2017-2022 Texas State Health Plan






SHCC Statewide Health Coordinating Council

A Proposal for Ensuring High-Quality Health Care for All Texans

Statewide Health Coordinating Council

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November 1, 2016

The Honorable Greg Abbott
Office of the Governor
P.O. Box 12428
Austin, Texas 78711-2428

Dear Governor Abbott,

The Texas Statewide Health Coordinating Council is pleased to submit to you the 2017-2022 Texas State Health Plan. The Council has chosen to focus this update on primary care and mental health care which it feels are very important to our state today and will continue to be important in the near future.

Despite recent gains, opportunities for improving Texas' health care system persist. As such, the Council recommends the following strategies for ensuring that Texas' health care system serves all citizens in an effective and economical manner:

- **Individual**: Improve access by reducing cost-related barriers to care for the most disadvantaged Texans, promote patient health literacy, and advocate cost-effective population health programs.
- **Education system**: Ensure adequate educational opportunities exist for aspiring health care providers, especially clinical training sites for physicians, nurses, physician assistants, and others.
- **Health care providers:** Incentivize health care professionals to select specialties, employment settings, and geographic locales that reflect population needs.
- **Health system**: Improve quality of health care by encouraging the adoption of delivery and payment system innovations, including coordinated and integrated care, health information technologies, and models rewarding quality care, such as ACOs.
- **State agencies**: Enable increased and improved data collection and analysis that inform the best implementation of the above.

The Council hopes these are useful to you and other policymakers as you continue to work to improve the state's health care system.

Sincerely,

Ayeez Lalji, D.D.S.
Chair, Statewide Health Coordinating Council

Enclosure

The Texas Statewide Health Coordinating Council

Gubernatorial Appointees	Role
Ayeez Lalji, D.D.S., Chair	Health care professional
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Organizational Overview

The following is a description of the organizations that were instrumental in the development and production of this report.

The Texas Statewide Health Coordinating Council

In accordance with Chapters 104 and 105 of the Texas Health and Safety Code (HSC), the purpose of the Statewide Health Coordinating Council (SHCC) is to ensure health care services and facilities are available to all citizens through the development of health planning activities. The SHCC is a 17-member council, with 13 members appointed by the governor and four members representing the Department of Aging and Disability Services, the Department of State Health Services (DSHS), the Health and Human Services Commission (HHSC), and the Texas Higher Education Coordinating Board (THECB). The SHCC meets quarterly and governs the Health Professions Resource Center (HPRC), the Texas Center for Nursing Workforce Studies (TCNWS), and the Texas Center for Nursing Workforce Studies Advisory Committee (TCNWSAC). Information on the SHCC is available at the following website: http://www.dshs.state.tx.us/chs/shcc/.

As part of its duties under Chapter 104 and 105 of the Texas HSC, the SHCC directs the development of the State Health Plan and its updates. These documents, published in November of even-numbered years, identify major statewide health concerns, the availability and use of the state's health resources, and future health service, information technology, and facility needs of the state.

The Health Professions Resource Center

The HPRC collects and analyzes data pertaining to educational and employment trends for health professions in Texas, with particular interest in health professions demonstrating an acute shortage.

It is the mission of the HPRC to be the primary source of health care workforce information in the State of Texas. To accomplish this mission, the HPRC:

- Collects, analyzes, and disseminates data concerning the supply trends, geographic distribution, and demographics of health care professionals
- Studies health care workforce issues and prepares reports on the findings
- Designates health care delivery sites where mid-level providers can practice limited prescriptive authority
- Provides resources for primary care providers seeking collaborative practice opportunities through a clearinghouse program

Additional information on the HPRC, its data, and its reports can be found at http://www.dshs.state.tx.us/chs/hprc/.

The Texas Center for Nursing Workforce Studies

The TCNWS was established and serves as a resource for data and research on the nursing workforce in Texas. The TCNWS is charged to collect and analyze data and publish reports related to educational and employment trends of nursing professionals, the supply and demand of nursing professionals, nursing workforce demographics, migration of nursing professionals, and other issues concerning nursing professionals in Texas as determined necessary by the TCNWSAC and the SHCC.

The TCNWS collaborates and coordinates with other organizations that gather and use nursing workforce data to avoid duplication of efforts in gathering data, to avoid overloading employers and educators with completing a large number of duplicate surveys, to share resources in the development and implementation of studies, and to establish better sources of data and methods for providing data to legislators, policymakers, and key stakeholders. The TCNWS is currently working on several statewide studies that will provide current and pertinent supply and demand trends of the nursing workforce in Texas. For more information about the TCNWS and access to its reports visit: http://www.dshs.state.tx.us/chs/cnws/.

The Texas Center for Health Statistics

The Texas Center for Health Statistics (CHS) provides managerial oversight and administrative support to the HPRC and the TCNWS.

The CHS was established to provide a convenient access point for health-related data for Texas. The CHS conducts much of DSHS' collection, analysis, and dissemination of health-related information used

to evaluate and improve public health in Texas. CHS does so by:

- Evaluating existing data systems for availability, quality, and quantity;
- Defining data needs and analytic approaches for addressing these needs;
- Adopting standards for data collection, summarization, and dissemination;
- Coordinating, integrating, and providing access to data;
- Providing guidance and education on the use and application of data;
- Providing data analysis and interpretation; and
- Initiating participation of stakeholders while ensuring the privacy of the citizens of Texas.

Health-related data reports and other information produced through the CHS are available at the following website: http://www.dshs.state.tx.us/chs/.

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Executive Summary

On a biennial basis, the Texas Statewide Health Coordinating Council (SHCC) directs and approves the development of the Texas State Health Plan or its updates. This plan, following the legislatively determined purpose of the SHCC, seeks to ensure that the State of Texas implements appropriate health-planning activities and that health care services are provided in a cost-effective manner throughout the state. With drastic changes being introduced to health care payment and delivery systems nationwide and throughout Texas, the 2017-2022 Texas State Health Plan provides guidance on how these changes can be implemented in a manner consistent with the goal of having a high quality, efficient health system that serves the needs of all Texans. Specifically, this plan identifies challenges in ensuring that a population as large and diverse as Texas' has access to the health care system, that health care services are provided in an efficient and orderly manner, and that an ample health care workforce exists to provide these services. Additionally, the SHCC revisits the pressing need for robust primary care and mental health systems in the state, concerns first raised in its 2015-2016 Update to the Texas State Health Plan. In response to these challenges, the current plan offers numerous strategies to improve the efficiency of our health care delivery system, address shortcomings in our payment system, produce more health care providers in critical areas of need, and heighten patient satisfaction with the health care system.

The 2017-2022 Texas State Health Plan is organized into five chapters highlighting important areas where improvement is needed. Improving Texans' Access to Care, the plan's first chapter, details the populations for whom access to care is an issue in Texas and considers methods for improving provider participation in ensuring access and expanding the distribution of providers throughout the state. The second chapter, Improving Quality in Health Care, describes the potential for accountable care organizations (ACOs) to improve quality of care, as well as the necessity of having a population that is health literate and invested in health outcomes. The third chapter, Widening the Education Pipeline for the Health Professions, establishes a baseline for the size of the health care workforce, describes relative shortages existing in the state, and addresses multiple policy options used to address these shortages. The fourth chapter, A Vision for Primary Care in the State of Texas, details how a robust and accessible primary care system contributes to improved population health and cost efficiency. The fifth chapter, Transforming Texas' Mental Health Care System, considers needed changes in the organization of the system, how it engages patients, and the challenges posed by the mental health workforce shortage. In summary, these topics are essential to the SHCC's vision of a Texas in which all are able to achieve their maximum health potential. By outlining strategies to improve primary care and mental health in the state, the SHCC challenges policymakers, health care administrators, providers, and all Texans to embrace change and work together to improve the health of Texans.

Improving Texans' Access to Care

The ability of individuals to access care when they need it is central to the successful performance of health care systems at local, state, and national levels. Generally, access is conceptualized as the ability of the health care system to meet the population's demand for services or the ability of the population to shoulder the economic costs associated with care. However, definitions of access should also consider how social, cultural, and linguistic norms may affect patient interaction with the health care system, how satisfied or comfortable the patient is with their health care interactions, and the extent to which patients are able to navigate the health system. Using this broad formulation of access, multiple populations defined by age, race/ethnicity, and geographic location, among other factors, can be said to experience inadequate access to care. The plan describes three broad strategies available to address the gaps in access to care identified above: improving rates of insurance coverage; increasing the availability of health care professionals, facilities, and services; and a reduction in the social barriers to care.

Improving Quality in Health Care

The Institute of Medicine has defined quality health care as "safe, effective, patient-centered, timely, efficient and equitable." Likewise, the federal Agency for Healthcare Research and Quality described quality

as "doing the right thing for the right patient, at the right time, in the right way to achieve the best possible results". The SHCC believes that improvement in health care quality must be accompanied by efforts to control costs, which will require a move away from traditional fee-for-service models of care and toward value-based payment systems. Among the available options, the ACO offers promising results for the reorganization of payment and delivery systems in a way that reduces costs and improves quality. Additionally, the SHCC recommends the continued adoption of data collection and reporting mechanisms that allow health systems to constantly measure and improve their quality and outcomes. Finally, the SHCC supports partnerships between providers and health educators to empower Texans to better understand and utilize the state's health care system.

Widening the Education Pipeline for the Health Professions

One key to ensuring that health care services and facilities are available to all Texans in an orderly and economical manner is to ensure that the state has a well-trained and ample workforce of health professionals. Such a workforce should be large enough to meet the needs of its clients, and also must be available across the state, in geographically disparate areas. As the population of the state continues to grow, so too must the state's investment in the training of health professionals at all levels. Generally, Texas has fewer practitioners per capita than the national average in all of the key health professions. Health professions data show that rural and border areas have far fewer practitioners per capita than do metropolitan and non-border areas, respectively. These data also demonstrate that large proportions of providers in many professions are older and expected to retire in the next decade or so. Finally, these data indicate that the health care workforce is far from being representative of the general Texas population with respect to race/ethnicity. The state should continue to research and invest in programs that ensure Texans have easy access to care, regardless of the region of the state in which they live, that the state's future health care workforce is of sufficient size and well-prepared to serve the needs of the state, and that Texans have access to providers who provide linguistically and culturally competent care. An essential component of achieving these goals will be for the state to invest in the education of health professionals and to implement programs that embrace innovation and ensure the state's future health professionals are equipped to deliver care in the best, most cost-effective manner possible. Specifically, the State of Texas should:

- Ensure the state's physician workforce is able to meet Texans' needs through the continued support of medical and graduate medical education.
- Identify and implement strategies to increase the number of clinical training sites available to nurses, physician assistants, and other health care professions.
- Incentivize health care professionals to select specialties, employment settings, and geographic locales that reflect the needs of the state.
- Improve data collection across state agencies and develop complex, multidisciplinary health workforce projections.

A Vision for Primary Care in the State of Texas

Access to and appropriate use of primary care produces better quality health care, better health, greater equity, and lower cost for individuals and populations. Moreover, health systems oriented towards primary care serve to lower barriers to patient access, improve care coordination between providers, and encourage responsible patient choices in care-seeking behavior. Despite these benefits, the Institute of Medicine has stated that the U.S. has not adequately invested in a robust primary care system. Given the positive impacts associated with greater integration of primary care services, the SHCC has identified several policy options that would improve Texas' primary care system.

Increased patient utilization of care, changing demographics, and increases in chronic disease burden entail the need to increase the number of primary care providers, including physicians, advanced practice nurses, physician assistants, pharmacists, and community health workers. The number of primary care physicians should be increased through the support of primary care medical schools and graduate medical education slots, improved recruitment of students interested in practicing primary care, and the expansion of incentives that aid in the recruitment and retention of primary care physicians.

The desired improvements in the cost-effectiveness

and efficiency of the health care system will necessitate changes in the delivery and reimbursement of care. A common element for accountable care organizations and other innovative delivery and payment structures is the expansion of interdisciplinary team-based care, which is associated with fewer communication problems between providers, improved care, and greater patient satisfaction. The widespread implementation of patient-centered medical homes, accountable care organizations, and other innovative care models will require ongoing evaluation of best practices and among which populations they may be most successful.

Transforming Texas' Mental Health Care System

Recent studies, national and specific to Texas, have established the need for the transformation of the mental health care system to better meet patient needs. As with primary care, the SHCC has identified several strategies that address Texas' needs.

Team-based, collaborative, and coordinated care is an essential component of transforming the mental health care system. Task-shifting, the adoption of disruptive innovations, the use of best buy interventions, and efforts aimed at modifying individual behavior are all potential elements in affecting improved mental health care delivery. The patient-centered medical home, health homes, and accountable care organizations may provide better delivery of care while addressing issues with the current mental health care reimbursement system. The successful incorporation of peer support providers into the mental health care system will require their incorporation into billing/payment systems.

In order for Texas to have a stable, productive, and efficient mental health care system, heightened efforts at recruiting and retaining mental health care providers are a necessity. The SHCC, in response to House Bill 1023 (83rd Legislature), provided several recommendations aimed at expanding the state's educational capacity to produce mental health practitioners, increasing incentives for students and practitioners to choose mental health fields, and improving the distribution and diversity of mental health practitioners.

Data & Sources

The Texas workforce data included in this document is collected by various Texas licensing boards and processed by the HPRC under the direction of the SHCC as dictated by the Texas HSC Chapters 104 and 105. All reported data represent the licensed health professionals actively practicing in Texas. Inactive or retired licensed professionals were excluded, except where noted. Texas population data were obtained from the Texas State Data Center population projections released in 2014.

Please note that the various licensing boards differ on how they collect address information. If available, the county totals for each profession are based on the practice address from licensure data, and from the mailing/residence address if the practice address is not available. Therefore, when the mailing/residence address is used, the county supply totals may not accurately reflect the actual number of health professionals working in a county since a provider may live in one county but practice in another. In 2007, the 80th Texas Legislature passed Senate Bill (SB) 29 mandating the collection of a minimum dataset of information on health professionals including more complete data on practice addresses. Licensure boards vary in the extent to which they have implemented the minimum dataset.

Supply ratios are calculated by dividing the number of providers in a given profession by the population of the area being evaluated, and multiplying that number by 100,000. This results in a ratio of providers per 100,000 population that can be used to compare areas with different population sizes and over time.

The definitions of metropolitan and non-metropolitan counties were obtained from the United States (U.S.) Office of Management and Budget. The 32 counties within 100 kilometers of the U.S.-Mexico border are designated as border counties as defined by the "La Paz Agreement" (La Paz Agreement, 1983).

Improving Texans' Health Care Access

Key Policy Recommendations

- **Support programs that seek to improve the population's access to care, especially those that promote primary and preventive care.**
- **Address barriers that limit health care professionals ability to serve patients of all income levels.**
- **Identify and support evidence-based, prevention-oriented population health approaches toward chronic disease.**

Access to Care

Defining Access

Throughout much of Texas, and the nation as a whole, access to care is restricted by the availability of providers. Areas without sufficient provider availability may receive a federal designation as a health professional shortage area. This definition of access relies on the idea that those who need health care can access the system if there is an adequate supply of services, measured by the number of physicians, hospital beds, or some other metric (Guilford, et al., 2002). Yet these geographic designations do not fully reflect the multifaceted concept that is access to care. Indeed, the Institute of Medicine has proposed the definition of access as "timely use of personal health care services to achieve the best possible outcomes" (Pandhi, et al., 2012). In addition to the availability of providers, this definition adds components of timeliness and quality, the latter in the form of positive outcomes. Likewise, another proposed definition of access is "fair access to consistently high quality, prompt and accessible services right across the country" (Guilford, et al., 2002). This introduces the important consideration of equity. This consideration is important given estimates that 30 percent of direct medical expenditures can be attributed to health disparities that create a less healthy population (Shi, et al, 2013) and that disparities are associated with barriers to accessing care.

The ability of individuals to access care when they need it is central to the successful performance of health care systems at local, state, and national levels. Simplistically, access may be considered the ease with which consumers and communities are able to use appropriate services in proportion to their needs (Levesque, Harris, and Russell, 2013). Access can then be considered in economic or other terms, such as the time required to utilize health care services, travel distance to services, familiarity with the health system and providers, and other considerations (Guilford, et al., 2002; Pandhi, et al., 2012; Levesque, Harris, and Russell, 2013). Both Kullgren et al. (2012) and Levesque, Harris, and Russell (2013) have proposed similar methods for categorizing potential barriers to access. Synthesized, they are as follows:

- Affordability – the ability of the patient to pay the economic costs associated with health care. This may refer to directly incurred costs or those associated with insurance coverage, including premiums, deductibles, etc.
- Availability – the level of fit between the patient's health care needs and the ability of the system to fit these needs. For example, availability is a measure of the nearness and capacity of clinicians and clinical facilities.
- Acceptability – the ability of patients to interact with the health care system in light of social, cultural, and linguistic norms, among others that may impede utilization.
- Appropriateness – the extent to which the services available fit the needs of the client. On the one hand, appropriateness may refer to the patient's level of comfort with the organization of the health system, such as procedures necessary to garner an appointment, available office hours, etc. On the other hand, this category may also include care meeting the patient's expectations with respect to elements such as timeliness, the amount of time spent developing a diagnosis and treatment plan, and the technical and interpersonal quality of the services rendered.
- Approachability – the extent to which people with health care needs are able to identify the appropriate services available, are aware of how to reach them, and recognize the potential impact on their health.

Of note, four of the five categories listed above are unrelated to financial capacity of the individual to pay for health care. While financial barriers to access are important and associated with the presence of non-financial barriers, it is worthwhile to note that 66.8 percent of US adults reported non-financial barriers to care, a rate higher than those reporting financial barriers. Moreover, 71 percent of Medicaid patients and 49 percent of Medicare patients reported non-financial barriers to accessing care (Levesque, Harris, and Russell, 2013).

With respect to availability, one of the main barriers that exists to access is a lack of specialists and subspecialists present in low-income and rural areas. For example, one survey found that 91 percent of community health centers struggled to find adequate off-site subspecialty care for their uninsured patients (Neuhausen, et al., 2012).

A major concern regarding acceptability is the extent to which patients are able to receive information and instructions in their preferred language. Often linguistically-based barriers can result in the delay or even denial of services, challenges with medication management, and the underutilization of preventive services (Au, Taylor, & Gold, 2009). Of note, the National Committee for Quality Assurance and the Joint Commission on the Accreditation of Healthcare Organizations are beginning to recognize the role that language services play in the production of quality health care. Clinical staff may need training on when to request a medical interpreter, as unqualified interpreters may lead to medical errors and poor patient understanding and adherence (Au, Taylor, & Gold, 2009).

With respect to appropriateness, Pandhi et al. (2012) have noted that patients often experience a cumulative burden of barriers and are frequently in need of multiple avenues through which to access care. For example, offices seeking to increase appropriateness might work to reduce wait times for appointments, alter their office hours to reflect the needs of their clients, and offer advice by phone where appropriate, all key components of the patient-centered medical home. Research on community health centers, which often serve populations with low access, shows greater patient satisfaction with hours of operation and overall care. Finally, approachability relies on the patient to recognize when they are in need of health services and to utilize these services, a term referred to as patient activation (Gessert, et al., 2015). Of note, different rural populations may require different strategies for ensuring patient activation, and rural populations are likely to require different strategies than do metropolitan areas (Levesque, Harris, and Russell, 2013; Gessert, et al., 2015).

Populations with Poor Access

In all, 18 percent of US adults experienced financially-related access barriers and 21 percent experienced non-financial barriers (Kullgren, et al., 2012). Such barriers have been growing in the past decade, resulting in decreased likelihood of adults having a usual source of care, having recently seen a dentist, and having recently had an office visit (Kenney, et al., 2012). Generally, poor access is higher in lower-income, non-white, and young adult populations, in addition to individuals with at least one chronic disease (Kullgren, et al., 2012, AHRQ, 2015). Indeed, Kenney reports that access to care declined in all adult populations from 2000 to 2010 with the most dramatic declines present in uninsured populations (2012). Thus it comes as no surprise that uninsuredness is associated with foregoing needed care because of cost, not having a usual source of care, not receiving recommended screening activities, high-risk adults not getting checkups in the past two years, and patients with diabetes not receiving recommended diabetes care (Radley & Schoen, 2012).

According to the Institute of Medicine, uninsured pregnant women receive fewer prenatal care services than women with insurance and are more likely to have poor birth outcomes, including low-birth weight and prematurity. Following pregnancy, women need ongoing care for both physical and behavioral health needs, including treatment for chronic conditions such as diabetes and hypertension, as well as diagnosis and treatment for postpartum depression and substance abuse disorders. Women without health insurance often lack access to affordable contraceptives, including the most effective forms known as Long Acting Reversible Contraceptives, or LARCs, which includes intrauterine devices (IUDs) and implants. Without access to contraceptives women are more likely to experience unintended pregnancies. Further, uninsured women with breast cancer are 30–50 percent more likely to die from cancer or cancer complications than insured women with breast cancer (IOM); uninsured women are 60 percent more likely to receive a diagnosis of late-stage cervical cancer (Kaiser Family Foundation, 2013).

Additionally, considerably more Hispanics and multiracial families reported needing an interpreter than did white families. These barriers may partially explain why lower proportions of Hispanics, African Americans, and multiracial children receive all needed medical and dental care and why access to specialty care is worse for Hispanics and African Americans (Flores & Lin, 2013).

Texas Populations with Poor Access

Women

Women in Texas have unique issues that affect access to health care services. When compared to men, women have similar rates of health insurance by

type with 56 percent carrying insurance issued from their employer, 10 percent through Medicaid, and 25 percent uninsured (Kaiser Family Foundation, 2016a). The percentages of men and women under the age of 65 who are uninsured are similar, 29.6 percent of men and 28.9 percent of women. Texas men are less likely to have a personal doctor when compared to women, 39.6 percent to 26.5 percent. Women have also reported higher rates of not being able to access medical care due to costs, 21.1 percent compared to 14.1 percent of men (CDC, 2016).

When considering geographic distribution, men and women in border areas have lower rates of insurance coverage than do those in non-border areas. Moreover, while insurance coverage is equivalent between men and women in non-border areas, 18-64 year old women in border areas have a coverage rate of 43.4 percent compared to a rate of 58.6 percent for males (CHS, 2014).

Low-income and Less Educated Populations

Healthcare access for low income Texans varies based on socioeconomic factors. Close to half of Texans at or below the federal poverty line (FPL) rely on Medicaid as their primary insurance (46 percent), while 14 percent rely on employer based coverage. A third of Texans living at or below the FPL are uninsured. Medicaid utilization is less common as socioeconomic position rises, dropping to 18 percent for families whose income is at 200 percent or below the FPL (Kaiser Family Foundation, 2016). Over half of Texans under the age of 65 that have annual income less than $15,000 are uninsured (54.7 percent), and 55 percent of Texans that earn between $15,000 and $24,999 are uninsured (CDC, 2016). The percentage of Texans that are uninsured drops significantly as annual income increases past $25,000. Lower income Texans are more likely not to have a personal doctor – 46.2 percent of those who earn under $25,000 per year, 33.8 percent of those making $25,000 to $50,000, and 20.1 percent of those who earn $50,000 or more (CDC, 2016).

Perhaps not surprisingly then, insurance coverage is more likely among higher educated groups. For example, among those aged 18-64 with less than a high school education, just 39.6 percent reported insurance coverage. By comparison, 64.5 percent of high school graduates, 76.3 percent of those with some college, and 90.2 percent of college graduates had health insurance. Likewise, 31.7 percent of those without a high school degree reported having been unable to see a doctor when they needed to because of cost. For high school graduates, the percentage was 18.5 percent. For those with some college and college graduates, the percentages were 17.0 percent and 8.9 percent respectively.

The discrepancy in coverage rates is greatest among those with less than $25,000 in income and those with no high school degree. In both cases, coverage rates are significantly lower in border areas (CHS, 2014).

Children

Approximately 13.4 percent, or 975,001, Texas children, do not have health insurance. For those with health insurance coverage, 42 percent use employer based coverage and 42 percent are enrolled in Medicaid (CDC, 2016). Children that reside in households that earn 300 percent of the FPL or below have uninsured rates between 12 to 17 percent while those above 300 percent of the FPL have uninsured rates of 6 percent (US Census Bureau, 2016).

Adult Populations

For Texans under the age of 45, the rate of uninsuredness is estimated to be between 30 and 34 percent. For Texans that fall in the 45 to 54 year old age group only 27 percent reported having no health insurance coverage and for those 65+ only 3.6 percent reported no health insurance coverage. Over half of younger Texans, ages 18 to 34, do not have a personal doctor compared to 27.1 percent for those ages 35 to 44, 18 percent for those 55-64 and 9.3 percent for those ages 65+. Between 20 and 22 percent of Texans age 25 to 54 reported that they were unable to see a physician due to costs. Only 14.5 percent of 18 to 24 year olds and 6 percent of 65+ were unable to see a physician due to costs (CDC, 2016).

Minority Groups

Hispanics in the State of Texas have significantly higher rates of being uninsured when compared to other racial groups. Just under half, 45.1 percent, of Hispanics do not have health insurance coverage compared to 11 percent of Whites, 23.4 percent of African Americans, and 18.8 percent of multiracial residents. White and African American Texans are more likely to have a personal physician (78.5 percent of Whites and 70.5 percent of African Americans),

when compared to Hispanics at 51.4 percent. Percentages of multiracial residents, Hispanics, and African Americans that were unable to access a physician due to costs were similar and fell between 21 and 27 percent while only 10.9 percent of Whites were unable to see a physician due to costs (CDC, 2016).

Border Counties

Within the state, there is geographic variation in access. Texans that reside near the Texas/Mexico border are less likely to have health insurance coverage when compared to the rest of the state, 34.7 percent compared to 24.7 percent. When considering only 18-64 year olds in non-border areas of the state, the insurance rate was estimated to be 71.1 percent. In border areas, this number was just 50.6 percent. The border region has higher rates of Medicaid utilization when compared to the rest of Texas, 17.4 percent compared to 13.8 percent. Percentages of physicians that accept Medicaid as a form of health insurance are much higher in the border region, 92 percent compared to 49 percent in non-border regions (HHSC, 2014). Additionally, those living in border areas are less likely to have a personal health care provider, more likely to forgo needed medical treatment because of cost, and less likely to have had a routine checkup in the past year (CHS, 2014).

Strategies for Improving Access

Three broad strategies are available to address the gaps in access to care identified above: improving rates of insurance coverage; increasing the availability of health care professionals, facilities, and services; and a reduction in the social barriers to care. Ultimately, improving timely access to and quality of care will depend on collaboration among local clinicians, hospital leaders, insurance companies, policymakers, and community stakeholders (Radley & Schoen, 2012). Indeed, success in improving access to care relies on concurrent efforts to reduce financial and nonfinancial access barriers (Kullgren, et al., 2012). A fundamental aim of the redesign of primary care services and the patient-centered medical home, both described later in this report, is improving access to care. Patients who reported having a usual site of care and a provider at that site are more likely to access that care, receive preventive services, and have improved health (Pandhi, et al., 2012). The following strategies seek to improve access by making health care more affordable, available, acceptable, appropriate, and approachable.

Covering More Texans

In order to improve the affordability of care and thus access in Texas, it should be a priority of this state to increase the number of Texans with a usual source of care and improve access to physicians and other providers.

Projections from a recent analysis by the Kaiser Family Foundation demonstrated that low-income Medicaid enrollees were significantly more likely than the low-income uninsured to have a usual source of care and less likely to have unmet health care needs. Publicly covered adults are also more likely to report timely care and less likely to delay or go without needed medical care because of costs (Kaiser Family Foundation, 2013).

With respect to mothers and their children, increasing the proportion of covered mothers is likely to have a significant effect on access to health care, ability to pay medical bills, and mental health. Children are also expected to benefit, since their coverage and access to care have been shown to improve when their parents have coverage. Increasing the number of mothers with insurance may also improve outcomes for children in other ways, such as by reducing maternal depression, which can affect parenting abilities. Moreover, emerging evidence indicates that providing earlier access to care for women of child-bearing age may lead to improvements in prenatal care use, in terms of either earlier or more adequate prenatal care.

Medicaid along with its companion Children's Health Insurance Program (CHIP) is a state/federal partnership that provides health care coverage to low-income children and their caretakers, pregnant women, people age 65 and older, and people with disabilities. Some states, though not Texas, have chosen to extend Medicaid coverage to childless, non-disabled, working age adults.

In Texas, at any given time, the Medicaid and CHIP programs cover about 4.5 million people. A large body of evidence suggests that these individuals are more likely to have a usual source of care, more likely to receive preventive health services, and less likely to have unmet or delayed needs for medical care

Network Access Improvement Program

The State of Texas should support programs that seek to improve the population's access to care, especially those that promote primary care and preventive medicine.

The Network Access Improvement Program (NAIP) was designed to further the state's goal of increasing the availability and effectiveness of primary care for Medicaid beneficiaries by incentivizing health-related institutions and public hospitals to provide quality, well-coordinated, and continuous care. In short, HHSC may receive interagency transfers from these institutions and, along with federal matching funds, issue per-member per-month payments and primary care incentive payments for the provision of primary care services to Medicaid and CHIP clients. The program seeks to improve the availability of and Medicaid access to primary care physicians at teaching hospitals, enhance the coordination and continuity of services and quality of care of clients receiving services through those physicians, promote provider education on Medicaid program requirements and the needs of its clients, and measure progress in access and quality.

Among those taking part in NAIP are the Texas Tech University Health Sciences Center (TTUHSC) and UMC Health System. TTUHSC engaged Medicaid (Managed Care Organizations (MCO) in the creation and delivery of three program types: 1) A training program to increase resident, physician, and mid-level provider awareness of the specialized needs of patients with intellectual and/or developmental disabilities, 2) The maintenance of access to primary care and specialist networks for Medicaid clients, 3) A geographic gap analysis that will inform the expansion of telemedical services. Likewise, the UMC Health System engaged with three MCOs on seven initiatives, including a diabetes clinic, the expansion of a hospitalist group to include more physicians and dedicated social work and nursing support, in-home monitoring for interested clients with diabetes, an outpatient advanced illness clinic, a new pediatric clinic providing open access regardless of coverage, provider and client education, and an on-campus urgent care clinic aimed at reducing emergency room utilization.

