

PHOENIX FORWARD »

strengthening the road to prosperity

Health Care Industry Overview





PHOENIX FORWARD »

PHOENIX FORWARD HEALTH CARE INDUSTRY OVERVIEW

Produced by the University of Phoenix

TABLE OF CONTENTS

Executive Summary5

Chapter 1: Introduction7

Chapter 2: Health Care Sector Defined..... 9

Chapter 3: History, Background & National Trends..... 12

Chapter 4: Greater Phoenix Health Care Industry18

Chapter 5: Moving Forward to the Greater Phoenix Health Care
Industry of Tomorrow30

Chapter 6: Conclusion 34

References 36

Contact Information..... 37

Greater Phoenix Chamber of Commerce..... 38

Executive Summary

Health care has been a driving factor for Greater Phoenix job growth in recent years, and the region has the potential to become a national health care hub. This report examines factors needed to spur economic growth so the health care industry can reach that next level. As the report outlines, there needs to be a focus on growing and retaining existing companies, in addition to attracting relocations. Over 80% of job growth comes from companies already in the region,¹ making business retention the often overlooked but critically important economic development strategy. The growth in local companies and workforce makes the region even more attractive to outside companies looking to expand here. Via this report and the Phoenix Forward initiative, the Greater Phoenix Chamber of Commerce aims to help existing businesses scale and serve as a catalyst for economic growth.

Phoenix Forward is a collaborative economic development initiative that aims to grow the Greater Phoenix economy from within. The Phoenix Forward initiative leverages the tremendous strengths and resources of key partners: Greater Phoenix Chamber of Commerce, the City of Phoenix, Maricopa County and the Arizona Commerce Authority through a coordinated, strategic business retention and expansion program. In the context of health care, this collaborative approach involves supporting local companies by connecting them to vital resources to help their businesses grow and developing robust strategies to drive industry growth. This project is designed, developed, and driven by the Phoenix health care community.

Increasing the region's competitive edge in health care will help promote the Greater Phoenix region as an economic hub in the southwestern US and beyond, ultimately leading to the attraction of innovation and cutting-edge health care companies. The best way to enhance Greater Phoenix's competitive advantages is by linking business, whether small, medium, or large, to essential resources. This report helps arrive at an accurate assessment of the needs of the health care community, which will allow for development of targeted solutions for local businesses in this

sector. In doing so, the report draws upon the collective knowledge of key leaders in health care who are vital job creators.

Businesses have several resource needs, including connecting with key public sector officials, development incentives, locating additional facility space, technical assistance, and workforce development. As the report notes, the biggest challenge of health care leaders today is maintaining a full pipeline of qualified human capital ready to apply for and serve in available, well-paying jobs. Companies need help recruiting, developing, and retaining the best employees, so it is important to develop a talent pipeline for the health care sector. With Arizona leading the way in the nursing shortage, this is not just about economic growth but is important to the health of our community.² The report includes a current snapshot, as well as content on what health care may look like 5-10 years from now, particularly in terms of jobs and skills likely to be in demand.

It is vital to understand what is considered a component of the health care sector for purposes of this discussion. This research focuses specifically on health care providers, health care insurers, ancillary providers, educational institutions and academia, and research organizations. Health care providers encompass both health care organizations and individual health care professionals. Hospitals and physicians are examples of each, respectively. After health care providers, one of the most important components of the sector includes insurers, which consists of insurance providers and health insurance brokers. Ancillary providers are also present and include pharmaceutical, biotechnology and medical device manufacturers. Educational and research institutions constitute another major subset of the sector. These include academic higher education; 2- and 4-year institutions, as well as post-graduate institutions. The health care ecosystem also includes key non-governmental organizations (NGO). In addition to these traditional types of individuals and organizations listed above, the proliferation of new and non-traditional organizations appearing in the ecosystem has already begun.

Some of these include technology companies and ambulatory surgery centers. Together, these and related organizations play a catalytic role in growing the Greater Phoenix region's health care economy.

Understanding the history of the Greater Phoenix region and the changing health care landscape are important components to addressing how the region can set itself apart for capturing future growth. As the population of Greater Phoenix began to rapidly expand in the 1950s and 1960s, the demand for health care in Phoenix and the surrounding region increased accordingly. The health care infrastructure in Greater Phoenix has grown steadily since and the industry is expected to continue this strong growth. In order for that to happen, it is imperative that the region understands the dynamics of the health care industry and the unprecedented changes that it is currently undergoing. These include five key trends: hospital consolidation, telemedicine and new health technologies, aging population, increased job demand and new disruptive models. As just one example, millions of American health care consumers now use health care apps, participate in consultation via telemedicine and utilize their smart phones as a diagnostic tool. However, due to rising costs and higher deductibles, many health care consumers will manage higher costs with new tools and services rolled out by their insurance companies, health care providers and other new entrants.

Health care is a key economic industry for the Greater Phoenix region, and within that industry, the provider sector (e.g., hospitals, specialty clinics) is the most substantial as measured by size, number of jobs and economic multiplier effect. Of the top 25 employers in Greater Phoenix, three are health care provider organizations. In total, the Greater Phoenix provider sector contributes approximately 60,000 jobs and \$8 billion to the economy. Further, provider jobs tend to skew toward high-skill, high-wage positions, which require a correspondingly highly educated workforce. The high-quality of the workforce has been demonstrated through many awards bestowed upon Greater Phoenix health care providers in recent years.

Investment in people, systems, technology and infrastructure is key for continued accolades. One study found that an all-time record level of money is flowing nationally for health care information technology and digital health startups, but Arizona continues to capture a comparatively small share of that funding. Thus, there does need to be continued support for entrepreneurs, so that startups have sufficient capital to grow and create the large employers of tomorrow. Additionally, perhaps the most important ingredient to growing Phoenix's health care industry across all spectrums is education. The Bureau of Labor Statistics forecasts that health care and education are the fields of the future for workers in Greater Phoenix, and a large percentage of these new workers will come directly from the region's medical-based education programs.

As noted above, the health care sector is forecast to continue adding significant new jobs, particularly in dynamic regions like Greater Phoenix. One key to make sure the region continues moving forward as a leader in health care is having a properly skilled and trained workforce. Emerging jobs and roles require new competencies, skills and training. If Greater Phoenix can be responsive to these trends and supply the needed human capital, it will yield three beneficial results. First, current businesses in the region will not be limited by an insufficient labor pool, which is a key reason why businesses relocate to other regions. Second, it is an excellent way to attract new businesses that want to move to an area with an ample supply of skilled labor. Third, it creates collaborations and educational infrastructure that enable the Greater Phoenix region to be nimble in responding to future health care roles. Through these, health care in the region can continue to grow and the entire Greater Phoenix region will benefit.

CHAPTER 1

INTRODUCTION



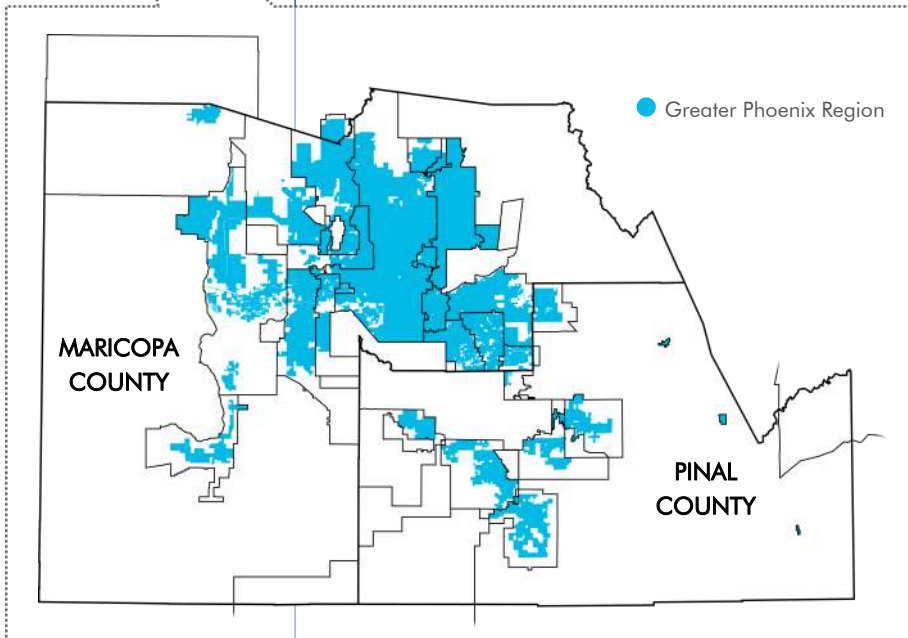
Introduction

WHAT IS PHOENIX FORWARD?

Phoenix Forward is a coordinated, strategic approach to economic development that brings the resources of a collaborative partnership led by the Greater Phoenix Chamber of Commerce in conjunction with community partners including the Arizona Commerce Authority, the City of Phoenix, and Maricopa County, to the front doors of businesses. The initiative strengthens the region's competitive edge, connects businesses to vital resources, gathers industry intelligence, influences public policy and promotes the region as the economic hub of

the southwestern United States. Designed, developed and driven by the business community, Phoenix Forward supports local businesses by targeting several industry sectors selected for their prospects for growth and expansion. Research shows that a staggering 80% of new jobs come from the expansion of existing companies, and the Phoenix Forward initiative assists those vital job creators in continuing to thrive, grow and succeed.³

PURPOSE, REGION AND SCOPE



to move forward in an effective and productive manner.

