1
Pima	54.1
Pinal	22.9
Santa Cruz	16.9
Yavapai	51.2
Yuma	21.4

Source: Tabor, J. and H.J. Eng, 2012. *Arizona Rural Health Workforce Trend Analysis 2007-2010*. Arizona Area Health Education Centers and Center for Rural Health, the University of Arizona. Tucson, Arizona. pp138.

## Physical Therapists and Assistants and Occupational Therapists and Assistants

Physical and occupational therapists, two specialties within the allied healthcare workforce, are professionals whose services will continue to increase in demand as Arizona's population grows and ages.

### Physical Therapists and Physical Therapist Assistants

In 2010, there were an estimated 3,610 physical therapists in Arizona.<sup>200</sup> Physical therapy is a profession that is expected to see significant growth, with a projected 38 percent increase in employment opportunities in the decade between 2010 and 2020 and a projected 180 job openings annually in Arizona.<sup>201</sup> The median annual salary for Arizona physical therapists in 2013 was \$77,000.<sup>202</sup>

BLS 2012 survey data estimated there were 4,040 physical therapists licensed in Arizona.<sup>203</sup> BLS 2012 survey data also estimated there were 870 physical therapist assistants.<sup>204</sup>

That same estimate of 870 physical therapist assistants was cited by an additional source in 2010, with a projected 40 percent increase in employment opportunities between 2010 and 2020.<sup>205</sup> It is also estimated there will be 50 annual projected job openings for physical therapist assistants in Arizona.<sup>206</sup> The median annual salary for Arizona physical therapist assistants in 2013 was \$44,500, nearly \$9,000 less than the national average.<sup>207</sup>

### Occupational Therapists and Occupational Therapist Assistants

In 2010, there were an estimated 1,630 occupational therapists (OTs) in Arizona.<sup>208</sup> Like physical therapy, occupational therapy is a profession that is expected to see growth in employment opportunities, with a projected 26 percent increase in the decade between 2010 and 2020 and a projected 70 job openings annually in Arizona.<sup>209</sup> The median annual salary for Arizona occupational therapists in 2013 was \$76,700.<sup>210</sup>

BLS 2012 data estimated a smaller number of occupational therapists, with a total of 1,180.<sup>211</sup> BLS survey data also estimated a total of 460 occupational therapist assistants in Arizona in 2012.<sup>212</sup>

2010 estimates for the number of occupational therapist assistants determined there were approximately 210 in Arizona.<sup>213</sup> However, as with physical therapist assistants, occupational therapist assistants are expected to see growth in employment opportunities, with an estimated increase of 30 percent from 2010 to 2020, with 10 projected openings annually.<sup>214</sup> The median salary in 2013 for an occupational therapist assistant in Arizona was \$43,500, nearly \$12,000 less than the national average.<sup>215</sup>

*The only occupational therapy program at a state university in Arizona is at Northern Arizona University. NAU is also the only Arizona program offering an Occupational Therapy Doctoral (OTD) degree. According to data provided by NAU, Arizona's OT-to-resident ratio is substantially lower than the national average. The OT national ratio is 1 to 2,485; Arizona's rate is 1 to 3,523.*

Source: Provided by Dr. Patricia Crist, July 2, 2014. Source provided by The National Board for Certification in Occupational Therapy.

## Framing the Data

Currently, the only occupational therapy program at a state university in Arizona is at Northern Arizona University. NAU is also the only Arizona program offering an Occupational Therapy Doctoral (OTD) degree. According to data provided by NAU, Arizona's OT-to-resident ratio is substantially lower than the national average. The OT national ratio is 1 to 2,485; Arizona's rate is 1 to 3,523.<sup>216</sup>

## Emergency Medical Technicians (EMTs)

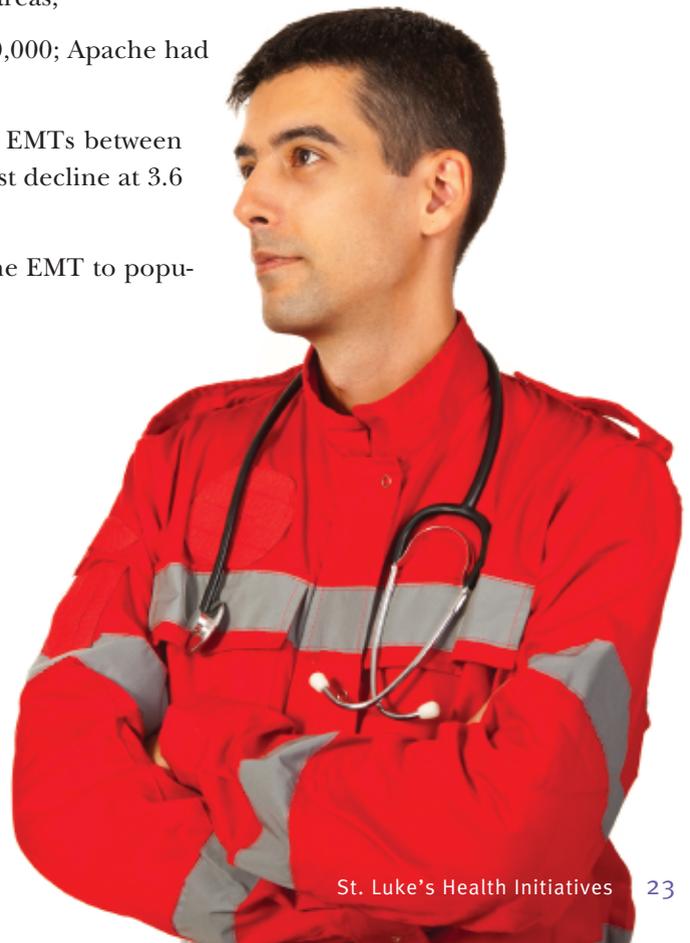
EMTs, including EMT-Basic, EMT-Intermediate and EMT-Paramedic are licensed by the Arizona Department of Health Services. According to BLS data, there were 3,650 EMTs and paramedics in Arizona in 2012.<sup>217</sup> Another source estimated that in 2010 there were 3,580 EMTs and paramedics in Arizona. In the decade between 2010 and 2020, EMT and paramedic employment opportunity is expected to increase 44 percent, with an estimated annual 230 job openings in Arizona.<sup>218</sup>

The most recent geographic data on EMTs is from 2010. Due to data limitations, the levels of EMT licensure could not be broken out, so numbers are for all EMT levels. Additionally, due to data errors the authors had to use 2006 and 2008 data to interpolate 2007 figures.

Specifically, in 2010 there were 16,619 certified EMTs in Arizona.<sup>219</sup> It is estimated the number of EMTs increased by 1,368 between 2007 and 2010.<sup>220</sup> This is a substantially different figure than the 2012 number reported by BLS, which estimated Arizona had approximately 12,950 fewer EMTs in 2012 than this study identified in 2010. However, as previously noted, licensing data and BLS data measure workforce differently.

Using licensing data, the ratio of EMTs per 100,000 Arizona population increased from 247 in 2007 to 259 in 2010.<sup>221</sup> No national comparison was found. Additionally:

- 80.5 percent of EMTs in 2010 were located in urban areas;
- Coconino County had the highest ratio at 516 per 100,000; Apache had the lowest at 174;
- Four counties experienced a decrease in the ratio of EMTs between 2007 and 2010, with Coconino experiencing the largest decline at 3.6 percent; and
- Mohave County experienced the largest increase in the EMT to population ratio at 15.5 percent.<sup>222</sup>



## Additional Allied Health Professionals

The healthcare workforce extends far beyond doctors and nurses. As Arizonans age, battle heart disease and cancer, deal with the obesity epidemic and seek both preventative care and treatment, allied health professionals are critical to the state’s healthcare delivery system. To give a sense of the reach of allied health professionals, a 2006 assessment reported that approximately one-third of the approximately 12 million workers in U.S. health at that time were graduates of an allied health program.<sup>223</sup> The 2006 assessment further highlighted the shortages in allied health in comparison to the focus at the time on nursing shortages, “in comparing the extent of the nursing shortage with that of many of the allied health professions, one finds a greater percentage shortage in many of the professions, and a greater percentage growth that is needed.”<sup>224</sup>

Examining employment figures, as well as expected employment and compensation trends, provides a working start to assessing the reach of allied professionals.

## Projected Need for Allied Health Professionals

PROFESSION	ARIZONA 2010 EMPLOYMENT ESTIMATES	PROJECTED INCREASE IN ARIZONA 2010-2020	PROJECTED ANNUAL JOB OPENINGS IN ARIZONA	2013 MEDIAN ARIZONA ANNUAL SALARY
Medical Assistants	13,210	40%	730	\$30,700
Medical & Clinical Laboratory Technicians	3,850	29%	190	\$36,600
Medical & Clinical Laboratory Technologists	3,480	25%	160	\$60,000
Speech-Language Pathologists	2,630	22%	110	\$67,200
Nuclear Medicine Technologists	360	25%	20	\$78,900
Radiation Therapists	630	39%	40	\$70,700
Radiologic Technologists & Technicians	5,310	36%	280	\$58,700 For Radiologic Technologists
Diagnostic Medical Sonographers	920	56%	70	\$78,000

Source: <http://www.onetonline.org/find/career?c=8&g=Go>

Community healthcare workers (CHWs) are also key players in healthcare delivery, with an increased role in the new healthcare landscape ushered in by extended coverage. A 2011 report noted that the “2010 Patient Protection and Affordable Care Act (PPACA) included community health workers in several sections, including the classification of CHWs as ‘health professionals’ and as part of the ‘health care workforce.’”<sup>225</sup>

Data for community and social service specialists, one manner in which CHWs are identified, estimated there were 1,540 in Arizona in 2010, with a projected growth of 22 percent between 2010 and 2020 and an annual projected 70 openings.<sup>226</sup> Data provided for health educators, another way in which CHWs are classified, estimated there were 1,360 health educators in Arizona in 2010 and anticipated job growth of 35 percent between 2010 and 2020, with 80 projected annual job openings.<sup>227</sup> While these classifications can encompass more than CHWs, they still provide insight into the growing need for these professionals.

## Final Thoughts

This summary pulled together a variety of best-estimate data to provide insight into different sectors of the healthcare workforce, including numbers, reach and geographic location. It is important to acknowledge that data by nature lags. Therefore, the most recent assessment information available likely does not reflect the current point-in-time. Going forward, professionals, educators and policymakers need to have access to more frequent, accurate and comparable data regarding the healthcare workforce. Policymakers need to explore more permanent solutions to maintaining this ongoing data collection and assessment.

It is also important to acknowledge Arizona was substantially affected by the Great Recession. We fell faster and are taking longer to recover than many other states. As a result, it is still unclear what long-term population and employment trends may be.

However, growing and supporting the healthcare workforce remain primary tools that Arizona can use to stimulate and stabilize economic development. The value of this data, however incomplete and inexact, is in assessing supply and demand for healthcare. Decisions and planning can be made accordingly to fill existing gaps and anticipate new ones.

There are many looming questions related to the healthcare workforce and our state's future, and economic development factors are just one of them. Arizona's population is diverse, with a large component of aging residents and a booming segment of young, minority residents. More Arizonans now have healthcare coverage of some kind and more Arizonans are going to want, and need, access to care. The critical question is, will there be enough professionals to provide it?



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# Appendix I

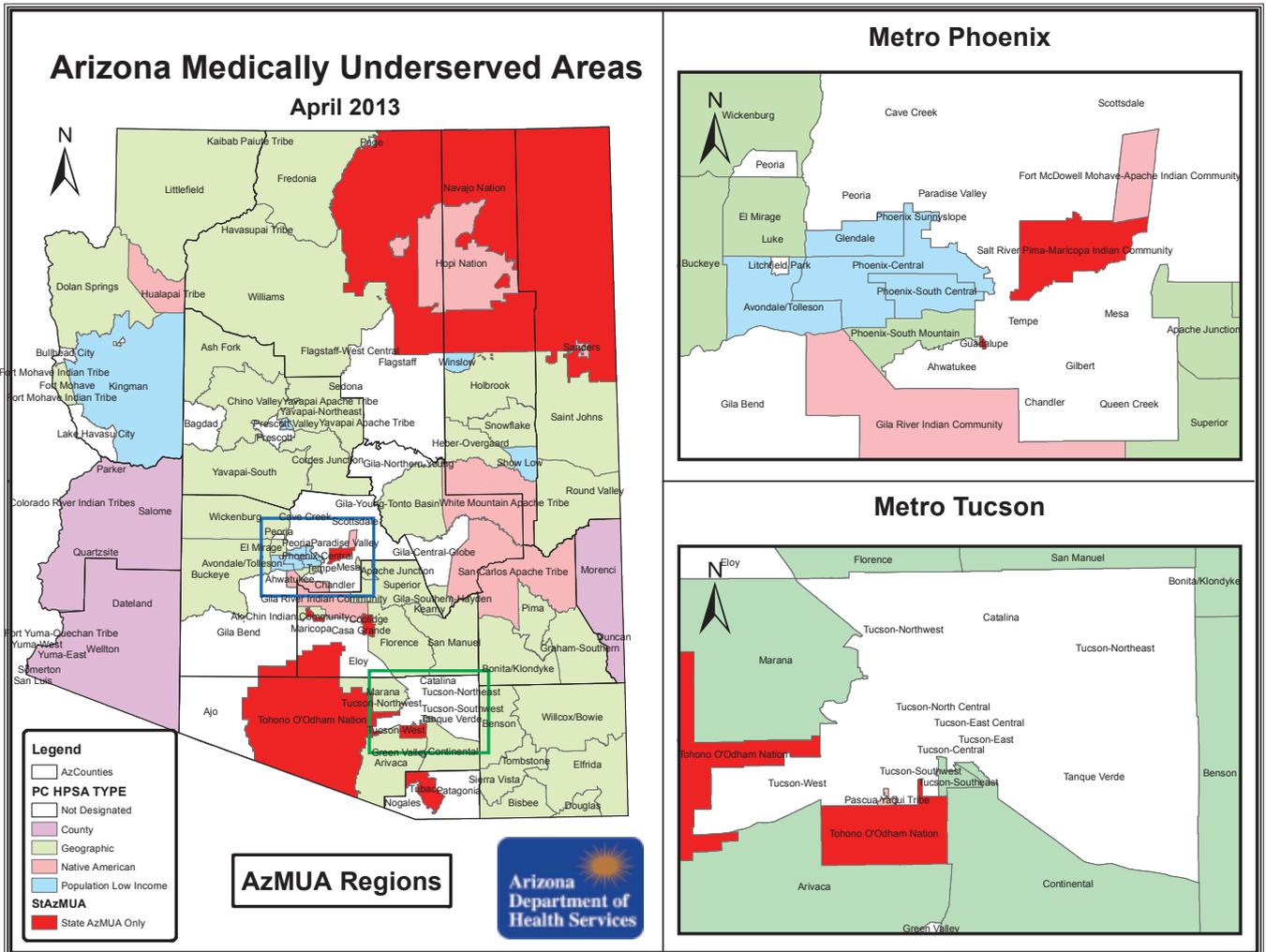
## Healthcare Workforce in Arizona by Number Employed, 2012

CODE	OCCUPATION	NUMBER	CODE	OCCUPATION	NUMBER
29-0000	Healthcare Practitioners and Technical Occupations	134,010	29-2081	Opticians, Dispensing	930
31-0000	Healthcare Support Occupations	65,450	31-9096	Veterinary Assistants and Laboratory Animal Caretakers	900
29-1141	Registered Nurses	45,600	31-2021	Physical Therapist Assistants	870
31-1011	Home Health Aides	17,260	29-2051	Dietetic Technicians	820
31-1014	Nursing Assistants	14,900	31-9093	Medical Equipment Preparers	810
31-9092	Medical Assistants	13,350	31-2022	Physical Therapist Aides	760
29-2052	Pharmacy Technicians	6,740	29-1199	Health Diagnosing and Treating Practitioners, All Other	740
29-2061	Licensed Practical and Licensed Vocational Nurses	6,440	29-2035	Magnetic Resonance Imaging Technologists	720
31-9091	Dental Assistants	6,160	31-1015	Orderlies	710
29-1069	Physicians and Surgeons, All Other	5,830	29-1011	Chiropractors	690
29-2071	Medical Records and Health Information Technicians	5,300	29-1061	Anesthesiologists	690
29-1051	Pharmacists	5,260	29-9099	Healthcare Practitioners and Technical Workers, All Other	620
29-1123	Physical Therapists	4,040	29-1124	Radiation Therapists	550
29-2034	Radiologic Technologists	3,820	29-1066	Psychiatrists	500
29-2041	Emergency Medical Technicians and Paramedics	3,650	29-1067	Surgeons	500
29-2012	Medical and Clinical Laboratory Technicians	3,450	31-2011	Occupational Therapy Assistants	460
29-2021	Dental Hygienists	3,390	29-1151	Nurse Anesthetists	440
31-9011	Massage Therapists	3,390	29-9091	Athletic Trainers	440
29-2011	Medical and Clinical Laboratory Technologists	3,040	29-1063	Internists, General	410
29-1021	Dentists, General	2,440	29-2033	Nuclear Medicine Technologists	400
29-1126	Respiratory Therapists	2,440	29-1041	Optometrists	390
29-2056	Veterinary Technologists and Technicians	2,070	29-2054	Respiratory Therapy Technicians	390
29-2055	Surgical Technologists	1,990	29-1065	Pediatricians, General	380
29-1171	Nurse Practitioners	1,900	29-2057	Ophthalmic Medical Technicians	320
29-1127	Speech-Language Pathologists	1,790	29-1125	Recreational Therapists	310
31-9099	Healthcare Support Workers, All Other	1,780	29-1081	Podiatrists	280
29-1062	Family and General Practitioners	1,700	29-1064	Obstetricians and Gynecologists	250
31-9097	Phlebotomists	1,650	29-1181	Audiologists	230
29-1071	Physician Assistants	1,610	31-9095	Pharmacy Aides	210
29-2099	Health Technologists and Technicians, All Other	1,610	29-2092	Hearing Aid Specialists	200
31-9094	Medical Transcriptionists	1,400	29-1128	Exercise Physiologists	170
29-2053	Psychiatric Technicians	1,350	29-2091	Orthotists and Prosthetists	170
29-1131	Veterinarians	1,240	29-1029	Dentists, All Other Specialists	140
29-1122	Occupational Therapists	1,180	29-1023	Orthodontists	130
29-2032	Diagnostic Medical Sonographers	1,160	29-9012	Occupational Health and Safety Technicians	90
29-9011	Occupational Health and Safety Specialists	1,000	29-1129	Therapists, All Other	50
29-1031	Dietitians and Nutritionists	980	29-1022	Oral and Maxillofacial Surgeons	40
29-2031	Cardiovascular Technologists and Technicians	930	29-1161	Nurse Midwives	**
			31-1013	Psychiatric Aides	**

Source: Johnson, WG, Linan, M (March 2014). *Phoenix Healthcare Sector Partnership Inventory of Information on the Healthcare Workforce in Arizona*. College of Health Solutions. Arizona State University.

# Appendix II

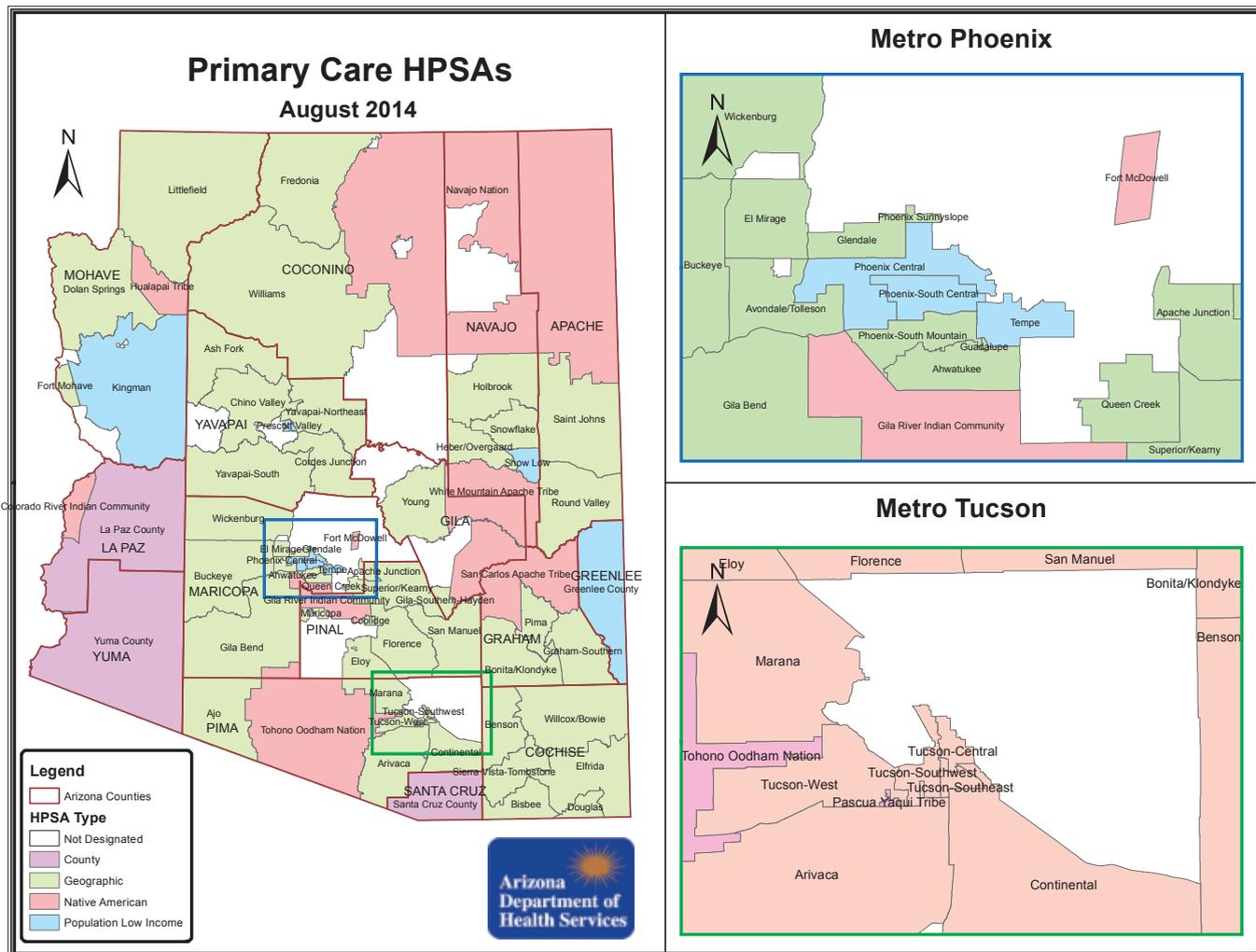
## Arizona Medically Underserved Areas



Source: Arizona Department of Health Services.

# Appendix III

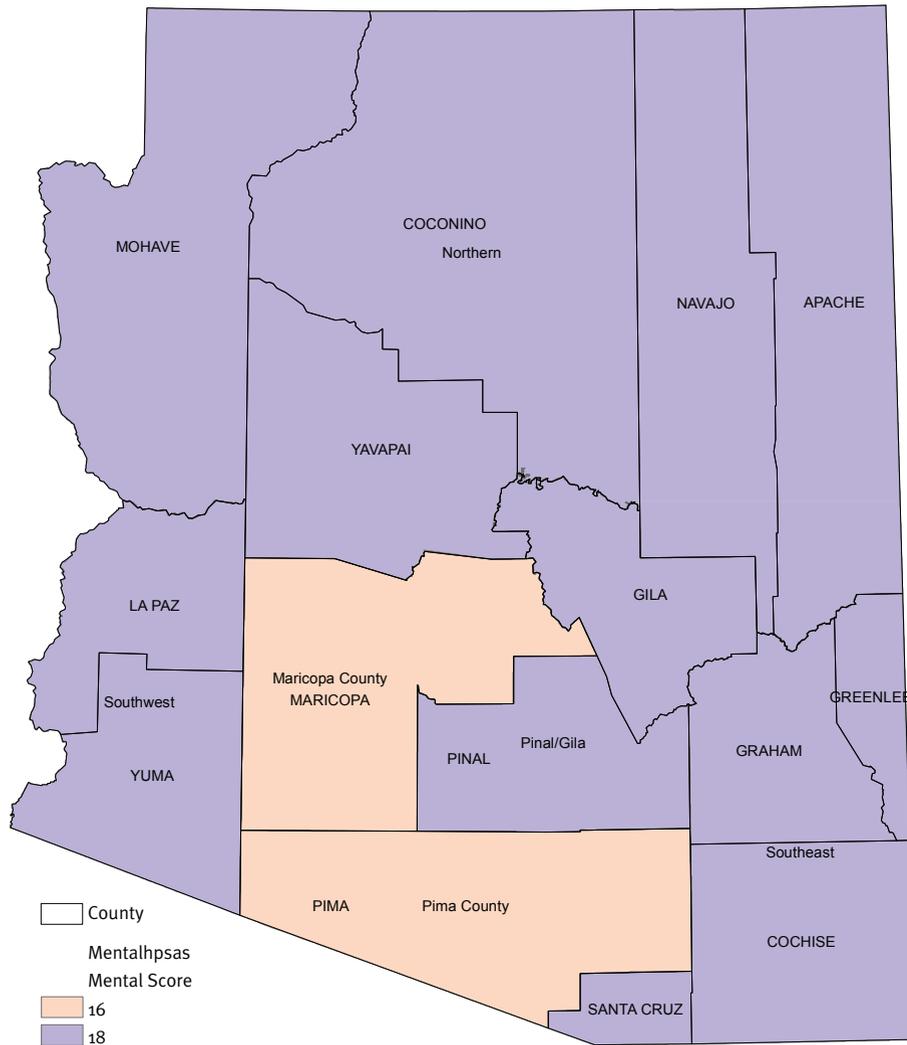
## The Primary Care Health Professional Shortage Areas



Source: Arizona Department of Health Services.