For both institutions, the NAIP gives providers, clients, and MCOs an opportunity to increase access while improving the delivery of care.

than if they were uninsured. Consistently, research has indicated that people with Medicaid coverage fare much better than their uninsured counterparts on diverse measures of access to care, utilization, and unmet need. A large body of evidence further shows that, compared to low-income uninsured children, children enrolled in Medicaid are significantly more likely to have a usual source of care and to receive well-child visits and immunizations, and significantly less likely to have unmet or delayed needs for medical care, dental care, and prescription drugs due to costs.

The federal government currently subsidizes, via tax credit, marketplace health insurance premiums for households that earn from 100 percent to 400 percent of FPL. Texas adults earning below 100 percent FPL who do not qualify for Medicaid or for federal subsidies to purchase care on the insurance exchange fall into what is known as the "Coverage Gap." Nationally three million poor uninsured adults fall into the coverage gap. More than a quarter of people in the coverage gap reside in Texas (Kaiser Family Foundation, 2016b). In Texas there are 766,000 people that fall into the coverage gap, leaving them with no realistic options for affordable health insurance coverage (HealthInsurance.org, 2016).

Provider Participation in Medicaid

In order to improve access to care in Texas, it is important to address shortages in providers treating low income individuals. Among the challenges providers face are the administrative burden of participation in Medicaid, the complexity of many patients' needs, challenges in arranging mental health and specialty referrals, large patient panels associated with a general shortage of physicians, and lower reimbursement rates than other payers. Research in Washington has indicated that physicians may be optimistic about the ability of electronic health records and medical homes to mitigate challenges (Long, 2013).

With respect to reimbursement, Texas is one of 22 states that pays 75 percent or less for Medicaid physician fees when compared to Medicare physician fees. There are 24 states that pay physician fees at 75 percent to 100 percent and three that pay greater than 100 percent for services under state run Medicaid programs when compared to Medicare (Rosenbaum, 2014). Texas Medicaid pays approximately 65 percent compared to the federally-funded Medicare program (Walters, 2015). The percentage of Texas physicians willing to accept new Medicaid patients has fallen from 67 percent in 2000 to 31 percent in 2012 (Texas Medical Association, 2012a) and has increased slightly to 34 percent in 2015 (Longoria, 2015; Walters, 2015). In order to guarantee strong provider networks for low-income residents, Texas should pursue a comprehensive approach to improving provider experience and increasing participation in Medicaid.

From 2013 to 2014, the federal government provided additional funding that allowed states to increase Medicaid payments to primary care physicians to match payments for the same services through Medicare (Texas Medical Association, 2012b). These funds successfully sought to increase participation in Medicaid programs, especially primary care services, affecting a five percent rise in physician participation in Medicaid during this time (Longoria, 2015; Walters, 2015). However, the increase in payments was not made permanent by the Texas Legislature.

Other Policy Considerations

Generally, the racial/ethnic profile of health care providers in Texas does not reflect that of the population at-large. In addition to cultural preferences considered in the mental health chapter of this report, it has been shown that minority physicians are significantly more likely to care for minorities, the publicly insured, and uninsured patients (Flores & Lin, 2013). Likewise, a more diverse workforce may help address the need for linguistic competency within the health provider workforce. In the interim though, the standardization of payment mechanisms for interpreter services and their inclusion in health plans may improve access for the limited-English proficient population (Au, Taylor, & Gold, 2009).

Geographically, the expansion of telemedicine, the appropriate utilization of physician assistants (PAs) and advanced practice nurses (APNs), and stronger financial incentives for clinicians to practice in underserved areas may be useful (Kullgren et al., 2012).

Chronic Disease Prevention and Treatment

- **The State of Texas should identify and support evidence-based, population-oriented prevention and treatment programs that improve health and reduce total health care costs.**

Tobacco

Cigarette smoking remains the leading cause of premature death and disability in Texas and costs Texans nearly $11 billion annually in medical care and health-related productivity losses.

Given the severity and variety of smoking-related maladies, it is important that preventive efforts and smoking cessation programs be made available to all populations in the state. Research has shown that comprehensive school- and community-based programs are effective in reducing youth tobacco use. Such efforts include intensive instruction, teacher training, family engagement, and strict enforcement of laws. Following the Centers for Disease Control and Prevention's (CDC) "Best Practices User Guide: Youth Engagement," DSHS supports small grants for local youth-led groups to conduct recommended youth activities that involve adequacy and engagement within schools and communities to fight pro-tobacco influences. Additionally, the Texas Quitline provides smoking cessation support including coaching/counseling, referrals, mailed materials, health care provider training, web-based services, and free medications. Research has shown that these services, where available, are highly effective in helping tobacco users quit. To supplement these efforts, DSHS has also engaged health care providers in assessing all patients' tobacco use and informing them of available counseling and referral services through its Yes You Can Toolkit.

Given the economic and human costs involved with tobacco use, the Legislature should assure that all Texans, especially those most likely to smoke (e.g., minorities, those with low-income, and those living in rural areas), receive access to tobacco prevention and cessation programs.

Diabetes

Prevalence of diabetes in Texas has increased 57 percent over the past decade and is expected to continue to rise without further intervention. Annual direct and indirect costs of diabetes in Texas have been estimated at $18.5 billion.

Diabetes self-management education (DSME) has been shown to improve clinical outcomes and is currently required of managed care organizations under contract with Texas Medicaid. Furthermore, these interventions have been proven cost-effective through reduced hospital admissions and readmissions. In the state's last legislative session, a $7.6 million proposed exceptional item to fund greater community-based diabetes education programs did not pass. The Texas Diabetes Council continues to promote increased access to these services.

Additionally, gestational diabetes is a key challenge for low-income Texas women and their children given its status as a risk factor for type II diabetes for both. National guidelines set by the American Diabetes Association, the US Preventive Services Task Force, and key physicians groups have recommended that all pregnant women be screened for gestational diabetes at 24 weeks of pregnancy, regardless of the presence of symptoms. Yet, only 40-50

percent of women enrolled in Texas Medicaid and CHIP are screened. Medicaid managed care organizations should screen all pregnant women and, if diagnosed, provide appropriate management. Doing so will prevent complications, hospitalizations, and potential neonatal intensive care unit costs. Further, perinatal programs should refer covered individuals with gestational diabetes to an evidence-based lifestyle change program.

Diabetes is a considerable and growing problem in Texas. The Legislature should strive to identify and support evidence-based, cost-effective prevention and management programs. Doing so will help control future health care costs and provide future generations of Texans an equal opportunity to be healthy and to thrive.

Improving Quality in Health Care

Key Policy Recommendations

- **Identify and encourage the implementation of pay-for-performance models that ensure high quality care throughout the state.**
- **Promote wider adoption of health information technologies that benefit providers and patients in Texas.**
- **Partner with providers and health educators to empower Texans to better understand and utilize the state's health care system.**

Improving Quality In Health Care

The Case for ACOs

With the United States already having the most expensive health care in the developed world and costs still rising, policymakers, health care providers, researchers, and others have turned their attention to improving value and quality of care. The IOM has defined quality health care as "safe, effective, patient-centered, timely, efficient and equitable." Likewise, the federal Agency for Healthcare Research and Quality described quality as "doing the right thing for the right patient, at the right time, in the right way to achieve the best possible results" (NCQA, n.d.). The patient-centered approach, desire for integrated and coordinated care, and improvement in practice efficiencies are described in later chapters. These efforts, along with improvements in the design and use of information technology to prevent errors and improve efficiency, are expected to lead to better quality of care.

However, the improvement of quality must be accompanied by efforts to control costs, which will require a move away from traditional fee-for-service models of care and toward value-based payment systems (Stanek & Takach, 2014). Indeed, the National Committee for Quality Assurance (NCQA) explicitly states that payment for health care should be linked to quality, a position reflected in the reality that payers are increasingly turning to accountable care strategies. Accountable care consists of a provider, group of providers, or health system responsible for the health needs of a defined population; payments linked to the value, a measure of cost, quality, and quantity, of that care; and the reporting of reliable performance measures which can be used to measure that value (Stanek & Takach, 2014).

Accountable care initiatives generally encourage closer relationships between providers and their patients, as well as shared accountability along the continuum of care from primary care providers to specialists to hospitals. Generally, the most common accountable care strategy is the accountable care organization (ACO). While the introduction of ACOs is still relatively recent, they include private entities and Center for Medicare and Medicaid Service, covering about 14 percent of Americans. These ACOs were generally located in larger urban areas, and were most commonly led by physician groups and hospitals, with some directed by private insurers and community-based organizations (Barnes, et al., 2014). ACOs offer promising results for the reorganization of payment and delivery systems in a way that reduces costs and improves quality.

Forming an ACO

The American Hospital Association (AHA) has developed guidelines for the successful implementation of ACOs (2011). In order to be effective, ACOs should develop appropriately sized networks of physicians, both primary care and specialist, other providers, hospital access, and post-acute care organizations that together form the continuum of care. Additionally, ACOs will require supporting infrastructure, especially in the areas of information technology and quality reporting. This infrastructure is necessary for the efficient utilization of the provider networks intended to produce integrated and coordinated care. Finally, for an effective ACO, it is important to develop an overarching culture, reinforced with financial and other incentives, that affects innovation, quality, and value.

The adoption and meaningful use of information technology is a necessary component to the success of the ACO. It is expected that physicians will utilize electronic means to monitor patients' medical histories, work and follow up with patients and the other professionals who treat them, and take advantage of the best evidence-based care available. Likewise, patients should have the ability to utilize information technology to better manage their own care and avoid medical errors.

With respect to the functioning of ACOs, AHA has identified a number of considerations and best practices that should be considered as they are being formed. For example, a potential ACO needs to consider the size and composition of its patient population. This information is necessary to understanding the needed provider capacity of the ACO, with attention to both quantity and provider mix. Additionally, the ACO will need to consider the geographic area it will be serving and assure that providers are available across the entire area. In doing so, the ACO will identify and address gaps in its physician network and the services it provides,

Lessons from a Successful ACO

The State of Texas should identify best pay-for-performance practices and encourage their implementation across health systems.

In 2013, Memorial Hermann's ACO (MHACO) was the top performing Medicare ACO in the country with $57.83 million in generated savings. In June 2015, the journal *Health Affairs* referred to Memorial Hermann's ACO as a 'breakout superstar.' Memorial Hermann now makes its innovative MHACO available to Medicare, private payers, and directly to employers, resulting in increased access and opportunity for the orderly and economical delivery of health care services.

In addition to its 12 Memorial Hermann system hospitals, specialists, and other facilities, the Memorial Hermann ACO partners with hundreds of independent and affiliated physician practices to form the foundation of care provided to the ACO's patients. Christopher Lloyd, CEO of the MHACO, credited this ample physician network as a core reason for the ACO's early success. In an interview with DSHS staff, Mr. Lloyd described the process by which MHACO operates, reasons for its success, and challenges it faces.

A core value of MHACO is a true partnership between the hospital system and its physicians. This partnership serves to encourage the defragmentation of the various components of delivery and payment structures, ultimately reducing cost. Defragmentation is accomplished through superior data analysis focused on identifying patient risk for negative health events and implementing preventive protocols in patient care management and the delivery of health services. This partnership has contributed to MHACO's success and is being strengthened by organizational commitment to a culture of quality, a focus on evidence-based medicine, and a goal of continuous improvement driven by innovation within the organization and learning best practices from other ACOs. As the contracted network for Memorial Hermann employees, MHACO physicians have accomplished the following: consistent reduction in the ratio of medical supply expenses to net operating revenue, millions of dollars in yearly plan savings, and lower rates of hospital admissions, readmissions, and emergency room (ER) visits among others.

Among the challenges listed by Mr. Lloyd were the unending need for new and better data and the need for a cultural realignment for many physicians. In the case of the former, stepwise improvement in patient outcomes allows for further consideration of negative events and the identification and removal of one risk allows focus to turn to the next. To achieve continuous quality improvement, data collection and analysis are a core requirement of evidence-based medicine. Health information systems and analysts must have the capacity and ability to collect, analyze, and act upon the best data possible. In the case of the latter, there may be a need for physicians to recognize that health can be about the population and community as much as it is about the individual patient.

Finally, Mr. Lloyd offered a few recommendations for success. First, he recommended that health systems and physicians begin discussion on disease and negative event prevention as early as possible and re-orient their approaches toward this goal. Second, data systems must be carefully planned and selected to meet the current and future needs of those systems and physicians. Third, it is incumbent on systems and individual physicians to display strong leadership and a spirit of collaboration along the way.

including the recruitment of needed specialists and other arrangements to meet patient needs. The ACO must also consider the goals of its sponsors/member entities, reacting to any expectations and requirements they put forward. Finally, the ACO, as above, must ensure that the appropriate information technology infrastructure is in place (AHA, 2011).

Once formed, the ACO model must still be organized, and other issues remain. The AHA recommends that ACOs should be organized into efficiently-sized practice units of two to four physicians and their attendant nurse practitioners and PAs. Latter chapters describe how these 'extenders' can be most efficiently used in the provision of care. In sizing their practice units, ACOs must also be aware of the time that physician leaders will need to spend addressing issues of governance and management, as well as how physicians will be compensated for these efforts.

Quality Reporting

Using the IOM definition of quality described above, safety, efficacy, and efficiency are all key attributes in the ACO. Thus, there is an inherent need to objectively define and measure success towards these goals. As stated by Stanek, robust performance measurement strategies are needed to assure cost and quality accountability (2014). The NCQA has identified a need to better identify those elements which should be included in quality assessments, expand the extent to which these elements are measured, and improve internal and external reporting on these measures (NCQA, n.d.).

The NCQA has proposed a number of mechanisms by which states can act to improve quality. First, states may work to publicly report iatrogenic infections. In providing this transparency, both providers and consumers are equipped to make informed decisions in the delivery and receipt of health care services, respectively. States may also link payment with quality for health plans or physicians across a range of health plan provision options. States could provide information technology and infrastructure to providers to aid in the adoption of quality improvement efforts (NCQA, n.d.). After all, Medicare ACO reporting alone may call for 65 or more data measurements to be reported and there is a significant cost to extracting necessary data and producing the necessary reports (AHA, 2011). States can take action to encourage people to enroll in disease management programs, both through their oversight of health plans and through their public health apparatus. Doing so should provide plan and care providers with needed data to track patient progress and respond to patient need as necessary. Finally, states may require or encourage the collection of quality of care data from a greater range of providers, including physicians and other providers (NCQA, n.d.). As noted by Stanek, true accountability requires the ability to identify the provider to which a patient's cost and quality outcomes should be assigned, an argument noted in later chapters (2014). Currently, few patients make use of quality measures to inform their health care choices, and part of this accountability will require that reporting measures are formatted in a way that can be more easily understood by patients.

According to the NCQA, there is a common perception that the quantity of health care delivered is directly related to the quality of health care delivered. However in some cases, evidence suggests "we are wasting money and providing care of questionable quality" (n.d.). With high quality reporting data in hand, there is a need to evaluate the effectiveness of accountable care strategies across organizations and practices, in order to identify those that are most promising to improve quality and program design and the replication of successful efforts. In evaluating these strategies, researchers must ensure that payment structures overcome the incentives for ACOs to ration or deny care. Evaluation must ensure that ACOs are focused on quality improvement and not merely volume reduction. Evaluations should consider policies that promote incentives for ACOs with low-risk thresholds to promote prevention and health promotion efforts, resulting in improved population health. And finally, evaluations should measure the extent to which ACOs have created effective governance and information technology (IT) structures that are patient-centered and ensure integrated care across the continuum (Barnes, et al., 2014)). As accountable care innovations improve health care quality and slow health care costs throughout the health care system, in concert with both public and private payers, it is expected that accountable care organizations will continue to flourish.

Quality Recognition Programs

- **The State of Texas should seek to identify, recognize, and incentivize the highest quality health care delivery.**

Bridges to Excellence (BTE) is a program designed to recognize physicians for providing high quality care to their patients and, in doing so, assist insurers and employers in managing their costs. The program is premised on identifying select quality measures that impact clinical and economic outcomes, encouraging physicians to evaluate and manage patients on these measures, and rewarding physicians who are successful. BTE identifies two means of incentivizing physician participation: 1) the public and peer recognition that comes with BTE certification, and 2) financial incentives from insurers. In Texas, BlueCross BlueShield of Texas (BCBSTX) has sponsored BTE programs for diabetes, cardiac, and asthma care. As an example, BCBSTX's BTE diabetes care recognition program considers the random sample of a physician's diabetic population and assesses it on health measures, like HbA1c, blood pressure, and low-density lipoproteins (LDL) levels, as well as process measures like relevant specialist referrals and elicitation of tobacco status. If they meet the majority of benchmarks on these measures, physicians are eligible for per patient per year incentive payments.

Similar to the BTE program, the Leapfrog Group created the Hospital Safety Score as a means for consumers to make informed choices about their hospital care. In its 2015 iteration, 1,750 hospitals took part in Leapfrog's competitive benchmarking process, which considers both quality measures and resource utilization measures. Among the quality measures are computer physician order entry, evidence-based hospital referrals, maternity care outcomes, intensive care unit (ICU) physician staffing, National Quality Forum safe practices, and managing serious errors. This last category comprises the presence of a policy covering 'never events' (events that are clearly identifiable, preventable, and serious) and outcomes related to iatrogenic events. The resource utilization measures incorporate many of these same measures as well as readmissions and length of stay measures for acute myocardial infarction, heart failure, and pneumonia. Currently, Leapfrog can be used by consumers and health plans to identify and utilize high-performing hospitals. The program also recognizes top hospitals with its Hospital Safety Scores in specific categories: urban, rural, and children's hospitals. In 2015, Texas had three top hospitals in the urban category, two in the rural category, and three among top children's hospitals.

Health Literacy

Health literacy is "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" (Ratzan & Parker, 2000). Skills in reading, writing, numeracy, listening, speaking, and cultural and conceptual knowledge are components of health literacy (Nielsen-Bohlman, Panzer, & Kindig, 2004).

A variety of outcomes have been associated with lower or limited health literacy. Lower health literacy has been associated with increased hospitalization and emergency department visits and lower use of certain health care services such as mammography and influenza immunization, and reduced ability to manage medication correctly or interpret health information and labels (Berkman et al., 2011). Additionally, lower health literacy among seniors has been associated with a higher risk of mortality and poor general health (Berkman et al., 2011).

The National Assessment of Adult Literacy (NAAL), conducted in 2003, found 36 percent of the adult participants had below basic or basic health literacy, and only 12 percent of adults were considered

proficient (Kutner, Greenberg, Jin, & Paulsen, 2006). Overall, minority racial/ethnic groups, those who spoke languages other than English before starting school, adults of age 65 and older, adults who did not complete high school, and adults living under the poverty level had lower health literacy on average (Kutner et al., 2006). Additionally, there was lower average health literacy among the uninsured or adults who received Medicare or Medicaid, and among those who self-reported lower levels of overall health (Kutner et al., 2006).

Federal agencies have established goals and made recommendations regarding improving health literacy. Healthy People 2020 addresses health literacy, communication from healthcare providers, and the usability and access of online health information in its objectives (2014). In 2004, the IOM recommended that "professional schools and professional continuing education programs in health and related fields, including medicine, dentistry, pharmacy, social work, anthropology, nursing, public health, and journalism, should incorporate health literacy into their curricula and areas of competence" (Nielsen-Bohlman, Panzer, & Kindig, 2004). However, a recent survey of US family medicine residency programs found less than half of responding programs (42 percent) included health literacy training in the required curriculum (Coleman, Nguyen, Garvin, Sou & Carney, 2016).

The Health Resources and Services Administration (HRSA) outlines health literacy best practices for healthcare professionals:

- Identify patients with limited literacy levels
- Use simple language, short sentences and define technical terms
- Supplement instruction with appropriate materials (videos, models, pictures, etc.)
- Ask patients to explain your instructions (teach back method) or demonstrate the procedure
- Ask questions that begin with "how" and "what," rather than closed-ended yes/no questions
- Organize information so that the most important points stand out and repeat this information
- Reflect the age, cultural, ethnic and racial diversity of patients
- For Limited English Proficiency (LEP) patients, provide information in their primary language
- Improve the physical environment by using lots of universal symbols
- Offer assistance with completing forms (USDHHS, HRSA, n.d.)

Many agencies provide tools and resources for improving health literacy. The Agency for Healthcare Research and Quality's (AHRQ) Health Literacy Universal Precautions Toolkit provides primary care practices with guidance in implementing health literacy universal precautions to simplify health communication and the healthcare system, as well as support patients and ensure their understanding of health information (USDHHS, AHRQ, 2016). The National Action Plan to Improve Health Literacy aims to improve health literacy through seven goals and strategies to achieve those goals; the plan can be used as a framework by other organizations (USDHHS, Office of Disease Prevention and Health Promotion [ODPHP], 2010). The ODPHP also provides Health Literacy Online, a guide to improving the usability and accessibility of digital health information tools (2015). The Plain Language Action and Information Network maintains a website with guidelines, tools, and resources to assist with using plain language (The Plain Language Action and Information Network, n.d.).

One program using plain language in health communication is the Choosing Wisely initiative, launched by the American Board of Internal Medicine in 2012 (Choosing wisely, 2016a & 2016b). The Choosing Wisely initiative seeks to promote conversations between the patient and healthcare provider about appropriate to reduce waste and unnecessary treatments (2016a). Choosing Wisely uses educational materials developed by Consumer Reports which are "patient-friendly," and some of the materials are also available in Spanish (2016c).

There are many health literacy organizations and initiatives throughout the US at the local, state, and regional level. For example, Iowa, Kansas, Missouri, and Nebraska participate in a regional collaboration, sharing information and ideas regarding health literacy (CDC 2014). Health literacy initiatives in Texas include the Literacy Coalition of Central Texas and the San Antonio Health Literacy Initiative. The Literacy Coalition of Central Texas provides health

literacy curricula, tools, consulting, and training to healthcare providers, educators, and other health agencies (2016). The San Antonio Health Literacy Initiative seeks to raise health literacy awareness and serve as a resource to address health literacy in the San Antonio area (n.d.).

Certain Texas statutes address health literacy, but only for specific populations in specific situations. Under the Texas Government Code, a HHSC's plan to reduce hospital emergency room use by Medicaid recipients may include a health care literacy program and access to bilingual providers (4 Texas Government Code Section 531.085). 19 Texas Administrative Code Section 115.2 (a) states "kindergarten students are taught basic factors that contribute to health literacy." A statewide health literacy initiative or training requirement for healthcare professionals should bolster the currently limited efforts to improve health literacy in Texas.

Widening the Education Pipeline for the Health Professions

Key Policy Recommendations

- **Ensure the state's physician workforce is able to meet Texans' needs through the continued support of medical and graduate medical education.**
- **Identify and implement strategies to increase the number of clinical training sites available to nurses, physician assistants, and other health care professions.**
- **Incentivize health care professionals to select specialties, employment settings, and geographic locales that reflect the needs of the state.**
- **Improve data collection across state agencies and develop complex, multidisciplinary health workforce projections.**

Educational Pipeline of Health Providers

Supply and Demand of Health Professionals in the State

One key to ensuring that health care services and facilities are available to all Texans in an orderly and economical manner is to ensure that the state has a well-trained and ample workforce of health professionals. Such a workforce should be large enough to meet the needs of its clients, but also must be available across the state, in geographically disparate areas. As the population of the state continues to grow, so too must the state's investment in the training of health professionals at all levels.

Generally Texas has fewer practitioners per capita than the national average in all of the key health professions. In addition to the access issues noted in the previous chapter, health professions data show that rural and border areas have far fewer practitioners per capita than do metropolitan and non-border areas, respectively. These data also demonstrate that large proportions in many professions are older and expected to retire in the next decade or so. Finally, these data indicate that the health care workforce is far from being representative of the general Texas population with respect to race/ethnicity. The state should continue to research and invest in programs that ensure Texans have easy access to care, regardless of the region of the state in which they live, that the state's future health care workforce is of sufficient size and well-prepared to serve the needs of the state, and that Texans have access to providers who provide linguistically and culturally competent care. An essential component of achieving these goals will be for the state to invest in the education of health professionals and to implement programs that embrace innovation and ensure the state's future health professionals are equipped to deliver care in the best, most cost-effective manner possible.

While the following briefly summarizes the health professions workforce, more complete portraits of select health professions are available in Appendix A.

Physicians

In 2015, there were 49,122 actively licensed physicians providing direct patient care (DPC physicians) in the State of Texas. Among these, 19,902 practiced primary care and 2,052 practiced psychiatry. In the past ten years, the number of DPC physicians in the state relative to the population has improved by 12.2 percent. Likewise, the primary care physician workforce has improved by 4.8 percent over this time period while the psychiatric workforce has improved by 12.7 percent. Despite these improvements, Texas lags behind the nation in the number of physicians relative to the population, with the magnitude of this deficiency dependent upon specialty.

The THECB reported in 2015 that Texas medical schools had increased their enrollments by 30 percent over the prior decade. The agency's projections also estimated that the number of medical school graduates would continue to rise as new medical schools open and existing schools increase their capacity. In the past two legislative sessions (83rd and 84th), the Texas Legislature has encouraged the expansion of graduate medical education (GME) programs through new programs and increased appropriations toward that purpose. However, as medical school enrollments continue to rise, appropriations for graduate medical education should continue to increase so that Texas retains its own medical school graduates and continues to attract top out-of-state graduates to its state-funded residency programs.

In the 84th Legislative Session, Senate Bill 18, among other objectives, directed the DSHS to conduct research on physician workforce shortages and the graduate medical education system. Over time, reports on this research will identify critical physician shortage levels by specialty and subspecialty, with consideration of geographic distribution, and inform stakeholders and policymakers on the needs of the state's graduate medical education system.

Nurses

In 2015, there were 215,436 licensed registered nurses practicing full- or part-time in nursing in Texas. Considering population growth, the number of nurses in Texas has increased by 18.8 percent over the past ten years. Likewise, the number of advanced practice nurses (APNs or APRNs) has increased by 37.6 percent relative to population over the past eight years to 16,863. Among these, there were 12,421 nurse practitioners (NPs), 3,275 certified registered nurse anesthetists (CRNAs), 1,210 clinical nurse specialists (CNSs), and 362 certified nurse midwives (CNMs). As with the majority of health professions, RNs and APNs are not evenly distributed across the state.

Data from a joint Texas Board of Nursing and DSHS' TCNWS report show that there are considerable challenges in nursing education. First, Texas' professional nursing schools (graduation from which is a requirement to become a registered nurse (RN)) report not offering admission to between 30 and 40 percent of qualified applications over the past several years. Indeed, an increasing number of programs cite a lack of clinical space for limiting admissions to qualified applications. Moreover, total enrollment in professional nursing programs has decreased in each of the past two years, falling from a high of 24,178 in 2013 to 22,900 in 2015. This is a 5.3 percent decrease in nursing student enrollment in two years. Given this falling enrollment, it is no surprise that the number of professional nursing graduates fell for the first time in the 12 year history of this report. These trends are especially concerning given preliminary projections released by TCNWS that describe a current deficit of over 17,000 RN full-time equivalents – a shortage of 8.6 percent - and a projected RN shortage in 2030 of over 66,000 nurses – 24.5 percent of the projected workforce.

Of the 32 APN programs across 26 schools, 24 programs were unable to offer admission to all qualified applications. In fact, in 2015 programs did not offer enrollment to 44.2 percent of qualified applications. Despite these restrictions, overall enrollment in APN programs grew 39.3 percent from 2011 to 2015, with growth being driven entirely by NPs for whom enrollment grew by 51.2 percent over the same period. Among CRNAs, CNSs, and CNMs, enrollment decreased for each over this period.

In order to continue to grow the RN and APN workforce, Texas will have to ensure nursing education programs are well-supported. Currently, schools cite two common limitations to increasing enrollments: a lack of clinical space and nursing faculty shortage. To address the problem of clinical space, Texas should expand the types of clinical settings available for use as training sites and identify how simulations can be used most effectively to prepare students with the expertise to provide competent nursing care. With respect to nursing faculty shortages, Texas should increase salaries to make them more competitive.

Physician Assistants

In 2015, there were 7,067 physician assistants in Texas. This was an improvement of 3.7 percent in the past ten years relative to population. This small growth has resulted in Texas having just 72 percent of the number of physician assistants in the nation as a whole. From 2011 to 2015, there were 2,118 physician assistant graduates from Texas public colleges and universities. There were 482 graduates in 2015, up from 362 in 2011, a 33.1 percent increase in the number of graduates.

Similar to needs for nurses, a survey of members of the Physician Assistant Education Association identified the need for clinical training sites and preceptors across a number of medical specialties. For example, 77.1 percent of programs described their ability to secure clinical training sites for general pediatrics as difficult or very difficult. Likewise, 83.9 percent of programs found difficulty in securing sites for women's health and obstetrics/gynecology (OB/GYN) training, 49.7 percent of programs struggled to find behavioral/mental health sites for their students, and most other specialties had results between 20 and 40 percent. The difficulty in securing clinical preceptors was fairly similar across specialties.

Pharmacists

In 2015, there were 24,854 pharmacists in Texas. This is a 20.5 percent improvement relative to population growth over the past ten years. Despite this improvement, Texas still has just 85 percent of the workforce relative to population as the nation as a whole. Between 2011 and 2015, 3,106 individuals graduated from Texas' five public pharmacy schools, though the number of pharmacist graduates in individual years decreased 1.7 percent from 637 in 2011 to 626 in 2015.

Dentists

In 2015 there were 13,018 dentists in the state of Texas, 9,948 of whom were classified as general dentists. Respectively, these number represent 10.6 percent and 24.4 percent increases in the past 10 years, resulting in a Texas dentist workforce 97 percent as robust as the nation as a whole. From 2011 to 2015, there were 1,420 dentists who graduated from Texas' public schools of dentistry. In 2015 there were 293 graduates, while in 2011 there were 289. This is an increase of 1.4 percent.

