



# **The Graduate Medical Education (GME) Report: An Assessment of Opportunities for Graduates of Texas Medical Schools to Enter Residency Programs in Texas**

**A Report to the Texas Legislature  
per Texas Education Code, Section 61.0661**

**DRAFT**

**October 2018**

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### Agency Mission

The mission of the Texas Higher Education Coordinating Board (THECB) is to provide leadership and coordination for Texas higher education and to promote access, affordability, quality, success, and cost efficiency through *60x30TX*, resulting in a globally competitive workforce that positions Texas as an international leader.

### Agency Vision

The THECB will be recognized as an international leader in developing and implementing innovative higher education policy to accomplish our mission.

### Agency Philosophy

The THECB will promote access to and success in quality higher education across the state with the conviction that access and success without quality is mediocrity and that quality without access and success is unacceptable.

The THECB's core values are:

**Accountability:** We hold ourselves responsible for our actions and welcome every opportunity to educate stakeholders about our policies, decisions, and aspirations.

**Efficiency:** We accomplish our work using resources in the most effective manner.

**Collaboration:** We develop partnerships that result in student success and a highly qualified, globally competent workforce.

**Excellence:** We strive for excellence in all our endeavors.

The Texas Higher Education Coordinating Board does not discriminate on the basis of race, color, national origin, gender, religion, age or disability in employment or the provision of services.

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## Table of Contents

Executive Summary.....	i
State’s Need for Physicians Continues .....	i
Conclusion.....	ii
GME planning grants.....	ii
GME Expansion programs.....	ii
Texas medical school enrollment increases and new medical schools .....	iii
Texas medical residency programs increased first-year positions .....	v
Recommendations to Support and Maintain Progress Made.....	vi
Introduction .....	1
Texas Physician Workforce .....	1
Medical Education Pipeline .....	3
Medical Schools.....	3
Medical Student Demographics.....	7
Applicants .....	7
First-year entering enrollment.....	8
Graduates.....	11
Graduate Medical Education .....	11
GME Expansion programs.....	17
Location of residency programs .....	18
GME planning grants.....	19
Workforce – Physicians in Practice .....	20
Age .....	21
Gender .....	22
Ethnicity .....	23
Primary Care Physicians by Region.....	24
Conclusion.....	26
Texas medical school enrollment increases and new medical schools .....	26
Texas medical residency programs increased first-year positions .....	27
Prior Recommendations and Results .....	28
Recommendations to Support and Maintain Progress Made.....	29

## List of Figures

<b>Figure 1.</b> Location of existing and proposed medical schools, regional academic health centers, and other health-related institutions.....	5
<b>Figure 2.</b> Number of public, private, approved, and pending MD and DO medical schools in the 10 most populous states .....	6
<b>Figure 3.</b> Unduplicated applicants and enrollments at Texas public medical schools, 2006-2017.....	7
<b>Figure 4.</b> First-year enrollments at Texas public and private medical schools, 2004-2017 .....	8
<b>Figure 5.</b> First-year entering students by Texas medical school, 2005-2017 .....	9
<b>Figure 6.</b> First-year entering students in the 10 most populous states, 2007-2017.....	10
<b>Figure 7.</b> Texas medical school graduates, 2005-2017 .....	11
<b>Figure 8.</b> First-year filled residency positions in Texas, 2011-2017 .....	14
<b>Figure 9.</b> Total filled residency positions in Texas, 2011-2017.....	15
<b>Figure 10.</b> Achieving the goal of 1.1 to 1 ratio of GME first-year to Texas medical school graduates, 2012-2021 .....	16
<b>Figure 11.</b> Location of Texas residency programs and whole county Health Professional Shortage Areas (HPSAs) .....	18
<b>Figure 12.</b> Location of entities that received a GME planning grant, by higher education region.....	19
<b>Figure 13.</b> Texas direct patient care physician supply, 2002-2017 .....	20
<b>Figure 14.</b> Newly licensed physicians in Texas, 2003-2017 .....	21
<b>Figure 15.</b> Active licensed physicians in Texas by gender, 1998-2018. ....	22
<b>Figure 16.</b> Primary care physicians per 100,000 populations by higher education regions, 2018.....	24
<b>Figure 17.</b> Primary care* and other specialists, direct patient care physicians in Texas, 2002-2017.. .....	25

## List of Tables

<b>Table 1.</b> Texas medical schools that currently enroll students.....	4
<b>Table 2.</b> First-year and total sponsored and/or affiliated residency programs at Texas health-related institutions, FY 2013-2017 .....	13
<b>Table 3.</b> Texas physicians by race, 2018 .....	23

## Executive Summary

This report concerns graduates who have completed coursework at a Texas medical school and continue their education and training in a Texas residency program. Coursework at a medical school is considered “undergraduate medical education,” while residency training is considered “graduate medical education or GME.” Every two years, as required by Texas Education Code (TEC), Section 61.0661, staff at the Texas Higher Education Coordinating Board (THECB) assesses whether there are adequate opportunities for graduates of Texas medical schools to enter graduate medical education, i.e., a residency program. In 2011, the 82nd Texas Legislature, Regular Session, passed House Bill (HB) 2908, which directed the THECB to include this information in the agency’s five-year strategic master plan.

### State’s Need for Physicians Continues

The Texas physician workforce includes physicians educated and trained in the state, as well as physicians educated in other states or countries. The latter group comes to Texas either to continue their training in a Texas residency program or to join or begin a medical practice. Texas continues to be an appealing state for physicians to practice, and the state continues to attract more physicians who apply for and receive Texas medical licenses. However, Texas continues to have fewer physicians per 100,000 population than the national average and continues to lag behind the 10 most populous states.

This 2018 report is the fourth report to present the current challenges facing the Texas physician workforce, including the educational pipeline. The first report was published in 2012 with updates every two years. This 2018 report also presents updated data, as well as information on undergraduate medical and osteopathic medical school students, graduate medical education and residents, and the current physician workforce.

In accordance with TEC, Section 61.0661, the following information is presented:

- A comparison of the number of first-year graduate medical education positions available annually with the number of medical school graduates
- A statistical analysis of recent trends in, and projections of, the number of medical school graduates and first-year graduate medical education positions in the state
- Methods and strategies for achieving a ratio for the number of first-year graduate medical education positions, relative to the number of medical school graduates in the state, of at least 1.1 to 1
- An evaluation of current and projected physician workforce needs in the state, by total number and by specialty, for the development of additional first-year graduate medical education positions
- An examination of whether the state should ensure that a first-year graduate medical education position is created for each new medical student position established by a medical or dental unit.

## Conclusion

Beginning in Fiscal Year (FY) 2014, the Texas Legislature's Graduate Medical Education (GME) Expansion efforts prompted the creation of more than 200 new first-year residency positions and helped establish 13 new residency programs. As the GME Expansion programs enter their sixth year, the efforts to increase the number of first-year residency positions have provided Texas medical students with additional opportunities to remain in the state for their residency training. However, with the establishment of three new medical schools that matriculated students beginning in 2016, the recent THECB approval of a new public osteopathic medical program, and the pending THECB consideration of two additional medical degree programs, maintaining the state's success in having 10 percent more first-year residency positions than medical graduates will quickly erode. Unless the state provides additional funding to support the GME Expansion efforts, the 1.1 to 1 goal cannot be maintained.

**GME Planning Grants.** The GME Planning Grant Program was established in 2013 by the Texas Legislature as part of the GME Expansion initiative. The GME Planning Grants are awarded through a competitive process to assist eligible entities in planning the development and establishment of new residency programs that accept first-year residents. In 2014, Planning Grants were available only to entities that did not operate a GME program. The grants allowed hospitals that did not have a residency program to investigate the feasibility of establishing one. As a result of the initial Planning Grants, 10 new residency programs received national accreditation and matriculated their first residents, and in the process, they created 62 new first-year residency positions. The majority of the programs established are in primary care specialties. A General Revenue appropriation of \$1,875,000 funded the initial planning grants.

In FY 2016 and FY 2017, an appropriation of \$3,500,000 funded 11 one-time awards of \$250,000 to a broader group of eligible applicants, including federally qualified health care centers (FQHCs), medical schools, and teaching hospitals. The second round of grants also encouraged partnership efforts. Three new residency programs were established, and these programs officially began operation in July 2018. Many selected award recipients were located in medically underserved areas, with the recognition that if residency programs were started in these areas, it would be likely that physician distribution would be positively affected. An additional six new residency programs are projected to begin operation in July 2019.

In 2017, the 85th Texas Legislature, Regular Session, appropriated \$500,000 to support two new planning grants. The THECB will issue a Request for Applications in fall 2018 for two competitively awarded grants of \$250,000 and expects to select awarded applicants by the end of the year. Applications to establish new residency programs in rural area, and in primary care and psychiatry will receive priority for funding.

**GME Expansion Programs.** The THECB administers grant programs that support efforts to increase the number of first-year residency positions through the Graduate Medical Education (GME) Expansion Program. Beginning in 2013, the 83rd Texas Legislature, Regular Session, created several programs to address the need for more GME positions for Texas medical school graduates and appropriated \$12 million to support the efforts.

**Unfilled Residency Position Program.** Establishment of the Unfilled Residency Position Program was a first-step effort to increase the available first-year residency positions in Texas by targeting the residency programs that had available residency positions that were unfilled because the programs could not support them financially. In 2014, this program filled 25 available, but unfilled positions with funding support of \$65,000 per resident. The program

increased the number of first-year residency positions in the medical specialties of family medicine, internal medicine, obstetrics/gynecology, anesthesiology, and psychiatry. Funding for these residency positions was continued in subsequent years and will be maintained in FY 2019.

***New and Expanded Residency Program.*** In Fiscal Year 2015, the second effort to increase available GME positions started through the implementation of the New and Expanded Residency Program. Awards of \$2,975,000 to 11 residency programs supported the establishment of 50 new first-year positions. Funding for these residency positions was continued in subsequent years and will be maintained in FY 2019.

***Resident Physician Expansion Program.*** A third expansion program, the Resident Physician Expansion Program, was also initiated in FY 2015. This effort differed from the Unfilled Positions and New and Expanded Programs by requiring a community collaboration and a competitive selection process. In addition, eligibility for the program was not restricted to development of new first-year residency positions. Even so, the program provided support for 25 additional first-year residency positions. Funding for these residency positions was continued in subsequent years and will be maintained in FY 2019.

The 84th Texas Legislature, Regular Session, consolidated the Unfilled Residency Position Program, the New and Expanded Residency Program, and the Resident Physician Expansion Program into the single GME Expansion Program. Per-resident funding was increased to \$75,000, and overall position funding for the 2016-2017 biennium was increased to \$49.5 million. The additional funding allowed the new positions created in 2014 and 2015 to be maintained and provided enough funding to support the addition of approximately 130 new residency positions.

In 2017, the 85th Texas Legislature, Regular Session, increased funding to \$97 million to support and maintain the progress made. A portion of the funding, approximately \$22 million, was appropriated from the Permanent Fund for GME, which was created by the Texas Legislature in 2015. The increased funding allowed newly created residency positions to be maintained and provided an opportunity to establish new residency positions. As a result, Texas made substantial progress toward achieving the goal of having 10 percent more first-year residency positions than Texas medical school graduates. In 2017, Texas surpassed the goal, with 1,660 medical graduates and 1,868 filled, first-year resident positions.

**Texas Medical School Enrollment Increases and New Medical Schools.** In response to a call from the Association of American Medical Colleges to increase medical school enrollments nationally by 30 percent, Texas medical schools increased entering first-year medical school enrollments 52.9 percent, from 1,342 in fall 2002 to 2,052 in fall 2017.

In summer and fall 2016 respectively, two new Texas public medical schools, The University of Texas at Austin (UT Austin), Dell Medical School and The University of Texas Rio Grande Valley (UT RGV), School of Medicine, matriculated their inaugural classes. With the addition of the two new schools, Texas increased its first-year medical school enrollment by 105 new medical students. In addition, the private osteopathic medical school, The University of the Incarnate Word in San Antonio, enrolled its first 162 osteopathic medical students in fall 2017.

In 2017, the Texas Legislature passed Senate Bill 1066, which requires an institution proposing a doctor of medicine (MD) or doctor of osteopathic medicine (DO) degree program to provide a "specific plan regarding the addition of first-year residency positions for the graduate medical education program to be offered in connection with the new degree program." The plan must propose an increase in the total number of first-year residency positions in the state

sufficient to reasonably accommodate theirs and other medical schools' projected graduates. Submission of such a specific plan is required for approval.

The 85th Texas Legislature, Regular Session, also passed House Concurrent Resolution 102, which expressed the Legislature's support for prioritizing a substantial increase in funding for graduate medical education before it considers authorizing the creation and support of additional medical schools. It also charged the THECB to work with institutions of higher education and the medical community to achieve the 1.1 to 1 goal for graduate medical education.

In August 2018, the THECB approved a new osteopathic medicine degree program proposed by Sam Houston State University. The new program would be located in a new osteopathic medical school in Conroe, approximately 30 miles from the institution's main campus in Huntsville. The new school's mission is to produce primary care physicians who will practice in rural east Texas. The institution proposes to enroll approximately 150 osteopathic medical students in fall 2020. Notably, the institution will not accept formula funding for its osteopathic medical students.

Two additional proposals for new medical degree programs are currently under consideration by the THECB: University of Houston (UH) proposes to offer an MD degree program, and the University of North Texas Health Science Center proposes a unique public/private partnership with Texas Christian University (TCU) to offer an MD program. UH plans to enroll students in fall 2020, and the UNTHSC/TCU partnership program plans to enroll medical students in fall 2019.

Most public Texas medical schools receive formula funding to support their instruction and operation of their osteopathic medical and allopathic medical students through a prescribed formula. The amount of formula funding support that the existing Texas public medical schools and the private Baylor College of Medicine receive is set forth in the state's biennial budget document, the General Appropriations Act (GAA). The GAA presents the instruction and operation formula in the Health Related Institutions Funding Instruction and Operation Formula in Article III, Section 27 (1), of the section Special Provisions Section Relating Only to State Agencies of Higher Education. The three additional formulas for research, facilities, and graduate medical education are also included in Article III, Section 27, of the GAA.

In 2017, Instruction and Operation (I&O) Formula funding was reduced to \$44,825 per medical student for FY 2018 and FY 2019. This reduction followed several years of slight increases, from \$42,180 in FY 2012 and FY 2013, to \$45,281 in FY 2014 and FY 2015, and increasing to \$46,717 in FY 2016 and FY 2017. The most recent funding amount is a 17 percent decrease from the original \$54,000 (unadjusted dollars) per medical student provided when the health-related institutions' formula funding was established in 1999 to provide initial funding for the I&O Formula in FY 2000 and FY 2001.

The private Baylor College of Medicine (BCM) receives a similar formula funding amount. Their formula funding is trusted to the THECB and is provided to the institution to support their Texas students. This arrangement also allows BCM to leverage additional funding through the Texas Health and Human Services Medicaid program.

