A Study of the Need for a New Pharmacy School in the Dallas/Fort Worth Metroplex

Conducted for the 79th Texas Legislature

The Texas Higher Education Coordinating Board

September 2006
Mission of the Coordinating Board
The Texas Higher Education Coordinating Board's mission is to work with the Legislature, Governor, governing boards, higher education institutions and other entities to help Texas meet the goals of the state's higher education plan, Closing the Gaps by 2015, and thereby provide the people of Texas the widest access to higher education of the highest quality in the most efficient manner.

Philosophy of the Coordinating Board
The Texas Higher Education Coordinating Board will promote access to quality higher education across the state with the conviction that access without quality is mediocrity and that quality without access is unacceptable. The Board will be open, ethical, responsive, and committed to public service. The Board will approach its work with a sense of purpose and responsibility to the people of Texas and is committed to the best use of public monies. The Coordinating Board will engage in actions that add value to Texas and to higher education. The agency will avoid efforts that do not add value or that are duplicated by other entities.

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.
Executive Summary

In 2005, a rider in the General Appropriations Act directed the Texas Higher Education Coordinating Board to conduct a “. . . study of the need for a new pharmacy school located in the Dallas/Fort Worth Metroplex area.” The central finding of the study is that recent expansion of an existing program and the creation of new programs will soon meet the state’s needs and that a new pharmacy school is not needed at this time.

The Board examined data available from the Texas Workforce Commission, the Texas Board of Pharmacy, employers, and institutions. It held a meeting in the Metroplex to hear first-hand the concerns of the community. After reviewing these data and concerns, the following are the principal conclusions and recommendations of the study.

Conclusions

• There is currently a shortage of pharmacists in Texas. The shortage has several causes, including a temporary drop in the number of pharmacy graduates while pharmacy schools transitioned from a five-year curriculum to a six-year curriculum in the mid to late 1990s.

• The number of graduates of Texas pharmacy schools is now increasing and will increase markedly when new pharmacy schools in Kingsville and San Antonio start producing graduates in 2010. The state’s demand for additional pharmacists and the supply of new pharmacists from Texas pharmacy schools will be essentially balanced by 2015.

• Projections of the demand for pharmacists and the number of new graduates were based primarily on population trend data and the expansion plans of new and existing programs. The short-term and long-term need for pharmacists will continue to be affected by critical public policy and business decisions that may change. Examples include the availability of pharmaceuticals through health insurance carriers, the pharmacist’s scope of practice, and the role of automation in the dispensing of routine prescription drugs. The volatility of these issues and the uncertainty of their impact on workforce needs will require that these projections be monitored and possibly revised in future years.

• Although there is no school of pharmacy in the Metroplex, a significant number of graduates of pharmacy schools in other regions of the state seek employment in the Metroplex. Shortages of pharmacists appear to be similar to those in other regions of the state. Employers in the Metroplex have been more successful in recruiting a higher percentage of out-of-state pharmacists to fill job openings than other regions.

• Students from the Metroplex are under-represented in Texas pharmacy schools. The lack of a pharmacy school in the Metroplex makes it difficult for some students to pursue careers in pharmacy. However, despite the inconvenience of not having a pharmacy school in the Metroplex, the new programs in Kingsville, San Antonio, and Abilene will provide greater opportunity for many students to attend pharmacy school in other parts of the state.

Recommendations

• In the near term, employers of pharmacists in the Metroplex can increase the number of fourth-year internships they offer as a way of encouraging more graduates of Texas pharmacy schools to practice in the Metroplex. Existing pharmacy schools should increase their recruitment efforts and provide other programs to address the under-representation of Metroplex students in Texas pharmacy schools.
• The availability of clinical sites or internships limits the number of pharmacists that the state can produce. If the state established an office in the Metroplex to coordinate new and existing clinical experiences, it could support enrollment growth and several of these schools at a lower cost than other expansion options.

• The Legislature need not, at this time, authorize a new pharmacy school in the Metroplex. By the time a new school would begin producing graduates, other schools recently authorized by the Legislature will be meeting the need.

• If after taking steps to increase the number of pharmacists in the Metroplex, a long-term demand for pharmacists is apparent by 2011, the state should establish a pharmacy school in the region. A master plan for creating a new pharmacy school should be developed with a timeline to start producing graduates sometime after 2016.
# Table of Contents

Background ........................................................................................................................................ 1

An Overview of Pharmacy Education in Texas ............................................................................. 2

Study Methodology ..................................................................................................................... 5

The Need for Additional Pharmacy Education in Texas ............................................................. 6

The Need for Additional Pharmacy Education in the Metroplex .............................................. 10

Options for Expanding Pharmacy Education in the Metroplex .................................................. 14

  Near-term Options ................................................................................................................. 14

  Longer-term Options ............................................................................................................. 14

Conclusions and Recommendations ....................................................................................... 18

Acknowledgments .................................................................................................................... 20

Sources of Information ............................................................................................................. 21
Background

In 2005, the Texas Legislature included a rider in the General Appropriations Act directing the Texas Higher Education Coordinating Board (Board) to conduct a study of the need for a new pharmacy school located in the Dallas/Fort Worth Metroplex area (Metroplex).

