Texas Physician Supply and Demand Projections, 2018 - 2032

As Required by

Texas Health and Safety Code

Section 105.009

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Table of Contents

Executive Summary

In accordance with Texas Health and Safety Code, Section 105.009, the Health Professions Resource Center at the Texas Department of State Health Services (DSHS) is required to conduct research identifying those specialties and subspecialties in the state that are at critical shortage levels, the overall supply of physicians in the state, and the ability of the state's graduate medical education system to meet the current and future health care needs of the state. This report is in fulfillment of the requirements in Section 105.009 and is an update to the 2018 DSHS supply and demand projections report for primary care physicians and psychiatrists. This report replaces the 2018 report.

For this report, DSHS summarized results from supply and demand projections for all physicians and 35 physician specialties from 2018 through 2032. These results are based on the Health Workforce Model created by IHS Markit, a consulting firm that has previously conducted health care workforce modeling for the Health Resources and Services Administration, the Association of American Medical Colleges, and DSHS.

To project supply, the model used physician licensure data provided by the Texas Medical Board and projected medical school enrollment and graduate medical education residency position data provided by the Texas Higher Education Coordinating Board, as well as hours worked and retirement data from other validated sources. To project demand, the model used national and state data from the American Community Survey and the Behavioral Risk Factor Surveillance System, national data from the American Medical Association Masterfile, county population projections from the Texas Demographic Center, county-level demographic counts from the U.S. Census Bureau, and other sources.

Key findings include the following:

- The shortage of all physicians statewide is projected to increase from 6,218 full-time equivalents (FTEs) in 2018 to 10,330 FTEs in 2032.
- Among the 35 physician specialties included in this report, general internal medicine is projected to have the greatest absolute shortage in 2032, as an additional 2,607 FTEs will be needed statewide to meet projected demand.

- Among the 35 physician specialties included in this report, family medicine is projected to have the greatest shortage increase in FTEs between 2018 and 2032, as the shortage of family medicine physicians statewide is projected to increase from 1,034 FTEs in 2018 to 2,495 FTEs in 2032.

- Physician specialties identified as critical shortages vary by region. For instance:

    - Psychiatry is identified as a critical shortage in all regions of the state except Central Texas (Region 7).

    - Pediatrics is identified as a critical shortage in all regions of the state except the Gulf Coast (Region 6/5S) and Central Texas.

    - Family medicine is identified as a critical shortage in all regions of the state except the Panhandle (Region 1), North Texas (Region 2/3), Central Texas, and South Texas (Region 8).

In summary, there is a shortage of physicians in Texas and this shortage will increase through 2032. Current projections in medical school enrollment and resident positions by the Texas Higher Education Coordinating Board indicate that the state's graduate medical education system will not create a supply of physicians that can meet projected demand.

1. Introduction

Senate Bill 18, 84th Legislature, Regular Session, 2015, added Section 105.009 to the Texas Health and Safety Code. Section 105.009 requires that the Health Professions Resource Center (HPRC) at the Texas Department of State Health Services (DSHS) conduct research identifying those specialties and subspecialties in the state that are at critical shortage levels, the overall supply of physicians in the state, and the ability of the state's graduate medical education system to meet the current and future health care needs of the state. By May 1 of even-numbered years, the Statewide Health Coordinating Council is required to report the results of research conducted by HPRC to the Legislative Budget Board, the Texas Higher Education Coordinating Board, the Office of the Governor, and the standing committees of each house of the legislature with primary jurisdiction over state finance or appropriations. This report is in fulfillment of the requirements in Section 105.009 and is an update to the 2018 DSHS supply and demand projections report for primary care physicians and psychiatrists. This report replaces the 2018 report.

This report assesses the physician shortage level in Texas by presenting supply and demand projections for all physicians and 35 physician specialties from 2018 through 2032. These projections are based on the Health Workforce Model created by IHS Markit, a consulting firm that has previously conducted health care

workforce modeling for the Health Resources and Services Administration,[1] the Association of American Medical Colleges,[2] and DSHS.[3,4,5]

This report is organized into six sections beginning with a brief introduction and the background and objectives of this report. Section 3 describes the methodology for the supply and demand models used for the projections in this report and discusses the strengths and limitations of these projections. Section 4 presents the supply and demand projections for all physicians and 35 physician specialties statewide from 2018 through 2032. Section 5 identifies critical shortages of physician specialties by public health region. Section 6 provides report conclusions.

Three appendices appear at the end of this report. Appendix A provides tables that include the regional supply and demand projections for 35 physician specialties for 2018 and 2032. Appendix B provides information on Texas Health Data, an interactive public data system displaying the statewide and regional supply and demand projections for all physicians and 35 physician specialties from 2018 through 2032. Appendix C provides a map of Texas' eight public health regions and information on where the public may identify the region in which specific counties are located.

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[1] U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Workforce, National Center for Health Workforce Analysis. National and Regional Projections of Supply and Demand for Primary Care Practitioners: 2013-2025. https://bhw.hrsa.gov/sites/default/files/bhw/health-workforce-analysis/research/projections/primary-care-national-projections2013-2025.pdf. Published November 2016. Accessed January 28, 2020.

[2] Association of American Medical Colleges. 2019 Update: The Complexities of Physician Supply and Demand: Projections from 2017 to 2032. https://www.aamc.org/system/files/c/2/31-2019_update_-_the_complexities_of_physician_supply_and_demand_-_projections_from_2017-2032.pdf. Published April 2019. Accessed January 28, 2020.

[3] Texas Department of State Health Services. Texas Projections of Supply and Demand for Primary Care Physicians and Psychiatrists, 2017 - 2030. http://dshs.texas.gov/legislative/2018-Reports/SB-18-Physicians-Workforce-Report-Final.pdf. Published July 2018. Accessed January 28, 2020.

[4] Texas Department of State Health Services, Texas Center for Nursing Workforce Studies. Nurse Supply and Demand Projections, 2015-2030. https://www.dshs.texas.gov/chs/cnws/WorkforceReports/SupplyDemand.pdf. Published October 2016. Accessed January 28, 2020.

[5] Texas Department of State Health Services. Texas Supply and Demand Dental Projections, 2018 – 2030. https://www.dshs.texas.gov/chs/hprc/publications/DSHS_DentalProjections_092019.pdf. Published September 2019. Accessed January 28, 2020.

2. Background

The availability of providers and facilities to patients has been recognized as one of the top barriers to meeting the health care needs of the United States population.[6] Availability is defined as "the relationship of the volume of existing services and resources to patients' volume and types of needs." In 2018, the number of active physicians on a per 100,000 population basis was 277.8 nationwide, while the corresponding number for Texas was 224.8.[7] Moreover, Texas ranked 41st among the 50 states in the number of active physicians per 100,000 population.