This white paper provides a comprehensive summary and outlook of the health care sector in the Greater Phoenix region. The paper collects and reports information about the sector's economic health and activity across the Greater Phoenix region and includes economic outlook data, demographic data and key trends. The Greater Phoenix region, as defined by the U.S. Census Bureau's Core Based Statistical Area, includes Phoenix, Mesa, Chandler, Gilbert, Glendale, Scottsdale, Tempe and parts of Maricopa and Pinal counties.⁴

Additionally, this white paper focuses on economic activity and development in the health care ecosystem, specifically the state of the industry, expansion and growth potential, job creation and future outlook. As an essential component, the report features insights from in-depth interviews conducted with several academics, entrepreneurs, executives, investors, policy-makers and researchers who have their hands on the pulse of the Greater Phoenix health care economy.

The business community and Phoenix Forward consider health care a key economic industry for the Greater Phoenix region. In an effort to better understand this industry and identify key indicators of the sector's health and growth potential, the business community selected health care as an area where research is needed



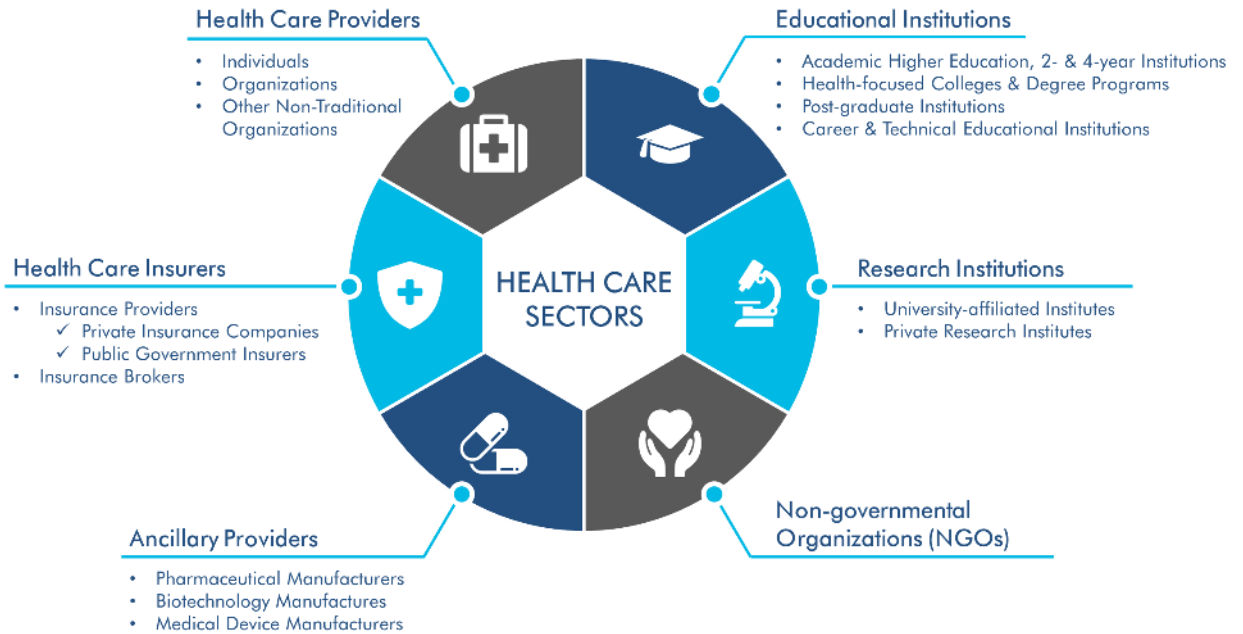
CHAPTER 2

HEALTH CARE
SECTOR DEFINED



Health Care Sector Defined

HEALTH CARE SECTOR



In order to discuss the future of health care, it is vital to understand what is considered a component of the health care sector for purposes of this discussion. Health care, sometimes referred to as the health care sector in this context, includes several industry subsets. This research focuses specifically on health care providers, health care insurers, ancillary providers, educational institutions and academia, and research organizations.

The most basic level of the health care sector includes health care providers which encompass both health care organizations and individual health care professionals. Health care organizations include hospitals, acute care centers, academic medical centers, integrated delivery networks, hospital networks, clinics, physician groups and pharmacies. Medical professionals include physicians (MD, DO), advanced practice registered nurses (APRN), registered nurses (RN), nurse practitioners (NP), physician assistants (PA) and licensed practical nurses (LPN). In addition to these traditional types of individuals and organizations listed

above, the proliferation of new and non-traditional organizations appearing in the ecosystem has already begun. Some of these include technology companies, retail health care clinics, ambulatory surgery centers and health care resorts, to name a few.

After health care providers, one of the most important components of the health care sector includes health care insurers, which consist of insurance providers and health insurance brokers. Health insurance providers include large, private insurance companies and public government insurers. Some of the largest health insurers in Arizona include Blue Cross Blue Shield of Arizona, UnitedHealth, Health Net of Arizona, Aetna Health, Humana, Cigna and others. The two primary government insurers are Medicaid, a state-operated health insurance plan that assists low-income individuals and families with health care, and Medicare, a federally operated health insurance plan that assists individuals who are age 65 or older or individuals with certain long-term disabilities. In Arizona, the Medicaid program is run as the

Arizona Health Care Cost Containment System (AHCCCS) and is responsible for the care of more than 1.8 million Arizonans via working through more than 60,000 health providers. The annual budget for the program is more than \$11 billion, 75% of which is provided by federal funding.⁵ Health care insurance brokers are state-regulated private companies or individuals who sell and solicit health insurance plans either to individuals or to businesses. Health insurance brokers do not directly provide health insurance to consumers, whereas health insurers provide and administer health insurance to consumers.

Of course, the health care industry would not be able to accomplish so much without ancillary providers, who are another subset of the health care sector. Ancillary providers include pharmaceutical, biotechnology and medical device manufacturers. Pharmaceutical manufacturers research, develop and manufacture drugs, medicine and treatments as medication for various illnesses and diseases. Biotechnology manufacturers are similar to pharmaceutical manufacturers, however the biotechnology industry researches, develops and manufactures medications derived from organisms and living biological entities. Medical device manufacturers develop the various devices, materials, instruments and other items that are used by providers and other health care professionals to prevent, diagnose, treat and monitor illnesses and diseases.

Educational and research institutions constitute another major subset of the health care sector. These include academic higher education, 2- and 4-year institutions such as Arizona State University, Maricopa Community Colleges, Northern Arizona University, University of Arizona, Grand Canyon University and the University of Phoenix, as well as their underlying health-focused colleges and degree programs. These universities offer a number of undergraduate, graduate and minor and certificate programs with a health care focus. Post-graduate institutions, such as the upcoming Mayo Medical School in Scottsdale, are also among the educational and research institutions in the health care sector. The new school will be located in a \$200 million, 150,000-

square-foot facility that is being built in partnership with Arizona State University. This new addition will join the other Arizona medical schools that include both campuses of the University of Arizona Medical School and two colleges of osteopathic medicine in the state.⁶ Additionally, career and technical education (CTE) institutions are prevalent across the Phoenix metropolitan region. These include organizations such as Argosy, Carrington College, Chamberlain College of Nursing, and DeVry University that provide students of all ages with the technical skills and training for careers in the health sector.

Research institutions in the health care sector take two forms, as a part of an affiliated university (e.g., the University of Arizona College of Medicine Research) or a private research institute (e.g., Phoenix Medical Research). Private institutes tend to focus on implementing and managing clinical trials whereas university-affiliated institutes conduct exploratory research via partnerships on clinical trials.

The health care ecosystem in Greater Phoenix and Arizona also includes key non-governmental organizations (NGO) such as the Arizona BioIndustry Association, Arizona Health Care Association, Arizona Hospital and Healthcare Association, Arizona Public Health Association and Health System Alliance of Arizona. These organizations are employers, although they typically do not account for as many jobs as non-NGOs. However, these and related organizations play a catalytic role in growing the Phoenix metro region health care economy.

An aerial photograph of a city skyline, likely Las Vegas, featuring several prominent skyscrapers. A semi-transparent blue rectangular overlay covers the left and center portions of the image. The text 'CHAPTER 3' is positioned at the top of this overlay. Below it, the main title 'HISTORY, BACKGROUND & NATIONAL TRENDS' is written in large, white, sans-serif capital letters. In the background, a tall, light-colored building with a 'Sheraton' logo is visible, along with a 'CHASE' logo on a nearby tower. In the foreground, a building with 'aps' logos is visible, and a large, curved, tiered structure, possibly a stadium or arena, is partially seen.