# Appendix IV

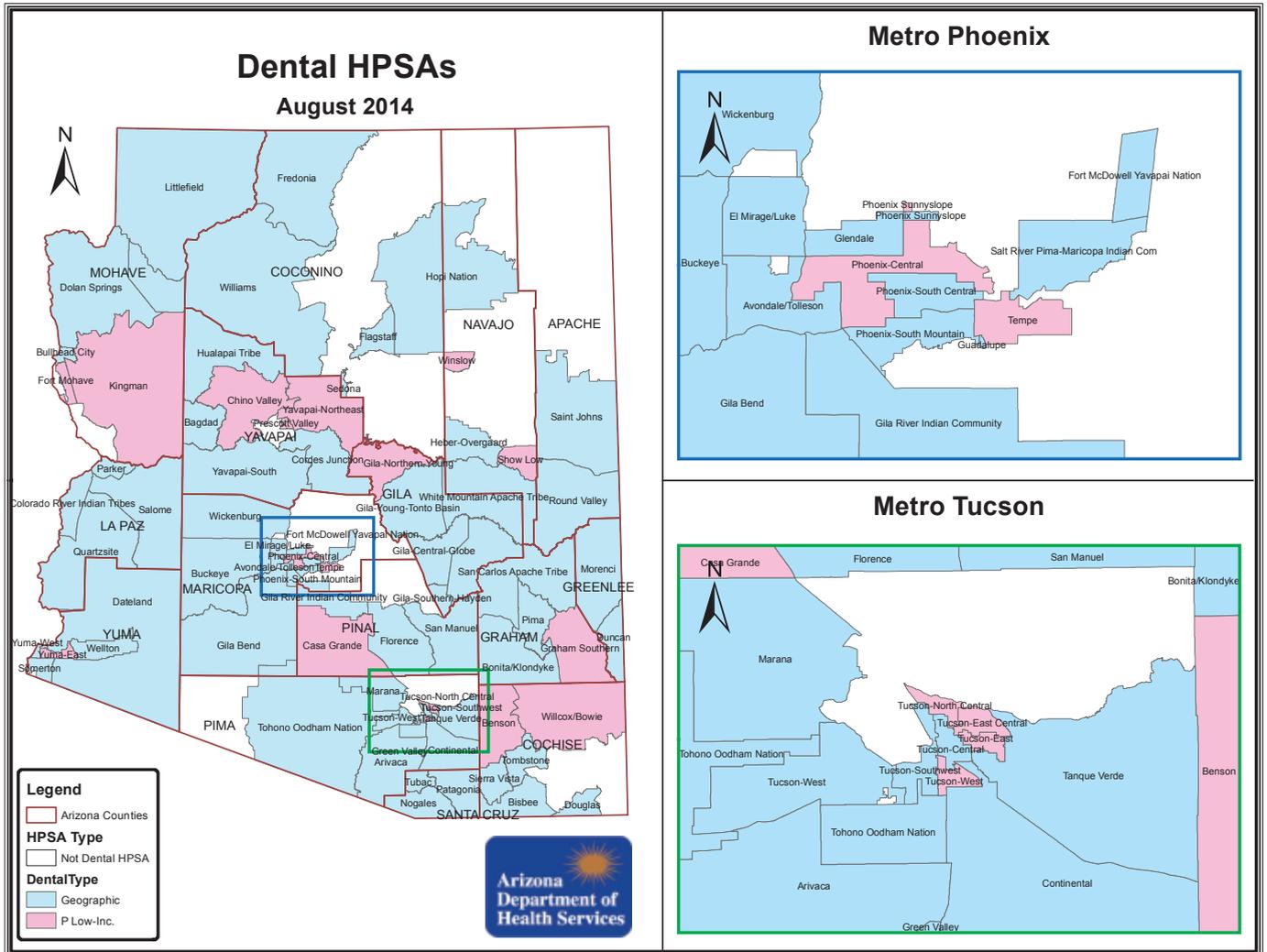
## Arizona Mental Health Professional Shortage Areas, 2014



Source: Bureau of Health Systems Development, Arizona Department of Health Services.

# Appendix V

## Dental Health Professional Shortage Areas



Source: Arizona Department of Health Services.



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## ***Our Mission***

*To inform, connect and support efforts to improve the health of individuals and communities in Arizona. In all that we do, St. Luke's Health Initiatives seeks to be a catalyst for community health.*

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# Allied Health Needs Assessment

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Prepared for Maricopa County Community College District



By Jane Irvine MSW, ACSW, LCSW and William G. Johnson, Ph.D.

*Jane Irvine Consulting*  
Health and Human Services

April 20, 2015

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### Organizations Participating in the Allied Health Needs Assessment

Abrazo Health Arrowhead Hospital  
Arizona Alliance for Community Health Centers  
Arizona Behavioral Health Corporation  
Arizona's Children Association  
Arizona Council of Human Service Providers  
Arizona Dental Association  
Arizona Healthcare Human Resources Association  
Arizona Department of Health Services  
Arizona Public Health Association  
Arizonans for Prevention  
Banner Health Network  
Barnet Dulaney Perkins Eye Centers  
Cardiovascular Consultants  
Cenpatico  
Chicanos Por La Causa  
Child & Family Support Services  
Cochise County Health Department  
Community Bridges Inc.  
Dignity Health  
Foundation for Senior Living  
Gila County Health and Emergency Services  
Helping Associates

HonorHealth (Scottsdale Lincoln Health Network)  
Marc Community Resources  
Maricopa County Health Department  
Mayo Clinic  
Mt. Graham Regional Medical Center  
Mountain Park Community Health Center  
NARBHA Health Choice Integrated Care  
NextCare Urgent Care  
Pasadera Behavioral Health Network  
Sonora Quest Laboratories  
Southwest Network  
Southwest Kidney Institute, PLC  
Spectrum Healthcare  
STAR - Stand Together and Recover Centers.  
The Guidance Clinic  
Touchstone Behavioral Health  
West Yavapai Guidance Clinic  
Westminster Village

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## Executive Summary

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The nature of employment in health care is changing rapidly with the advent of technological changes that include automation of functions such as translation, lab testing and the adoption of electronic medical records. The pace of change is accelerated by changes in the health care delivery model, of which movement to community based care and the integration of behavioral and medical care are prominent. The influence of the Affordable Care Act (ACA) on access to care is just beginning to be realized.

Maricopa County Community College District (MCCCD), Arizona's largest community college system, plays a major role preparing students for current and emerging allied health occupations with more than forty Allied Health Programs: 21 Associate of Applied Science degrees, and 41 certificate programs. MCCCD is committed to developing a highly skilled workforce to support the needs of Arizona's health care employers.

In 2014 MCCCD launched an assessment of the future of allied health occupations to assist MCCCD in strategic planning. The assessment addressed three objectives:

- Describe the Allied Health workforce needs of the health care industry in Arizona.
- Evaluate the extent to which the Maricopa Community College District (MCCCD) currently meets these workforce needs.
- Plan for changes in the Allied Health workforce over the next 3-5 years.

The results of the assessment are reported here. This report combines data from three sources, namely: individual interviews and focus groups with senior health care managers, secondary data on employment and wages, and a survey of selected health care organizations.

### Employer Interviews, Focus Groups and Surveys

Individual face to face interviews and focus groups were conducted with 46 senior executives from 23 organizations, representing more than 60% of the health care workforce in Arizona. Additional information was obtained from surveys of 26 persons representing 26 organizations.

- The single most important outcome of the interviews with senior executives was the willingness, expressed by 40 organizations, to partner with MCCCD on activities that include:
  - Collaboration on clinical placements
  - Workforce planning
  - Training and curriculum development
  - Participation as adjunct faculty

**Recommendation:** *MCCCD should quickly follow up with the potential partners, establishing a framework for maintaining and expanding the relationships by giving the partners non-*

*ceremonial tasks that allow them to make significant contributions to MCCCDC and to bind them more closely to MCCCDC as a source for their employees.*

The list of 40 organizations expressing interest in potential partnerships and collaborative efforts includes:

Abrazo Health Arrowhead Hospital	Gila County Health and Emergency Services
Arizona Alliance for Community Health Centers	Helping Associates
Arizona Behavioral Health Corporation	HonorHealth (Scottsdale Lincoln Health Network)
Arizona's Children Association	Marc Community Resources
Arizona Council of Human Service Providers	Maricopa County Health Department
Arizona Dental Association	Mayo Clinic
Arizona Healthcare Human Resources Association	Mt. Graham Regional Medical Center
Arizona Department of Health Services	Mountain Park Community Health Center
Arizona Public Health Association	NARBHA Health Choice Integrated Care
Arizonans for Prevention	NextCare Urgent Care
Banner Health Network	Pasadena Behavioral Health Network
Barnet Dulaney Perkins Eye Centers	Sonora Quest Laboratories
Cardiovascular Consultants	Southwest Network
Cenpatico	Southwest Kidney Institute, PLC
Chicanos Por La Causa	Spectrum Healthcare
Child & Family Support Services	STAR - Stand Together and Recover Centers
Cochise County Health Department	The Guidance Clinic
Community Bridges Inc.	Touchstone Behavioral Health
Dignity Health	West Yavapai Guidance Clinic
Foundation for Senior Living	Westminster Village

- Employers identified a wide array of training needs for the *current* workforce including:
  - Credential programs
  - Leadership Academy (training for front line supervisors)
  - Training in new technologies
  - Adding training in behavioral health for a variety of occupations
  - Re-certification training for various occupations including **Medical Billing Coders and Posting Clerks** and **Radiation and Respiratory Therapists**
  
- Several large hospital systems are initiating programs in community based health. Designed to minimize hospital admissions and re-admissions when hospitalization occurs, the programs differ in detail but share many of the same training needs. The current programs rely, for example, on retraining personnel from a variety of occupations to perform expanded duties needed to provide community based care. The types of occupations where re-training is needed include:
  - Health and Transition Coaches
  - Community Resource Aides

- Community Care Workers
  - Case Managers- Integrated Care
  - Patient Navigators
  - Emergency Medical Technicians and Paramedics
- The interviews and the survey results show that the implementation of integrated care (physical and behavioral health) in Arizona presents another strategic opportunity for MCCCDC to bring together the necessary interdisciplinary resources to play a significant role the development of curricula, workforce training and certification programs to prepare allied health workers at all levels to work in an integrated care model. A certificate program on integrated care for allied health care professionals in a range of occupations is needed.
  - We could not estimate the potential number of jobs for which interdisciplinary training will be required but the opportunities include both direct and supplementary training in behavioral health for the following positions :
    - Behavioral Health Technicians
    - Case Aides
    - Case managers
    - Clinical Information Technology
    - Direct Care Para-Professionals
    - Family Peer Support Partners
    - Health Information Informatics programs
    - Integrated Health Specialists and Coordinators
    - Management of Clinical Information Technology
    - Management of Clinical and Bioscience Informatics
    - Info Tech Specialists
    - Medical Records Clerks
    - Medical Assistants
    - Licensed Practical Nurse (LPN )
    - Parent Aides
    - Peer Support/Recovery Specialists
    - Population Care Managers

**Recommendation:** *MCCCDC contact the senior managers of each of the three RHBA Integrated Care Contractors to further explore the potential number of workers who will need training in integrated care. Cenpatico and NARBHA Health Choice indicated a willingness to partner with MCCCDC and there may be possibilities for a coordinated training initiative involving all three. (Note: An interview was not able to be completed with Mercy Maricopa Integrated Care in time for this report.)*

- Employers were asked to consider which forms of training would be most effective in meeting their needs for well-trained allied health care professionals. They suggested the following methods in combinations that could vary among employers as needed.

- Online and hybrid models (classroom and online).
- Classroom
- Work site
- Train the trainer

## **Projections**

The analysis of employment and wage trends for the years 2004-2012 and their extrapolation show the demand for most allied health care occupations will increase significantly, adding approximately 47,000 new jobs by 2020. The size of the increases, however, vary considerably among occupations and there are a few occupations where employment is expected to decline.

- Six occupations account for approximately eighty percent of the potential growth:
  - Personal Care Aides
  - Medical Records and Health Information Technicians
  - Emergency Medical Technicians and Paramedics
  - Medical and Health Services Managers
  - Medical Assistants
  - Pharmacy Technicians
- The four occupations for which employment is projected to decline are;
  - Medical Transcriptionists
  - Dietetic Technicians
  - Physical Therapy Assistants
  - Healthcare Support Workers
- One occupation shows declines in the number of persons in employed accompanied by above average increases in wages suggesting that there is a shortage: **Radiologic Technologists and Technicians**
- Trend based projections do not incorporate changes related to the re-definition or expansion of the services provided by workers within a traditional occupational classification. There are at least two occupations where the demand for care and potentially the scope of practice are changing as the result of mandates included in the ACA. The emerging occupations are:
  - **Expanded Function Dental Assistants**
  - **Community Dental Health Coordinators**

**Recommendation:** *The projections that we report have been compared to alternative estimates and to employer opinions and possible exceptions are described. Decision*

*makers should interpret the results as useful indicators of the likely direction of future trends and as useful but approximate estimates of the employment of allied health care workforce professionals. Comparisons of potential training opportunities among different occupations should not be based on small differences in estimated employment.*

## Introduction

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The professions in Health Care are dynamic, resulting in ever-changing training and workforce needs. The Maricopa County Community College District (MCCCD) is committed to developing a highly skilled workforce to support the needs of health care employers. MCCCD has forty plus Allied Health Programs: 21 Associate of Applied Science degrees, and 41 certificate programs. In 2012 - 2013, 15,715 students were enrolled in Allied Health Programs.

In July 2014, Maricopa County Community College District (MCCCD) engaged Jane Irvine Consulting (Jane Irvine LCSW and William Johnson Ph.D.) to conduct an assessment of emerging trends that affect the future of allied health occupations to assist in strategic decision making process. The objectives of the Allied Health Needs Assessment established by the Maricopa County Community College District (MCCCD) address three key areas:

- Identify the current Allied Health workforce needs of the health care industry in the Maricopa County region.
- Evaluate the extent to which the Maricopa Community College District (MCCCD) currently meets these workforce needs.
- Plan for new Allied Health workforce needs emerging in the next 3-5 years.

## Report Organization

This report, Allied Health Needs Assessment, reflects work performed and information collected for the period from July 30, 2014 to March 31, 2015. To address the three objectives the report is organized into five sections.

The **Introduction** and **Approach** section focuses on the background and conceptual framework utilized for the Allied Health Needs Assessment. The approach describes three components including development of a crosswalk matching the MCCCD allied health education tracks to U. S. Bureau of Labor Statistics (BLS) Standard Occupational Codes (SOC), application of the allied health crosswalk to the development of trend data on employment and wages, an employer survey and interviews with managers in health care and behavioral health organizations.

The **Allied Health Occupation Workforce Data Analyses** section focuses on growth trends for high, medium, low and declining allied health occupation, projections and wages.

The **Critical Issues and Trends** section presents key findings from interviews, focus groups and surveys highlighting major policy and practice initiatives impacting health care delivery.

The **Implications for Allied Health** section presents findings from interviews, focus groups and surveys focusing on **New Roles and Expanded Scope of Practice, Recruitment Challenges and Workforce Trends** and **Workforce Training Needs**.

The concluding section, **Synthesis of Findings: Strategic Opportunities and Challenges**, aligns information based on workforce analyses data, interviews and focus groups with senior managers in healthcare and behavioral health organizations and survey responses to

identify potential opportunities and challenges for Maricopa County Community College District.

## Approach

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The needs assessment included interviews, focus groups, and a survey for employers regarding Allied Health employment and training needs, soft and technical skills and clinical practicums required by the health care partners. Data was analyzed to current employment and labor trends, and projections for Allied Health professions in Maricopa County. In addition, the Needs Assessment gathered information from employers to determine how MCCCDC clinical partners view MCCCDC Allied Health programs and graduates they have hired, and how they define MCCCDC's role in the future. The components of the needs assessment included:

- In order to define the Allied Health Workforce a crosswalk was developed matching the Maricopa Community College District (MCCCDC) allied health education tracks to U.S. Bureau of Labor Statistics (BLS) Standard Occupational Codes (SOC).
- Application of the allied health crosswalk to the development of trend data on employment and wages for allied healthcare workers in Arizona.
- Interviewed 36 administrators from a representative group of 23 Arizona healthcare employers and conducted a focus group with 10 human resource directors from the Arizona Council of Human Service Providers Human Resource (HR) Committee to inform the Allied Health Needs Assessment. The original plan to meet with focus groups to inform the needs assessment was revised, substituting individual meetings with senior managers from a representative group of Arizona employers. A list of organizations and senior managers interviewed is presented in Appendix A.
- Created and distributed an on-line needs assessment survey to human resource managers in more than 332 healthcare organizations. Responses were received from 26 organizations providing healthcare and behavioral health services throughout Arizona. In an effort to inform the employer survey the consultants reached out to employers, associations and provider groups for feedback and assistance in survey design and distribution. The employer survey, instructions and summary of response data is included in a separate document (Technical Appendix).

Each of these activities is described in detail in the section below.

## The Allied Health Care Workforce Defined

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The MCCCDC staff provided descriptions of the categories of allied health care workers that are trained by MCCCDC. Categories were matched to the U.S. Standard Occupational Codes (SOC) that used by the federal and state government to conduct occupational and employment surveys. Difficulties in matching were resolved with the help of the MCCCDC

staff. A crosswalk, including text descriptions of each occupational category was developed to use in the development of trend data and, as described subsequently, in employer interviews. The 33 SOC categories provide a standard metric for classifying and comparing the results of the focus interviews, trend data from secondary sources and the results of the survey and to match all against the educational categories used by MCCCDCD in its programs. The Crosswalk of MCCCDCD Allied Health Programs to BLS SOC Occupations is presented as Appendix B.

## Interviews and Focus Groups

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Initially the approach was to consist of a series of focus groups, drawing from persons with whom MCCCDCD has contact. The contacts included more than 1,800 persons, most of whom supervise allied health personnel and/or MCCCDCD student interns. Given the very large amount of information that MCCCDCD collects from this group, the approach was revised to one which would yield complementary information from a different group.

Senior managers from organizations that employ allied health care personnel were selected with the assistance of the MCCCDCD staff to inform the approach to the Allied Health Needs Assessment Project. The difficulty of scheduling senior managers for group sessions led us to embark on one-on-one, in-depth interviews. Background materials, including a general description of the study, the study personnel, a copy of the crosswalk and a draft survey instrument were supplied to potential interviewees with an invitation to participate. The interviews were directed but not tightly structured to allow for complete expression of the respondents' ideas given their very high levels of expertise and responsibility. Interviews focused on the following discussion areas:

- Overview of employer organization (model, experience, implementation issues)
- Comments and suggestions on approach to Allied Health Needs Assessment
- Workforce Survey
- Allied health workforce challenges and opportunities
- Workforce training needs
- Methods of training delivery
- Emerging occupations
- Changing roles for current allied health occupations
- Potential partnerships with Maricopa County Community College District
- Internships and clinical placements

Organizations were selected to represent, to the degree possible, the full range of potential employers by size and the nature of the services that they provide. Outreach to provider associations was instrumental in gathering general information on trends and identifying providers to interview. One focus group was conducted with 10 Human Resource Directors representing member agencies of the Arizona Council of Human Service Providers. A total of 46 individuals participated in interviews and focus groups representing 23 organizations. Additional efforts were made to schedule interviews with additional organizations but were not able to be scheduled within the timeframe for the report. In some larger organizations,

more than one senior manager was interviewed. The interviews generally lasted one hour or more and were conducted either in person or via conference call, depending on the preferences of the respondents. Interviews were completed with senior managers from organizations that, together, employ more than 100,000 persons (including but not restricted to allied health care occupations).

The interviews with senior managers from healthcare and behavioral health organizations produced findings in several areas including:

- Issues related to current status and future need for allied health care personnel in the respondents' respective organizations.
- Training needs for their existing workforce, changing roles in allied health occupations and new or emerging occupations.
- Suggestions for the organization of the Allied Health Needs Assessment Employer Survey.
- Potential opportunities for partnership with Maricopa County Community College District and post-secondary academic institutions.
- Any other comments that the respondents considered relevant.

A list of organizations and senior managers interviewed is presented in Appendix A.

### Allied Health Needs Assessment Employer Survey

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A brief review of recent allied healthcare workforce survey projects in Arizona other states was conducted to provide context for the MCCCD project in Arizona. Projects from Alaska, Arizona, California, Maryland and New York provided valuable information on survey design, data collection, findings and lessons learned.

Interviews conducted with Human Resource Directors of healthcare organizations provided feedback resulting in revisions to the approach for the Allied Health Needs Assessment Survey. Key findings that were incorporated into the approach include:

- Survey questions requesting data on vacancies and turnover were eliminated from the Allied Health Needs Assessment Survey. Occupational trend data from existing public reports will be utilized as a comprehensive data source.
- Added a direct question addressing current partnerships with MCCCD. Specific questions were added to the survey asking respondents for consent to share information on emerging allied health occupations and partnership opportunities with MCCCD to facilitate dialogue and follow up on potential opportunities.
- Use of BLS – SOC Titles in the Allied Health Needs Assessment survey was supported as a framework for occupations by healthcare administrators interviewed. Suggestions were made and incorporated to clarify and supplement some of the occupation titles (Medical and Health Services Managers and Natural Sciences Managers) with common job descriptions such as Health Services Management, HealthCare Regulatory Compliance.

- Human Resource Directors were the target respondents for the Allied Health Needs Assessment survey. Information on allied healthcare occupations, recruitment activity and qualifications of applicants is maintained in human resource departments. Associations and organizations with the capacity to reach healthcare employers were asked to distribute survey invitations. Examples of these organizations include:
  - Arizona Council of Human Resource Providers
  - Arizona Dental Association
  - Arizona Alliance of Community Health Centers
  - Arizona Healthcare Human Resources Association (an affiliated chapter of the American Society for Healthcare Human Resources Administration ASHHRA)
  - Arizona Hospital and Healthcare Association
  
- In addition, survey invitations were sent to Human Services Directors and hiring managers of small, medium and large allied health employers not included in the above-mentioned organizations or associations. A list of more than 1000 statewide organizations that participate with Maricopa County Community College District in clinical partnerships was utilized as a resource. More than 332 organizations were invited to participate in the Employer Survey between February 9- April 3, 2015 resulting in 26 responses.)

## Allied Health Occupations Trend Analyses

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Employment and wage data for the twenty-five occupations of interest to MCCCCD were obtained from U.S. Bureau of the Census, Bureau of Labor Statistics and from the employment data and projections supplied by the Arizona Department of Administration (AZDOA). Annual data for the period 2004-2012 were used to calculate average annual rates of change and rank the occupations by the relative size of their growth rates.

To test for possible inflections in trends, average annual rates of change were also calculated for the period 2008-2012 and compared to the longer period results. Initial estimates using OLS regression produced results little different from the application of the annual rates of change and the latter were used to project changes in employment for the period 2013-2020.

Our projections were compared to recent estimates from AZDOA as a safeguard against errors attributable to incorrect assumptions or errors in data even though the two sets of projections are not strictly comparable. Differences that could affect decision making were discussed and recommended interpretations were described.

A final set of projections were described in terms of the number of potential jobs, the product of the employment size of an occupation and the growth rate, as the most relevant for MCCCCD decision making regarding potential demand for students.

## Allied Health Occupation Workforce Data

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This section of the report examines secondary trend data on the employment and wages of allied health care personnel in Arizona. The data are used in concert with the information from employer interviews and the survey to produce the final results. Trend data are useful because they incorporate objective information over several years that can be used to project the future so long as the determinants of the trends do not change. The possibility of future changes, including needs for re-certification of currently employed personnel, can, however, only be acquired from employers and others with expert knowledge of changes in technology and the nature of occupations that are part of their planning horizon but not yet reflected by the trends. In subsequent sections, we will compare the results of the trend analysis and the projections described in this section, to the opinions we have obtained from employer interviews and the survey.

One important limitation of employment trends is that the data represent numbers employed rather than directly measuring demand so, for example, a decline in employment could represent a shortage. In a subsequent section, we present information on changes in wages, focusing on occupations where the wage data appear to be inconsistent with trends in employment. An occupation with low or declining growth in numbers employed could represent a declining demand or it could imply a shortage. If a shortage exists then we expect above average wage growth while a declining demand should be accompanied by declining or below average wage growth.

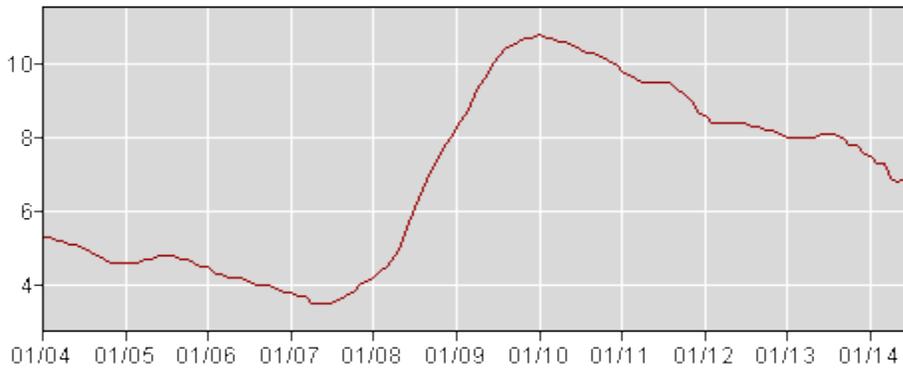
## Trends in Employment

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The data in this section are described graphically for ease of comparison and in tables that permit a more detailed examination of year to year changes. Trends in total employment are accompanied by descriptions of average annual rates of change. Data are briefly summarized for all allied health care occupations but our primary focus is on information specific to each of the twenty five occupations of special interest to MCCCDC.