According to the Bureau of Labor Statistics, the projected job growth of physicians and surgeons nationwide from 2018 to 2028 is faster than average at 7 percent.[8] Demand for health care services is projected to increase due to the aging and growing population.

In 2019, the Association of American Medical Colleges issued a report projecting the supply and demand for physicians nationally from 2017 to 2032.[9] Results from this report indicate that there will be an estimated shortage of between 46,900 and 121,900 physicians nationwide by 2032. This projected shortage includes 21,100 to 55,200 primary care physicians and 24,800 to 65,800 specialty care physicians.

As required by Texas Health and Safety Code, Section 105.009, DSHS issued a report in 2018 projecting the supply and demand for primary care physicians and

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[6] Kullgren JT, McLaughlin CG, Mitra N, Armstrong K. Nonfinancial barriers and access to care for U.S. adults. *Health Serv Res*. 2012;47(1 Pt 2):462-485.

[7] Association of American Medical Colleges. 2019 State Physician Workforce Data Report. https://store.aamc.org/downloadable/download/sample/sample_id/305/. Published November 2019. Accessed January 29, 2020.

[8] U.S. Department of Labor, Bureau of Labor Statistics. Occupational Outlook Handbook, Physicians and Surgeons. https://www.bls.gov/ooh/healthcare/physicians-and-surgeons.htm. Accessed January 29, 2020.

[9] Association of American Medical Colleges. 2019 Update: The Complexities of Physician Supply and Demand: Projections from 2017 to 2032. https://www.aamc.org/system/files/c/2/31-2019_update_-_the_complexities_of_physician_supply_and_demand_-_projections_from_2017-2032.pdf. Published April 2019. Accessed January 28, 2020.

psychiatrists in Texas at both the state and regional level from 2017 to 2030.[10] Results from this report indicated that there would be an estimated shortage of 3,375 full-time equivalent (FTE) primary care physicians and 1,208 FTE psychiatrists statewide by 2030.

This report replaces the 2018 DSHS supply and demand projections report for primary care physicians and psychiatrists. The Health Workforce Model used to project supply and demand in the 2018 report has been updated for this report to include more recent sources of data. Thus, the projections in this report replace those from the 2018 report. This report identifies the degree of shortage of all physicians and 35 physician specialties in Texas. Results are reported statewide, and critical shortages of physician specialties are identified in each of the state's eight public health regions. The supply and demand projections presented in this report are from the baseline year of 2018 through 2032.

This report aims to inform state officials and stakeholders regarding areas of critical physician shortage. By doing so, this report may assist in the development of policies that address the availability of the physician workforce in Texas.

Objectives

The primary objectives of this report are to:

- Project supply and demand for all physicians statewide;
- Project supply and demand for 35 physician specialties statewide; and
- Identify critical shortages of physician specialties by public health region.

[10] Texas Department of State Health Services. Texas Projections of Supply and Demand for Primary Care Physicians and Psychiatrists, 2017 - 2030. http://dshs.texas.gov/legislative/2018-Reports/SB-18-Physicians-Workforce-Report-Final.pdf. Published July 2018. Accessed January 28, 2020.

3. Methodology for Supply and Demand Projections

Projected supply and demand for all physicians and 35 physician specialties are estimated for Texas statewide and by public health region using IHS Markit's Health Workforce Model. This model has previously been utilized by the Health Resources and Services Administration,[11] the Association of American Medical Colleges,[12] and DSHS[13,14,15] for health care workforce modeling.

The model includes two parts: the Health Workforce Supply Model (HWSM) and the Healthcare Demand Microsimulation Model (HDMM). The HWSM generates the supply projections and the HDMM generates the demand projections. Both models use a microsimulation approach for which the unit of analysis is the individual: in this case, providers for the HWSM and patients for the HDMM. Information about the models contained within this report is based on IHS Inc.'s Health Workforce Model Documentation.[16]

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[11] U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Workforce, National Center for Health Workforce Analysis. National and Regional Projections of Supply and Demand for Primary Care Practitioners: 2013-2025. https://bhw.hrsa.gov/sites/default/files/bhw/health-workforce-analysis/research/projections/primary-care-national-projections2013-2025.pdf. Published November 2016. Accessed January 28, 2020.

[12] Association of American Medical Colleges. 2019 Update: The Complexities of Physician Supply and Demand: Projections from 2017 to 2032. https://www.aamc.org/system/files/c/2/31-2019_update_-_the_complexities_of_physician_supply_and_demand_-_projections_from_2017-2032.pdf. Published April 2019. Accessed January 28, 2020.

[13] Texas Department of State Health Services. Texas Projections of Supply and Demand for Primary Care Physicians and Psychiatrists, 2017 - 2030. http://dshs.texas.gov/legislative/2018-Reports/SB-18-Physicians-Workforce-Report-Final.pdf. Published July 2018. Accessed January 28, 2020.

[14] Texas Department of State Health Services, Texas Center for Nursing Workforce Studies. Nurse Supply and Demand Projections, 2015-2030. https://www.dshs.texas.gov/chs/cnws/WorkforceReports/SupplyDemand.pdf. Published October 2016. Accessed January 28, 2020.

[15] Texas Department of State Health Services. Texas Supply and Demand Dental Projections, 2018 – 2030. https://www.dshs.texas.gov/chs/hprc/publications/DSHS_DentalProjections_092019.pdf. Published September 2019. Accessed January 28, 2020.

[16] IHS Inc. Health Workforce Model Documentation, Version 4.4.2016. https://cdn.ihs.com/www/pdf/IHS-HDMM-DocumentationApr2016.pdf. Accessed February 5, 2020.

The model used Texas-specific data when possible and data from national or other sources when necessary. The model presents results for all physicians and 35 physician specialties.

Supply Model

Supply, when used in reference to the physician workforce, refers to the capacity of physicians to provide patient care. In general, the HWSM uses a microsimulation approach that models the likely career choices of individual physicians to project what supply might look like annually through 2032. The HWSM starts with the current supply of physicians, taking into consideration their demographics and practice specialties, and models new physicians entering the workforce, physicians leaving the workforce, and workforce participation patterns as physician demographics change over time. The HWSM reports supply data as a count of the number of FTEs available to provide patient care.

The supply projections presented in this report are based on multiple data sources. Texas physician licensure data are provided by the Texas Medical Board and are geocoded and processed by HPRC at DSHS. The 2015 through 2018 physician files from HPRC were used to model projected new entrants to the Texas physician workforce and physicians leaving the Texas workforce. The 2018 physician file from HPRC was used as the baseline supply for the Texas physician workforce. The baseline year was selected as 2018, as this was the most recent year of physician licensure data available when the projections were generated for this report. Table 1 in Section 4 of this report includes the baseline supply of physicians in Texas.