Psychologists

In 2015 there were 4,345 licensed psychologists and 3,151 licensed specialists in school psychology

(LSSPs). This is a 6.7 percent improvement in the past ten years in the number of licensed psychologists, controlling for population growth. Among LSSPs, the improvement is 20.1 percent. In comparison to national estimates, Texas has between 60 and 65 percent of the psychologists of the nation as a whole. In 2015, 125 individuals graduated from Texas' public colleges and universities with a doctorate in psychology (Psy.D.).

Social Workers

In 2015, there were 21,812 licensed social workers in Texas, 7,131 of whom were licensed clinical social workers (LCSWs). Relative to population growth, the number of each grew by 13.4 percent and 26.5 percent over the past ten years. In 2011, there were 807 Master of Social Work degrees awarded by Texas public colleges and universities and in 2015 there were 1,193, an increase of 47.8 percent. While federal numbers do not allow for perfect comparison, it is certain that Texas lags behind the nation in social workers per capita.

Marriage and Family Therapists

In 2015, there were 3,215 marriage and family therapists (MFTs) in Texas. This has resulted in a 4.5 percent improvement in the past 10 years in the population to MFT ratio, even controlling for Texas' increased population. As with many health professions, Texas has far fewer MFTs than the national average. The Texas Workforce Commission (TWC) estimated that the MFT workforce would grow by 28.1 percent between 2012 and 2022.

Licensed Professional Counselors

In 2015, there were 21,271 licensed professional counselors (LPCs) and LPC interns in Texas. Over the past ten years, the number of LPCs relative to the population has improved by 38.3 percent. Because of imperfect comparison, it is unclear how Texas compares to the national average for LPCs.

Occupational and Physical Therapists

Occupational therapists (OTs) develop and enact rehabilitative programs that help build or restore daily living skills and general independence to persons with disability of developmental delay. By comparison, physical therapists (PTs) develop and employ rehabilitative programs that improve or correct disabling conditions due to injuries or disease. In 2015, there were 8,307 OTs, 4,158 occupational therapy assistants, 13,922 PTs, and 7,495 physical therapy assistants. The number of OTs has improved by 2.9 percent relative the population, while the number of PTs has improved by 26.4 percent over the past ten years. Texas now has approximately 86 percent of the OTs and 74 percent of the PTs as the nation as a whole. Occupational therapy and physical therapy share a code under the National Center for Education Statistics' Classification of Instructional Programs, resulting in 2,151 therapists graduating with a master's degree in their respective field over the past five years, increasing 16.8 percent from 381 graduates in 2011 to 445 in 2015. The TWC estimated that the OT workforce would grow by 29.7 percent and the PT workforce would grow by 32.2 percent between 2012 and 2022.

Speech Language Pathologists

Speech-language pathologists (SLPs) assess and treat people with speech, language, voice, and fluency disorders. There were 12,588 SLPs in Texas in 2015, with another 4,278 speech-language pathology assistants. While SLP data were unavailable in 2005, the number of SLPs relative to the population improved by 23.2 percent between 2006 and 2015. Unlike the majority of health professions, Texas has roughly 115 percent of the SLPs that the nation as a whole has, relative to population. In 2011, Texas public colleges and universities matriculated 226 graduates. In 2015, there were 239 graduates, representing an increase of 5.8 percent. The TWC estimated that the SLP workforce would grow by 25.6 percent between 2012 and 2022.

Community Health Workers

Community health workers (CHWs), or promotores, serve as liaisons between health care and social services and community members. Relying on personal experience and built trust, the CHW assists community members in navigating health and social services, increases health knowledge and literacy in the communities they serve, and provides informal social support to clients. Texas currently has 3,457 CHWs, while in 2005 there were just 520. Relative to the Texas population, this is an improvement of 81.9 percent. Texas has 91 percent of the number of CHWs as the nation after controlling for population size. The TWC estimated that the CHW workforce would grow by 26.0 percent between 2012 and 2022.

Medical and Clinical Laboratory Technologists

Medical and clinical laboratory technologists (MCLTs) conduct laboratory tests used by other health care providers to diagnose, treat, and prevent disease. As this occupation is not licensed or certified by the State of Texas, DSHS is unable to collect data on the number of medical and clinical laboratory technologists. However, the federal Bureau of Labor Statistics estimates that there are 12,560 MCLTs in Texas and that Texas has fewer per capita than the nation. In 2011, there were 334 clinical lab scientist graduates from Texas' public colleges and universities, with this number increasing to 403 graduates in 2015. These numbers include the clinical laboratory science/medical technology certificates issued by Tarleton State University to students already holding a bachelor's degree. The TWC estimated that the MCLT workforce would grow by 23.4 percent between 2012 and 2022.

Interprofessional Collaboration in Texas

A renewed focus on interprofessional education and collaborative practice in the Texas medical education system aims to improve health outcomes at both the individual and population levels (Pechacek, et al., 2015). The World Health Organization (WHO) defines interprofessional education (IPE) as "two or more professions learning about, from and with each other to enable effective collaboration and to improve health outcomes (Luftiyya, et al., 2015)." The United Kingdom Centre for the Advancement of Interprofessional Education expands on the WHO's definition and adds collaborative practice to the educational component of interprofessional education. A collaborative was formed within the U.S. to further define and standardize interprofessional education and collaborative practice (IPECP).

In an effort to standardize and promote IPECP throughout the U.S. six national education organizations developed a collaborative. These organizations include the American Association of Colleges of Nursing, American Association of Colleges of Osteopathic Medicine, American Association of Colleges of Pharmacy, American Dental Education Association, American Association of Medical Colleges, and the Association of Schools and Programs of Public Health. This new Interprofessional Education Collaborative (IPEC) defined and standardized competencies in the areas of values/ethics, roles and responsibilities of health professionals, interprofessional communications, and teams and teamwork (Luftiyya, et al., 2015). These competencies have been adopted and implemented to varying degrees throughout the Texas medical education system.

The University of Texas at Austin's Dell Medical School, which opened in May of 2016, has incorporated interprofessional education and collaboration as a major component of their new curriculum. Students will follow a curriculum based on the competencies defined by IPEC and partner with other University of Texas Austin schools, including students in nursing, social work, pharmacy, nutrition, and public health (Dell Medical School, 2016). Other established medical schools, for example the University of Texas Health Science Center at Houston, have established the Center for Interprofessional Collaboration (CIPC) in an effort to promote IPECP. The CIPC has developed a free educational program for its students, the Deans' Honors Colloquium in Interprofessional Collaboration, which aims to develop the IPEC competencies over a four session program. Students from the schools of nursing, public health, dentistry, biomedical informatics, and the medical school are able to take part in the program (UTHSC, 2016). The University of North Texas Health Science Center (UNTHSC) has developed a similar program for its health care profession students that incorporates knowledge based and demonstrative based learning activities (UNTHSC, 2016).

IPE and training has been incorporated to a lesser extent in many of Texas' other medical schools, including the Baylor College of Medicine, the University of Texas Health Science Center San Antonio, the University of Texas Medical Branch, and TTUHSC (TTUHSC, 2016; UTHSC-SA, 2016; Baylor College of Medicine, 2016). Baylor College of Medicine and the University of Texas Health Science Center San Antonio provide courses and opportunities for interprofessional training, but do not have established curriculum similar to some of the larger schools. TTUHSC integrates IPE training programs throughout all of their health profession schools through required online learning modules. Along with the online modules TTUHSC will begin requiring all graduates to have completed a

course in interprofessional practice, beginning in the fall of 2016. Finally, TTUHSC encourages learning through simulation experiences and regional/national team competition.

The Texas A&M Health Science Center has developed a state of the art facility to provide their students with IPECP skills and training. The Clinical Learning Resource Center is a 27,000 square foot facility that is designed to provide a realistic hospital setting. The hands on training includes medical, pharmacy, public health, veterinary, and nursing students and provides real world simulations and learning experiences (Texas A&M HSC, 2016).

A systematic review of IPE programs provided insight to challenges and lessons learned in the development of IPE education in academia (Sunguya, et al., 2014). IPECP programs have been developed based on competencies established by the IPEC. To date, there is no accredited and standardized curriculum beyond the recommended competencies that medical schools can integrate into their programs (Sunguya, et al., 2014). An established curriculum would provide school systems that may not have the resources to fully develop and implement these programs an opportunity to provide better IPECP training to their students. Challenges for smaller medical school programs include the lack of resources both physical and curriculum based, and the variety of health professions represented. Large school systems often represent a variety of professions, nursing, medical, pharmacy, dental, etc. who's faculty and students can be incorporated into IPE training. Smaller schools experience logistical challenges when they have to coordinate with many partners in order for their students to collaborate with the same variety of health professions. All programs in the study experienced challenges regarding the use of professional jargon. To ensure the maximum participation and understanding of different medical terminology many schools have provided informational handouts and reference material to help students translate often technical terminology. The final challenge the review discussed regards stereotypes and attitudes ingrained in the healthcare community. Trainers often give preference to their own professions, which can impact students from the other professions. Medical doctors have also traditionally taken the lead in our healthcare system, which can hinder interprofessional teamwork (Sunguya, et al., 2014). The integration and exposure of IPE to students will help to change the traditional norms imbedded in the US healthcare system.

Regardless of the level of implementation of IPECP, all of Texas' medical schools understand the importance of IPECP and are working to provide their students with the skills required to better health outcomes in our complex healthcare system. Established institutions are working to integrate IPECP into their curriculums while new institutions, specifically Dell Medical School, have the opportunity to develop their curriculum based on the competencies established by the IPEC.

Improving the Training of Health Professionals

Preceptorship and Transition to Practice Programs in Nursing

In 2011, the IOM published The Future of Nursing: Leading Change, Advancing Health. This report recommended a series of concrete policy and administrative changes that would allow the American healthcare professions to deal with the country's healthcare workforce needs. As a means of partially addressing the country's shortage of highly-qualified practicing nurses, the IOM report notes exceptionally high turnover rates among first-year nurses. It recommends that employers of newly hired nurses seek to ease the transition by implementing transition to practice (residency) programs.

There is considerable literature and research on transition to practice programs that show programs that had an established transition to practice program had higher retention rates (Spector et al., 2015a; Spector et al., 2015c; Blegan et al. 2015). The IOM also stated that transition to practice programs have thus proven economically prudent with returns on investment as high as 884 percent, while also leading to increased first-year nurse satisfaction and improved quality of care. The TCNWS asked hospitals, long-term care facilities, governmental public health agencies, and home health and hospice agencies in Texas if they offered a transition to practice program. In 2014, 70.3 percent of responding hospitals and 34.5 percent of responding long-term care facilities reported having a transition to practice program. In 2015, 33.5 percent of responding home health agencies had a transition to practice program in 2015, while only 8.6 percent of responding governmental public health agencies reported having such a

Innovations in Health Professional Education

The State of Texas should continue to identify and implement innovative programs that promote students to enroll in and complete their studies in the health professions.

The Primary Care Pathway Program (PCPP) put into place by the University of North Texas Health Science Center (UNTHSC) allows high schools graduates to become physicians in just seven years. This innovative collaboration begins with two years of full-time study at Midland College, along with a clinically-oriented summer program at Midland Memorial Hospital in their first year and a medical sciences-related program at the UNTHSC-Texas College of Osteopathic Medicine (UNTHSC-TCOM) in the second. Successful students then spend one year at the University of North Texas before gaining automatic admission into UNTHSC-TCOM for four years of full-time medical education. In addition to recruiting students from the Midland area to the medical field, this program reduces a student's overall time and expense in obtaining a medical degree and attracts students to a medical school skilled in producing primary acre and rural physicians.

In similar efforts to improve the educational pipeline for the health professions, the Tarrant County College District's Trinity River Campus (TCCD-Trinity) has undertaken multiple efforts. For example, it has linked with an early college high school, the Texas Academy of Biological Sciences in Fort Worth, and the UNTHSC to provide students with early access to college credit in the health professions and a seamless transition to future studies. TCCD-Trinity has also established a face-to-face bridge program with Tarleton State University and online bridge programs with the University of Texas-Arlington, Texas Tech University, and the University of Texas at Tyler. Such programs allow successful associate-level nursing graduates to continue their studies in a Bachelor's program, supporting general goals to increase the number of RNs with Bachelor's degrees. Finally, this campus is adding additional programs that will provide training in licensed vocational nursing, sonography, computer tomography, and nuclear medicine.

Finally, to increase the future number of nurses, the THECB to establish the Uniform Pre-Nursing Curriculum Advisory Committee for the purpose of standardizing prerequisite courses for and assuring the ability to transfer course credit between undergraduate professional nursing programs. At its April 2016 meeting, this committee recommended that admission to baccalaureate professional nursing programs require two courses in anatomy and physiology, and a single course in each of microbiology, chemistry, general psychology, human growth and development, and mathematics.

program.

Moreover, hospitals were more likely to retain their newly hired nurses who had preceptor support (Blegan et al. 2015). Newly licensed RNs with preceptor support had higher competence ratings than those newly licensed RNs who did not have preceptor support (Blegan et al, 2015). TCNWS tracks the total number of precepted clinical practice hours required in all Texas APN education programs, and not all programs required precepted clinical practice hours. Most programs (22 out of 27) required precepted clinical practice hours for family NPs, but less than half of Texas APN programs required precepted clinical practice hours for other nurse practitioner tracks. All the APN programs that offered a clinical nurse specialist degree in Texas required precepted clinical practice hours, while four

of the five nurse anesthetist programs required the same.

Additionally, depending on degree, role, and track, the number of required hours ranged from 450 to 2,250. It is imperative to ensure all advanced practice programs provide more hours for students because students who had preceptors had reduced fears and anxiety and increased confidence and clinical knowledge (Spector et al. 2015b). Payne (2016) also stated that nursing students who participated in a transition to nursing program were confident and more aware of their abilities. However, these positive outcomes were considerably better when new graduated and preceptors had more time to learn, apply content, work with each other, and obtain feedback (Spector, 2015b).

Transition to practice programs provide a strong foundation for new nurses that allows them to be successful in the workplace and is economically prudent. However, transition to practice programs must not only be standardized but also tailored to the type of facility where it will be used (Spector 2015c). In order to be more successful, Spector (2016b) recommends that the following characteristics be a part of all transition to practice programs:

- A formalized program that is integrated into the institution, with support from the chief nursing officer and other administrators.
- A preceptorship, as well as a preceptor who was educated for the role.
- A program length of 9 to 12 months.
- Content in patient safety, clinical reasoning, communication and team-work, patient-centered care, evidence-based practice, quality improvement, informatics, feedback, and reflection.
- Time for new graduates to learn and apply the content with and to obtain feedback and share their reflections.
- Time for the preceptors to work with and connect with the newly graduated nurses.
- Customization so that the new graduates learn specialty content in areas where they are working.

Practice Choices of Health Professionals

Choice of Specialty

The choice of specialization regarding physicians begins in medical school and is ultimately made when a student chooses a residency or graduate medical education program. Physicians have indicated that perceptions of personal satisfaction, scholastic and academic challenge, and the potential commitment to patient care were influences in deciding where to specialize (Wright & Orcutt, 2011). The ability to influence patient care and personal lifestyle were also factors (Chen, et al., 2013) but overall the greatest factor in deciding where to specialize pertains to debt vs. anticipated income (Grayson, Newton, & Thompson, 2012; Center, et al., 2009). The disparity in potential annual salary can range from $189,000 for a pediatric physician to $421,000 for a physician in orthopedics. The differences in average salary for primary care $195,000 when compared to a specialist $284,000 is a major factor considered when medical students choose a career path (Peckham, 2015). Income potential for students that incur large amounts of debt is a primary consideration when choosing where to specialize (Chen, et al., 2013; Grayson, Newton, & Thompson, 2012; Center, et al., 2009).

PAs, similar to physicians, consider intellectual challenge, commitment to patient care, professional satisfaction when choosing where to specialize. The overall environment of the practice, nature of patient care, lifestyle, and employment opportunities were also significant factors in determining where physician assistants choose to specialize (Wright & Orcutt, 2011).

The Texas Statewide Primary Care Preceptorship Program, administered by the THECB, provides direct funding to Texas medical students to encourage them to choose primary cares. Students in the program spend one month, typically in the summer during their first and second years of medical school, working in a primary care office. Students are able to select a practice from a volunteer faculty database of over 1,400 practicing physicians in family medicine, internal medicine, and pediatrics. Though the program dates to 1978, it was unfunded by the 82nd and 83rd Texas Legislatures, before receiving a $3 million appropriation by the 84th Legislature. Likewise, the THECB's Primary Care Innovation Grant Program, created by the 83rd Legislature, funded five grants to medical schools with the goal of providing students with early and sustained exposure

to primary care. The SHCC supports programs such as these that seek to broaden the pool of potential primary care physicians.

The SHCC supports programs that act to ensure Texans will have access to the types of providers they need, including primary care and mental health professionals.

Pursuing Advanced Education

Health professionals in the field of nursing are able to practice with degrees ranging from associates to doctoral degrees. With most nurses working toward advanced degrees while simultaneously working full time, financial assistance to include paid time off is a top consideration. Nurses have also identified geographical proximity to institutions of higher learning and the availability of mentors as determining factors in the choice to advance their education (Cathro, 2011).

The IOM's Future of Nursing report recommends by the year 2020 the proportion of nurses with a baccalaureate degree increase from 50 percent to 80 percent. Based on the IOM recommendations tuition reimbursement, incorporating salary differentials and promotions are needed to encourage more nurses to advance their education (IOM, 2011). Additional private and public funding programs are also recommended by the IOM to ease the financial burden of advanced education for baccalaureate, masters, and doctoral level nursing programs.

Becoming Faculty

In addition to the need for more highly trained providers, Texas has a need for additional faculty to provide this training. Generally, health professionals are able to earn far more in health care delivery than as faculty. Additionally, faculty are often required to have more advanced education, applied experience, and professional credentialing.

As an illustration of the challenges of facing faculty, this report highlights those found in nursing. Shortages of nursing faculty has driven research into the costs and benefits weighed by nurses considering entering academia. The primary benefit nurses have identified in becoming faculty is the ability to work with students and help shape the future of the nursing profession. Low compensation for nurse faculty is a cost that must be considered when deciding to enter the academic environment. The annual salary for a master's level NP is 24.4 percent higher than the average annual salary of a masters level nurse faculty. Lower salaries have accounted for an understaffed workforce, which in turn has increased the workload and pressure to perform multiple roles for current nursing faculty (Evans, 2013). The IOM's Future of Nursing report recommends academic administrators and universities increase salary and benefit packages to levels that are competitive with the nursing workforce thereby confirming the current economic conditions are a major factor in the recruitment and retention of nursing faculty (IOM, 2011).

In Texas, a considerable concern is also the age of faculty. For example, schools of nursing have the highest median age of nurses among employment settings and over half of all nursing faculty are aged 57 or above.

Currently, the THECB administers the Nursing Faculty Loan Repayment Assistance Program. This program seeks to attract qualified nurses to serve as faculty by providing loan repayment assistance up to $7,000 per year. Additionally, this program is not directly appropriated funds, but must rely on excess available funds from the Physician Education Loan Repayment Program.

The SHCC recommends expanding faculty loan repayment programs to include other health professions fields with critical shortages, as well as ensuring that the magnitude of repayment assistance provided to an individual practitioner provides proper incentive for faculty service.

Geographic Area

Efforts have been made at the state and national level to encourage health professionals to practice in rural and underserved areas. Rural areas may provide fewer opportunities for advanced education due to their distance from academic institutions and have a potential for lower income in a payment system based on the number of patients seen or procedures completed (TDA, 2016; TCPO, 2016). To attract health professionals to rural areas the Texas Department of Agriculture designed the Rural Communities Healthcare Investment Program (RCHIP). This program is designed to offer non-physician healthcare professionals, dentists, and mental health professionals, incentives such as stipends and loan repayment assistance in exchange

for their commitment to practice in underserved areas (TDA, 2016). The DSHS Texas Primary Care Office offers several programs to encourage health professionals to practice in rural areas to include the National Health Service Corps and the Physician Education Loan Repayment Program, which provide financial incentives in exchange for practicing in health professional shortage areas (TCPO, 2016). A federal program, Nurse Corps Loan Repayment Program is also offered to RNs and APNs in exchange for working in designated Health Professional Shortage Area (HPSAs).

TTUHSC's Permian Basin campus has created a rural residency track designed to appeal to physician residents interested in family and community medicine. Residents selected for this program work one-on-one with a family physician to provide a full spectrum of care including, general and preventative medicine, operative procedures, surgical obstetrics, and Texas-Mexico "border medicine". These residents spend their first year of residency in Odessa and then the next two in either Andrews or Fort Stockton.

The SHCC recommends additional programs that ensure Texans will have access to all types of needed health care providers regardless of the area of the state in which they reside.

A Vision for Primary Care in the State of Texas

Key Policy Recommendations

- **Encourage the formation of team based care models that fully integrate advanced practice nurses, physician assistants, pharmacists, and community health workers into the collaborative provision of primary care services.**
- **Evaluate innovative, evidence-based and cost-effective primary care delivery models such as accountable care organization and patient-centered medical homes and encourage the spread of the most effective models.**
- **Reward physicians and other health care professionals who provide preventive care in a team-based environment.**

The Need for Primary Care

"Our country would be better served if an adequate supply of primary care services were available" (Smith S. R., 2011).

In a recent comparative ranking of the nation's health care system with those of ten other industrialized nations, the U.S. ranked last overall and last in each of the following categories: cost-related problems in access to care, efficiency, equity, and healthy lives. Moreover, estimates of U.S. spending on health care per capita and as a percentage of Gross Domestic Product (GDP) were far higher than those seen in any of the other ten countries. Despite this high spending, the U.S. ranked 5th overall (out of 11 countries) in the composite measure of quality of care, a ranking attributable to the effectiveness and patient-centeredness of care in the U.S. (Davis, Stremikis, Squires, & Schoen, 2014). Given the ranking of our nation's health care system, improvement is possible and necessary in many areas. As the IOM has pointed out, the U.S. has established medical research and specialty care systems that are among the best in the world, yet it has "failed to balance its investments in primary care,[1] public health, prevention, and the broader determinants of health, a problem clearly demonstrated by its low rankings in overall health statistics" (Institute of Medicine, 2012). It has been consistently reported that patients with a usual source of care, of which primary care is the most economical, have access to preventive services, generally lower utilization rates and thus costs, greater patient satisfaction, and fewer emergency room (ER) visits (Freidberg, Hussey, & Schneider, 2010). There are numerous other advantages to a robust primary care system (Institute of Medicine, 2012):

- Areas with the highest numbers of primary care providers have the best health outcomes.
- People who consistently receive care from a primary care provider have better health outcomes than those who do not.
- Multiple elements of primary care provision are associated with good health.
- The availability of primary care services is associated with a reduction in health disparities.

Evidence for Primary Care

Following from the above, primary care should be considered as more than merely a specialty of medical providers, but should instead be considered as the focus of the health system. This distinction demands fewer and lower barriers for patient access to primary care services, greater communication and care transition between primary care providers and other specialists, and local norms that encourage the use of primary care for new health conditions. Such an orientation can lead to better outcomes and lower costs based on international comparisons and those between states having varying levels of primary care integration (Freidberg, Hussey, & Schneider, 2010). At the population level, primary care approaches provide better quality of health care, better health, greater equity, and lower cost for individuals and whole populations (Stange & Ferrer, 2009). Moreover, international comparisons reveal that the availability and use of primary care services is associated with enhanced access to health care services, better health outcomes, and a decrease in more costly hospitalization and ER visits (Shi, 2012). Within the U.S., it has been shown that generalists and specialists have comparable outcomes but that generalists achieve these outcomes at lower costs and thus provide greater value of care (Stange & Ferrer, 2009). As noted by Margolius and Bodenheimer (2010), "[e]vidence suggests that investment in primary care can save health care dollars by reducing unnecessary ED [emergency department] visits and hospitalizations".

Supply of and Demand for the Primary Care Workforce

Currently multiple challenges deter the successful provision of such a system, chief among them the need for greater numbers of primary care practitioners. Estimates show that there is currently a shortage of primary care providers in many areas of the nation, including Texas. For example in the nation's HRSA designated shortage areas, there is an estimated existing deficiency of 17,122 primary care providers (Carrier, Yee, & Stark, 2011). The Robert Graham Center, a research center of the American Academy of Family Physicians, projected that Texas would need an additional 6,260 primary

[1] The IOM has defined primary care as "the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community" (Institute of Medicine, 2012).

care physicians by 2030 (Petterson, Cai, Moore, & Bazemore, 2013). Further, the CDC's National Center for Health Statistics reported that, as of 2012, Texas had significantly fewer primary care physicians than the national average, controlling for population size (Hing & Hsiao, 2014).

HRSA produced a model of patient demand for primary care services that also incorporated the sizable challenges of an aging and growing population. Notably, these demographic changes are the primary drivers for future primary care provider shortages (Petterson, et al., 2012; National Center for Workforce Analysis, HRSA, 2013). These sources concluded that the demand for primary care services would grow more quickly than physician supply between 2010 and 2020 and would exacerbate the nationwide shortage of physicians. On the supply side, primary care physician growth is expected to be roughly 8 percent between 2010 and 2020, while NP and PA workforces are expected to grow by 30 percent and 58 percent, respectively. APNs and PAs into the primary care system, itself incumbent on patient and health system acceptance and the broad adoption of new delivery models (for example, patient-centered medical homes (PCMHs)), could reduce this projected primary care shortage appreciably (National Center for Workforce Analysis, HRSA, 2013).

However, a sheer increase in the number of providers alone will not address problems of access to primary care. It is known that the geographic distribution of primary care providers remains disparate, especially between urban and rural areas (National Center for Workforce Analysis, HRSA, 2013). Indeed, there is a direct relationship nationwide between the supply of primary care physicians relative to the population and the size of the local population. That is, physicians in smaller cities and towns often have to serve more patients than those in larger urban areas. Additionally, there is an indirect relationship between the percentage of primary care physicians' offices with a NP or PA and the size of the local population (Hing & Hsiao, 2014), meaning that primary care physicians' practices in smaller, rural areas are more likely to include an NP or PA in their practice as a means of meeting this relatively higher demand for services.

Access to providers can also depend on insurance status. For example, areas with high rates of uninsuredness have been shown to have lower levels of primary care capacity. This may be the result of primary care providers' patient panels being effectively reduced as the uninsured and poor fail to seek care (Ku, Jones, Shin, Bruen, & Hayes, 2011). From a study measuring access to primary care in ten states, including Texas, evidence showed that new patient access to primary care was limited for Medicaid and uninsured populations. In Texas specifically, privately insured patients were able to make a primary care appointment when calling private practices 90.3 percent of the time, while Medicaid patients were successful only 59.1 percent of the time, and uninsured patients seeking to pay $75 or less were successful only 15.0 percent of the time (Rhodes, et al., 2014). Indeed, a study of access found that Texas ranked third in the nation (behind Oklahoma and Georgia) in the challenges that primary care physician shortages would produce given recent growth in insurance coverage (Ku, Jones, Shin, Bruen, & Hayes, 2011).

Policy Considerations

- **Given the existing shortage of primary care physicians and future challenges in meeting the population's primary health care needs statewide and nationally, there is a need to fully integrate APNs, PAs, pharmacists, and CHWs in the collaborative provision of primary care services.**

Given the already existing shortage of primary care physicians, individual physician workload and their capacity to deliver high quality care may already be out of balance, leading to the introduction of two separate, innovative delivery models. First, concierge practices with extremely small panel sizes (200 to 600 patients) have grown in popularity in recent years. Unfortunately, there are insufficient numbers of physicians to meet population demand for such models. Second, the team model (similar to task shifting) distributes the responsibilities of primary care delivery across multiple disciplines and providers (Altschuler, Margolius, Bodenheimer, & Grumbach, 2012). Under this model "[t]asks should be allocated among staff to use highly trained physicians and nurses where their skills are needed, and to use supporting personnel where appropriate" (Ash & Ellis, 2012).

It has been estimated that it would require nearly 18 hours per day for a single primary care physician in the US to provide all evidence-based chronic and preventive care to the average-sized patient panel of 2,300. Given this colossal challenge, it is clear that the team providing primary care must be expanded (Margolius & Bodenheimer, 2010; Bodenheimer & Smith, 2013). A review of high-performing primary care practices found shifted roles for many members of the primary care team. For example, physicians are shifting toward a model that empowers other caregivers to provide significant portions of chronic and preventive care (Ladden, et al., 2013). In fact, the diversion of as little as 20 percent of patient demand to non-physician professionals might alleviate the majority of the primary care shortage (Green, Savin, & Lu, 2013). In another study, it was estimated that shifting preventive care services to non-clinicians could save 10 percent of clinicians' time, an equivalent of a 10 percent increase in clinician supply. Likewise, 25 percent of chronic care could be reallocated to non-clinicians, saving 9 percent of physician time. Finally, 10 percent of acute care could be transferred to non-clinicians, saving 5 percent of a physician's time. In all, 24 percent of physician time could be saved (Bodenheimer & Smith, 2013).

There will obviously be a need for well-defined roles between providers from different disciplines as tasks are shifted. For example, the expansion of roles for APNs and PAs should be accompanied by specific delimitation of what care they may best provide and which types of patients would benefit from direct physician care (Carrier, Yee, & Stark, 2011; Margolius & Bodenheimer, 2010). Likewise, it has been suggested that increasing the role of pharmacists, for example through medication management and counseling (Dow, Bohannon, Garland, Mazmanian, & Retchin, 2013) and CHWs (Ricketts & Fraher, 2013) would be a productive pursuit. Among other professions, medical assistants (MAs) can be used to review patient records to identify care gaps, order and administer vaccinations following care protocols, make outreach calls to patients, and coach patients to set self-management goals; RNs can provide uncomplicated acute care treatment, chronic care management, and hospital-to-home transitions; and behavioral health elements can be collocated with primary care services (Ladden, et al., 2013; Sinsky, et al., 2013).