CHAPTER 3

HISTORY,
BACKGROUND &
NATIONAL TRENDS

History, Background & National Trends

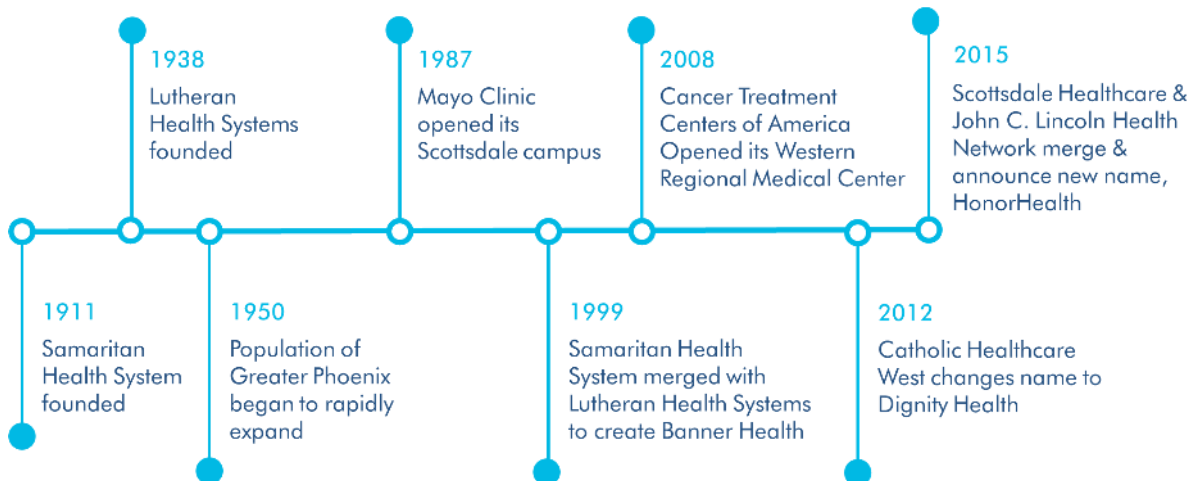
HISTORY OF HEALTH CARE IN GREATER PHOENIX

As the population of Greater Phoenix began to rapidly expand in the 1950s and 1960s, the demand for health care in Phoenix and the surrounding region increased accordingly.⁷ The health care infrastructure in Greater Phoenix has grown steadily since, and the industry is expected to continue its strong growth trajectory as *Forbes Magazine* ranked Phoenix the 15th fastest-growing U.S. city in 2016. In 1987, the Mayo Clinic opened its original Scottsdale campus, which includes more than 550 physicians and scientists, 225 residents and fellows and 5,000 staff. In 1999, Samaritan Health System (a hospital group founded in 1911 and serving patients in California and Arizona) merged with Lutheran Health Systems (a hospital system founded in 1938 with a history of serving patients from rural communities located across Western and Midwestern states) to create Banner Health. Since the 1999 merger, Banner Health has grown into one of the country's largest health care systems, and it now has more than 28 hospitals and 39,000 staff in seven states.⁸ Banner Health is now the leading employer in the entire region, having recently displaced Walmart in that top spot. Another large provider is Cancer Treatment Centers of America, which in 2008 opened its Western Regional Medical Center in

Goodyear, Ariz. The 210,000-square-foot facility employs more than 650 people and treats more than 8,000 clients per year.⁹ In 2012, Catholic Healthcare West (CHW), the fifth largest health system in the nation, announced that it changed its name to Dignity Health as part of a governance restructure that positioned the organization to succeed in a changing health care environment. In late 2013 Scottsdale Healthcare and John C. Lincoln Health Network joined forces and in 2015 the five-hospital organization changed its name to HonorHealth.

In addition to the examples outlined here, the Greater Phoenix health care ecosystem has also experienced strong growth in the number and impact of health care insurance organizations, pharmaceutical and device manufacturers, educational institutions, research organizations and trade groups. Other health sector organizations that are listed in the top 100 largest employers in Arizona include CVS Caremark, United Healthcare, Aetna, Humana, Sonora Quest Laboratories, Cigna, Celgene and Blue Cross Blue Shield of Arizona.¹⁰ Finally, globally preeminent bioscience and medical device companies such as AstraZeneca and Medtronic have also joined the Greater Phoenix health care sector.

National Health Care Trends



NATIONAL HEALTH CARE TRENDS

It is important to understand the background and history of health care in Greater Phoenix, as well as some of the national trends and local policy changes, economic development initiatives and other factors that contribute to the transformed health care sector in Greater Phoenix.

Health care is a dynamic industry that is undergoing unprecedented changes. Millions of American health care consumers now use health care apps, participate in consultation via telemedicine, and utilize their smart phones as a diagnostic tool. However, due to rising costs and higher deductibles, many health care consumers will manage higher costs with new tools and services rolled out by their insurance companies, health care providers, banks and other new entrants. Some of the highlights include the following five key trends: hospital consolidation, telemedicine and new health technologies, aging population, increased job demand and new disruptive models.

First, hospital consolidation, mergers and acquisitions will continue to rise as larger hospital groups and regional medical centers become the new norm. Additionally, many hospitals are diversifying their business model by forming physicians groups and increasing outpatient care. In this environment of consolidation, smaller, independent clinician groups and hospitals will find it increasingly difficult to compete with large, well-known

32% of consumers now have at least one health-related app on their mobile device, up from just 16% in 2013, and there are now more than 165,000 health-related apps available for mobile devices.

health care systems. However, this trend has implications for Greater Phoenix, as the region can be a nationally renowned hub for health care excellence. One recent survey of health care consumers indicated that 46% are willing to travel greater distances to receive health care from institutions that they consider “best in field,” 33% are willing to endure longer wait times, and 19% are willing to pay higher costs. These “best-in-class” providers, such as the Mayo Clinic, which is consistently ranked as the best or top hospital in the United States, stand to benefit from this trend as a regional health care hub of the Southwest and beyond.

72% of consumers age 18-44 prefer to use telehealth services, such as video conferencing, to consult with a mental health provider rather than traditional in-person visits.

72% prefer telehealth



Second, the rapid proliferation of technology in health care and telemedicine is here to stay. In fact, 32% of consumers now have at least one health-related app on their mobile device, up from just 16% in 2013, and there are now more than 165,000 health-related apps available for mobile devices. Further, telemedicine is more popular than ever. Telemedicine uses telecommunications, such as Skype, Facetime, computer and mobile devices for remote diagnosis and treatment of patients. Research indicates that 72% of consumers age 18-44 prefer to use telehealth services, such as video conferencing, to consult with a mental health provider rather than traditional in-person visits.¹¹ As technology becomes more ubiquitous in the health care sector and technology firms play a greater role in the sector, this national trend has implications for job creation.

Third, the country's aging population, primarily the Baby Boomer generation, has specific regional implications. Older residents and visitors to the Greater Phoenix region mean increased local health care expenditures. The number of Americans age 65 or older will climb to more than 71 million by 2029, which is a 73% increase since 2011.¹² These aging Baby Boomers will increase the demand for health care, especially in the Greater Phoenix region, which is a prime retirement destination of choice for older Americans. Dr. Lee McPheters, director of the JPMorgan Chase Economic Outlook Center at ASU's W.P. Carey School of Business notes that, with the nation's aging population, health care is a prime industry for growing an economy, particularly for Arizona.¹³

Fourth, the increased demand for health care creates a strong projected outlook for jobs. Dr. Patricia Pittman, Ph.D., co-director of the GW Health Workforce Institute at George Washington University states "By 2022, nearly one in eight U.S. jobs is projected to be in health care."¹⁴ A previously mentioned aging U.S. population and a large number of newly insured consumers drive this expected growth and increased health care demand. In fact, the U.S. Bureau of Labor Statistics Occupational Outlook handbook estimates that health care occupations will add more jobs than any other group of occupations, and health care occupations are projected to grow 19% from 2014 to 2024, adding about 2.3 million new jobs.¹⁵ This is a much faster rate than the average for all occupations.

Fifth, the health care sector is witnessing the emergence of disruptive innovation and new models in the marketplace. A visible example of this disruption is the rapid increase in the number of non-traditional care settings, such as clinics located in pharmacies, retail chains or supermarkets. These clinics are growing rapidly as consumers look to quickly receive care for non-life threatening, but frequent illnesses. They choose to receive basic care at these settings because they are less expensive and more convenient than traditional settings. Providers are focusing on building clinical affiliations with major medical schools and teaching hospitals as they expand. CVS Health's MinuteClinic has begun affiliations with such noted medical schools and teaching hospitals as the University of Chicago Medical Center, Cleveland Clinic and the University of Michigan Health System.



By 2022, nearly one in eight U.S. jobs is projected to be in health care.

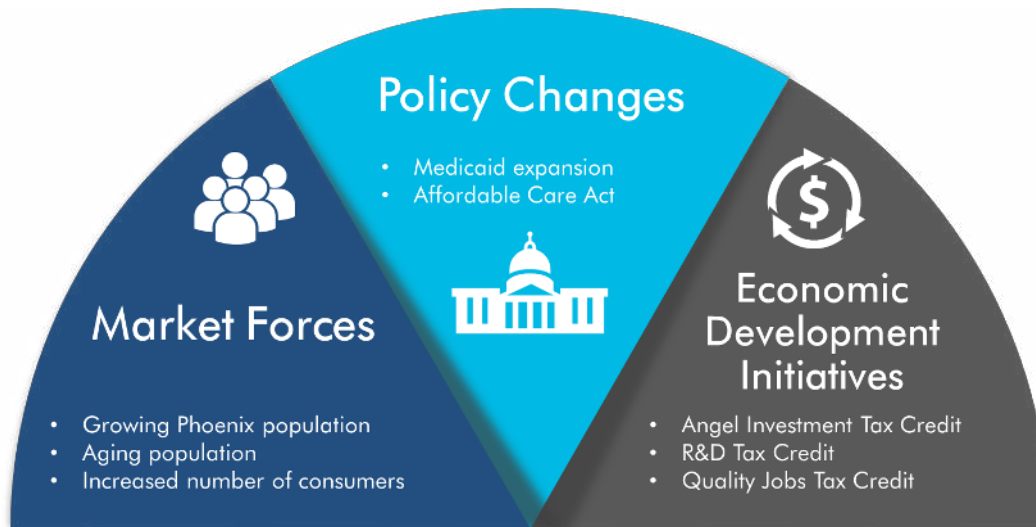
Consumer options for these clinics will continue to grow as the United States is expected to have approximately 2,800 clinics across the country by the end of 2016, a 50% growth from 2014.¹⁶

In a more traditional channel, health care systems are exploring the possibilities of micro hospitals to reach geographies where patients desire care but a full-size hospital would not be a profitable investment. These care facilities are small, containing six to 10 beds and cost significantly less than a traditional hospital to build, between \$7 million and \$30 million. The facilities would serve patients 24 hours a day but offer a limited array of services.¹⁷ Taking these new models of care delivery even farther is exploration into methods of care that include decreasing the amount of inpatient health care facilities and creating virtual care centers and bedless hospitals.¹⁸ Advances in technology, new database tools and alternative payment models are expected to fuel these delivery-of-care changes.¹⁹

These five national industry trends are just a few of the dynamic forces impacting health care across the country. Both industry and academic experts agree that this is an exciting time in health care.