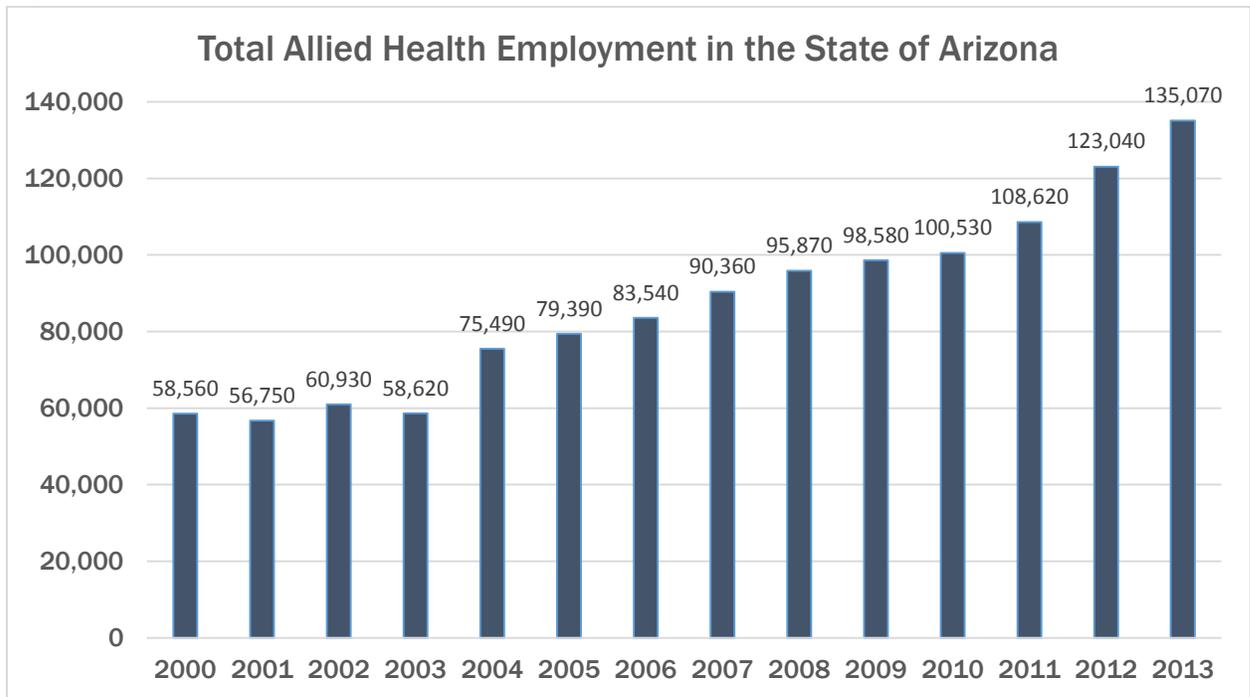
One important influence on employment during the years under study is the recession that began in 2008. The recession in Arizona lagged the national recession and recovery is not yet complete. Unemployment rates for all occupations in Arizona increased from 3.7% in 2006 to 6% in 2007, peaked at 10.5% in 2009 and remained high (8.3%) in 2013. (<http://www.bls.gov/lau/tables.htm>; <http://www.bls.gov/lau/staadata.txt>).

**Figure 1. Unemployment Rates in Arizona by Month 2004-2014**



Employment of some health care professionals, especially registered nurses, is known to be counter-cyclical. It is difficult to tell from the data in Figure 2 whether the effect is equally strong for allied health care personnel but it is true that employment increased in each of the recession years. The average annual percentage change in employment slowed during the worst years of the recession, increasing since 2010. Our analysis of the occupation specific data identifies potential changes in the longer trends by comparing rates of change from 2008-2012 to the overall period.

**Figure 2. Allied Health Employment in Arizona 2000-2013**



Source: AZDOA; [www.azstats.gov](http://www.azstats.gov)

The time series on employment includes a rather sudden shift between the period 2000-2003 and 2004 and reports for many occupations are incomplete between 2000-2003. At the time of writing this report, the data for 2013 were not yet complete. We restrict our analysis of the trend data for the specific occupations of interest, therefore, to the years 2004-2012.

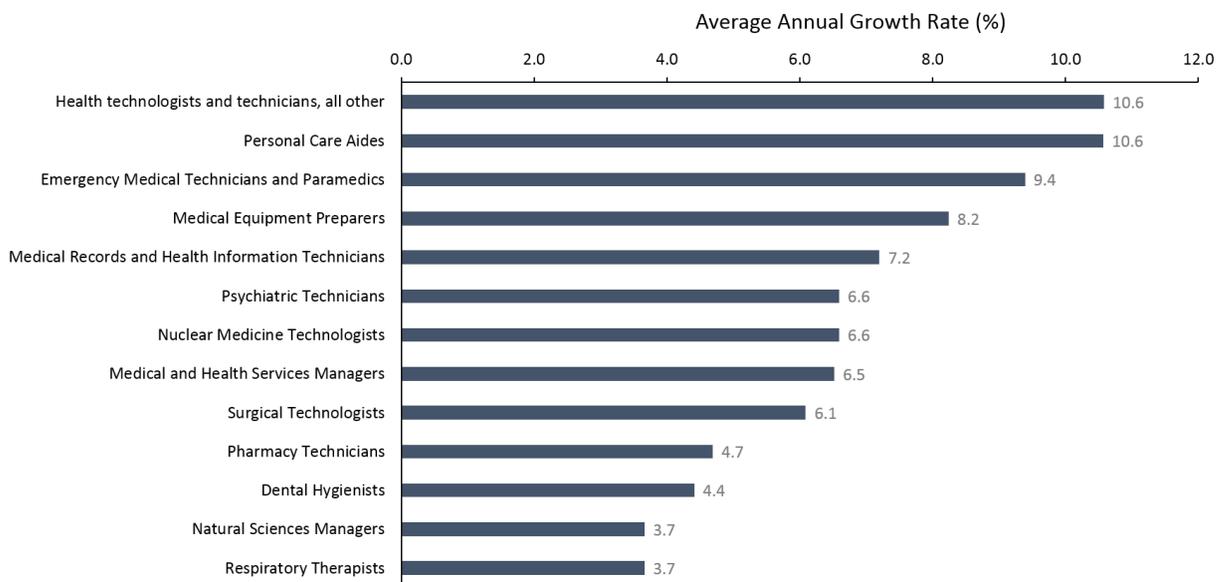
Planning for educational programs involves both the dimensions of growth rates and of the absolute numbers of students. It is possible, for example, that a relatively small but rapidly growing occupation might or might not require a sufficiently small set of resources to justify the operation of an academic department devoted to that training. Alternatively, a relatively slow growth occupation with a very large number of potential jobs requires a somewhat different type of plan. To provide information on both dimensions we first classify the twenty-five occupations by their annual average rates of growth; then describe the relative numbers of persons in each occupation and, finally, project future demand combining both the growth rates and the numbers of potential jobs.

### Average Annual Growth Rates in Employment

Figures 3 through 4 summarize the average annual growth rates in employment for each of the twenty five occupations of interest.

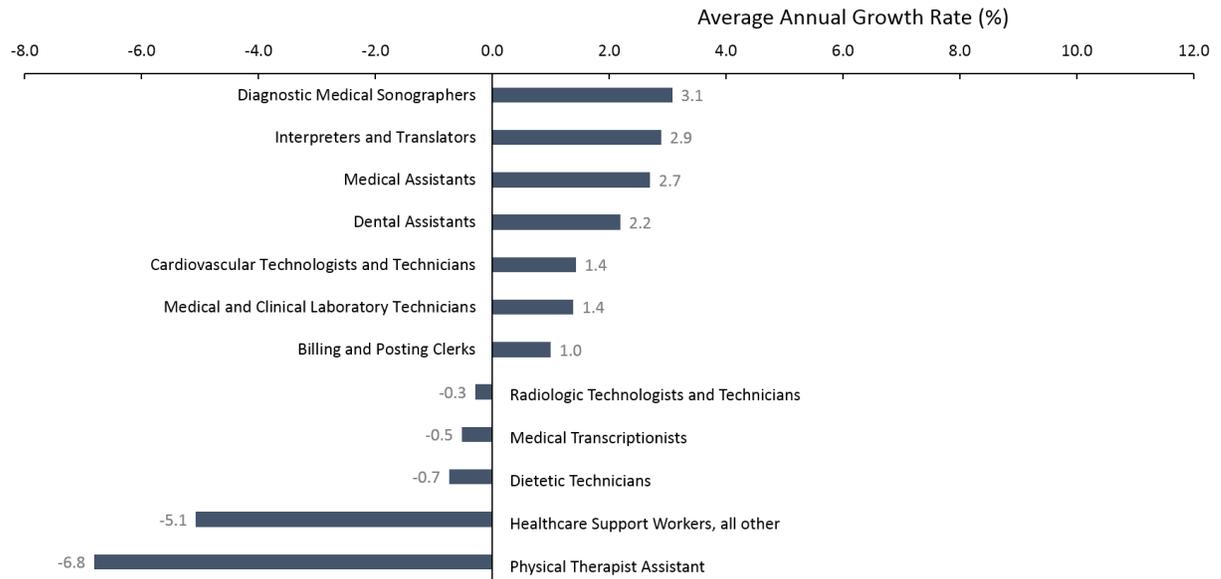
**Figure 3. Arizona Allied Health Occupations: Average Annual Employment Growth Rate (2004-2012) Highest Average Annual Employment Growth**

**AZ Allied Health Occupations: Average Annual Employment Growth Rate (2004-2012)**  
Highest Average Annual Employment Growth



**Figure 4. Arizona Allied Health Occupations: Average Annual Employment Growth Rate (2004-2012) Lowest Average Annual Employment Growth**

**AZ Allied Health Occupations: Average Annual Employment Growth Rate (2004-2012)**  
 Lowest Average Annual Employment Growth (CONTINUED)



We classify the allied health occupations, by changes in employment, into three groups, namely high growth, medium growth and low or declining growth included in the third group. The data for some occupations are omitted because they refer to too short a period to generate a robust trend.

Allied health employment (all occupations) in Arizona has increased by approximately 63% between 2004 and 2012, representing an annual average growth rate of approximately 6.3%. As our analysis demonstrates, however, the aggregate results include a mix of occupations that include above average rates of growth; occupations with moderate growth; a low growth group and a group where employment is declining.

The high growth group includes occupations with average annual growth rates that are above the average of 6.3%. The medium growth group includes occupations with growth rates below the aggregate average but greater than one-half of that average (3.7%). Low growth occupations are defined as those with rates of change greater than zero but less than 3.7%.

The information in Table 1 shows eight occupations in the high growth group with average annual growth rates ranging from 6.6% to 10.6%. Average annual growth rates for the five occupations in the medium growth group ranged from 3.7% to 6.1%. The low growth group includes seven occupations with growth rates ranging from 1.0% to 3.1%. There are five occupations in the final group with annual average rates of decline that range from slightly

more than **-0.3%** to **- 6.8%**. There are six occupations for which the data are not sufficient to estimate a trend.

Average annual growth rates are useful as comparable measures among the many occupations but the results for individual occupations require additional analysis. To better visualize year to year variations in the trends, employment that is larger than that in the previous year is presented in green; declines from the previous year are depicted in red and small changes (effectively stable) are printed in black. The data for 2004 are in black since we do not compare 2004 to 2003.

The final right hand column of the table indicates the rank of the occupation by number of persons employed in 2012.

**Table 1. Employment Trends 2004-2012 & Employment Rank 2012**

Occupation Code	Occupation; High Growth Rate	2004	2005	2006	2007	2008	2009	2010	2011	2012	Annual % 04-12	Annual % 08-12	Size Rank
29-2099	Health technologists and technicians, all other	720	230	380	430	470	570	917*	1264*	1610	10.6	36.0	15
39-9021	Personal Care Aides	8810	12310	11460	13780	12280	12650	11460	16400	19680	10.6	12.5	1
29-2041	Emergency Medical Technicians and Paramedics	1780	2630	2530	3810	3540	3760	3560	3540	3650	9.4	0.8	9
31-9093	Medical Equipment Preparers	430	490	380	530	640	640	570	720	810	8.2	6.1	24
29-2071	Medical Records & Health Information Technicians	3040	3620	4060	4430	4440	4510	4870	5070	5300	7.2	4.5	7
11-9111	Medical and Health Services Managers	4180	4810	5060	5510	5730	6120	6520	6760	6930	6.6	4.5	4
29-2053	Psychiatric Technicians	810	1130	1410	1040	780	940	1250	1060	1350	6.6	14.7	18
29-2033	Nuclear Medicine Technologists	240	340	320	400	400	400	340	370	400	6.6	0.0	25
<b>Occupation: Medium Growth Rate</b>													
29-2055	Surgical Technologists	1240	1030	930	1000	1210	1490	1680	2000	1990	6.1	13.2	13
29-2052	Pharmacy Technicians	4670	5650	6020	6440	6920	7620	7020	6710	6740	4.7	-0.7	5
29-2021	Dental Hygienists	2400	2540	3070	2990	3030	2700	2910	3280	3390	4.4	2.9	11
29-1126	Respiratory Therapists	1800	2160	2690	2450	2540	2260	2260	2360	2440	3.7	-1.0	12
11-9121	Natural Sciences Managers	630	670	490	580	630	720	670	770	840	3.7	7.5	22
<b>Occupation: Low Growth Rate</b>													
29-2032	Diagnostic Medical Sonographers	910	610	700	670	750	840	860	1060	1160	3.1	11.5	19
27-3091	Interpreters and Translators	1170	1050	940	800	1040	1080	1000	1260	1470	2.7	9.0	16
31-9092	Medical Assistants	10790	7940	8700	9550	12120	12590	13050	12410	13350	2.7	2.5	2
31-9091	Dental Assistants	5180	5450	5410	5390	5850	6340	6530	6270	6160	2.2	1.3	6
29-2031	Cardiovascular Technologists and Technicians	830	910	1020	990	940	920	870	860	930	1.4	-0.3	19
29-2012	Medical and Clinical Laboratory Technicians	3090	2190	2330	2710	2940	2510	3640	3500	3450	1.4	4.1	10
43-3021	Billing and Posting Clerks	8550	8500	9450	9230	9840	9120	8740	8710	9260	1.0	-1.5	3
<b>Occupation: Declining Employment</b>													
29-2034/37	Radiologic Technologists and Technicians	3910	3630	3540	3990	4500	4810	5050	4600	3820	-0.3	-4.0	8
31-9094	Medical Transcriptionists	1460	1560	1450	1460	1930	2110	2070	1540	1400	-0.5	-2.7	17
29-2051	Dietetic Technicians	870	810	690	530	400	540	580	690	820	-0.7	19.7	23
31-9099/79	Healthcare support workers, all other	2700	2610	2630	2780	2600	2300	2400	2990	1780	-5.1	-9.0	14
31-2021	Physical Therapist Assistants	1530	940	860	840	970	870	820	730	870	-6.8	-2.7	21

\*Employment estimated from growth 09-12

## High Growth Occupations

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The two most rapidly growing occupations in the high growth group are **Health Technologists and Technicians (29-2099)** and **Personal Care Aides (39-9021)** with annual average growth rates of 10.6% each. It seems likely that the growth in these occupations is an example of (1) the increasing use of technology to substitute for personnel and (2) the well-known, dramatic expansion in the elderly population caused by the “baby boom”.

The growth in employment for these two groups is continuing. There is some year to year variation but employment of Health Technologists increased at an average annual growth rate of 36.0% between 2008-2012. The growth rate for the same period is 12.5% for Personal Care Aides, slightly above its longer term average. The number of persons employed as Health Technologists is not very large (N=1,610) but more persons employed as Personal Care Aides (N=19,680) than in any of the other occupations that we study. Approximately 19,680 persons worked as Personal Care Aides in 2012. Thus, a one percent change in employment implies a much larger increase in the number of potential trainees for Personal Care Aides than for Health Technologists.

The employment of **Emergency Medical Technicians and Paramedics (29-2041)** grew at an annual average rate of 9.4% between 2004 and 2012. Although year to year variations are relatively small, there are three years in which employment dropped, one year in which it was stable and four years in which employment increased. The growth in employment has rather dramatically slowed in recent years with an average annual growth rate of only 0.8% between 2008-2012. The overall rate of 8.3% really only represents growth in the years from 2004-2008 and is not a good predictor of the future unless some structural change occurs. The number of persons employed as Emergency Medical Technicians and Paramedics (N=1,610) ranks 15<sup>th</sup> out of 24 occupations.

The next of the high growth occupations is **Medical Equipment Preparers (931-9093)**. Employment increased at an annual average rate of 8.2% from 2004-2012. Employment was unchanged during the first two years of the recession (2008-2009), declined in two years and increased in two years. The increases are slowing slightly, with growth rates between 2008-2012 dropping to 6.1%. There are relatively few persons employed in the occupation, ranking next to last in terms of numbers employed.

**Medical Records and HIT Technicians (29-2071)** is the sixth ranked occupation in terms of numbers of persons employed. The occupation experienced the most rapid growth of occupations in the medium growth group with an annual average growth rate (7.2%). The trend has been consistent with no years in which employment fell and only one year in which there was no change in employment. Recent growth has slowed, however, with the average growth rate falling to 4.5%.

The next three occupations in the share an annual average growth rate of 6.6% for 2004-2012 but differ greatly in terms of their likely future growth and in their relative importance in terms of numbers of workers and potential students.

**Medical and Health Services Managers (11-9111)** includes the largest number of workers of the three occupations, ranking 4<sup>th</sup> among all the 24 allied health occupations. The

growth in employment over time is the most consistent of the three occupations, increasing in every year since 2004 , but the growth rate declined to 4.9% in the 2008-2012 time period.

**Psychiatric Technicians (29-2053)** is the next largest occupational group among the three, ranking 17<sup>th</sup> among the 24 occupations. The trend in employment has been subject to considerable year to year variation. Employment increased in five years and declined in three others. The recent (2008-2012) trend reveals a much higher rate of growth, namely 14.7% than the longer term average. That result may, however, be deceptive because, during the first year of the recession (2008), employment dropped to the lowest number in the series, from 1,040 to 780, a 25% reduction in one year. The drop was followed by a 21% increase in employment in 2009. Variations of this size are somewhat suspect because they may indicate problems with data collection. Whatever the cause, when 780 is used as the base in calculating recent trends, it greatly increases the estimated annual average rates of change.

The third and smallest group of workers whose employment increased annually by 6.6% is **Nuclear Medicine Technologists (29-2033)**. There were only 400 workers employed in this occupation in 2012, making it the 24<sup>th</sup> of 24 occupations in terms of the size of employment. Employment trends are unusually stable with employment unchanged in three of the years; increasing in three years and declining in two years. The changes, both positive and negative, are, however, very small. Recent trends suggest that the stability will continue. The number of persons employed in 2012 is exactly equal to the number employed in 2008.

### Medium Growth Occupations

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**Surgical Technologists (29-2055)** rank fourth in rates of growth among the moderate growth group with an annual average growth rate of 6.1%. They rank 13<sup>th</sup> by size of employment, with nearly 2,000 persons employed in 2012. Employment declined in two early years but has steadily increased since then with the exception of 2012 when there was essentially no change from the previous year. Employment grew more rapidly in the 2008-2012 period, with an annual average rate of approximately 13.2%. Employment may, however, have reached a plateau since approximately the same number of persons were employed in 2013 (partial year data) as in 2011 and 2012. The trend data suggest, absent additional information, suggest that the employment of Surgical Technologists is unlikely to increase in the next few years.

**Pharmacy Technicians(29-2052)** are one of the larger occupations, ranking 5<sup>th</sup> out of 24 occupations with total employment equal to 6,940 in 2012. Employment increased consistently from 2004-2009 then decrease in 2010 and 2011. The rate for the last five years shows an average decline of -0.7% compared to an annual average increase of 4.7% for the full period.

The trend in employment for **Dental Hygienists (29-2021)** is one of moderate increase (4.4% annually) with moderate year to year variations. The trend in the five most recent years is one of positive growth at diminishing rates with an average equal to 2.9%. Ranked 11<sup>th</sup> in size of employment, 3,390 persons worked as Dental Hygienists in 2012.

Ranked next to Dental Hygienists in size of employment, Respiratory Therapists (29-1126) grew in size at 3.7% annually for the nine year period with rather minor year to year variation in numbers employed. Between 2008 and 2012, employment changed by only 110 persons, decreasing from 2,540 to 2,440. The average annual rate for the recent years was, therefore, negative at -1.0%. Preliminary, partial year data from 2013 show an increase of more than 200 workers. The year to year variations suggest that employment in this occupation is likely to increase slightly in the future.

**Natural Sciences Managers (11-9121)** are one of the smallest of the occupations, ranking 21<sup>st</sup> of 24 occupations in employment size. The trend in employment is characterized by relatively small changes from year to year with an annual average of 3.7% growth. Employment in 2010 was, for example, equal to the number employed in 2005 and essentially the same (only 10 persons different) as in 2004. Most of the growth represented by the 3.3% rate is due to increase that occurred during 2011 and 2012. The annual average rate of change (2008-2012) was, for example, 7.5%. There was, however, a small drop in employment for partial year 2013, so the potential for future increases is uncertain. It is likely that the best available assumption for prediction is the annual average rate of 3.3%.

### Low Growth Occupations

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The trend for **Diagnostic Medical Sonographers (29-2032)** shares the characteristics of the trend for the preceding occupation. That is, one of relative stability for most years with significant increases in 2011 and 2012. The important difference between the two occupations, however, is that for this group, the 2013 data show a continuing increase. The long period average annual growth rate is 3.1% and the recent trend indicates an average rate of 11.5%. The occupation has an employment size rank of 18. The trend results suggest that employment will continue to increase at rates above the current long term average.

**Interpreters and Translators (27-3091)** exhibit a rather curious trend in employment. Despite an annual average growth rate of 2.7%, employment declined in four of the nine years and was effectively constant in a fifth year. The number of employed workers was lower than in 2004 in every year until 2011. The positive growth rate is largely the result of relatively large increases in 2011 and 2012 as reflected by the annual growth in recent years of 9.0%. Employment continued to increase in 2013. The trend data imply that employment will continue to expand, growing at rates in excess of 2.6%.

**Medical Assistants (31-9092)** experienced only two years in which employment declined but growth has been modest with an average annual rate of 2.7%. The trend remains quite stable when the time period is restricted to 2008-2012, dropping slightly to 1.3%. The group is, however, the second largest in terms of numbers employed so small changes in percentages represent a relatively large number of jobs and the potential for a need for training.

Although growth rates (1.9%) for **Dental Assistants (31-9091)** are nearly equal to those for Medical Assistants, the trend is different with several years without changes in employment and, potentially more important, declines in the two most recent years. Preliminary data

show a slight increase in 2013 but total employment in 2013 is less than in 2010. Ranked 6<sup>th</sup> in terms of size of employment, the data suggest that , at best, employment will be relatively stable with some demand for new employees to replace attrition. It is not known, however, how many trained dental assistants may be employed in other fields since there has been such limited expansion since 2004.

**Cardiovascular Technologists and Technicians (29-2031)** represent a relatively small group of allied healthcare workers, ranking 19<sup>th</sup> out of 23 in employment size. Employment increased in two of the years, declined in two years and remained the same in three years. The result is a relatively stable trend characterized by a low annual average rate of change of 1.3%. The more recent trend indicates a decline of -0.2% but that change is sufficiently small to be within variations around the historical trend so it seems reasonable to expect that growth should continue at the long term rate.

The **Medical and Clinical Laboratory Technicians (29-2012)** occupation includes approximately 3,450 employed workers in 2012, ranking 10<sup>th</sup> in employment size. The long term average annual growth rate is 1.4% with an increase in recent years to 4.1%. Employment in this occupation declined after 2007, not closely approaching the number of persons employed in 2007 until 2008. The partial year data for 2013 show, however, a reduction that lowers employment to the 2008 level, suggesting that the trend is reverting to the longer term growth rate.

The occupation that sits at the boundary between low growth and declines is **Billing and Posting Clerks (43-3021)**. It is a very large group, ranking third in terms of employment, but it has both a very low growth rate (1.0%), further reduced by a decline in the more recent years of -1.5%. The 2013 data show an additional decline, although it is small in absolute terms. Although further decline is possible, we think it is reasonable to assume that the longer term trend will prevail.

## Declining Occupations

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Four of the five occupations with declines in employment show declines in both the long term and the more recent years. The exception is **Dietetic Technicians (929-2051)** with a long term rate of decline equal to -0.7% but a positive growth rate of 19.7% for the period 2008-2012. The 2012 employment was 820 persons, the first time since 2005 that the number was greater than 800 since 2005, with employment in the intervening years ranging from 200 to 690. Employment did increase slightly in 2013 so it is possible that the long term trend may be converted to one of small but more stable growth.

**Radiologic Technologists and Technicians (29-2034/2037)** is the largest in number of the declining occupations, ranking 8<sup>th</sup> in employment size. Its long term rate of decline (-0.3%) increased significantly to -4.0% in the more recent period, reinforcing the downward trend.

A similar pattern of long term decline with rates of decline increasing for the 2008-2012 period is observed for two other occupations. The long and more recent rates of decline for the three are respectively : -0.5% and -2.7% for **Medical Transcriptionists (31-9094)**; -5.1% and -9.0% for **Healthcare Support Workers (31-9099/9079)**.