Shipman and Sinsky (2013) argued that inefficiency and waste in primary care delivery can address the primary care workforce shortage. Specifically, the use of team-based care, substituting MAs, RNs, or health coaches to handle administrative tasks can substantially reduce clinicians' workloads. Previsit planning and lab tests can reduce total work, save time, and improve care (Sinsky, et al., 2013). Additionally, the efficient physical layout of primary care space has been shown to save up to 30 minutes per day of a physician's time, while other process modifications regarding streamlining can add further time (Sinsky, et al., 2013; Ash & Ellis, 2012). Continued technological improvements in electronic health records (EHRs) could also improve workflow (Shipman & Sinsky, 2013). Physicians would provide leadership and direction to the work of such a multidisciplinary team.

- **Ongoing and forecasted changes in the delivery of primary care necessitate changes to the way that physicians and other primary care providers are reimbursed for their services.**

In order to improve the primary care system in the US, permanent changes to the payment system will be necessary. In addition to education and training to operate in a collaborative environment, changes must be made to the payment system to account for the benefits of team-based care. As noted by Bodenheimer and Smith (2013), the potential addition of new employees to practices must make financial sense. For example, capitated payments may incentivize high quality care and encourage team-based practice (Carrier, Yee, & Stark, 2011). Carrier, Yee, and Stark (2011) have noted that the inclusion of shared savings and ACOs in the Patient Protection and Affordable Care Act (PPACA) are aimed at increasing capacity and efficiency through team-based care. Specifically, the Report of the National Commission on Physician Payment Reform supported, among other proposals, a shift away from fee-for-service payments and towards the eventual adoption of value-based care through bundled payments, capitation, or risk sharing (National Commission on Physician Payment Reform, 2013).

Carrier, Yee, and Stark (2011) have suggested that practices receive risk-adjusted monthly payments for each patient as part of 'comprehensive payment for

comprehensive care' and that additional payments be linked to outcomes. The Centers for Medcare and Medicaid Services (CMS) amd the Comprehensive Primary Care Initiative and Center for Medicare and Medicaid Innovation program, which both incorporated private payers, successfully utilized a combination of fee-for-service, monthly per-person care management fees, and rewards for quality performance, shared savings, or both (Baron & Davis, 2014). In fact, Ash and Ellis (2012) reported that "existing data can support the risk-adjusted bundled payment calculations and performance assessments needed to encourage desired transformations in primary care." They devised a primary care activity level (PCAL) that indicated the amount of care that should be provided to a given population and recommended risk-adjusted outcomes that could be used to reward practices with better than expected patient outcomes. This PCAL might be generated for different subgroups based on multiple needs-based delivery systems, allowing primary care practices to focus on subgroups whose needs they were most equipped to meet (Porter, Pabo, & Lee, 2013).

- **Changes in the primary care delivery system will mandate changes, both systemic and content-based, to the training of health professionals.**

Furthermore, in the movement toward task shifting and interprofessional collaboration, the need for changes to the training of health care providers has been noted (Ricketts & Fraher, 2013; Dow, Bohannon, Garland, Mazmanian, & Retchin, 2013). After all, the effective use of team-based care may provide greater benefit to the health care workforce by providing primary care clinicians with greater career satisfaction and improved quality of patient care and satisfaction. This is achieved through the remediation of primary care practice away from a hurried and chaotic work environment (Willard-Grace, et al., 2014), which could remove the high risk for primary care physician burnout. The difficult work life has been identified as the most influential factor in discouraging medical students from pursuing careers in primary care (Sinsky, et al., 2013).

According to Carrier, Yee, and Stark (2011), policymakers may also want to consider the consequences of capping the number of GME residencies and reducing Medicare GME funding. According to these authors, the Council on Graduate Medical Education has recommended increasing residency positions in selected specialties with shortages, such as adult primary care and psychiatry. The PPACA sought to achieve this end by supporting additional primary care training in academic settings through financial support for the medical programs, faculty, and trainees and the use of targeted recruitment of individual students likely to practice in primary care. Similarly, the National Health Service Corps (NHSC) currently offers loan repayment to primary care practitioners working in designated health professional shortage areas. Participation in NHSC programs has roughly tripled since 2008 because of increased funding. In Texas, the Physician Education Loan Repayment Program (PELRP) is a valuable tool for incentivizing primary care and psychiatric practice in underserved areas and for indigent populations. Likewise, the 84th Texas Legislature funded the Texas Statewide Primary Care Preceptorship Program, which provides students experiences in community-based primary care settings, including in rural areas. Scholarships for students planning to practice primary care might likewise remove barriers for increasing medical students from underserved areas. Such targeted efforts may better align distribution of providers with need, both geographically and by specialty. Constraining residency slots might preclude longer-term policies for increasing the supply of primary care physicians.

Finally, in imagining a better functioning primary care system in the U.S., Dow, et al. (2013) proposed a three platform system for addressing the population's needs. For the healthiest patients, those who have the lowest burden of chronic disease and require care largely for acute medical problems, a basic primary care system with a strong referral network in place is likely sufficient. For patients with higher needs, for example those with chronic illnesses or comorbidities, medical homes staffed by interprofessional health teams would be likely to reduce the use and subsequent cost of care in other settings. Finally, the most difficult chronic cases should be provided care that works to directly manage their cases and engages in patient outreach. The implementation of this system requires recognition of the need to alter the current delivery system as noted throughout this chapter.

Primary Care and the Patient-Centered Medical Home

The previous chapter has made clear that a shift is needed in the nation's delivery of health care, especially primary care. It has been estimated that roughly 30 percent of health care spending is unnecessary (Nielsen, Langner, Zema, Hacker, & Grundy, 2012). Thus far, many physicians remain tied to a fee-for-service payment model that ignores the increasing burden of chronic disease in the population, a declining access to health care for many, and workforce challenges related to recruiting and retaining primary care physicians (Goldberg, Beeson, Kuzel, Love, & Carver, 2013).

Role of the Patient-Centered Medical Home

One commonly-cited, potential solution for these challenges is the PCMH. Despite dating back to the 1960s, the idea of the PCMH has evolved over time (Roby, et al., 2010) and is in fact innovative because it challenges primary care physicians and practices to go beyond improving existing strategies for health care delivery and pushes these practices toward envisioning and implementing new and better strategies (Nutting, Crabtree, & McDaniel, 2012). The PCMH is best defined as "a model of primary care that is patient-centered, comprehensive, team-based, coordinated, accessible, and focused on quality and safety" (Nielsen, Langner, Zema, Hacker, & Grundy, 2012). This concept has been embraced, to varying degrees, by a number of physician groups, specifically the American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, and the American Osteopathic Society, who developed the Joint Principles for the PCMH. These principles, which were later endorsed by at least 18 additional physician groups (Nielsen, Langner, Zema, Hacker, & Grundy, 2012), identified the following as attributes of the PCMH (Roby, et al., 2010):

- There should be a personal physician for each patient.
- Care should be physician-directed and delivered by a multidisciplinary team.
- Care should be oriented toward the whole person, with case management and other services provided as needed.
- Evidence-based practice and the use of health information technology (HIT) will be used to improve the quality and safety of patient care.
- Enhanced access to care will be available through open scheduling, expanded hours, and new forms of communication with patients.
- Appropriate implementation of the PCMH is reliant upon adequate reimbursement to support innovative components, including HIT and team-based care.

Policy Considerations

It follows from these attributes that the PCMH must be part of larger delivery system reform and integration efforts (Nielsen, Olayiwola, Grundy, & Grumbach, 2014). Indeed in a recent review of PCMH proposals by five think tanks, the Patient-Centered Primary Care Collaborative (Shalijan & Gibson, 2013) identified three themes for needed changes: payment reform incentives, new delivery models, and patient/consumer engagement strategies. Each of the five proposals recommended new payment systems involving ACOs and PCMHs. Three such plans mentioned the need to empower multi-disciplinary teams, and all addressed improvements in HIT.

- **Improvements in the delivery of team-based, collaborative care will be instrumental in the success of new delivery and payment systems.**

The ACO, which seeks to bundle payments based on outcomes and savings, is consistently linked to PCMHs, and in fact PCMHs will likely continue to gain prominence as the number of ACOs increase (Nielsen, Langner, Zema, Hacker, & Grundy, 2012). One common element deployed for potential cost-savings in ACOs and aligned with PCMH goals is team-based care, which a pilot project in Virginia identified as a core element of primary care practice transformation (Goldberg, Beeson, Kuzel, Love, & Carver, 2013). Key elements of team-based care include: shared responsibility for care, mutual respect among team members for their diversity and skills, an open environment in which team members are comfortable sharing concerns, patient-centered care, and the willingness of team members to take on additional roles and responsibilities (Goldberg, Beeson, Kuzel, Love, & Carver, 2013). Within the

PCMH, the team-based care model includes many clinicians who participate and communicate with one another about a defined panel of patients. The use of these interdisciplinary teams has been associated with fewer communication problems and medication errors, better medication adherence, fewer inpatient hospital days, increased productivity and patient visits by staff, more comprehensive care for patients, and improved patient experience (Goldberg, Beeson, Kuzel, Love, & Carver, 2013). In addition to these benefits, the team-based model in the PCMHs may also help mitigate the impacts of potential primary care physician shortages (RAND Corporation, 2013).

- **Continued expansion and utilization of HITs will increase the efficiency of the health care system.**
- **Robust networks linking primary care and specialist providers that readily deliver coordinated care will improve system efficiency and patient satisfaction.**

In addition to team-based care, two core necessities of successful PCMHs are the adoption of HIT and the creation and maintenance of relationships with specialty providers (Goldberg, Beeson, Kuzel, Love, & Carver, 2013). In order for a PCMH to receive NCQA certification, it must adopt HIT components, including disease registries, electronic communication, and electronic prescribing (Rich, Lipson, Libersky, Peikes, & Parchman, 2012). Moreover, PCMH efforts at HIT should be focused more towards making EHRs more clinically useful, rather than acting merely as billing documentation (Crabtree, et al., 2010), allowing providers to identify and proactively manage at-risk patients (Rich, Lipson, Libersky, Peikes, & Parchman, 2012). HIT efforts may also improve efficiency by reducing face-to-face patient-provider visits (Nielsen, Olayiwola, Grundy, & Grumbach, 2014) through the use of electronic health care portals. At the same time, high-functioning PCMHs should be committed to engaging a wide range of providers, including specialists, hospitals, long-term care, and community partners, among others (Nielsen, Olayiwola, Grundy, & Grumbach, 2014). These 'health neighborhoods' ensure the efficient coordination of care (Nutting, et al., 2011) and should be included in the development of HIT networks.

- **Ongoing evaluations of PCMHs, ACOs, and other innovative models will provide important best practice data on how these models should be implemented and for what populations.**

In their assessment, Bertakis and Azari (2011) found that patient-centered care was associated with decreased annual patient visits for specialty care, less frequent hospitalizations, fewer laboratory and diagnostic tests, and decreased total medical charges and specialty charges. A UnitedHealth care estimate indicated that its PCMH efforts would save twice as much as they cost, while WellPoint predicted that PCMH programs could reduce projected medical costs by up to 20 percent in 2015 (Nielsen, Langner, Zema, Hacker, & Grundy, 2012). Within Texas, a Blue Cross Blue Shield of Texas pilot PCMH program showed 23 percent lower readmission rates and $1.2 million in estimated cost savings (Nielsen, Langner, Zema, Hacker, & Grundy, 2012). Likewise, WellMed Inc. of San Antonio showed improved disease management outcomes and screening rates in its PCMH trial. More broadly, a two year, eight practice project in Virginia showed that the PCMH, characterized by team-based care, improved quality of care according to performance measures and patient satisfaction (Goldberg, Beeson, Kuzel, Love, & Carver, 2013). A trial program in Orange County, CA's safety net-based system of care found that PCMHs, characterized by their team-based care, case management, and provision of increased access to primary care and specialty services, demonstrated reduced ER utilization among patients consistently engaged with their PCMHs. This success is likely attributable to increased access to primary care, improved care coordination, and delivery of case management and patient education (Roby, et al., 2010). Given the available evidence, early reviews of PCMH results indicate that the Triple Aim of improving population health, reducing costs, and improving patient satisfaction is being met and that PCMHs are providing both short- and long term savings for patients, employers, health plans, and policymakers (Nielsen, Langner, Zema, Hacker, & Grundy, 2012).

Despite these promising reviews, Friedberg et al. (2014) recently found no reductions in health care utilization and improvement in only one of 11 chronic disease management measures, indicating

there may be some limitations to the PCMH in certain circumstances. Thus far, the impacts of PCMHs have been fairly positive, but with the most success being shown when they are implemented in highly integrated health care systems and single-payer community-based practices. And while the PCMH has been presented for widespread adoption, researchers should continue to consider its potential impacts on targeted high-risk populations as well as which features or combination of features most contribute to PCMH success (Schwenk, 2014). Similarly, the best means of integrating ACOs and PCMHs should be tested further (Crabtree, et al., 2010). Specifically, the PCMH may currently be best deployed to serve those patients consuming high amounts of care (Schwenk, 2014), especially the elderly or working age adults with disabilities (Rich, Lipson, Libersky, Peikes, & Parchman, 2012).

- **Innovative practices that improve efficiency and patient satisfactions must be supported through revisions to the current health care payment systems.**

With ongoing changes in the health care delivery system, new forms of payment for team-based care are needed (Goldberg, Beeson, Kuzel, Love, & Carver, 2013). Nutting, Crabtree, and McDaniel (2012) have noted that the traditional fee-for-service structure is likely to exacerbate practitioners' reluctance to embrace innovation in patient flow and team-based care. For these reasons, traditional fee-for-service models should be supplemented with additional care management payments (Nielsen, Olayiwola, Grundy, & Grumbach, 2014), most commonly a per-member per-month fee (Rich, Lipson, Libersky, Peikes, & Parchman, 2012). However, bundled payments (Nutting, Crabtree, & McDaniel, 2012), capitation, or some combination thereof (Crabtree, et al., 2010) are more likely to incentivize involvement of other provider types and full PCMH commitment.

Primary Care Physicians

As previous chapters have made clear, many health workforce planners have previously reported and forecast future shortages of primary care physicians. Implementation of the PPACA, in addition to changes in demographics and disease burden, is expected to intensify these shortages. Specifically, the American Association of Medical Colleges (AAMC) has estimated current shortages of primary care physicians of around 30,000 to 45,000 (Jacobson & Jazowski, 2011; Chen & Mehrotra, 2014) with an increase to 66,000 by 2025 (Chen & Mehrotra, 2014). Moreover, the profound maldistribution of providers continues to negatively impact the availability of primary care services (Okie, 2012; Eden, Berwick, & Wilensky, 2014). The IOM has further reported that there is a mismatch between the population's health needs and the specialty makeup of the physician workforce, insufficient diversity among physicians, a gap between new physicians' knowledge and skills and competencies required for practice, and a lack of fiscal transparency (Eden, Berwick, & Wilensky, 2014). In this recent IOM report on GME, the authors describe how although the GME system has been producing more physicians, it has not been producing an increasing proportion of physicians who choose to practice primary care. Goodman & Robertson (2013), citing the population's needs for additional primary care services and practitioners, more stridently ask whether the publicly funded GME system should be used to accommodate medical student choice or perhaps constrain choice to support production of primary physicians, especially in light of federal legislative reluctance to increase funding for medical training.

Policy Considerations

Data that evaluate how well residency programs are performing in meeting the needs of the population (i.e., program outcomes and performance measures) are not available (Eden, Berwick, & Wilensky, 2014; Goodman & Robertson, 2013). An entity similar to the unfunded National Health Care Workforce Commission might oversee the process that worked toward innovation and could, for example, measure early physician practice outcomes, like settings and specialties in which residents went on to practice. Equally innovative, these same authors have proposed the phased introduction of performance based GME funding that rewarded programs meeting preferred outcomes (Eden, Berwick, & Wilensky, 2014; Goodman & Robertson, 2013). Both of these initiatives seek to address what is otherwise a lack of persuasive incentives for residency programs to embrace innovative practices in the development of the physician workforce (Goodman & Robertson, 2013).

While there have been many efforts aimed at reducing shortages of primary care physicians, many are not supported by the empirical literature. In truth, such efforts should run the gamut from targeting students prior to their consideration of medical school through to post-residency choices made by physicians (Bennett & Phillips, 2010). The literature shows that policymakers, educators, residency programs, and others should strive to make primary care a more attractive and accessible option to those interested in its practice. Second, these same actors should make a concerted effort to identify, as early as possible, individuals likely to enter primary care practice, and guide them along their way toward this goal. Finally, the education, training, and re-training of primary care physicians must shift to mirror changes in care delivery, such as team-based care and process efficiencies.

- **Nationally and locally, there is a need to increase the number of primary care physicians. Such an increase should be accomplished through the expanded support of primary care medical school programs and GME slots, improved recruitment of students interested in practicing in primary care, and the expansion of incentives that aid in the recruitment and retention of primary care physicians.**

A benchmark for primary care practitioners has been set at 40 percent of all physicians, yet resident interest in primary care has been falling for over ten years, and data from 2010 show that only 16-18 percent of National Resident Matching Program participants were likely to ultimately practice

[2] The Health Professions Resource Center's definition of a primary care physician is one who has indicated a primary specialty in one of the following areas: adolescent medicine, family practice, general practice, geriatrics, gynecology, internal medicine, obstetrics, pediatrics.

primary care (Iglehart, 2010). In terms of capacity, there was a 12.8 percent increase in the number of radiology slots nationwide from 2002 to 2007 but just a 2.3 percent increase in those for primary care specialties (Goodman & Robertson, 2013). Additionally, modelling suggests that incremental changes to primary care payment systems or lessening educational debt burden will do little to change this result (Vaughn, DeVrieze, Reed, & Schulman, 2010). Rather, a multifaceted policy that addresses student debt incurred, practice incomes, and supply side considerations, such as increasing medical school enrollment or greater funding of primary care residency training, will be necessary.

With an eye toward the nation's GME system, the PPACA redistributed 900 existing, but unused residency positions to primary care and general surgery, seeking to redress some of the impacts of the budget freeze on new residency positions. This however pales in comparison to the 8,000 new residency positions that teaching hospitals have created since this time, with most of these being in subspecialty and not primary care posts (Iglehart, 2010). In 2009, Medicare provided $9.5 billion to teaching hospitals - $3 billion to cover a share of resident stipends and $6.5 billion to cover the added costs in patient care associated with training (Iglehart, 2010). Critics have contended that these GME residency slots, consistently in hospital settings, are not ideal for the training of primary care practitioners who will be in ambulatory or community-based settings (Eden, Berwick, & Wilensky, 2014; Goodman & Robertson, 2013; Smith S. R., 2011).

A number of innovative medical education and GME programs have been established in the state. Programs found only in Texas, such as the Family Medicine Accelerated Track at the Texas Tech University Health Sciences Center in Lubbock, and The University of Texas' Transformation in Medical Education (TIME) initiative, are producing increased numbers of physicians, including primary care physicians, in less time, while still meeting rigorous national accreditation standards. The 83rd Texas Legislature established a new grant program, Primary Care Medical Education pipeline program, to promote additional innovations in preparing more primary care physicians for Texas.

Physicians, generally, have greater earning potential in specialty practice than in primary care. It has been hypothesized that the residency fill rate is associated with expected income and that student perceptions and not actual facts drive their specialty choices (Bennett & Phillips, 2010). Thus, students' medical school experiences can affect final specialty preference. For similar reasons, Smith (2011) recommended that schools make a concerted effort to present primary care in a positive light and that educators mentor potential primary care-oriented students. Broadly, there is a need to identify and target individuals who are likely to enter primary care practice by recruiting more diverse medical students, reforming the training system, and expanding the settings in which physicians are trained (Okie, 2012). Medical school and residency training, Okie continues, should reflect providers' interests – for example, potential rural practitioners should not be prepared in urban clinics. In order for programs to attract students interested in practicing primary care, the following student traits identified in a systematic review are important. First, students who have an established interest in primary care entering medical school are far more likely to practice primary care than those who did not have preexisting preferences. To encourage more of these students to enter medical school, policies focused on strengthening of the premedical education pipeline and academic supports should be considered. Second, analysis has shown that medical students who are born in rural areas, come from lower socioeconomic status (SES) backgrounds, or are older or married are more likely to select primary care (Bennett & Phillips, 2010). The Joint Admission Medical Program (JAMP) was created by Texas legislators to improve diversity among the state's physician workforce by recruiting economically disadvantaged students and providing them academic and financial support. Finally, students with higher 'social consciousness' (Bennett & Phillips, 2010) or who demonstrate altruism, have a desire to serve in underserved areas, or are committed to social responsibility (Smith S. R., 2011) are more likely to practice primary care. In order to increase the numbers of students with the above traits being accepted into medical schools, programs dedicated to the education of primary care providers may wish to lessen their reliance on grade point average (GPA) and Medical College Admission Test (MCAT) scores and rather adopt a score-blind admissions process once competent scores are achieved

(Smith S. R., 2011; Bennett & Phillips, 2010).

In addition to these broad student traits, certain segments of practitioners may be appropriately targeted to address primary care needs. For example, comprehensive medical school rural programs have been shown to be an efficient approach to impact the supply of rural family physicians and primary care physicians (Rabinowitz, et al., 2012). In fact, all three programs profiled by Rabinowitz et al. (2012) target students with backgrounds and career plans that make them likely to practice in rural settings. Likewise, many colleges of osteopathic medicine have emphasized service in rural and underserved communities, resulting in many graduates becoming primary care providers and practicing in these areas (Fordyce, Doescher, Chen, & Hart, 2012). Finally, given their numbers, International Medical Graduates (IMGs) are sizable contributors to the rural workforce (Rabinowitz, et al., 2012; Van Zanten & Boulet, 2013) and are more likely than the physician population at-large to be primary care physicians and practice in underserved areas (Van Zanten & Boulet, 2013; Fordyce, Doescher, Chen, & Hart, 2012).

- **The education of primary care physicians and other primary care providers must continue to be realigned with innovative team-based, collaborative care.**

In addition to the need to produce more primary care physicians, the physician education system will be challenged to produce primary care physicians adept at working within a system of team-based care. The experience of Massachusetts during the implementation of its health reform law is likely to indicate a similar challenge for the rest of the nation: with greater numbers of insured people, the number of primary care physicians accepting new patients dropped and patients' wait times for appointments increased (Jacobson & Jazowski, 2011). There will continue to be a need for greater incorporation of non-physician primary care providers, an argument made in the previous and subsequent chapters.

As Jacobson and Jazowski (2011) point out, recent statutory changes may provide an opportunity for organized medicine to take the lead in shaping the nation's response to the primary care shortage. In doing so, the authors assert, physicians should accept non-physician practitioners as primary care providers and seek to shift routine care to these providers. Citing what they view as a lack of appreciable differences in patient health outcomes, self-reported health status, treatment options, utilization of services, and resource use when non-physician providers address primary care needs, Jacobson and Jazowski believe the expansion of non-physician practitioners is likely the fastest route to addressing our population's needs (Jacobson & Jazowski, 2011). Indeed, given the training and experience of primary care physicians, these generalists ought to be involved in the development of guidelines for practice by non-physician practitioners and audit the quality of care provided (Jacobson & Jazowski, 2011).

Okie (2012) includes an anecdote in which the health care team operates like a NASCAR team, with the physician as driver and other team members as the pit crew. For this team to operate efficiently and effectively, training in interprofessional collaboration is needed throughout physician preparation (Okie, 2012; Smith S. R., 2011). Innovative practices have utilized nurses and medical assistants to conduct administrative tasks and prepare prescriptions and patient instructions, allowing the physician to focus on direct patient needs (Okie, 2012). Colorado, for example, has begun training new physicians by having them collaborate with mental health professionals and pharmacists. Still, the full integration of team-based care into medical education has been lacking (Goodman & Robertson, 2013).

By engaging in team-based care, primary care physicians can focus their own attentions on overseeing complex patients and providing oversight in this emerging model (Jacobson & Jazowski, 2011; Chen & Mehrotra, 2014). In fact, it is estimated that primary care physicians could increase the panel size of their practices up to 50 percent by properly implementing team-based care. Existing primary care physicians can further improve productivity by adopting new modes of communication and technology in their everyday practice (Chen & Mehrotra, 2014). By applying these principles to interactions with patients, primary care physicians can improve efficiency and provide true patient-centered care. For example, by having another provider or employee handle the entry of case information into the EHR, the doctor is able to focus on the patient and not the computer (Okie, 2012).

In reviewing other needed changes in physician

education, a number of themes emerged. Jacobson and Jazowski (2011) have proposed that the transformation of primary care would allow physicians an opportunity to fully implement population health approaches into their practices. Goodman and Robertson (2013) noted that given the shift in disease burden toward chronic disease, there may be a need for primary care physicians to spend more training time away from the acute care setting. With primary care physicians focusing on difficult and chronic cases under the team-based care model, this is a visionary proposal. These same authors also call for training of physicians in microsystem (office-level) process improvement as addressed in the previous chapter.

The majority of this chapter has focused on proposed changes in the production of physicians and the training of new physicians. However, these changes are also applicable to existing practitioners. In other words, the existing workforce should be re-trained to function in this new practice environment. According to the Center for Medicare and Medicaid Innovation the entire workforce should be trained in prevention, care coordination, care process reengineering, dissemination of best practices, continuous quality improvement, and the use of data (Fraher, Ricketts, Lefebvre, & Newton, 2013). Indeed, a survey by the American Board of Family Medicine has noted a narrowing of primary care physician scope of practice, with shifts away from pre- and post-operative care, maternity care, office surgery, mental health, and the treatment of children (Okie, 2012). Okie (a professor of family medicine at Georgetown University) describes some doctors conducting 'early referrals,' rather than maintaining/expanding their knowledge and cultivating relationships with specialists who they can receive advice from before referral. It has been established that primary care physicians can adequately attend to the vast majority of cases with which they are confronted. In a robust and fully functioning primary care system in which primary care physicians have more reasonable panel sizes, these providers are able to better limit referrals and improve delivery system efficiency.

Physician Assistants in Primary Care

As indicated in previous chapters, the HRSA within the U.S. Department of Health and Human Services has estimated that the nation's current health care workforce needs an additional 16,000 primary care providers to meet the population's needs. This number is expected to increase to a shortage of 52,000 physicians due to increasing utilization of health care services, the aging of baby boomers who will consume more care, and continued changes in the practice patterns of physicians (Glicken & Miller, 2013). A second source indicates that the country will be 46,000 primary care full-time equivalents (FTEs) short by 2025 (Cawley & Hooker, 2013).

PAs were a workforce idea created in the 1960s by physicians as a means of addressing workforce shortages and uneven distributions of primary care physicians (Cawley & Hooker, 2013). Until relatively recently, the majority of PAs served in primary care settings. In 1996 50.8 percent of PAs did so, yet by 2010 this proportion was down to just 31 percent (Coplan, Cawley, & Stoehr, 2013). One potential explanation for this movement away from primary care by PAs is that federal funding for PA education, generally targeted toward primary care programs and the deployment of PAs to underserved areas, has decreased (Hooker & Everett, 2012). Another explanation relates to potential PA salary discrepancies between primary care and specialist settings. The net number of PAs moving out of family practice and into specialty practice exceeds the number moving in the other direction, and each year a smaller percentage selects family medicine upon graduation (Hooker, Cawley, & Leinweber, 2010). Finally, over the last decade some other countries have seen growth in the PA supply and are now exploring how PAs can contribute to their health workforces, occasionally hiring US-trained PAs (Halter, et al., 2013).

Despite the decreasing proportion of PAs serving in primary care, the profession remains important to the adequate provision of primary care services. In 2010, the American College of Physicians and the American Academy of Physician Assistants committed to reversing the declines in primary care practice for both groups. It has been estimated that PAs account for 10 percent of the US primary care workforce (Glicken & Miller, 2013). Further, while PAs and NPs together attended to 10 percent of hospital outpatient department visits in 2001, that number had increased to 15 percent by 2008 and 2009 (Cawley J. , 2012). Indeed, nearly 60 percent of member physicians surveyed by the American Board of Family Medicine indicated that they routinely worked with a PA or a NP/CNM (Glicken & Miller, 2013).

Additionally, there are significant gaps in knowledge on how PAs contribute to primary care (Hooker & Everett, 2012). Despite the initial intent of the workforce, PAs generally practice in urban settings. However, the vast majority of PAs in rural practice do serve in primary care settings (Hooker & Everett, 2012). Further, evidence suggests that PAs see greater proportions of Medicaid, CHIP, or uninsured patients (Glicken & Miller, 2013; Hooker & Everett, 2012; Cawley & Hooker, 2013), are more likely to be located in underserved areas (Glicken & Miller, 2013; Hooker & Everett, 2012), and to be working in open access practices (Hooker & Everett, 2012). Patients of PAs are also more likely to be women (Hooker & Everett, 2012) and younger (Cawley & Hooker, 2013).

As policymakers seek to attract more PAs to primary care, more data on the individual characteristics indicating a potential predilection to primary care are needed (Coplan, Cawley, & Stoehr, 2013). National analyses have indicated that primary care PAs are significantly more likely to be female, non-white, slightly older, and have slightly more practice experience (Coplan, Cawley, & Stoehr, 2013).

As demand for primary care services increases, the growth of the primary care PA workforce should be considered as a part of the solution. Data have suggested that consumers are more than willing to utilize the services of a PA, especially if faced with wait times for physicians (Dill, Pankow, Erikson, & Shipman, 2013). Additionally, the growing number of ACOs, PCMHs, and internists selecting to limit their patient panels in concierge medicine arrangements will only strengthen the need for a multifaceted approach to workforce planning (Cawley & Hooker, 2013).

Competencies and Roles

A review of the literature on PAs reveals that they are well-suited to meet the goals of primary care and to work as highly adaptable providers within

integrated health care teams (Hooker & Everett, 2012; Hooker, Cawley, & Leinweber, 2010). Generally, PAs work under the supervision of physicians to perform the diverse functions of conducting physical exams, assessing and treating illnesses, ordering and interpreting tests, counseling on preventive services, assisting in surgery, and writing prescriptions (Brock, et al., 2013; Cawley J. , 2012). PAs may also conduct research, document cases, perform administrative data collection, educate patients, and dispense medication and specialist referrals (Halter, et al., 2013; Cawley J. , 2012). When allowed to perform to their full scope of practice within a physician-led team, PAs can serve an important role in the delivery of primary care (Glicken & Miller, 2013).