38. Metroplex Pharmacy Study. Out of the funds appropriated above, the Higher Education Coordinating Board shall conduct a study of the need for a new pharmacy school located in the Dallas/Fort Worth Metroplex area. As part of this study, the Board shall consider current and future shortages of pharmacists in the Metroplex area, as well as the geographic distribution of current pharmacy programs. The Board shall report the results of its study no later than September 1, 2006. Senate Bill 1, General Appropriations Act, 79th Texas Legislature, Regular Session, Page III-52, Section 38

The rider was motivated by several factors. One factor is a major increase in the demand for pharmaceutical services, primarily driven by the changes in the practice of medicine resulting from the availability of powerful new drugs. In addition, a rapidly growing population of older people, typically the heaviest users of pharmaceutical drugs, is further increasing the demand for pharmaceutical services. In 2005, Texas pharmacy programs, like those of other states, switched from a 5-year curriculum to a 6-year curriculum, thereby temporarily reducing the number of new pharmacists coming on the job market.

To partially address this imbalance between supply and demand, two new pharmacy programs started in fall 2006, one at Texas A&M University-Kingsville and one at the University of the Incarnate Word in San Antonio. In addition, over a period of years, existing pharmacy programs created satellite programs in El Paso, Edinburg, San Antonio, Lubbock and Dallas to increase representation in under-served regions. Another new satellite will begin enrolling students in Abilene in 2007.

In several parts of the state, but especially in the Metroplex, local leaders believe that there is a maldistribution of pharmacy educational resources. While the Metroplex has a large population base and a major health education presence, it has only a relatively small satellite pharmacy program. At the same time, pharmacy programs exist at two Houston universities, and Austin, San Antonio, Amarillo, and Kingsville all have or will soon have full-fledged pharmacy programs. When the University of North Texas campus in South Dallas was created, institutional leaders said that they identified Pharmacy as one of their priorities for new program development.

Finally, student enrollments are highly correlated with the availability of local access to educational programs. Some people have expressed concern that the lack of a pharmacy program in the Metroplex is curtailing access for a large number of potential students in the Metroplex and Northeast Texas to a profession that offers challenging, high-paying jobs. Further, some legislators have expressed concern that lack of local access to pharmacy programs in this large population center may negatively impact the state’s ability to meet its Closing the Gaps (the state’s higher education plan) goals.

The ambiguity associated with all of these issues motivates this study, and it will attempt to address each of them.
An Overview of Pharmacy Education in Texas

The map below shows the locations of Texas pharmacy schools. The schools operated by The University of Texas at Austin, University of Houston, Texas Southern University, and Texas Tech University Health Sciences Center are well-established institutions. The University of Texas at Austin operates satellite programs in Edinburg, San Antonio, and El Paso. Texas Tech University Health Science Center operates satellite programs in Lubbock and Dallas.

The Texas A&M University Health Science Center opened a new pharmacy school in Kingsville and University of the Incarnate Word opened a new pharmacy school in San Antonio in August 2006. Texas Tech University will open a new satellite program in Abilene in August 2007.

Location of Texas Pharmacy Schools and Satellite Campuses (2006)

Pharmacy schools often offer a number of pharmacy-related degrees, but for the purposes of this study, “pharmacy school” is defined as an administrative unit of a university or health science center that offers the Doctor of Pharmacy (PharmD) degree, generally a six-year degree program that requires at least two years of college study prior to admittance. This degree replaced the five-year bachelor’s degree, which ceased to be awarded in 2005. After receiving their degrees, Texas graduates must then pass the national licensing exam, the Texas Pharmacy Jurisprudence exam, and apply for licensure with the Texas State Board of Pharmacy before they may practice in Texas.

Although applications for pharmacy are somewhat cyclical, pharmacy is currently a very high-demand program. Applications (duplicated) to pharmacy schools have increased by 134 percent from 2000 to 2005. There were 1,213 applications in fall 2000 and 2,835 in fall 2005 for approximately 460 seats. The graph below shows past and projected future first-year enrollments in each of the state’s pharmacy programs. Enrollments in satellite programs are included in those of the main program.
Nearly 90 percent of applicants are Texas residents, and over 90 percent of both admissions and graduates are Texas residents.

While gaining admission is a very competitive process, over 90 percent of students who are admitted eventually graduate. The graph below shows the number of current and projected future PharmD graduates from the state’s six pharmacy schools.