**Texas Medical Residency Programs Increased First-year Positions.** The federal financing of graduate medical education is complex and presents limited opportunities for existing teaching hospitals to add new residency programs and/or residency positions to existing programs. Because hospitals at their resident cap for Medicare GME do not receive additional federal funding to add new residency positions, they often take a measured approach to funding additional residency positions.

Texas provides minimal funding support for residency training affiliated with health-related institutions through a formula allocation. The formula funding for the GME Formula is presented in the GAA, Article III, Section 27 (6). In the 2018 and 2019 biennium, health-related institutions and public general academic institutions with medical schools received \$11,647 per medical resident to support faculty costs related to supervising a resident. This was a slight increase from the 2016 and 2017 biennial amount of \$10,244 per resident. This level of support equates to about 8 percent of the estimated cost of \$150,000 to educate a resident annually.

A majority of Texas family medicine residency programs receive additional funding through the THECB's Family Practice Residency Program. Under this program, eligible family medicine residency programs received an additional amount of \$6,236.90 per resident in FY 2018. These funds, combined with the formula allocation, cover less than 9 percent of the estimated cost of training a family medicine resident.

In fall 2011, the ratio of first-year entering residency positions to graduates was near 1 to 1, with 1,494 first-year entering residency positions available for the state's 1,458 medical school graduates. At that time, legislators, representatives of professional organizations, and medical education experts recognized that unless additional first-year residency positions were created, some Texas graduates would have to leave the state to enter residency training.

In spring 2016, Texas medical schools awarded a combined 1,718 MD and DO degrees. In fall 2016, the health-related institutions reported, and staff identified 1,790 filled first-year residency positions – just 100 positions short of reaching the 1.1 to 1 goal. The number of filled first-year positions included residency programs reported to the THECB on its Coordinating Board Management (CBM)-00R report and independent residency programs, which are not reported on the CBM-00R.

In 2017, Texas achieved the 1.1 to 1 ratio goal. By spring 2017, the number of medical school graduates declined slightly to 1,660; while the number of filled first-year residency positions increased to 1,868. Although the success is notable, it is likely to be short-lived, as the projected number of medical graduates is likely to increase in spring 2018 to 1,710 or more. If no change occurs in the number of filled first-year residency positions, the state will be shy of its goal by 13 first-year residents in 2018. Unfortunately, the goal will become increasingly difficult to attain as the state's new medical schools begin to graduate physicians. If new first-year residency positions are not established by 2021, the state will fall below its 1.1 to 1 goal by an estimated 276 first-year positions.

Adding new residency positions to existing programs is costly and requires a long-term commitment by a teaching entity and one or more participating training sites, most commonly hospitals. Given uncertainties within the health care system, including efforts to control cost increases, reduce the number of uninsured, and address changes in health care delivery and payment resulting from the Affordable Care Act, hospitals continue to remain cautious about GME expansion.

While adding new residency positions and programs is admirable and will contribute to the state's 1.1 to 1 goal, it is also important that the state's existing residency programs receive adequate funding and support. In FY 2017, two family medicine residency programs shuttered their doors, resulting in reduced access to health care in the communities of Wichita Falls and Corpus Christi. Residency program closings are another concern as the state continues to face physician distribution challenges.

## **Recommendations to Support and Maintain Progress Made**

In its 2016 report, the THECB offered several recommendations to the Texas Legislature, health-related institutions, and hospitals. Several of the recommendations to the Texas Legislature received positive support. The 85th Texas Legislature, Regular Session, significantly increased the amount of funding to support GME expansion efforts to maintain the previously established residency positions.

Based on the progress made in previous years, and to achieve and maintain the goal of 1.1 to 1 ratio, the THECB offers the following recommendations:

**Recommendation 1.** Continue support of the GME Expansion Efforts. To maintain the 1.1 to 1 ratio of first-year residency positions to medical school graduates, the THECB has an exceptional item request of \$60,675,000 for the 2020-21 biennium, which would support the addition of new residency positions to accommodate the increase in the number of medical graduates resulting from the opening of three new medical schools. The additional funds would support new residency positions and help maintain recently established residency positions.

**Recommendation 2.** Enhance support of the Family Practice Residency Program. The program started in the late 1970s to help address physician distribution. Unlike other medical specialties, family physicians are able to practice in smaller communities and rural areas. Their geographic distribution is similar to the general population. The THECB has an exceptional item request of \$2 million to increase funding per resident to approximately \$7,600 to support an estimated 773 family medicine residents in the program.

**Recommendation 3.** Increase the GME formula funding from the FY 2018 and FY 2019 level of \$5,824 to \$6,654 for FY 2020 and FY 2021, per the Board's recommendation.

**Recommendation 4.** Maintain funding and support for the THECB's Statewide Preceptorship Programs established to encourage Texas medical students to consider selecting a primary care residency program.

## Introduction

This report concerns graduates who have completed coursework at a Texas medical school and continue their education and training in a Texas residency program. Coursework at a medical school is considered “undergraduate medical education,” while residency training is considered “graduate medical education or GME.” Every two years, as required by Texas Education Code (TEC), Section 61.0661, staff at the Texas Higher Education Coordinating Board (THECB) assesses whether there are adequate opportunities for graduates of Texas medical schools to enter graduate medical education, i.e., a residency program. In 2011, the 82nd Texas Legislature, Regular Session, passed House Bill (HB) 2908, which directed the THECB to include this information in the agency’s five-year strategic master plan.

Every two years, as required by Texas Education Code (TEC), Section 61.0661, staff at the Texas Higher Education Coordinating Board (THECB) assesses whether there are adequate opportunities for graduates of Texas medical schools to enter graduate medical education, i.e., residencies.

This 2018 report is the fourth report to present the current challenges facing the Texas physician workforce, including the educational pipeline. The first report was published in 2012 with updates every two years. This 2018 report also presents updated data, including information on undergraduate medical and osteopathic medical school students, graduate medical education and residents, the current physician workforce, as well as updated conclusions and recommendations.

In accordance with TEC, Section 61.0661, the following information is presented:

- A comparison of the number of first-year graduate medical education positions available annually with the number of medical school graduates
- A statistical analysis of recent trends in, and projections of, the number of medical school graduates and first-year graduate medical education positions in the state
- Methods and strategies for achieving a ratio for the number of first-year graduate medical education positions, relative to the number of medical school graduates in the state, of at least 1.1 to 1
- An evaluation of current and projected physician workforce needs in the state, by total number and by specialty, for the development of additional first-year graduate medical education positions
- An examination of whether the state should ensure that a first-year graduate medical education position is created for each new medical student position established by a medical or dental unit.

## Texas Physician Workforce

The Texas physician workforce includes physicians educated and trained in the state, as well as physicians educated in other states or countries. The latter group comes to Texas either to continue their training in a Texas residency program or to join or begin a medical practice. Texas continues to be an appealing state for physicians to practice, and the state continues to attract more physicians who apply for and receive Texas medical licenses. However, Texas continues to have fewer physicians per 100,000 population than the nation as a whole, and it continues to lag behind the 10 most populous states.

Led by continuing population increases, Texas has become the second most populous state. The Texas Demographic Center estimated the state's general population to be 28.3 million in 2018. As noted in the THECB's 2012, 2014, and 2016 GME reports, the state's changing demographics include significant increases among two populations: people over 65 years of age and Hispanics. Texans over 65 years of age are projected to more than triple in size from 2010 to 2050, approaching 7.9 million. Additionally, the Hispanic population is projected to increase to nearly 2.3 times its size in 2010 to 21.5 million by 2050. Growth in these population sectors will present challenges to the health care system and will challenge the system in different ways, e.g., patterns in patient visits and need for medical procedures.

The aging population is expected to have greater financial security, have more health insurance coverage, require access to more health care services related to declines in visual and auditory acuity, and need help with daily living activities. The increasing Hispanic population is expected to be younger, carry less health insurance coverage, and have an increased incidence of chronic lifelong health conditions, such as diabetes and obesity. These two population sectors will exert continuing demands on the existing and future physician workforce.

Escalating health care costs and greater specialized care complicate patients' decisions related to health care services. Other factors that influence the health care delivery system include declining employer-based financial support for health insurance and potential reductions in federal support for Medicare and Medicaid programs.

The Texas physician workforce faces additional challenges, including the high rate of Texas' uninsured population. The lack of insurance is associated with delayed or postponed treatment, which results in more complex and higher cost services. In 2015, 19 percent of the Texas population was uninsured, compared to 11 percent nationally. In 2017, federal tax legislation removed the penalty associated with the individual mandate to purchase health insurance. While the repeal of the individual mandate will not take effect until 2019, it may result in an increase in the uninsured population in Texas.

Even though Texas attracts many physicians to the state, the need for more physicians is a concern because the Texas physician workforce has faced a shortage for several decades. This concern remains, despite that from 2008 to 2017, newly licensed Texas physicians increased 30 percent, with such growth likely to continue in the coming years. The Texas Medical Board reported that applications for new licenses continued to rise as well, and in 2017, the agency received 5,576 applications, up from 4,026 applications in 2004. In addition, the ratio of practicing physicians to population in Texas increased from the 2007 level of 157 per 100,000 to the 2017 level of 194 per 100,000. Still, Texas is well below the national average of 237 physicians per 100,000 and ranks 41st among states in this category.

The increases in the Texas physician workforce have occurred in medical specialties and subspecialties that are not considered primary care specialties. Texas continues to have fewer primary care physicians than other states, with just 65.4 active primary care physicians per 100,000; Texas ranks 47th among states in this category and is below the national ratio of 82.5 per 100,000. A 2018 Texas Department of State Health Services, Center on Health Professions Workforce report shows there are shortages of primary care physicians in every region of Texas. The report also predicts that the shortages will worsen in the coming years.

As noted in the 2012, 2014, and 2016 THECB reports, there is not an established optimal level of physicians per 100,000. However, research studies have shown that the type of

physicians within a community affect the cost and quality of health care. Communities with more primary care physicians have lower health care costs and report higher quality of health.

Increases in the number of physicians educated and trained in the U.S. may be traced to a national call from the Association of American Medical Colleges (AAMC), which in 2006, asked its member institutions to increase medical school enrollments by 30 percent from the 2002 enrollment levels. Texas medical schools responded to this call and increased their enrollments.

In the 2008 THECB report, *Projecting the Need for Medical Education in Texas*, it was noted that "Texas schools would need to increase first-year enrollments by a minimum of 43 new students annually to achieve the 30 percent increase target of 1,745 first-year enrollments." In fall 2011, Texas reached the target with first-year enrollments of 1,762. THECB data show that the enrollment target has been sustained and Texas medical school enrollments continue to increase. In fall 2017, first-year Texas medical school enrollment was 2,050.

## **Medical Education Pipeline**

In the U.S., the traditional educational pathway to become a physician includes graduation from a four-year college, graduation from an accredited U.S. or international medical school, which takes four years, and completion of a residency or graduate medical education (GME) training experience, which takes three to eight years. Training may continue beyond a residency in a subspecialty and/or fellowship, which requires additional time, usually a year or two, to complete. The education and training of a physician is a lengthy and expensive process and commonly takes 11 years of postsecondary education. As a result, most physicians begin their medical practices in their early to mid-30s.

The cost of becoming a physician varies by state and by medical school. In comparison to the nation, according to the AAMC, Texas' existing public medical schools have relatively low tuition and fees for in-state students, with an average cost of \$20,411 annually, compared to a national average of \$33,895 in tuition and fees for public medical schools. A Texas resident attending a public medical school out of state would be charged around \$55,000 annually for tuition and fees.

In comparison to the nation, Texas medical school graduates also have lower educational debt. In a report by the AAMC, 75 percent of 2017 medical school graduates nationwide reported having education debt, and their median debt load was \$192,000. However, a 2010 Texas Medical Association Survey of Texas medical school graduates found that 60 percent of respondents reported a debt load of closer to \$100,000.

## **Medical Schools**

Texas has 12 medical schools that currently enroll students; 10 are public; one, Baylor College of Medicine (Houston), is independent, although it receives state funding; and one, The University of the Incarnate Word, is private and does not receive state funding at this time (Table 1). Of these 12 medical schools, 10 are allopathic medical schools, granting the MD degree, and two are osteopathic medical schools, granting the DO degree. Eight of the 10 public medical schools are located in health-related institutions, which offer many health-related degree programs; the other two are part of public, general academic institutions.

Two public medical schools began enrolling students in summer/fall 2016 and differ from the state's other public medical schools in that each is housed within a public, general academic institution. The University of Texas Rio Grande Valley (UT RGV), School of Medicine, and The University of Texas at Austin (UT Austin) Dell Medical School will award the MD degree beginning in 2020. Additionally, The University of the Incarnate Word (UIW) in San Antonio received pre-accreditation for its School of Osteopathic Medicine and will award the DO degree. UIW matriculated its first class of 162 students in fall 2017 and will award its first degrees in 2021.

In August 2018, the THECB approved a new osteopathic medical degree program proposed by Sam Houston State University (SHSU). The new program would be located in in Conroe, the site of the institution's new osteopathic medical school. The new osteopathic medical school's mission is to produce primary care physicians who will practice in rural East Texas. The institution proposes to enroll approximately 150 osteopathic medical students in fall 2020. Notably, the institution will not accept formula funding for its osteopathic medical students. Instead, the new DO school will rely on tuition and fees of approximately \$60,000 annually to support the new program.

Two additional proposals for new MD degree programs are currently under consideration by the THECB: University of Houston (UH) proposes to offer an MD degree program, and the University of North Texas Health Science Center (UNTHSC) proposes a unique public/private partnership with Texas Christian University (TCU) to offer an MD program. Pending THECB approval and approval from the national accreditor, the Liaison on Medical Education, UH plans to enroll 30 students in fall 2020, while the UNTHSC/TCU plans to enroll 60 medical students in fall 2019.