Given the history of the profession and its continued supervision by physicians, the interdependent relationship between individual PAs and their supervising physicians has been described as 'negotiated performance autonomy' (Cawley & Hooker, 2013) through which roles and expectations are defined. It is understood that it is neither necessary nor efficient for every patient to be seen by a physician (Hooker & Everett, 2012). As such, the roles of PAs might be categorized as either substitutive or complementary, depending on the division of labor between the physician and PA and the level of autonomy the PA receives. A purposeful review of the literature found that PAs with greater experience, more years spent in practice with the supervising physician, and other correlates were more likely to be practicing in a substitute role. By comparison, some primary care physicians prefer to assign their supervised PAs to acute or preventative care (Hooker & Everett, 2012). For example, a systematic review found that doctors employed in the same practice as PAs may choose to see more patients with chronic or complex illnesses while PAs are assigned acute cases or those of younger, relatively simpler, patients (Halter, et al., 2013).

Physician Assistant Contributions to Efficacy and Efficiency

A recent systematic review concluded that family practice physicians generally support the use of PAs, citing their ability to assist with patient caseload (functionally reducing that of the supervising physician), improve care by reducing patient waiting times, increase measures of practice productivity including the number of patients seen, increase the amount of time doctors have for attending to complex tasks, and increase patient satisfaction (Halter, et al., 2013). Also, physicians in solo practice have indicated that the employment of PAs or NPs increased their numbers of patient visits per week, allowed physicians to work fewer weeks per year, and provided greater net income to their practices (Hooker & Everett, 2012). Moreover, specialists indicated that PAs generally make appropriate and timely referrals (Hooker & Everett, 2012). In all, supervising physicians consult on roughly 12 percent of PA cases, according to an observational study (Halter, et al., 2013). In sum then, PAs are trusted by physicians to provide efficacious care in a timely manner.

A potential, and likely targeted, outcome of the use of PAs in primary care is that physician productivity is expected to increase and physician resources may be allocated to more pressing needs (Halter, et al., 2013). It has been estimated that PAs can perform roughly 85 to 90 percent of services provided by the standard primary care physician (Hooker & Everett, 2012), supporting the notion that physicians supervising PAs can also dedicate time to their most challenging cases. Indeed, in-depth analysis indicates that a primary care PA in a large practice may be equivalent to between .73 and .96 family practice physician FTEs or .7 to .85 FTEs if treating the more complex cases potentially seen by internal medicine and geriatrics physicians (Cawley J. , 2012). Equally as important, results indicate that patients may be just as satisfied with treatments provided by PAs as they are with those provided by physicians (Hooker & Everett, 2012). At the same time, an analysis of a large health maintenance organization's (HMO) expenses indicated that for every condition managed by PAs, PAs provided lower total cost per visit than that of cases managed by physicians in the same department, without a difference between PAs and physicians in rate of return visits for a diagnosis. Another study conducted on HMO labor costs revealed that PAs and NPs provided cost-efficient care, standardized for case mix. These results encouraged Hooker and Everett (2012) to conclude that PAs are cost-effective from a labor standpoint and are also cost beneficial to employers (Hooker & Everett, 2012). One potential reason for this success is the salary differential between PAs and physicians, which has remain fixed at roughly 45 percent over the past decade. Indeed, PAs have among the highest annual compensation

to production ratios among all health professions and can generate multiples of their salaries for their employers (Cawley & Hooker, 2013). This benefit is most likely to be realized when PAs are performing as a substitute in emergency medicine, family medicine (a form of primary care), and dermatology.

Policy Considerations

- **As with primary care physicians, there is a need to increase the number of PAs practicing in primary care. This can be accomplished through expansion of education programs and recruitment and retention incentives.**
- **Improvement in the PA shortage will be aided by allowing physicians greater flexibility in their supervision of and delegation to PAs.**

As noted in the introduction to this chapter, rising demand for primary care and an insufficient workforce of primary care physicians will heighten the demand for well-trained PAs (Hooker & Everett, 2012). Unfortunately, there is a nationwide capacity shortage among PA programs with 3.5 qualified candidates for each slot in existing programs, a limited number of clinical spots spread across the many health professions, and a lack of faculty (as seen among other health professions (Glicken & Miller, 2013)). If these issues are addressed, educational programs still may wish to consider factors associated with a student's likelihood of primary care practice when recruiting and selecting applicants, an issue in need of more research (Coplan, Cawley, & Stoehr, 2013). Additionally, incentives like educational grants might be created to encourage individuals and institutions to work in primary care, as well as in rural and underserved areas. Such approaches have been successful in the past, and so they may be deployed to solve current and future problems (Hooker, Cawley, & Leinweber, 2010).

Policymakers may be able to increase the effective use of PAs by allowing physicians greater flexibility in determining how to best supervise and delegate responsibilities to PAs (Glicken & Miller, 2013). Policymakers might also spur greater interest of PAs in primary care by incentivizing physician practice in primary care. Given that PAs are dependent on physicians for supervision, programs to encourage physicians to serve in primary care - especially in underserved areas - like loan repayment, increased reimbursement rates, and the national expansion of funding for Title VII, Section 747 of the Public Health Service Act, may produce compounding benefits (Coplan, Cawley, & Stoehr, 2013).

Military Veterans as PAs

The State of Texas should engage in a concerted effort to attract military veterans with a background in health care into the primary care workforce, specifically as PAs.

In addition to the issues discussed in this chapter, the literature review conducted for PAs revealed two potential policy considerations for the involvement of military veterans in improving the PA workforce, and subsequently the health delivery system, in Texas. Generally, military training instills leadership, crisis management, and critical thinking skills. For those who serve in health care roles while enlisted, clinical skills such as assessment, treatment, care coordination, record management, detecting adverse events, managing developing epidemics, and rapid risk assessment of health-compromising exposures may be obtained (Brock, et al., 2013). There are over 52,000 enlisted personnel with health care experience who left military service between 2006 and 2010, representing a large number of potential health care providers nationally.

The first potential policy challenge for Texas is to integrate military-trained PAs into its civilian PA workforce. Beginning in 1996, all US military PA training was consolidated into a single training program at Fort Sam Houston, Texas. This program remains the largest PA program in the nation in terms of annual enrollment (Jones & Hooker, 2013). In 2012, 254 of the 425 military PA graduates licensed in Texas were engaged in full-time clinical practice in Texas. One hundred forty-eight (58.3 percent) of these reported practicing in primary care settings. Using national productivity data, it is estimated that military-trained veteran PAs in Texas provide over 436,000 annual outpatient visits per year. Such graduates have an average of a 16-year post-military career and serve as a benefit to the state in the form of skilled health professionals whose training was federally underwritten, and thus less costly to the state than standard PA education (Jones & Hooker, 2013).

Second, recruiting and training veterans with prior health care experience, considerable skills, and an interest in primary care to become civilian PAs may help alleviate anticipated workforce shortages (Brock, et al., 2013). However, barriers such as PA programs not accepting credits earned for military training, having misunderstandings of the GI bill, or harboring concerns about veterans and post-traumatic stress disorder (PTSD) may exist. To address these barriers, the Obama administration announced the Helping Veterans Become Physicians Assistants initiative in 2011. This effort aimed to make it easier for veterans to use the training they have acquired while in the military to become PAs. In 2011 and 2012, HRSA held public webinars to identify and disseminate strategies for better adapting curricula for veterans and implementing successful veteran recruiting, retention, and mentoring services. Of veteran applicants to PA programs, only 17 percent reported being able to obtain most or all of their civilian health care training prerequisites while in the service. Also, 54 percent reported needing to obtain an academic degree before applying to PA education. In an effort to address these challenges, the American Council on Education and the Defense Activity for Non-Traditional Education Support provide assessments of college credit equivalency for military training. When PA programs participate, such equivalencies can be used to decrease additional credits and thus time delay between discharge and entry into PA school. Thus far, there have been no initiatives in Texas to implement these programs.

Advanced Practice Nurses in Primary Care

As noted in the chapter on PAs, the US health care system is expected to be challenged in the coming years by greater demand for primary care services. This demand can be attributed to a multitude of causes, chief among them, the including increasing utilization of care, the aging baby boomer population, and the rise of chronic diseases (Poghosyan, Nannini, Stone, & Smaldone, 2013; Liu, Finkelstein, & Poghosyan, 2014).

In reaction to this projected shortage of primary care providers, health workforce analysts have worked to evaluate how interprofessional collaboration with non-physician clinicians could reduce its impacts. The working hypothesis of those supporting the greater involvement of APNs, PAs, and pharmacists is that the inclusion of these professions can enhance the quality and efficiency of physician care through collaborative practice (Laurant, et al., 2009). Indeed, in its 2010 report, The Future of Nursing: Leading Change, Advancing Health, the IOM echoed numerous other proposals to expand the use of NPs in the provision of primary care, an effort aimed at addressing both workforce shortage and quality of care issues (Poghosyan, Nannini, Stone, & Smaldone, 2013).

NPs emerged in the 1960s during a period of projected physician shortages amid the introduction of Medicare and Medicaid. By 2011, there were an estimated 180,233 NPs nationwide (Donelan, DesRoches, Dittus, & Buerhaus, 2013) with estimates ranging from 30 percent to 80 percent working in primary care (Donelan, DesRoches, Dittus, & Buerhaus, 2013; Naylor & Kurtzman, 2010). More authoritatively, the American Academy of Nurse Practitioners has indicated that 89 percent of NPs are trained in primary care and more than 75 percent practice in primary care settings (Yee, Boukus, Cross, & Samuel, 2013). Moreover, the per capita supply of NPs is expected to grow by nine percent nationally in the coming years (Naylor & Kurtzman, 2010). Research has, in fact, already demonstrated that the US is experiencing rapid growth in the number of NPs in the workforce and in the number of patients seeing NPs. For example, from 1998 to 2010, the growth of outpatient Medicare patients being seen by NPs grew roughly tenfold and the percentage of Medicare beneficiaries having an NP as their primary care provider grew by roughly fifteen-fold (Kuo, Loresto, Rounds, & Goodwin, 2013)

This strong growth in the NP and, to a lesser extent, the PA workforces relative to primary care physicians is expected to cause the share of primary care providers who are physicians to drop from 71 percent in 2010 to 60 percent by 2025 (Auerbach, et al., 2013). As a means of making efficient use of this workforce and to combat the expected growing shortage of primary care physicians, some entities have proposed expanding the supply and scope of practice of NPs and other types of APNs. Currently, physicians and APNs do not agree on the respective potential and ideal roles of each in the delivery of future primary care services (Donelan, DesRoches, Dittus, & Buerhaus, 2013). The National Council of State Boards of Nursing has proposed allowing NPs to practice independently in a responsible and accountable manner that recognizes the limits of their knowledge and experience and the need to consult professionals in other fields as appropriate. The National Governors Association and the American Association of Retired Persons have also indicated support for the modification of scope of practice laws and expanded roles for NPs in primary care provision. Conversely, the American Medical Association, the American Osteopathic Association, the American Academy of Pediatrics, and the American Academy of Family Physicians have all voiced support for regulations requiring NPs to be supervised by physicians (Fairman, Rowe, Hassmiller, & Shalala, 2011).

Competencies and Roles

Per Texas Board of Nursing rules, an APN works within the specialty and role cestablished by their training to assess and treat patients or to counsel them on health promotion and maintenance. The APN may act independently or in collaboration with a health care team in performing these duties. Specific to primary care, APNs nationwide (mostly NPs) often provide preventive services, diagnose and manage many acute illnesses, assist the patient in the management of chronic illness, and write prescriptions (Hansen-Turton, Ware, Bond, Doria, & Cunningham, 2013). In Texas, APNs (and PAs) may prescribe drugs under a prescriptive authority agreement with a physician.

Broadly, evidence has indicated that primary

care services, such as those listed above, can be provided by APNs in a safe and effective (Fairman, Rowe, Hassmiller, & Shalala, 2011). Indeed, it has been estimated that NPs can provide between 50-90 percent of those services offered by a primary care physician with comparable quality (Auerbach, 2012). Of those services more likely to be addressed by physicians, both NPs and physicians cited more complex cases, specific diagnoses or disease groups, and procedures and postoperative care (Donelan, DesRoches, Dittus, & Buerhaus, 2013). This division of labor is further supported by Yee, Boukus, Cross, & Samuel (2013) who noted that NPs usually focus on chronic and preventive care management rather than complex diagnoses.

In describing the potential success of NPs providing primary care services, data have suggested that consumers are more than willing to utilize the services of NPs, especially if faced with wait times for physicians (Dill, Pankow, Erikson, & Shipman, 2013). Physicians, meanwhile, have indicated that the success of NPs on the health team is established as trust of NPs' professional judgment and clinical decisions evolve over time (Poghosyan, Nannini, Stone, & Smaldone, 2013). Finally, a survey of NPs revealed that NPs found it important that the NP-physician relationship be characterized by communication, support, trust/rapport, respect, collaboration and teamwork, and collegiality (Poghosyan, Nannini, Stone, & Smaldone, 2013).

APN Contributions to Efficacy and Efficiency

In its 2010 report, the IOM concluded that APNs could independently provide core primary care services as effectively as physicians (Hansen-Turton, Ware, Bond, Doria, & Cunningham, 2013). This conclusion is based on the repeated studies that find no decline in outcomes dependent on NPs or physicians as the source of care. Most broadly, when NPs, PAs, or pharmacists were playing a complementary role in addition to physician care, clinical outcomes were generally positive or neutral compared to a physician working alone. Moreover, the involvement of either NPs or pharmacists was associated with improved measures of patient outcomes, improved process of care, and decreased resource utilization (Laurant, et al., 2009).

In substitutive roles, the outcomes were similarly impressive for those services provided by NPs. In fact, Laurant et al. (2009) report in their systematic review that NPs achieved equivalent clinical outcomes, greater patient satisfaction, improved processes of care (including better outcomes in terms of patient education and advice, record keeping, and speed of access), and no differences in the number of patient visits, prescriptions written or hospital admissions. Similar results of greater satisfaction, longer consultative times, and more tests, with no differences in patient outcomes, processes of care, or resource use have been reported elsewhere (Naylor & Kurtzman, 2010). This conclusion is supported by Poghosyan, Lucero, & Rauch (2012) who described the equivalent quality of care NPs provide in primary care settings relative to physicians as 'reported across studies' and Fairman, Rowe, Hassmiller, and Shalala (2011) who conclude that NPs can provide the same quality of basic primary care services as physicians without the additional training that physicians receive. One potential explanation of patient satisfaction is that all reviews showed NPs having longer consultation times than physicians (Laurant, et al., 2009).

It has been reported that an increased availability of primary care providers may reduce overall health costs (Kuo, Loresto, Rounds, & Goodwin, 2013). From an economic perspective, the efficiency of NPs, or more broadly APNs, is generally positive. In an analysis by the RAND Corporation following Massachusetts' health reform, the average cost of a NP or PA visit was estimated to be 20-35 percent lower than for a physician, indicating potential statewide savings of $4.2-8.4 billion over a decade through substitution (Naylor & Kurtzman, 2010). Additionally, the expansion of retail clinics, staffed by NPs, was characterized as providing potential savings of an additional $6 billion over a decade, mostly by private insurers. These savings are predicated, in part, on the fact that NPs command lower salaries than physicians. Additionally, society bears lower costs in training an APN versus a physician due to the public cost of APN education (Yee, Boukus, Cross, & Samuel, 2013) being between a third to a twelfth as expensive per student (Fairman, Rowe, Hassmiller, & Shalala, 2011). Despite these generally positive economic indications, Donelan, DesRoches, Dittus, and Buerhaus (2013) have stated that more information is needed on potential cost savings of NPs. Laurant, et al. (2009) found that evidence of

lower costs for NPs is weak, citing their greater use of resources, such as tests, in some studies, a conclusion supported by a study at the Mayo Clinic (Lohr, et al., 2013).

Policy Considerations

- **Barriers to the full integration of APNs into the primary care delivery system should be responsibly reduced.**

Expanding the role of non-physician clinicians does not preclude the need to produce more physicians, both in primary care and across specialties. It is clear from the data presented above that non-physician clinicians have neither the training nor the desire to serve patients across the full spectrum of care that physicians provide. However, as Laurant, et al. (2009) have stated, "[t]he revision of professional roles between physicians and non-physicians is a viable strategy for improving the quality of care and outcomes for patients. It also may be an effective strategy for increasing service capacity in the context of medical shortages of rising demand for care." Buerhaus, DesRoches, Dittus, and Donelan (2014) have written that the future likely holds an increased number of NPs, their expanded scope of practice, and patient utilization of their services, while primary care physicians focus their efforts on more complex cases, promote true collaborative practice, and use technology to expand the reach and capacity of clinicians. Indeed, "[t]he available evidence suggests that role revision between physicians and non-physician clinicians does not jeopardize patient care and may sometimes improve its quality" (Laurant, et al., 2009). Within practices, this literature review identified two specific avenues for improvement in the delivery and payment system with respect to APNs. First, research showed that NPs often had less access to resources, especially MAs and administrative personnel. It may be worth noting that the efficient use of time and quality care is, in part, made possible by support from ancillary staff, especially MAs (Poghosyan, Nannini, Stone, & Smaldone, 2013). The underutilization of NPs' capacities or a lack of administrative support may cause delays in patient processing and increase patient wait times. When NPs are granted greater access to these resources, productivity and thus cost efficiency may improve significantly, with an average cost savings per patient of 9 percent-12 percent (Liu, Finkelstein, & Poghosyan, 2014).

- **Payment practices should encourage APNs to bill under their own provider number, allowing for improved analyses of nurses' performance and quality measures.**

Second, current billing policy allows and may encourage practices to utilize incident-to billing through which the medical services of an APN are billed using a physician's provider number. This practice makes it impossible to monitor which services were provided by physicians and which were provided by APNs (Buerhaus, DesRoches, Dittus, & Donelan, 2014). This practice removes the ability of health providers, researchers, and policymakers to monitor quality care indicators by provider for delivered care. Such performance measures are key to ACOs and can be used to measure the quality, efficiency, and cost-effectiveness of care provided by APNs across practices and payers (Poghosyan, Nannini, Stone, & Smaldone, 2013; Poghosyan, Lucero, & Rauch, 2012). Additionally, research on the contributions of APNs to the efficient delivery of health care should continue to be studied. The results reviewed above were obtained by studying nurses in the current model of delivery and changes to the health care process may impact these results (Auerbach, 2012).

- **Efforts at addressing nursing faculty shortages should be redoubled, especially as delivery system changes enhance the need for APNs trained in team-based care.**

In addition to the need to monitor APNs' continued contributions to the provision of primary care, there is a need to consider potential changes to the system used to educate nurses. From a capacity perspective, the State of Texas and the nation are facing and will continue to face a lack of nursing faculty, partially due to high median faculty age and expected retirements of current faculty. As Naylor and Kurtzman (2010) point out, there will be a need to consider greater incentives aimed at the recruitment and retention of nursing faculty. There is also the need to prepare this faculty to deliver innovative curriculum to nursing students. As described above, the role of interprofessional collaboration and team-based care is a necessity of modern health care delivery. This will require nurse educators to consider how curriculum content, training, and demonstration of competencies can be best aligned to meet these needs (Donelan,

DesRoches, Dittus, & Buerhaus, 2013). For example, faculty sharing or the utilization of faculty members across professional schools may help institutions meet this need (MacLean, et al., 2014).

Finally, it is worth noting that the American Association of Colleges of Nursing proposed in 2004 that schools of nursing begin instituting doctoral requirements for the education of APNs (Cronewett, et al., 2011). This requirement stemmed, in part, from the IOM's 2003 report, Keeping Patients Safe: Transforming the Work Environment of Nurses, that called for the preparation of nurse executives and managers that would prepare nurse leaders to participate within executive leadership of healthcare organizations (Cronewett, et al., 2011). However, this proposed requirement would potentially act as a barrier to new APN enrollees in the short-term (Auerbach, 2012), hampering expected growth in primary care APNs by increasing the duration of training and increasing costs (Yee, Boukus, Cross, & Samuel, 2013).

Pharmacists as Providers

Attempts to mitigate primary care workforce shortages often focus solely on increasing the numbers of physicians, APNs, and PAs, expansion of these practitioner types' education programs is no guarantee of future primary care practice (Smith M. A., 2012). Indeed, an increasing burden of chronic disease in the U.S. and the ongoing shift toward newer health delivery approaches present the need and opportunity to integrate more practitioner types, especially pharmacists, into the primary care workforce (Kennie-Kaulbach, et al., 2012). In fact, medical homes and ACOs rely heavily on interdisciplinary collaboration and communication, they are ideal for implementing an increasingly team-based role for pharmacists (Smith, M. A., 2012; Kennedy, Chen, Corriveau, & MacLean, 2014; Kucukarslan, Hagan, Shimp, Gaither, & Lewis, 2011). Further, with a rise in the use of retail clinics, pharmacists are in an ideal place to aid in chronic disease management in a team-based interdisciplinary model (Smith M. A., 2012).

Evidence suggests that pharmacy practice can be appropriately transformed toward a more clinical, patient-centered role, treating patients through a collaborative approach with physicians and other providers (Santschi, Chiolero, Burnand, Colosimo, & Paradis, 2011). The IOM recommended in 1999 that pharmacists should be involved when prescribing decisions are being made (Kucukarslan, Hagan, Shimp, Gaither, & Lewis, 2011), and in 2011 the US Surgeon General publicly supported the greater involvement of pharmacists in patient care teams (Hirsch, et al., 2014). In preparing future pharmacists to fill these roles, many pharmacy schools have reoriented their curricula to enhance pharmacists' patient communication skills, their patient assessment and monitoring skills, their knowledge of pharmacotherapeutics for common chronic disease treatment, approaches to public health, and drug-therapy problem-solving skills (Smith M. A., 2012). Moreover, pharmacists are already highly trained in pharmacology, pharmacokinetics, and pharmacoeconomics compared to other health professionals, and many have advanced clinical training or board certification in pharmacy specialties (Smith M. A., 2012). For these reasons, the integration of pharmacists into primary care can help meet the Triple Aim (Kennedy, Chen, Corriveau, & MacLean, 2014) - the goal of improving the patient experience of care, reducing costs, and improving population health.

Competencies and Roles

Of the most important ways that pharmacists can add to workforce capacity is to serve in medication therapy management (MTM) roles (Smith M. A., 2012). MTM can be defined as reviewing patient medications to identify potential problems and educating patients about drug therapy, identifying potential barriers to adherence, and assisting patients in managing health conditions (Kucukarslan, Hagan, Shimp, Gaither, & Lewis, 2011). Depending on the level of autonomy in the MTM role, pharmacists can provide medication assessment, development of the care plan, follow-up, and personnel and resources to better treat the patient and improve outcomes. Specific to medication assessment, pharmacists engage in a systematic process of reviewing medication regimens, patient information, and laboratory results to identify potential problems. Pharmacists also work with patients and providers to develop care plans, provide relevant education and adherence counseling to patients, and track outcomes associated with these efforts. Finally, pharmacists may directly follow-up with patients regularly and continuously work with both patients and providers to assess potential medication problems (Moczygemba, et al., 2011).

The meta-analysis by Santschi et al. (2011), however, differentiated between pharmacist-directed care and pharmacist-provider collaborative care.[4] Together, these two models have been implemented in a variety of ways, including pharmacists providing patients with educational interventions, participating in medication reminder and adherence initiatives, performing medication management through the review of patient medical records, providing other health care professionals with information on potential drug-related problems, measuring risk factors for cardiovascular disease, and educating health care professionals. Given these expanded roles and interactions with both patients and other health care providers, pharmacists working in primary care settings must have excellent skills in communication, collaboration, and professionalism (Kennie-Kaulbach, et al., 2012).

[4] Currently in Texas, pharmacists can provide MTM in certain settings and only in collaboration with a physician.

For example in Canada, professional organizations and educational providers agreed that competencies for primary health care pharmacists should include patient advocacy, care provision, collaboration, communication, management, professionalism, and scholarly contributions. Specifically, the pharmacists should use their knowledge and skills to advance the health of populations, patients, and communities. This can be fulfilled by providing pharmaceutical care and medication management in response to patient health needs through effective collaboration with other practitioners, team members, and patients. (Kennie-Kaulbach, et al., 2012)

Pharmacist Contributions to Efficacy and Efficiency

It has been reported that 75 percent of primary care visits include prescribing medications or continuing prescriptions and that nearly 40 percent of patients older than 65 have five or more medications (Kennedy, Chen, Corriveau, & MacLean, 2014). This statistic demonstrates the potential for pharmacists to remove some burden on other primary care practitioners through the effective use of MTM. Broadly, evidence from ambulatory settings indicates that the involvement of pharmacists in MTM reduces hospital and ED admissions, decreases nonscheduled health services, decreases the number and costs of drugs, and improves prescribing. Pharmacists have also been shown to improve patient outcomes such as blood pressure, cholesterol, diabetes and smoking cessation. Finally, pharmacists may improve patient safety by reducing medication errors, improving laboratory monitoring for medications, adjusting doses for renal dysfunction, stopping medications, reducing inappropriate prescribing, improving adherence, and reducing costs (Kennedy, Chen, Corriveau, & MacLean, 2014). Furthermore, federal law has increased financial accountability for rehospitalization within 30 days of discharge, an outcome that may be addressed with pharmacist intervention during post-hospitalization care transitions. Specifically, researchers found a significant reduction in the primary composite outcome of 30-day rehospitalization and ED visits for pharmacist post-hospitalization interventions versus usual care, resulting in savings on treatment costs and rehospitalization penalties. Telephone efforts have estimated cost savings from similar efforts at $35,000 per 100 patients, but face-to-face interventions such as the one described here require further monetary evaluation (Hawes, Maxwell, White, Mangun, & Lin, 2014).

A systematic review and meta-analysis of pharmacist care in the management of chronic diseases found that pharmacist care was associated with significantly reduced risk factors for cardiovascular disease, specifically systolic/diastolic blood pressure, total and LDL cholesterol, and smoking risk, and that most studies favored the addition of pharmacist care over usual care (Santschi, Chiolero, Burnand, Colosimo, & Paradis, 2011). Equally of note, a review of randomized controlled trials found that MTM can provide measureable improvements for patients with newly diagnosed conditions, who have yet to achieve their therapeutic goals, or who have low health literacy (Kucukarslan, Hagan, Shimp, Gaither, & Lewis, 2011).

In a pilot study in Vermont, pharmacists working one day per week in five primary care clinics identified over 700 drug therapy problems. These problems were identified through the provision of direct patient care, patient education, and population-based strategies (chart review). Furthermore, 86 percent of their recommendations were accepted by prescribers. These recommendations resulted in cost avoidance of $2.11 for every $1 spent on pharmacist cost (Kennedy, Chen, Corriveau, & MacLean, 2014). Likewise, evidence indicates that primary care providers can refer patients to pharmacists for medication review, information, and follow-up with success. Thus, continued collaboration between providers can further improve patient outcomes.

In another example, a randomized pragmatic trial conducted in a California university's general internal medicine clinic found significantly greater reductions in both systolic and diastolic blood pressures among patients engaged in collaborative pharmacist-physician MTM. Overall, almost half of all patients had at least one identified problem in their medication regimen and one-third had their medication changed at the initial MTM pharmacist visit (Hirsch, et al., 2014). In fact, in their review of other published studies on MTM's effects on hypertension, the authors noted that 84 percent of published studies showed positive results for MTM. In this review, the authors further noted greater success when patients saw pharmacists separately rather than as a part of their general primary care visit and when the pharmacist had autonomy to

make changes in a patient's medications rather than just making these recommendations to the regular primary care provider. The authors noted that pharmacists reduced patients' time spent with more costly primary care providers and helped patients achieve better control of hypertension. Finally, MTM with pharmacists initiating and changing medications at separate office visits holds potential for cost-effective management of hypertension (Hirsch, et al., 2014)

In a third study at a clinic located within a patient-centered medical home in Virginia offering mental health services, pharmacists engaged in mental health medication therapy management identified an average of two medication-related problems per patient. Furthermore, 85 percent of their recommended changes in medication were accepted by the prescriber and/or the patient. In the medical clinic alone, there were an average of 5.1 medication problems per patient with 89 percent of recommendations being accepted by the prescriber and/or the patient (Moczygemba, et al., 2011).

Rather broadly, the potential for pharmacists to make positive impacts in the provision of primary care and other services is well-established. A review of randomized controlled trials described above indicates that results are especially beneficial for patients with specific therapeutic problems and when the pharmacist is able to communicate with the primary care provider in a timely fashion. Additionally, benefits are maximized if MTM is provided by the pharmacist on an ongoing basis involving the pharmacist, primary care provider, and patient and can improve patient adherence following changes in medication when accompanied by direct patient follow-up on behalf of the provider (Kucukarslan, Hagan, Shimp, Gaither, & Lewis, 2011).

Pharmacist Roles in Patient Care

Beginning in 2010, the American Pharmaceutical Association Foundation's Project IMPACT: Diabetes has sought to improve the health of underserved populations that are disproportionately affected by diabetes and have limited access to quality care. The Centro de Salud Familiar La Fe in El Paso has participated in this program by employing collaborative care teams, including a physician, a pharmacist, a social worker, and a health educator, to assist patients in managing their diabetes.

"Pharmacists play an important role on the collaborative diabetes care team at La Fe. Patients who would benefit from individual diabetes management are referred to the pharmacist by physicians and other providers at the clinic. During appointments, pharmacists use their medication expertise to review medication therapy and diabetes standards of care (e.g., foot exams, immunizations) with each patient. As part of the healthcare team, pharmacists tailor education to each patient's needs and assess potential barriers that may limit the patient's adherence to medication or treatment recommendations. Based on the pharmacist's interactions with the patient, appropriate referrals/recommendations may be made to specialty services (e.g., social work, health education, dental, optometry). Pharmacists work together with the health education team to provide group classes covering topics such as exercise, healthy nutrition, stress management, depression, medication management, glucometer training, and self-management. The pharmacist also attends the grocery store tours at local markets where the patient purchases food for a family of four with a budget of only $5.00. This holistic, collaborative approach to diabetes care has been well received by the patients and shown significant improvements in key clinical outcomes." (American Pharmacists Association Foundation, 2014)

An evaluation of the nationwide program indicates a statistically significant and clinically relevant decrease in patient A1C levels (Bluml, Waton, Skelton, Manolakis, & Brock, 2014).