Additionally, projected medical school enrollment and graduate medical education residency position data provided by the Texas Higher Education Coordinating Board were used to reflect expected growth in new workforce entrants in the near future. Data from Florida, Maryland, New York, and South Carolina were used to estimate the number of hours worked for physicians by specialty, while data from Florida were used to estimate retirement patterns for physicians by specialty. In both cases, reliable and validated data from Texas were unavailable. However, where reliable and validated data from other states were used, patterns were verified to be generalizable.

Demand Model

Demand, as used in this report, is defined as the quantity of physician-provided health care services and care delivery necessary so that Texans, based on their

demographic and health profiles, receive the national average level of care. The HDMM models demand for health care services and providers and includes three major components.

The first component includes characteristics of each person in a representative sample of the current and future population. Characteristics of these individuals include demographics, socioeconomics, health behaviors, and occurrence of chronic conditions among others. Specifically, the HDMM used national and state data from the 2018 American Community Survey, the 2015 Centers for Medicare and Medicaid Services' Minimum Data Set, the 2016 Medicare Current Beneficiary Survey, and the 2014, 2017, and 2018 Behavioral Risk Factor Surveillance System, as well as county population projections from the Texas Demographic Center and county-level demographic counts from the U.S. Census Bureau.

The second component is health care use patterns that relate to patient characteristics. Pooled data from the 2013 through 2017 Medical Expenditure Panel Survey were used to provide a measure of health care services consumed by the average person in the national population.

The third component is national staffing patterns that translate demand for services into the need for FTE physicians by specialty and care delivery setting. To estimate provider staffing ratios for physicians, the HDMM used national data from the 2018 American Medical Association Masterfile.

When demand is greater than supply, a shortage of physician FTEs exists. When supply is greater than demand, a surplus of physician FTEs exists.

Strengths and Limitations

Both the key strengths and limitations of the projections in this report lie in the availability and quality of state-level data.

The main strength of the supply side projections is the use of state-level physician licensure data. These data provide a timely and accurate count of the number of physicians practicing in Texas along with their demographics and practice specialties. Likewise, the use of state-level medical school graduation numbers provides an accurate depiction of the production of new physicians. The main strengths of the demand side projections are the use of state-level population numbers and demographics, which provide a sound starting point for estimating the population's demand for health care services.

As with any model, there are also limitations. On the demand side, baseline projections model the impact of changing demographics over time while health care use and delivery patterns remain the same. The baseline demand projections also assume that disease prevalence and health risk factors will remain consistent by demographic groups over time. As access to care changes, models of care transform, and technology improves health practices and outcomes, it is difficult to predict how health care use and delivery patterns as well as disease prevalence and health risk factors will change over time.

Another limitation is that the demand model assumes that Texas health care utilization is based on national health care use patterns. Without better state-level data on health care use to include in the demand model, it is difficult to know how Texas actually compares to national health care use patterns. Additionally, this assumption does not address the quality of care provided by national use patterns.

4. Supply and Demand Projections for Physicians Statewide

The table below provides the statewide supply and demand projections for all physicians and 35 physician specialties for 2018 and 2032. Supply and demand physician counts are listed as FTEs. Percent of demand met is calculated by dividing supply by demand.[17] A percentage greater than 100 percent indicates a surplus of physician FTEs, while a percentage lower than 100 percent indicates a shortage of physician FTEs.

Table 1. Supply and Demand for Physicians in Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Allergy and Immunology	374	300	124.6%	404	404	100.0%
Anesthesiology	3,750	3,071	122.1%	4,489	4,020	111.7%
Cardiology	1,931	2,173	88.9%	2,311	3,208	72.0%
Colorectal Surgery	161	163	98.9%	233	229	101.9%
Critical Care Medicine	280	335	83.6%	409	467	87.5%
Dermatology	651	700	93.0%	828	922	89.8%
Emergency Medicine	4,716	3,877	121.6%	7,412	4,983	148.7%
Endocrinology	517	709	72.9%	708	982	72.1%

[17] Supply and demand FTEs are rounded to whole numbers. Calculations were made using the unrounded FTE numbers.

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Family Medicine	7,411	8,445	87.8%	9,004	11,499	78.3%
Gastroenterology	1,071	1,080	99.2%	1,355	1,408	96.3%
General Internal Medicine	5,570	7,162	77.8%	7,759	10,366	74.8%
General Surgery	1,593	1,728	92.1%	2,114	2,250	93.9%
Hematology and Oncology	1,131	1,229	92.0%	1,595	1,663	95.9%
Infectious Diseases	450	734	61.3%	660	1,061	62.2%
Neonatology	469	568	82.5%	578	690	83.8%
Nephrology	927	1,196	77.5%	1,319	1,976	66.7%
Neurological Surgery	464	429	108.2%	610	649	94.1%
Neurology	954	984	97.0%	1,215	1,338	90.8%
Obstetrics and Gynecology	3,096	3,424	90.4%	3,783	4,210	89.8%
Ophthalmology	1,198	1,208	99.1%	1,404	1,741	80.6%
Orthopedic Surgery	1,779	1,356	131.2%	2,232	1,727	129.2%
Other Specialties	1,139	2,492	45.7%	1,431	3,330	43.0%
Otolaryngology	663	634	104.6%	772	813	94.9%
Pathology	1,208	1,207	100.1%	1,541	1,683	91.6%

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Pediatrics	3,783	5,491	68.9%	4,675	6,588	71.0%
Physical Medicine and Rehabilitation	680	979	69.5%	874	1,405	62.2%
Plastic Surgery	1,019	562	181.2%	1,377	708	194.4%
Psychiatry	2,202	3,263	67.5%	2,852	3,895	73.2%
Pulmonology	748	936	79.9%	1,059	1,300	81.4%
Radiation Oncology	289	421	68.7%	409	569	71.8%
Radiology	2,340	2,018	115.9%	2,984	2,553	116.9%
Rheumatology	340	235	144.5%	457	333	137.4%
Thoracic Surgery	355	327	108.7%	507	449	112.8%
Urology	676	621	108.8%	819	875	93.6%
Vascular Surgery	235	331	71.0%	251	463	54.1%
All Physicians	**54,171**	**60,389**	**89.7%**	**70,431**	**80,761**	**87.2%**

Supply and Demand Projections for All Physicians Statewide

The shortage of physicians is expected to worsen from 2018 to 2032. During this period, the supply of physicians is projected to increase by 30.0 percent, while the demand is projected to increase by 33.7 percent. The supply is projected to increase from 54,171 FTEs in 2018 to 70,431 FTEs in 2032. The demand is projected to increase from 60,389 FTEs in 2018 to 80,761 FTEs in 2032. This deficit of 6,218 FTEs in 2018 is projected to grow to a deficit of 10,330 FTEs in 2032.