**Table 1.** Texas medical schools that currently enroll students.

Texas Medical Schools	Locations
Baylor College of Medicine (BCM)	Houston
Texas A&M University Health Science Center (TAMUHSC), College of Medicine	Bryan/College Station, Dallas, Round Rock, Houston, Temple
Texas Tech University Health Sciences Center (TTUHSC) Medical School	Amarillo, Lubbock, Odessa
Texas Tech University Health Sciences Center-El Paso, Paul L. Foster School of Medicine (TTUHSC-El Paso)	El Paso
The University of Texas at Austin (UT Austin) Dell Medical School*	Austin
The University of Texas Health Science Center at Houston (UTHSC-Houston), McGovern Medical School	Houston
The University of Texas Health Science Center at San Antonio (UTHSC-SA), Long School of Medicine	San Antonio
The University of Texas Medical Branch at Galveston (UTMB), School of Medicine	Galveston
The University of Texas Rio Grande Valley (UT RGV) School of Medicine**	Harlingen, Edinburg, McAllen
The University of Texas Southwestern Medical Center (UT Southwestern), School of Medicine	Dallas
The University of the Incarnate Word (UIW) School of Osteopathic Medicine at Brooks City Base***	San Antonio
University of North Texas Health Science Center at Fort Worth (UNTHSC), Texas College of Osteopathic Medicine (TCOM)	Fort Worth

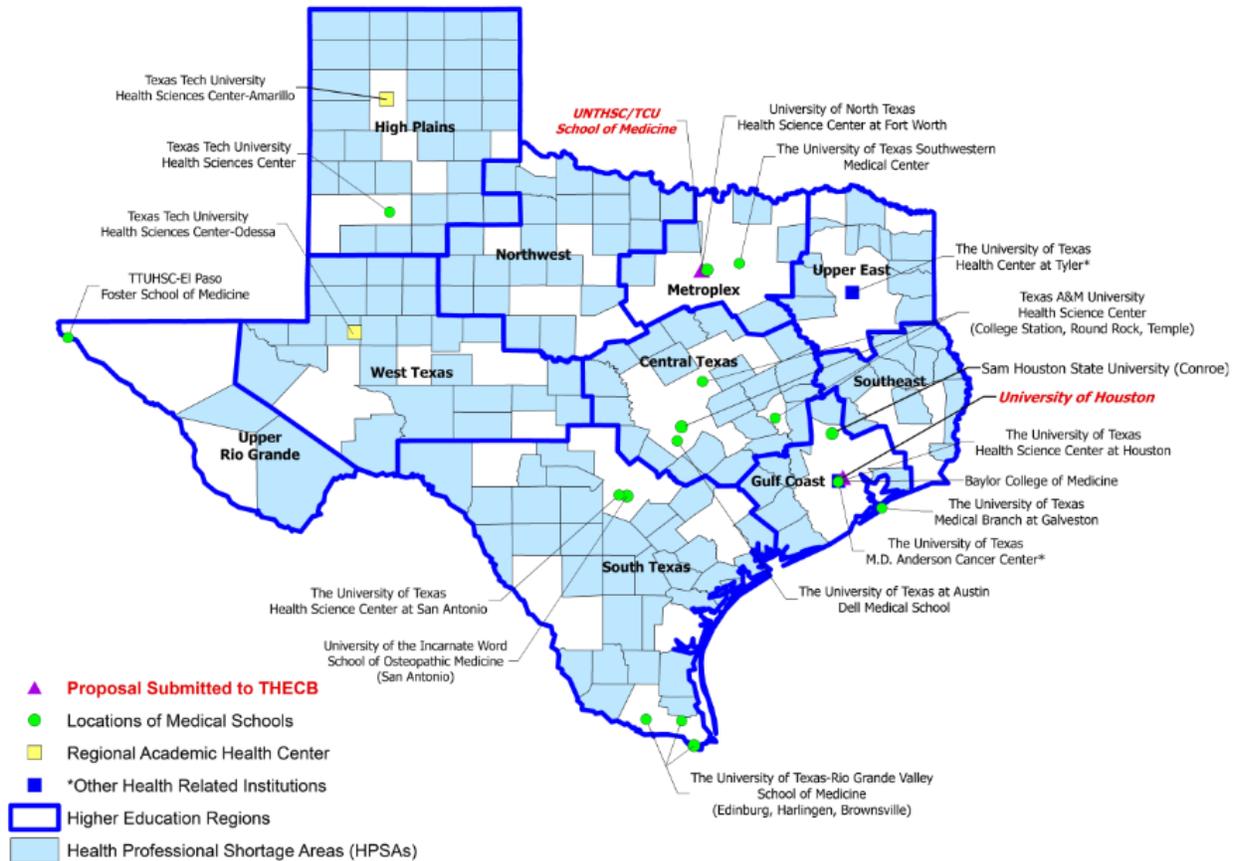
\* UT Austin Dell Medical School matriculated its inaugural class of 50 students in summer 2016.

\*\*UT RGV School of Medicine matriculated its inaugural class of 55 in fall 2016.

\*\*\*The University of the Incarnate Word matriculated its inaugural class of 162 students in fall 2017.

The locations of the existing, recently approved, and proposed degree programs and the medical schools in Texas are shown in relation to the Texas counties identified as health professional shortage areas (Figure 1). The majority of Texas medical schools are located in large urban areas of the state.

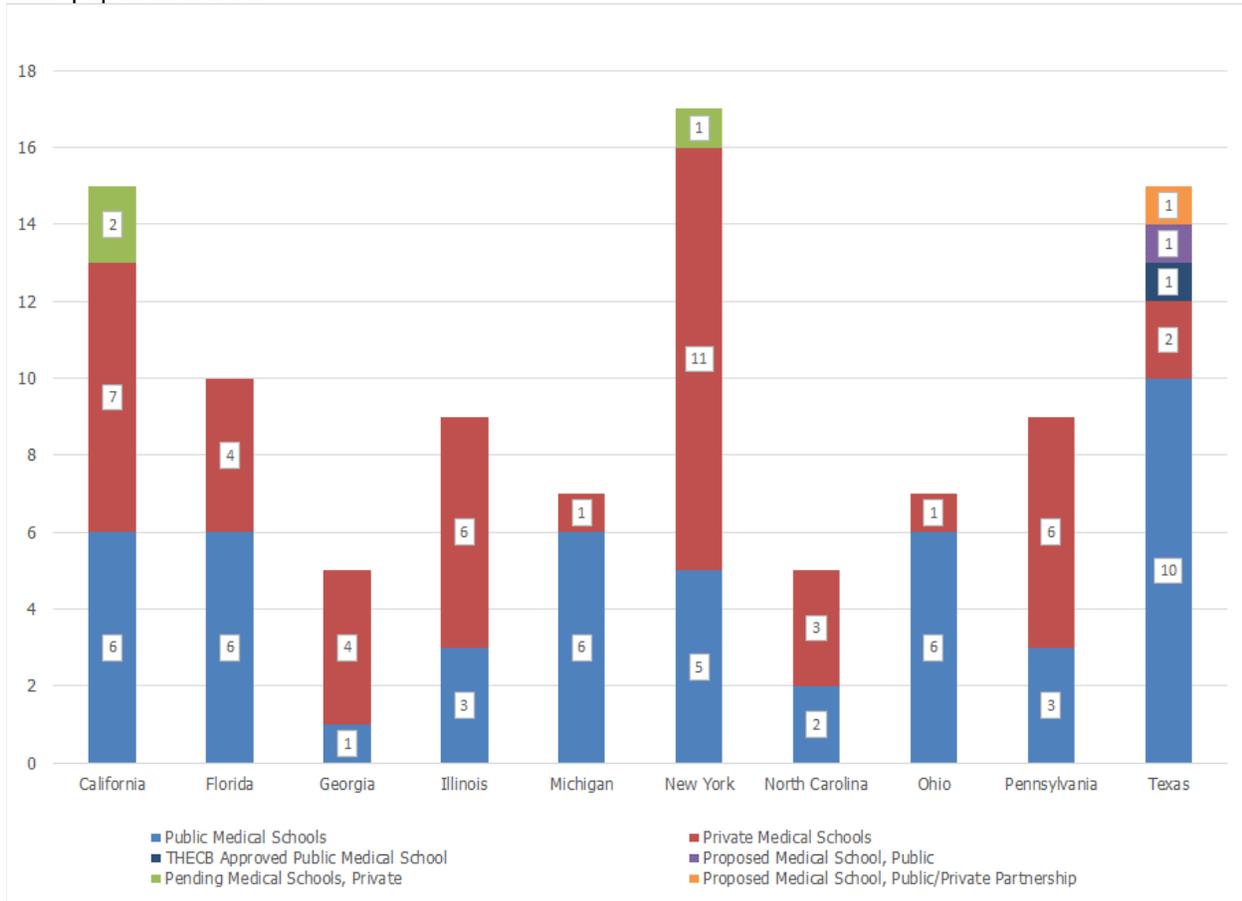
**Figure 1.** Location of existing and proposed medical schools, regional academic health centers, and other health-related institutions.



Source: THECB; Texas Department of State Health Services, 2018.

With 12 existing medical schools offering MD and/or DO programs, 1 recently approved program, and 2 proposed MD programs, Texas has more medical schools than most high-population states, with the exception of New York (17), and California (15) (Figure 2). Texas has more public medical schools (10) than any other state. Conversely, Texas is seventh among the ten most populous states in its number of private medical schools (2). Only Michigan and Ohio, with one each, have fewer private medical schools than Texas.

**Figure 2.** Public, private, approved, and pending MD and DO medical schools in the 10 most populous states.



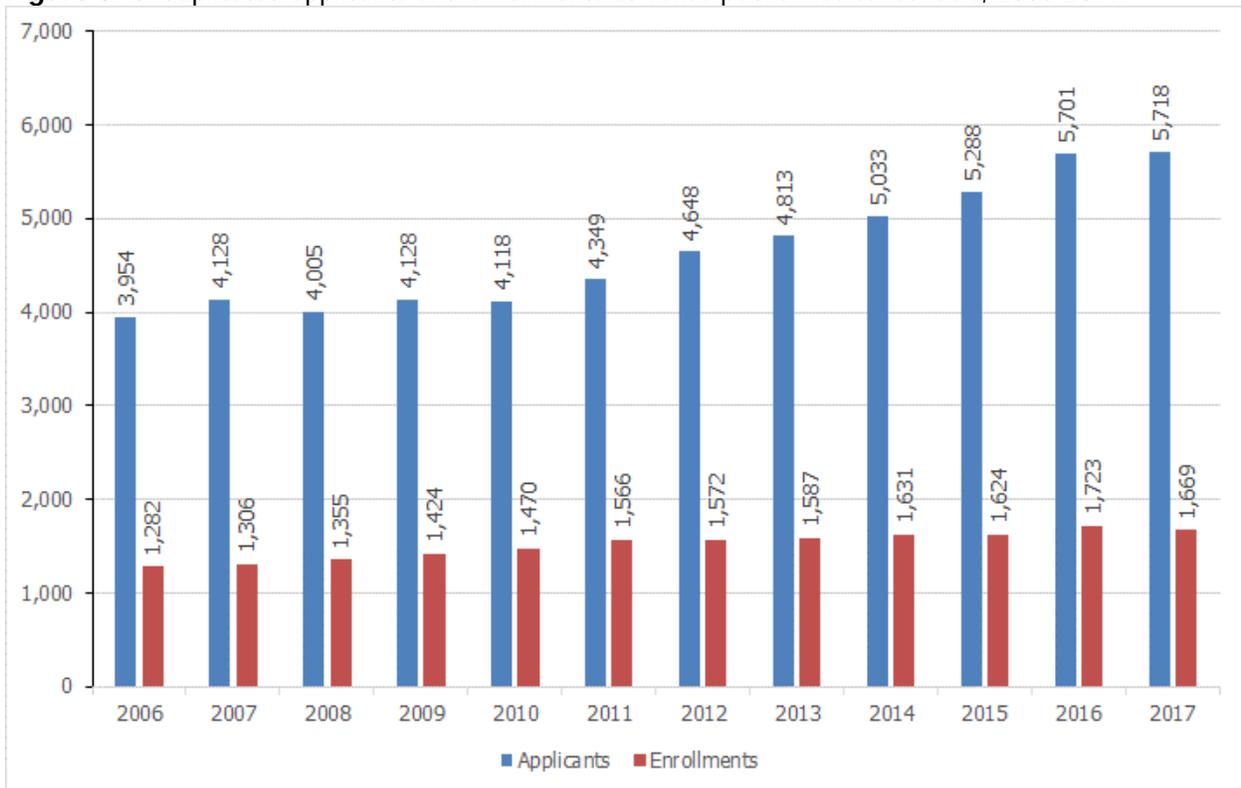
Source: Liaison Committee on Medical Education, American Association of Colleges of Osteopathic Medicine, Commission on Colleges Accreditation, 2018.

## Medical Student Demographics

**Applicants.** Since 2002, the number of unduplicated applicants to Texas public medical schools has steadily increased. With the opening of two new medical schools in 2016, the number of applicants increased by 11.6 percent from the previous year (Figure 3). From 2006 to 2017, the number of applicants increased by 44.6 percent, while the number of enrolled first-year students increased by 30 percent.

Applicants typically apply to more than one medical school. Texas offers applicants a coordinated submission process where one application may be submitted to all Texas public medical schools through the Texas Medical and Dental Schools Application Service.

**Figure 3.** Unduplicated applicants and enrollments at Texas public medical schools, 2006-2017.

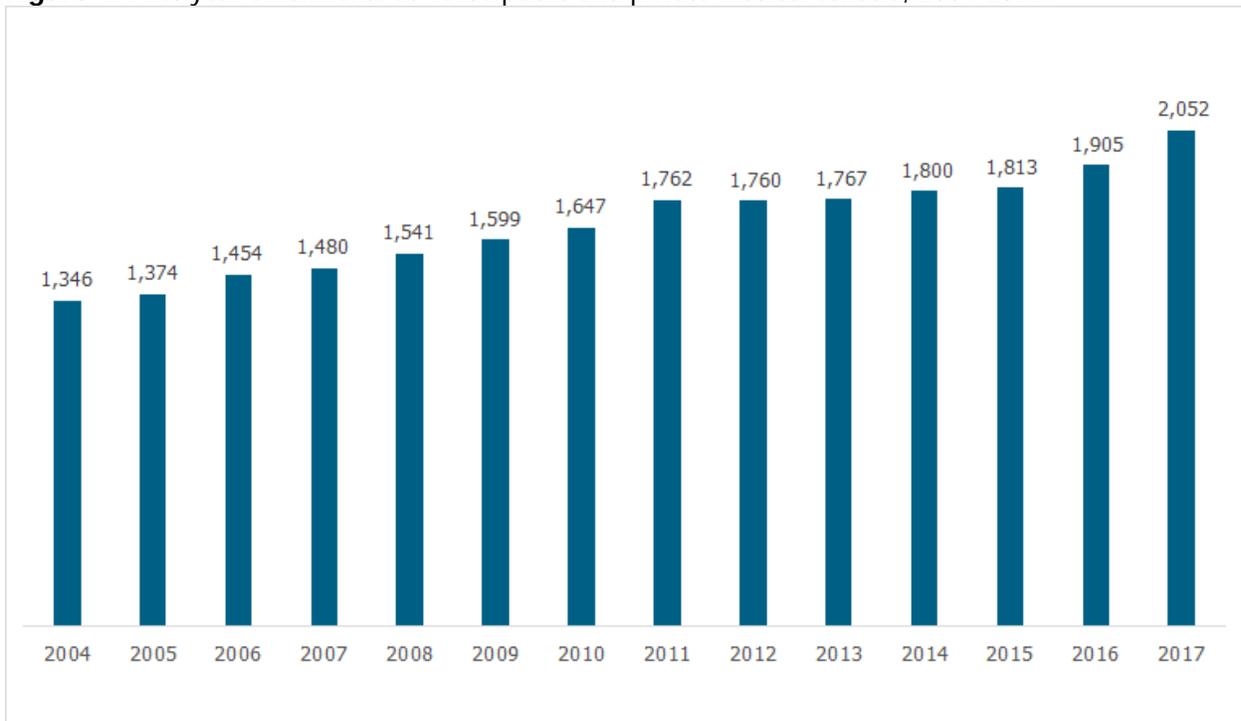


Source: Texas Medical and Dental Schools Application Service. May 2018.