**Physical Therapist Assistants (31-2021)** had the largest average annual rate of decline for the entire period (-6.8%). Although the rate of decline moderates in recent years, (-2.7%) the trend is clearly toward declining employment.

### Summary of Trend Data

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The trend data for 2004-2012 show that eight occupations have annual average growth rates that exceed the overall growth rate for all allied healthcare occupations combined. The remaining occupations include twelve groups with low to moderate growth and five occupations where the trend is clearly negative. We also examined trends from 2008-2012 which include the most severe years of the recent recession and speculated on how differences between them and the longer term results could influence the future. The differences between the longer and more recent trends do not, however, consistently reinforce or contradict the longer term trends, making it difficult to evaluate associations between differences in the trends and the gradual, not yet complete, recovery from the recession.

The information presented in this section has ranked occupations by growth rates, and rankings by size of employment have been described. The demand for training, however, is based on the number of persons being sought by employers. Our projections for the future, which are described in the next section use the product of number employed and growth rates to predict the likely number of jobs for which trained personnel will be needed.

Trend data are always limited by the fact that they simply extend past behavior without any substantive content. As we have stated, therefore, the trend data results will be compared to the expert opinions and the responses from the general survey. The strongest set of inferences will be created in those cases where the three sources of information agree.

### Projections Ranked by Growth Rates

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This section describes our estimates of the changes in employment for each of the occupations between 2012 and 2020. Predictions of employment are typically based on the extrapolation of past trends. Although this is often the best available information, trend predictions are valid only to the extent that the underlying structure of influences on employment is stable over time. The information presented in this section needs to be interpreted with those limitations in mind. Trend projections are useful so long as they are interpreted as very general approximations of the likely future. Turning points associated with changes in the structural relationships are rarely, if ever, predicted from trend data as many investors in stock markets have learned to their regret. It is literally impossible to predict future events unless the structure of influences embedded in historical data does not change or the changes are known in advance.

The influences on the demand for allied health care workers that can change include the expansion of health insurance coverage under the ACA; the limitations on the ACA that could be imposed by the U.S. Supreme Court decision in June; the recent state legislation limiting payments to AHCCCS providers; changes in technology, such as the recent changes in technologies that included automated lab tests, electronic health records and language translation. Changes in the types of health care services include the aging of the population

with the increase in the management of chronic illness, although that should be reflected in part by the current trends. We hope to complement the trend based projections with the information on potential changes gathered from the employer interviews.

We suggest that the projections be interpreted as very general but useful approximations and not as precise estimates. Large differences in the numbers employed or the growth rates of wages and employment should be accepted as meaningful. Small differences should be interpreted to be within the cone of probable error.

Recognition of the limitations must not, however, lead to dismissal of the trend results. Rather they should be compared to the next best alternatives for planning for the future. Too often, organizations adopt strategies more based on the presentation skills and commitments of their authors than the likelihood of success.

The projections shown in Table 2 apply the long term growth rates, with a few exceptions, to the 2012 data to estimate the number of persons employed in allied health care in Arizona in each of the relevant occupations.

<b>Table 2. Projections for Persons Employed in Allied Health Care in Arizona</b>								
<b>Occupation</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>High Growth Rate</b>								
Health technologists and technicians, all other	1780	1969	2177	2407	2662	2944	3255	3599
Personal Care Aides	21760	24060	26603	29415	32525	35962	39764	43967
Emergency Medical Technicians and Paramedics	3993	4368	4778	5226	5717	6254	6841	7484
Medical Equipment Preparers	877	949	1027	1112	1203	1303	1410	1526
Medical Records and Health Information Technicians	5682	6091	6529	6999	7503	8043	8623	9243
Psychiatric Technicians	1439	1534	1635	1743	1857	1980	2110	2249
Nuclear Medicine Technologists	426	454	484	516	550	587	625	666
Medical and Health Services Managers	7382	7863	8376	8922	9504	10123	10783	11486
<b>Medium Growth Rate</b>								
Surgical Technologists	2111	2240	2376	2521	2674	2837	3010	3193
Pharmacy Technicians	7056	7387	7733	8096	8476	8873	9290	9725
Dental Hygienists	3539	3696	3859	4029	4206	4392	4586	4788
Natural Sciences Managers	871	903	936	970	1005	1042	1080	1120
Respiratory Therapists	2529	2622	2718	2817	2920	3027	3138	3253
<b>Low Growth Rate</b>								
Diagnostic Medical Sonographers	1,160	1,196	1,233	1,271	1,390	1,433	1,477	1,523
Interpreters and Translators	1512	1556	1601	1647	1695	1744	1794	1846
Medical Assistants	13710	14081	14461	14851	15252	15664	16087	16521
Dental Assistants	6295	6433	6574	6718	6865	7015	7169	7326
Cardiovascular Technologists and Technicians	943	957	970	984	998	1013	1027	1042
Medical and Clinical Laboratory Technicians	3498	3547	3596	3646	3697	3748	3800	3853
Billing and Posting Clerks	9353	9446	9541	9636	9732	9830	9928	10027
<b>Declining Growth</b>								
Radiologic Technologists and Technicians	3809	3798	3787	3776	3765	3754	3743	3733
Medical Transcriptionists	1393	1386	1378	1371	1364	1357	1350	1343
Dietetic Technicians	814	808	802	796	790	785	779	773
Healthcare support workers, all other	1694	1612	1535	1461	1390	1323	1259	1198
Physical Therapist Assistants	815	763	714	668	626	586	549	514

It is always wise, where possible, to compare one's estimates to a second source to identify the possibility of substantial errors. We compare our projections to the most recent allied healthcare workforce projections from the Arizona Department of Administration as a check on consistency. Although the assumptions and methods are different, the time period for the ADOA projections is quite short and we expect that any extremely large differences should be noted. The AZDOA projections described in Table 3 are their most recent but are for such a short period of time that the current projection ends next year. We follow the convention of highlighting in red AZDOA estimates that are higher than our estimates and highlighting in green estimates that our lower.

The comparisons with the DOA projections assume that differences that do not exceed 15% do not suggest any need for additional discussion. The selection of 15% is arbitrary but, in general, differences of less than 15% would involve numbers of workers so small as to be well within the variances of both projections. Many of our estimates for 2016 are not very different from those of the AZDOA so we would expect their 2020 estimates to also be similar. There are, however, some exceptions and we consider them next.

Table 3. Comparison of Projections to DOA Estimates						
Comparison of Projections to DOA estimates	HRAA 13	AZDOA 13	HRAA 16	AZDOA 16	Diff+	HRAA20
<b>High Growth Rate</b>						
Health technologists and technicians,	1780	2,099	2407	2,352	<15%	3,599
Personal Care Aides	21760	29,456	29415	33,270	<15%	43,967
Emergency Medical Technicians and Paramedics	3993	3,422	5226	3,767	38.7%	7,484
Medical Equipment Preparers	877	1,122	1,112	1,236	<15%	1,526
Medical Records and Health Information Technicians	5682	5,514	6,999	6,055	15.6%	9,243
Medical and Health Services Managers	7382	7,801	8,922	8,549	<15%	11,486
Psychiatric Technicians	1439	1,358	1,743	1,478	17.9%	2,249
Nuclear Medicine Technologists	426	395	516	436	18.3%	666
<b>Medium Growth Rate</b>						
Surgical Technologists	2111	2,198	2,521	2,237	<15%	3,193
Pharmacy Technicians	7056	7,961	8,096	8,659	<15%	9,725
Dental Hygienists	3539	3,729	4,029	4,325	<15%	4,788
Respiratory Therapists	2529	2,775	2,817	3,011	<15%	3,253
Natural Sciences Managers	871	848	970	867	<15%	1,120
<b>Low Growth Rate</b>						
Diagnostic Medical Sonographers	1,160	1,283	1,271	1,474	16.0%	1,523
Interpreters and Translators	1512	2,008	1,647	2,158	31.0%	1846
Medical Assistants	13710	15,253	14,851	17,431	17.4%	16521
Dental Assistants*	6295	6,554	6,718	7,500	<15%	7326
Cardiovascular Technologists and Technicians	943	1,013	984	1,141	16.3%	1042
Medical and Clinical Laboratory Technicians	3498	2,905	3,646	3,256	<15%	3853
Billing and Posting Clerks	9353	11,256	9,636	12,249	27.1%	10027
<b>Declining Growth</b>						
Radiologic Technologists and Technicians	3,809	3,671	3,776	4,040	<15%	3,733
Medical Transcriptionists	1,393	1,207	1,371	1,332	<15%	1343
Dietetic Technicians	814	935	796	1,001	25.6%	773
Healthcare support workers, all other	1,694	1,393	1,461	1,429	<15%	1198
Physical Therapist Assistants	815	1,045	668	1,181	76.8%	514

\* [www.azstats.gov](http://www.azstats.gov) Note from AZDOA: Before using the data in this report, readers should understand this methodology and note its limitations. The projections presented should be viewed as indicators of relative magnitude and probable direction rather than as forecasts of absolute occupational demand. Furthermore, the occupational forecasts are only measures of expected employment and demand for labor and indicate little about future labor supply. It is therefore recommended that these data be used with other sources of occupational information.

The differences in the estimates for the **Nuclear Medical Technologist** and the **Cardiovascular Technologists and Technicians** occupations meet the 15+% criterion but the differences are so small (80 cases and 157 cases respectively) that further discussion would imply greater degrees of accuracy in the estimates than are justified. Of the remaining nine occupations that meet the criterion, there are six for which the ADOA projects larger numbers of jobs and only three where the ADOA estimate is lower. There are no differences between the estimates in the medium growth rate group that differ by 15% or more.

The lower ADOA projections are for occupations in our high growth rate group, namely **EMTs and Paramedics, Medical Records and Health Information Technologists and Psychiatric Technicians**.

The difference for **Medical Records and Health Information Technologists** only fractionally exceeds the 15% standard although the group is relatively large so the absolute difference is approximately 944 cases. We do not consider the differences in the assumed growth rates, however, to be sufficient to revise our estimates.

Our evaluation of the other differences in the high growth rate group suggests that our projection for **EMTs and Paramedics** may overstate the expected growth but that the projection for **Psychiatric Technicians** is quite reasonable.

The uncertainty surrounding the estimated employment for EMTs includes the cautions in our previous discussion about the recent slowing of growth rates (a potential negative) and the possible expansion of the duties of EMTs that have been mentioned in the interviews (a potential positive). Our projection uses the annual average rate of 9.4% but the rate of growth in the period 2008-2012 is less than one percent (0.8%). AZDOA is projecting growth in employment at approximately 3.25% annually and this plus a relatively small difference between the base year numbers for the two projections, is the reason for the large difference in the results.

Data just released for employment in May, 2014 also suggest that our projection is too high, although comparisons to a single year are always problematic. ([http://www.bls.gov/oes/current/oes\\_az.htm](http://www.bls.gov/oes/current/oes_az.htm)). On the other hand, our subsequent section on interview and survey results includes employer comments and related information predicting significant changes in the scope of practice and utilization of EMTs. Never the less, the uncertainty surrounding recent rates of growth suggests that the reader must make a judgement about the most probable estimate between the two projections and that our estimate should be considered an upper bound. We cannot estimate the potential increase in employment that could be occasioned by the implementation of the integrated care organizations.

As we have noted, the average annual growth rates for **Psychiatric Technicians** during the period 2008-2012 are more than twice as high as the longer term rate of 6.6% that we used for our estimates. That fact, combined with the expansion in psychiatric care that is beginning as a result of the new integrated care models convinces us that our current projection is reasonable.

Omitting the one occupation for which the difference in absolute numbers is quite small, there are four occupations in the Low Growth Rate group for which the difference between our projection and the AZDOA estimate is 15+%. The largest percentage differences are for **Interpreters and Translators** (31%) and **Billing and Posting Clerks** (27.1%).

Reference to the May 2014 employment data shows that our estimate for 2014 for **Interpreters and Translators** is essentially equal to the actual numbers employed in 2014 while the AZDOA projection is substantially higher. Although the 2014 data are not for the complete year, we find no reason to change our projection.

We project the future employment for **Billing and Posting Clerks** at an average annual growth rate of 1.0% despite the fact that in more recent years (2008-2012), employment declined. Comparison to the preliminary 2014 data shows that our estimate is lower than the actual by approximately 12%. The AZDOA projection assumes an average annual growth rate of 2.89% for which we find no justification in the historical data, so we assume our projection is reasonable.

The differences in estimates for **Diagnostic Medical Sonographers** is relatively small. It reflects the AZDOA use of a slightly higher rate of growth than the 3.1% used for our projections. We see no compelling reason to adjust our projections.

Our estimate of future employment for **Medical Assistants** relies on an average annual growth rate of 2.7%, which has been quite stable over time, although it dropped slightly to 2.5% between 2008-2012. The AZDOA projection also adopts a growth rate of 2.7%. Comparisons of the base numbers used by both projections show that AZDOA uses slightly higher base year numbers. Comparisons of the respective projections to the preliminary 2014 data show that both estimates are lower than the actual numbers employed. The AZDOA estimate is lower by approximately 4% (16,280 actual vs. 15,664 estimate) and our projection is lower by approximately 16 % (16,280 actual versus 14,081 estimate). We suggest, therefore, that our estimate be interpreted as a lower bound with the most probable growth being better represented by the AZDOA estimate.

There are two occupations in the Declining Growth Group where the estimates differ by more than 15%, namely **Dietetic Technicians** and **Physical Therapy Assistants**.

The employment of Dietetic Technicians in 2012 was higher than in any previous year since 2004, although it was slightly lower than the 2004 number. The AZDOA estimate may be disproportionately influenced by that base year number. There is nothing, in our opinion, to justify the increases in employment being predicted by AZDOA. Comparison to the May 2014 data also supports this contention, indicating that employment dropped to 760 in 2014, which is slightly lower than our estimate of 808.

The largest percentage difference among all the occupations is the 76.8% difference between the estimates for **Physical Therapy Assistants**. Much of the difference is attributable to the larger 2013 estimate from AZDOA. As we indicated in our discussion of the trend data, the rate of decline in employment of **Physical Therapy Assistants** did moderate between 2008-2012 but there is no indication of the trend becoming positive. The May 2013 data do show an unusually large increase in employment to 1,290, the highest level in the history of the trends we report. One year, however, does not a trend

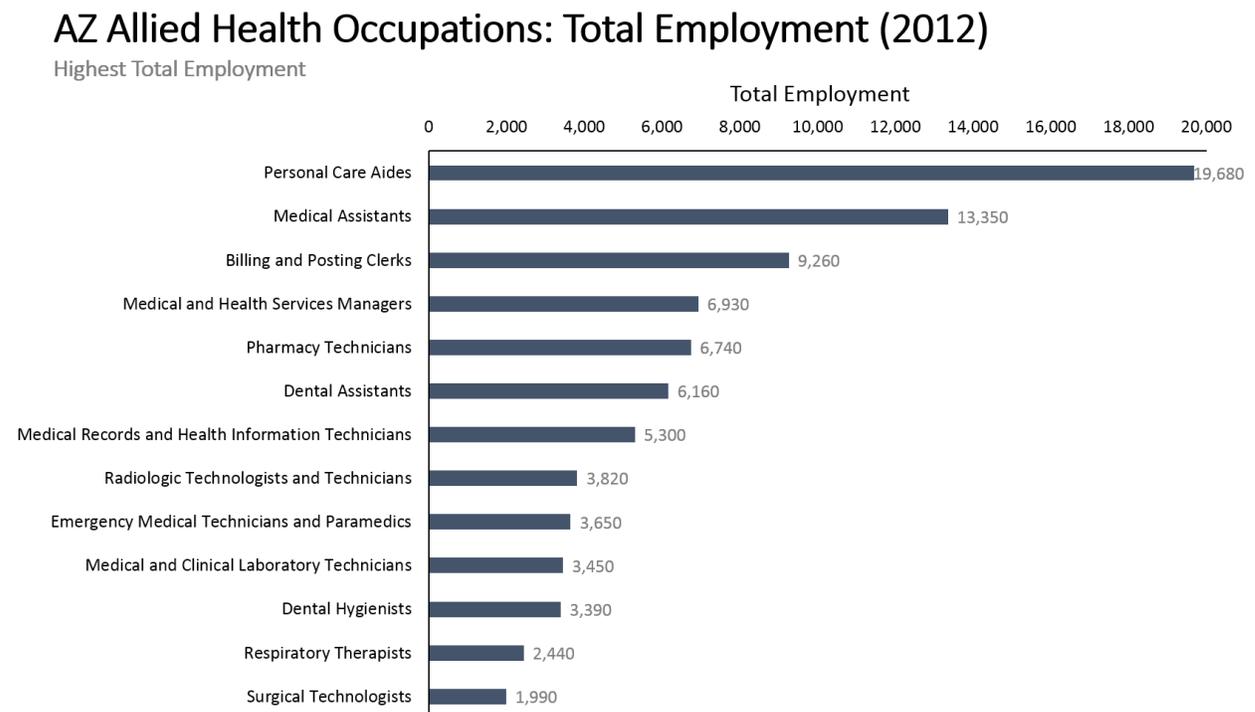
make but it does introduce a fair degree of uncertainty. The comments from the employers suggest possible expansions of the roles of **Physical Therapy Assistants** but it was not a widely shared comment.

To summarize, there are sixteen of the twenty-five projections of employment growth for which the differences either do not exceed 15% or are so small in absolute number that the differences are not important. Combining information from several sources on **EMTs** and on **Physical Therapy Assistants** suggests that both occupations deserve additional examination. A very useful discussion could be initiated with those organizations who indicated a willingness to partner with MCCCD and who employ persons in one or both of these occupational groups.

### Projections Ranked by Number Employed

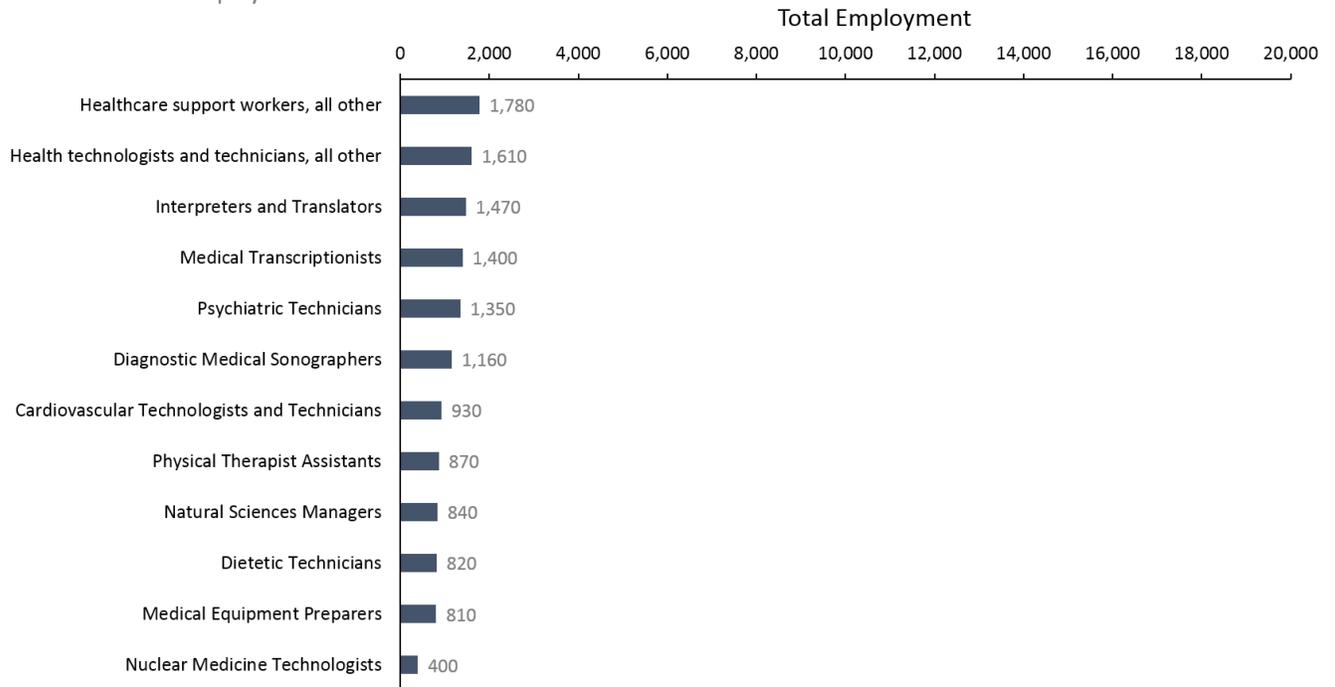
Since the potential demand for students is effectively determined by the number of jobs, the ranking of occupations by increases in potential numbers employed is somewhat different than the rankings by rates of growth although there are some obvious similarities. We next rank the occupations in terms of the absolute numbers of persons predicted to be employed in the period 2013-2020. Figures 5 thru 6 summarize the rankings of the twenty-five occupations by numbers of persons employed in 2012, the base year from which the projections are made.

**Figure 5. Arizona Allied Health Occupations: Total Employment (2012)  
Highest Total Employment**



**Figure 6. Arizona Allied Health Occupations: Total Employment (2012)**  
**Lowest Total Employment**

**AZ Allied Health Occupations: Total Employment (2012)** (CONTINUED)  
 Lowest Total Employment



The projected employment of allied health care workers in each of the twenty-five occupations is described in Table 4. The calculations are no different than those used in the growth rate based projections but the results are re-ordered to distinguish among occupations by the number of jobs and, thereby, the potential demand in terms of numbers of students. We have noted, for the reader’s convenience, where the projected growth in numbers changes the original classification of the occupation. So, for example, Medical Assistants is a low growth rate occupation but, because of the large number of jobs, it represents high potential numbers. We indicated the difference by including its original classification (LGR) in parentheses. Where no such changes occur, no notation is made.

<b>Table 4. Projected Employment of Allied Health Workers</b>			
	<b>2013</b>	<b>2020</b>	<b>Difference</b>
<b>High Potential Numbers</b>			
Personal Care Aides	21,760	43,967	22,207
Medical Records and Health Information Technicians	5,682	9,243	3,561
Medical and Health Services Managers	7,382	10,783	3,401
Emergency Medical Technicians and Paramedics	3,993	6,841	2,848
Medical Assistants (LGR)	13,710	16,521	2,811
Pharmacy Technicians (MGR)	7,056	9,725	2,669
<b>Medium Potential Numbers</b>			
Health technologists and technicians (HGR)	1,780	3,599	1,819
Dental Hygienists	3,539	4,788	1,249
Surgical Technologists	2,111	3,193	1,082
Dental Assistants*	6,295	7,326	1,031
Psychiatric Technicians (HGR)	1,439	2,249	810
Respiratory Therapists	2,529	3,253	724
Medical Equipment Preparers (HGR)	877	1,526	649
<b>Low Potential Numbers</b>			
Billing and Posting Clerks	9,353	10,027	674
Diagnostic Medical Sonographers	1,160	1,523	363
Medical and Clinical Laboratory Technicians	3,498	3,853	355
Interpreters and Translators	1,512	1,846	334
Natural Sciences Managers (MGR)	871	1,120	250
Nuclear Medicine Technologists (HGR)	426	625	240
Cardiovascular Technologists and Technicians	943	1,042	99
<b>Declining Growth</b>			
Radiologic Technologists and Technicians	3,809	3,733	-76
Medical Transcriptionists	1,393	1,343	-50
Dietetic Technicians	814	773	-41
Physical Therapist Assistants	815	514	-301
Healthcare support workers, all other	1,694	1,259	-435

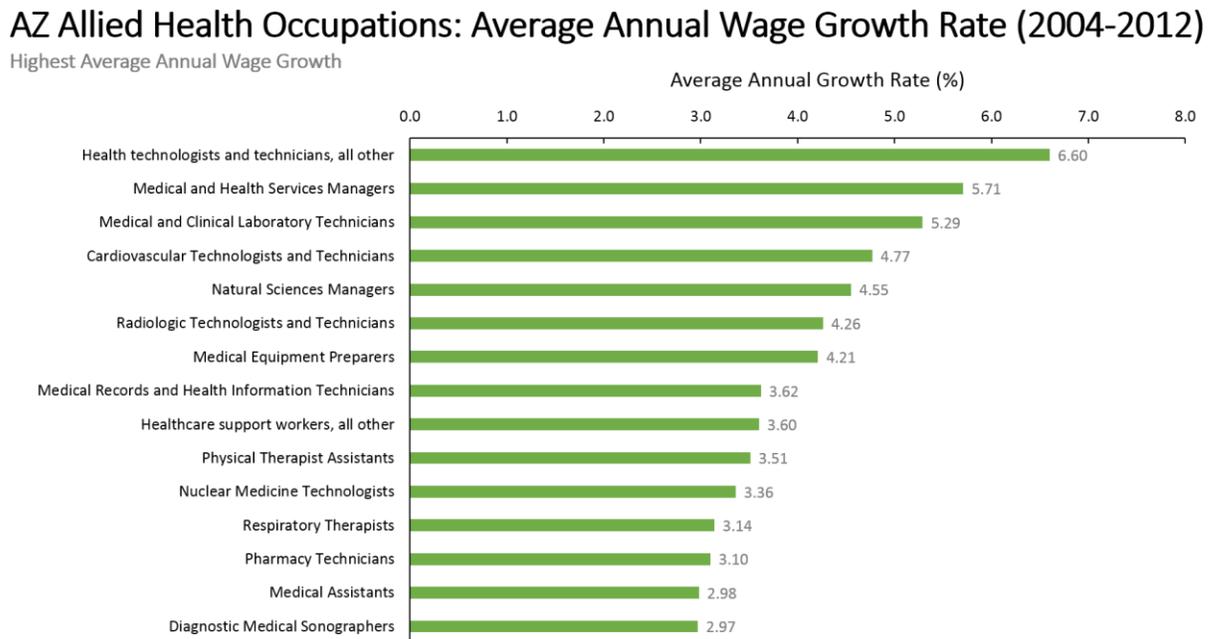
As we mentioned in a previous section, employment data alone cannot distinguish between changes in demand for workers from changes related to supply effects. So, for example, a year to year fall in employment could be due to either a reduced demand for an occupation or it could indicate a shortage. The data in the next section compare changes in wages to changes in employment to attempt to find such distinctions where they exist.