Supply and Demand Projections for Physician Specialties Statewide

The specialties of general internal medicine, family medicine, pediatrics, and psychiatry are projected to have the most significant shortages by FTE deficit in 2032.

The specialties with the lowest percentage of demand met by 2032 include vascular surgery (54.1 percent), infectious diseases (62.2 percent), physical medicine and rehabilitation (62.2 percent), and nephrology (66.7 percent).

Notable specialties with projected surpluses by 2032 include: emergency medicine (2,429 FTEs), anesthesiology (469 FTEs), and plastic surgery (669 FTEs).

5. Critical Shortages of Physician Specialties by Region

Critical shortages were defined using a combination of deficit of FTEs and percent of demand met. The exact criteria were set depending on the overall specialty distribution and population of the public health region.[18,19]

Region 1: Panhandle

The Panhandle region has a lower population compared to other public health regions in Texas. The specialties with the greatest shortage deficits by FTE count projected for 2032 were classified as having critical shortages. Critical shortages in the Panhandle include cardiology, nephrology, pediatrics, and psychiatry.

The shortage of cardiologists is projected to grow from a shortage of 15 FTEs in 2018 to 38 FTEs in 2032.

The supply of nephrologists is projected to increase from 20 FTEs to 23 FTEs from 2018 to 2032. In that same timeframe, demand is projected to increase from 43 FTEs to 55 FTEs. In 2018, 46.9 percent of demand was met, and it is projected to be 41.1 percent in 2032.

The supply of pediatricians is expected to grow from 67 FTEs in 2018 to 84 FTEs in 2032, while demand will increase from 152 FTEs in 2018 to 168 FTEs in 2032. In 2018, this is 44.1 percent of demand met, and 50.0 percent in 2032.

Growth in the supply of psychiatrists is projected to be 46.1 percent, from 34 FTEs in 2018 to 50 FTEs in 2032. Demand is projected to increase 3.8 percent, from 96 FTEs to 100 FTEs from 2018 to 2032. This represents 35.5 percent demand met in 2018, and 50.0 percent in 2032.

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[18] The category "Other Specialties" was not included in this section because it is an aggregate category.

[19] Refer to Appendix A for complete supply to demand ratios and FTEs.

Table 2. Critical Shortages of Physician Specialties in Region 1 - Panhandle

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Cardiology	58	73	79.3%	49	87	56.1%
Nephrology	20	43	46.9%	23	55	41.1%
Pediatrics	67	152	44.1%	84	168	50.0%
Psychiatry	34	96	35.5%	50	100	50.0%

Region 2/3: North Texas

The North Texas public health region is one of the most populous public health regions in Texas. Specialties with a shortage of 200 FTEs or more and 70 percent or less of demand met were identified as being in critical shortage. The critical specialty shortages in the North Texas region include cardiology, pediatrics, physical medicine and rehabilitation, and psychiatry.

The shortage of cardiologists is expected to increase from 101 FTEs in 2018 to 382 FTEs by 2032. During that time, the percent of demand met is projected to decrease from 84.2 percent to 61.5 percent.

The shortage of pediatricians is projected to increase from 526 FTEs in 2018 to 733 FTEs in 2032. The percent of demand met is projected to decrease from 67.4 percent to 62.8 percent during the same period.

The demand for physical medicine and rehabilitation physicians will grow much faster than supply between 2018 and 2032. Demand is projected to grow 49.5 percent, while supply is only projected to grow 24.5 percent. This results in a deficit of 132 FTEs in 2018 that grows to 259 FTEs in 2032.

The deficit of psychiatrists was 375 FTEs in 2018 and is projected to be 399 FTEs in 2032. The demand met was 63.6 percent in 2018, and it is projected to be 54.2 percent in 2032.

Table 3. Critical Shortages of Physician Specialties in Region 2/3 - North Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Cardiology	541	643	84.2%	611	993	61.5%
Pediatrics	1,087	1,613	67.4%	1,239	1,972	62.8%
Physical Medicine and Rehabilitation	246	378	65.1%	306	566	54.2%
Psychiatry	654	1,030	63.6%	830	1,229	67.5%

Region 4/5N: East Texas

Critical shortages for East Texas were identified as those having the greatest deficit of FTEs projected for 2032. Critical shortages in East Texas include the specialties of family medicine (123 FTEs), general internal medicine (92 FTEs), nephrology (109 FTEs), pediatrics (80 FTEs), and psychiatry (76 FTEs).

While the shortage of family medicine physicians, general internal medicine specialists, pediatric specialists, and psychiatrists will improve or stay the same between 2018 and 2032, the projected supply of providers will still fail to meet projected demand.

Table 4. Critical Shortages of Physician Specialties in Region 4/5N - East Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Family Medicine	422	571	73.9%	500	622	80.3%
General Internal Medicine	279	400	69.9%	361	453	79.7%
Nephrology	45	133	33.9%	53	163	32.9%
Pediatrics	127	207	61.5%	121	201	60.1%
Psychiatry	80	174	46.1%	92	168	54.8%

Region 6/5S: Gulf Coast

Critical shortages for the Gulf Coast region were classified by a shortage deficit of more than 200 FTEs and a percent of demand met less than 80 percent projected in 2032. Family medicine, general internal medicine, nephrology, and psychiatry are specialties in the Gulf Coast region of Texas that are projected to have critical shortages.

The shortage of family medicine physicians is expected to increase from 315 FTEs in 2018 and 801 FTEs in 2032. During this period, the percent of demand met is projected to decrease from 85.3 percent in 2018 to 74.1 percent in 2032.

The shortage of general internal medicine physicians is also expected to increase. The shortage is projected to increase from 604 FTEs in 2018 to 1,076 FTEs in 2032. The demand met was 70.1 percent in 2018 and is projected to be 65.0 percent in 2032.

The shortage of nephrologists is projected to almost triple from 55 FTEs in 2018 to 217 FTEs in 2032. The percentage of met demand is projected to decrease from 82.5 percent in 2018 to 61.9 percent in 2032.

The shortage of psychiatrists is projected to increase from a deficit of 229 FTEs in 2018 to 242 FTEs in 2032.

Table 5. Critical Shortages of Physician Specialties in Region 6/5S - Gulf Coast

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Family Medicine	1,822	2,137	85.3%	2,289	3,090	74.1%
General Internal Medicine	1,414	2,018	70.1%	1,999	3,075	65.0%
Nephrology	258	313	82.5%	353	571	61.9%
Psychiatry	663	893	74.3%	871	1,113	78.3%

Region 7: Central Texas

Central Texas critical shortages were classified by specialties with a projected deficit greater than 100 FTEs and less than 70 percent of demand met in 2032. In the Central Texas region, cardiology and nephrology are projected to have critical shortages.