Note: The number of unduplicated applicants is presented. Applicants typically apply to more than one medical school. Applicants to Baylor College of Medicine and The University of the Incarnate Word, School of Osteopathic Medicine are not included.

**First-year Entering Enrollment.** From 2004 to 2017, the number of students entering Texas medical schools increased 52.4 percent, from 1,346 to 2,052 (Figure 4). The steady increase of entering medical students is reflective of both the total increased enrollments in all the medical schools and the opening of new medical schools. The Texas Tech University Health Sciences Center El Paso (TTUHSC-El Paso), Paul L. Foster School of Medicine, matriculated its inaugural class in 2009; UT Austin Dell Medical School enrolled 50 students per year beginning in 2016; and UT RGV School of Medicine enrolled 55 students. Those enrollments added an additional 105 Texas medical students to the overall enrollment in 2016 and 2017. The independent medical school, The University of the Incarnate Word matriculated 162 DO students in fall 2017.

**Figure 4.** First-year enrollments at Texas public and private medical schools, 2004-2017.

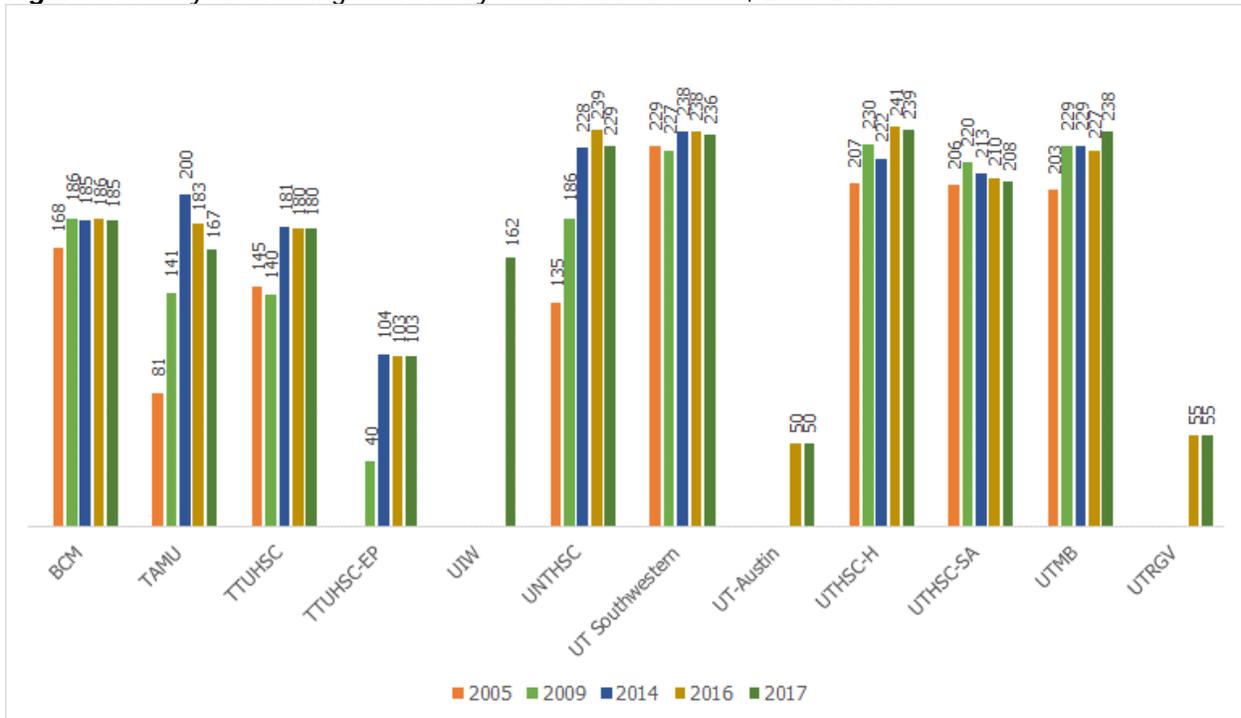


Source: THECB, CBM-001, August 2018.

Medical schools do not have set admissions numbers, and the entering class sizes may vary from year to year. Some variation in class size occurs because applicants may receive admissions offers from several medical schools. In some cases, more applicants than anticipated may decide to matriculate, which may result in an increase in class size.

From 2005 to 2017, the existing medical schools reported variations in their first-year enrollments (Figure 5). During this period, Texas A&M University Health Science Center; University of North Texas Health Science Center; Texas College of Osteopathic Medicine; Texas Tech University Health Sciences Center El Paso, Paul Foster School of Medicine; and Texas Tech University Health Sciences Center had sizable increases in their first-year entering enrollments.

**Figure 5.** First-year entering students by Texas medical school, 2005-2017.

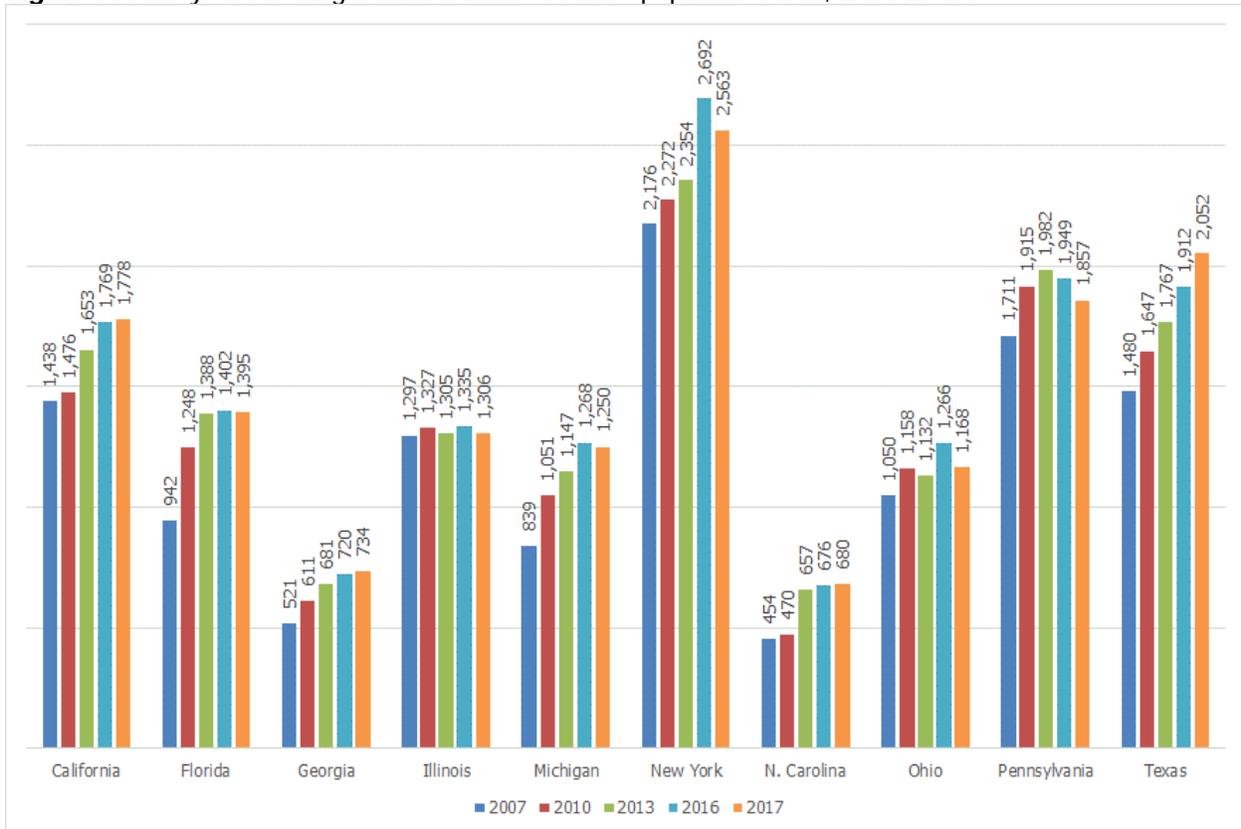


Source: THECB CBM-00R, August 2018.

Since 2016, Texas has surpassed Pennsylvania and now has the second largest number of first-year entering medical students among the 10 most populous states, exceeded only by New York (Figure 6). Because many medical schools responded to the AAMC's call to increase the number of physicians being educated, the national goal of increasing medical school enrollments by 30 percent is on track and likely will be achieved by 2019.

Some of the enrollment increases were the result of new medical schools opening, with other increases resulting from the expansion of existing programs. Florida, Michigan, New York, Pennsylvania, California, and Texas each had at least one medical school open, with inaugural classes beginning in 2008 or later.

**Figure 6.** First-year entering students in the 10 most populous states, 2007-2017.

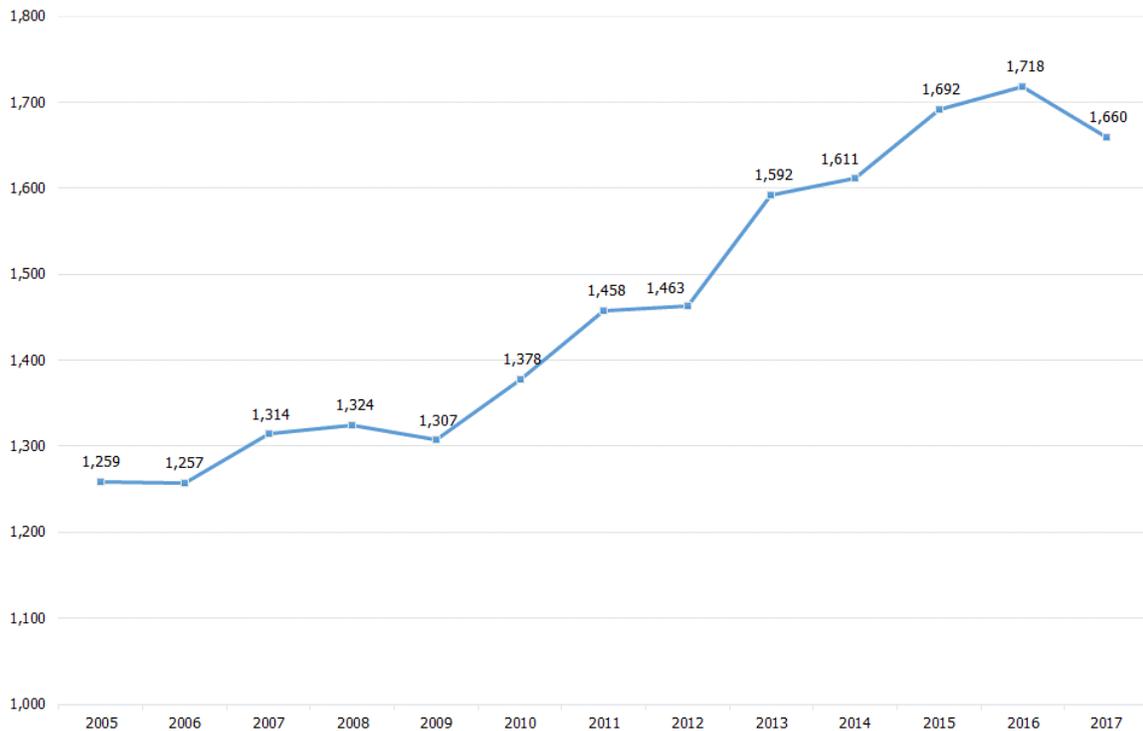


Source: THECB; American Association of Colleges of Osteopathic Medicine, Association of American Medical Colleges, August 2018.

**Graduates.** From 2005 to 2016, the number of Texas medical school graduates has steadily increased (Figure 7). While the 2017 number of graduates declined, increases are likely to resume in 2018 and continue for several years, reflecting the expansion of first-year entering medical school enrollments and the establishment of new medical schools. In addition to growing number of graduates, Texas medical schools have high graduation rates; of the Texas medical schools' first-year entering class in fall 2013, 94 percent graduated in 2017.

Texas provides funding to the state's 10 public medical schools located in health-related institutions (8) and public general academic institutions (2) through several funding allocations that support education, infrastructure, and research. State funding also is provided to Baylor College of Medicine to educate and train medical students consistent with the educational funding provided to public medical schools. Medical schools receive state funding to support the instruction and operations, relative to medical education, through a funding allocation formula of approximately \$45,000 annually, or a total of \$180,000 per medical student; this amount does not cover the total cost of the education of a physician.

**Figure 7.** Texas medical school graduates, 2005-2017.



Source: THECB, CBM-009, August 2018.

## Graduate Medical Education

Texas physicians are required (as in most states) to complete at least one year of graduate medical education (also called residency training) before they may be fully licensed by the Texas Medical Board to begin practicing medicine. Few physicians stop after only one year of residency training, as residency programs are typically three to eight years in length. The

national certifying organizations, including the American Board of Medical Specialties and the American Osteopathic Association, require completion of residency training to be eligible to become board certified.

Physician residents care for patients under the supervision of physician faculty and participate in educational and research activities during residency training. When physicians complete their graduate medical education program in an accredited program, they may be eligible to take their specialty board certification examinations and begin practicing independently. Teaching hospitals, academic medical centers, health care systems, and other institutions or entities, including nonprofit organizations, sponsor residency programs.

Unlike the bachelor's or medical school experience, resident physicians are contractually obligated to the residency program. Resident physicians enter into a contractual arrangement with residency programs through a unique national matching process. The majority of senior medical students, graduates of international medical schools, and other physicians select their residency training through participation in the National Resident Matching Program, which has established a uniform date of appointment and commitment to residency programs. Osteopathic medical graduates may also participate in a matching process through the American Osteopathic Association's (AOA) Match program. The accreditation body for graduate medical education, Accreditation Council on Graduate Medical Education (ACGME), entered an agreement in 2014 with the AOA and the American Association of Colleges of Osteopathic Medicine to have a single accreditation system in place by 2020. This will allow MD and DO graduates to complete their training in ACGME-accredited programs and eventually eliminate the AOA's separate match.

Medical students are placed into residency programs through a national matching process (called the Match) that occurs in March, prior to graduation. Graduating physicians of accredited U.S. medical schools and qualifying international medical graduates submit their list of preferences for residency programs, which may include several medical specialty areas and different geographic locations for their future residency training. Concurrently, each residency program submits a rank-ordered list of their preferred future residents. The two lists are then matched, and the future residents and residency programs are notified of their contractual commitments. Following graduation from medical school in the spring, medical school graduates generally begin residency training in July.