## Wages

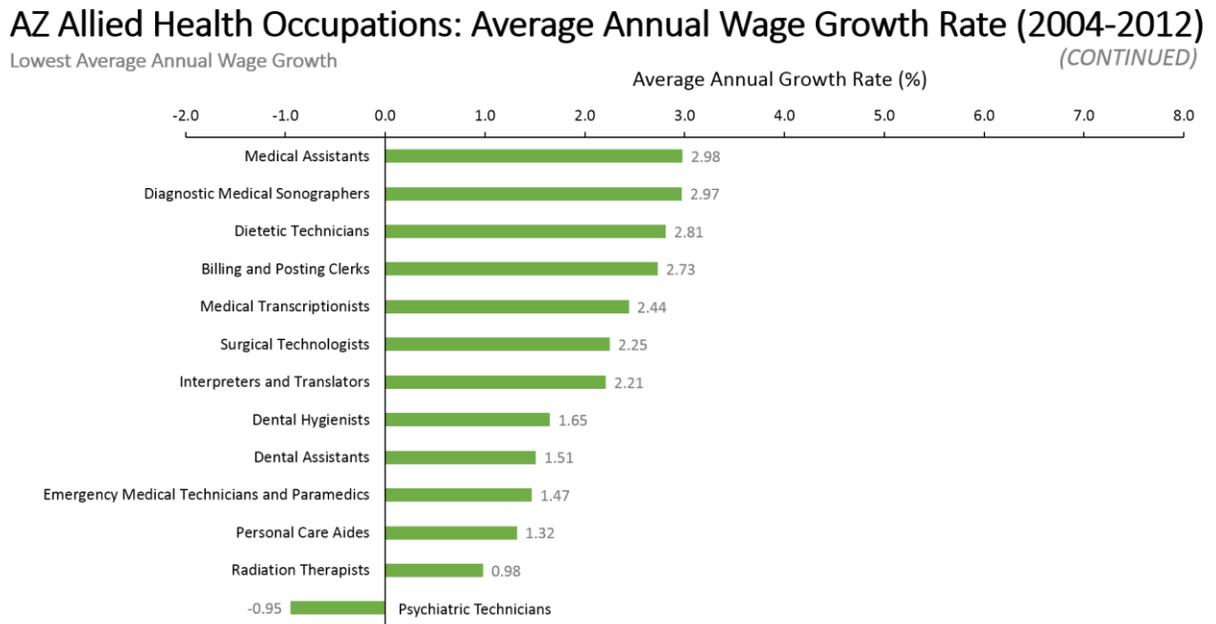
A complete set of data on wages are presented but we focus on those occupations where the trends in wages appear to diverge from trends in employment. An occupation, for example, in which employment is rapidly growing but where wages are either growing much more slowly or are falling, suggests that the supply of individuals is approaching a point where future growth will slow. Alternatively, an occupation with negative growth rates in employment but rapidly increasing wages implies the possibility of a shortage in individuals and an opportunity for future growth that is disguised by the observed trend in employment. The wage/employment trend indicators do not eliminate uncertainty about future employment but they do signal a definite need to acquire further information before accepting the projections of employment trends.

The twenty-five occupations, ranked by average annual growth rates in wages are summarized in Figures 7 and 8 for the years 2004-2012 and in Figures 9 and 10 for the more recent period 2008-2012. Both are presented to attempt to capture any important changes in wage growth resulting from recovery from the recession.

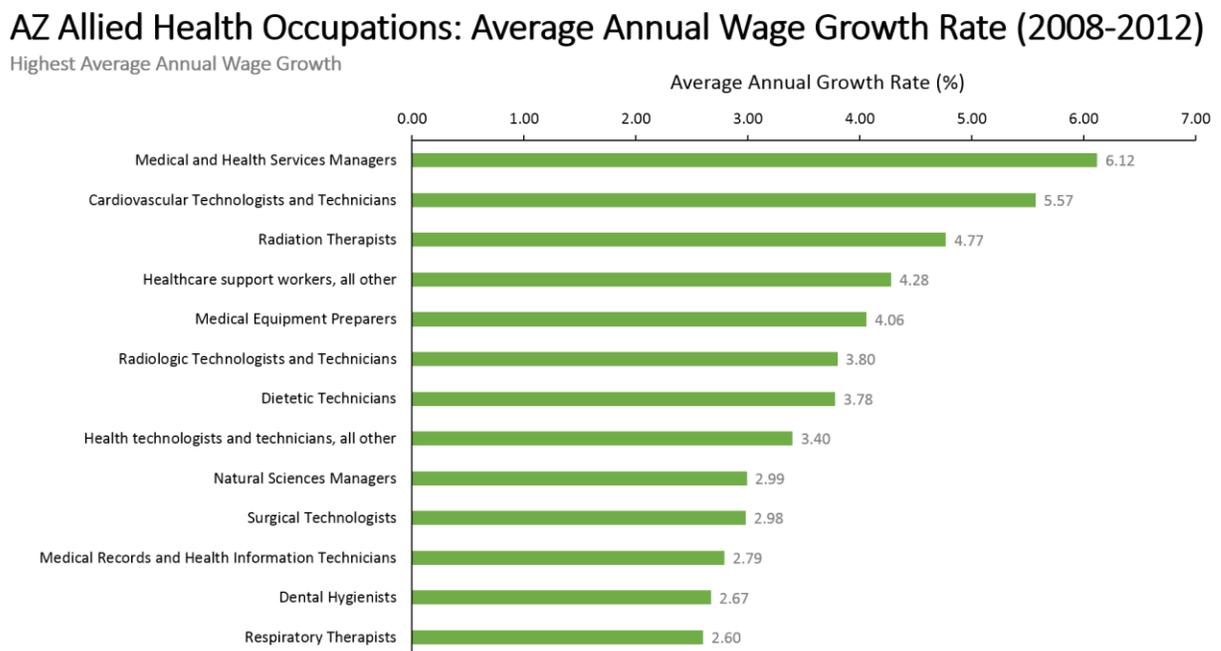
**Figure 7. Arizona Allied Health Occupations: Average Annual Wage Growth Rate (2004-2012) Highest Average Annual Wage Growth**



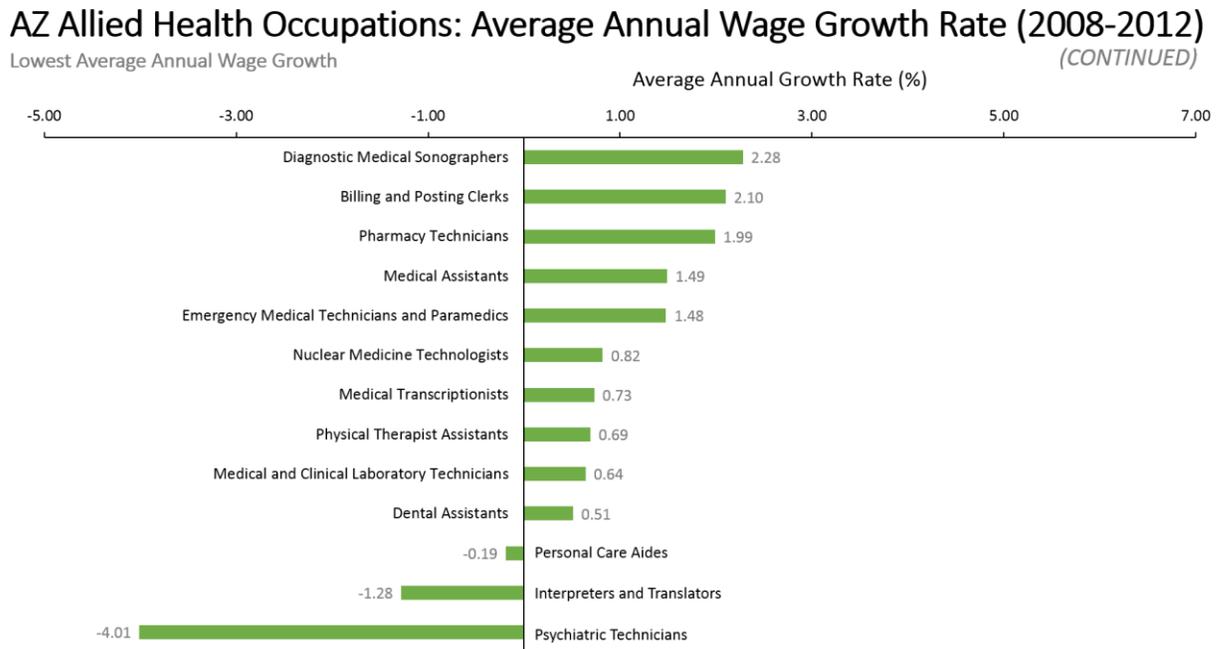
**Figure 8. Arizona Allied Health Occupations: Average Annual Wage Growth Rate (2004-2012) Lowest Average Annual Wage Growth**



**Figure 9. Arizona Allied Health Occupations: Average Annual Wage Growth Rate (2008-2012) Highest Average Annual Wage Growth**



**Figure 10. Arizona Allied Health Occupations: Average Annual Wage Growth Rate (2008-2012) Lowest Average Annual Wage Growth**



There are five occupations where the differences between employment growth and wage growth appear inconsistent. The choices are admittedly judgmental although they follow a criteria of comparing growth rankings to average annual growth in wages. The median annual average growth in wages for both the 2004-2012 series and the more recent (2008-2012) is approximately 2.99%. The occupations described in Table 5 had wage growth rates substantially above or substantially below the median that moved in opposite directions from the trends in employment. Perhaps the most interesting occupations are those for which employment is declining but wages are increasing at rates above the median growth rate in wages.

<b>Table 5. Allied Health Occupations with Wage Growth Substantially Above or Below the Median and Moved in Opposite Directions from Trends in Employment</b>				
Occupation	Employment % Growth Rate 2004-2012	Wage % Growth Rate 2004-2012	Employment % Growth Rate 2008-2012	Wage % Growth Rate 2008-2012
<b>High Growth Rate</b>				
39-9021 Personal Care Aides	10.6	1.3	12.5	-0.2
29-2053 Psychiatric Technicians	6.6	-1	14.7	-5
<b>Low Growth Rate</b>				
29-2031 Cardiovascular Technologist & Technicians	1.4	4.8	-0.3	7.0
<b>Declining Growth</b>				
29-2034-37 Radiologic Technologist and Technicians	-0.3	4.3	-4	4.8
31-9099/97 Healthcare Support Workers, all other	-5.1	3.6	-9	5.4

Although we must carefully recognize the absence of information on the actual supply of allied health care professionals, which includes graduates from Arizona and out of state institutions other than MCCC, the disparities between wage growth rates and employment growth rates signal some possible supply conditions that are not adequately captured by the secondary data.

In the first instance, two high growth rate occupations are experiencing wage growth substantially below the median and, in some years, wages are actually falling. Increases in employment with falling wages suggest that the market for these occupations is close to a surplus supply. If this is true, then the trends used to project employment will overstate the likely experience for these occupations.

The three occupations with low or declining growth in employment may be examples of the possible situation, cited earlier, in which the declines in employment indicate a shortage of qualified personnel rather than a decline in demand for those occupations. The most compelling cases are for the Cardiovascular Technologists and Technicians and the Healthcare Support Workers where increases in the rates of decline in employment are associated with rather large percentage increases in wages.

The historical trends and the projections based on those trends are an important input for decision making but the future that they predict will be realized only if there are no important changes in the influences on employment and wages. Health care is a rapidly changing environment in terms of technological changes that include automation of functions such as translation and lab testing, the use of health care information, changes in the health care model, of which movement to community based care and the integration of behavioral and medical care are prominent as well as substantial changes in financing that will affect access to care, of which the ACA is most important. The next sections of this report describe the expectations and needs of senior health care managers regarding allied health care workers, providing insights into probable changes in the trends that have been observed.

## Critical Issues and Trends

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Key findings from interviews, focus groups and surveys were synthesized into critical issues that will impact the future of allied health occupations in Arizona. The issues and trends are interrelated and should be viewed collectively.

- **Health care reform Initiatives with an increasing emphasis on outcomes and cost-effectiveness encourage alternative models of care and demand increased accountability from providers. Major initiatives impacting Arizona include:**

### **Affordable Care Act (ACA)**

The federal Patient Protection and Affordable Care Act (ACA) together with the Health Care and Education Reconciliation Act, signed into law in March, 2010, represent the most significant regulatory overhaul of the U.S. healthcare system since the passage of Medicare and Medicaid in 1965. The ACA aims to increase the quality and affordability of health insurance, lower the number of uninsured by expanding public and private insurance coverage, and reduce the overall costs of healthcare. It provides a number of mechanisms, including mandates, subsidies and an insurance exchange, with the goal of improving coverage and affordability. The law also requires insurance companies to cover all applicants within new minimum standards and offer the same rates regardless of pre-existing conditions or gender. Essential health benefits include:

- Ambulatory patient services
- Emergency services
- Hospitalization
- Maternity and newborn care
- Mental health and substance use disorder services, including behavioral health treatment
- Prescription drugs
- Rehabilitative and habilitative services and devices
- Laboratory services
- Preventive and wellness services and chronic disease management
- Pediatric services

### **Accountable Care Organizations (ACO) and Patient Centered Medical Homes (PCMH)**

A persistent theme in health reform is for the “Triple Aim” of improving the experience of care, improving the health of populations, and reducing per capita costs of health care. A number of initiatives call for more integrated care through Accountable Care Organizations (ACO) and Patient Centered Medical Homes (PCMH). ACOs are pilot projects, initially for Medicare populations, where groups of providers will be compensated on the basis of patient outcomes, rather than on the quantity of delivered services. Provider organizations are integrating care on all levels and across disciplines, using metrics to identify effective practices and improved health outcomes. The PCMH model draws on professionals from all disciplines from surgeons to social workers to coordinate a full range of the overall patient’s health.

## **Medicaid Expansion**

Arizona is fully participating in the **Medicaid Expansion** under provisions of the **Affordable Care Act (ACA)** extending coverage to low income adults with incomes below 133% of the Federal Poverty Level (FPL) with no eligibility criteria. The federal government pays for 100% of the cost of the expansion in a state for the first two years of the program. Funding levels reduce each year of the program until they reach 90%.

## **Children's Health Insurance Program (CHIP)**

Arizona children have limited options for health coverage after state policymakers closed enrollment in 2010 for Arizona's Children's Health Insurance Program (CHIP), called KidsCare. Arizona is the only state in the country where children do not have access to CHIP.

## **Integrated Care for Seriously Mentally Ill**

In 2014 Arizona implemented integrated care for the Seriously Mentally Ill (SMI) population utilizing models that focus on coordination of physical and behavioral health, health education and promotion, and improved health information technology. Given the link between oral health and overall health the contracts include provision of dental care. The Arizona Department of Health Services awarded contracts to three Regional Behavioral Health Authorities to administer services statewide.

- Mercy Maricopa Integrated Care - Maricopa County.
- Health Choice Integrated Care(HCIC) - Northern Region
- Cenpatico - Southern Region

Beginning in July 2015, behavioral health services will no longer be administered by the Arizona Department of Health Services–Division of Behavioral Health but will be transferred to the Arizona Health Care Cost Containment System (AHCCCS), Arizona's Medicaid agency. Some healthcare managers expect the integrated care model to be implemented for all Medicaid public health programs in Arizona within five years.

- **Healthcare providers are forming much larger entities to better collaborate, prioritize programs, increase purchasing power, consolidate services and cut costs. Health systems are expanding through acquisitions of hospitals, physician practices, ambulatory centers, diagnostic centers, home care services, and durable medical equipment and wellness companies.**
- **Technology innovations make available promising approaches to patient care and coordination and help both patients and clinicians make informed decisions. For example, rural communities are rapidly utilizing Telemedicine and Teledentistry to compensate for the shortage of physicians and dentists.**
- **The challenges of combining of patient data from different sources and a lack of common computer code standards across Electronic Medical Record (EMR) vendors has limited the success of data sharing among providers and with patients to support**

**patient care. Efforts such as the Arizona Health –e Connection and Behavioral Health Information Network of Arizona for Integrated care providers are promising platforms for the exchange of health information.**

- **Increased accountability and compliance requirements of new models of care have increased the complexity of medical billing for providers. Liability for billing errors is now extended to these occupations and penalties have become more severe.**
- **Arizona’s population is aging and becoming more diverse leading to different disease patterns, care seeking behavior, health insurance coverage and ability to pay.**
  - **According to the Administration on Aging, a 65–year-old person can expect, on average, to live to the age of 84, the highest life-expectancy rate for Americans in history. Palliative care, a rapidly growing field, likely will fill many of the gaps in health care coverage in the future. <sup>1</sup>**

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<sup>1</sup> “Rise in Palliative Care Could Help Boomers Living with Chronic Conditions,” HealthlineNews, March 13, 2014.

## Implications for Allied Health

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Key findings from interviews, focus groups and surveys were synthesized into three categories of implications for allied health occupations in Arizona. These categories include: **New Roles and Expanded Scope of Practice**, **Recruitment Challenges** and **Workforce Trends** and **Workforce Training Needs**.

### New Roles and Expanded Scope of Practice

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- An expanding market is anticipated for occupations related to community health, including integrated hospital-community health programs. Healthcare organizations will be hiring more allied health workers (Community Health Workers, Nursing Assistants and Medical Assistants) and expanding their scope of practice to assist patients in integrated care (primary care and behavioral health) and a range of follow up services to prevent hospital re-admissions (checking vital signs, nutrition, medication follow up etc). Healthcare organizations are expanding primary care teams to include emerging roles for **Health and Transition Coaches** and **Community Resource Aides** to migrate the care delivery model towards health and prevention. Examples include:
  - One of the new areas of focus for the Banner Health Network is the Intensive Ambulatory Care Program, which makes extensive use of **Health Coaches**. The pilot program uses both tele-health and in person contacts to provide care for chronically ill persons with the objective of minimizing inpatient admissions and improving the quality of life for the patients. This emerging occupation draws from community health workers and nursing and medical assistants but may be more general. A job description for a Banner Health Network Health Coach (Appendix C) provides a detailed example of the expectations for this emerging allied health occupation.
  - The **Transition Coach** program at John C. Lincoln Hospital (an affiliate of HonorHealth (Scottsdale Lincoln Health Network) uses former military medics and corpsmen to care for designated Medicare patients, providing a personal touch to help them understand medical instructions, prescriptions, doctor appointments, nutrition and costs of care. Transition Specialists are part of the Accountable Care Organization (ACO). The transition program was developed especially for medically trained military veterans. Transition Specialists help recently discharged patients make sure their transitions are as smooth as possible. The Transition Specialists call and visit patients in their homes after discharge to be sure they or their caregivers have what is needed to manage and maintain their target level of wellness. The Transition Specialists assist patients with:
    - Follow-up medical care
    - Blood pressure monitoring
    - Medication management
    - Nutrition education

The Transition Specialists follow patients regardless of where they transfer—home, rehab or skilled nursing facility. The Transition Specialists employed by HonorHealth (Scottsdale Lincoln Health Network) were trained to provide

medical care for military personnel. As part of their transfer to civilian careers as transition specialists, each of these veterans receive additional training in:

- Patient communication
- Health privacy regulations
- Hospital and community resources
- Electronic health records systems

Transition Specialists have produced significant savings, reducing Medicare patient hospital readmission rates, and the program received the MGMA-ACMPE Fred Graham Award in 2013. A job description for a HonorHealth (Scottsdale Lincoln Network) Transition Specialist (Appendix D) provides a detailed example of the expectations for this emerging allied health occupation.

- Dignity Health Network is hiring **Community Resource Aides** to comply with Affordable Care Act mandates to improve post-discharge health. Community Resource Aides are utilized to provide services such as visiting discharged patients in their homes and/or at community based programs. A job description for a Dignity Health Network Health Community Resource Aide (Appendix E) provides a detailed example of the expectations for this emerging allied health occupation.
- Mountain Park Community Health Center, is an example of how community health centers are leaders in implementation of an integrated care model. Most community health centers operate in medically underserved areas. Growth areas involve **Integrated Health Specialists (Medical Assistants)** to support Dietitians and Behavioral Health Specialists, including Psychologists and Social Workers.
- Chicanos Por La Causa, a community-based organization providing an array of social services, behavioral health and primary care, is hiring **Community Care Workers** to help clients with follow up with medical and behavioral health care plans. Qualifications for the Community Care Workers include knowledge of the community and resources, bilingual and ability to work with teams to do whatever it takes to keep the clients on track and out of the Emergency Room.
- **Medical Scribes** are expanding from assisting physicians in emergency rooms to hospital medical wards and office based practices. Physicians report that they like to use scribes to handle EHR data entry because doctors find EMRs slow and clunky to use, interfering with their interactions with patients. Qualifications include high school completion, computer skills, College degree or current enrollment in a degree program preferred. People taking time off before Medical, PA or NP school are favored. A job description for Banner University Medicine Medical Scribe (Appendix F) provides a detailed example of the expectations for this emerging allied health occupation.
- Some health care organizations utilize **Medical Assistants** to perform the functions of **Medical Scribes** in addition to clinical tasks in their scope of practice. A MH7 Medical Assistant-Scribe Job Description (Appendix G) provides a detailed description of the expectations of this emerging occupation in a setting providing primary care to geriatric patients in their homes.

- **Creation of Enhanced Dental Teams will result in expanded roles for Dental Assistants, Dental Hygienists and Community Dental Health Coordinators (CERT).**
  - Utilizing technology (Teledentistry), these enhanced dental teams will operate with greater efficiency and provide increased access to services in an array of settings (rural, tribal communities, community health centers, nursing homes, pediatric dentistry practices, and Head Start Centers).

State Statute outlines the scope of practice for dental hygienists and dental assistants. In addition to the functions a dental assistant may perform, a hygienist may administer local anesthetics, examine the oral cavity, remove plaque and apply sealant and topical fluoride. Qualified dental assistants may perform x-rays, polish teeth and provide patient care. Any expansion of this scope requires a review through the sunrise process (A.R.S. §§ 32-1281;32-1291).

In 2014 a sunrise application was submitted by the Arizona Dental Association to increase the scope of practice for dental assistants by creating the Expanded Function Dental Assistant (EFDA) position. The Senate Health and Human Services Committee held a hearing and recommended forwarding of the application to the full Legislature for consideration. Legislation (SB 1282<sup>2</sup>) was introduced to institute requirements concerning Teledentistry and modifies the dental affiliated practice statute to increase the scope of practice for dental assistants by creating an **Expanded Function Dental Assistant (EFDA)** position. Expanded functions include the following:

- Placement, contouring and finishing of direct restorations.
- Placement and cementation of prefabricated crowns following preparation of the tooth by a licensed dentist.
- Placement of interim therapeutic restorations under the general supervision and direction of a licensed dentist following a consultation conducted through teledentistry.
- Application of sealants and fluoride varnish under the general supervision and direction of a licensed dentist.

The new legislation passed by the Arizona Legislature (SB1282, Chapter 196) will expand roles for Dental Hygienists to engage in restorative functions permissible for an Expanded Function Dental Assistant with study and examination equivalent to an EFDA. EFDAs must complete a Board-approved Expanded Function Dental Assistant training program completed at an institution accredited by the Commission on Dental Accreditation of the American Dental Association and an examination in expanded functions that is approved by the Board. Arizona has three accredited certificate programs for EFDA located at Phoenix College, Rio Salado (both MCCC affiliates) and Pima College in Tucson.

**Community Dental Health Coordinators are an emerging enhanced role for Registered Dental Hygienists or Certified Dental Assistants with a Certificate of**

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<sup>2</sup> Arizona State Legislature ([www.azleg.gov](http://www.azleg.gov)) (Passed by the Arizona Legislature and signed by the Governor on 4.6.2015)

Completion (CCL) in Community Dental Health Coordination (CDHC) program. Community Dental Health Coordinators are culturally competent team members with the skills to promote oral health literacy to support Dental Teams in underserved areas such as remote areas and tribal communities. Rio Salado College (MCCCD) developed the certificate program designed to provide students with a practical and theoretical basis for assisting in the reduction of disparities in dental health. Courses cover advocacy, intercultural communication, and finance in addition to dental health coordination, documentation, and reporting procedures. Legal and ethical issues are also covered.

Pima College in Tucson offers a **Dental Laboratory Technology Associate of Applied Science** program and is the sole dental lab program in the state accredited by the American Dental Association Commission on Dental Accreditation. Students learn the skills to construct and repair dentures, partial dentures, crowns, bridges and other dental appliances. Students who complete the program and exam are qualified to work in a dental lab.