The deficit of cardiologists is projected to increase from 37 FTEs in 2018 to 148 FTEs in 2032.

Nephrology is projected to have a deficit of 119 FTEs in 2032 and only 46.7 percent of demand met.

Table 6. Critical Shortages of Physician Specialties in Region 7 - Central Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Cardiology	221	258	85.8%	260	408	63.7%
Nephrology	81	127	63.4%	104	222	46.7%

Region 8: South Texas

In the South Texas region, specialties projected to have a deficit of 100 FTEs or more and less than 80 percent of demand met were classified as critical shortages. In the South Texas region, general internal medicine, pediatrics, and psychiatry are projected to have critical shortages.

The deficit of general internal medicine physicians is projected to increase from 146 FTEs in 2018 to 240 FTEs in 2032.

In absolute terms, the deficit of pediatricians is projected to increase from 175 FTEs to 218 FTEs between 2018 and 2032. In relative terms, the percent of demand met is the same in 2018 and 2032, 68.4 percent.

The shortage of psychiatrists is projected to increase from 70 FTEs in 2018 to 112 FTEs in 2032. The percent of demand met is projected to decrease from 78.5 percent in 2018 to 72.2 percent in 2032.

Table 7. Critical Shortages of Physician Specialties in Region 8 - South Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
General Internal Medicine	579	724	79.9%	775	1,015	76.4%
Pediatrics	379	554	68.4%	471	688	68.4%
Psychiatry	257	327	78.5%	290	402	72.2%

Region 9/10: West Texas

For the West Texas region, critical shortages were identified by the specialties with the greatest projected FTE deficits in 2032. Critical shortages in West Texas include the specialties of family medicine, pediatrics, and psychiatry.

The shortage of family medicine physicians is projected to increase from 185 FTEs to 223 FTEs between 2018 and 2032.

The shortage of pediatricians is projected to increase from a deficit of 137 FTEs in 2018 to 150 FTEs in 2032.

The overall and relative supply of psychiatrists is expected to improve; however, psychiatry is still projected to have the third most significant shortage in 2032. The shortage of psychiatrists in 2018 was 69 FTEs, which was 49.9 percent of demand met. The shortage is projected to be 65 FTEs in 2032 or 60.1 percent of demand met.

Table 8. Critical Shortages of Physician Specialties in Region 9/10 - West Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Family Medicine	275	460	59.8%	364	587	62.0%
Pediatrics	162	298	54.2%	190	340	55.9%
Psychiatry	68	137	49.9%	98	163	60.1%

Region 11: Rio Grande Valley

The criterion for identifying critical shortages in the Rio Grande Valley region was a projected FTE deficit greater than 100. The Rio Grande Valley region is projected to face critical shortages of physicians specializing in anesthesiology, family medicine, pediatrics, and psychiatry.

The shortage of physicians specializing in anesthesiology is projected to increase from 77 FTEs in 2018 to 111 FTEs by 2032.

The shortage of family medicine physicians is projected to increase from 234 FTE to 355 FTEs between 2018 and 2032.

The shortage of pediatricians is expected to continue through 2032. There is a projected deficit of 319 FTEs in 2032, an increase of 31.8 percent from 242 FTEs in 2018.

The shortage of psychiatrists is projected to increase from 126 FTEs in 2018 to 132 FTEs in 2032.

Table 9. Critical Shortages of Physician Specialties in Region 11 - Rio Grande Valley

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Anesthesiology	135	212	63.9%	134	245	54.5%
Family Medicine	455	689	66.1%	488	843	57.9%
Pediatrics	268	510	52.6%	205	523	39.1%
Psychiatry	73	199	36.7%	82	214	38.5%

6. Conclusion

This report presents the supply and demand projections for all physicians and 35 physician specialties statewide from 2018 through 2032. This report also identifies critical shortages of physician specialties by public health region.

Statewide results indicate that demand is projected to exceed supply for all physicians and 22 of 35 physician specialties from 2018 through 2032 (see Table 1 in Section 4). The shortage of all physicians and 19 physician specialties is projected to worsen between 2018 and 2032. Moreover, four physician specialties are projected to worsen from a surplus in 2018 to a shortage by 2032. Only one physician specialty is projected to improve from a shortage in 2018 to a surplus by 2032.

Results indicate that physician specialties identified as critical shortages vary by region. Psychiatry is identified as a critical shortage in all regions of the state except Central Texas (Region 7). Pediatrics is identified as a critical shortage in all regions of the state except the Gulf Coast (Region 6/5S) and Central Texas. Family medicine is identified as a critical shortage in all regions of the state except the Panhandle (Region 1), North Texas (Region 2/3), Central Texas, and South Texas (Region 8).

Results from this report indicate that there is a current shortage of physicians in Texas that will increase through 2032. Current projections in medical school enrollment and resident positions by the Texas Higher Education Coordinating Board indicate that the state's graduate medical education system will not create a supply of physicians that can meet projected demand.

Unless corrective measures are taken, the shortage of physicians in Texas may persist beyond 2032. As the legislature continues to analyze the shortage of physicians in the state, DSHS will continue to work with stakeholders to ensure accurate and consistent understanding of the shortages facing Texas today and in the future.

List of Acronyms

Acronym	Full Name
DSHS	Texas Department of State Health Services
FTE	Full-time equivalent
HDMM	Healthcare Demand Microsimulation Model
HPRC	Health Professions Resource Center
HWSM	Health Workforce Supply Model

Appendix A. Supply and Demand Projections for Physician Specialties by Region[20]

Table 10. Physician Specialties with a Projected Shortage by 2032 in Region 1 - Panhandle

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Cardiology	58	73	79.3%	49	87	56.1%
Colorectal Surgery	1	5	18.1%	0	6	0.3%
Critical Care Medicine	4	11	34.6%	6	13	43.7%
Dermatology	15	19	81.3%	18	21	88.0%
Endocrinology	12	17	68.0%	6	20	31.8%
Family Medicine	239	285	84.1%	301	331	91.1%
Gastroenterology	34	34	101.9%	30	38	79.8%
Hematology and Oncology	22	37	59.1%	29	43	68.7%
Infectious Diseases	6	24	26.4%	7	29	25.2%
Nephrology	20	43	46.9%	23	55	41.1%
Obstetrics and Gynecology	87	104	83.5%	113	117	96.8%

[20] Tables in this section are determined by whether a physician specialty is projected to have a shortage or surplus in 2032.