Health care occupations will add more jobs than any other group of occupations, and health care occupations are projected to grow 19% from 2014 to 2024, adding about 2.3 million new jobs.

CHANGING HEALTH CARE LANDSCAPE



There are several market forces, policy changes and economic development initiatives that affect the health care sector. The market forces include a growing Phoenix population, an aging population and an increase in the number of consumers. During the past couple years, newly insured consumers under Medicaid expansion and private insurance from the Affordable Care Act (ACA), were driving up the number of health care consumers. Given the new federal administration, the health care environment will experience even further transitions, which tend to fuel additional economic activity.

In Arizona, there are several initiatives designed to encourage economic development that target growth in the health care sector. First, the Arizona Angel Investment Tax Credit Program, approved by the Legislature in 2006 with a \$20 million cap, allows an investor to claim a credit equal to 30% of the investment made in a certified business. Investors in rural or bioscience companies are able to claim a credit of 35%. The program was extended to 2021 in 2014 but hit its \$20 million cap in 2015. Efforts are underway at the Legislature to recapitalize the program and spur investment. In early 2016, a proposal was submitted to recapitalize the program for \$7 million. While that did not pass, efforts will add another \$10 million to the fund.²⁰ Second, the Arizona Research and Development (R&D) Refundable Tax Credit incentive provides an Arizona income tax credit

for increased research and development activities conducted in this state, including research conducted at a state university and funded by a company. The goal is to encourage Arizona businesses to continue investing in research and development activities.

Third, the Quality Jobs Tax Credit is designed to encourage business investment and the creation of high-quality employment opportunities in Arizona. This program encourages capital investment, continuous employment and creation of net new quality jobs. The credit offers up to \$9,000 (\$3,000 per year) of Arizona income or premium tax credits spread over a three-year period for each net new quality job that has been continuously filled for the year. The program is currently capped at 10,000 jobs claimed each year by all participants and eligibility is different for rural or metro areas. Companies in metro areas must create a minimum of 25 quality jobs with capital of at least \$5 million. Rural employers are qualified if they create at least five quality jobs and have a capital investment of at least \$1 million. To ensure that the jobs created are quality, employers must pay wages equal to at least 100% of the median wage in the county and are required to offer to pay at least 65% of each employee's health insurance costs. In November 2016, more than 2,300 jobs had been pre-approved for inclusion in the program.²¹

An aerial photograph of a city skyline, primarily composed of modern high-rise buildings. In the foreground, a large, curved, multi-story building with a white facade and a prominent 'aps' logo is visible. To its right, a tall, yellowish-tan building with a grid of windows is labeled 'Sheraton'. Further back, a dark glass skyscraper has 'CHASE' written on its top. The background shows a vast, flat urban landscape under a clear blue sky.

CHAPTER 4

**GREATER PHOENIX
HEALTH CARE
INDUSTRY**

Greater Phoenix Health Care Industry

PROVIDERS

Economic Significance

Health care is a key economic industry for the Greater Phoenix region, and within that industry, the provider sector (e.g., hospitals, health systems, integrated delivery networks, specialty clinics) is the most substantial as measured by size, number of jobs and economic multiplier effect. Medical centers, for example, simultaneously serve as large employers, labs for cutting-edge medical or scientific research and launching pads for entrepreneurship, key community builders and providers of world-class health care. The same is true regarding other provider institutions such as physician group practices, hospitals and integrated delivery networks. Not surprisingly, the provider sector is and will continue to serve as a crucial component of moving Greater Phoenix forward economically.

Of the top 25 employers in Greater Phoenix, three are health care provider organizations: Banner Health, HonorHealth and Mayo Clinic. In addition, several other top employers, while not focusing exclusively on health care, do have a substantial provider component to their organization including Maricopa County, Arizona State University, City of Phoenix and Walmart. For example, Maricopa County, ASU, the City of Phoenix, and Walmart operate Maricopa Integrated Health System (MIHS), ASU Health Services, Phoenix Fire Department Health Center and Care Clinics respectively. The importance of providers as Greater Phoenix's top employers and to Arizona's economy reflects the fact that provider organizations tend to require significant amounts of human capital. In total, the Greater Phoenix provider sector contributes approximately 60,000 jobs and \$8 billion to the economy.²² When including the workforce from ancillary providers and support occupations, this number grows to more than 150,000 people. During the next 10 years, the Greater Phoenix area expects to add approximately 45,000 health care jobs, exceeding the growth of established hubs such as Philadelphia, Minneapolis, San Francisco and Seattle.²³

Top 25 Employers in Maricopa Co.

	● Health Care Providers	Number of Employees
1	Banner Health	25,500
2	State of Arizona	24,600
3	Wal-Mart	15,700
4	County of Maricopa	13,000
5	Frys Food Stores	12,700
6	Wells Fargo	12,600
7	Arizona State University	12,500
8	Intel Corporation	11,300
9	City of Phoenix	11,100
10	Honeywell	9,500
11	Bank of America	9,200
12	Mesa Unified School Dst. 4	9,100
13	JP Morgan Chase	8,300
14	Honor Health	8,200
15	McDonald's	7,200
16	U.S. Postal Service	6,500
17	Bashas	5,900
18	CVS Pharmacy	5,900
19	Salt River Pima Maricopa Indian Community	5,900
20	American Express	5,800
21	Walgreen Co.	5,700
22	U.S. Dept. of Air Force	5,700
23	Mayo Clinic	5,600
24	Home Depot	5,600
25	Safeway Stores	5,600

Source: Maricopa Association of Governments Employer Database 2015

In total, the Greater Phoenix provider sector contributes approximately 60,000 jobs and \$8 billion to the economy. When including the workforce from ancillary providers and support occupations, this number grows to more than 150,000 people. Over the next 10 years, the Greater Phoenix area expects to add approximately 45,000 health care jobs, exceeding the growth of established hubs such as Philadelphia, Minneapolis, San Francisco, and Seattle.

In Arizona, 11 out of 20 of the fastest growing employment opportunities in 2016 were health care related. The state even saw Banner Health replace Walmart as the largest non-government employer.²⁴ This increased relative importance is mirrored at the micro level in Greater Phoenix, whose pace of health care sector growth exceeds the United States' average. For example, taken together, the health care and bioscience sectors in Greater Phoenix are projected to grow 31.9% during the next decade, outpacing the projected national average growth of 19.5%.²⁵ The provider sector offers economic opportunities to many of the middle class (e.g., mid-level hospital administrator) and working class (e.g., member of hospital housekeeping staff) who are crucial to a well-rounded metropolitan region.

High Skill, High Wage Jobs

Further, provider jobs tend to skew toward high-skill, high-wage positions, which require a correspondingly highly educated workforce. These individuals almost by definition need to be best-in-class health care executives, physicians, nurses, medical researchers, health entrepreneurs, investors and service professionals to name just a few. A greater number of these business and medical leaders in the community create powerful economic ripple effects for Phoenix. Much like a business, a

region depends on strong human capital to achieve a competitive advantage and thrive economically. Innovative leadership is a necessity in today's changing health care environment, specifically when building new narrow-network insurance products or competing with risk-based contracts. A part of developing this innovative leadership and strong human capital is the ability of major provider organizations to attract executives, entrepreneurs, physicians and other key individuals. This is a building block for an economically thriving Greater Phoenix.

The region's growth ultimately depends on the ability to attract, recruit, retain and develop talent. The pressure to attract the best and brightest professionals to the Greater Phoenix provider sector is and will remain intense, increasing the importance of support entities (e.g., city/county/state governments, universities, chambers of commerce) to aid the attraction and retention process, as well as develop and train home-grown talent. Greater Phoenix has a highly skilled workforce, ranked 14th by CNBC,²⁶ but even more skilled workers will be needed to support the projected growth.

Due to certain key advantages (e.g., favorable climate, resort area amenities, preferred retirement destination, booming population growth) there are several domains in which the Greater Phoenix health care sector can thrive in

terms of job creation, including cancer care and medical tourism. While the oncological provider sector stimulates the local economy, it also has a positive impact on human lives. Examples of these care facilities include Banner M.D. Anderson Cancer Center, Cancer Treatment Centers of America, Western Regional Medical Center and the University of Arizona Cancer Center at Dignity Health St. Joseph's Hospital and Medical Center. Baby Boomers are aging and will increase the demand for oncological services. This is where the Greater Phoenix region's strengths in cancer care and resort amenities can combine to produce a world-class, provider-centered medical tourism industry.