- Integration of Primary Care and Behavioral Health will result in new and expanded roles for allied health occupations with interdisciplinary training and credentials in the delivery of behavioral health and medical care services. Examples include:
  - Billing and Posting Clerks
  - Case /Care Managers (manage primary care and behavioral health needs)
  - Community Health Workers
  - Crisis Team (24-7) to deal with behavioral health and primary care needs
  - Direct Care Paraprofessionals
  - Family Peer Support Partners
  - Integrated Care Coordinators
  - Medical Records and Health Information Technicians
  - Medical Records Clerks
  - Population Care Managers
  - Peer Support/Recovery Specialists
  - Information Technology Specialists
  - Licensed Practical Nurse (LPN)
  - Medical Assistants
  - Patient Navigators

The 2014 contracts awarded required the Regional Behavioral Health Authorities (RBHAs) to hire care managers to oversee integrated care delivered by the partners and providers. Arizona legislation prohibits Regional Behavioral Health Administrators (RBHAs) from providing direct services (such as case management). The RBHAs provide direct services through contracts with a network of partners and providers. For example, one of the requirements for a national certification program for care managers is direct service to patients, which is prohibited by the current Arizona legislation creating some implementation challenges.

- Dramatic changes in the healthcare industry have spurred a demand for frontline and nonclinical workers who are tasked with not just patient health, but with taking care of the whole patient—meaning making sure that the patient experience is both seamless and satisfactory. While education and job requirements for these positions vary, healthcare organizations often prefer or require a certificate, associate’s or bachelor’s degree for today’s frontline and nonclinical roles. Some examples include:
  - **Patient Navigators** (also known as Patient Representatives) alleviate stress and improve care by coordinating health services and information for patients. The patient navigator role is a cross between a customer service representative and a social worker, supporting patients and their families and helping them to navigate the healthcare system. These frontline workers are coordinators who bring together resources and manage paperwork associated with patient care. Primary Care Physicians (PCPs) are spending less time with patients leaving more follow up work for team members. Patient representatives often inform patients and their families with research on their particular diseases, help address insurance issues, connect patients with doctors, conduct critical conversations, and help patients understand their options for treatment and care. They also frequently accompany patients on medical visits. Today’s frontline and nonclinical healthcare workers need a more versatile set of skills than were required for these types of positions in the past—collaborative teamwork abilities, fluency in technology, and an understanding of how to navigate the healthcare system. A job description for HonorHealth (Scottsdale Lincoln Health Network) (Appendix H) provides a detailed description of the expectations of this emerging occupation.
  - **Peer Support/Recovery Specialists** – People who have achieved and sustained recovery can be a powerful influence for individuals seeking their own path to recovery. Behavioral health employers are taking steps to increase recruitment and development of Peer Support/Recovery Specialists. By sharing personal experiences, peers help build a sense of self-worth, community connectedness, and an improved quality of life. Peer services are supported on a statewide and national level. The Centers for Medicare and Medicaid Services (CMS) issued a letter to states, recognizing the importance of peer support services as a viable component in the treatment of mental health and substance abuse issues. In the letter, CMS provides guidance to states for establishing criteria for peer support services, including supervision, care-coordination and training/credentialing. The Arizona Department of Health Services/Division of Behavioral Health Services (ADHS/DBHS) has developed training requirements and certification standards for Peer Support Specialists/Recovery Support Specialists providing Peer Support Services, as described in the ADHS/DBHS Covered Behavioral Health Services Guide.<sup>3</sup>

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<sup>3</sup> Arizona Department of Health Services Division of Behavioral Health (<http://www.azdhs.gov/bhs/covserv.htm>)

In order to be hired by an agency an applicant must complete an 80 hour initial training program that meets the ADHS-BHS certification requirements and employers prefer to hire Peer Support Specialists who have completed the initial training. Some employers expressed concern about the lack of availability and affordability of the training. Many employers are subsidizing applicants to complete the basic training in order to have sufficient Peer Support Specialists in the pipeline. A job description for Little Colorado Behavioral Health Centers (Appendix I) provides a detailed description of the expectations of this emerging occupation.

The Arizona Department of Health Services/Division of Behavioral Health has recently awarded a two-year contract to Arizona State University to coordinate a Peer Career Advancement Academy. The purpose of this academy is to provide advanced training and educational opportunities to certified peer specialists. The Arizona State University (ASU) Center for Applied Behavioral Health Policy will be coordinating this new initiative. Over the course of the next two years, the design of the Peer Career Advancement Academy will be finalized, and training tracks implemented for health and wellness coaches, special assistance advocates, housing support and supported employment specialists will serve as a career ladder.

- **Marc Center Community Resources hires Wellness Coaches** to assist patients and members navigate medical services and behavioral health. The wellness coaches participate in 46 hours of training provided by the agency including the Stanford Chronic Disease Self Management program in addition to Motivational Interviewing, Supportive Housing, and Family Support Partners.
- **Family Support Partners/Parent Partners** deliver peer-to-peer support to families. Family Support Partners are family members/caregiver of someone who is or has in the past received Behavioral Health Services and have some understanding of what it is like taking care of someone with behavioral health challenges. The Family Support partners provide support and information on community resources and educate on navigating the Behavioral Health System and other systems. A job description for the Family Involvement Center (Appendix J) provides a detailed description of the expectations of this emerging occupation.
- **Integrated Care Coordinators** - With the implementation of integrated care, organizations are creating case manager positions to coordinate physical and behavioral health services. Desirable qualifications for these case managers working in an integrated care environment are backgrounds in social work (MSW) or nursing (RN or LPN) with the expectation of considerable on the job and supplemental training.

**Population Care Managers**—Integrated care models utilize data to predict services patients will need and have created emerging occupations for staff with clinical and

medical management backgrounds. Population Care Managers understand health care and statistics and communicate trends and concerns to case managers.

## Recruitment Challenges and Workforce Trends

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This section compares the results of the interviews and survey responses to our projections of the number of additional jobs, for each occupation, between 2012 and 2020. Many of the responses are consistent with the trends and, although all responses are reported, our discussion focuses on the occupations where the interviews and survey responses signal changes from the historical trends that should be included by decision makers in their expectations and plans.

### Occupations with High Numbers of Potential Jobs (+37,497 employees)

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The interview and survey responses regarding the occupations in the high potential number group are consistent with our projections but the comments on **Emergency Medical Technicians and Paramedics** offer additional insights concerning the uncertainty about the future of that occupation. We noted in our comparison of our projections to the AZDOA estimates that our estimates appeared to be too high, suggesting that decision makers interpret them as an upper bound. The employer remarks, however, suggest that the traditional role for the occupation is changing in a manner that is likely to increase the demand for these workers.

- **Emergency Medical Technicians and Paramedics-** Several employers predicted demand for Emergency Medical Technicians and Paramedics would increase in the next two years and their scope of practice would be expanded through training in community paramedicine. Community paramedicine is a paradigm shift for the use of paramedics in which paramedics function outside their usual emergency response and transport roles delving into the world of primary care. As the health care world increasingly shifts toward prevention and well care the system will increasingly demand more folks that can function in a community health (primary care and prevention) role. Community paramedicine is increasingly being recognized as a promising solution to efficiently increase access to care (especially for underserved populations).<sup>4</sup> For example- paramedics could shift from a sole focus on emergency response to things like: 1) providing follow-up care for persons recently discharged from the hospital to prevent unnecessary readmissions; 2) providing community-based support for people with diabetes, asthma, congestive heart failure, or multiple chronic conditions; and/or 3) partnering with community health workers and primary care providers in underserved areas to provide preventive care. The Arizona Department of Health Services, Bureau of Emergency Medical Services & Trauma System, established a Community Integrated Para-medicine Workgroup in 2013. (<http://www.azdhs.gov/bems/community-paramedicine>)

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<sup>4</sup> **Arizona Department of Health Services**, *What is Community Paramedicine?*, Director's Blog, Will Humble, September 3, 2013. ([www. http://directorsblog.health.azdhs.gov/whats-community-paramedicine](http://directorsblog.health.azdhs.gov/whats-community-paramedicine))

- **Personal Care Aides** - Some employers indicated an anticipated increase in demand in next two years for Personal Care Aides. Arizona's aging population and trends toward increases in home health care, palliative care, and long term care are increasing the demand for Personal Care Aides. They work in a variety of settings, including patients' homes and larger care communities. There are no formal education requirements but most have a high school diploma. Arizona does not require aides to have specific training or certification. Experience is not required. Challenges for employers include growth and expansion of services, high turnover, provision of short term on the job training and many sources to recruit employees to fill the positions.
- **Medical Records and Health Information Technicians** are evolving into **Health Information Managers** with the transition to electronic medical records. Sonora Quest Laboratory identified examples of opportunities for first line and supervisors and mid-level managers in lab management with 2-year degrees. These are positions that staff can work their way into using a career ladder but must be able to take on the additional responsibilities and demonstrate leadership. More opportunities are opening up for Associate degree candidates that formerly required Bachelor's Degrees. These areas have presented some challenges in recruitment attributed to issues pertaining to work-personal life balance.
- **Medical and Health Services Managers** - Hospitals have a continuing need for **Medical and Health Service Managers** in their health quality departments to deal with a variety of regulatory requirements, including accreditation and compliance audits. This need is likely to continue to expand and require an increased skill set. With the increasing complexities of accountability, legal issues, licensing and contracts, many of these positions focus on compliance and are held by persons with Bachelor's and Master's degrees. Some are trained on the job and generally promoted from within.
- **Medical Assistants** - Hospitals are changing the roles for **Medical Assistants (examples such as health coaches described in the previous section)** eliminating CNAs and LPNs, hiring fewer RN nurses and hiring more Medical Assistants. The rapid job growth is attributable to the increasing number of healthcare facilities that need more support personnel, and to the fact that medical assistants work mostly in primary care – a growing sector of the healthcare industry. If the trend continues, this should increase the demand for Medical Assistants.

  - The West Yavapai Guidance Center in Prescott Valley, is in the early stages of implementing an integrated primary care and behavioral health program for SMI patients and is hiring more **CNAs** and **Medical Assistants** to support efficiencies in service delivery to improve patient outcomes. In large clinics or hospitals where a wide range of health professionals are employed, allied health practitioners may not be called on to use the full extent of their scope of practice skills, since they may overlap with those of other professionals. However in small clinics and rural environments where there are fewer health team members, use of the full scope of

practice takes on greater importance and these settings will need to rely on the professional's use of existing skills to fill in the service gaps.

- **Pharmacy Technicians** -The increasing number of prescription drugs available and the growth and aging of the population are spurring the high demand for **Pharmacy Technicians**. Integrated care and behavioral health providers are providing pharmacy services on site. QoL meds, a national pharmacy specializing in mental health, is operating the on-site pharmacy services for several behavioral health and integrated care providers in Arizona. Medication management poses challenges for many behavioral health patients who need special packaging, daily dosage and monitoring. Integrated care sites reported fewer problems experienced by patients when all their medications were processed by an on-site pharmacy.

### Occupations with Medium Numbers of Potential Jobs (+ 7,364 employees)

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The projections of fairly stable growth in the medium growth occupations are generally supported by the opinions of the health care employers. The exceptions include two dental occupations where demand could increase more rapidly than project because of the new mandates and reimbursement formulas from the ACA and the models of integrated care. The third exception is **Surgical Technologists**.

- **Dental Hygienists**- As described in the previous section on emerging occupations, employers anticipate putting in place more enhanced dental teams that will require Expanded Function Dental Assistants (EFDAs). The implementation of the ACA and Integrated Care children and seriously mentally ill adults (SMI) will have increased access to coverage for dental care. Employers report increased demand for Community Dental Health Coordinators (Certificate) will increase access for children and adults, especially those in underserved areas. Community Health Centers are expanding dental clinics in rural and underserved areas.
- **Dental Assistants** – As described in the previous section on emerging occupations, employers anticipate putting in place more enhanced dental teams that will require Expanded Function Dental Assistants (EFDAs). With the implementation of the ACA and Integrated Care children and seriously mentally ill adults (SMI) will have increased access to coverage for dental care. Employers reported increased demand for Community Dental Health Coordinators (Certificate) will increase access for children and adults, especially those in underserved areas. Community Health Centers are expanding dental clinics in rural and underserved areas.
- **Surgical Technologists** – Employers reported both an anticipated increase in demand in next two years for **Surgical Technologists** and also current challenges recruiting sufficient qualified applicants for positions at the current time Although we did not find a substantial disparity between the growth in employment and annual average rates of wage growth, the comments describe the existence of a

shortage that could increase over time. Thus, our projections may be somewhat understated.

- **Health technologists and technicians** - Some employers indicated an anticipated increase in demand in next two years but there are no indications of a substantial shift in demand or a change in the scope of practice.
- **Psychiatric Technicians** - Employers reported increased demand for Psychiatric Technicians with the expansion of mental health services following the implementation of the Affordable Health Act (ACA) and Integrated care.
- **Respiratory Therapists** - Employers reported a continuing need for respiratory therapists.
- **Medical Equipment Preparers** - Some employers indicated an anticipated increase in demand in next two years for Medical Equipment Preparers.

#### Occupations with Low Numbers of Potential Jobs (+2,037)

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The most interesting set of comments in this section refer to the **Cardiovascular Technologist and Technician** occupation.

- **Cardiovascular Technologists and Technicians**- Some employers indicated an anticipated increase in demand in next two years for Cardiovascular Technologists and Technicians. This is one of the occupations where we found wage growth rates to be well above the median rate for wages for 2004-2012 and a rate of increase nearly double the long term rate for the years 2008-2012. The changes in wages and the employer comments suggest that the projected growth rate (+1.4%) used in our projections is likely to understate the future employment prospects for workers in this occupation. That expectation must, however, remain conditioned on the fact that it is a very small group so even doubling the growth rate in employment will add fewer than 200 workers over the period 2013-2020.
- **Medical and Clinical Lab Technicians** - Lack of updated lab facilities for schools were noted as a concern. Sonora Quest Laboratories indicated some difficulty recruiting since ASU and UA closed programs. An Associate Degree program is potential opportunity for MCCCCD. Sonora Quest Laboratories hired a trainer to help staff move from one level to another. (Medical Technician). ASU has worked with Phoenix College on a 4 year college program with clinical rotations. The increased use of automated tests by pharmacies may shift employment opportunities from hospital systems to pharmacies or through joint ventures between hospitals.
- **Billing and Posting Clerks**- Some employers indicated an anticipated increase in demand in next two years for Billing and Posting Clerks with the implementation of the Affordable Care Act, Medicaid Expansion and Integrated Care.

- **Interpreters and Translators**- The advent of phone based translations and technology that brings sign language translation to the bedside is dramatically reducing the demand within hospitals for Interpreters and Translators. For example, Dignity Health Network has a staff of Spanish translators because a very high proportion of their patients are Spanish speakers. Other languages are translated using phone-based translation services. In smaller organizations, employers report a demand for bilingual and culturally competent allied health workers with clinical skills and subject matter knowledge to work on medical teams in communicating with patients and obtaining follow up information is preferred to hiring Interpreters and Translators. For example, Chicanos Por La Causa serves a large Spanish-speaking population and recruits bilingual staff for many occupations for behavioral health, human services and an expanding health care practice. Behavioral health provider contracts with RBHAs have significantly reduced the amount providers are reimbursed for Interpreters and Translators.
- **Natural Sciences Managers** - Some employers indicated an anticipated increase in demand in next two years for Natural Science Managers.
- **Nuclear Medicine Technologists** - Some employers indicated an anticipated increase in demand in next two years for Nuclear Medicine Technologists. .
- **Diagnostic Medical Sonographers** - Some employers noted increased hiring of Cardiovascular Diagnostic Medical Sonographers to assist with Ultrasound procedures.

### Occupations with Declining Numbers of Potential Jobs (-903)

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The **Radiologic Technologists and Technicians** and the **Healthcare Support Workers** are both examples of occupations with declining employment data but above average wage increases. No employer comments were received regarding **Healthcare Support Workers**.

- **Radiologic Technologists and Technicians** – The employer comments are at least consistent with the possibility that the declines in employment, coupled with above average wage increases, are evidence of an increasing shortage rather than a decline in demand. We suggest that MCCCCD contact employers who have expressed a willingness to be partners to further explore this possibility.
- **Medical Transcriptionists** - Employers confirmed the low demand due to the widespread implementation of electronic medical records. Some organizations have a small staff of Medical Transcriptionists to meet specific needs, and one organization permitted them to work from home, reducing turnover.

- **Dietetic Technicians** - Some employers reported increased demand for Dieticians and Dietetic Technicians to support increased comprehensive care and focus on prevention and reduction in obesity and diabetes.
- **Physical Therapist Assistants** - Some employers indicated an anticipated increase in demand in next two years for Physical Therapist Assistants. Agencies providing home health care services reported an increased demand for more physical therapists which would include Physical Therapy Assistants as well. Some employers in rural areas reported challenges in recruiting Physical Therapists and Physical Therapist Assistants for rural and remote areas.

### Occupations Omitted from Projections

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The data for some occupations were omitted because they refer to too short a period to generate a robust trend. Additional information was obtained from interviews, focus groups and surveys with senior managers of health care and behavioral health organizations.

- **Community Health Workers**- Some employers indicated an anticipated increase in demand in next two years for community health workers to support medical teams as health coaches to provide outreach and follow up to patients to prevent hospitalizations, provide support services and increase culturally competent communication between the patient, family and medical team.
- **Radiation Therapists**- Some employers indicated an anticipated increase in demand in next two years for Radiation Therapists.
- **Magnetic Resonance Imaging Technologists** –Some employers anticipate an increase in demand for Magnetic Resonance Imaging Technologists in the next two years.
- **Ophthalmic Medical Technicians**- Some employers reported challenges recruiting sufficient qualified applicants for positions.
- **Phlebotomists**: Phlebotomists make up the largest group of employees and positions at Sonora Quest Laboratories where they are always recruiting well trained entry level phlebotomists. Both numbers and level of training are a problem due to turnover as many positions are entry level and employees may move up to new positions. Sonora Quest encourages phlebotomists to obtain certification (national certification requires an exam) although not required.
- **Massage Therapists**: Hiring trends for Massage Therapists was not available from the employers participating in the needs assessment. According to the BLS projections the demand for Massage Therapists will increase on a national level. Data was not available as to the number of jobs for Massage Therapists in healthcare industry in Arizona. One possible explanation for the lack of data is many

Massage Therapists are employed in private settings, such as health spas and resorts.

- **Medical Secretaries:** Some employers anticipate an increase in demand for Medical Secretaries in the next two years.
- **Nursing Assistants-** Some hospital employers anticipate increased demand for Nursing Assistants especially in areas serving elderly populations.
- **Speech and Language Pathology Assistants:** Some employers anticipate an increase in demand for Speech and Language Pathology Assistants in the next two years.
- Additional allied occupations beyond the focus of this needs assessment with anticipated high demand include Nurse Practitioners, and bilingual staff in a wide range of allied health occupations that delivery direct care such as nurses, psychiatric nurses and LPNs.
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## Workforce Training Needs

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Findings from interviews, focus groups and survey responses provide information on the range of workforce training needs for allied health from the perspective of employers. We were not able to obtain data on the number of employees who will need training in these areas but examples of specific needs and suggestions from employers include:

- Use of technology and electronic data in the delivery of healthcare is a major focus for employers for most health occupations. Training in Electronic Medical Records (EMR) is a requirement for all allied health occupations and ongoing training is necessary to keep up with updates.
- Nearly all the allied health occupations need more technological expertise as a minimum standard for adequate preparation for the work they will perform. Knowledge and skills in the following areas are recommended:
  - Basic electronic communications technology including Microsoft (MS) Suite,
  - Documentation of services and care provided.
  - Foundation course on health care technology,
  - Health IT and health related social media that would be required for all occupations would be useful.
- Training to meet ongoing Re-Certification requirements for occupations such as Radiation Therapist and Respiratory Therapists.
  - **Radiation Therapist** This is one of the occupations where there is a need for re-certification as technology changes. More generally, most of the occupations face an increasing need for continuing education as technology changes. The

new emphasis on community based post-discharge care suggests that there will be more outpatient care in the future

- **Respiratory Therapists** need training for re-certification as the technology changes. For example, Dignity Health currently handles the re-certification. There may be an opportunity for the re-certification to be more efficiently done through a cooperative venture with educational institutions such as MCCCCD. The trend toward requirements of a BA or Master's Degree for better career opportunities for Respiratory Therapists will impact the Community College – level programs which could be a potential opportunity for a bridge program with ASU.
- Training for **Medical Billing Coders** and **Billing and Posting Clerks** will require more knowledge about insurer/payor requirements, compliance, operations and quality assurance in addition to some specialty training to the basic skills (for example, training billing students in some service delivery areas such as behavioral health, primary care, cardiology, ophthalmology or laboratory billing as examples of options. The training could be accomplished through online or classroom training and/or internships. For example, Barnet Dulaney Perkins Eye Centers recently started employing certified **Medical Billing Coders** to review and validate billing. They have found that this additional step in the billing process has increased the accuracy of billing and reduced the need to correct errors based on feedback from health insurers.
- The new **integrated care** models and contracts for behavioral health and medical care have created a need for training for several occupations for providers statewide. The need for new training stems from the fact that current attempts at integrated care have suffered from the lack of familiarity among physical health professionals with behavioral problems and their discomfort in dealing with persons with behavioral problems. The delivery systems have very different cultures. The physical health delivery model is driven by a physician directing the care for a patient and in the behavioral health model is team driven and includes the members (clients) and family members. Some early programs have been able to provide behavioral health and primary care at a single site but challenges remain to integrate the services. The goal of integration is coordination of care so the person's whole health is taken into consideration at every site they access services. Training and curriculum development are needed in the following areas:
  - **Training on Integrated Care Management** – One example of a training model is offered by the University of Massachusetts and attended by the leadership team from Cenpatico. The program is designed for integrated team members including physicians, social workers, nurses, counselors, therapists, and psychologists.  
([http://www.umassmed.edu/uploadedFiles/fmch/Education/Primary\\_Care\\_Behavioral\\_Health/PCBH%20Brochure\\_Final%205%2011%202011.pdf](http://www.umassmed.edu/uploadedFiles/fmch/Education/Primary_Care_Behavioral_Health/PCBH%20Brochure_Final%205%2011%202011.pdf))

Examples of topic areas addressed in the 36 hour program include:

- Primary Care Culture, Behavioral Health Needs and Working with Physicians
  - Evidence-based Therapies and Substance Abuse in Primary Care
  - Child Development and Collaborative Pediatric Practice
  - Integrating Care for People with Serious and Persistent Mental Illness
  - Behavioral Healthcare for Chronic Illnesses, Care Management and an Overview of Psychotropic Medication in Primary Care
  - Behavioral Medicine Interventions: Health Behavior Change and Relaxation Response Techniques
  - Families and Culture in Primary Care, Advice on Implementation
- 
- **Integrated behavioral and physical health care** needs to be addressed in health education programs curriculums at the community college and university levels and also in training programs designed to meet the needs of employers for their current workforce. There is a need for a certificate program on integrated care for Arizona provider staff in a range of occupations, including allied health. Behavioral health agencies utilize personnel that serve as case aides, parent aides, behavioral health technicians, residential care workers to provide support to patients. Individuals in these paraprofessional occupations would be good candidates for a two year certification program in integrated care to qualify them to move up the career ladder. In some organizations, experience can substitute education in positions such as case manager that require a bachelor's degree.
  - **Training Emergency Medical Technicians (EMTs)** to expand their roles to prepare them to deal with persons with acute behavioral problems in crisis situations through de-escalation rather than, as is often the case, having physical confrontations between police. Examples of Community Paramedicine efforts in Arizona include the Mesa Fire and Medical Department is using a grant from the Centers for Medicare and Medicaid Services to staff mental health and nurse practitioners and the Rio Rico Fire District in Southern Arizona utilizing paramedics with additional training in primary care to be the eyes and ears of primary care providers out in the community. Community Paramedics will be equipped to reach out to patients at highest risk for using the 911 system.
  - In general, Allied Health Curricula should include topics such as basic professionalism, setting boundaries, social media, de-escalation.
  - Incorporate more about the field of public health as a career option, as well as Arizona statutes which require certain diseases and outbreaks to be reported to the county Health Department. Learning how to write executive summaries and white papers are needed skills.

- **Establish a Supervisor Training Certification** for first line supervisors (Leadership Academy) with emphasis on behavioral health.
- Establish a certification program for **Direct Care Paraprofessionals** in Behavioral Health who work in jobs as Residential Care Workers
- Training in **Behavioral Health Assessments** is needed for behavioral health paraprofessionals including Behavioral Health Technicians, Case Aides, Case Assistants, Direct Care Providers, and Parent Aides etc.
- An additional set of skills that are desired would be training in motivational interviewing for both current and future providers although emphasis was on current providers not just behavioral but for all forms of health care, especially chronic conditions. Some aspect of motivational interviewing should be included in every course.
- Certificate programs are needed for **Prevention Specialists**. A recent collaboration between behavioral health agencies Glendale and South Mountain Community College was launched to develop a certification program for Substance Abuse Prevention. Additional prevention training certificate programs to support prevention specialists in the field on topics that include teen pregnancy, gang violence, bullying, obesity and diabetes.

#### **Delivery of Training**

- Training needs to be made available in multiple formats including classroom, work site, train the trainer and hybrid models (classroom and online). Online training is the most common format utilized by employers as in-person training is not always cost effective or a viable option for some topics. For employers, off-site classroom training is the option used least often.
- Extended in-depth internship opportunities for a semester would be beneficial to students to reinforce training and education.
- Tuition reimbursement programs are offered by the majority of employers participating in the needs assessment but some have had to cut back or put these programs on hold due to budget constraints.
- Rural areas pose challenges for recruitment of allied health staff and delivery of training. Providers often hire staff that do not come with the necessary qualifications and need on the job training. With shortages of physicians and allied health workers, rural areas are often under pressure to perform a wide range of tasks with minimal on site supervision. Rural agencies often work collaboratively to share expertise across the network through technology such as telemedicine. For

some occupations, working in a medically underserved area can enable workers to take advantage of student loan repayment programs and VISA waivers.