The racial and ethnic diversity of pharmacy graduates compares favorably with that of most professional degree programs. The table below compares the racial and ethnic diversity of 2005 graduates of Texas pharmacy programs to that of the state as a whole and to 2005 baccalaureate graduates.
## Demographics of Texas PharmD Graduates (2005)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>30%</td>
<td>50%</td>
<td>42%</td>
</tr>
<tr>
<td>Female</td>
<td>70%</td>
<td>50%</td>
<td>58%</td>
</tr>
<tr>
<td>White</td>
<td>37%</td>
<td>48%</td>
<td>61%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>12%</td>
<td>35%</td>
<td>21%</td>
</tr>
<tr>
<td>African-American</td>
<td>20%</td>
<td>12%</td>
<td>8%</td>
</tr>
<tr>
<td>Asian</td>
<td>26%</td>
<td>1%</td>
<td>6%</td>
</tr>
<tr>
<td>American Indian</td>
<td>1%</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>Other and Unknown</td>
<td>4%</td>
<td>1%</td>
<td>4%</td>
</tr>
</tbody>
</table>


The opening of new pharmacy schools in Kingsville and San Antonio, both population centers with high concentrations of Hispanics, is expected to increase the percentage of Hispanic pharmacy graduates.
Study Methodology

In January 2004, the Board completed a major study entitled *Projecting the Need for Pharmacy Education in Texas* in January 2004. That report includes a broad examination of pharmacy education and pharmacy practice issues – particularly those that address the potential impact of scope of practice changes, the aging population, and automation and technology on the future need for new pharmacists. That report is available at [http://www.thecb.state.tx.us/reports/PDF/1088.PDF](http://www.thecb.state.tx.us/reports/PDF/1088.PDF).

The first activity undertaken as part of this study was to update and expand the 2004 report to make it more relevant to the objective of this study. A complete revision to the 2004 report was not produced, but several of the graphs and tables were updated and are included in this study.

The second activity was an attempt to answer the question, “Will the number of pharmacists being produced by existing and planned pharmacy programs be sufficient to meet the state’s needs?” It could be the case that the total number of pharmacists being produced is appropriate, but the way they are distributed is a problem. Is there a capacity problem or a distribution problem or both? To answer the question, data from other states were examined, the growth in the number of pharmacists being produced was compared to the growth of the state’s population, workforce projections of the Texas Workforce Commission were analyzed, and current and projected enrollment and graduation data of the existing and proposed pharmacy programs were examined.

The third activity was an attempt to answer the question “Is there an existing or future need for additional pharmacy education in the Metroplex?” To answer that question, a course of action similar to that described in the previous paragraph was taken, with special emphasis on the Metroplex. One additional issue – whether the geographic distribution of pharmacy programs disadvantages students from the Metroplex who have a desire to pursue careers in pharmacy was studied. As a part of this activity, a meeting in Dallas was held to allow over 25 community representatives, pharmacy industry executives, hospital administrators, university administrators, representatives of state pharmacy programs, and legislators to express their views and provide data.

Finally, the report presents some options for implementing a policy decision to expand pharmacy education in the Metroplex, with a discussion of the advantages and disadvantages of each option.
The Need for Additional Pharmacy Education in Texas

In May 2006, the Texas State Board of Pharmacy had 23,182 pharmacists on record, of which 17,467 were considered “active” and practicing in Texas. About one-half of the state’s pharmacists worked in community pharmacies, either independently owned or part of a drug store chain, grocery store, department store, or mass merchandiser. About 20 percent work in hospitals, and about 30 percent work in clinics, mail-order pharmacies, pharmaceutical wholesalers, education, government, and other healthcare facilities and enterprises.

Texas is part of a nation-wide expansion of the pharmaceutical industry. It was reported that CVS is currently opening a new store every 36 hours and Walgreens is opening a new store every 19 hours.

Texas Workforce Commission

The Texas Workforce Commission (TWC) annual statewide projections for pharmacist job openings indicate that 855 new hires will be required in 2006. That compares with a current annual production of less than 500 PharmD graduates per year.

Pharmacy Manpower Project, Inc.

Employers in many parts of the state continue to report difficulty in hiring new pharmacists. Evidence of that difficulty is based primarily on anecdotal information. However, the Aggregate Demand Index, a project supported by the Pharmacy Manpower Project, Inc. (an entity comprised of 15 national pharmacy organizations, including the American Pharmaceutical Association and the National Association of Chain Drug Stores) identifies Texas as one of eight states that continue to have the greatest demand for pharmacists. This demand figure is based on monthly survey responses from a small group of key employers in each state. While surveying small populations is not likely the most valid method of measuring demand, other organizations representing drug store chains also report similar shortages.

Texas State Board of Pharmacy

The Texas State Board of Pharmacy (TSBP) reported that it issued 897 new pharmacy licenses in Fiscal Year 2005. Of those, 394 were issued to new Texas graduates, 425 to out-of-state applicants, and 78 to foreign applicants. The net increase, after considering retirements and other withdrawals from the workforce, was 491 new pharmacists, 364 fewer than the number needed to meet the Texas Workforce Commission’s (TWC) annual statewide projections.