Accolades and Investments

There is a synergistic relationship between providing care and conducting medical research. With institutions such as the Barrow Neurological Institute and the Translational Genomics Research Institute (TGen), Greater Phoenix is well positioned to take advantage of that relationship, which ultimately drives world-class medical care and generates national recognition. A few of the many awards bestowed upon Greater Phoenix health care providers in recent years include the Joint Commission's Gold Seal of Approval for Lung Cancer Certification for Cancer Treatment Centers of America, Western Regional Medical Center and two Banner Health (Banner University Medical Center-Tucson and Banner University Medical Center-Phoenix) hospitals being named by Becker's Hospital Review among the 100 greatest in America.

Due to its demonstrated quality care in high-risk infection situations (e.g., central lines and surgical sites) and overall reduced readmissions, in 2016, Phoenix Children's Hospital (PCH) was recognized as an exemplary institution by Children's Hospitals' Solutions for Patient Safety (SPS), a coalition of more than 90 children's hospitals that collaborate on safety issues. PCH has also been recognized multiple times by the Leapfrog Hospital Survey, which is a highly respected

standard for evaluating hospitals' performance criteria such as quality, safety and efficiency, as a "Top Children's Hospital."

Investment in people, systems, technology and infrastructure is key for continued accolades. The Mayo Clinic Cancer Center recently invested in a new cyclotron in its \$190 million proton-beam facility. This technology will allow for improved detection and staging for certain cancers (e.g., breast, gynecologic and prostate) that have been difficult to image with traditional imaging scans. PCH continues to commit substantial resources to stay at the cutting edge. The hospital recently invested in Eviti software, which is a decision-support tool that combines a patient's genomic output and medical history into a database and decision tree. PCH also just went live with a new high-speed, fiber-optic 100-gigabyte network connected to other children's hospitals across the country that will enable sequencing the 3 billion bits of information in each genome. In 2014, Maricopa County voters approved an expenditure of nearly \$1 billion for development, improvement and expansion of Maricopa Integrated Health System outpatient

Baby Boomers are aging and will increase the demand for oncological services. This is where the Greater Phoenix region's strengths in cancer care and resort amenities can combine to produce a world-class, provider-centered medical tourism industry.

health facilities and behavioral health care throughout Maricopa County, including replacing the aging Maricopa Medical Center. Currently, Banner Health has 322 active construction projects totaling \$1.9 billion, including a \$419 million emergency department and 16-story patient tower on the Banner-University Medical Center Phoenix campus.

While large players continue to make significant investments, a study by Mercom Capital Group on venture capital funding in the United States found that an all-time record level of money is flowing nationally for health care information technology and digital health start-ups, but Arizona continues to capture a comparatively small share of that—essentially ‘punching below its weight’ given its size and trajectory.²⁷ Thus, there does need to be continued support for entrepreneurs, so that startups have sufficient capital to grow and create the large employers of tomorrow.

Banner Health has 322 active construction projects totaling \$1.9 billion, including a \$419 million emergency department and 16-story patient tower on the Banner-University Medical Center Phoenix campus.

ANCILLARY PROVIDERS

The health care industry is massive and beyond pure medical providers, there are several areas of ancillary support that ensure well-rounded, quality health care is available in Greater Phoenix. The key ancillary providers in Greater Phoenix include pharmaceutical, bioindustry and medical device manufacturers. The U.S. Bureau of Labor Statistics estimates that health care ancillary and support employment comprise 2.6% of total Phoenix employment.²⁸ In Greater Phoenix, the number of bioindustry organizations exceeds 1,400. The industry encompasses companies developing bioscience products, R&D organizations and units within universities and providers using these products. According to the leading job search website in the United States, the average annual ancillary provider salary in Greater Phoenix is approximately \$51,000.²⁹

Many leading bioscience companies have a presence in Arizona including AstraZeneca, Medtronic, Sanofi, TGen, Ventana Medical Systems and W.L. Gore.³⁰ Arizona is also home to bioscience funding leaders including the Flinn Foundation, which supports the industry statewide, and the Ben and Catherine Ivy Foundation, which supports brain cancer research.³¹ These innovation-driven companies produce substantial positive economic spillover effects. TGen, for example, now generates an estimated total annual economic impact of more than \$175 million.³²

The ancillary provider space is ripe with innovation, and Arizona inventors have secured 1,751 patents in bioscience-related classes since 2012, primarily in medical and surgical devices but also in drugs, pharmaceuticals, microbiology, genetics and biochemistry.³³ "Arizona's research organizations, life science innovator companies and leading health care systems are working together with a single focused goal of improving the quality of life for people in Arizona and around the world," shared Joan Koerber-Walker, president and CEO of the Arizona Bioindustry Association. "We are recognized nationally as a top-emerging bioscience state thanks in a large part

to the results we have generated from focused investments made both privately and publicly over the last 15 years. Now is our opportunity as a state to leverage those investments and to build upon them for maximum economic impact today and in the future."³⁴

Recent noteworthy innovations include TGen and Mayo Clinic launching a national clinical trial to treat advanced melanoma using advances in genomics, informatics and health-information technology. TGen also partnered with the Barrow Neurological Institute and PCH for a research collaboration that will study traumatic brain injuries following a stroke to develop better treatments and discover new ways to indicate the severity of hemorrhagic stroke and risk of subsequent injury.

In 2014, the Flinn Foundation updated the Arizona Bioscience Roadmap, a long-term strategic plan originally commissioned in 2002 with the goal of propelling Arizona to become globally competitive and a national leader in select areas of biosciences by 2025. The Bioscience Roadmap indicates a strong and growing bioscience sector and strong economic impact indicators. Bioscience jobs in Arizona increased 14.8% from 2009-2014, nearly double the rate of job growth in Arizona as a whole. Additionally, from 2002 to 2014, Arizona bioscience jobs increased by 49%, adding more than 36,700 jobs for a total of 110,410, whereas the United States posted a 13.7% gain in bioscience jobs during this span. Bioscience employees in Arizona earn an average annual salary of \$61,823, compared to \$46,514 for the state's private sector as a whole. Finally, from 2002 to 2014, the number of Arizona bioscience establishments rose 4.2%, to 1,411.³⁵

GREATER PHOENIX MEDICAL BASED EDUCATION PROGRAMS

Perhaps the most important ingredient to growing Phoenix's health care and wellness industry across all spectrums is education. Fortunately the area has a high number of medical-based and health care focused institutions. Greater Phoenix is home to more than 40 postsecondary institutions including universities, technical schools and clinical training programs that provide education in medicine, medical technologies, nursing, life sciences and other health care sectors. Some of these higher-education institutions include Arizona State University, Northern Arizona University, University of Arizona, Grand Canyon University, Maricopa County Community College District and the University of Phoenix, as well as their underlying health-focused colleges and degree programs. Greater Phoenix has more than 250 medical-based and health care focused education programs. The Bureau of Labor Statistics forecasts that health care and education are the fields of the future for workers in Greater Phoenix, and a large percentage of these new workers will come directly from the region's medical-based education programs.

It is important to seek ongoing feedback from current and prospective Greater Phoenix-based companies regarding the sufficiency of the region's medical education-based programs. In a recent interview, two executives with companies that considered relocating to the Greater Phoenix area but ultimately did not offered relevant feedback. One representative said, "Phoenix has a great workforce of (the type of employees sought). The problem is there is a lot of demand for those workers and not enough workers in the market. We were concerned that without migration, there would not be enough people to hire, and the competition would make the jobs more costly."³⁶ An executive with Newmark Grubb Knight Frank noted, "Our major talent study was revealing. Phoenix does really well in many industry sectors. [But] Phoenix and Arizona need to do more in job training."³⁷ These two organizations would have brought an additional 3,000 high-paying jobs to Greater Phoenix. These comments were made about Greater Phoenix's skilled workforce overall – not specifically health care. These are only a couple of the hundreds of location decisions that are made on an annual basis. The optimal

Greater Phoenix is home to more than 40 postsecondary institutions ... that provide education in medicine, medical technologies, nursing, life sciences, and other health care sectors. ... Greater Phoenix currently has more than 250 medical-based and health care focused education programs.

way to discern whether there is a sufficient number of health care education programs is to conduct a comprehensive empirical analysis. Yet, even a few losses attributable to insufficient supply of human capital should be cause for concern for Greater Phoenix business and civic leaders. More must be done to strengthen health care educational training at all levels.

Medical Schools

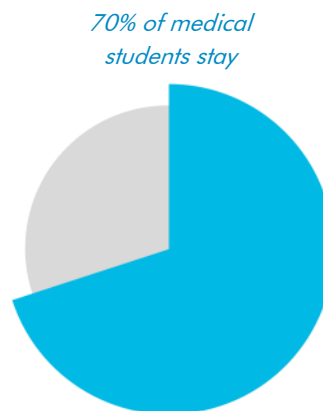
In health care education, medical schools training MDs and DOs remain at the apex of the ecosystem. In 2015 alone, there were more than 170 medical school graduates in Arizona.³⁸ Studies indicate approximately 70% of medical students who complete their residencies in Arizona have or develop community ties strong enough to keep them practicing medicine in the state.³⁹ This is important because Arizona ranks only 34th in active physicians per 100,000 residents, so more doctors are needed.⁴⁰ Tackling the physician deficiency and creating win-wins will require continuing partnerships at the intersection of industry, hospitals, universities, medical schools and government.