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Ophthalmology	36	39	94.1%	35	46	75.7%
Other Specialties	36	76	47.6%	70	86	80.8%
Pathology	28	40	71.5%	37	47	77.8%
Pediatrics	67	152	44.1%	84	168	50.0%
Physical Medicine and Rehabilitation	8	9	88.6%	3	9	32.9%
Psychiatry	34	96	35.5%	50	100	50.0%
Pulmonology	15	29	51.6%	22	34	65.5%
Radiation Oncology	9	13	71.6%	2	15	11.0%
Thoracic Surgery	8	11	79.3%	11	12	90.1%
Urology	25	22	112.8%	21	27	80.1%
Vascular Surgery	5	11	45.8%	10	13	78.4%

Table 11. Physician Specialties with a Projected Surplus by 2032 in Region 1 – Panhandle

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Allergy and Immunology	9	7	129.1%	11	8	144.3%
Anesthesiology	100	97	103.2%	124	109	113.9%
Emergency Medicine	134	126	106.0%	172	142	120.5%
General Internal Medicine	142	209	67.7%	255	249	102.4%
General Surgery	53	60	88.0%	84	66	127.3%
Neonatology	14	15	90.0%	38	17	216.5%
Neurological Surgery	16	10	166.6%	22	11	198.8%
Neurology	21	32	67.1%	38	36	103.8%
Orthopedic Surgery	62	41	152.5%	72	44	165.1%
Otolaryngology	17	20	82.6%	33	22	150.5%
Plastic Surgery	16	19	86.6%	21	20	107.7%
Radiology	80	52	155.5%	85	53	158.7%
Rheumatology	10	6	179.4%	15	7	227.6%

Table 12. Physician Specialties with a Projected Shortage by 2032 in Region 2/3 – North Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Allergy and Immunology	118	97	121.6%	110	136	80.9%
Cardiology	541	643	84.2%	611	993	61.5%
Critical Care Medicine	61	96	64.1%	76	139	54.5%
Dermatology	206	237	87.0%	252	317	79.5%
Endocrinology	150	207	72.7%	206	291	70.9%
Family Medicine	2,219	2,391	92.8%	2,640	3,351	78.8%
General Internal Medicine	1,913	2,209	86.6%	2,564	3,307	77.5%
Hematology and Oncology	284	363	78.2%	376	510	73.8%
Infectious Diseases	155	206	75.4%	247	309	80.0%
Neonatology	139	166	83.7%	154	213	72.3%
Nephrology	299	289	103.4%	484	524	92.4%
Neurological Surgery	146	143	102.5%	185	223	82.9%
Neurology	292	296	98.6%	344	415	83.0%
Obstetrics and Gynecology	951	1,018	93.5%	1,074	1,286	83.6%

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Ophthalmology	331	350	94.7%	359	523	68.7%
Other Specialties	351	746	47.0%	427	1,024	41.7%
Otolaryngology	194	194	99.8%	202	253	79.6%
Pathology	382	344	110.8%	497	502	99.1%
Pediatrics	1,087	1,613	67.4%	1,239	1,972	62.8%
Physical Medicine and Rehabilitation	246	378	65.1%	306	566	54.2%
Psychiatry	654	1,030	63.6%	830	1,229	67.5%
Pulmonology	223	275	81.2%	308	395	77.9%
Radiation Oncology	77	124	61.7%	110	175	62.9%
Thoracic Surgery	102	96	106.1%	125	137	90.7%
Urology	192	174	110.0%	219	254	86.5%
Vascular Surgery	75	96	78.0%	79	140	56.3%

Table 13. Physician Specialties with a Projected Surplus by 2032 in Region 2/3 – North Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Anesthesiology	1,338	913	146.4%	1,487	1,227	121.1%
Colorectal Surgery	61	47	129.2%	83	69	120.2%
Emergency Medicine	1,415	1,108	127.7%	2,089	1,463	142.8%
Gastroenterology	351	323	108.4%	451	429	105.0%
General Surgery	531	489	108.6%	676	651	103.8%
Orthopedic Surgery	635	420	151.0%	755	543	139.1%
Plastic Surgery	331	180	183.6%	431	231	187.0%
Radiology	771	689	112.0%	1,016	883	115.1%
Rheumatology	106	67	157.3%	130	99	130.9%

Table 14. Physician Specialties with a Projected Shortage by 2032 in Region 4/5N – East Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Anesthesiology	128	190	67.4%	148	202	73.1%
Cardiology	99	146	68.1%	109	167	64.8%
Colorectal Surgery	1	11	11.4%	0	12	0.4%
Critical Care Medicine	9	23	40.8%	23	25	89.9%
Dermatology	21	36	58.2%	14	38	36.4%
Endocrinology	19	40	48.7%	24	44	54.5%
Family Medicine	422	571	73.9%	500	622	80.3%
Gastroenterology	52	59	89.0%	54	62	87.7%
General Internal Medicine	279	400	69.9%	361	453	79.7%
General Surgery	84	139	60.0%	94	147	64.0%
Hematology and Oncology	41	70	57.9%	51	77	66.4%
Infectious Diseases	11	46	23.6%	15	52	28.9%
Neonatology	16	25	62.7%	21	24	88.0%
Nephrology	45	133	33.9%	53	163	32.9%
Neurological Surgery	20	20	100.2%	12	22	55.5%

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Neurology	42	54	79.0%	43	58	74.5%
Obstetrics and Gynecology	132	167	78.9%	145	168	86.0%
Ophthalmology	63	80	77.8%	81	92	88.4%
Orthopedic Surgery	97	86	112.8%	87	88	98.5%
Other Specialties	54	149	36.2%	39	160	24.3%
Otolaryngology	28	42	67.6%	19	43	43.2%
Pathology	43	82	52.2%	46	91	51.0%
Pediatrics	127	207	61.5%	121	201	60.1%
Physical Medicine and Rehabilitation	37	34	106.1%	33	37	90.3%
Plastic Surgery	25	32	75.9%	23	34	66.1%
Psychiatry	80	174	46.1%	92	168	54.8%
Pulmonology	44	58	75.5%	52	64	80.9%
Radiation Oncology	11	24	46.1%	13	26	51.1%
Radiology	103	123	83.5%	95	128	74.7%
Urology	43	42	103.2%	38	48	79.8%
Vascular Surgery	16	29	55.8%	6	32	18.6%

Table 15. Physician Specialties with a Projected Surplus by 2032 in Region 4/5N – East Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Allergy and Immunology	14	13	101.2%	21	14	148.3%
Emergency Medicine	281	246	114.3%	409	257	159.2%
Rheumatology	15	12	126.6%	16	13	121.2%
Thoracic Surgery	23	19	120.9%	22	21	103.6%