Texas is clearly a net importer of pharmacists at this time. Texas does a good job of retaining its graduates. In 2005, only 41 of 435 new graduates chose to leave the state or withdraw from the workforce, but 503 out-of-state or foreign applicants were licensed in Texas. The total number of these out-of-state and foreign pharmacists exceeded the total number of new pharmacy graduates from Texas by a significant margin.

Effects of new programs on future degree production

There is good reason to believe that recently authorized new programs will bring supply and demand into balance over time. The following table shows the changes in the population, new graduates, and pharmacists practicing in the state over the past 20 years with projections through 2015. In this table, the Board used 20 years of TSBP data to project the number of
pharmacists to be actively employed in Texas. In making estimates of the number of graduates, the Board took a very conservative approach. Very little growth in existing schools was assumed, and currently programmed class sizes for new pharmacy schools were assumed. These projections will need to be monitored and possibly updated in future years.


<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Active pharmacists</td>
<td>10,041</td>
<td>11,544</td>
<td>12,500</td>
<td>13,827</td>
<td>15,588</td>
<td>17,609</td>
<td>19,484</td>
<td>21,383</td>
</tr>
<tr>
<td>Population (millions)</td>
<td>14.2</td>
<td>16.3</td>
<td>17.0</td>
<td>18.7</td>
<td>20.9</td>
<td>23.0</td>
<td>25.4</td>
<td>28.1</td>
</tr>
<tr>
<td>Texas pharmacy graduates</td>
<td>346</td>
<td>257</td>
<td>365</td>
<td>294</td>
<td>270</td>
<td>435</td>
<td>545</td>
<td>696</td>
</tr>
<tr>
<td>Pharmacists per million population</td>
<td>707</td>
<td>708</td>
<td>735</td>
<td>739</td>
<td>746</td>
<td>766</td>
<td>767</td>
<td>761</td>
</tr>
<tr>
<td>TX pharmacy grads per million population</td>
<td>24</td>
<td>16</td>
<td>21</td>
<td>16</td>
<td>13</td>
<td>19</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>New TX graduates as a percent of active pharmacists</td>
<td>3.4%</td>
<td>2.2%</td>
<td>2.9%</td>
<td>2.1%</td>
<td>1.7%</td>
<td>2.5%</td>
<td>2.8%</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

These data suggest several things:

- The Board projects a continuing growth in the number of pharmacists required per million residents. There has been some speculation that automation would result in operational efficiencies that would reduce the number of pharmacists needed. Even though the pharmaceutical industry has vigorously embraced the idea of automation, those efficiencies have not yet reached full potential. This is due in part to the dramatic increase in demand for pharmaceuticals but also because automation has thus far affected the work of technicians more than the work of pharmacists. In addition, pharmacists are expected to do much more one-on-one counseling and clinical work than in the past.

- Current Texas graduation rates are far below that required to maintain the pharmacy workforce. Assuming that a typical worker has a working life of 30 years, then it would require \( \frac{1}{30} \times 100 = 3.3 \) percent of the number of workers simply to replace themselves. In 1980, the number of new pharmacy graduates was in fact about 3.4 percent of the number of employed pharmacists. By 2000, the number of graduates had declined to 1.7 percent of the number of active pharmacists, and by 2005 it was 2.4 percent. To maintain the pharmacy workforce with these numbers, it would be necessary to have average working lives of over 50 years and 40 years respectively, both of which are unreasonable.

- But, by 2015 Texas pharmacy schools should be generating enough graduates to come close to historical replacement rates. Projections indicate that by 2015 the number of graduates will be 3.3 percent of active pharmacists, implying a much more reasonable 30-year working life and bringing the replacement rate back approximately to that which existed in 1980.
Comparisons with other states

It is useful to compare Texas’ commitment to pharmacy education with that of other states. The following table shows the number of pharmacy schools in each of the 10 most populous states.

<table>
<thead>
<tr>
<th></th>
<th>2005 Population (millions)</th>
<th>Number of pharmacy schools</th>
<th>2005 pharmacy graduates per million residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>36.1</td>
<td>7 (Note 1)</td>
<td>16</td>
</tr>
<tr>
<td>Texas</td>
<td>23.0</td>
<td>6 (Note 2)</td>
<td>19</td>
</tr>
<tr>
<td>New York</td>
<td>19.2</td>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td>Florida</td>
<td>17.7</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>Illinois</td>
<td>12.7</td>
<td>3 (Note 1)</td>
<td>22</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>12.4</td>
<td>6</td>
<td>56</td>
</tr>
<tr>
<td>Ohio</td>
<td>11.4</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>Michigan</td>
<td>10.1</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td>Georgia</td>
<td>9.0</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>New Jersey</td>
<td>8.7</td>
<td>1</td>
<td>21</td>
</tr>
</tbody>
</table>

Note 1: Includes one institution in pre-candidate accreditation status.
Note 2: Includes two institutions in pre-candidate accreditation status.