Typically, residency programs and medical specialties that fill all available positions through the Match are viewed as more competitive. The total number of residency applicants has exceeded the number of positions available nationally for many years, reaching a high in 2018. The 2018 Match offered the largest number of first-year entering residency positions, with 33,167 positions offered through the Match, an increase of 1,410 more positions than in 2017; the number of physicians registering in the Match, 43,909, was also a record. Of those, 37,103 fully completed the process, including 18,818 U.S. senior doctor of medicine graduates; 4,617 U.S. graduates of osteopathic medical schools; 1,511 previous graduates of U.S. doctor of medicine medical schools; and 5,075 U.S. citizens who graduated from an international medical school. The majority of the remaining graduates were non-U.S. citizens who graduated from an international medical school.

The education and training of resident physicians is a multi-year process. Most residency programs range from three to eight years and may include additional opportunities for continued training beyond residency training. When physicians complete a residency program, in family medicine for example, they may choose to continue training in a specialized area of

medicine, such as a year-long fellowship in sports medicine or geriatrics. Often, residents remain and practice in the state in which they complete their residency training.

The opportunity for a Texas medical school graduate to enter a Texas residency program is limited to the number of residency programs that accept first-year residents (Table 2). First-year entry residency positions are available in some, but not all, medical specialties. The following medical specialty areas provide first-year residency positions in Texas: family medicine; internal medicine; pediatrics; obstetrics/gynecology; surgery; anesthesiology; emergency medicine; psychiatry; transitional year (internship); neurology; neurological surgery; pathology; plastic surgery; orthopedic surgery; otolaryngology; and some combined programs, such as internal medicine/pediatrics. Other residency programs require physician residents to complete at least one year of training in another specialty, most commonly internal medicine, before they may enter the specialty program. Residency programs that require completion of a year or more of training tend to be highly specialized and include programs such as ophthalmology and urology.

**Table 2.** First-year and total residency programs affiliated or sponsored by Texas health-related institutions, Fiscal Year (FY) 2013-2017.

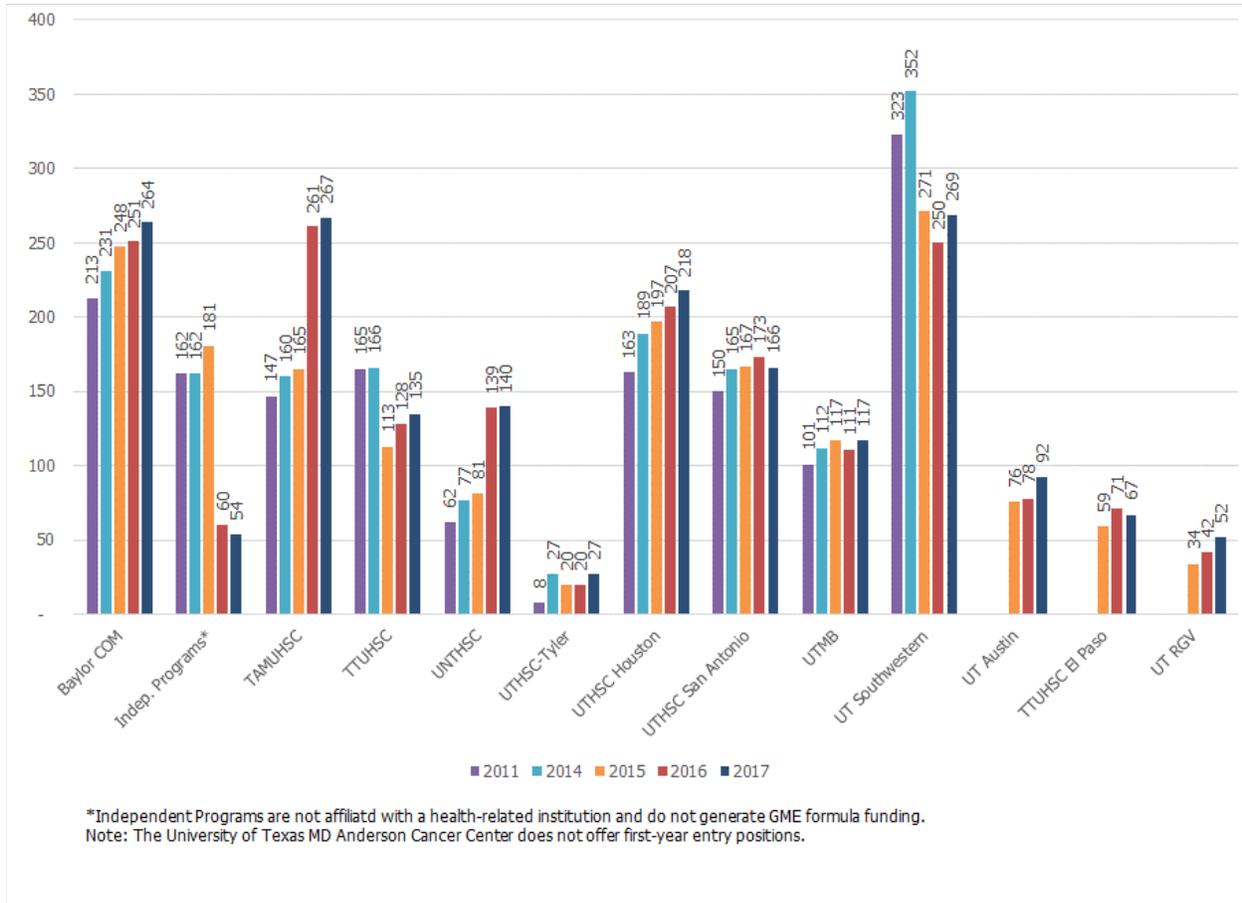
Institutions	1st Year FY 2013	Total FY 2013	1st Year FY 2014	Total FY 2014	1st Year FY 2015	Total FY 2015	1st Year FY 2016	Total FY 2016	1st Year FY 2017	Total FY 2017
TAMUHSC	17	37	17	41	16	42	18	42	35	100
TTUHSC	15	27	15	30	15	28	16	31	19	34
TTUHSC-El Paso	8	13	8	13	7	13	7	13	7	13
UNTHSC	12	21	11	21	11	20	12	23	17	28
UTMD Anderson Cancer Center	0	23	0	22	0	24	0	25	0	25
UT Austin							8	15	9	16
UTHSC-Tyler	2	4	2	4	2	4	2	3	4	5
UTHSC-Houston	15	55	15	57	17	58	17	58	18	64
UTHSC-SA	15	49	15	50	16	52	13	50	15	51
UTMB	12	38	12	40	12	38	14	40	13	43
UT RGV							6	6	8	9
UT Southwestern	25	94	25	101	24	107	17	89	17	93
<b>Total - Public Institutions</b>	<b>121</b>	<b>361</b>	<b>120</b>	<b>379</b>	<b>120</b>	<b>386</b>	<b>130</b>	<b>395</b>	<b>162</b>	<b>481</b>
Baylor College of Medicine	16	70	15	79	14	86	17	84	18	91
<b>Total - All Institutions*</b>	<b>137</b>	<b>431</b>	<b>135</b>	<b>458</b>	<b>134</b>	<b>472</b>	<b>147</b>	<b>479</b>	<b>180</b>	<b>572</b>
*Number of Sponsored/Affiliated Programs										

**Source:** THECB CBM-00R; Accreditation on Graduate Medical Education, American Osteopathic Association, August 2018

\*Number of sponsored and/or affiliated programs.

In 2011, the number of filled, first-year Texas residency positions was 1,494, and this number increased to 1,790 in fall 2016 and to 1,868 in fall 2017 (Figure 8). The number of first-year filled residency positions varies from year to year and depends largely on the programs having adequate resources to educate, train, supervise, and pay for the residents.

**Figure 8.** First-year filled residency positions in Texas by affiliated institution, 2011-2017.



Source: THECB CBM-00R; ACGME; AOA, August 2018

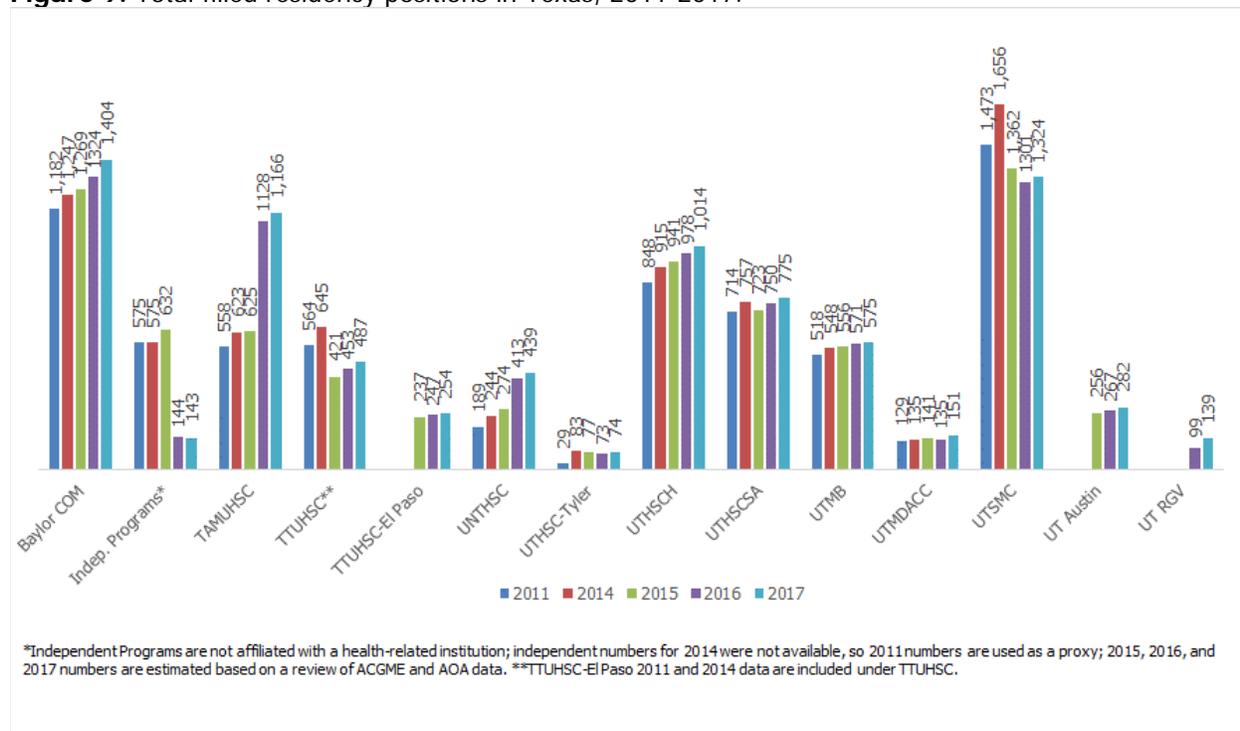
Note: UT Austin, Dell Medical School became the sponsoring institution for residency programs located in Austin that were previously affiliated with UT Southwestern and UT RGV became the sponsoring institution for residency programs located in the Rio Grande Valley that were previously affiliated with UTHSC San Antonio. TAMUHSC became affiliated with several previously independent residency programs.

Adding a new residency position requires the sponsoring residency program to have adequate resources to support the resident for the entire length of training, which is a minimum of three years. Resident physicians receive an average annual stipend of approximately \$54,000. In addition to having the financial resources to provide the resident's stipend, the sponsoring entity must also have adequate faculty to supervise residents. Supervision requirements vary by type of residency program. Residency programs must also have enough patient care opportunities for residents to gain the required experiences to prepare them for independent practice.

While residents are under the supervision of faculty physicians, they may provide a variety of patient care services, including diagnosis and conducting medical procedures. Often residents treat patients who have limited or no financial resources. Because residents practice under the supervision of faculty physicians, residents do not bill patients for their services.

In 2011, there were 6,779 Texas physician residents identified as training in Texas residency programs (Figure 9). Of that, only 22 percent (1,494) were first-year residents. By 2017, the total number of residents increased to 8,370. However, the percent of first-year residents remained at 22 percent with 1,869 first-year residents.

**Figure 9.** Total filled residency positions in Texas, 2011-2017.



Source: THECB CBM-00R; ACGME; AOA, August 2018.

Shortages exist in most all the medical specialties, including primary care, surgical and other medical specialties, and subspecialties. Several subspecialty residency programs continue to have supply challenges, including pediatric subspecialties, palliative care, geriatrics, psychiatry, and endocrinology.

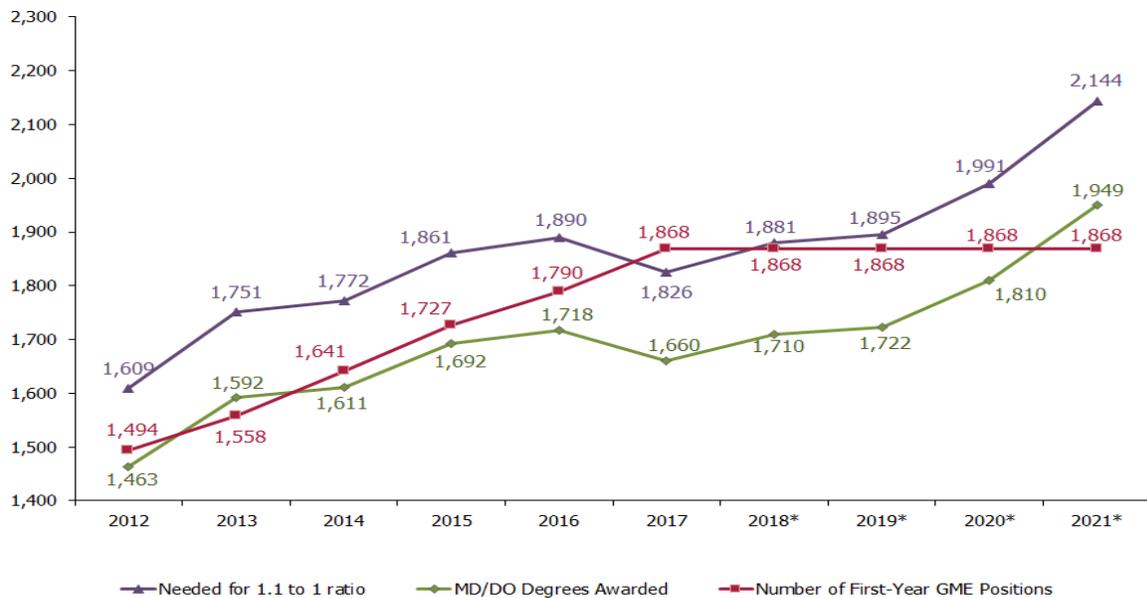
From 2007 through 2017, the number of Texas first-year filled residency positions exceeded the number of Texas medical school graduates, with the exception of 2009 and 2013. In the last few years, Texas medical school enrollments increased markedly. To ensure that graduates could remain in Texas, an equivalent number of new residency positions were needed. In 2017, first-year filled residency positions exceeded the number of graduates by 208, which met the goal of 10 percent more first-year residency positions than medical school graduates. However, if the number of first-year residency positions remains constant, that goal will not be met in the future as the number of graduates increases. Given the increases in the number of first-year medical school enrollments and the approval of new medical schools, it continues to be a challenge for the state to provide more first-year entering residency positions than Texas medical school graduates.