Table 16. Physician Specialties with a Projected Shortage by 2032 in Region 6/5S – Gulf Coast

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Cardiology	601	588	102.2%	783	924	84.8%
Endocrinology	180	196	91.6%	276	288	96.0%
Family Medicine	1,822	2,137	85.3%	2,289	3,090	74.1%
Gastroenterology	306	288	106.2%	388	392	99.1%
General Internal Medicine	1,414	2,018	70.1%	1,999	3,075	65.0%
Infectious Diseases	161	196	81.9%	197	301	65.5%
Nephrology	258	313	82.5%	353	571	61.9%
Ophthalmology	325	312	104.0%	382	478	80.0%
Other Specialties	345	670	51.5%	487	943	51.7%
Pediatrics	1,169	1,525	76.6%	1,682	1,925	87.4%
Physical Medicine and Rehabilitation	194	324	59.7%	278	458	60.7%
Psychiatry	663	893	74.3%	871	1,113	78.3%
Vascular Surgery	47	85	55.3%	54	127	42.6%

Table 17. Physician Specialties with a Projected Surplus by 2032 in Region 6/5S – Gulf Coast

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Allergy and Immunology	105	95	110.5%	155	129	120.0%
Anesthesiology	1,062	802	132.4%	1,397	1,108	126.1%
Colorectal Surgery	52	42	123.8%	101	62	162.6%
Critical Care Medicine	109	89	123.0%	161	132	122.0%
Dermatology	192	189	102.0%	277	257	107.5%
Emergency Medicine	1,220	1,018	119.9%	1,881	1,378	136.6%
General Surgery	396	425	93.2%	606	589	102.8%
Hematology and Oncology	497	329	150.9%	748	464	161.1%
Neonatology	143	160	89.5%	210	203	103.5%
Neurological Surgery	146	135	108.0%	216	213	101.6%
Neurology	310	277	111.7%	412	395	104.2%
Obstetrics and Gynecology	893	900	99.3%	1,169	1,163	100.5%
Orthopedic Surgery	426	364	117.0%	558	486	114.9%
Otolaryngology	208	162	128.2%	301	220	136.6%

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Pathology	425	321	132.6%	621	475	130.7%
Plastic Surgery	326	147	221.9%	434	192	225.4%
Pulmonology	234	253	92.1%	373	369	100.9%
Radiation Oncology	130	113	115.6%	200	159	125.7%
Radiology	687	546	125.9%	889	715	124.5%
Rheumatology	103	68	151.0%	146	101	144.5%
Thoracic Surgery	117	88	132.8%	202	128	158.6%
Urology	194	156	124.4%	246	233	105.9%

Table 18. Physician Specialties with a Projected Shortage by 2032 in Region 7 – Central Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Anesthesiology	414	396	104.5%	482	542	88.9%
Cardiology	221	258	85.8%	260	408	63.7%
Colorectal Surgery	14	20	72.3%	15	30	50.1%
Critical Care Medicine	24	40	59.7%	31	59	53.0%
Endocrinology	52	83	62.8%	57	124	45.9%
Family Medicine	1,139	1,019	111.7%	1,445	1,467	98.5%
Gastroenterology	131	136	96.5%	167	189	88.6%
General Internal Medicine	721	867	83.1%	1,127	1,335	84.4%
General Surgery	201	224	89.9%	242	310	77.9%
Hematology and Oncology	98	149	65.8%	142	218	65.0%
Infectious Diseases	39	88	44.1%	70	137	51.1%
Neonatology	58	64	90.1%	52	78	66.6%
Nephrology	81	127	63.4%	104	222	46.7%
Neurological Surgery	58	45	127.6%	63	76	82.3%

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Obstetrics and Gynecology	391	466	83.9%	519	580	89.5%
Other Specialties	150	303	49.4%	180	427	42.3%
Otolaryngology	101	84	120.7%	101	113	89.6%
Pathology	123	144	85.5%	126	212	59.4%
Pediatrics	525	632	83.0%	684	770	88.8%
Physical Medicine and Rehabilitation	82	84	97.3%	100	134	74.3%
Pulmonology	89	112	79.6%	121	167	72.3%
Radiation Oncology	32	51	62.0%	46	75	61.7%
Radiology	268	264	101.5%	359	364	98.6%
Thoracic Surgery	37	40	90.4%	57	59	96.1%
Vascular Surgery	24	40	60.7%	26	60	43.1%

Table 19. Physician Specialties with a Projected Surplus by 2032 in Region 7 – Central Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Allergy and Immunology	61	31	198.4%	49	43	112.5%
Dermatology	105	93	113.3%	146	131	111.3%
Emergency Medicine	700	466	150.3%	1,193	623	191.6%
Neurology	138	119	116.0%	200	171	116.9%
Ophthalmology	176	148	119.3%	237	227	104.5%
Orthopedic Surgery	231	167	137.8%	335	227	147.4%
Plastic Surgery	159	76	210.1%	238	102	233.8%
Psychiatry	372	407	91.2%	539	507	106.3%
Rheumatology	39	24	166.3%	70	37	190.9%
Urology	86	80	107.4%	123	120	102.7%

Table 20. Physician Specialties with a Projected Shortage by 2032 in Region 8 – South Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Allergy and Immunology	41	31	133.3%	34	42	82.3%
Cardiology	216	224	96.6%	270	317	85.2%
Colorectal Surgery	18	18	104.1%	21	24	84.7%
Dermatology	72	71	101.1%	72	92	77.9%
Endocrinology	59	78	76.6%	69	105	65.7%
Family Medicine	841	894	94.0%	977	1,208	80.9%
Gastroenterology	103	108	95.3%	139	140	99.6%
General Internal Medicine	579	724	79.9%	775	1,015	76.4%
General Surgery	171	177	96.3%	200	230	87.1%
Hematology and Oncology	108	121	88.9%	151	162	93.1%
Infectious Diseases	37	76	49.4%	63	106	59.2%
Neonatology	43	56	76.8%	65	68	94.5%
Nephrology	120	129	92.9%	161	205	78.2%
Neurological Surgery	36	48	75.8%	60	69	87.6%
Neurology	86	96	88.9%	118	130	90.9%

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Obstetrics and Gynecology	305	342	89.2%	370	425	87.1%
Ophthalmology	144	128	112.3%	175	180	97.1%
Other Specialties	122	254	47.9%	153	337	45.4%
Otolaryngology	63	62	101.4%	67	80	83.7%
Pathology	120	122	98.3%	151	167	90.7%
Pediatrics	379	554	68.4%	471	688	68.4%
Physical Medicine and Rehabilitation	78	127	61.0%	112	175	63.8%
Psychiatry	257	327	78.5%	290	402	72.2%
Pulmonology	65	95	68.3%	83	129	63.9%
Radiation Oncology	15	41	35.9%	23	56	42.2%