Founded in 1967, the University of Arizona College of Medicine has historically been the only MD-granting medical school in Arizona, and in a recent survey, it ranked as a top 50 school in several categories, including geriatrics, primary care and research.⁴¹ In addition, there are new players entering the medical school market. In 2015, Banner Health and the University of Arizona Health Network completed a \$1 billion-plus merger, in which

Banner Health acquired the University of Arizona (UA) Health Network's two Tucson hospitals and is beginning an academic partnership with UA's medical schools in Tucson and Phoenix.⁴² The Mayo Clinic has an academic campus in Phoenix, which serves nurses, residents, fellows and physicians. The Mayo Medical School will open a new \$200 million Scottsdale clinic campus in 2017.⁴³

Last year, Creighton University School of Medicine (an Omaha, Neb.-based Jesuit Catholic medical school) signed an affiliation agreement with Dignity Health St. Joseph's Hospital and Medical Center, MIHS and District Medical Group, Inc. (DMG) to create a larger footprint in Arizona, which will eventually lead to the development of a four-year medical school in Phoenix. MIHS and Dignity already have a partnership with Creighton for third- and fourth-year medical student rotations. By pooling resources, the institutions have created an educational alliance that will be able to attract more graduate physicians seeking residency programs to complete their medical training. As part of this symbiotic agreement, the Creighton University Arizona Health Education Alliance will develop new academic and clinical education programs in medicine, nursing, pharmacy and allied health, specifically creating residency and fellowship programs to begin in July 2017 and an accelerated nursing program by January 2018. This will be an excellent conduit for bringing more physicians and other skilled health care professionals into the state.

Approximately 70% of medical students who complete their residencies in Arizona have or develop sufficiently strong community ties that they stay to practice medicine in the state.



Other Health Care Educational Programs

Arizona's universities have recently gained recognition for health care programs in various subsectors. A recent national report ranked Arizona State University's Doctor of Nursing Practice (DNP) program as one of the best in the nation in 2017.⁴⁴ Another national report recognized the University of Arizona second in the country for physical sciences research for 2014.⁴⁵ Moreover, these universities spun off 67 bioscience startups and received 180 bioscience patents from 2002-2011.⁴⁶

Hospitals have significant scale and scope in their hiring needs. Their faculties include extremely skilled, very highly compensated physicians and specialty nurses, several types of allied health professionals (e.g., patient care technicians, physical therapists and physical therapy aides), administrative, clerical, food services, housekeeping and security employees. Many health care professions do not require a post-graduate degree or even require a four-year degree. From the ground-level perspective, Greater Phoenix has a number of career and technical education (CTE) programs that train people to be workforce ready in the health care sector. Among the most common programs are medical coding and billing, medical and dental assistantships and laboratory sciences.

CTE programs are essential for ensuring students graduate fully prepared to enter the workforce and be productive employees from day one. In fact, there is significant CTE programming available at community colleges and through high schools in Arizona. Community colleges serve an especially important role in allowing students to earn certifications that accelerate finding jobs and performing well once hired. With 10 colleges throughout the metro Phoenix area, the Maricopa County Community College District offers more than 930 occupational program tracts emphasizing high-demand jobs. A few of the many other institutions filling the need in training gaps include East Valley Technical Institute, Pima Medical Institute, Universal Technical Institute and Western Maricopa Education Center, all of which have health care offerings in addition to covering other sectors.

Grand Canyon University and University of Phoenix offer a variety of pre-bachelors certificate and training programs.

CTE is most effective when it results from collaboration between the academic (e.g., MCCCDC), industry (e.g., Banner or Dignity), public (e.g., City of Phoenix, Maricopa County, state of Arizona), and NGO (e.g., Greater Phoenix Chamber of Commerce) sectors. A prime example of this is the Aspire Pathways program, which is a collaboration of Arizona's skilled-trade industry, the Maricopa County Community College system, United Way, governmental entities and key local agencies. Aspire Pathways emphasizes a multi-generational approach integrating local employers, schools, students and their families to prepare participants for high-demand jobs. The initiative recently launched Aspire Pathways for Health Care which targets specific careers in the health care industry. This is a good example of the kind of training and education that can help prepare students to fill the region's growing need for qualified employees in the health care sector. A few of the many other institutions filling the need in training gaps include West Coast Ultrasound Institute, East Valley Institute of Technology, Pima Medical Institute and Western Maricopa Education Center, all of which have health care offerings in addition to covering other sectors.

WHY ARIZONA?

Growth Drivers

Greater Phoenix has fostered a successful and growing health care and wellness sector through population growth and collaborative initiatives fully engaging the private, public and academic sectors. These factors have enabled Greater Phoenix to stay competitive with other growing cities in the United States such as Austin, Denver and Los Angeles. Greater Phoenix and Arizona should seek to become a preferred location for technology companies looking to scale their operations.

First, population growth has impacted Arizona as a whole and the Greater Phoenix area specifically. Between 2010 and 2015, Maricopa County's population grew 9.2%, compared to Los Angeles County at just 3.6%. Arizona's growth of 6.8% has enabled the area to keep pace with faster growing population centers such as Houston, Denver and Austin.⁴⁷ This strong population growth has supported GDP growth for the entire state. In Q1 of 2016, Arizona's GDP grew 2.6%, making it the fifth fastest growing state economy. This economic growth far outpaced both the southwest region as a whole at 0.5% and states with faster growing populations such as Texas at 0.3%.⁴⁸ Health care has helped spur that growth. In 2015, health care comprised 20% of Arizona's economy and employed 8.4% of Arizona's total workforce. In the Greater Phoenix area, health care is 15% of the employment base. By comparison, both Texas and Colorado have smaller health care employment at 8.1% and 8%, respectively.⁴⁹ The continuing growth in population brings both more health care consumers to the area as well as attracts skilled worker and individuals with the diverse skill sets that the health care sector requires. Arizona is prepared to meet this growth with a workforce that, as noted, ranks 14th in the United States in terms of quality.⁵⁰

Second, Arizona has a healthy business and education infrastructure that continues to support health care through growth initiatives. In 2015, health care employers in Arizona added

more than 11,000 jobs, a growth rate of 3.4%. This growth is faster than both health care employers nationwide at 3.2% and Arizona employers as a whole at 2.5%.⁵¹ As one example, Arizona is home to Banner Health with 19 hospitals and over 50,000 employees. The state's largest private employer is expected to invest more than \$1 billion in infrastructure during the next five years across Phoenix and Tucson. Further projects are underway across Arizona. Tempe will be the home of a new medical campus that is projected to employ 4,000 workers and a new \$30 million health campus in Glendale broke ground in March 2016. A strong education base supports these initiatives across the state. Universities and graduate programs provide the skilled training needed for the health care sector. All three of the state's public universities have biology or medical programs. The Mayo Medical School will join these programs when it opens a new Scottsdale clinic campus in 2017. To underscore the vitality of the Arizona educational sector, more than 2,500 applications have been received for the school's 50 available spots. Partnerships among these institutions bring new research and development to Arizona and project their learning onto the national stage.

In 2015, health care employers in Arizona added more than 11,000 jobs, a growth rate of 3.4%. This growth is faster than both health care employers nationwide at 3.2% and Arizona employers as a whole at 2.5%.

CALL TO ACTION

Continued Private, Public, Academic, and NGO Collaboration

While population growth and multi-sector initiatives will continue to be crucial, favorable business, political and regulatory environments must persist to make Arizona the center of a thriving health care industry. Much of this is already underway. At the state level, there are several initiatives designed to encourage economic development that target growth in the health care sector. Some of these programs, including the Research & Development and Quality Jobs tax credits, continue to make Arizona a competitive and attractive health care market.⁵² Other programs, including the ACA Angel Fund, have contributed to Arizona's success in the past. Efforts are underway to recapitalize the fund to spur growth in health care across Arizona.

Collaboration will continue to be essential and a key differentiator for the region. One example is the Arizona Health Collaborative (AHC), which consists of 24 hospitals and 23 federally qualified health centers and rural health clinics, including large players such as Dignity Health, Abrazo Community Health Network, MIHS and Phoenix Children's Hospital for a total representation of nearly 3,400 beds and almost \$4 billion in net patient revenue. Since its creation in 2014, AHC has allowed members to save more than \$4.5 million on operations, including buying medical supplies and health insurance coverage in bulk and collaborating on

training and education. As Linda Hunt, president and CEO of Dignity Health in Arizona and AHC chairwoman noted, "We looked at how hospital systems in other states were working together and we wanted to do something similar here. As part of Arizona Health Collaborative, we are able to share best practices that lead to higher-quality care and leverage economies of scale with services utilized in the delivery of care to keep health care costs low."⁵³ AHC serves to increase clinical integration across Arizona, allowing physicians and hospital systems to coordinate care and improve quality outcomes, which helps keep the region and the state at the cutting edge of health care.

Hunt is in many ways the embodiment of the call to collaboration. In addition to AHC, Hunt's innovative collaborative efforts include Dignity's expanding partnership with Adeptus for a hospital in Laveen and 10 freestanding emergency departments in the Greater Phoenix area that will yield another Dignity Health hospital in Mesa in early 2017; partnership with Kindred Healthcare to launch Dignity Health's first freestanding rehabilitation hospital, a 58,000-square-foot facility opened in the East Valley; negotiating a joint venture between Dignity, Tenet Healthcare and Carondelet Health Network to manage the Tucson facilities previously owned by Carondelet and an agreement with the University of Arizona Cancer Center to create the 220,000-square-foot UA Cancer Center at St. Joseph's Hospital and Medical Center. Hunt and Peter Fine, president and CEO of Banner Health, emphasize collaboration and serve as crucial industry role models for the Greater Phoenix region.