Policy Considerations

- **The feasibility of expanding physician-supervised medication therapy management (MTM) into more outpatient settings should be considered as a means to efficiently and effectively incorporate pharmacists' skills into the primary care workforce.**
- **Pharmacists with provider status should be able to directly bill for their MTM services.**

As noted above, a possible example of direct patient care roles for pharmacists can be to provide patients with appointments for comprehensive medication therapy review, with the treating physician receiving a summary of the encounter (Smith M. A., 2012). However, primary care physicians with an interest in engaging pharmacists in this role may currently refrain from doing so because of a lack of reimbursable services for pharmacist-provided medication management services (Smith, M. A., 2012; Moczygemba, et al., 2011). For this reason, the Texas Pharmacy Congress' recent Vision to Enhance Patient Care document called for pharmacists to be recognized as health care providers for billing and reimbursement purposes. In March 2014, the administrator of the CMS ruled that the work of pharmacists in face-to-face visits may be billed as 'incident-to' treatments provided they are allowed under the scope of the pharmacists' state licenses. Further, MTM billing codes are acceptable for use in the Medicare Advantage Plan and Medicare Part D.

In addition to the need for reimbursement systems to be improved, many pharmacy schools have revised their curricula to enhance skills on patient communication, patient assessment and monitoring, pharmacotherapeutics for common chronic diseases, public health, and drug-therapy problem-solving skills. At the same time, academia and employers should work together to ensure that innovative applied training programs are available to pharmacy students interested in providing primary care (Smith M. A., 2012).

Finally, there are 30 active projects addressing medication management as part of the Texas Medicaid 1115 Waiver Delivery System Reform Incentive Payment (DSRIP) Program. The outcomes of these projects should be monitored closely for lessons learned regarding impacts on the primary care workforce and access to care.

Community Health Workers

CHWs, or promotoras as they are often called in Spanish-speaking border regions, have existed in the U.S. since the 1960s (Ingram, et al., 2011). In 2010, estimates indicated that there were more than 120,000 CHWs in the U.S. (Rosenthal, et al., 2010). Approximately 75 percent of the U.S.' CHW workforce are paid for their services, while the remainder serve as volunteers (Cherrington, et al., 2010). As the field has grown, CHWs have been increasingly incorporated into administrative and regulatory considerations of health care delivery. For example, in the late 1990s several states, including Texas, began to regulate CHWs and incorporate them into the health workforce (Rosenthal, et al., 2010). Currently, Texas and Ohio certify all paid CHWs, and Indiana and Alaska have begun certifying CHWs who practice in specific settings. Still other states are considering increased regulation and certification of practitioners (Gilkey, Garcia, & Rush, 2011). At the federal level, CMS approved a state plan amendment in 2008 authorizing payment for CHWs working under Medicaid-approved providers: physicians, nurses, dentists, and mental health providers (Martinez, Ro, Villa, Powell, & Knickman, 2011). Recent federal law has also included funding mechanisms for the integration of CHWs into the broader health provider workforce. (Ingram, et al., 2011). In 2010, the U.S. Department of Labor's Bureau of Labor Statistics recognized CHWs as a distinct profession, defining their roles as assisting individuals and communities with adopting health behaviors, conducting outreach, and advocating for individual and community health needs (Martinez, Ro, Villa, Powell, & Knickman, 2011).

Competencies and Roles

Early in the emergence of community health workers as a growing provider type, the national Community Health Advisory Survey (CHAS) sought to define the field through the roles that CHWs filled and the competencies they have mastered. These competencies, widely cited, are as follows:

1. Bridging/cultural mediation between communities and health care systems
2. Providing culturally appropriate and accessible health education information
3. Assuring that people get the services they need
4. Providing informal counseling and social support
5. Advocating for individual and community needs
6. Providing direct services
7. Building individual and community capacity (Ingram, et al., 2011)

Equally important, CHWs perform these competencies synergistically, recognizing that patient needs often demand multiple of these skills (Ingram, et al., 2011). Thus, CHWs operate under current models of peer support in health care - specifically as a variant on the employment of consumers as providers within clinical and rehabilitative settings - acting as roles models, complementary support, and potential gateways to the health system (Spencer, Gunter, & Palmisano, 2010). Like recovery coaches in the mental health setting, CHWs serve to eliminate or minimize the barriers of language, education, citizenship, and life experience (Rosenthal, et al., 2010).

Specific to Texas, Chapter 48 of the Health and Safety Code defines a CHW as one who "provides a liaison between health care providers and patients through activities such as assisting in case conferences, providing patient education, making referrals to health and social services, conducting needs assessments, distributing surveys to identify barriers to health care delivery, making home visits, and providing bilingual language services." This legislative definition covers many aspects of the CHAS competencies but does not explicitly highlight the CHWs' efforts with communities, as noted in CHAS competencies #1, #5, and #7. However, public health researchers have proposed that the social determinants of health may be best addressed by engaging communities in solving their health problems (Balcazar, et al., 2011). Furthermore, disease management may best be achieved through partnerships between health systems and communities (Cherrington, et al., 2010). Taken together, these last points may highlight the importance of CHWs to improving health in certain areas of the state.

Multiple recent surveys have demonstrated that CHWs across the US work in diverse settings and in various types of agencies both within and external to clinical environments (Ingram, et al., 2011). Indeed,

Cherrington, et al. (2010) report that researchers and clinicians are increasingly seeking to improve health outcomes in community interventions through the use of CHWs. Elsewhere, CHWs have been proposed as a means of improving outcomes for underserved populations and helping people manage chronic disease (Rosenthal, Wiggins, Ingram, Mayfield-Johnson, & Guernsey de Zapien, 2011). Ingram, et al. (2011) provide data indicating that among all CHWs, 57 percent practice in chronic disease, 42 percent provide preventive services, and 38 percent deal with issues of health care access. Additionally within community health centers, 36 percent are involved in maternal and child health programs.

Given their mastered competencies and variety of role capabilities, CHWs are well-positioned to facilitate timely access to primary and preventive services by improving the coordination, quality, and cultural competence of medical care (Martinez, Ro, Villa, Powell, & Knickman, 2011). With such a wide range of skills and a focus on community outreach, CHWs often function as the first point of contact for people who have previously lacked access to primary care and preventive health services (Martinez, Ro, Villa, Powell, & Knickman, 2011). In doing so, the CHW can assist the primary care provider in identifying a patient's health needs and considering the cultural relevance of treatments provided (Waitzkin, et al., 2011). Most broadly, CHWs can increase access to health care and health education, promote community empowerment, improve quality of care and compliance with prescribed care, and reduce the costs of care (Rosenthal, Wiggins, Ingram, Mayfield-Johnson, & Guernsey de Zapien, 2011).

CHW Contributions to Efficacy and Efficiency

Generally, studies of CHW intervention efficacy have shown favorable results (Waitzkin, et al., 2011). For example, an evaluation study of CHW effects on treatment experiences in New Mexico revealed notable results for all parties (Waitzkin, et al., 2011). Patients perceived that CHWs spent more time with them and listened more attentively than did physicians. CHWs also stressed their ability to spend more time with the patient, and thus generate greater rapport than physicians might. Importantly, primary care providers also celebrated the additional time CHWs could spend with patients, the ability of CHWs to remove cultural and linguistic barriers, and an increased perception of patient comfort.

From a cost perspective, the AHRQ was unable to assemble sufficient data to conclude that CHW practice was cost-effective. While this issue is discussed further below, it is worth noting that AHRQ reviewers did find several notable demonstrations of cost savings or reductions (Martinez, Ro, Villa, Powell, & Knickman, 2011). According to the AHRQ, the five most costly diseases in the U.S. between 1996 and 2006 were heart disease, trauma-related disorders, cancer, asthma, and mental health disorders, with the largest increase in cost being for mental health and trauma-related disorders (Ngo, et al., 2013). Recalling the majority of CHWs work with issues of chronic disease, CHWs stand to lessen the cost impacts of these health problems.

CHWs and Diabetes Care

In Dallas, Baylor Scott & White Health – North's Diabetes Equity Project employs CHWs in community clinics to provide clients with a structured diabetes education curriculum. In seven lessons, this curriculum targets barriers in diabetes management that Hispanics often face. Specifically, the CHWs help patients to overcome a lack of knowledge about diabetes, address poor dietary and physical activity behaviors, and identify a means to access necessary social support and appropriate care. Results from this program indicate that participating patients experienced a decrease in mean A1C levels and systolic blood pressure readings after one year (Collinsworth, Vulimiri, Schmidt, & Snead, 2013).

In a similar University of Texas Community Outreach program using CHWs to target Hispanics at the Mercy Clinic in Laredo, estimates indicated a cost effectiveness ratio of a lifestyle modification program to be between $10,995 to $33,319 per quality-adjusted life year gained as compared to usual care. The intervention was particularly effective among those patients with high glycemic levels (A1C >9 percent) (Brown, et al., 2012).

For example, CHWs have had widespread success assisting users of EDs find more appropriate care, and they can follow recent hospital discharges of patients with serious conditions (heart attack, stroke, diabetes complications, etc.) as a part of postdischarge planning, with an eye toward reducing readmissions (Balcazar, et al., 2011). Furthermore, Waitzkin, et al.'s (2011) study showed that "[a]ll interviewed PCPs [primary care practitioners] favorably assessed the value of [CHW] services for depression". Also on mental health, a growing literature suggests that lay health care workers can be effective especially when providing screening, psycho-education, and brief behavioral interventions (Ngo, et al., 2013).

According to Martinez, et al. (2011), CHWs are ideal for the ongoing movement toward outcome-driven, value-based care. In their article, these authors outline how CHWs can contribute to effective cost savings in full and partial capitation models, bundled payment arrangements, shared savings agreements, and pay-for-performance initiatives. Specific to full and partial capitation models, which the authors describe as most ideal for the deployment of CHWs, preventive health care that improves care quality and reduces cost is an expected CHW contribution. In a bundled payment system, CHWs might assist in care coordination and health management. For shared savings arrangements, CHWs would act to improve access to primary and preventive care services, identify community health issues, serve as community liaisons for providers, and tailor and deliver interventions for patients with complex health and social needs. Finally, within a pay-for-performance model, CHWs would work to tailor interventions for patients in greater need of care management and service coordination (Martinez, Ro, Villa, Powell, & Knickman, 2011).

In addition to contributions to the treatment of chronic disease and in evolving payment systems, CHWs can be integrated into broader discussions of improving efficiency in the health care delivery system. Recently, policymakers' attention has been focused on potential delivery system innovations to reduce cost. Two popular concepts, accountable care organizations and health homes, have been described as an "ideal context for integrating CHWs" into the health care workforce (Martinez, Ro, Villa, Powell, & Knickman, 2011). Specific to the PCMH, CHWs are expected to be an essential element of proper implementation given their close ties to communities, their ability to foster cultural awareness and sensitivity among the treatment team, and the role they can play in ensuring PCMHs are culturally and linguistically appropriate for a population (Balcazar, et al., 2011).

Within collaborative care models such as PCMHs, tasks can be shifted and shared with specialists allowing primary care providers and community health workers to identify patients who need care, assess patient risk factors, educate patients about their illnesses, risk factors, and treatment, intervene with a combination of brief evidence-based pharmacological and psychosocial treatments, teach self-management skills, monitor patients' progress and adherence to treatment, and follow-up over the long-term (Ngo, et al., 2013). As described above, the full integration of the CHW in the health care team relies on the CHW to go beyond mere patient recruitment to the full exercise of their range of roles and responsibilities (Balcazar, et al., 2011). After all, CHWs add value to the health care team by providing contextual data about patients' attitudes, behavior, and environment that can inform development of an effective care plan (Martinez, Ro, Villa, Powell, & Knickman, 2011).

Policy Considerations

- **The full integration of CHWs into the health care payment system is necessary for them to meet their potential to support patients and the primary care team.**

As the nation's workforce of CHWs continues to develop, several policy considerations have been raised. CHWs are not yet fully integrated into the country's health care payment system, a fact that keeps CHW programs from reaching their full potential for impact (Spencer, Gunter, & Palmisano, 2010). Thus the literature has consistently recommended that sustainable financing for CHWs be implemented through direct care reimbursement strategies, managed care organizations, 1115 waiver projects (Spencer, Gunter, & Palmisano, 2010), and commercial insurers and public funds (Martinez, Ro, Villa, Powell, & Knickman, 2011).

- **The standardization of education and career development systems is imperative for the continued professionalization of the field.**

The CHW workforce does not yet have well-defined

training and career development systems (Rosenthal, et al., 2010; Balcazar, et al., 2011), often resulting in CHWs not being recognized as legitimate providers (Spencer, Gunter, & Palmisano, 2010). States and CHWs should continue to work together to develop consistent standards for training and regulation of the field (Rosenthal, et al., 2010; Balcazar, et al., 2011). Combining these two points, Spencer, Gunter, & Palmisano (2010) propose that the creation and institution of systematic skill sets and credentials recognized across work settings and usable for higher education would improve the field and its standing within the broader health system.

- **Greater efforts must be made at systematic evaluation of CHWs in order to better understand where, when, and how they may be best deployed.**

Finally, the evaluation of CHWs does not lend itself to the randomized controlled experiments generally preferred by the health industry. This expectation has contributed to the AHRQ being unable to identify conclusive data on CHW efficacy, but ignores the complex social systems, with evolving communities, in which CHWs perform their work (Balcazar, et al., 2011). Rather, evaluations of CHW programs should incorporate qualitative and ecological, as well as quantitative, analyses. These evaluations should further strive to generate common measures to be used in evaluating CHWs (Rosenthal, et al., 2010; Balcazar, et al., 2011). As Waitzkin et al. (2011) note, due to continuing unmet health needs, the further assessment of innovative roles for CHWs is needed (Waitzkin, et al., 2011).

Review of Primary Care Policy Recommendations

As previous chapters have outlined, the nation's health care system is undergoing rapid changes at a time when it also faces great challenges. With existing shortages of primary care providers and expected increases in the demand for care that accompany the increasing prevalence of chronic disease, the aging of the baby boomer population, and increased demand for services, the SHCC supports the promotion of a robust primary care system within Texas and has identified multiple means by which the state can meet these challenges. As the innovative payment and delivery systems discussed herein continue to evolve, it is important the state's health care policymakers, providers, and consumers continue to strive towards an efficient and accessible health care system that promotes the timely use of primary care services.

A core part of the transformation of the health care delivery system, for both primary care and mental health care, is the ongoing transition to team-based, collaborative care that empowers multiple providers with the autonomy necessary to work together. As the preceding chapters have made clear, **the successful employment of such an approach will be dependent on the efficient and appropriate use of many types of primary care providers**. The stark need for a larger number of primary care physicians in the workforce is clear, though it is just as essential that these physicians be prepared to serve as leaders of care teams and delegate appropriately to team members. Likewise, providers from other professions, namely advanced practice nurses, physician assistants, and pharmacists, should be further incorporated into the primary care workforce and their skills utilized to meet the varying needs of the Texas population. Finally, CHWs should be recognized for their service as liaisons between providers and patients, bridging cultural and linguistic gaps, improving patient satisfaction, and serving as vital links between communities and the health care system.

With the ongoing shift toward team-based care and the increased incorporation of multiple provider types into the primary care setting, changes to the payment system will be needed. Primary care practices must be able to recoup the expenses incurred in the employment of additional providers, especially since these providers offer substantial potential to reduce the overall cost of care. Further, alternate reimbursement models, such as accountable care organizations, varying levels of capitation, or shared savings, should be oriented in a manner that maximizes the potential contributions of primary care and primary care providers.

Finally as the health care system continues to evolve, policymakers and stakeholders should continue to evaluate and reevaluate the multiple components of these systems. For example, quality of care by provider type, the efficacy and cost-effectiveness of patient-centered medical homes for different populations, and potential improvements in the collaboration of care and utilization of health information technologies are but a few of the issues on which data should be collected and analyzed.

Changes in the state's health system have already begun and the SHCC is committed to ensuring that these changes result in efficient, accessible, and responsive care. A chief component of achieving this goal is through the support of and innovation in Texas' primary care system.

Transforming Texas' Mental Health Care System

Key Policy Recommendations

- **Incentivize delivery and payment system reforms that encourage the adoption of team-based, collaborative, and coordinated care in the mental health care system.**
- **Improve and modernize efforts to train, recruit, and retain mental health care providers.**
- **Promote increased data collection and analysis to generate interdisciplinary workforce models for the mental health professions.**

The Mental Health Delivery System

According to Kazdin & Rabbitt (2013), "[a] critical aspect to reducing the burden of mental illness is the ability of effective interventions to reach those in need of services." As early as 2003, the President's New Commission on Mental Health concluded that the nation's mental health system was fragmented and in need of drastic transformation (Delaney, Carlson-Sabelli, Shephard, & Ridge, 2011).

In fact, as many as two-thirds of patients with significant behavioral conditions receive no mental health treatment and those who receive treatment often receive their care in the medical, not the behavioral health, sector (Kathol, deGruy, & Rollman, 2014). Moreover, changes to federal statute were estimated to add 3.7 million people with serious mental illness and many more with less severe behavioral health needs to the health insurance system (Bao, Casalino, & Pincus, 2013). It may be generally accepted that adequate primary care reduces health inequities (deGruy & Etz, 2010), but the application of this view to mental health will require considerable dedication.

The core of the emerging model of the PCMH relies on the known strengths of primary care, while incorporating aspects of the chronic care model and improving health information technologies in practice (Dickinson & Miller, 2010). An advantage of primary care is its comprehensiveness, defined as the availability of a wide range of services, and this same approach has been proposed as a possible solution for addressing issues in the nation's mental health system. Considering that primary care is where most people already receive their health care, and it is known that mental/behavioral conditions are related to physical conditions, integrating the delivery of physical and mental health care appears an appealing solution. The PCMH providing mental health care ensures comprehensiveness and continuity of care (Dickinson & Miller, 2010; deGruy & Etz, 2010; Kearney, Post, Zeiss, Goldstein, & Dundon, 2011). Preferably, behavioral health interventions should be provided on-site (Dickinson & Miller, 2010; Kearney, Post, Zeiss, Goldstein, & Dundon, 2011) to improve patient experience, decrease barriers to treatment, and address potential stigma of going to a mental health provider (Dickinson & Miller, 2010). Given that primary care physicians already struggle to meet National Guidelines Clearinghouse standards - best practices recommended by the USDHHS - for patients with a singular diagnosis of depression, such an integration may additionally improve the provision of medical primary care services as well (deGruy & Etz, 2010).

Innovation in Mental Health Delivery

> **"It is inconceivable that whole person care can occur absent attention to and incorporation of the full psychosocial dimension of health and healthcare – mental healthcare, family and community contexts, substance abuse, and health behavior change" (deGruy & Etz, 2010).**

This quote supports the conclusions of the President's New Commission on Mental Health, which called for a transformation of the nation's mental health system. The current dominant treatment model is one-to-one in-person therapy, but in this transformation there is a need to identify and utilize additional approaches to the delivery of mental health services. On the one hand, these can be derivative of the dominant model, for example the use of telepsychiatry to address workforce distribution problems or self-help and computer-based interventions using the same mechanisms present in currently ubiquitous therapies (Kazdin & Rabbitt, 2013). On the other hand, there are truly innovative models, described by Kazdin & Rabbitt (2013), which have been shown effective. For example, peer-led therapies have been shown to be as efficacious as face-to-face therapies with a mental health professional in some cases (deGruy & Etz, 2010), and internet and mobile health technologies might be increasingly applicable to the elderly (Bartels & Naslund, 2013). Other categories of innovative delivery include:

Task shifting – Kazdin and Rabbitt (2013) define task shifting as a method to expand the health care workforce by redistributing the delivery of services to a broader range of providers with possibly less training and fewer qualifications than traditional health workers. Research has indicated that existing practitioners should be deployed to use the best of their abilities and that each profession should be granted a maximum amount of reasonable responsibility. One essential attribute of future health workers will be the ability to recognize and employ suitable innovations, even if this causes a personal role change (Gorman

& Brooks, 2009). The utilization of team-based care, collaborative care organizations, and medical homes have been cited as ideal models for improving outcomes and efficiency (Kirch, Henderson, & Dill, 2012). Medical, or health, homes have been presented as an appealing opportunity to offer integrated medical and behavioral health services (Beacham, Kinman, Harris, & Masters, 2011), while also potentially offering social service and housing programs (Mechanic, 2011).

Specifically, physicians might delegate some of the simpler tasks and practice 'at the top' of their training, allowing other professions to fill in the gaps through role extension. Physicians may then provide leadership while working as members of health care teams, with well-specified and defined tasks for each profession (Gorman & Brooks, 2009). For example, the increased use of NPs and PAs has great potential to significantly address health care workforce shortages (Kirch, Henderson, & Dill, 2012). Such task shifting is designed to provide interventions on a large scale and to reach individuals who otherwise would not receive services (Kazdin & Rabbitt2013). Typically, successful models incorporate redefinition of staff roles and duties, including those of primary care providers (physicians, NPs, and PAs), nurses, pharmacists, physical and occupational therapists, care managers, and others (Croghan & Brown, 2010; Kearney, Post, Zeiss, Goldstein, & Dundon, 2011).

Well-designed task shifting may improve the practice environment for the many primary care providers who report feeling as though they lack sufficient training in the diagnosis and treatment of mental disorders (Croghan & Brown, 2010). Additionally, these providers may also have concern about the amount of time required for thoroughly counseling, educating, and monitoring patients; a lack of access to mental health specialists for advice and consultation; and their inability to obtain outpatient mental health services for their patients (Croghan & Brown, 2010; Cunningham, 2009).

While task shifting is no cure-all, it can be a useful extension of available mental health services when lower-cost but lesser-trained clinicians are trained to support the application of evidence-based approaches to treatment (Kathol, deGruy, & Rollman, 2014). At the same time, more difficult patients should likely continue to see experienced psychiatrists or psychologists.

Disruptive innovations – Disruptive innovations have been defined as those innovations which expand care beyond the traditional locales for services and into everyday settings where people regularly attend or spend time (Kazdin & Rabbitt, 2013). Examples of non-traditional settings used to reach out to people otherwise not served by the mental health system have included schools, workplaces, homes, neighborhoods, prisons and detention centers, churches, hair salons, and barbershops. For example, the DSHS has worked with local mental and behavioral health authorities to train teachers and school district staff in mental health first aid (MHFA). In FY 2015, 6,527 educators and 4,792 non-educators were trained. The HHSC Office of Mental Health Coordination is also working to train a portion of state employees in MHFA. Elsewhere, an existing program described by Kazdin and Rabbitt (2013) trains hair stylists to assess anxiety and depression and assists them in providing appropriate referral services to clients.

Likewise, Bartels and Naslund (2013) similarly proposed the use of such disruptive innovations to meet the needs of elderly patients with mental health issues. Generally the advantage of these innovations is that they bring care to patients, rather than relying on the patient to present for treatment (Kazdin & Rabbitt, 2013).

Best buy interventions – Kazdin and Rabbitt (2013) define best buy interventions as those for which compelling cost-effectiveness has been established, but that are also feasible, low-cost, and appropriate to implement within the constraints of the existing mental health system. An example these authors offer is the use of generically produced antidepressant medication, brief psychotherapy, and treatment in primary care settings as best buys for the treatment of clinical depression. Likewise for psychoses, antipsychotic drugs and psychosocial support are identified as best buys (Kazdin & Rabbitt, 2013).

Lifestyle change – In addition to treatments aimed directly at mental health issues, efforts that modify high-risk behaviors and reduce disease morbidity and mortality should be considered as potentially improving the medical and mental health delivery systems. Indeed, improved nutrition, exercise, and spiritual/religious activities, among others, have been associated with favorable impacts on symptoms of

Barbershop Health Programs

Between 2006 and 2008, the University of Texas – Southwestern Medical Center conducted a pilot study in Dallas seeking to engage African Americans in blood pressure monitoring and health education. This intervention, which was delivered in community barbershops, provided customers with increased monitoring for hypertension with results indicating that such interventions can successfully provide for the detection, referral, and follow-up of health problems (Hess, et al., 2007).

Currently, TTHUHSC offers a similar program, The Barbershop Blood Pressure Program. Students from the TTUHSC provide outreach by approaching and enrolling local barbershops to take blood pressure readings and talk with patrons about high blood pressure and diabetes. Barbers in the shops are supplied with a scale, body mass index (BMI) chart, automated blood pressure cuff, and pamphlets with information about high blood pressure and diabetes for the patrons to use on a daily basis. One night each month, TTUHSC students also go to the Salvation Army during dinner and perform blood pressure and blood glucose screenings. In the 2014-2015 academic year, there was also a media day where students were out at the barbershops for an extended period to help get the community more involved in this program and help raise awareness about high blood pressure and diabetes.

Additional research and pilot studies are needed on how such approaches can be used to successfully engage communities and individuals on relevant mental health topics.

depression, anxiety, schizophrenia, eating disorders, and other mental health conditions (Kazdin & Rabbitt, 2013). The need for professionals in this approach stems from the truth that many patients may lack the sufficient motivation, skills, knowledge, or support and reinforcement necessary to make sustainable change (deGruy & Etz, 2010).

Delivery and Payment Models

Overall, mental health care costs have lagged behind growth in medical health care costs. While the share of national spending on medical care costs (currently about 17 percent) has been steadily growing, the share going to mental health held steady at about 1 percent of national spending for the thirty years prior to 2002. In 2006, per capita spending for mental health care in one sample was estimated to be $148.56; spending for medical care (excluding mental health) was $2,631.64. Notably, drug spending accounted for 26 percent of total per capita health care spending and a full 51 percent of spending on mental health care. Additionally, inpatient care in mental health, historically a large part of mental health spending, accounted for only 16 percent of all mental health care spending in 2006, further indicating the relative inexpensiveness of counseling services (Frank, Goldman, & McGuire, 2009). Indeed, a study by the Texas Department of Insurance found that a state law requiring insurers to reimburse for the services of LPCs did not significantly increase coverage costs. Claims costs for services provided by LPCs accounted for less than 0.1 percent of total claims for the insurers surveyed. A similar survey conducted by the Commonwealth of Virginia found that in 1996, claims for counselors' services amounted to 0.26 percent of insurers' total claims (American Counseling Association, 2011).

Three notable health care delivery models to control mental health costs have been introduced: the PCMH, the health home, and the ACO. Bao, Casalino, and Pincus (2013) have outlined how each might be used to serve specific sets of patients in need of mental health services. Interestingly, these authors described a lack of quality standards for each. Indeed for ACOs, only one of the quality standards prescribed by CMS is directly related to behavioral health (screening for depression).

Patient-Centered Medical Home

The PCMH model has been described as being built on the known strengths of primary care (see previous chapters) (Dickinson & Miller, 2010). A key advantage of primary care is its comprehensiveness, defined as the availability of a wide range of services.

A truly effective PCMH should include the provision of mental health services. Primary care is where most people already receive their health care, and it is known that mental/behavioral conditions are related to physical conditions. As such, PCMHs providing mental health care ensure comprehensive and continuous care (Dickinson & Miller, 2010; deGruy & Etz, 2010).

For PCMHs, NCQA standards require routine screening of patients for behavioral health conditions and the implementation of evidence-based guidelines for the management of one health behavior or mental health/substance abuse condition, in addition to two chronic medical conditions deemed important to the practice. Given the need for mental health or lifestyle changes to be incorporated into the PCMH, the proposed integration of mental health services seems sensible.

More broadly, Bao, Casalino, and Pincus (2013) describe PCMHs as offering the greatest potential to treat patients' mild to moderate behavioral health conditions, regardless of payer. However, these authors note, unless the PCMH is very large, it may lack sufficient capacity to deal with patients with serious behavioral health conditions.

Health Home

For Medicaid patients, the health home is aimed at care management, coordination, and use of clinical information technologies. Designated health home providers have been identified as physicians, clinical practices or clinical group practices, rural health clinics, community health centers, community mental health centers, and home health agencies. The health home differs from the PCMH as it seeks to build linkages to other community and social supports, and to enhance coordination of medical and behavioral health. Following from this second goal, enrolled patients must have two or more chronic conditions, have one chronic condition and be at risk for another, or have a serious mental health condition (Bao, Casalino, & Pincus, 2013).

The Medicaid health home is described as the best solution (of those listed here) for Medicaid patients with mild-to-moderate mental health conditions. Health homes with a large number of patients with serious mental illness, the authors advise, should develop a referral and care coordination system with external behavioral health and social service providers (Bao, Casalino, & Pincus, 2013).

One key advantage of the health home is that additional federal Medicaid funding may be available in the first two years of a health home's establishment. Also, federal law allows some flexibility to states in the rule-making process for designating providers as health homes (Bao, Casalino, & Pincus, 2013).

Accountable Care Organizations

Finally, ACOs seek to incorporate the full continuum of care and are accountable for overall costs and quality of care for a defined population. Shared savings mechanisms between the payer and the ACO provide incentives for providers to coordinate behavioral and mental health, as associations between treatment non-adherence, adverse health events, and increased total costs with behavioral health conditions are well-established (Bao, Casalino, & Pincus, 2013). According to these same authors, ACOs offer the greatest potential to patients with mild-to-moderate behavioral health conditions and either private insurance or Medicare. This fit is attributed to ACOs likely having the scale and resources to ensure access to and coordination with high quality behavioral health specialists. Some states, for example Colorado and New Jersey, are instituting regional ACOs for their Medicaid populations, but these solutions are best for geographic areas with high Medicaid patient density (Bao, Casalino, & Pincus, 2013).