- The Arizona Department of Health Services–Division of Behavioral Health requires behavioral health providers providing services through RBHAs to have employees complete required training within 90 days of employment with some annual recertification requirements. Some of the training is provided by staff in the hiring agencies and RBHAs offer online training through Relias Learning, an online training resource. A third option for providers is to purchase training for employees through an outside source (university, community college or outside expert).

➤ **Training priorities for Emerging Occupations** noted by employers included:

- Alternative clinical practices
- Associate Degree in Nutrition, Dietetics, Diet Tech Registered (pass credentialing exam within 3 months)
- Benefits eligibility
- Chronic diseases and community health workers
- Collaboration (For Dental Teams)
- Combination of Psychiatric/Medical Assessment and intervention skills
- Culinary Arts
- Documentation of services provided IT, Meaningful Use, Health Record Management
- Employment Services resource training
- Health Care auditing
- Health Coaching
- Health screening
- Population Health Management
- Psychiatric pharmacology
- Supportive services

➤ **Training priorities for Current Allied Health occupations** noted by employers included:

- Addiction treatment models
- Behavioral health and child welfare
- Behavioral Health Courses with ability to obtain independent license
- Behavioral Health Nursing Skills
- BSN – Online
- Caregiver Training
- Combining medical and psychiatric assessment
- Compliance, HIPAA, IT Security
- Continuing Professional Education for Clinical Staff
- Core Public Health Competencies
- Cultural Sensitivity and CLAS Standards
- Cultural Competency
- EMR/HER
- Evaluation, Outcomes, Data Analysis for Decision Making, Finance
- Field of practice and Internal Medicine- Cardiology, Urology, Nephrology
- Health Coaching
- IT Security, Privacy and Compliance
- Leadership Competencies
- Public Health Competencies

- Quality Improvement
- Patient Satisfaction
- Physical Therapists – Home Health
- Performance improvement
- Public Health Accreditation
- Physicians, nurses, administration, finance
- Public Health 101 and training on working through policy, systems, and environmental approaches
- Quality Improvement and Customer Service
- Recovery-based approaches to care
- RN License
- Safety
- Screening for Physical Health Conditions
- Systems of Care
- Standard Required Annual Updates i.e. (HIPAA, Required Reporting, Hand washing, etc.)
- Support training in accounting and medical billing (very difficult to find)
- Strategic Planning
- Safety/Compliance
- Trauma informed care in a clinical counseling
- Therapy skills with a focus on trauma informed care
- Whole health
- Wraparound services

➤ **Skills and experience attributed to very good or excellent job applicants and highly valued by employers include:**

- Strong clinical skills
- Overall engagement in patient experience
- Strong work ethic
- Embracing the mission, vision and values of the organizational culture
- Time management
- Customer services
- Computer skills
- Positive attitude
- Flexibility
- Professionalism
- Critical thinking
- Good communicators
- Efforts to become leaders and transformation agents

## Synthesis of Findings - Strategic Opportunities and Challenges

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Findings based on the workforce analyses data, interviews, focus groups and surveys were aligned to identify potential strategic opportunities and challenges for the Maricopa County Community College District to address workforce needs in allied health care.

### Strategic Opportunities

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➤ **Strengthen and Expand Partnership Network with Healthcare and Behavioral Health Organizations**

MCCCD has developed an impressive network of partnerships with organizations throughout Arizona. The primary focus has been the development of clinical placements where students can be placed as interns and complete clinical requirements. Allied Health career programs located throughout the ten campuses have established Advisory Committees with representatives from the respective occupations in the community. These Clinical partners and Advisory Committee members are typically Department Supervisors in the respective occupational fields. These Clinical Partners provide supervision and support for students and feedback and advice to the MCCCD Allied Health Programs. In 2014, Dr. Rufus Glasper, Chancellor of Maricopa County Community College District (MCCCD), invited senior level managers in major healthcare organizations to a roundtable session to address the community's education and workforce training needs.

These successful collaborative efforts provide a strong foundation for MCCCD to further expand and engage key personnel at multiple levels of Healthcare and Behavioral Health organizations as partners in the development of curricula and training for emerging allied health occupations, recruitment pipelines for employers and training to meet the needs of the current workforce,

- Senior level executives and managers from 40 organizations participating in the Allied Health Needs Assessment expressed an interest in potential or expanded partnerships with MCCCD. These individuals have the capacity to provide MCCCD with input from a long range perspective on workforce needs including hiring and training. The list (Appendix K: Potential Partners and Resources for Maricopa County Community College District) represents a group of employers with diverse perspectives interested in

“HonorHealth has worked closely with Maricopa County Community College District to place student interns and recruit allied health students into the organization as Medical Assistants, Radiology Technicians and many other occupations. We have also implemented successful collaborative training programs for our workforce with Gateway and Phoenix College.”

Dede Schmallen,  
Associate Vice President of  
Organizational and  
Workforce Development

Judie Goe, Associate Vice  
President of Talent  
Acquisition  
HonorHealth

collaboration on workforce planning and recruitment, training and curriculum development, clinical placements and recruitment of faculty.

➤ **Specific ideas and suggestions for partnerships between MCCCDC and healthcare and behavioral health organizations included:**

- Hospital administrators would welcome opportunities to provide feedback to MCCCDC on evaluations of training, curriculum and the demands of the jobs performed in a hospital setting.
- Internship programs play a critical role in healthcare organizations in the establishment of pipelines for recruitment of new staff. Healthcare organizations partnering with Maricopa Community College District programs on clinical internships and training reported positive experiences frequently serving as recruitment pipelines. In-depth internship opportunities for one or two semesters would be beneficial to students to reinforce training and education.

“Mountain Park Health Center would be interested in potential opportunities to partner with Maricopa Community College District to develop a pipeline for entry-level Medical Assistants with training and interest in community health. Growth areas include integrated health specialists to support Dietitians, Behavioral Health Practitioners including Psychologists and Social Workers.”

Troy Foster, Human Resources Director  
Mountain Park Health Center

- Continue to promote an environment that allows and expects instructors to seek out partnership roles within professional entities and organizations.

**New Roles and Expanded Scope of Practice**

➤ **Strengthen current allied health career programs that address emerging occupations and expanded scope of practice. Rio Salado and Phoenix College currently have highly regarded programs accredited by the American Dental Association for these occupations.**

- **Expanded Function Dental Assistants**
- **Community Dental Health Coordinators**

The comparison of the trends to the information from the interviews, focus groups and surveys indicates that the modest growth rates in the employment of **Dental Assistants (18.9%)** is consistent with remarks from interviewees that there is very little turnover in the occupation and

“New legislation (SB 1282) requires Dental Assistants to complete Expanded Function Dental Assistant Certification Programs at an institution accredited by the American Dental Association. Arizona has three accredited programs that include Phoenix College, Rio Salado College and Pima College. The Arizona Dental Association has a history of successful collaboration with Rio Salado and Phoenix College on certificate programs Expanded Function Dental Assistants and Community Dental Health Coordinators designed to meet the needs of the future workforce in dentistry.”

Kevin Earle, Executive Director  
Arizona Dental Association

that it is relatively easy to make new hires when necessary. Employment peaked in 2010 and declined in each subsequent year by approximately 4% (2010-11) and by approximately 2% (2011-12). Given the increases in population and the effect on demand for care, the results clearly suggest that the demand for Dental Assistants can be expected, at best, to stabilize at current levels. The impact of passage of SB 1282 to expand the scope of practice for Expanded Function Dental Assistants will drive an increased need for certificate training among current Dental Assistants and transform the curriculum for new enrollees in the program.

➤ **Address the need for development of curricula and certification programs to reflect new and emerging roles and expanded scope of practice for allied health occupations. Examples include**

- Health and Transition Coaches
- Community Resource Aides
- Community Care Workers
- Case Managers - Integrated Care
- Patient Navigators
- Emergency Medical Technicians and Paramedics

“Community Care Workers who are knowledgeable about their communities are essential team members to help patients with nutrition, medication management and vital signs and do whatever it takes to keep patients out of the ER.”

Arjelia "Argie" Gomez,  
Chief Operating Officer  
Chicanos Por La Causa

➤ **The implementation of Integrated Care (physical and behavioral health) in Arizona presents a strategic opportunity for MCCCDC to bring together the necessary interdisciplinary resources to play a significant role the development of curricula, workforce training and certification programs to prepare allied health workers at all levels to work in an integrated care model.**

▪ **Interdisciplinary opportunities include:**

- Behavioral Health Technicians
- Case Aides
- Case managers
- Clinical Information Technology
- Direct Care Paraprofessionals
- Family Peer Support Partners
- Health Information Informatics programs
- Integrated Health Specialists and Coordinators
- Management of Clinical Information Technology
- Management of Clinical and Bioscience Informatics
- Info Tech Specialists

“In Arizona few professionals are fully prepared for integrated care. There is a great need for a certificate program on integrated care for the current workforce in a range of occupations, including allied health.”

Jay Gray, Chief Operating Officer  
Cenpatico

- Medical Records Clerks
  - Medical Assistants
  - Licensed Practical Nurse (LPN )
  - Parent Aides
  - Peer Support/Recovery Specialists
  - Population Care Managers
  
- Collaborative efforts with providers in the development and delivery of certificate training content for an array of occupations may be mutually beneficial. Provider agencies and organizations develop training for their staff and receive approved certification for the courses from Arizona Department of Health Services (ADHS-DBHS). Limited options and incentives are available to share the training outside their organization with peer agencies statewide. Strategies for MCCCCD may include hiring practitioners to teach courses, disseminate through webinars and community college network statewide. Examples include:
  - Establish a Supervisor Training Certification program or Leadership Academy for first line supervisors working in integrated care, behavioral health and human service agencies.
  - Training in **Behavioral Health Assessments** for behavioral health paraprofessionals including Behavioral Health Technicians, Case Aides, Case Assistants, Direct Care Providers and Parent Aides etc.
  - Establish a Prevention Certificate Program for prevention specialists.
  - Establish a certification program for **Direct Care Paraprofessionals** in Behavioral Health who work in jobs as Residential Care Workers.

“Peer and Family Support Specialists are key to helping people get into and succeed in recovery.”

Shawn Nau  
Chief Operating Officer  
NARBHA Health Choice

“A Leadership Academy Certification Program for supervisors is needed with components for child welfare and behavioral health.”

Bahney E. Dedolph,  
Policy Analyst  
Human Resources  
Committee  
Arizona Council of Human  
Service Providers

### Workforce Training

- As the healthcare climate continues to change, there is an increasing need to hire certified/ credentialed individuals in most areas (i.e., Med. Asst., Nursing Asst, DMS, Rad Tech, etc.) Certification programs would make the services provided by Community Health Workers, Medical Assistants, Nursing Assistants, Case Aides, Case Managers and some other occupations eligible for re-imburement by state programs.
  
- Nearly all the allied health occupations need more technological expertise as a minimum standard for adequate preparation for the work they will perform.

Predictive analytics hold much promise for a health care industry that must demonstrate value in an increasingly competitive environment.

- Training for **Medical Billing Coders** and **Billing and Posting Clerks** will require more knowledge about insurer/payer requirements, compliance, operations and quality assurance in addition to some specialty training to the basic skills (for example, training billing students in some service delivery areas such as behavioral health, primary care, cardiology, ophthalmology or laboratory billing as examples of options. The training could be accomplished through classroom training and/or internships.

“Medical Billing Coders and Billing and Posting Clerks will need enhanced skills and to be more integrated into the work of the healthcare organization which is expected to provide more information on treatment and clinical affirmation of outcomes. Many positions will require a college degree.”

Mary Jo Gregory, President and Chief Executive Officer NARBHA Health Choice Integrated Care

### Delivery of Training

- Training needs to be made available in multiple formats including online, work site, train the trainer, classroom, webinar and hybrid models (classroom and online). In person training is preferred by many employers but is not always cost effective or a viable option for some topics. Tuition reimbursement programs are an option with the majority of employers participating in the needs assessment but some have had to cut back or put these programs on hold due to budget constraints. Potential partnerships with Arizona’s statewide network of community colleges, universities, healthcare and behavioral health providers may provide vehicles for to share and disseminate curricula and training packages statewide.

### Training for Re-Certification Requirements

- **Radiation Therapist** - This is one of the occupations where there is a need for re-certification as technology changes. More generally, most of the occupations face an increasing need for continuing education as technology changes. The new emphasis on community based post-discharge care suggests that there will be more outpatient care in the future
- **Respiratory Therapists** need training for re-certification as the technology changes. For example, Dignity Health currently handles the re-certification. There may be an opportunity to the re-certification to be more efficiently done through a cooperative venture with educational institutions such as MCCC.

“Training and certification programs for Integrated Care would be helpful for all levels of practitioners including allied health professionals, especially Medical Assistants. Integrated care models must address basic needs of patients as many experience job loss, homelessness and contact with the criminal justice system as a result of their mental illness and physical health.”

Larry Green, Chief Executive Officer,  
West Yavapai Guidance Center

“Case managers, Case Aides and Behavioral Health Aides provide much of the connective tissue to support patient services. Touchstone developed the Whatever it Takes program.”

Gary Brennan, President  
Touchstone Behavioral Health

## Challenges

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- The U.S. health care system is transforming the delivery system from hospital-centric sick care to a super outpatient model that will emphasize community-based care.
- Training in Electronic Medical Records (EMR) is a requirement for all allied health occupations and ongoing training is necessary to keep up with updates however employers utilize different platforms and software that requires frequent training and retraining of staff.
- Implementation of integrated care will need to address the diverse cultures and approaches. Successful integration of physical and behavioral health will require a shared culture, rooted in a jointly developed common vision and strong set of values. These values support the organization's mission and serve to help resolve the inevitable conflicts that arise among partners. They include:
  - A broader concern for both the quality and cost of services delivered to a defined population.
  - A sense of responsibility for the long-term success and reputation of the organization that feels like ownership by transcends the details of organizational structure or legal ownership rights.
  - A commitment to performance measurement transparency and to performance improvement through collective action.
- The low growth rate for the employment of **Medical and Clinical Laboratory Technicians (29-2012)** (11.7%) is also consistent with the expert opinions that many of the functions of this occupation are being replaced by automated testing technologies. However, the reports from Sonora Quest Laboratories suggest that the decline may represent the development of a shortage, listing this as an occupation where it is difficult to recruit. This may also apply to **Radiologic Technologists and Technicians (29-2034/7)** (-2.3%).

“Electronic health information exchange (HIE) is a dynamic and evolving landscape critical to the success of integrated care. Access to both health and behavioral health patient data at the point of care provides a means to inform treatment but also has the potential to reduce costs through the reduction of redundant or unnecessary healthcare services.”

Ted Williams  
President/Chief Executive Officer  
Arizona Behavioral Health Corporation

- The decline in the employment of **Medical Transcriptionists (31-9094) (-4.1%)**. The need for **Medical Transcriptionists** is declining with the widespread implementation of Electronic Medical Records and other technology.
- The modest growth rate in the employment of **Interpreters and Translators (27-3091)** is consistent with some interviews that suggested that adoption of new technologies will further weaken the demand for these services. Additional factors in the decline in this occupation include financial disincentives for behavioral health providers and a preference of employers to hire bilingual Medical Assistants, Health Coaches and Patient Navigators who can provide additional and continuing support to patients.
- There is a continuing need for **Respiratory Therapists** as well as a need for re-certification of those currently in the workforce as the technology changes. There may be an opportunity to the re-certification to be more efficiently done through a cooperative venture with educational institutions such as MCCCDC. Some administrators noted trends toward increased requirements for some Respiratory Therapist positions requiring Bachelor's or Master's degrees leading to better opportunities which will impact the Community College level programs. If the requirements are increasing MCCCDC could explore the possibility of a bridge program with ASU.
- **Medical and Clinical Lab Technicians** - Sonora Quest Laboratories indicated some difficulty recruiting since ASU and UA closed programs. Associate Degree program is potential opportunity for MCCCDC. Sonora Quest Laboratories hired a trainer to help staff move from one level to another. (Medical Technician). ASU has worked with Phoenix College on a 4 year college program with clinical rotations. The increased use of automated tests by pharmacies may shift employment opportunities from hospital systems to pharmacies or through joint ventures between hospitals.
- Facilities with updated laboratory facilities will continue to be essential for the training of allied health workers. Lack of updated lab facilities for schools were noted as a concern. Schools have the ability to offer classes online which enables more students to have access to programs but must complete lab work in a physical setting.

“A number of opportunities exist for first line supervisors and mid-level managers in lab management with two-year degrees. These are positions that staff can work their way into using a career ladder but must be able to take on the additional responsibilities and demonstrate leadership.”

Barbara Blasutta, Vice President, Hospital Laboratory Operations  
Sonora Quest Laboratories

- Providers are under pressure due to lower reimbursement rates and increased patient volume from health insurance exchanges and expanding Medicaid rolls. Some health systems are approaching the challenge by trying to reduce overall costs. Some of the managers indicated reimbursement from insurance programs directly influence salaries for specific occupations and present challenges for meeting the wage demands of well qualified job applicants.
- Data limitations presented challenges to answering questions related to the extent MCCCCD graduates are represented in the workforce. Healthcare organizations do not typically track data indicating the schools where employees received their degrees and training. One of the large health networks is in the process of implementing a system that will make data available related to new hires and the schools they attended which is a promising approach.
- The state budget beginning July 2015 imposes a 5-percent cut in payment to health-care providers, ranging from hospitals and doctors to nurses and mental-health counselors. Providers say the cuts will increase workloads and slow down service.
- The state budget effective July 2015 will shrink opportunities for Arizonans to get a higher education. University funding was cut by \$99 million and community colleges by \$16 million – removing all state funding for community colleges in Maricopa and Pima Counties.

“Community Colleges can be valuable partners in social outreach, health education and public health education.”

Shawn Nau  
Chief Operating Officer  
NARBHA Health Choice  
Integrated Care

## Conclusion

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Changes in public policy, demographics, technology and health coverage will have significant effects on the role of allied health professionals in the delivery of health care. The disparate job titles, employment settings, and licensure regulations for these many different allied health disciplines make it very difficult to project the degree to which Arizona's colleges and universities will be able to meet future allied health workforce demand.

The professions in health care are dynamic, resulting in ever-changing training and workforce needs. Trend data indicates that Arizona employers will hire approximately 47,000 allied health employees by 2020 in 25 allied health occupations. In addition new occupations are emerging to meet the needs of the changing landscape of health care delivery such as health coaches, patient navigators, peer support specialists, population managers and integrated care managers which will further increase the demand for allied health workers.

Successful collaborative efforts provide a strong foundation for MCCCDC to further expand and engage key personnel at multiple levels of Healthcare and Behavioral Health organizations as partners in the development of curricula and training for emerging allied health occupations, recruitment pipelines for employers and training to meet the needs of the current workforce.

MCCCDC can bring vast academic resources and capacity to collaborative efforts with networks of employers to collectively address the training needs of a growing allied health workforce.

This is a critical time for MCCCDC to develop strategic priorities and address challenges to chart a course for the future of Allied Health occupations in Arizona. The Allied Health Needs Assessment provides information to inform this process.

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## Appendix A: Organizations and Senior Managers Interviewed

Organizations and Senior Managers Interviewed	
Organization	Interview Participants
Arizona Alliance for Community Health Centers	Lourdes Paez, Coordinator Workforce Development
Arizona Behavioral Health Corporation	Ted Williams, President and Chief Executive Officer
Arizona Council of Human Service Providers	Emily Jenkins, Executive Director Bahney Dedolph, Policy Analyst Focus Group Human Resources Committee (10)
Arizona Dental Association	Kevin Earle, Executive Director
Arizona Healthcare Human Resources Association	Wick Lewis, President Gary Pastore, Board Member, HonorHealth
Arizona Department of Health Services, Bureau of Health Systems Development	Patricia Tarango, Bureau Chief
Arizona Public Health Association	Tracy Lenartz, President
Arizonans for Prevention	Lauriane Bellot-Hanson Vice President, Board of Directors and Community Youth Development Program Coordinator Southwest Behavioral Health Services
Banner Health Network	Deborah Dahl, VP/Clinical Innovation Deborah Martin, RN, Professional Development, Senior Director
Barnet Dulaney Perkins Eye Centers	Tracy G. Farrington, Director of Clinics
Cardiovascular Consultants	Dr. Andrei Damien, Chief Executive Officer
Cenpatico	Dr. Jay Gray, Chief Operating Officer Michele Flatbush, Provider Performance and Network Development Administrator Lee Martinez, Program Specialist Kristin Frounfelker, Medical Management Administrator
Chicanos Por La Causa	Arjelia Gomez, Chief Operating Officer
Dignity Health	Kathleen Dowler, Director of Community Integration
Marc Community Services	Cheryl Anderson, Director of Recovery and Resiliency Services Doug Barshter, Training Manager
Mountain Park Community Health Center	Troy Foster, Human Resources Director
NARBHA Health Choice Integrated Care	Mary Jo Gregory, President and Chief Executive Officer Shawn Nau, Chief Operating Officer Providers Meeting (10)
Scottsdale Healthcare – Lincoln Health Care Network (HonorHealth)	Dede Schmallen, Associate Vice President of Organizational and Workforce Development Judie Goe, Associate Vice President of Talent Acquisition Judie Seiler, Network Director, Workforce Development
Sonora Quest Laboratories	Barbara Blasutta, VP Hospital Laboratory Operations Joe Garletts, Director, Operations, SQL Peggy Scroggins, Director, Human Resources
Southwest Network	Amy Henning, Chief Executive Officer
The Guidance Clinic	Jack Callaghan, CEO Mike Lerch, Human Resource Director
Touchstone Behavioral Health	Gary Brennan, President
West Yavapai Guidance Clinic	Larry Green, Chief Executive Officer
<b>Total Organizations =23</b>	<b>Total Participants =46</b>

## Appendix B: Crosswalk of MCCCDC Allied Health Programs to BLS SOC Occupations

Crosswalk of MCCCDC Allied Health Programs to BLS SOC Occupations			
MCCCDC Allied Health Programs	SOC	Title	Definition
Health Services Management, Healthcare Regulatory Compliance	11-9111	Medical and Health Services Managers	Plan, direct, or coordinate medical and health services in hospitals, clinics, managed care organizations, public health agencies, or similar organizations.
Clinical Research Associate and Coordinator	11-9121	Natural Sciences Managers	Plan, direct, or coordinate activities in such fields as life sciences, physical sciences, mathematics, statistics, and research and development in these fields. Exclude "Engineering Managers" (11-9041) and "Computer and Information Systems Managers" (11-3021).
Community Health Advocate, Community Dental Health	21-1094	Community Health Workers	Assist individuals and communities to adopt healthy behaviors. Conduct outreach for medical personnel or health organizations to implement programs in the community that promote, maintain, and improve individual and community health. May provide information on resources, provide social support and informal counseling, advocate for individuals and community health needs, and provide services such as first aid and blood pressure screening. May collect data to help identify community health needs. Excludes "Health Educators" (21-1091).
Medical Interpreter-Spanish	27-3091	Interpreters and Translators	Interpret oral or sign language, or translate written text from one language into another.
Radiation Therapy Technologist	29-1124	Radiation Therapists	Provide radiation therapy to patients as prescribed by a radiologist according to established practices and standards. Duties may include reviewing prescription and diagnosis; acting as liaison with physician and supportive care personnel; preparing equipment, such as immobilization, treatment, and protection devices; and maintaining records, reports, and files. May assist in dosimetry procedures and tumor localization.
Respiratory Care	29-1126	Respiratory Therapists	Assess, treat, and care for patients with breathing disorders. Assume primary responsibility for all respiratory care modalities, including the supervision of respiratory therapy technicians. Initiate and conduct therapeutic procedures; maintain patient records; and select, assemble, check, and operate equipment.
Clinical Laboratory Technician, Histologic Technician, Laboratory Assistant	29-2012	Medical and Clinical Laboratory Technicians	Perform routine medical laboratory tests for the diagnosis, treatment, and prevention of disease. May work under the supervision of a medical technologist.
Dental Hygienist	29-2021	Dental Hygienists	Clean teeth and examine oral areas, head, and neck for signs of oral disease. May educate patients on oral hygiene, take and develop x rays, or apply fluoride or sealants.
EKG Technician	29-2031	Cardiovascular Technologists and Technicians	Conduct tests on pulmonary or cardiovascular systems of patients for diagnostic purposes. May conduct or assist in electrocardiograms, cardiac catheterizations, pulmonary functions, lung capacity, and similar tests. Includes vascular technologists.
Diagnostic Medical Sonography	29-2032	Diagnostic Medical Sonographers	Produce ultrasonic recordings of internal organs for use by physicians.
Nuclear Medicine Technology	29-2033	Nuclear Medicine Technologists	Prepare, administer, measure radioactive isotopes in therapeutic, diagnostic, and tracer studies using a variety of radioisotope equipment. Prepare stock solutions of radioactive materials and calculate doses to be administered by radiologists. Subject patients to radiation. Execute blood volume, red cell survival, and fat absorption studies following standard laboratory techniques.