Table 21. Physician Specialties with a Projected Surplus by 2032 in Region 8 – South Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Anesthesiology	462	311	148.5%	583	405	144.0%
Critical Care Medicine	35	34	102.8%	49	46	105.4%
Emergency Medicine	491	396	123.8%	784	515	152.3%
Orthopedic Surgery	178	134	132.6%	234	171	136.5%
Plastic Surgery	98	54	181.8%	145	67	216.3%
Radiology	222	201	110.2%	286	248	115.2%
Rheumatology	40	26	155.0%	39	35	109.1%
Thoracic Surgery	33	32	104.4%	57	43	133.7%
Urology	73	63	114.8%	99	87	113.0%
Vascular Surgery	36	34	107.1%	51	46	111.0%

Table 22. Physician Specialties with a Projected Shortage by 2032 in Region 9/10 – West Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Anesthesiology	110	149	74.1%	134	181	74.0%
Colorectal Surgery	5	8	57.5%	10	11	95.5%
Endocrinology	14	33	43.6%	24	41	57.2%
Family Medicine	275	460	59.8%	364	587	62.0%
General Internal Medicine	249	294	84.5%	356	379	93.9%
Hematology and Oncology	37	63	58.2%	40	78	52.1%
Infectious Diseases	16	40	41.3%	27	52	52.6%
Neonatology	21	31	67.8%	22	35	62.1%
Nephrology	39	69	56.5%	61	100	60.9%
Neurology	22	44	50.0%	19	55	34.0%
Obstetrics and Gynecology	149	176	84.8%	188	204	92.2%
Other Specialties	30	119	25.3%	30	147	20.1%
Otolaryngology	23	31	75.5%	23	37	62.5%
Pathology	39	62	62.4%	34	78	43.6%
Pediatrics	162	298	54.2%	190	340	55.9%

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Psychiatry	68	137	49.9%	98	163	60.1%
Pulmonology	26	46	56.3%	38	59	65.1%
Radiation Oncology	5	22	22.2%	5	27	20.1%
Rheumatology	10	13	75.5%	17	17	97.2%
Thoracic Surgery	16	16	101.2%	9	20	45.0%
Urology	30	33	90.6%	30	43	70.6%
Vascular Surgery	14	16	88.5%	14	20	68.7%

Table 23. Physician Specialties with a Projected Surplus by 2032 in Region 9/10 – West Texas

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Allergy and Immunology	12	10	116.2%	13	13	101.4%
Cardiology	82	99	82.5%	133	129	103.3%
Critical Care Medicine	13	17	75.3%	22	22	102.0%
Dermatology	25	24	103.4%	30	29	105.2%
Emergency Medicine	216	208	104.2%	453	256	177.3%
Gastroenterology	47	53	87.6%	72	65	111.3%
General Surgery	73	90	81.1%	121	111	109.8%
Neurological Surgery	16	10	160.5%	23	13	174.9%
Ophthalmology	50	59	85.6%	76	76	100.3%
Orthopedic Surgery	76	61	124.5%	108	75	145.0%
Physical Medicine and Rehabilitation	20	8	259.0%	28	10	275.4%
Plastic Surgery	39	24	159.2%	58	29	202.3%
Radiology	99	68	144.8%	140	78	178.5%

Table 24. Physician Specialties with a Projected Shortage by 2032 in Region 11 – Rio Grande Valley

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Allergy and Immunology	15	16	92.2%	10	18	54.0%
Anesthesiology	135	212	63.9%	134	245	54.5%
Cardiology	113	143	78.9%	96	183	52.3%
Colorectal Surgery	9	12	70.3%	4	16	25.7%
Dermatology	14	32	45.6%	19	36	52.6%
Endocrinology	30	55	53.6%	46	69	66.4%
Family Medicine	455	689	66.1%	488	843	57.9%
Gastroenterology	48	80	59.8%	53	94	56.8%
General Internal Medicine	274	440	62.1%	321	552	58.2%
General Surgery	84	124	68.0%	91	146	62.1%
Hematology and Oncology	46	97	47.3%	58	112	51.9%
Infectious Diseases	25	60	41.6%	33	76	43.9%
Neonatology	35	50	70.0%	18	52	33.8%
Nephrology	65	93	70.1%	80	137	58.6%
Neurology	43	65	65.3%	42	78	53.5%

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Obstetrics and Gynecology	187	251	74.7%	205	268	76.6%
Ophthalmology	72	92	78.2%	57	118	48.5%
Orthopedic Surgery	74	82	90.5%	83	94	88.8%
Other Specialties	51	175	29.2%	45	205	21.8%
Otolaryngology	30	40	74.8%	27	45	60.4%
Pathology	48	92	52.5%	30	112	26.3%
Pediatrics	268	510	52.6%	205	523	39.1%
Physical Medicine and Rehabilitation	16	13	117.9%	13	16	86.5%
Plastic Surgery	26	30	85.9%	27	34	80.9%
Psychiatry	73	199	36.7%	82	214	38.5%
Pulmonology	52	67	77.8%	62	83	75.1%
Radiation Oncology	11	33	32.2%	9	38	24.1%
Thoracic Surgery	18	24	75.6%	24	29	81.5%
Urology	33	51	66.3%	42	64	65.3%
Vascular Surgery	18	21	85.6%	11	26	43.7%

Table 25. Physician Specialties with a Projected Surplus by 2032 in Region 11 – Rio Grande Valley

Specialty	2018 Supply (FTEs)	2018 Demand (FTEs)	2018 Percent Demand Met	2032 Supply (FTEs)	2032 Demand (FTEs)	2032 Percent Demand Met
Critical Care Medicine	25	26	96.5%	42	31	134.1%
Emergency Medicine	259	310	83.6%	430	349	123.2%
Neurological Surgery	25	18	140.0%	30	22	135.0%
Radiology	110	76	145.0%	114	84	135.5%
Rheumatology	16	19	84.5%	24	23	104.7%

Appendix B. Texas Health Data

Texas Health Data is an interactive public data system that allows users to query DSHS public health datasets for statistical reports and summaries. The public may view through tables and figures the statewide and regional supply and demand projections for all physicians and 35 physician specialties from 2018 through 2032 by visiting the following webpage on Texas Health Data: http://healthdata.dshs.texas.gov/WorkforceSupplyAndDemandProjections.

Appendix C. Texas Public Health Regions

The map below of Texas' eight public health regions includes the regional names used in this report. The public may view which region each Texas county is located by visiting the following webpage on the DSHS website: https://www.dshs.texas.gov/chs/info/info_txco.shtm.

Figure 1. Map of Texas Regions