Moving Forward

As a means of addressing the nation's mental health system problems, President George W. Bush convened the President's New Freedom Commission in 2002. The Commission's 2003 report called for the large scale transformation of the US mental health care system into a consumer-centered system focusing on recovery and delivering excellent care without disparities. Such a transformation demands the vast expansion of the workforce through training and initiatives aimed at the redistribution of duties among providers (Thomas, Ellis, Konrad, Holzer, & Morrissey, 2009).

This chapter has reviewed just some of the important transformations in mental health services being implemented in Texas and across the nation. Still it is clear that the utilization of mental health services, regardless of model of delivery, will require a better

understanding of the need for, benefits of, and access points to these services, a domain referred to as health literacy (Kazdin & Rabbitt, 2013). Additionally, innovative interventions must be evaluated rigorously so that they can be scaled to reach individuals in need and expand the workforce as possible (Kazdin & Rabbitt, 2013).

Paris, Jr. and Hoge (2009) have identified the need for relevant and effective education and training covering innovation in prevention, treatment, and recovery-oriented services for mental health professionals as one of the core concerns facing the field. Indeed, the Annapolis Coalition advocated for a foundation of core competencies for mental health delivery skills that would apply to the five core mental health professions: nursing, psychiatry, social work, marriage and family counselors, and psychology (Delaney, Carlson-Sabelli, Shephard, & Ridge, 2011). These competencies, which should be included in both the initial education/training of health professionals and their continuing education/retraining, should follow the best practices suggested by the medical and mental health literature: assuring continued contact and reinforcement of newly acquired skills (Lyon, Stirman, Kerns, & Bruns, 2011). The adoption of these competencies is unlikely in the traditional educational setting and in cases where the provider fails to recognize the need for change in service delivery. Thus just as innovation must be used in service delivery, innovation will be equally important in the delivery of trainings, as traditional workshop models or any other single strategy are unlikely to be successful (Lyon, Stirman, Kerns, & Bruns, 2011).

- **As with the delivery of primary care, team-based, collaborative and coordinated care is an essential component of transforming the mental health delivery system.**

Chief among the changes discussed above is the need for mental health care professionals to operate collaboratively within the primary care practice and in teams providing integrated care. Specifically, issues of language, control, role definition, and others must be addressed prior to the successful function of the team (Dickinson & Miller, 2010). In preparing current and future professionals for administering team-based care, interprofessional education can be used to improve providers' reactions, attitudes, and knowledge, while also improving service delivery and patient care outcomes (Lyon, Stirman, Kerns, & Bruns, 2011; Delaney, Carlson-Sabelli, Shephard, & Ridge, 2011).

- **Improving efforts at recruiting and retaining mental health care providers is an absolute necessity.**

Another pressing concern stems from difficulties recruiting and retaining staff in mental health service settings (Paris Jr. & Hoge, 2009). High turnover rates compromise continuity of care and create organizational instability, financially draining the system due to the costs of employee separation and the recruitment and training of new employees. For social workers, high job demands have been associated with emotional exhaustion (employee burnout). Among psychologists, emotional exhaustion was correlated with long working hours and time spent on administrative and paperwork tasks. Given the high rate of turnover in the mental health professions, there exists a compelling need to better understand and mitigate high levels of distress among providers of mental health services (Paris Jr. & Hoge, 2009).

In implementing reform efforts, policymakers and practitioners should consider which models might best serve which populations (Bao, Casalino, & Pincus, 2013). Another important consideration is the incorporation of evidence-based guidelines for behavioral health into PCMHs, specifically through NCQA and other tiering systems and risk adjustment payment methods (Bao, Casalino, & Pincus, 2013; Croghan & Brown, 2010). Furthermore, relevant to innovations in the mental health delivery system, greater information is needed on the cost to implement versus pay-offs (Bao, Casalino, & Pincus, 2013). Finally, it has been suggested that current payment mechanisms provide incentives for full implementation of team-based care and care coordination activities (Croghan & Brown, 2010).

Newer access models for education, delivery, and treatment are beginning to improve our nation's access to mental health services. Distance learning is increasing the availability of mental health education to citizens throughout the country. Entire degree programs are now being offered via distance learning for aspiring mental health practitioners, not simply supplemental or elective course work. Telemental health therapy is increasing access to mental health care, with hospital-based specialists connected as

a hub to multiple small auxiliary (usually rural) locations. The internet has given rise to sites like the popular Oprah Winfrey-sponsored www.Breakthrough.com, allowing anyone to gain access to a mental health professional from their own home. Biopharmaceutical research companies are developing more than 100 new medicines to treat schizophrenic depression, attention-deficit/hyperactivity disorder, addiction and substance abuse, and even autism spectrum disorders (Pharmaceutical Researchers and Manufacturers of America, 2014). These developments are a major force for future change in mental health care as prescription drug spending is a key driver of spending growth in mental health care.

- **The mental health delivery and payment systems must undergo substantial transformation.**

The future of mental health care also raises its share of concerns. Recent changes to federal law, for example, bring a number of changes to health care delivery. Its principal promise – more citizens covered – may pose a risk to independent mental health practice. While more Texas citizens will be insured for coverage for health services, there will be a greater expectation to use the coverage. The extent then to which people are willing to purchase services beyond those for which they have already "pre-paid" remains to be seen (Herz, 2014).

Rise in Prescription Drug Abuse

The abuse of prescription medication has increased dramatically since the 1980s. In 2009, for the first time deaths attributed to prescription overdose outnumbered deaths caused by motor vehicles. Opioid related fatalities have also outnumbered overdose deaths that involve other illicit drugs such as heroin and cocaine combined. From 1999 to 2014, there were more than 15,000 people in the U.S. that died as a result of overdose related to prescription medication. In 2014 alone, 14,000 individuals died as a result of prescription drug overdose.

Opioid analgesics have become the primary drug involved in overdose deaths, increasing to 60 percent in 2010 compared to only 30 percent in 1999. In the United States the abuse of opioid analgesics have resulted in over $72 billion in medical costs, which is comparable to other chronic diseases such as asthma and HIV.

There are many factors that contribute to the increase the abuse of prescription medication. Provider clinical practices and insufficient oversight to reduce inappropriate prescriptions have increased the supply of opioids in the general population. Insurance and pharmacy benefit policies and the belief that prescription drugs are not dangerous have also contributed to the abuse of prescribed medications.

The CDC estimates that one out of five patients (excluding those with cancer) are prescribed opioids in office based physician practices. Primary care providers are responsible for prescribing about half of opioids dispensed throughout the country.

Mental Health Program for Veterans

The State of Texas is home to the second largest number of Veterans in the United States. With 14 active duty military bases and numerous other National Guard and Reserve installations many soldiers, sailors, marines and airmen remain in Texas following their separation from the Armed Services. Veterans returning from combat operations in Iraq and Afghanistan experience higher rates of Traumatic Brain Injury and post-traumatic stress syndrome or PTSD.

HHSC's Mental Health Program for Veterans seeks to improve mental health among veterans through a multifaceted intervention program that includes peer-to-peer counseling, improved access to licensed mental health professionals, a jail diversion pilot program, the women veterans initiative, and the rural veterans initiative. HHSC partnered with a network of mental health and community partners to implement these programs.

The increased training of peer-to-peer counseling is the primary component of these efforts. After increasing the number of full time coordinators able to train and manage peer-to-peer counselors, these counselors served to implement three other program components. Counselors were supported by two mental health clinicians who worked to organize a network of military-informed providers trained in veteran-specific health care needs.

The pilot jail diversion program was established to prepare veteran offenders for successful re-entry into their communities. Volunteer coordinators and peer counselors work directly with select veteran offenders to promote skills aimed at deterring recidivism and encouraging successful transitions back into communities. The women veterans initiative expanded the number of trained female volunteers and peer counselors to assist female veterans' access to and utilization of mental health services. The rural veterans initiative encourages the use of video technology for remote therapy sessions, identifies community health resources for veterans, and operates peer networking centers where veterans can gather to meet with trained peers and service providers.

To further improve the Mental Health Program for Veterans, the SHCC supports additional programs that engage additional veterans, such as those with substance abuse issues and veterans with comorbid physical and mental health conditions. Efforts to expand the number of military-informed clinicians and peer counselors should also be a priority in the continuation of this vital program.

The Mental Health Workforce Shortage

Nationally, 46.4 percent of adults experience mental illness at least once in their lifetime and 26.2 percent of adults experience mental illness annually. On an annual basis, 5.8 percent of adults in the US experience a serious mental illness (Hogg Foundation for Mental Health, 2011). Moreover, the aging of the US population requires behavioral health service providers with special knowledge and skills (Hoge, et al., 2013).

In 2013, an estimated 43.8 million adults aged 18 or older in the U.S. had experienced mental illness in the past year, while an estimated 21.6 million individuals aged 12 or older had experienced a substance use disorder in the past year (Center for Behavioral Health Statistics and Quality, 2014). One estimate puts the total economic costs of mental, emotional, and behavioral disorders among youths in the U.S. at approximately $247 billion (O'Connell, Boat, & Warner, 2009).

Nationwide, 39 percent of persons with mental illness and 10.8 percent of persons with substance abuse issues receive the mental health treatment they need (Hoge, et al., 2013). A national study conducted by the Center for Studying Health System Change found that 66.8 percent of primary care physicians were unable to refer their patients to high quality mental health specialists. This is a far higher rate of unavailability than those seen for other specialty referrals, nonemergency hospital admissions, or high quality imaging services (between 17 percent and 34 percent). The study attributed unavailability to either inadequate health insurance coverage or a shortage of mental health providers (Cunningham, 2009).

Mental and behavioral health treatment is one of many methods facilitating recovery for patients in need. Treatment and counseling have the potential to decrease the risk of relapse and promote recovery and remission of mental disorders (Emsley, Chiliza, Asmal, & Lehloenya, 2011). According to the 2013 National Survey on Drug Use and Health, 34.6 million adults aged 18 or older received treatment or counseling for mental health issues during the past 12 months. With regard to adolescents, 38.1 percent of adolescents with major depressive episode (MDE) within the past year and 45.0 percent of those who had MDE with severe impairment received treatment or counseling for depression. Also, 22.7 million individuals aged 12 or older needed treatment for an illicit drug or alcohol use problem. Outside of the clinic and community health centers, school-based preventive and treatment interventions for children and adolescents have become commonplace. They are used routinely to provide services that focus on diverse clinical issues, including conduct problems, depression, stress, substance use, and suicidality. However, 20.2 million individuals in this group did not receive treatment at a specialty facility in the past year (Center for Behavioral Health Statistics and Quality, 2014).

Workforce-based explanations for a lack of mental health and substance abuse providers at-large generally focus on insufficient numbers of mental health providers, high turnover (a national average of 18.5 percent annually), low compensation, minimal diversity, and the need for accelerated adoption of new evidence-based treatments (Hoge, et al., 2013).

Describing these shortages quantitatively can be problematic as relevant data have not been universally collected and there is no consensus regarding what constitutes adequate supply. However, efforts to describe the mental health workforce shortage should consider both the population's need for mental health services and the number of practitioners available to provide these services (Thomas, Ellis, Konrad, Holzer, & Morrissey, 2009). Finally, despite the PPACA's effort at expanding access to medical care, populations living in areas affected by a mental health workforce shortage will likely continue to have insufficient access (Cunningham, 2009). This is in part due to the expectation that PPACA will raise demand for services and thus exacerbate the practitioner shortage (Kirch, Henderson, & Dill, 2012).

Most individuals who experience mental illness do not receive psychological services. The dominant model for delivering individual therapy with a highly trained mental health professional can provide effective evidence-based treatment, but is greatly limited as a means of identifying and reaching the larger population in need of treatment (Kazdin & Rabbitt, 2013). According to the National Bureau of Labor Statistics, there are 104,480 Clinical, Counseling, and School Psychologists in the US, with Texas ranking 4th highest in employment at 5,580. In 2015, 75,259 children and youths were served in

Texas' public mental health system. Among adults served in Texas' public mental health system in 2012, 54.1 percent of those between the ages of 18 and 20, 63.4 percent of those between 21 and 64, and 89.7 percent of those aged 65 or older were not in the labor force (Substance Abuse and Mental Health Services Administration, 2015).

Texas' Need for Mental Health Services

As noted above, one part of describing a workforce shortage involves demonstrating the needs of the population for mental health services. A standard definition of mental health need is not available locally or nationally.

Children and Adolescents

No reliable statewide survey data on mental health needs existed for children younger than high school age. However, using the federal Substance Abuse and Mental Health Services Administration (SAMHSA) estimate, 519,368 Texas have a severe emotional disturbance (HHSC 2016). Of 9 to 17 year-olds with severe emotional disturbance below 200 percent of the FPL, just 43.5% are estimated to receive mental health services - meaning 72,650 go without service. Data demonstrate conduct/oppositional defiant disorder (13 percent) and depression (11 percent) were among the most common diagnoses among children receiving services from DSHS' Mental Health and Substance Abuse Division.

Data from the DSHS Texas Youth Risk Behavior Surveillance System's (YRBSS) representative sample of 9th through 12th graders provide a baseline for establishing adolescent need for mental health services in Texas. Results from 2013 indicate that 28.3 percent of Texas' public and charter high school students reported feeling sad or hopeless almost every day for a two week period within the 12 months prior to being surveyed, similar to the national level. The proportion of females (36.8 percent) reporting these feelings was significantly higher than that of males (20.2 percent). Moreover, 16.7 percent of teens reported seriously considering a suicide attempt and 15.6 percent had a plan for how they would commit suicide. Rates for both of these measures were significantly higher among females than males. Finally, 10.1 percent of teens reported attempting suicide in the past year and 3.5 percent of teens had required medical intervention after doing so, with no significant differences between males and females. None of the above measures show any significant differences by race/ethnicity or grade level (Texas Center for Health Statistics, 2013).

Adults

With respect to adults, SAMHSA has estimated that close to one million Texas adults have serious mental illness, with 515,875 estimated adults with serious and persistent mental illness in 2014 (HHSC 2014). Of those under 200 percent of the FPL, it is estimated that 76.8 percent (56,364) individuals do not receive mental health services.

DSHS' Texas Behavioral Risk Factor Surveillance System (BRFSS) reports that in 2013, 17.5 percent of adults reported having poor mental health for five or more days in the past 30 days. Additionally, the percentage of females (21.1 percent) reporting five or more days of poor mental health was significantly higher than that of males (13.8 percent). Significantly fewer college graduates reported poor mental health for five or more days (13.4 percent) than did those with some college education (20.2 percent), high school graduates (17.8 percent), and those with some high school education (18.2 percent). Likewise, the proportion of people with five or more poor mental health days was lower among those making more than $50,000 annually (13.2 percent) than those making less than $25,000 (23.8 percent) (Texas Center for Health Statistics, 2013).

Texas' Mental Health Workforce

In addition to patient need, a shortage of providers determines the insufficiency of the mental health workforce. The mental health workforce in the US has evolved significantly over the last 35 years both in terms of licensed providers and organization. Demographic shifts, increases in the number of new doctorates in the health service subfields, and an altered regulatory environment are but a few of the factors shaping the mental health workforce.

The supply of providers can be conceptualized as being composed of two broad determinants. The first is the entire number of practitioners qualified to serve in mental health and the second is the number of these committed to providing patient care and the percentage of their productive time committed to doing so (Murphy, et al., 2012). The state's shortage of supply is expected to worsen as many of the most

skilled practitioners are nearing retirement age. At the same time, educational institutions in the state and the nation are not producing enough new graduates to meet predicted demand. Given the nationwide shortage, it is unlikely that Texas can meet its staffing needs by recruiting practitioners from other states (Thomas, Ellis, Konrad, & Morrissey, 2012) and the extent of the mental health shortage is expected to worsen as the workforce continues to age (Hogg Foundation for Mental Health, 2011).

In addition to a shortage of providers, other sociodemographic factors contribute to the state's inadequate mental health workforce. For example, providers are not distributed evenly across the state, resulting in differential access to care by region, especially in rural areas and along the border. Further, the provider workforce does not reflect the state's growing ethnic diversity resulting in the continued need for culturally competent mental health care.

Psychiatrists

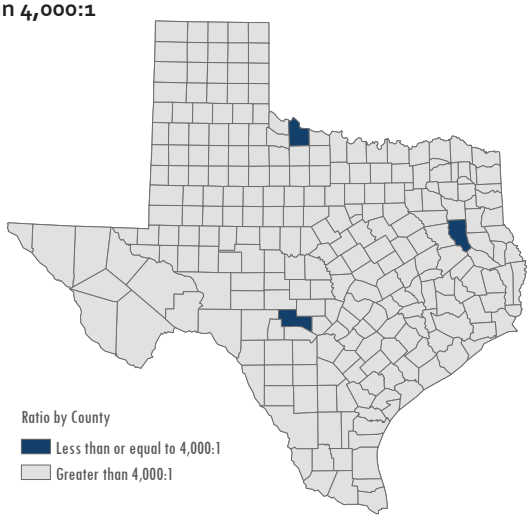
The most common method for measuring health workforce adequacy is to compare the size of the population and the number of health care providers. Cunningham (2009) has noted that the greater the ratio of population to psychiatrists, the less likely it is that a patient can obtain a quality psychiatric referral. Further, Cunningham suggests that a population-to-psychiatrist ratio of greater than 4,000:1, a threshold met by only three counties in Texas, would likely impact the availability of mental health care.

A statistical model accounting for patient need estimated that a national ratio of persons per psychiatrist not exceeding 3,681:1 was ideal, though provider need specific to Texas was not calculated (Konrad, Ellis, Thomas, Holzer, & Morrissey, 2009).

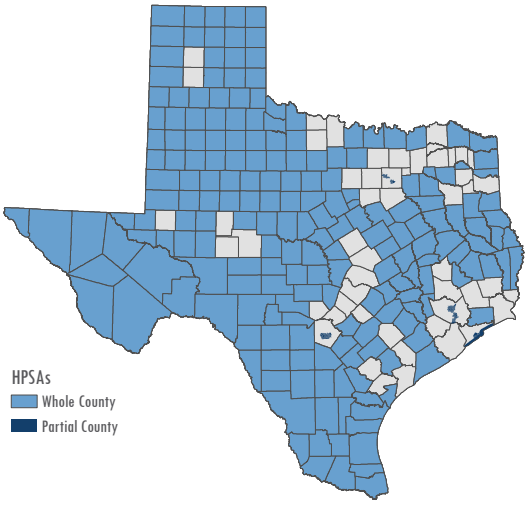
In comparison to these models, which directly consider patient need, HRSA's threshold for designation of a geographic area as a HPSA for mental health is a ratio of 30,000 people to one psychiatrist. HPSA designations allow doctors and facilities to receive incentives meant to attract practitioners. In high needs areas (defined by HRSA as areas with high proportions of youth, elderly, low-income, or people with alcohol/substance abuse problems) the ratio required for federal designation is 20,000 people to 1 psychiatrist. The Primary Care Office within the DSHS currently uses these population-to-psychiatrist measures to apply for mental health HPSA designations.

As of December 2014, 206 of Texas' 254 counties had whole or partial county Mental Health HPSAs and 224 counties had whole or partial county designation or at least one site-designated HPSA. Thus, using the most lenient federal standard for HPSA designation, the vast majority of Texas counties lack a sufficient workforce of psychiatrists.

Counties with population to psychiatrist ratios of less than 4,000:1



Mental HPSAs in Texas



In addition to concern about the total number of psychiatrists, there is also a shortage of pediatric and geriatric psychiatrists. Only six states are considered to have an adequate supply of child and adolescent psychiatrists (Hoge, Stuart, Morris, Flaherty, Paris, & Goplerud, 2013). There is a national shortage of 22,000 child and adolescent psychiatrists and

2,900 geriatric psychiatrists, and only 325 new child psychiatrist graduates are produced nationally each year (Roberts, et al., 2013). The IOM concluded that there was a major shortfall for professionals treating the mental health of aged populations. Currently, there are fewer than 1,800 geriatric psychiatrists in the U.S. By 2030, the national ratio of elderly persons with mental illness or substance abuse issues to geriatric psychiatrists is projected to be 6,000:1 (Hoge, Stuart, Morris, Flaherty, Paris, & Goplerud, 2013).

In 2014, over 2.8 million Texans (10.4 percent of the population) lived in counties with no psychiatrists, while over 3.3 million (12.2 percent) lived in counties eligible for designation under the most utilized federal guidelines as a mental health health professional shortage area (HPSA) (ratios of 30,000:1 or higher). By comparison, in 2014 99.6 percent of Texans lived in counties with ratios higher than those recommended by the academic literature (Cunningham, 2009; Thomas, Ellis, Konrad, Holzer, & Morrissey, 2009).[5] From 2009 to 2014, there was an average annual growth of 4.1 percent among Texas' active psychiatrists. However because of the state's growing population, the ratio of population to psychiatrists improved by an average of 2.0 percent annually over these five years.

In addition to an overall shortage in 2014, the existing psychiatric workforce differed demographically from the population at-large. The composition of Texas' population was estimated to be 42.8 percent white, 39.5 percent Hispanic, 11.5 percent African-American, and 6.2 percent from other ethnicities. Yet 63.9 percent of the psychiatric workforce was white, with just 5.7 percent African-American and 9.8 percent Hispanic representation. 20.6 percent of the workforce was classified as being of another ethnicity.

Texas faces the additional challenge of an aged psychiatric workforce. Nationwide, psychiatry is one of the top three specialties in terms of the number of practitioners over the age of 55 (Roberts, et al., 2013). Texas' 2014 data indicate that 487 of the state's 1,971 active psychiatrists (24.7 percent) were 65 years of age or older. An additional 516 (26.2 percent) were between the ages of 55 and 64, meaning that over half of the workforce (50.9 percent) would be 65 or older and of retirement age by 2024. The median age of psychiatrists was 55 years and the mean age was 55.13 years.

In 2013, only 681 graduates from US medical schools matched into psychiatric residencies nationwide. This number represented roughly half of the filled psychiatric residencies, with the remainder being filled by international medical graduates (Roberts, et al., 2013). Given this current heavy reliance on international psychiatric residents, psychiatric care is expected to continue to rely on international medical graduates for the foreseeable future (Boulet, Cassimatis, & Opalek, 2012). In 2014, 29.6 percent of Texas psychiatrists reported graduating from a medical school outside of the U.S. with the most prevalent source countries being India (8.3 percent), Pakistan (4.2 percent), and Mexico (3.9 percent). Compared with graduates of US and Canadian medical schools, a greater proportion of international medical graduates specialize in primary care, locate in areas of need, and care for poorer patients. Further, international medical graduates are more likely to live in areas with lower median incomes and greater proportions of people living in poverty, providing a gap-filling and safety net role (Boulet, Cassimatis, & Opalek, 2012).

The THECB data from 2013 showed that there were 361 psychiatric residencies in the state. In 2008 there were 316, indicating a roughly 3.1 percent average annual growth over the past five years. Among specialties, there were 304 general psychiatric residencies, 53 child and adolescent psychiatry residencies, three addiction psychiatry residencies, and one geriatric psychiatry fellowship in 2013.

Other Mental Health Professions

The federal provider ratios listed above account only for the number of psychiatrists serving a population. However, an alternative federal means for designating shortages in the mental health professions is to consider psychiatrists and other HRSA-defined core mental health professionals (CMHPs). CMHPs are defined by HRSA as psychiatrists, clinical psychologists, psychiatric nurse specialists, clinical social workers, and marriage and family therapists (Thomas, Ellis, Konrad, Holzer, & Morrissey, 2009).

[5] In May 2014 the Texas Medical Board endorsed the interstate compact for medical licensure. This compact could facilitate licensure for highly qualified physicians who may have an interest in practicing telepsychiatry.

The federal HPSA designations including these CMHP require a population to CMHP ratio of 9,000:1 including psychiatrists or 6,000:1 CHMP excluding psychiatrists and 20,000:1 for psychiatrists. Incorporating these definitions, 23.6 percent of the 2014 Texas population lived in 214 different counties with mental health workforce shortages.

Finally, areas with greater than 20 percent of their population at or below the federal poverty level, high proportions of underage or geriatric populations, or levels of alcohol/substance abuse in the top quartile of national, state, or regional prevalence may be designated HPSAs with unusually high needs for mental health providers. In these areas, a population to psychiatrist ratio of 20,000:1, a population to CMHP ratio of 6,000:1, or a 4,500:1 population to CMHP (excluding psychiatrists) ratio and a 15,000:1 population to psychiatrist ratio are eligible for designation. In 2013, this broader definition drew four more counties into the shortage, resulting in 230 counties and over 6.6 million Texans (24.9 percent) experiencing whole county shortages.

Psychiatric Nurses

Nationally, there has been a shortage of psychiatric/mental health nurses since the 1980s. The 2004 National Survey Sample of Registered Nurses showed that younger nurses preferred clinical over psychiatric/mental health settings, that fewer total younger nurses were entering the workforce, and that psychiatric/mental health nurses were older than the workforce at large (Delaney, 2012).

Psychologists

Licensed psychologists are trained to work with all types of mental and behavioral issues. Psychologists typically help their patients manage chronic illnesses, learn to handle stressful situations, recover from addiction, deal with grief, and overcome other mental or behavioral problems that may be preventing them from achieving their goals. In order to assess a patient's mental state or behavioral condition, psychologists may talk to an individual, administer tests and surveys, or interpret prior assessments. With these results a psychologist can plan a treatment program that best suits the patient's needs.

Psychologists currently offer patients in primary care settings with mental health and behavioral medicine intervention services such as prevention, evaluation, assessment, treatment and management services. Typically, mental health providers design, implement, and evaluate behavioral interventions to address the patient's treatment compliance in the management of acute and chronic health conditions such as diabetes, heart disease, obesity, cancer, and depression. It is because of this unique role that the American Psychological Association (APA) stated that mental health professionals and related services should be fully integrated into any legislative initiative that strengthens the role of primary care in the health system (Beacham, Kinman, Harris, & Masters, 2011).

A 2008 survey by the APA confirmed that recent practitioners were a more diverse cohort in terms of degree (a mixture of PhDs and PsyDs) and demographics (gender, race, ethnicity, and age) when compared with the full workforce (Michalski, 2010). Regulatory changes, the expansion of managed care to include mental health, social and cultural demographic shifts, technology, growth in the other behavioral health fields, and the expanding relevancy of psychological science in practice have made integration of the mental health workforce a major priority (Michalski & Kohout, 2011).

Though primary care continues to be the foundation of the US health care system, changes to the system which integrate behavioral health services into primary care have presented psychologists with new workforce opportunities. An example of such an opportunity has been the advent of the PCMH. Two core principles of the PCMH that support the fundamental role of psychology are treatment of the whole person and care that is integrated across health care service disciplines. With the patient's personal physician acting as team leader and coordinating over all treatment, the mental health provider serves as a behavioral health consultant and/or direct service provider on the team. The role of behavioral health in this model is considered inseparable from other aspects of a patient's care (Patient-Centered Primary Care Collaborative), in line with treating the patient as a "whole person."

Several recent meta-analyses have concluded that collaborative care, the best-evaluated model for treating common mental disorders such as depression or anxiety in primary care settings, is consistently more effective than standard care (Thota, et al.,

2012; Archer, et al., 2012; Gilbody, 2006). Indeed the demand for psychologists trained and integrated into primary care continues, for example the Veterans Administration (VA) requires that its medical centers and large community-based outpatient clinics (i.e., those that see more than 10,000 unique veterans each year) have integrated mental health services that operate full-time in their primary care clinics. These services utilize a blended model that includes co-located collaborative care and care management (Dundon, et al., 2011).

Future Trends in Psychology

Electronic-mediated communication is being used by psychologists, psychiatrists, medical doctors, nurses, and social workers in hospitals, outpatient clinics, and private practices throughout the U.S. (Godleski, Nieves, Darkins, & Lehmann, 2008). Over the past 10 years, there has been an upsurge in access, use, and utility of electronic-mediated psychological services, also known as telepsychology, to meet demands (Colbow, 2013; McCrickard & Butler, 2005). The VA is the current leader in the U.S. providing telepsychological services. From 2003 to 2012, the VA documented nearly 500,000 telemental health encounters; this number includes intakes, urgent care visits, medication management, individual therapy, group therapy, and family therapy conducted by video conferencing (Godleski, Darkins, & Peters, 2012). The VA's research on clinical outcomes for 98,609 patients demonstrates that telemental health can reduce psychiatric hospital admissions and average length of stay by approximately 25 percent for both men and women across a broad spectrum of age groups (Godleski, Darkins, & Peters, 2012). This research bolsters other findings that services delivered through electronic means can be satisfying for clients and practitioners, and that therapeutic relationships can develop successfully, can be used to treat a broad range of psychological disorders, and can be effective with diverse populations (Backhaus, et al., 2012). There are multiple areas of increasing focus on changes to mental health delivery. For example, the establishing of community health teams to support the patient-centered medical home. Recent federal law stresses the importance of an interprofessional approach to care because of the positive impact on cost savings and quality. To this end, grants and funding contracts for community-based interprofessional teams are described as able to include behavioral and mental health providers (including psychologists). Finally, a social trend directly affecting psychologists is the fact that the U.S. population is aging and demographically becoming more ethnically diverse. In addition, the number of people with at least one chronic illness is expected to increase from 133 million Americans in 2005 to 157 million by 2020 (Bodenheimer, Chen, & Bennett, 2009). Those with multiple chronic illnesses numbered 63 million in 2005, with a predicted 81 million in 2020 (24.6 percent increase).

Social Workers

Social workers help individuals, families, and groups restore or enhance their capacity for social functioning, and work to create societal conditions that support communities in need. The practice of social work requires knowledge of human development and behavior, of social, economic and cultural institutions, and of the interaction of all these factors. Social workers help people of all backgrounds address their own needs through psychosocial services and advocacy. Social workers assist people in overcoming many of life's most difficult challenges: poverty, discrimination, abuse, addiction, physical illness, divorce, loss, unemployment, educational problems, disability, and mental illness. They seek to prevent crises and counsel individuals, families, and communities to cope more effectively with the stresses of everyday life – identifying a clients' concerns; assessing their needs, situations, strengths, and support networks to determine their goals; developing plans to improve their clients' well-being; helping clients adjust to changes and challenges in their lives, such as illness, divorce, or unemployment; researching and referring clients to community resources (food stamps, child care, health care, etc.); or even helping clients work with government agencies to apply for and receive benefits such as Medicare.