Collaboration should also extend to physical co-location. Arizona already has several research and innovation campuses, including ASU Research Park, ASU Skysong, University of Arizona Research Parks in Tucson and Innovation Park in Oro Valley and the Phoenix Biomedical Campus (PBC) in downtown Phoenix. With its central location downtown, PBC could be the starting point for a

The Greater Phoenix Chamber of Commerce promotes regional prosperity, serving as a catalyst for economic vitality and strong communities.

collaborative arrangement where competing health care companies share space on a large campus, similar to Houston's Texas Medical Center. Developments in that direction include Banner Health's plans to build a clinic on or near the campus; the construction of the University of Arizona's \$136 million, 245,000-square-foot Biomedical Sciences Partnership building and Arizona State University's in-development health solutions campus. Thus, 15 years after its creation, PBC is primed to help continue establishing the Greater Phoenix region as cutting-edge epicenter for health care research and medical collaboration.

There are other research parks in the works, including one near Mayo Clinic Hospital in north Phoenix and the City of Tempe's planned 18-acre biomedical campus that is projected to employ 4,000 people in five buildings totaling about 1 million square feet. Health care and biomedical companies grow best when surrounded by similar collaborators and partners, so this growing portfolio of locations is essential to continue innovation and job growth.

Emphasis on Education Essential

Greater Phoenix has many top-notch medical centers, but in order to become a world-class medical hub, there must be a continued emphasis on education. Investment in education is a clear path to success. For example, Davita Rx, a subsidiary of Colorado-based DaVita HealthCare Partners, selected the East Valley to open a new 550-worker, 76,000-square-foot pharmacy and rejected offers from cities such as Columbus, Los Angeles, Las Vegas and Nashville. Why? Neil Prezioso, vice president of specialty for DaVita, said the deciding factor was the quality of the region's educational institutions and their abilities in supplying a skilled workforce.

"The Valley has a variety of colleges and universities turning out the specialty employees we need," Prezioso stated. "We found (the East Valley) has a high-quality workforce. We see the strong growth in the (southeast Valley) and the

education of its workforce as a major reason we can find the workforce we need."⁵⁴

Interestingly, the investment in education must be done at all levels, not just post-secondary. The quality of the Greater Phoenix region's K-12 education systems is also important for two reasons. First, these are the CTE and college graduates of tomorrow. Migration from out of state can fill some of the talent gap, but the basis for a strong, skilled pool of labor starts with the region's K-12 pipeline. Second, when many executives weigh whether to relocate their companies to the Greater Phoenix area, the quality of K-12 education is often a key factor as they think about schooling for their own children and those of their employees. A strong educational ecosystem (e.g., K-12, CTE, colleges, universities, academic medical centers) is also the best way to ensure the Greater Phoenix region secures its share of high skill, high wage jobs. To continue the evolution from a good economy to a world-class economy, the Greater Phoenix region must secure the best kinds of jobs, particularly in the most selective ones in health care (e.g., clinical research, specialty physicians and nurses).

Past and current initiatives notwithstanding, there needs to be continued call to action regarding state, regional and local support of the health care sector through public policy and private-public-academic partnerships that will continue to make Arizona a highly competitive player in health care, particularly with regard to education. This support needs to be agile in responding to the specific needs of business, whether it's a long-time Greater Phoenix area company looking to grow or an outside business seeking to relocate here. It should also be noted that there are many non-health care business and industries that stand to benefit. Thus, the economic ripple effects are substantial. The vibrancy of Greater Phoenix's economy depends on a variety of infrastructure investments (e.g., public safety, social services and transportation), and education is the first among all of these.



CHAPTER 5

MOVING FORWARD
TO THE GREATER
PHOENIX HEALTH
CARE INDUSTRY OF
TOMORROW

Moving Forward to the Greater Phoenix Health Care Industry of Tomorrow

INDUSTRY GROWTH

According to the Bureau of Labor Statistics, the health care industry is projected to be the fastest-growing industry in the country. During the next eight years, health care is expected to add 3.2 million jobs. This compound annual growth rate of 1.9% will move health care's share of the country's jobs to 13.6%, from 12% in 2014.⁵⁵ Among these, the top 5 fastest-growing industries are expected to be home health care services (+60%), outpatient care centers (+49%), offices of other health care practitioners (+45%), ambulatory health care services (+40%) and medical and diagnostic laboratories (+32%).⁵⁶

Arizona is projected to capture a large portion of this growth. Recently, *Forbes Magazine* projected Arizona's job growth through 2019 will be 3.1% annually based on a Moody's Analytics study. This prediction places Arizona first among the states in job growth. A primary driver of this growth is the strong rate of migration into the state, projected at a net gain of more than 680,000 in the next five years.⁵⁷ This migration into the state should fuel jobs in health care, especially as more of the BabyBoomer generation retires to Arizona and requires primary, secondary, tertiary and long-term care.

Within the Phoenix-Glendale-Mesa Metropolitan statistical area, the Arizona Department of Administration projects health care to grow at an annualized rate of 2.8% between 2014 and 2024. This rate translates into an additional 74,000 health care jobs for the area, an increase of 31.7% over the period. Among the health care sectors, health care and social assistance, ambulatory health care services and nursing and residential care facilities are projected to increase employment at annualized rates of 2.8%, 2.8% and 2.6%, respectively. Overall, this means healthcare's share of the economy will grow as well. In 2024, health care is expected to account for 20.1% of the area's employment base, up from 19.3% in 2014.⁵⁸

National trends in health care and population will continue to affect the Greater Phoenix region as the industry grows. Arizona, and specifically Greater Phoenix, is a prime destination for retirees, and this is expected to continue. Individuals age 65+ are projected to make up 35% of the population growth in Maricopa County 2015 - 2024. As a percent of the total population, the 65 and older age group will be 16.9%, compared to 16.1% for the United States.⁵⁹ Telemedicine and the increased use of technology with patients will continue to grow. Underscoring the future use of technology, the Arizona Legislature passed a law in 2016 requiring health plans to pay for the costs of telemedicine services across the entire state. Previously, the law required payment for services only in rural areas.⁶⁰ Telemedicine coverage opportunities increased with the passage of this law and there is still room to improve that coverage in keeping with the growth of telemedicine services. Echoing the state expansion, the Southwest Telehealth Resource Center received a \$325,000 federal grant to advance the use of telehealth and telemedicine across Arizona and its neighboring states of Nevada, New Mexico, Colorado and Utah.⁶¹

EMERGING AND EVOLVING CAREERS

What will health care look like 5-10 years from now in the United States? In the Greater Phoenix region? What will be the hot jobs? Where will the talent gaps be? Which skills will be most rewarded? As noted above, the health care sector is forecast to continue adding significant new jobs to the U.S. economy, particularly in dynamic regions like Greater Phoenix. One key to make sure the region continues moving forward as a leader in health care is having a properly skilled and trained workforce. Accomplishing that requires not only awareness of current needs but more importantly, anticipation of future needs for human capital in health care. Emerging jobs and roles require new competencies, skills and training, yet because of their newness, there is often a lack of consensus on the exact scope of these occupations.

In the coming years, there are likely to be dozens of emerging and evolving roles in health care. The sheer size of the sector dictates it will account for approximately 20% of all new and emerging jobs. In addition, relative to most industries, health care is clearly undergoing a period of profound financial, regulatory and strategic changes, which help fuel the need for additional job functions and innovative skill sets. On average, health care jobs pay more than other industries, and, irrespective of the industry, new and emerging roles pay more than traditional roles. Thus, these emerging and evolving roles in health care are likely to add high-wage, high-skill employees to the region.

If Greater Phoenix can be responsive to these trends and supply the needed human capital, it will yield three beneficial results. First, current businesses in the region will not be limited by an insufficient labor pool, which is a key reason why businesses relocate to other regions. Second, it is an excellent way to attract new businesses which want to move to an area with ample supply of skilled labor. Third, it creates

collaborations and educational infrastructure that enable the Greater Phoenix region to be nimble in responding to future health care roles.

Because health care is a large, transitioning industry, dozens of occupations are or will be in flux. Here are 10 new and emerging roles that are particularly notable and merit inclusion in Phoenix Forward thinking (listed in alphabetical order):

- **Biomedical engineer (bioinformatician)** -- works at the intersection of biology, medicine and data science to leverage these fields to analyze and design high-quality, cost-effective solutions for patient care with a median salary in the very high five figures
- **Care coordinator (care transition specialist)** -- typically a registered advanced practice nurse who leverages evidence-based training to manage patient transitions along the care continuum, including leveraging telemedicine in the case of patients discharged to home
- **Chief data officer (chief data analytics or chief health information officer)** -- collects, manages and leverages data and analytics tools to improve care, enhance profitability, and increase engagement while also focusing on increasing enterprise-wide interoperability between different information systems
- **Chief patient experience officer (chief population health officer)** -- responsible for coordinating various departments to ensure positive patient interactions with the institution, as well as developing and extending those interactions outside the facility to form an effective population health strategy
- **Clinical documentation specialist (medical**