As mentioned previously, the state invests approximately \$45,000 annually or \$180,000 in general revenue formula funding for instruction and operation for each medical graduate of a Texas public medical school. With an additional 105 new medical students enrolled in the state's two new public schools (UT Austin Dell Medical School and UT RGV School of Medicine), unless additional first-year residency positions are established, there will not be enough first-year positions available for graduates to remain in Texas in 2020. Additionally, The University of the Incarnate Word will begin graduating its first class of 162 students in 2021, putting additional pressure on first-year residency availability.

Texas must maintain the important increases it has made in the number of its first-year residency positions and add more positions to accommodate future graduates. Otherwise, the state must recognize it will be educating medical school graduates who will have to leave Texas for residency training. While some graduates who enter residency training in other states may eventually return to Texas, others will not. To achieve the goal of having 10 percent more first-year entering residency positions, the state will need to provide additional ongoing funding to maintain the residency positions. If GME expansion funding is not increased, the substantial progress the state has made will not be sustained.

As shown in Figure 10, achieving the goal of 1.1 first-year entering residency positions for each medical school graduate will allow every Texas medical graduate an opportunity to remain in the state for residency training and will allow graduates from other states an opportunity to enter a Texas residency program.

**Figure 10.** Achieving the goal of 1.1 to 1 ratio of GME first-year to Texas medical school graduates, 2012-2021.



*\*Estimated.*

Source: THECB, CBM-009, CBM-00R, ACGME, and AOA, August 2018.

Note: Medical school graduates are based on a 95 percent graduation rate and include two new medical schools that admitted students in summer/fall 2016 and one that admitted students in fall 2017. The number of first-year GME positions in 2017 includes 1,814 verified Texas medical school positions and 54 unaffiliated residency positions.

The 83rd Texas Legislature, Regular Session, initiated several new programs to address the shortage of first-year residency positions. The initial effort, which started in FY 2014, addressed the need for additional residency positions with more than \$14 million in General Revenue appropriated to the THECB. The funding supported the development of several targeted grant programs: Unfilled Residency Position Grant Program, New and Expanded Residency Position Grant Program, and Resident Physician Expansion Program, and the Planning Grant Program.

**GME Expansion Programs.** The THECB administers grant programs that support efforts to increase the number of first-year residency positions through the Graduate Medical Education (GME) Expansion Program. Beginning in 2013, the 83rd Texas Legislature created several programs to address the need for more GME positions for Texas medical school graduates and appropriated \$12 million to support the efforts.

***Unfilled Residency Position Program.*** Establishment of the Unfilled Residency Position Program was a first-step effort to increase the available first-year residency positions in Texas by targeting the residency programs that had available residency positions that were unfilled because the programs could not support them financially. In 2014, this program filled 25 available, but unfilled positions with funding support of \$65,000 per resident. The program increased the number of first-year residency positions in the medical specialties of family medicine, internal medicine, obstetrics/gynecology, anesthesiology, and psychiatry. Funding for these residency positions was continued in subsequent years and will be maintained in FY 2019.

***New and Expanded Residency Program.*** In Fiscal Year 2015, the second effort to increase available GME positions started through the implementation of the New and Expanded Residency Program. Awards of \$2,975,000 to 11 residency programs supported the establishment of 50 new first-year positions. Funding for these residency positions was continued in subsequent years and will be maintained in FY 2019.

***Resident Physician Expansion Program.*** A third expansion program, the Resident Physician Expansion Program, was also initiated in FY 2015. This effort differed from the Unfilled Positions and New and Expanded Programs by requiring a community collaboration and a competitive selection process. In addition, eligibility for the program was not restricted to development of new first-year residency positions. Even so, the program provided support for 25 additional first-year residency positions. Funding for these residency positions was continued in subsequent years and will be maintained in FY 2019.

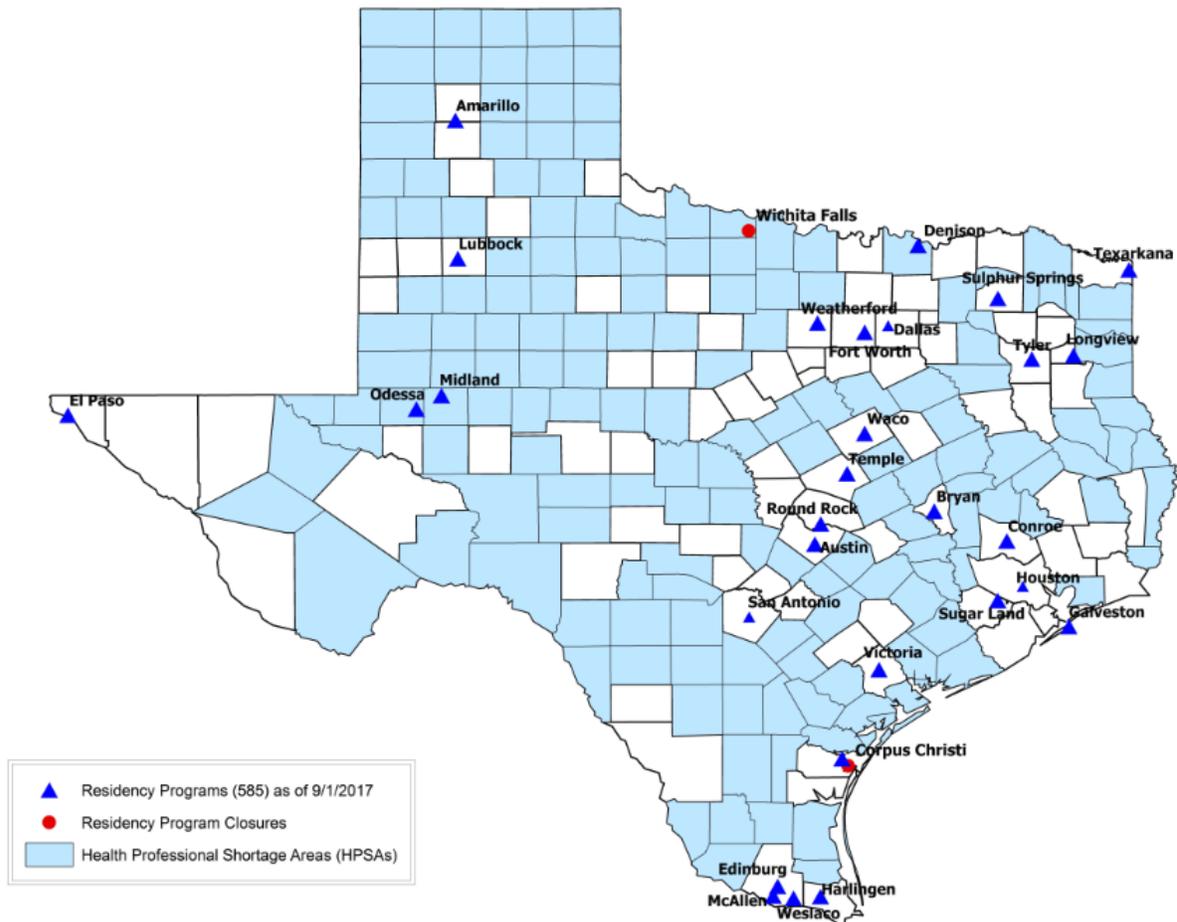
The 84th Texas Legislature, Regular Session, consolidated the Unfilled Residency Position Program, the New and Expanded Residency Program, and the Resident Physician Expansion Program into the single GME Expansion Program. Per-resident funding was increased to \$75,000, and overall position funding for the 2016-2017 biennium was increased to \$49.5 million. The additional funding allowed the new positions created in 2014 and 2015 to be maintained and to provide enough funding to support the addition of approximately 130 new residency positions.

In 2017, the 85th Texas Legislature, Regular Session, increased funding to \$97 million to support and maintain the progress made. A portion of the funding, approximately \$22 million, was appropriated from the Permanent Fund for GME, which was created by the Texas Legislature in 2015. The increased funding allowed newly created residency positions to be maintained and provided an opportunity to establish new residency positions. As a result, Texas made substantial progress toward achieving the goal of having 10 percent more first-year residency positions than Texas medical school graduates. In 2017, Texas surpassed the goal,

with 1,660 medical graduates and 1,868 filled, first-year resident positions.

**Location of Residency Programs.** The geographic distribution of physicians continues to be a concern for public policymakers, given that the physician population does not distribute itself according to the state's general population. In 2017, there were 27 Texas counties without a physician, including 10 located in the High Plains region and 8 located in the West Texas region. One reason for this uneven distribution is that the education and training of the state's physicians, including the medical schools and the majority of residency programs – especially highly specialized residency programs – are located in large urban areas. Of additional concern is the recent closure of two family medicine residency programs, one in Wichita Falls, and another in Corpus Christi. Currently, only primary care residency programs are located in all regions and geographic areas of the state (Figure 11). The designation as a whole-county Health Professional Shortage Area is a federal designation that reflects a shortage of primary care physicians and other direct patient care providers.

**Figure 11.** Location of Texas residency programs and whole-county Health Professional Shortage Areas (HPSAs).



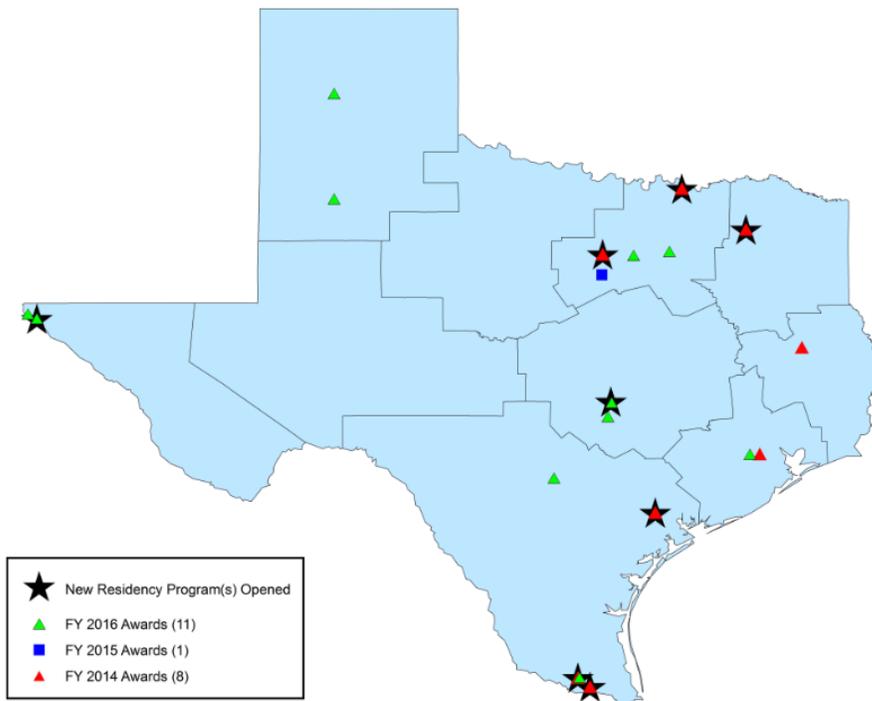
Source: THECB; Texas Department of State Health Services, August 2018.

**GME Planning Grants.** The GME Planning Grant Program was established in 2013 by the Texas Legislature as part of the GME Expansion initiative. The GME Planning Grants are awarded through a competitive process to assist eligible entities in planning the development and establishment of new residency programs that accept first-year residents (Figure 12). In 2014, GME Planning Grants were available only to entities that did not operate a GME program. The grants allowed hospitals that did not have a residency program to investigate the feasibility of establishing one. As a result of initial planning grants, 10 new residency programs received national accreditation and matriculated their first residents, and in the process, created 24 new first-year residency positions. The majority of programs established are in primary care specialties. A General Revenue appropriation of \$1,875,000 funded the initial planning grants.

In Fiscal Years 2016 and 2017, an appropriation of \$3,500,000 funded 11 one-time awards of \$250,000 each to a broader group of eligible applicants, including federally qualified health care centers (FQHCs), medical schools, and teaching hospitals. The second round of grants also encouraged partnership efforts. Three new residency programs were established as a result, and these programs officially began operation in July 2018. Many GME Planning Grant recipients were located in medically underserved areas, with the recognition that if residency programs were started in these areas, it would be likely that physician distribution would be positively affected. An additional six programs are projected to begin operation in July 2019.

In 2017, the 85th Texas Legislature, Regular Session, appropriated \$500,000 to support two new GME Planning Grants. The THECB will issue a Request for Applications in fall 2018 for two competitively awarded grants of \$250,000 and expects to select awarded applicants by the end of the year. Applications to establish new residency programs in rural areas, and in primary care and psychiatry specialties will receive priority for funding.

**Figure 12.** Location of entities that received a GME planning grant, by higher education region.

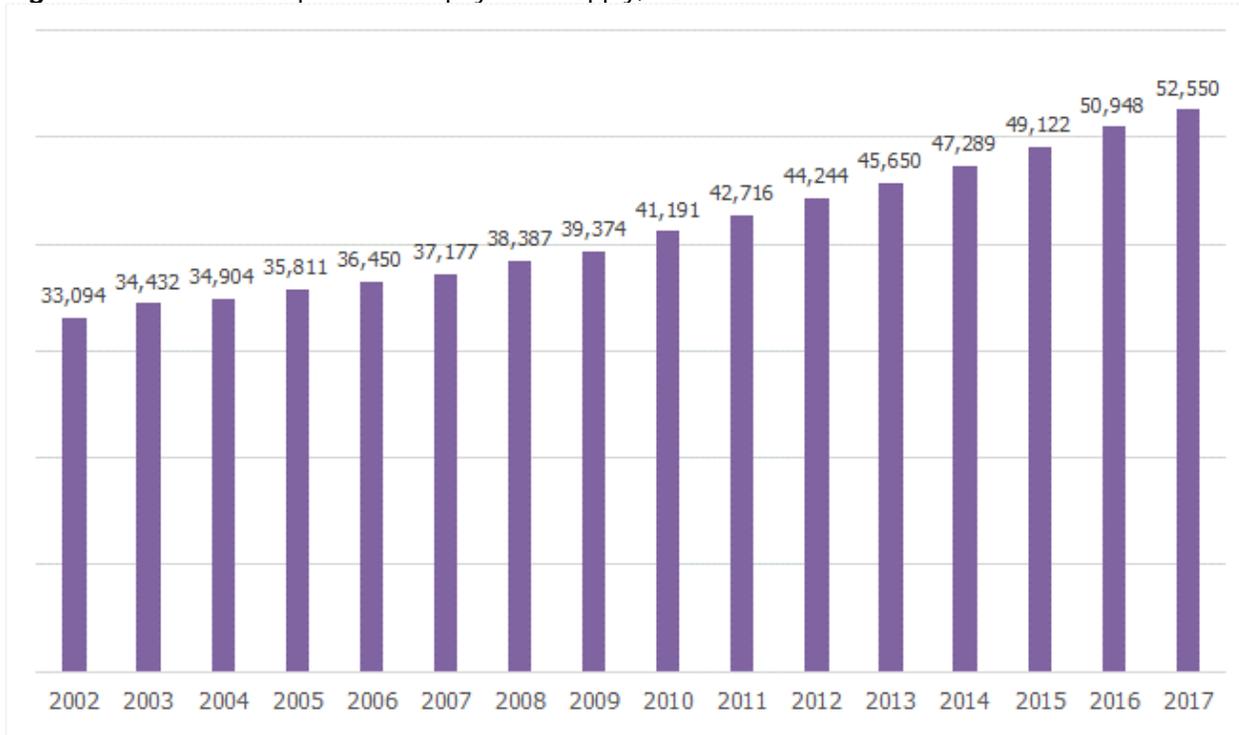


Source: THECB, August 2018.