In other words, the role of a social worker is to guide and support people through difficult times and a confusing and sometimes overwhelming healthcare and support system. Social workers provide support to enable clients to help themselves. They maintain professional relationships with service users, acting as guides and advocates. Social workers sometimes need to use their professional judgment along with direction and advice from all health care providers

involved to make difficult decisions regarding the health and well-being of those they serve. Social workers are active throughout the health community at all stages of life. Health care social workers help patients understand their diagnosis and make the necessary adjustments to their lifestyle, housing, or health care. For example, they may help people make the transition from the hospital back to their homes and communities. In addition, they may provide information on services, such as home health care or support groups, to help patients manage their illness or disease. Social workers help doctors and other healthcare professionals understand the effects that diseases and illnesses have on patients' mental and emotional health.

Some social workers work in private practice. In these settings, a social worker may have administrative and recordkeeping tasks such as working with insurance companies to receive payment for their services. Some work in a group practice with other social workers or mental health professionals. Social workers in hospitals also help patients and their families by linking patients with resources in the hospital and in their own community. They may work with medical staff to create discharge plans, make referrals to community agencies, facilitate support groups, or conduct follow-up visits with patients once they have been discharged. This profession is even found in schools where educational social workers work with teachers, parents, and school administrators to develop plans and strategies to improve students' academic performance and social development. Students and their families are often referred to social workers to deal with problems such as aggressive behavior, bullying, or frequent absences from school. Whatever their location, whether it be with a school, a hospital, a hospice or palliative care facility, or even private practice, a social worker is always involved with collaborative care. Social workers work holistically with people and families, agencies, insurance companies, and physicians in a complex social web to achieve the best possible outcomes for those whom they serve.

Emerging Trends in Social Work

The online delivery of social work education continues to become more commonplace. This approach has opened access to additional and supplemental education for many people, including those in rural areas and in underserved communities, those who are far along in their careers, and those who are financially strained. Social work courses that incorporate current technologies can offer new possibilities for teaching and learning. Recent developments include degree programs that are accredited by the Council on Social Work Education and delivered entirely via distance education. Some critics have contended that since online instruction does not offer direct face-to-face interaction with others, it does not offer the level of preparation and "practice with individuals" that the profession requires for culturally competent practitioners. However given the growing use of telehealth services, this model may become the new normal for a variety of social work education programs.

Licensed Professional Counselors

LPCs (or in some states, "licensed clinical professional counselors" or "licensed mental health counselors") provide mental health and substance abuse care to millions of Americans. The practice of professional counseling includes the application of mental health, psychotherapeutic, and human development principles to facilitate human development and adjustment throughout life; prevent, assess, evaluate, and treat mental, emotional, or behavioral disorders and associated distresses that interfere with mental health; conduct assessments and evaluations to establish treatment goals and objectives; and plan, implement, and evaluate treatment plans using counseling treatment interventions that include counseling, assessment, consulting, and referral. With this in mind, LPCs perform a wide range of counseling services that utilize evidence-based methods and strategies to help clients achieve mental, emotional, physical, moral, social, educational, spiritual, and/or career development and adjustment.

LPCs are mental health care providers with Master's degrees, trained to work with individuals, families, and groups in treating mental, behavioral, and emotional problems and disorders. LPCs make up a large percentage of the workforce employed in community mental health centers, agencies, and organizations, and are employed within and covered by managed care organizations and health plans. LPCs also work with active duty military personnel and their families, as well as veterans. The practice

of professional counseling includes, but is not limited to, the assessment and treatment of mental and emotional disorders, including addictive disorders; the use of psychoeducational techniques aimed at the prevention of such disorders; the provision of consultation to individuals, couples, families, groups, and organizations; and the conduct of research into more effective therapeutic treatment modalities. LPCs' training in the provision of counseling and therapy includes the etiology of mental illness and substance abuse disorders, and the provision of the well-established treatments of cognitive-behavioral, interpersonal, and psychodynamic therapy. LPCs' education and training are oriented toward the adoption of a client-centered, rather than a primarily illness-centered, approach to therapy. LPCs and members of the other non-physician mental health professions provide the large majority of mental health services in the US, where roughly one in four Americans suffer from a diagnosable mental disorder in a given year, and about one in five Americans experience a mood disorder such as depression at some point in the course of their life.

Marriage and Family Therapists

MFTs provide professional therapy services to individuals, families, or married couples, alone or in groups, which involve applying family systems theories and techniques. The term includes the evaluation and remediation of cognitive, affective, behavioral, or relational dysfunction in the context of marriage or family systems. MFTs are highly trained mental health professionals who bring a relationship-oriented perspective to health care. MFTs evaluate and treat mental and emotional disorders and other health and behavioral problems and address a wide array of relationship issues, all within the context of marriage, couples, and family systems. They utilize brief, solution-focused, family-centered treatment, and their goal is to pinpoint problems and conclude treatment, as soon as specific, attainable therapeutic goals are met. MFTs broaden the traditional emphasis on the individual to attend to the nature and role of individuals in primary relationship networks such as marriage and the family. They are concerned with the overall, long-term well-being of individuals and their families, and they focus on treating people from an interpersonal perspective. They are trained to assess and treat individuals, couples, families, and groups to achieve a more adequate, satisfying and productive relationship, through family and social adjustment. The practice can also include premarital counseling, child counseling, divorce or separation counseling and other relationship counseling.

Effectiveness and Cost of Marriage and Family Therapists

In a summary report on the cost effectiveness of the profession and practice of marriage and family therapy (Crane & Christenson, 2012), 19 studies across different networks throughout the US detail the effectiveness of MFTs. The results of the study support the potential for a medical offset effect after family therapy, with the largest reduction coming from the highest percentage of health care users. The studies also show that covering family therapy as a treatment option and marriage and family therapists as a provider group was not associated with significantly higher treatment costs. According to Sprenkle (2012) and Stratton (2011), while there may be an overall consensus that family therapy interventions are effective for a wide range of presenting problems, unfortunately there is a shortage of research simultaneously evaluating cost and benefits of interventions. This is concerning for these practitioners given that the public and private discourse about the current health care market is dominated by cost considerations (Christenson, Crane, 2004; Cummings, et al., 2009). Unless there is a concerted effort through research to show that marriage and family therapists' services are cost-effective, the profession of marriage and family therapy will be at risk of being marginalized in the health care market, or even becoming irrelevant.

Licensed Chemical Dependency Counselors

Licensed chemical dependency counselors (LCDCs) use a diverse set of skills to help clients master both the physical and psychological elements of chemical dependency. Because substance abuse causes neurochemical and molecular changes in the brain, withdrawal creates distressing physical symptoms. Accompanying the physical manifestations of withdrawal are the psychological symptoms they promote. People often become drug dependent initially to help them cope with overwhelming feelings. Remove the mood-altering chemicals and the feelings may return, often built up by years of abuse. A chemical dependency counselor is sometimes the only lifeline available to someone suffering from drug

dependency. LCDCs help those who are addicted to alcohol, narcotics, prescription medications and other drugs by determining the underlying causes of dependence, collaborating with the treatment team to create an individual rehabilitation plan, providing education and emotional support, delivering therapy and other interventions, involving the clients' loved ones in treatment, making referrals to treatment programs and healthcare providers, and creating rapport with their clients to understand the roots of the dependency. Many successful LCDCs are themselves recovering addicts who have earned the respect of their peers in the process of recovery and can draw on their own experiences to both help and inspire their clients. Once a therapeutic relationship is established, a LCDC and client work through the interventions prescribed by the client's treatment program, which vary depending upon the type of addiction and the nature of the program. Because recovery is often considered a lifelong process, not only must the chemical dependency be overcome, but changes in lifestyle, and patterns of thinking and interaction need to be made as well. This means that LCDCs can see clients for months or even years, creating a unique relationship based upon hope, recovery and belief in the possibility of ongoing self-improvement.

Role of Licensed Chemical Dependency Counselors

LCDCs provide clients with a planned, structured, and organized chemical dependency program designed to initiate and promote a person's chemical-free status or to maintain the person free of illegal drugs (Title 25, Texas Administrative Code, Chapter 140). For example, LCDCs will offer drug treatment during and after imprisonment for inmates battling addiction. Not only does this increase the number of people who are drug-free after release, but it also increases the number of people who remain arrest-free. In one study, 57 percent of former prisoners who received treatment and aftercare reported no recidivism after 42 months, in comparison with only 25 percent of the control group (Volkow, 2004). The efficacy of treatment for substance abuse disorders is well documented and has improved dramatically over the past 50 years (World Health Organization, 2001).

Peer Support Providers

Extensive research has shown that antidepressants can be quite effective at managing the symptoms of many people with mental illness. However in large effectiveness studies, two-thirds of patients failed to achieve remission after one medication trial and one-third experienced significant symptoms after four trials. Even among those who achieved remission, one-third relapsed within a year. These stark statistics demonstrate a need for additional services to help patients cope with continued symptoms while they receive the best current evidence-based treatments available (Pfeiffer, Heisler, Piette, Rogers, & Valenstein, 2011).

Recent approaches to mental health issues have focused on recovery, which can be defined as a personal and unique process of realigning one's attitudes, perceptions, and roles to live a satisfying and hopeful life despite any limitations caused by illness (Leamy, Bird, Le Boutillier, Williams, & Slade, 2011). This definition necessarily implies that the approach to and process of recovery is not universal and should not be standardized. Given the variable processes that patients may follow to recovery, the increased incorporation of peer support services, which are founded on principles of respect, shared responsibility, and mutual agreement about what is helpful (Repper & Carter, 2011), may be a valuable avenue for improving mental health outcomes.

Peer support services gained popularity in the 1970s in the form of self-help groups and have continued to develop since (Doughty & Tse, 2011). This approach assumes that people in recovery, who have had experiences similar to those of the patient, can better relate to the patient's illness and consequently offer more authentic empathy and validation (Repper & Carter, 2011). Indeed, the peer's previous experience with receiving mental health services allows them to better identify and understand the challenges faced in the patient's ongoing lived experience of mental illness, to encourage the utilization of available mental health services, and to facilitate changes in patient and societal attitudes toward mental illness (Doughty & Tse, 2011).

Given the potential value of peer support services, US government health commissions, including the President's New Freedom Commission on Mental Health (Sledge, et al., 2011), have called these approaches an integral and essential part of the transformation of mental health services into a recovery-based model (Pfeiffer, Heisler, Piette, Rogers,

& Valenstein, 2011). Following this notion, it has been estimated that services run for and by people with serious mental health problems and their families now number more than double the traditional, professionally run, mental health organizations in the U.S. (Repper & Carter, 2011). Moreover, the number of peer support staff was estimated at over 10,000 in the U.S., with continued and persistent growth (Davidson, Bellamy, Guy, & Miller, 2012). Despite this focus on peer support services and their rapid incorporation into the country's mental health system, paid employment of peer specialists has been slow to develop (Repper & Carter, 2011).

Competencies and Roles

Peer support services and models for their delivery have yet to be defined by consensus. However, two reviews on the subject identified a means of categorizing these services into three types. First, there are the informal and naturally occurring peer support services that are conducted autonomously by those with experience in recovery. Second, there are growing partnerships between peer support organizations and programs and traditional mental health providers through which peer support services can be delivered. Finally, traditional mental health services have begun to employ peer providers within the traditional service delivery system (Repper & Carter, 2011;Doughty & Tse, 2011).

Regardless of the model under which they deliver service, the peer provider approach offers patients hope through positive self-disclosure, role modeling to include self-care, and relationships characterized by trust, acceptance, understanding, and the use of empathy (Davidson, Bellamy, Guy, & Miller, 2012). In doing so, peer providers can be especially effective in engaging people into care and acting as a bridge between clients and staff (Davidson, Bellamy, Guy, & Miller, 2012). Finally, peer services can remove barriers to care such as a potential patient's transportation and scheduling issues (Pfeiffer, Heisler, Piette, Rogers, & Valenstein, 2011).

In addition to peer support services being delivered directly to patients, peer services have also been shown useful for patients' families who navigate the mental health system and coordinate care on behalf of the patient. Often used for children's mental health issues, family peer providers share their experiences with acquiring needed services, serve as role models for the patient's family, and facilitate in the patient's family a sense of empowerment to successfully navigate and appropriately utilize the mental health system (Hoagwood, et al., 2010). Family education and peer support services are used by about one-third of families with children with mental health issues, often by parents experiencing high levels of stress and strain, a key driver of service access (Hoagwood, et al., 2010).

Peer Support Contributions to Efficacy and Efficiency

While the therapeutic benefits of peer services are not fully defined and understood, there is general consensus that peer support services are both effective and efficient. For example, a review of randomized controlled trials demonstrated that peer support staff functioned as well as non-peer staff and that usual care plus peer staff resulted in slightly improved outcomes (Davidson, Bellamy, Guy, & Miller, 2012). Another review indicated that most results showed either equivalency or greater recovery for patients in consumer-led interventions compared to traditional care (Doughty & Tse, 2011). Moreover, peer providers have elicited superior outcomes in the engagement of hard-to-reach clients, reduced rates of hospitalization and days spent as inpatient, and decreased substance abuse among those with co-occurring substance abuse disorders (Davidson, Bellamy, Guy, & Miller, 2012). Sledge et al. (2011) support this first claim anecdotally while describing a past intervention utilizing traditional services that failed to engage patients outside conventional mental health service delivery systems and describing peer services as a promising intervention for reducing recurrent psychiatric hospitalization for patients at risk of readmission. The second claim is echoed by Repper & Carter (2011) who described similar or better hospital admission rates and community tenure for patients served by peer providers versus professionally trained staff. Other studies reported greater patient satisfaction with personal circumstances (Doughty & Tse, 2011) and greater reduction of depressive symptoms (Pfeiffer, Heisler, Piette, Rogers, & Valenstein, 2011) among patients receiving peer services versus usual care.

In addition to the reduced burden on the broader health system, peer services provide additional benefits to patients and society at-large. For example, the raised measures of individual empowerment, independence,

self-esteem, and confidence among those engaged with peer providers has been associated with increased stability in work, education, and training, which themselves further patient empowerment (Repper & Carter, 2011). Peer support relationships allow participants to create relationships and practice a new, recovering identity, to create hope among patients, and to have greater feelings of acceptance, understanding, and being liked (Repper & Carter, 2011).

In addition to the broad potential benefits of peer services, family support services provide patients' support systems with needed assistance. For example, family peer providers were more able to recognize systemic barriers, such as availability of needed resources and services, provide basic information on the mental health care system and treatment options, and understand the nature of child mental health disorders and their impacts on families than were traditional providers. These actions increased family empowerment and may be particularly beneficial for low-income families (Hoagwood, et al., 2010).

A review of cost effectiveness analyses for peer support services provided information on cost savings estimates based on reduced hospital admission rates from three studies: $1,169 saved per patient over six months; $4,400 saved per patient over 12 months, and $22,000 saved per patient over six months (Doughty & Tse, 2011) and DSHS does use them in state hospitals. Equally important, the low cost and scalability of peer services makes this approach attractive when other depression care interventions are unavailable, unaffordable, or unacceptable (Pfeiffer, Heisler, Piette, Rogers, & Valenstein, 2011).

Workforce Description

Certified Peer Specialists

A growing national and state trend involves people in recovery from mental illness acting as certified peer specialists (CPS) to provide support to others in treatment. DSHS has helped fund ViaHope, an organization that provides training and certification to CPSs. According to ViaHope, there were 431 CPSs in September 2014 and the organization had conducted trainings in Austin, Dallas-Fort Worth, San Antonio, Houston and one in East Texas.

Certified Family Partners

Similar to CPSs, certified family partners (CFP) are parents or guardians experienced in raising a child with mental or emotional issues who are certified to help other parents navigate the system of care. ViaHope also runs the CFP training and certification program. This program has produced 99 CFPs as of January 2014.

Substance Abuse Recovery Coaches

Serving as a recovery coach (RC) is a form of strengths-based support for persons with substance use disorders or in recovery from alcohol or other drugs and who may also have other mental health issues. These trained individuals offer shared living experiences to assist persons with active addictions as well as persons in recovery.

DSHS' Substance Abuse Program Services program developed the Recovery Coach Training of Trainers curriculum with the assistance of four non-profit organizations. These organizations assist trained individuals in obtaining paid or volunteer positions as RCs in places like treatment centers, hospital emergency rooms, and community and faith-based organizations. Using the DSHS curriculum and funding, these four organizations trained over 100 individuals in Fort Worth, San Antonio, Corpus Christi, and Beaumont. These 100 RC trainers have since trained over 300 individuals as recovery coaches as of February 2014. This ongoing training process provides a supportive workforce for the healthcare industry.

Through DSHS' Substance Abuse Program's Texas Recovery Initiative, RCs have the opportunity to become certified as a Substance Abuse Peer Recovery Support Specialist through the Texas Certification Board of Addiction Professionals (TCBAP) upon meeting TCBAP requirements.

Policy Considerations

- **Further evaluation of peer support programs is needed in order to better understand how such services can be best used in concert with professional care.**

Similar to the previous policy considerations listed for paraprofessional community health workers, there remains a need to further integrate peer providers into the mental health system and conduct additional scientific evaluations aimed at better defining the scope of their utility. Respective of the former, there exists a need to consider and more fully define

reimbursable/billable time for peer providers (Repper & Carter, 2011). When these providers have a better defined status for payment, they may be more easily integrated into the formal mental health system and care teams (Pfeiffer, Heisler, Piette, Rogers, & Valenstein, 2011; Repper & Carter, 2011).

- **There is also a need to evaluate whether the successful incorporation of peer support providers into the mental health care system will require their incorporation into billing/payment systems.**

In addition to better integration into the payment and delivery systems, there remains a need to standardize the outcomes and definitions for objective evaluations of peer services (Doughty & Tse, 2011), especially those delivered by peer family partners (Hoagwood, et al., 2010). Specifically, data is needed to define the ideal extent of integration of peer providers into the current mental health system and which patients may benefit most and least from peer services (Doughty & Tse, 2011; Pfeiffer, Heisler, Piette, Rogers, & Valenstein, 2011; Repper & Carter, 2011). Additionally, there is a need for research to evaluate the use of peer services in more ethnically diverse populations, at differing stages of recovery, and among patients experiencing different types of mental illness (Leamy, Bird, Le Boutillier, Williams, & Slade, 2011; Pfeiffer, Heisler, Piette, Rogers, & Valenstein, 2011). Finally, a need exists to understand how to best use peer services to enhance recovery while considering an individual's life context, the environment factors in which they exist, including opportunities for employment and community integration, and the interaction between the two (Pfeiffer, Heisler, Piette, Rogers, & Valenstein, 2011).

Review of Mental Health Policy Recommendations

The SHCC recognizes the changing mental health landscape and the need for the State of Texas to respond to such changes. As noted throughout this chapter, there is a need for policymakers, health care providers, and all other stakeholders to recognize the need for change in the mental health payment and delivery systems and to identify solutions for addressing these needed changes. The SHCC has made an attempt at starting the conversation on the latter in this publication.

A core part of the transformation of the health care delivery system, in both mental health and primary care as noted above, is the ongoing transition to team-based, collaborative care that empowers multiple providers with the autonomy necessary to work together. **These practice-based innovations should be adopted as appropriate, with changes to payment systems reflecting the new integration and coordination of services provided**. Within these efforts, **there should be consideration of the potential contributions made by peer support providers and community health workers and payment systems may come to reflect this recognition**.

Finally, there are numerous workforce-based recommendations addressed in this chapter, many aimed at expanding the state's educational capacity to produce mental health practitioners, increasing incentives for students and practitioners to choose mental health fields, and improving the distribution and diversity of mental health practitioners. These issues are also addressed by DSHS' report on the mental health workforce shortage and so the SHCC repeats its recommendations provided to the agency for inclusion in this report:

The Texas Statewide Health Coordinating Council's Policy Recommendations for Addressing the Mental Health Workforce Shortage in Texas

Workforce Recommendation 1: The State of Texas must continue to support the education and practice of psychiatrists. Specifically, the State of Texas should act through the THECB and the DSHS to ensure a robust future workforce of psychiatrists by identifying and expanding incentives to practice psychiatry.

Texas' current workforce of 1,933 psychiatrists is insufficient and will have to grow significantly over the coming years. In fiscal year 2014, the state had 469 approved and accredited psychiatric residency positions, but only 365 were filled and received funding. Given the large number of unfilled psychiatric residency positions, any immediate expenditure should be directed at attracting more potential practitioners to the specialty. The Texas Legislature should direct the DSHS and the THECB to engage other relevant stakeholders in the research and analysis of factors discouraging current and future practitioners from selecting psychiatry as their medical specialty.

Additionally, the Texas Legislature ought to revise the State's Physician Education Loan Repayment Program (PELRP) (Texas Education Code Title 3 Section 61.532) to prioritize awards to psychiatrists and primary care physicians serving in state-supported living centers and state hospitals and those involved in patients' care after transition to community-based care from these facilities. THECB should likewise implement rule changes (Texas Administrative Code Title 19 Sections 21.251-21.262) that reflect this prioritization. By dedicating PELRP funds to practitioners in the state's mental health system, the state economically incentivizes new physician selection of mental health specialties, works to address the chronic recruitment and retention issues experienced by the state's public mental health system, and provides improved mental health care to those in the greatest need.

Workforce Recommendation 2: The State of Texas should more extensively incorporate advanced practice nurses and physician assistants into its mental health workforce by encouraging qualified advanced practice nurses and physician assistants to work at the top of their licenses.

As noted in a previous chapter, there are just 1,971 active and licensed psychiatrists engaged in direct patient care. Roughly half of this number will be of retirement age by 2023. In addition to these psychiatrists, the BON has licensed 429 NPs and 217 CNSs to practice in psychiatric/mental health. These practitioners are currently permitted to perform psychiatric evaluations under BON rules. There are also 90 PAs currently being supervised by a physician

indicating psychiatry or a psychiatric subspecialty as their primary specialization.

Current Texas regulations (TAC Title 25 Section 411.472) require that a physician complete the initial psychiatric evaluation of the patient and see the patient once a day for five of the first seven days of inpatient hospitalization after the initial psychiatric evaluation. Changing this rule to include APNs and PAs to conduct psychiatric evaluations, under the delegation and with the concurrence of the supervising psychiatrist, would permit APNs and PAs to work as extenders in hospitals in a way that is similar to their roles in other medical settings. Furthermore, this change would ease psychiatrists' workload and allow them to cover more patients.

Workforce Recommendation 3: The State of Texas, through the HHSC, should remove barriers to the adoption and practice of telemedicine and telehealth in order to encourage the expansion of telemedicine and telehealth services by encouraging facilities to adopt telemedicine/telehealth technologies and incentivizing health professionals to act as patient site presenters.

Workforce Recommendation 4: The State of Texas should encourage its relevant licensing boards to collect information on the linguistic competencies of its health professionals. Specifically, the Texas Legislature should amend the HSC Section 105.003 to require the collection of data on the linguistic proficiencies of licensees of the health professions already impacted by this chapter.

Workforce Recommendation 5: The State of Texas should encourage providers to meet relevant ethnic/cultural/linguistic competencies as part of their initial and continuing education.

It is the legislative charge of the SHCC to "ensure that health care services and facilities are available to all citizens in an orderly and economical manner." Recognizing the changing demographics of the Texas population, there is a need to ensure that health care providers have the capacity to effectively communicate and interact with their patients. DSHS already collects information on race/ethnicity from the relevant licensing boards.

To assess the multilingual competencies of the health workforce, the State should allocate the necessary resources and amend the HSC, Chapter 105 to direct the Health Professions Council and the Texas Department of Information Resources to expand the collection of linguistic proficiency data for analysis by DSHS. Using the newly and previously collected data, DSHS, THECB, and impacted licensure boards should assess the need for greater linguistic and cultural proficiency in the health professions. Remediation of deficiencies might occur through the incentivization of linguistically and culturally competent practice or through the identification and development of linguistically proficient para-professionals.

Workforce Recommendation 6: The State of Texas, through the THECB, the licensing boards of health professions, and institutions of higher education, should seek to incorporate interprofessional collaborative training as part of the preparation of new health professionals.

As policymakers, industry leaders, and health care professionals seek to better appropriate health resources, the use of collaborative health care teams and patient-centered medical homes has grown. This trend and underlying research have demonstrated a need for greater student preparation in interprofessional collaboration, specifically by providing students of the health professions with greater opportunities to interact in their coursework and clinical experiences, as appropriate.

To increase the availability of collaborative training, the State should direct the THECB to work with institutions of higher education to identify and implement collaborative practice training programs. Concurrently, state licensing boards and regulatory agencies should amend any policies that may deter the full implementation of these efforts.

Workforce Recommendation 7: The State of Texas, through the efforts of the HHSC and the DSHS, and using data from the Texas Department of Criminal Justice, the Texas Juvenile Justice Department, and other relevant agencies, should develop analytical and statistical models for workforce supply and demand and patient utilization that inform the mental health care needs of the state.

As noted in the DSHS report Mental Health Workforce Shortages in Texas, there is a lack of data to define the Texas population's need for mental health services. Population need is dependent on prevalence of mental health illness, the distribution of risk

factors, currently available social services, and other considerations. To fully define the state's workforce shortage and design effective policy solutions, the State should provide HHSC and DSHS access to data related to mental health services need and direct these agencies to develop statistical models to measure and predict workforce shortages.

Workforce Recommendation 8: The State of Texas, through the efforts of the HHSC and the DSHS, should analyze the workforce impacts of the Texas Medicaid 1115 Waiver - DSRIP program.

The DSRIP program has been funded with over $11,000,000,000 covering almost 1,200 projects across the state. Approximately 400 of these projects are related to mental health, with many acting to enhance the mental health workforce within specific geographic regions of implementation. Federally-required outcome evaluations do not specifically address how these projects might affect, directly or indirectly, the state's mental health workforce. For this reason, the State should direct HHSC and DSHS to evaluate the potential long- and short-term impacts of these projects on the mental health workforce.

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19 Texas Administrative Code §115.2 (a)

4 Texas Government Code §531.085

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List of Acronyms

AAMC: American Association of Medical Colleges

ACO: Accountable care organization

AHA: American Hospital Association

AHRQ: Agency for Healthcare Research and Quality

APA: American Psychological Association

APN: Advanced practice nurse

APRN: Advanced practice registered nurse

BCBSTX: Blue Cross and Blue Shield of Texas

BMI: Body mass index

BON: Texas Board of Nursing

BRFSS: Behavioral Risk Factor Surveillance System

BTE: Bridges to Excellence

CDC: Centers for Disease Control and Prevention

CFP: Certified family partner

CHAS: Community Health Advisory Survey

CHIP: Children's Health Insurance Program

CHS: Texas Center for Health Statistics

CHW: Community health worker

CIPC: Center for Interprofessional Collaboration

CMHP: Core mental health provider

CMS: Centers for Medicare and Medicaid Services

CNM: Certified nurse midwife

CNS: Clinical nurse specialist

CPS: Certified peer specialist

CRNA: Certified registered nurse anesthetist

DPC: Direct patient care

DSHS: Texas Department of State Health Services

DSRIP: Delivery System Reform Incentive Payment

EHR: Electronic health record

ER: Emergency room

FPL: Federal poverty level

FTE: Full-time equivalent

GDP: Gross domestic product

GME: Graduate medical education

GPA: Grade point average

HHSC: Texas Health and Human Service Commission

HSC: Texas Health and Safety Code

HIT: Health information technology

HMO: Health maintenance organization

HPRC: Health Professions Resource Center

HPSA: Health professional shortage area

HRSA: Health Resources and Services Administration

ICU: Intensive care unit

IMG: International medical graduate

IOM: Institute of Medicine

IPE: Interprofessional education

IPEC: Interprofessional Education Collaborative

IPECP: Interprofessional education and collaborative practice

IT: Information technology

IUD: Intrauterine devices

JAMP: Joint Admission Medical Program (THECB)

LARC: Long acting reversible contraceptives

LCDC: Licensed chemical dependency counselor

LEP: Limited English proficiency

LCSW: Licensed clinical social worker

LPC: Licensed professional counselor

LPL: Low-density lipoprotein

LSSP: Licensed specialist in school psychology

MA: Medical assistant

MCAT: Medical College Admission Test

MCLT: Medical and clinical laboratory technologist

MCO: Managed care organization

MHACO: Memorial Hermann Accountable Care Organization

MDE: Major depressive episode

MFT: Marriage and family therapist

MTM: Medication therapy management

NAAL: National Assessment of Adult Literacy

NAIP: Network Access Improvement Program

NCQA: National Committee for Quality Assurance

NHSC: National Health Service Corps

NP: Nurse practitioner

OB/GYN: Obstetrics/gynecology

ODPHP: Office of Disease Prevention and Health Promotion

OT: Occupational therapist

PA: Physician assistant

PCAL: Patient care activity level

PCMH: Patient-centered medical home

PCP: Primary care practitioner

PCPP: Primary Care Pathway Program

PELRP: Physician Education Loan Repayment Program

PPACA: Patient Protection and Affordable Care Act

PsyD: Doctor of Psychology

PT: Physical therapist

PTSD: Post-traumatic stress disorder

RC: Recovery coach

RCHIP: Rural Communities Health Care Investment Program

RN: Registered nurse

SES: Socioeconomic status

SHCC: Texas Statewide Health Coordinating Council

SLP: Speech language pathologist

TAC: Texas Administrative Code

TCCD: Tarrant County College District

TCNWS: Texas Center for Nursing Workforce Studies

TCNWSAC: Texas Center for Nursing Workforce Studies Advisory Committee

THECB: Texas Higher Education Coordinating Board

TIME: Transformation in Medical Education

TTUHSC: Texas Tech University Health Science Center

TWC: Texas Workforce Commission

UNTHSC: University of North Texas Health Science Center

UNTHSC - TCOM: University of Texas Health Science Center - Texas College of Medicine

UTHSC: University of Texas Health Science Center

U.S.: United States

VA: US Department of Veterans Affairs

WHO: World Health Organization

YRBSS: Youth Risk Behavior Surveillance System






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