Commonalities in Emerging Health Care Jobs



Data Utilization



Health, Prevention, and Wellness-Focused



Moving into the Community and into Homes

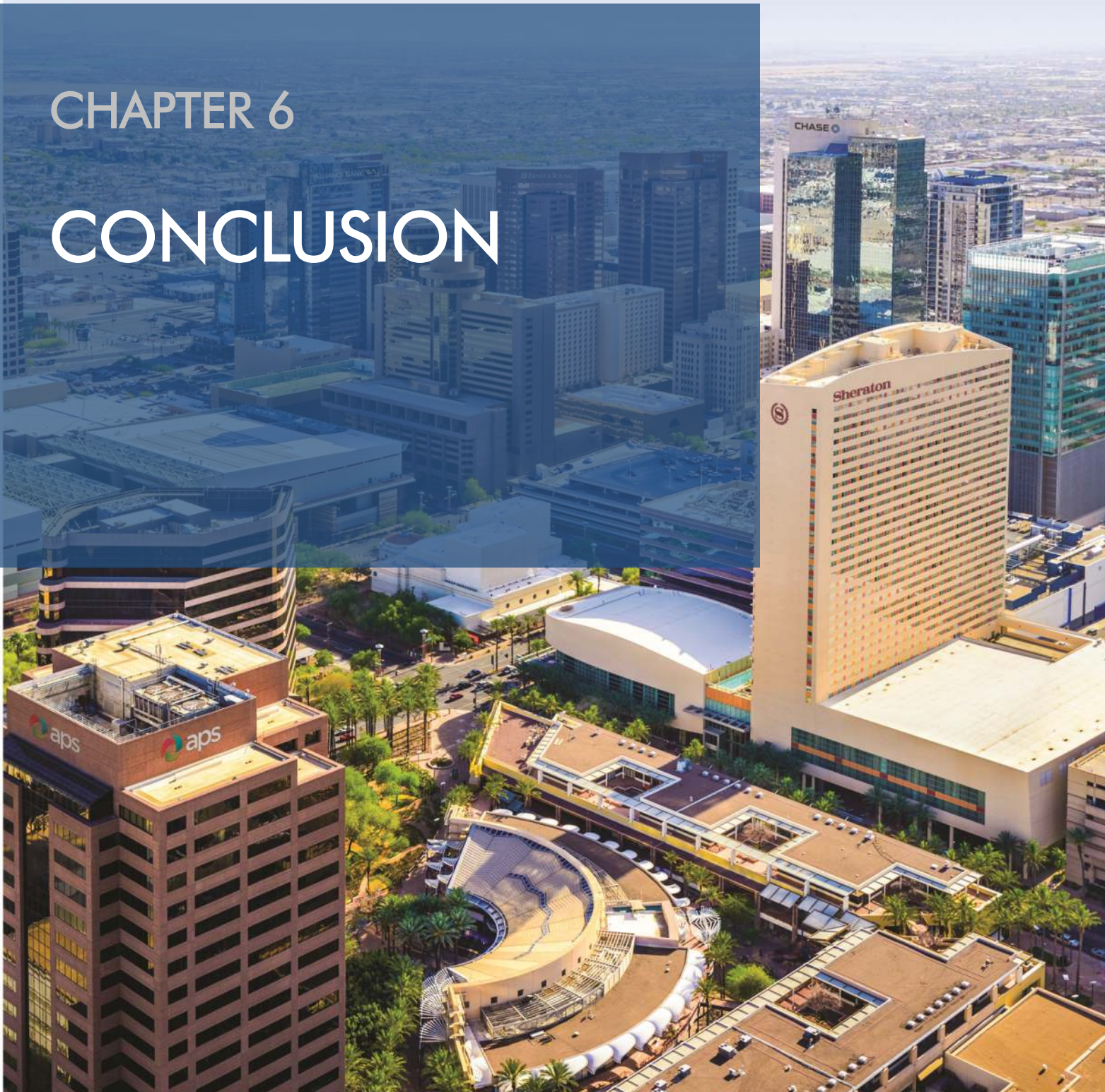
coder) -- typically an analyst using electronic medical records, diagnostic results, insurance claims data and other evidence to maximize the institution's reimbursement for services provided

- **Community health worker** -- serves to improve health care quality and access by a trusted and knowledgeable community member who can build relationships between individual patients and providers, as well as between the community as a whole and provider institutions
- **Health and wellness coordinator (health coach)** -- arises from the increasing emphasis placed on prevention, population health and patient-centricity that provides a variety of digital and in-person education and information sharing with patients and families in provider settings and in-patient homes (e.g., via telemedicine)
- **Health information specialist (health data analyst)** -- combines health care, computer science, data science and information systems to help develop expert systems that clinicians can leverage to make more accurate, rapid diagnoses and determine optimal treatments
- **Medical scribe** -- data-entry role emerging from mandated use of electronic medical records that provides real-time documentation of encounters between patients and health care providers, relieving the latter of the burden to accurately capture/enter information and increasing their interaction time with patients
- **Navigator (patient advocate)** -- typically a licensed clinical professional who collaborates with patients, family, health care facilities and payers to facilitate patient health and treatment in facilities and at homes
- **Nursing informaticist** -- a nursing specialty serving as a liaison between clinicians (usually physicians and other nurses) and the computer science, data, and information people by integrating nursing science, computer science and informatics to manage and communicate data, information, knowledge and wisdom
- **Skilled nursing facility specialist (SNFist or gerontological nurse specialist)** -- works in long-term care institutions (e.g., nursing homes, assisted living facilities) and patient homes focusing on leveraging new information and knowledge to treat the elderly (one of the fastest growing segments of our population) in accordance with emerging value-based models of care

Three common themes emerge across these and other evolving health care jobs. First, in the future, data will be king in health care. Data will be increasingly utilized by patients, providers, payers, policy-makers and other key actors in the health care ecosystem. Thus, there will be new and changing roles related to analytics, computer science, data, informatics and information technology. Second, health care will be focused increasingly on health, prevention and wellness (i.e., there will be an increase in efforts to prevent people from becoming patients in the first instance). Because our health care system has been focused on sickness, secondary care, and tertiary care, new thinking is required, which means new roles are required. Third, health care will increasingly move into the community and into homes. Thus, there will be greater demand for those with health care knowledge who are also highly knowledgeable about communities. As part of this, telemedicine will play an increasingly important role. The Greater Phoenix region can strengthen its economy by preparing a future health care workforce that collects, organizes and interprets data, is knowledgeable and informed regarding prevention/wellness and grounded in community and patient advocacy.

CHAPTER 6

CONCLUSION



Conclusion

The business community and Phoenix Forward consider health care a key economic industry for the Greater Phoenix region. The many players in the industry, in the form of health care providers, health care insurers, ancillary providers, educational institutions and academia, and research organizations bring a variety of crucial strengths to the area: a large employment base, quality jobs, prestige from awards and a history of growth. With these benefits, it is clear why the above research is crucial to moving the health care industry forward in an effective and productive manner that continues to benefit the economy and job growth of the Greater Phoenix area.

Both industry and academic experts agree that this is an exciting time in health care. Evolving trends shaping health care, in the form of hospital consolidation, telemedicine and new health technologies, aging population, increased job demand and new disruptive models, will continue to bring dynamic change and growth to the Greater Phoenix region. Responding to this change through continued investment in business and education infrastructure, pursuit of effective public policy, and continued private, public, academic and non-governmental organizations (NGO) collaboration will be imperative to effectively manage that change. As stated previously, perhaps the most important ingredient to growing Phoenix's health care industry across all spectrums is education. A continued focus on utilizing and growing the region's education base will allow area businesses to continue growing here, attract new investment to the area and remove concerns businesses have about insufficient human capital. The synergistic relationship between providing care and conducting medical research will be an additional growth driver for the health care industry and the region, resulting in Greater Phoenix's ability to capture its fair share of growth and position itself as the economic hub of the southwestern United States.

Creating and retaining jobs is important. Job growth advances the interests of the private, public, and NGO sectors. Yet, growing the health care economy is no easy task. The Chamber wants businesses to grow, thrive and

succeed. The Chamber continues to advance the mission of growing the health care economy from within, while advocating for robust, pro-business public policies that help health care organizations. Private-public-academic health care collaborations are one of the most efficient and efficacious steps Greater Phoenix can take to become even more competitive regionally and nationally.

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GREATER PHOENIX CHAMBER OF COMMERCE



Vision

The Greater Phoenix Chamber of Commerce will be recognized as the most respected, collaborative and influential member-driven business association in Arizona.

Mission

Promote regional prosperity, serving as a catalyst for economic vitality and strong communities.

Roles

How do we act as a catalyst?

We collaborate internally and with external partners to function as a catalyst in four ways:

- **Call to Action**—*assess, define and educate around critical needs or opportunities in our region.*
- **Cultivate Community Builders**—*identify, recruit and develop business leaders to become community builders.*
- **Convene/Connect Leaders to Drive Change**—*build and participate in coalitions that take and influence action.*
- **Communicate**—*promote community building successes inside and outside our region.*

We function as a catalyst with the intention that all parties experience positive benefits from collaboration with us.

Our Board

The Chamber's [board of directors](#) includes appointed representatives from many of the Valley's most influential organizations, companies and institutions. The board is comprised of approximately 50 business leaders in diverse industry sectors, including health care, bioscience, transportation, manufacturing, business and consumer services, banking and media. The board provides leadership for the business community, steers the Chamber's political advocacy and promotes a business-friendly environment to help grow the Greater Phoenix region.

Our Staff

Our [staff](#) of dedicated professionals works tirelessly to present outstanding programs, signature events and a variety of other services, offerings and savings that provide tremendous value to our members. Together as a dedicated team, we roll up our sleeves, address critical issues and solve challenges our community faces such as education, transportation, immigration, wellness and workforce development. We see challenges as opportunities.



GREATER PHOENIX
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