## Workforce – Physicians in Practice

Texas continues to be an attractive location for physicians to practice. For the last decade, Texas has been a net importer of physicians. From 2002 to 2017, the number of physicians actively practicing in Texas increased 59 percent (Figure 13).

**Figure 13.** Texas direct patient care physician supply, 2002-2017.



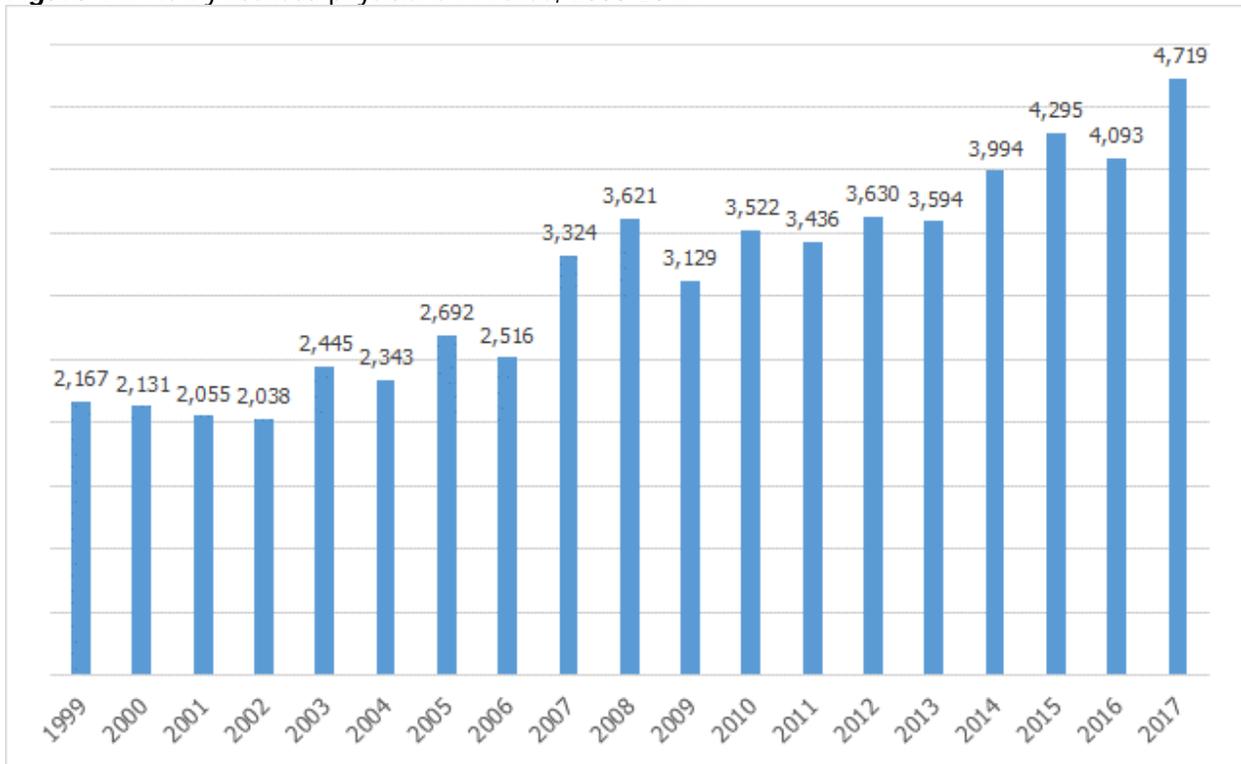
Source: Department of State Health Services, August 2018.

The AAMC's *2017 Physician Workforce Data Book* showed that, nationally, retention rates were highest for physicians who graduated from a medical school and completed residency training in the same state. This is particularly true in Texas, which ranks fourth among the states with a retention rate of 80.9 percent for physicians who graduated from a Texas medical school and completed residency training in the state. Texas physicians who complete both medical school and residency training in Texas remain to practice, regardless if they are primary or specialty physicians.

Since the passage of the Tort Reform Act of 2003, which limited the liability of physicians in malpractice suits, physicians applying for a license and practicing medicine in Texas has increased dramatically. Because of an improved climate of professional liability and the positive effect on the cost of professional liability insurance, Texas averaged an annual increase of almost 3,500 licensed physicians in the 17 years since tort reform was passed (Figure 14).

By comparison, the number of new physicians licensed held relatively constant at just over 2,000 annually in the years preceding tort reform. This increase averted further physician shortages during the past decade of population growth in Texas; however, it is not known if the state will continue attracting sufficient physicians to keep up with the projected population growth.

**Figure 14.** Newly licensed physicians in Texas, 2003-2017.

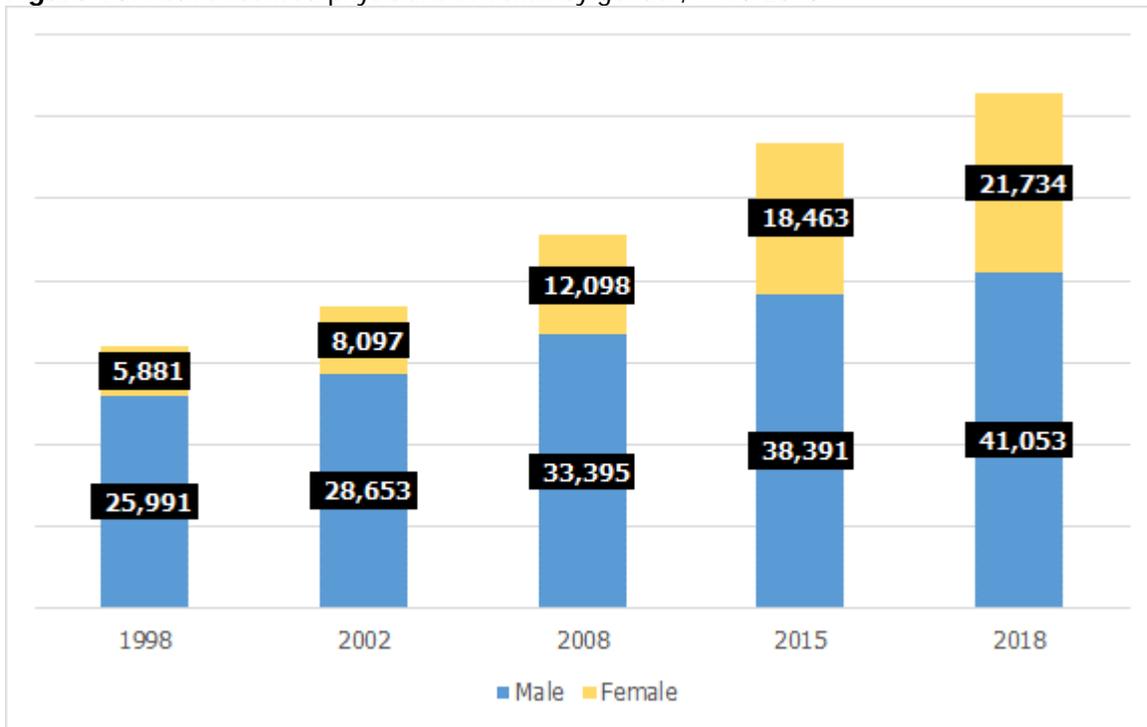


Source: Texas Medical Board, August 2018.

**Age.** Similar to the general population of the state, the Texas physician population is aging; 19 percent of Texas physicians are within ten years of retirement age (56 to 65 years of age), and 13 percent of physicians are 66 years of age or older. While age is commonly used to understand the supply of a profession, physicians tend to retire later in life than most other professionals. Many physicians continue to practice into their late 60s and early 70s.

**Gender.** Today, men outnumber women as practicing physicians. However, this imbalance will change, as women and men now apply to, are admitted to, and graduate from medical school equally. The number of female medical school graduates surpassed males for the first time in Texas in 2007, but since 2008, women and men are graduating at approximately the same proportion. The number of active licensed female physicians in Texas grew 168 percent from 7,640 in May 2002 to 21,734 in May 2018 (Figure 15). The presence of more women physicians likely will change the future physician workforce. Research has shown that women physicians enter primary care specialties at higher rates, practice fewer hours, and spend more time with patients. These gender differences in practice patterns may affect the need for more physicians in Texas and must be factored into projected future workforce needs.

**Figure 15.** Active licensed physicians in Texas by gender, 1998-2018.



Source: Texas Medical Board, May Data Publication, August 2018.

**Ethnicity.** Physicians of African American and Hispanic origin continue to be underrepresented proportionally in comparison to the Texas general population (Table 3). Although more physicians from underrepresented populations are graduating from Texas medical schools, increases have not kept pace with the growth of African Americans and Hispanics in the state's general population. Research suggests that underrepresented minority physicians provide care for underrepresented populations at greater rates than physicians of other races/ethnicities.

Additional research shows that patients prefer to have physicians who understand and reflect similar cultural characteristics, including similar ethnicities. Given the racial and ethnic changes occurring in Texas, educating and training more physicians who represent the changing demographics of the state would be beneficial.

**Table 3.** Texas physicians by race, 2018.

	Total of Hispanic Origin	Total of Non Hispanic Origin	Unknown	Total	Percent
American Indian or Alaska Native	11	101	0	112	0.18%
Asian	30	12,847	0	12,877	20.50%
Black or African American	26	3,646	0	3,672	5.85%
Native Hawaiian or Other Pacific Islander	5	132	0	137	0.22%
Other	1,153	3,802	0	4,955	7.89%
Unknown	2	1	1	4	0.01%
White	3,528	37,532	0	41,060	65.36%
<b>TOTAL</b>	<b>4,755</b>	<b>58,061</b>	<b>1</b>	<b>62,817</b>	<b>100%</b>
<b>PERCENT</b>	<b>7.57%</b>	<b>92.43%</b>	<b>0.00%</b>	<b>100%</b>	

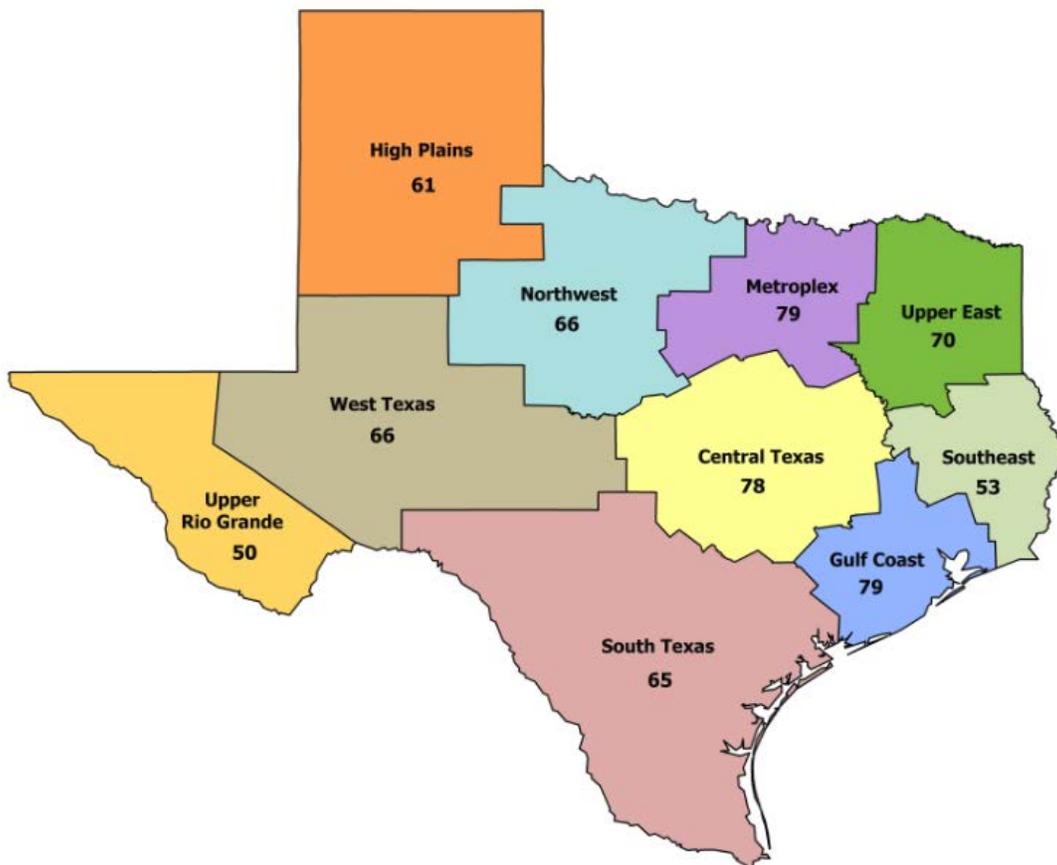
Source: Texas Medical Board, May 2018.

## Primary Care Physicians by Region

The ratio of primary care physicians, which includes family physicians, internists, obstetric/gynecologists, and pediatricians, to the general population varies by region (Figure 16). To understand the distribution of physicians in a region, the number of physicians per 100,000 population is the standard reference. The ratio is greater in the Metroplex, Central Texas, and Gulf Coast regions. While the South Texas region shows 65 physicians per 100,000 population, if Bexar County is removed from the region, the primary care physician per 100,000 population decreases to 55.

The growth in the Texas general population has not allowed Texas to significantly increase its total physician-to-100,000 population. Texas continues to have one of the lowest total physician-to-population ratios in the nation.