Two observations follow from this table. First, Texas has already positioned itself with a relatively large number of pharmacy schools. Only California, with a population more than half again as large as Texas, has more. Among the 10 most populous states, only California, Texas, and Pennsylvania have as many as six.

The second observation is that there are significant differences among states in the number of pharmacists that states feel they need to produce. Some states, e.g. California, can recruit significant numbers of pharmacists from outside the state and do so, because that is the least expensive way to obtain them. Several urban locations in Texas, including the Metroplex, have demonstrated an ability to recruit significant numbers of pharmacists from other states and nations.
Other indicators

Finally, there are a number of other less-quantitative indicators of the need for additional pharmacists in Texas. National pharmacy organizations report that starting salaries for new pharmacists average $96,000 per year. These high salaries are indicative of a shortage of qualified pharmacists. Like other health professionals, pharmacists prefer to practice in urban settings, and rural communities are the first to suffer when professionals are in short supply. A shortage of pharmacists willing to work in rural communities is a continuing problem in Texas.

Conclusion

The foregoing discussion indicates that there is a significant current demand for more pharmacists in Texas. Most indicators support that conclusion --Texas Workforce Commission statewide projections, the Pharmacy Manpower Project, Inc., Texas State Board of Pharmacy data on licensure of out-of-state and foreign pharmacists, Coordinating Board data relating the number of new pharmacists to population growth, and numerous informal indicators.

The primary cause of these shortages in Texas and in other states is the impact of changes in the practice of medicine and a related change from a five-year pharmacy degree to a six-year pharmacy degree with an expanded clinical component that resulted in several years with a reduced number of graduates.

However, projected degree production data also indicate that the worst has passed. The Legislature recently created two additional pharmacy schools and has supported several satellite programs. As these new schools and programs come on line, these data suggest that by 2015 Texas will be better positioned to meet its needs for new pharmacists than it has been at any time in the last 25 years.
The Need for Additional Pharmacy Education in the Metroplex

In the previous section, the statewide need for additional pharmacy education was examined. In this section, possible pharmacy education needs peculiar to the Metroplex will be explored.

Employment indicators

Most regions of the country are currently experiencing shortages of pharmacists. This applies also to the Metroplex, but the problem does not appear to be significantly more severe in the Metroplex than in other parts of the state. The region has more pharmacists per 100,000 population (83) than seven of the state’s 10 regions and also more than the statewide average (76). Stated another way, the Metroplex has 27 percent of the state’s population and almost 30 percent of its pharmacists.

In part, this favorable ratio can be explained by the fact that the Metroplex is more urban than most other regions of the state, with a resulting high concentration of health care facilities, retail pharmacies, and other employers of pharmacists.

Results of a 2006 survey conducted by the Pharmacy Manpower Project of chain pharmacy companies identified 23 key shortage areas in Texas, including Dallas and Fort Worth.

Pharmacist vacancy rates at Metroplex hospitals are high, at 8.2 percent, but declined slightly between 2003 and 2006. Pharmacy vacancy rates are lower than vacancy rates for some other medical specialties, such as registered nurses and physical therapists, which are even higher. Over 1,500 new hospital beds will be added by 2008, further compounding the problem.

The Texas Workforce Commission projects 235 job openings for pharmacists per year during the period 2006-2012 in the three workforce development areas comprising the Metroplex. This represents the largest number of openings of any area of the state, including the Gulf Coast (Houston area).
Of the 3,481 pharmacists who graduated from Texas pharmacy schools in the last 10 years, 645 of them (23 percent) practice in the Metroplex. The table below shows the percentage of each of the state’s pharmacy school’s graduates who chose to practice in the Metroplex.

**Pharmacy Graduates Practicing in the Metroplex**  
**Texas Pharmacy Schools (1996-2005)**

<table>
<thead>
<tr>
<th>Pharmacy School</th>
<th>Percentage of Pharmacy Graduates Practicing in Metroplex</th>
<th>Number of Pharmacy Graduates Practicing in the Metroplex</th>
</tr>
</thead>
<tbody>
<tr>
<td>The University of Texas at Austin</td>
<td>30%</td>
<td>268</td>
</tr>
<tr>
<td>University of Houston</td>
<td>19%</td>
<td>146</td>
</tr>
<tr>
<td>Texas Tech Health Sciences Center</td>
<td>36%</td>
<td>120</td>
</tr>
<tr>
<td>Texas Southern University</td>
<td>15%</td>
<td>111</td>
</tr>
</tbody>
</table>

More University of Texas at Austin and Texas Tech Health Science Center graduates practice in the Metroplex than in any other region of the state. For each of the other two existing pharmacy schools, the Metroplex is the second choice region for practice. These data indicate that all of the state’s pharmacy schools support the need for pharmacists in the Metroplex to some extent. With 27 percent of the state’s population and 23 percent of the graduates of state pharmacy schools, the Metroplex is somewhat below what might be expected, but not radically out of line.