**Crosswalk of MCCC'D Allied Health Programs to BLS SOC Occupations**

<b>MCCC'D Allied Health Programs</b>	<b>SOC</b>	<b>Title</b>	<b>Definition</b>
Medical Radiographer	29-2034	Radiologic Technologists	Take x rays and CAT scans or administer nonradioactive materials into patient's blood stream for diagnostic purposes. Includes technologists who specialize in other scanning modalities. Excludes "Diagnostic Medical Sonographers"(29-2032) and "Magnetic Resonance Imaging Technologists" (29-2035).
Magnetic Resonance Imaging, Computed Tomography	29-2035	Magnetic Resonance Imaging Technologists	Operate Magnetic Resonance Imaging (MRI) scanners. Monitor patient safety and comfort, and view images of area being scanned to ensure quality of pictures. May administer gadolinium contrast dosage intravenously. May interview patient, explain MRI procedures, and position patient on examining table. May enter into the computer data such as patient history, anatomical area to be scanned, orientation specified, and position of entry.
EMT	29-2041	Emergency Medical Technicians and Paramedics	Assess injuries, administer emergency medical care, and extricate trapped individuals. Transport injured or sick persons to medical facilities.
Dietetic Technology	29-2051	Dietetic Technicians	Assist in the provision of food service and nutritional programs, under the supervision of a dietitian. May plan and produce meals based on established guidelines, teach principles of food and nutrition, or counsel individuals.
Pharmacy Technician, Pharmacy Tech: Test Prep	29-2052	Pharmacy Technicians	Prepare medications under the direction of a pharmacist. May measure, mix, count out, label, and record amounts and dosages of medications according to prescription orders.
Advanced Behavioral Health Services	29-2053	Psychiatric Technicians	Care for individuals with mental or emotional conditions or disabilities, following the instructions of physicians or other health practitioners. Monitor patients' physical and emotional well-being and report to medical staff. May participate in rehabilitation and treatment programs, help with personal hygiene, and administer oral or injectable medications.
Surgical Technologist	29-2055	Surgical Technologists	Assist in operations, under the supervision of surgeons, registered nurses, or other surgical personnel. May help set up operating room, prepare and transport patients for surgery, adjust lights and equipment, pass instruments and other supplies to surgeons and surgeon's assistants, hold retractors, cut sutures, and help count sponges, needles, supplies, and instruments.
Ophthalmic Assistant	29-2057	Ophthalmic Medical Technicians	Assist ophthalmologists by performing ophthalmic clinical functions. May administer eye exams, administer eye medications, and instruct the patient in care and use of corrective lenses.
Health Information	29-2071	Medical Records and Health Information Technicians	Compile, process, and maintain medical records of hospital and clinic patients in a manner consistent with medical, administrative, ethical, legal, and regulatory requirements of the health care system. Process, maintain, compile, and report patient information for health requirements and standards in a manner consistent with the healthcare industry's numerical coding system. Excludes "File Clerks" (43-4071).
Tech: Electroneurodiagnostic Tech; Polysomnography EEG/END; Dialysis	29-2099	Health Technologists and Technicians, All Other	All health technologists and technicians not listed separately.
Patient Care Associate	31-1014	Nursing Assistants	Provide basic patient care under direction of nursing staff. Perform duties such as feed, bathe, dress, groom, or move patients, or change linens. May transfer or transport patients. Includes nursing care attendants, nursing aides, and nursing attendants. Excludes "Home Health Aides" (31-1011), "Orderlies" (31-1015), "Personal Care Aides" (39-9021), and "Psychiatric Aides" (31-1013).
Health Unit Coordinating, Dental Office Management	43-6013	Medical Secretaries	Perform secretarial duties utilizing specific knowledge of medical terminology and hospital, clinic, or laboratory procedures. Duties include scheduling appointments, billing patients, and compiling and recording medical charts, reports, and correspondence.

**Crosswalk of MCCC'D Allied Health Programs to BLS SOC Occupations**

<b>MCCC'D Allied Health Programs</b>	<b>SOC</b>	<b>Title</b>	<b>Definition</b>
Physical Therapist Assistant	31-2021	Physical Therapist Assistants	Assist physical therapists in providing physical therapy treatments and procedures. May, in accordance with State laws, assist in the development of treatment plans, carry out routine functions, document the progress of treatment, and modify specific treatments in accordance with patient status and within the scope of treatment plans established by a physical therapist. Generally requires formal training.
Dental Assistant	31-9091	Dental Assistants	Assist dentist, set up equipment, prepare patient for treatment, and keep records.
Massage Therapist	31-9011	Massage Therapists	Perform therapeutic massages of soft tissues and joints. May assist in the assessment of range of motion and muscle strength, or propose client therapy plans.
Medical Assistant	31-9092	Medical Assistants	Perform administrative and certain clinical duties under the direction of a physician. Administrative duties may include scheduling appointments, maintaining medical records, billing, and coding information for insurance purposes. Clinical duties may include taking and recording vital signs and medical histories, preparing patients for examination, drawing blood, and administering medications as directed by physician. Excludes "Physician Assistants" (29-1071).
Hospital Central Service	31-9093	Medical Equipment Preparers	Prepare, sterilize, install, or clean laboratory or healthcare equipment. May perform routine laboratory tasks and operate or inspect equipment.
Medical Transcriptionist	31-9094	Medical Transcriptionists	Transcribe medical reports recorded by physicians and other healthcare practitioners using various electronic devices, covering office visits, emergency room visits diagnostic imaging studies, operations, chart reviews, and final summaries. Transcribe dictated reports and translate abbreviations into fully understandable form. Edit as necessary and return reports in either printed or electronic form for review and signature, or correction.
Phlebotomist	31-9097	Phlebotomists	Draw blood for tests, transfusions, donations, or research. May explain the procedure to patients and assist in the recovery of patients with adverse reactions.
Assisted Living Caregiver; direct care practice	39-9021	Personal Care Aides	Assist the elderly, convalescents, or persons with disabilities with daily living activities at the person's home or in a care facility. Duties performed at a place of residence may include keeping house (making beds, doing laundry, washing dishes) and preparing meals. May provide assistance at non-residential care facilities. May advise families, the elderly, convalescents, and persons with disabilities regarding such things as nutrition, cleanliness, and household activities.
Speech and Language Pathology Assistant	31-9099.01	Speech and Language Pathology Assistant	Healthcare support workers, all other. 2012-22 National Employment Matrix O*NET to SOC crosswalk (XLS)
Medical Billing/Coding	43-3021	Billing and Posting Clerks	Compile, compute, and record billing, accounting, statistical, and other numerical data for billing purposes. Prepare billing invoices for services rendered or for delivery or shipment of goods.

## Appendix C: Banner Health Network Health Coach Job Description

### **Banner Health Network Intensive Ambulatory Care Program (IAC) Health Coach Job Description**

**Job Summary:** This position provides client care within the scope of a Nursing Assistant/Community Health Worker or Medical Assistant to promote client comfort and contribute to the overall client plan of care. This position is primarily focused on being a client advocate, cheerleader and support to the client and family. This position is responsible for on-going client data collection and documentation in the medical record; provides a variety of client support functions which contribute to the overall improvement in clients' healthcare quality of life as well as efficient use of resources.

#### **Essential Functions**

Provides self-management support including but not limited to: using checklists and escalating as prescribed by protocols, promoting healthy behaviors, imparting problem-solving skills, and assisting with the emotional impact of chronic illness, providing regular follow up and encouraging people to be active participants in their care

Applies the skills of motivational interviewing to promote the above lifestyle changes. Provides emotional support by initially establishing a positive relationship, showing interest, inquiring about emotional issues, showing compassion and teaching compassion. Assists patients in navigating the health care system by connecting the client with resources, facilitating support and empowering the patient. Reinforce client's care plan and discharge instructions, medication adherence, vital sign data collection as needed and use of in home IAC tools. Recognizes and reports abnormalities and/or changes in the client's health status and responses to treatment to a licensed professional.

Promotes continuity of care by accurately and completely communicating to other caregivers the status of patients for which care is provided.

Conducts client home environment checklist, provides list of gaps to licensed professional and works with the health care team to coordinate to close gaps/issues. Bridges gaps between the client and the clinical team including but not limited to following up with clients, asking about needs and obstacles, and addressing health literacy, cultural issues and social-class barriers. Reinforces activities of daily living and completes necessary tasks to promote client health, including maintaining an optimum level of mobility.

#### **Scope and Complexity**

This position must interact with and support all levels of end users throughout the facility or specialty area, including technicians, nurses, therapists, and physicians. This position must coordinate interdisciplinary activities in the planning and modification of the clinical information system, both at the facility and at the system level. Internal Customers: All levels of management and staff, medical staff, and other healthcare members for the purpose of integrating services, improving client care, ensuring effective communication systems and facilitating decision making in clinical practice. External Customers: clients and families regarding client care issues. Physicians regarding client care and program development. Vendors in the implementation and modification of information systems.

#### **Physical Demands/Environmental Factors**

OE - Typical Office Environment: (Accountant, Administrative Assistant, Consultant, Program Manager)

Requires extensive sitting with periodic standing and walking.

May be required to lift up to 30 pounds.

Requires significant use of personal computer, phone and general office equipment.

Needs adequate visual acuity, ability to grasp and handle objects.

Needs ability to communicate effectively through reading, writing, and speaking in person or on telephone.

Will require travel to patient's homes

This position may require on-call hours.

#### **Minimum Qualifications**

Must possess diverse clinical knowledge and technology aptitude as normally obtained through the completion of a high school diploma and Medical Assistant, Nursing Assistant or Community Health Worker program.

Must be proficient in the use of system office applications.

Must possess a basic understanding of integrated clinical systems.

Must have highly developed interpersonal and critical thinking skills with the ability to prioritize needs rapidly. This position requires the ability to convey messages and thoughts clearly to a diverse audience, using both verbal and written mediums.

Requires the ability to promote change among patients. Responsible, caring and respect for older persons.

Requires the ability to coordinate information and activities, work under stress of deadlines and frequent interruptions, and to possess analytical problem solving skills. Requires the maintenance of familiarity with clinical care processes and clinical technology and Electronic Medical Records.

Must possess excellent organizational skills, as well as effective human relations and communication skills.

Working knowledge of medical terminology and computer literacy and keyboarding skills is required.

Current BLS certification required.

Provide own transportation

#### **Preferred Qualifications**

Current C.N.A. CHW or M.A. license in state of practice may be required in certain facilities and/or departments in accordance with regulatory requirements or facility/department policy.

Previous motivational interviewing skills preferred.

Recent healthcare experience preferred

Additional related education and/or experience preferred

Multilingual a plus

## Appendix D: HonorHealth Scottsdale-Lincoln Health Network Transition Specialist Job Description

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### Scottsdale Lincoln Health Network (JCL Accountable Care Org ) Transition Service Specialist Job Description

**The Transition Services Specialist** - ACO is responsible for providing coaching in a home environment to discharged patients to ensure effective transitions as patients move through the health care continuum. Educates patients and advocates, provides information and guidance to patients to support effective care. Connects patients with community resources if/when a need is recognized; e.g. patient is not able to pick up their prescriptions, basic food needs are not being met, etc. Reports patients' non-compliance and/or compliance with physician's instructions on post-discharge care to appropriate clinical practitioner. Focuses on patients identified as high risk for re-hospitalization within 30 days of discharge.

#### **Qualifications**

High school diploma or GED

Clinical experience to include completion of a formal clinical training program.

Will be required to drive locally. Valid AZ drivers' license and driving history consistent with JCLHN insurance requirements.

Current State of Arizona Fingerprint Clearance Card (New hires will have 7 days from date of hire to apply for clearance and must present valid card within 8 weeks from date of hire to meet this requirement and continue employment).

- Preference given to honorably discharged veterans with healthcare experience.
- Preferred 2 years clinical experience

## Appendix E: Dignity Health Network Community Resource Aide Job Description

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### Dignity Health, Phoenix, ACN Community Resource Aide Job Description

The Arizona Care Network (ACN) is a clinically integrated physician network is Dignity Health and Abrazo Health physician collaboration. The Community Resource Aide is an employee of Inland Health Organization of Southern California, Inc., doing business as MedProVidex, a physician support organization owned by Dignity Health.

The goal of care coordination is to assist in managing care, cost, and outcomes across the continuum of care. The implementation of sound clinical, fiscal, and operational strategies is critical to the continued delivery of quality services. Care coordination principles provide an opportunity to balance care with cost. The ACN care coordination program's purpose is to promote efficiency, efficacy, and effectiveness of services for patients. The long-term goal of the program is to classify all patients into case management categories (complex, routine, etc.) and assign them to RN care coordinators or social workers, based on acuity and need.

The Community Resource Aide supports the primary care team with reducing fragmentation of patient care, improves compliance and access to care, supports efforts to reduce or remove treatment barriers, and assists patients in navigating their path through the continuum of care.

#### **Principal Duties and Responsibilities**

Effectively works with patients, staff, health service providers, agencies, etc. from diverse backgrounds to reduce cultural and social-economic barriers between patients and institutions.

Assists with enrolling patients in the ACN Care Coordination Program, finding a "medical home", which is a team-based model, led by a licensed provider (Physician, Physician Assistant or nurse Practitioner) that provides comprehensive and continuous care to patients with the goal of maximizing health outcomes.

Clearly communicates the purposes and services available in the ACN Care Coordination program to patients, family members and caregivers.

As part of the Care Coordination Team, assists patients in understanding care plans and instructions and helps patients actualize health management plans and goals.

Receives patient requests for assistance and refers patient to appropriate member of ACN Care Coordination Team (PCP, Care Coordinator, Social Worker, Pharmacist) for resolution, unless Community Resource Aide can resolve on his/her own and within the scope of the position.

Coaches patients in self-management of their chronic health conditions.

Develops relationships with community resources and service providers.

Assists patient with barriers to care including but not limited to scheduling appointments, transportation needs, and access to community resources unknown or otherwise unavailable to patients without appropriate referrals.

Documents activities, plans, and results in an effective manner to maintain case files and provide reports.

Works collaboratively with the rest of the ACN Care Coordination Team, including regularly communicating feedback from patients and providers.

Fully discloses relevant training, experience and credentials, in order to help patients understand the scope of services the community resource aide is qualified to provide and refrains from any activity which could be construed as clinical in nature.

Other duties as assigned by Program Director for Quality and Care Management.

#### **Requirements**

At least three (3) years experience as a Medical Office Referral Coordinator or Medical Assistant, Health Plan or Managed Care Organization Utilization Technician. Must have excellent verbal communication skills. High school diploma or equivalent.

## Appendix F: Banner University Medicine Medical Scribe Job Description

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### Banner University Medicine Medical Office Scribe -Urological Clinic Job Description

#### Position Summary:

Records medical details, gathers data, and coordinates tests, orders and results as necessary to ensure an accurate and complete medical record. Assembles and maintains patients' health information in medical records and charts by assisting medical providers and physicians. No medical decision making is performed.

#### Required Qualifications:

High school diploma or GED equivalent.

#### Preferred Qualifications:

Two years of experience in acute care or multi-specialty clinic using electronic medical record software or maintaining medical records.

## Appendix G: MH7 Medical Assistant-Scribe Job Description

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### **MH7 Medical Assistant-Scribe – Job Description**

We're looking for a team player, with experience, great work ethic and excellent people skills who enjoys working in geriatrics. Requires an outgoing pleasant personality, excellent computer skills, and a willingness to learn. EMR experience is required. Must be a self-starter with great attention to detail.

We need Scribes that will serve as valuable members of our healthcare team, providing real-time charting for providers by shadowing them throughout their day and performing a variety of helpful tasks.

Common duties include:

Checking patients in to the EMR

Updating medication list

Checking and recording vitals

Preparing plans for follow-up care

## Appendix H: HonorHealth (Scottsdale Lincoln Health Network) – Patient Navigator Job Description

### Honor Health (Scottsdale Lincoln Health Network) – Patient Navigator Job Description

Patient Navigator-ACO is responsible for coordinating and expediting care for all patients who are attributed to the Accountable Care Organization. Effectively communicates with JCL ACO participating providers and community support organizations to co-ordinate and facilitate a comprehensive plan-of-care for patients attributed to the ACO. This includes scheduling appointments and providing a full range of support services as well as a wide range of educational information.

#### Qualifications

High school diploma or GED

3 years working within a health insurance call center dealing with benefit verification and scheduling or similar experience in a health care setting.

Novice Excel

Novice PowerPoint

Intermediate Word

Intermediate MS Outlook

Must demonstrate proficiency in Electronic Health Record post hire by attending required training and passing proficiency test.

## Appendix I: Little Colorado Behavioral Health – Peer Support/Recovery Specialist Job Description

### JOB DESCRIPTION TITLE: PEER SUPPORT/RECOVERY SUPPORT SPECIALIST

**LINES OF AUTHORITY:** This position is supervised by the Clinical Director, and is also under the clinical instructions of the treatment team or therapist, medical staff and case manager as applicable. Unless specifically designated by contract, this position does not supervise any other personnel; however, the position may require periodic participation in peer review activities.

**POSITION SUMMARY:** The Peer Support/Recovery Support Specialist's main purpose is to directly assist clients with a serious mental illness and/or substance abuse/dependence disorder to achieve outcomes of recovery. The Peer Support/Recovery Support Specialist is expected to cooperate as a team member, when indicated, in the provision of a therapeutic environment that encourages each client's emotional growth.

**PRINCIPLE DUTIES AND RESPONSIBILITIES:** 1. Provides direct contact in the form of peer support with the client and/or family members in the jail, home, office, and community locations to assist identified clients with development and improvement of living skills based on empowerment. 2. Teaches and models recovery principles and philosophy. 3. Facilitates groups/classes as necessary. 4. Through observation, assesses client welfare and reports pertinent clinical information to the clinical team. 5. Attends interdisciplinary team staffing and family and community teams as necessary. 6. Completes clinical and administrative documentation as required. 7. Meets current value of services as established by LCBHC. 8. Provides transportation to clients as necessary. 6. Performs other duties as assigned

**PRIMARY CONTACTS:**  Frequent interaction with clients and their support system, usually the family.  Interface as needed with peers and other clinical team members to coordinate client services.  Collaboration, as appropriate, with other community resources/referral agencies, and other health and/or social agencies, with the client's consent, to facilitate client-needed services.

**POSITION REQUIREMENTS:** Qualifications and Experience Required: High school diploma or GED Page 2 of 2 Current Arizona Driver's License and proof of auto insurance, plus current CPR and First Aid certification. Class A Fingerprint Clearance from Arizona. Successful background check clearance. Peer Support training certificate Preferred:  Higher education and/or experience working with seriously mentally ill adults and/or adults recovering from substance abuse/dependence. Skills & Abilities Required:  Fluent in English both verbally and in writing.  Able to effectively employ analytical and problem-solving skills.  Knowledge of the special needs of the SMI and SA population.  Knowledge of benefits and entitlements process and of available community resources. Preferred:  Skilled in computer word processing.

**WORKING CONDITIONS:** Physical Requirements:  Able to sit and stand for extended periods of time.  Able to hear ordinary conversation and phone communications. Equipment Operation  Able to operate common office equipment, include a personal computer.  Able to operate agency vehicles.  Able to operate a multiple line phone system. Environmental Conditions County Jail setting  Air conditioned and/or heated office setting. Client's home. Other community locations. Accommodation(s)  As appropriate and fiscally reasonable.

**CONFIDENTIALITY LEVEL:** Except as permitted or required under federal and state privileged communication, confidentiality and labor laws, personnel of Little Colorado Behavioral Health Centers may not disclose any information about current or past clients, or any confidential information about current or past personnel, to anyone outside the agency without the person's prior written consent, and may not disclose this information to others within the agency except on a "need to know" basis.

## Appendix J: Family Involvement Center – Peer Parent Family Support Partner Job Description

Family Involvement Center is a not-for-profit, family-directed run organization that was founded by Jane Kallal in 2001. The majority of our employees and Board of Directors have personal life experience raising children with emotional, behavioral, and/or mental health challenges.

The approach of the Family Involvement Center is to provide an atmosphere that establishes authentic connections utilizing parent to parent support that:

- Build trust
- Instills hope
- Inspire families on their journey to self-sufficiency
- Cultivate meaningful relationships with families & system stakeholders
- Develop an informal network of natural supports by connecting parents to parents and youth to youth within their local communities

### Job Description:

#### Peer Parent Family Support Partner

The Family Involvement Center is a not-for-profit family-directed organization that was founded in 2001 by parents for parents and their families. The majority of our employees and Board of Directors have personal life experience raising children with emotional, behavioral, and/or mental health challenges. We assist and support families/caregivers to ensure children and youth with emotional, behavioral or mental health disorders succeed in school, live with their families, avoid delinquency, and become productive adults.

#### Peer Parent Family Support Partner JOB SUMMARY:

Provide parent-to-parent support to parents or primary caregivers of children with behavioral health needs

#### Peer Parent Family Support Partner ESSENTIAL FUNCTIONS:

- Support families as a peer and someone with a common background
- Offer support and encouragement to families as needed
- Provide in-home, community and office-based support to parents of children in the behavioral health system
- Connect parents to the community for support and resources
- Participate in Child and Family Team activities and training
- Build partnerships with professionals through non-adversarial advocacy
- Provide education to the parents regarding behavioral health issues
- Coach parents to navigate through the behavioral health and other child-serving systems for effective management of their child's needs.
- Prepare documentation needed for coordination of care and billing
- Work flexible hours as required by job

#### Peer Parent Family Support Partner REQUIREMENTS:

Must be the parent or primary caregiver of a child who has received or is receiving behavioral health services and have experience with other children's service systems such as

Juvenile Justice, Division of Developmental Disabilities, Child Protective Services, Education System.

- High school graduate or equivalent
- Must be able to pass state fingerprint clearance
- CPR/FA certified
- Must have clean driving record, reliable transportation and proof of registration and insurance
- Personality and demeanor to deal with the public and culturally sensitive to our families
- Social services/human services work experience is a plus
- Basic office and computer skills
- Good sense of organization
- Fluent in Spanish and English is a plus

#### Peer Parent Family Support Partner Pay:

\$12.00 and higher with previous experience in this position

[www.familyinvolvementcenter.org](http://www.familyinvolvementcenter.org)

## Appendix K: Potential Partners and Resources for Maricopa County Community College District

Potential Partners for Maricopa County Community College District Allied Health		
Organization	Name	Title
Abrazo Health   Arrowhead Hospital	Gareth Holdstock	CHRO
Arizona Alliance for Community Health Centers	Lourdes Paez	Coordinator Workforce Development
Arizona Healthcare Human Resources Association	Wick Lewis	President
Arizona Behavioral Health Corporation	Ted Williams	President and Chief Executive Officer
Arizona's Children Association	Julie Peterson	Human Resources Manager
Arizona Council of Human Service Providers	Emily Jenkins Bahney Dedolph, Human Resources Committee	Executive Director Policy Analyst
Arizona Dental Association	Kevin Earle	Executive Director
Arizona Department of Health Services, Bureau of Health Systems Development	Patricia Tarango, MS	Bureau Chief
Arizonans for Prevention	Lauriane Bellot-Hanson	Vice President , Board of Directors and Community Youth Development Program Coordinator Southwest Behavioral Health Services
Arizona Public Health Association	Tracy Lenartz	President
Banner Health Network	Laura Hadley  Deborah Dahl, Deborah Martin	Health Careers Program Director- Talent Acquisition Clinical Innovation RN, Professional Development, Senior Director
Barnet Dulaney Perkins Eye Centers	Tracy G. Farrington	Director of Clinics
Cardiovascular Consultants	Dr. Andrei Damien	President
Cenpatico	Jay Gray, PhD Michele Flatbush, Lee Martinez Kristin Frounfelker,	Chief Operating Officer Provider Performance and Network Development Administrator Program Specialist Medical Management Administrator
Chicanos Por La Causa	Pilar Vargas, Psy.D., LISAC Arjelia Gomez	Vice President - Integrated Health and Human Services CEO

<b>Potential Partners for Maricopa County Community College District Allied Health</b>		
<b>Organization</b>	<b>Name</b>	<b>Title</b>
Child & Family Support Services, Inc.	Tim Penrod	Chief Executive Officer
Community Bridges Inc. (CBI)	Frank Scarpati	President / Chief Executive Officer
Cochise Health and Social Services	Mary Gomez	Director
Dignity Health	Kathleen Dowler	Director of Community Integration
Foundation for Senior Living	Kim Goebel	Director of Human Resources
Gila County Health & Emergency Services	Michael ODriscoll	Director
Helping Associates	Dr. Joan McGillicuddy	Co Executive Director
Marc Community Resources	Cheryl Anderson Douglas Barshter	Director of Recovery and Resiliency Services Training Manager
Maricopa County Department of Public Health	Eileen Eisen-Cohen	Performance Improvement Manager
Mayo Clinic	Tanya Berry	Manager of Human Resources
Mt Graham Regional Medical Center	Wick Lewis	VPHR
Mountain Park Community Health Center	Troy Foster	Director of Human Resources
NARBHA Health Choice Integrated Care	Mary Jo Gregory Shawn Nau	President and Chief Executive Officer Chief Operating Officer
NextCare Urgent Care	Janet Oxford	VP, Human Resources
Pasadera Behavioral Health Network	Carrie Pile	Director of HR & Training
HonorHealth (Scottsdale Healthcare – Lincoln Health Care Network)	Dede Schmallen Judie Goe Judie Seiler	Associate Vice President of Organizational and Workforce Development Associate Vice President of Talent Acquisition Network Director, Workforce Development
Sonora Quest Laboratories	Perry Scroggins Barbara Blasutta Joe Garletts	Director of Human Resources VP Hospital Laboratory Operations Director of Operations SQL
Southwest Network	Amy Henning	Chief Executive Officer
Southwest Kidney Institute, PLC	Paula Marshall	Manager, Human Resources
Spectrum Healthcare	Lisa Rhodes	Human Resources Director
STAR - Stand Together and Recover Centers Inc.	Suzanne Legander	Chief Executive Officer
The Guidance Clinic	Jack Callaghan Mike Lerch	Chief Executive Officer Human Resource Director
Touchstone Behavioral Health	Gary Brennan	President
West Yavapai Guidance Clinic	Pamela Pierce Larry Green,	Deputy Chief Executive Officer Chief Executive Officer

Potential Partners for Maricopa County Community College District Allied Health		
Organization	Name	Title
Westminster Village	Anthony D. Wilber	Human Resources Director t

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