**Figure 16.** Primary care physicians per 100,000 population, by higher education regions, in 2018.

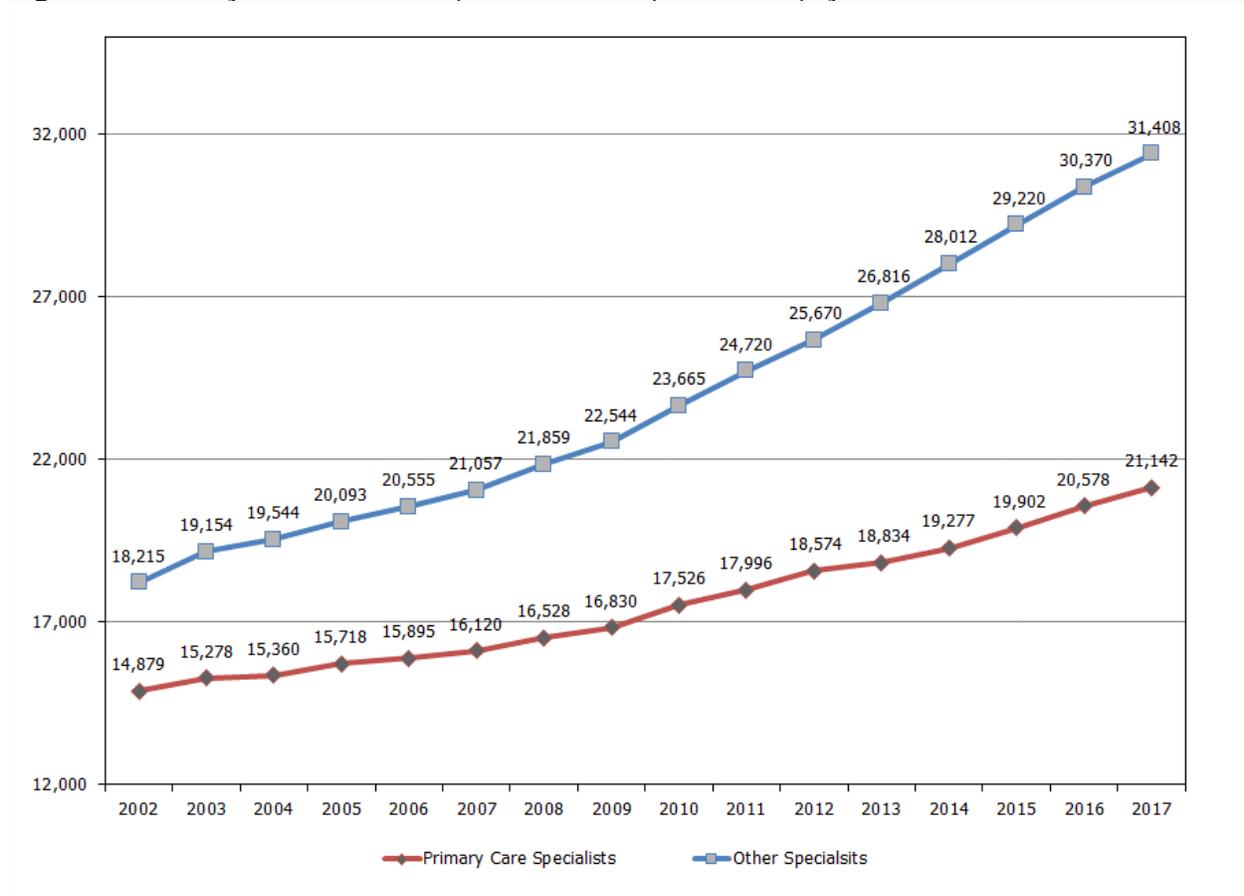


Source: THECB; Texas Department of State Health Services; Texas Data Center, 2018.

Primary care physicians, especially family physicians, tend to distribute themselves in patterns geographically similar to the general population, unlike other medical and surgical physician specialties. All regions of Texas have fewer primary care physicians than other physician specialties. There are several reasons for this, depending on specialty, including higher salaries, psychomotor skills and interest in procedures, more desirable work hours, and conditions for non-primary care physician specialties.

Since 2002, the number of primary care physicians in Texas increased by 48 percent, much lower than the increase realized by specialty care physicians at 72 percent. The long-standing trend shows that Texas has more physician specialists than primary care physicians. (Figure 17).

**Figure 17.** Primary care\* and other specialists, direct patient care physicians in Texas, 2002-2017.



Source: Texas Department of State Health Services, August 2018.  
 \*Primary care includes family medicine, internal medicine, pediatrics, and obstetrics/gynecology.

The number of medical specialty choices has increased significantly since the beginning of the 21st century. Since 2002, physicians have been able to decide among 110 different areas of medicine, and by 2006, could choose from 126 medical specialty boards. Medicine has continued to rapidly specialize, and by 2015, the American Board of Medical Specialties reported that physicians could become certified in more than 155 specialties and subspecialties. Most of these new specialties and subspecialties require some residency training in internal medicine or pediatrics. If Texas is to reach the national average of 271 physicians per 100,000 population ratios for the medical specialties that admit first-year residents, the state's commitment to support the GME Expansion effort must be maintained, or the progress made may be jeopardized.

## Conclusion

Beginning in FY 2014, the Texas Legislature's Graduate Medical Education (GME) Expansion efforts have prompted the creation of more than 200 new first-year residency positions and helped establish 13 new residency programs. As the GME Expansion programs enter their sixth year, the efforts to increase the number of first-year residency positions have provided Texas medical students with a greater opportunity to remain in the state for their residency training. However, with the establishment of three new medical schools that matriculated students beginning in 2016, the recent THECB approval of a new public osteopathic medical school, and the pending THECB consideration of two additional medical degree programs, maintaining the state's success in having 10 percent more first-year residency positions than medical graduates will quickly erode. Unless the state provides additional funding to support the GME Expansion efforts, the 1.1 to 1 goal cannot be maintained.

**Texas Medical School Enrollment Increases and New Medical Schools.** In response to a call from the Association of American Medical Colleges to increase medical school enrollments nationally by 30 percent, Texas medical schools increased entering first-year medical school enrollments 52.9 percent from 1,342 in fall 2002 to 2,052 in fall 2017.

In summer and fall 2016 respectively, two new Texas public medical schools, UT Austin Dell Medical School and UT RGV School of Medicine, matriculated their inaugural classes. With the addition of the two new schools, Texas increased its first-year medical school enrollment by 105 new medical students. In addition, the private osteopathic medical school, The University of the Incarnate Word in San Antonio, enrolled its first 162 osteopathic medical students in fall 2017.

In August 2018, the THECB approved a new osteopathic medicine degree program proposed by Sam Houston State University. The new program would be located in a new osteopathic medical school in Conroe, approximately 30 miles from the institution's main campus in Huntsville. The new school's mission is to produce primary care physicians who will practice in rural east Texas. The institution proposes to enroll approximately 150 osteopathic medical students in fall 2020. Notably, the institution will not accept formula funding for its osteopathic medical students.

Two additional proposals for new medical schools are currently under consideration by the THECB: University of Houston (UH) proposes to offer an MD degree program, and the University of North Texas Health Science Center proposes a unique public/private partnership with Texas Christian University to offer an MD program. UH plans to enroll students in fall 2020, and UNTHSC/TCU partnership program plans to enroll medical students in fall 2019.

Most public Texas medical schools receive formula funding to support the instruction and operation of their osteopathic medical and allopathic medical students through a prescribed formula. The amount of formula funding support that the existing Texas public medical schools and the private Baylor College of Medicine receive is set forth in the state's biennial budget document, the General Appropriations Act (GAA). The GAA presents the instruction and operation formula in the Health Related Institutions Funding Instruction and Operation Formula in Article III, Section 27 (1), of the section Special Provisions Section Relating Only to State Agencies of Higher Education. The three additional formulas for research, facilities, and graduate medical education are also included in Article III, Section 27, of the GAA.

In 2017, Instruction and Operation (I&O) Formula funding was reduced to \$44,825 per medical student for FY 2018 and FY 2019. This reduction followed several years of slight increases, from \$42,180 in FY 2012 and FY 2013, to \$45,281 in FY 2014 and FY 2015, and increasing to \$46,717 in FY 2016 and FY 2017. The most recent funding amount is a 17 percent decrease from the original \$54,000 (unadjusted dollars) per medical student provided when the health-related institutions' formula funding was established in 1999 to provide initial funding for the I&O Formula in FY 2000 and FY 2001.

The private Baylor College of Medicine receives a similar formula funding amount. However, their formula funding is trusted to the THECB and is provided to the institution to support their Texas students. This arrangement also allows BCM to leverage additional funding through the Texas Health and Human Services Medicaid program.

**Texas Medical Residency Programs Increased First-year Positions.** The federal financing of graduate medical education is complex and presents limited opportunities for existing teaching hospitals to add new residency programs and/or residency positions to existing programs. Because hospitals at their resident cap for Medicare GME do not receive additional federal funding to add new residency positions, they often take a measured approach to funding additional residency positions.

Texas provides minimal funding support for residency training affiliated with health-related institutions through a formula allocation. The formula funding for the GME Formula is presented in the GAA, Article III, Section 27 (6). In the 2018 and 2019 biennium, health-related institutions and public general academic institutions with medical schools received \$11,647 per medical resident to support faculty costs related to supervising a resident. This was a slight increase from the 2016 and 2017 biennial amount of \$10,244 per resident. This level of support equates to about 8 percent of the estimated cost of \$150,000 to educate a resident annually.

A majority of Texas family medicine residency programs receive additional funding through the THECB's Family Practice Residency Program. Under this program, eligible family medicine residency programs received an additional amount of \$6,236.90 per resident in FY 2018. These funds, combined with the formula allocation, cover less than 9 percent of the estimated cost of training a family medicine resident.

In fall 2011, the ratio of first-year entering residency positions to graduates was near 1 to 1, with 1,494 first-year entering residency positions available for the state's 1,458 medical school graduates. At that time, legislators, representatives of professional organizations, and medical education experts recognized that unless additional first-year residency positions were created, some Texas graduates would have to leave the state to enter residency training.

In spring 2016, Texas medical schools awarded a combined 1,718 MD and DO degrees. In fall 2016, the health-related institutions reported, and staff identified 1,790 filled first-year residency positions – just 100 positions short of reaching the 1.1 to 1 goal.

In 2017, Texas achieved the 1.1 to 1 ratio goal. By spring 2017, the number of medical school graduates declined slightly to 1,660; while the number of filled first-year residency positions increased to 1,868. The number of filled first-year positions included residency programs reported to the THECB on its Coordinating Board Management (CBM)-00R report and through independent residency programs, which are not reported on the CBM-00R. While the achievement is notable, it is likely to be short-lived, as the projected number of medical graduates is likely to increase in spring 2018 to 1,710 or more. If no change occurs in the number of filled first-year residency positions, the state will be shy of its goal by 13 first-year

residents in 2018. Unfortunately, the goal will become increasingly difficult to attain as the state's new medical schools begin to graduate physicians. If new first-year residency positions are not established by 2021, the state will fall below its 1.1 to 1 goal by an estimated 276 first-year positions.

Adding new residency positions to existing programs is costly and requires a long-term commitment by a teaching entity and one or more participating training sites, most commonly hospitals. Given uncertainties within the health care system, including efforts to control cost increases, reduce the number of uninsured, and address changes in health care delivery and payment resulting from the Affordable Care Act, hospitals continue to remain cautious about GME expansion.

While adding new residency positions and programs is admirable and will contribute to the state's 1.1 to 1 goal, it is also important that the state's existing residency programs receive adequate funding and support. In FY 2017, two family medicine residency programs shuttered their doors, resulting in reduced access to health care in the communities of Wichita Falls and Corpus Christi. Residency program closings are another concern as the state continues to face physician distribution challenges.

## **Prior Recommendations and Results**

In its 2016 report, the THECB offered four recommendations, and each recommendation is provided below, followed by the result.

**2016 Recommendation 1.** In addition to the base-level funding, the THECB requested an additional \$29 million to support GME Expansion programs in FY 2018 and FY 2019. This additional funding was to allow support for residency positions created and filled by the GME expansion program but would not cover all new additions to the programs. It was intended to support the existing positions currently filled by residents and would support those residents as they progressed through their multi-year residency training.

**Result.** The 85th Texas Legislature, Regular Session, provided \$97.5 million to support GME Expansion Programs. As a result, an estimated 1,292 residency positions will receive funding support in FY 2018 and FY 2019.

**2016 Recommendation 2.** The THECB's Health-Related Institutions Formula Advisory Committee recommended an increase to the GME instruction and operation formula to \$8,444 per resident for FY 2018 and FY 2019. The Commissioner's recommendation related to the Graduate Medical Education formula differed from the Advisory Committee, a 31 percent increase, rather than the committee's recommended 39 percent increase. However, the Commissioner's recommendation also included additional funding specifically to reach the 1.1 to 1 ratio goal.

**Result.** In the 2018 and 2019 biennium, health-related institutions and public general academic institutions with medical schools received \$11,647 per medical resident to support faculty costs related to supervising a resident. This was a slight increase from the 2016 and 2017 biennial amount of \$10,244 per resident.

**2016 Recommendation 3.** The THECB recommended maintaining funding and support for the programs established to promote primary care, expand medical education opportunities, and encourage medical school innovation.

**Result.** The Primary Care Innovation Grant Program was eliminated. However, the Statewide Preceptorship Program was maintained.

**2016 Recommendation 4.** The THECB recommended that new programs leading to either the doctor of medicine or the doctor of osteopathic medicine degrees must develop a plan to establish enough residency positions to accommodate all projected graduates from the new program(s) in addition to already established residencies in Texas.

**Result.** The 85th Texas Legislature, Regular Session, passed House Concurrent Resolution 102, which expressed the Legislature's support for prioritizing a substantial increase in funding for graduate medical education before it considers authorizing the creation and support of additional medical schools. It also charged the THECB to work with institutions of higher education and the medical community to achieve the 1.1 to 1 goal for graduate medical education.

The 85th Texas Legislature also passed Senate Bill 1066, which requires an institution proposing an MD or DO degree program to provide a "specific plan regarding the addition of first-year residency positions for the graduate medical education program to be offered in connection with the new degree program." The plan must propose an increase in the total number of first-year residency positions in the state sufficient to reasonably accommodate theirs and other medical schools' projected graduates. Submission of such a specific plan is required for approval.

## **Recommendations to Support and Maintain Progress Made**

Based on the progress made in previous years and to achieve and maintain the goal of the 1.1 to 1 ratio, the THECB offers the following revised recommendations:

**Recommendation 1.** Continue support of the GME Expansion efforts. To maintain the 1.1 to 1 ratio of first-year residency positions to medical school graduates, the THECB has an exceptional item request of \$60,675,000 for the 2020-21 biennium, which would support the addition of new residency positions to accommodate the increase in the number of medical graduates resulting from the opening of three new medical schools. The additional funds would support new residency positions and help maintain recently established residency positions.

**Recommendation 2.** Enhance support of the Family Practice Residency Program. The program was started in the late 1970s to help address physician distribution. Unlike other medical specialties, family physicians are able to practice in smaller communities and rural areas. Their geographic distribution is similar to the general population. The THECB has an exceptional item request of \$2 million to increase funding per resident to approximately \$7,600 to support an estimated 773 family medicine residents in the program.

**Recommendation 3.** Increase the GME formula funding from the FY 2018 and FY 2019 level of \$5,824 to \$6,654 for FY 2020 and FY 2021, per the Board's recommendation.

**Recommendation 4.** Maintain funding and support for the THECB's Statewide Preceptorship Programs established to encourage Texas medical students to consider selecting a primary care residency program.



This document is available on the [Texas Higher Education Coordinating Board website](#).

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