**Out-of-state recruiting**

The under-representation of graduates of state pharmacy schools in the Metroplex has been addressed by employing out-of-state pharmacists and a small number of foreign pharmacists. Of the 1,901 new Texas pharmacists who graduated from foreign or out-of-state pharmacy schools during this same period, 49 percent practice in the Metroplex.Twenty-one percent practice in the Gulf Coast region (Houston area). The remainder is distributed over the other eight regions, with none employing more than 10 percent of the foreign or out-of-state pharmacy graduates. This indicates that Metroplex employers have been especially effective in recruiting out-of-state pharmacists, although they also report that out-of-state recruiting is more costly and out-of-state recruits have higher turnover than in-state recruits, thereby increasing health care costs.

**Opportunities for students**

The Metroplex is the most significantly under-represented region in the pharmacy student population. The Metroplex represents 27 percent of the state’s population, but only 18 percent of the state’s pharmacy students, the largest gap for any region in the state. Many students, especially low-income students, are unable to pursue careers for which there is not a local education provider. The lack of a local pharmacy school may have reduced significantly that option for many students. The chart below compares the percentage of the state’s population in each region of the state with the percentage of the state’s pharmacy students from that region.
Residency data was taken from student applications. Because some applicants may be independent students employed or attending college in a region other than the region in which they grew up, these data may be questionable, but they are the best available.

**Comparison of Regional Population Representation in Texas Pharmacy Schools (2005)**

Residency Taken from Students’ Applications

Sources: 1) Population: U.S. Census Bureau, 2000; 2) Residency of pharmacy students: Texas Higher Education Coordinating Board, Institutions

PharmD students spend their fourth year in internships in a pharmacy practice setting. Students often re-locate for this period. The map below shows how these internships are distributed around the state.

**Distribution of Fourth-Year Pharmacy Internships (2005)**

Source: Institutions
These internships are important because students often choose to practice where they undertake their internships. One employer reported that his firm retained 83 percent of the students who completed their internship with them.

Arranging locations for internships is a major problem for pharmacy programs. Because students must be exposed to a variety of different specialties and must be supervised by qualified preceptors, a relatively small number of institutions -- mainly teaching hospitals -- can provide those internship experiences.

Over 200 students do their internships in the Gulf Coast area, while there are only 59 students in the Metroplex. With much smaller health care industries and many fewer hospitals, Austin has 36 students in internships and Amarillo has 28. It should be possible to significantly expand the number of internships in the Metroplex. Texas Tech University Health Sciences Center reports that its existing clinical sites can accommodate more students, which would presumably increase the number of pharmacists seeking employment in the Metroplex.

Conclusion

The Metroplex, like other regions of the state, has a shortage of pharmacists. The number of graduates of Texas pharmacy schools employed in the Metroplex is slightly under its “share,” although there is not a major imbalance. Because the Metroplex is a desirable, urban location, Metroplex employers have been able to compensate for this imbalance by recruiting a significantly higher percentage of graduates of foreign and out-of-state pharmacy schools than have employers in other regions.

Students from the Metroplex are under-represented in state pharmacy schools.
Options for Expanding Pharmacy Education in the Metroplex

Near-term options

Educational options for expanding the number of pharmacists in the near term are limited. It takes a minimum of six years to produce a pharmacist; organizing and staffing a new educational program requires significantly more time.

One near-term option for increasing the number of Texas pharmacy graduates employed in the Metroplex would be to increase the number of internship opportunities in the Metroplex. Because students often seek employment where they do their internships, this effort could pay almost immediate dividends for Metroplex employers. Texas Tech University Health Sciences Center recently reported that its clinical sites could be expanded to accommodate more pharmacy students. Perhaps the schools could better coordinate new and existing internship through a centralized office in the Metroplex area.

Existing pharmacy schools could increase opportunities for pharmacy education for Metroplex students in the near term by more actively advertising and recruiting in the Metroplex area, forming partnerships with Metroplex institutions, and by providing financial aid and other incentives to students from the Metroplex, as is currently under way in South Texas.

Student debt is a serious problem for pharmacy students. Metroplex employers could increase enrollment of Metroplex students in existing pharmacy schools by providing financial aid to Metroplex students who pursue careers in pharmacy.

Longer-term options

As indicated previously, it is not possible to increase the production of pharmacists in less than five years, and by that time, the new pharmacy schools will be meeting most of the state’s need. By 2015, Texas pharmacy schools will be in the best position to meet the needs for new pharmacists since 1980. However, one rationale for expanding pharmacy education in the Metroplex is to provide more opportunity for students from the Metroplex to study pharmacy.

Providing opportunities to study pharmacy in the Metroplex is, from the state’s perspective, an issue of convenience rather than need. No state attempts to locate all graduate and professional programs within commuting distance of students who may wish to pursue degrees in those areas. Students pursuing graduate and professional degrees understand that it may be necessary to relocate. It is necessary that the state provide sufficient educational opportunities to meet its workforce needs; however, providing opportunities in areas where they are convenient to any particular group of students is desirable, but of lesser importance.

Local access is only one of a number of competing and often conflicting priorities decision-makers must balance when considering an expansion of pharmacy education. Some of them include the following:

- **Implementation time.** Some options would require a relatively short time between authorization and implementation. Others might involve facilities construction, equipping laboratories, hiring new staff, and developing internship opportunities and would require years.

- **Cost to the state.** Because the demand for higher education resources is so much greater than available funds, cost is always an issue.
• Potential to increase enrollment. Some options would be appropriate for producing small enrollment increases but would not be feasible for a major expansion of pharmacy education.

• Accreditation issues. Accreditation is an increasingly important issue because pharmacy programs must be accredited if graduates are to be licensed, and because the pharmacy accreditation body is becoming increasingly diligent about enforcing program quality.

• Local student access. Some options are better than others for enrolling local students and making opportunities available to under-represented groups.

• Recognized academic excellence. Creating a program that is recognized for the excellence of its graduates, the scholarship of its faculty, and its service to the state takes time and resources and synergy with other academic units. Some options are more likely than others to achieve this goal.

• Support of local employers. Excellent programs support local employers by providing training for professionals, tailoring the curriculum to their needs, doing research of interest to them, and in many other ways. Some options are better than others in providing this support.

If the Legislature desires to expand pharmacy education in the Metroplex, the Board suggests five options for doing so. Each option has advantages and disadvantages, and the desirability of any one of them may depend on an individual’s or group’s priorities. None is best for everyone.

Option 1: Increase existing pharmacy schools’ enrollments on their main campuses, with an emphasis on recruiting Metroplex students. This could take the form of additional recruiting in the Metroplex, financial assistance for Metroplex students, developing additional internships and clinical experiences in the Metroplex, or other initiatives to increase the opportunities for Metroplex students to enroll in existing programs.

The average entering class size for Texas pharmacy schools is 116, while the average class size for all the schools in the 10 most populous states is 150. However, some institutions report that they would need to expand their physical facilities before they could significantly expand their class sizes. In addition, there is already a concentration of pharmacy schools in the Houston area, so it might not be desirable to expand them. The University of Texas at Austin already has a large entering class size. The remaining pharmacy schools at public institutions are in areas of the state with relatively low population densities, and are somewhat limited by the availability of fourth-year internships.

As part of Option 1, the state could support an office in the Metroplex to coordinate and expand internship opportunities among the six existing schools. This would bring more students to the Metroplex for their final year of study and could be accomplished at a significantly lower cost than other options.

Of all the options, this is the one that could be implemented most quickly and at least cost. Costs may vary depending on whether or not the enrollment increases require new facilities. Students would immediately have access to high-quality education and there would be the fewest accreditation issues. The potential to increase enrollment may be limited, as would linkages to Metroplex employers.
**Option 2**: Fund an existing pharmacy school (or schools) to implement or expand a satellite program in the Metroplex, making use of distance learning technology where appropriate, and possibly partnering with one or more existing Metroplex institutions of higher education.

Under this option an existing pharmacy school would establish a presence or expand its presence in the Metroplex. Like the Texas Tech Health Science Center satellite program in Dallas, it might cover only the last two years of pharmacy instruction. There would be a small administrative structure. Courses would be taught by distance education, by faculty who travel from the main campus, or adjuncts hired to work at the satellite.

In general, this option would be more expensive than increasing enrollment in existing programs because there would be additional administrative costs, travel/communications costs, and probably additional costs for space in the Metroplex and at the main campus. There would be some implications for accreditation. This option also has limited potential to increase enrollment.

**Option 3**: Fund the creation of a second campus in the Metroplex for an existing pharmacy program. The TWU nursing program with campuses in Denton, Dallas, and Houston could serve as a model. This option could be implemented in conjunction with a Metroplex institution.

This option assumes a more-robust administrative structure than a satellite, at least some permanent faculty associated with the campus, and additional library, laboratory, and classroom facilities.

The option would be more expensive than Option 2, and it would present more accreditation issues. There would be more potential to increase enrollment, to develop meaningful linkages with local employers, and to provide local access to Metroplex students.

**Option 4**: Create a new pharmacy program on the campus of an existing Metroplex university or health science center.

This option assumes that an existing Metroplex institution would be authorized to offer the PharmD degree on its campus. It would require its own administrative structure, physical facilities, and academic support services. Assuming it was located on a campus with a strong life sciences program, there should be opportunities to share some faculty, library facilities, and possibly laboratories. Accreditation would be a major issue. This option would offer excellent potential for increasing enrollment of Metroplex students and linkages with local employers, but would be more expensive to implement than any of the preceding options.

**Option 5**: Create a new “stand-alone” pharmacy program.

This option assumes than a new “stand-alone” pharmacy program would be created in an off-campus location by a Metroplex institution. Like Option 4, it would require its own administrative structure, physical facilities, and academic support services. Unlike Option 4, there would be fewer opportunities to share facilities with main campus entities. Accreditation would be a major issue. This option would offer excellent potential for increasing enrollment of Metroplex students and linkages with local employers, but it would be the most expensive option.
The advantages and disadvantages of each option are summarized in the following chart:

**Summary of Options for Expanding Pharmacy Education in the Metroplex**

<table>
<thead>
<tr>
<th>Goals</th>
<th>1: Expand existing programs</th>
<th>2: Satellite programs</th>
<th>3: Second campus for existing program</th>
<th>4: Add pharmacy to Metroplex campus</th>
<th>5: New “stand-alone” pharmacy program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimize “start-up” time</td>
<td>✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓</td>
</tr>
<tr>
<td>Minimize total cost to the state</td>
<td>✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓</td>
</tr>
<tr>
<td>High potential for increasing enrollment</td>
<td>✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Minimize accreditation issues</td>
<td>✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓</td>
</tr>
<tr>
<td>Provide access to Metroplex students</td>
<td>✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Academic excellence of the program</td>
<td>✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Opportunities for local employers to interact with the program</td>
<td>✓</td>
<td>✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓</td>
</tr>
</tbody>
</table>
Conclusions and Recommendations

Conclusions

• There is currently a shortage of pharmacists in Texas.

• The shortage is primarily the result of the decision by pharmacy programs nationwide to change from a five-year curriculum to a six-year PharmD curriculum in the mid- to late 1990s and by the growth of the Texas population.

• The number of graduates of Texas pharmacy schools is now increasing as two new schools begin enrolling students and another existing program expands.

• The number of PharmD graduates will increase markedly when new pharmacy schools in Kingsville and San Antonio start producing graduates in 2010. The state’s demand for additional pharmacists and the supply of new pharmacists from Texas pharmacy schools are expected to be essentially balanced by 2015.

• Although there is no school of pharmacy in the Metroplex, a significant number of graduates of pharmacy schools in other regions of the state seek employment in the Metroplex. Shortages of pharmacists appear to be similar to those in other regions of the state. They are not worse than in other urban locations in the state only because employers in the Metroplex have been successful in recruiting a higher percentage of out-of-state pharmacists to fill job openings than those in other regions.

• Students from the Metroplex are under-represented in Texas pharmacy schools. The lack of a pharmacy school in the Metroplex may be making it difficult for some students to pursue careers in pharmacy.

Recommendations

• Employers of pharmacists in the Metroplex could expand the number of fourth-year internships they offer. The share of Texas pharmacy graduates employed in the Metroplex is smaller than its share of the population. Since there is a strong correlation between the location where students do their internships and the location where they eventually seek employment, this would increase the number of pharmacists seeking permanent employment in the Metroplex, thereby addressing the imbalance.

• Existing pharmacy schools could increase their recruitment efforts and provide other programs to address the under-representation of Metroplex students in Texas pharmacy schools.

• Metroplex leaders could organize fund-raising efforts to provide financial aid as an incentive to encourage students to pursue careers as pharmacists.

• The Legislature need not, at this time, authorize a new pharmacy school in the Metroplex. The argument that students from the Metroplex are disadvantaged by the lack of a local pharmacy school is a compelling one. On the other hand, no large state can provide professional education in all of its regions. And, given the limited resources available to the state, other priorities may be more pressing. For example, the imbalance between supply and demand for registered nurses is nearly 10 times as large as that for pharmacists, and no long-term remedy has yet been adopted for that problem. Other examples are funding
for undergraduate education, including community colleges, financial aid for low-income students, and increasing the numbers of scientists and engineers in the state. Given these problems and the attention that recent legislatures have given to pharmacy, creating another new pharmacy school is not appropriate at this time.

- If after taking steps to increase the number of pharmacists in the Metroplex, a long-term demand for pharmacists is apparent by 2011, the state should establish a pharmacy school in the region. A master plan for creating a new pharmacy school should be developed with plans to start producing graduates sometime after 2016.
Acknowledgments

Board staff gratefully acknowledges the expertise and assistance of the state’s pharmacy schools, Gay Dodson and her staff at the Texas Board of Pharmacy, and Kim Roberson at the Texas Pharmacy Association. Elizabeth Wagner, a summer intern with the Coordinating Board, did much of the data analysis for this report.
Sources of Information

American Association of Colleges of Pharmacy

Attendees of the August 1, 2006 meeting on the campus of the University of Texas Southwestern Medical Center at Dallas

Texas schools of pharmacy

Texas Pharmacy Association

Texas State Board of Pharmacy

Texas State Data Center

Texas Workforce Commission

U.S. Census Bureau