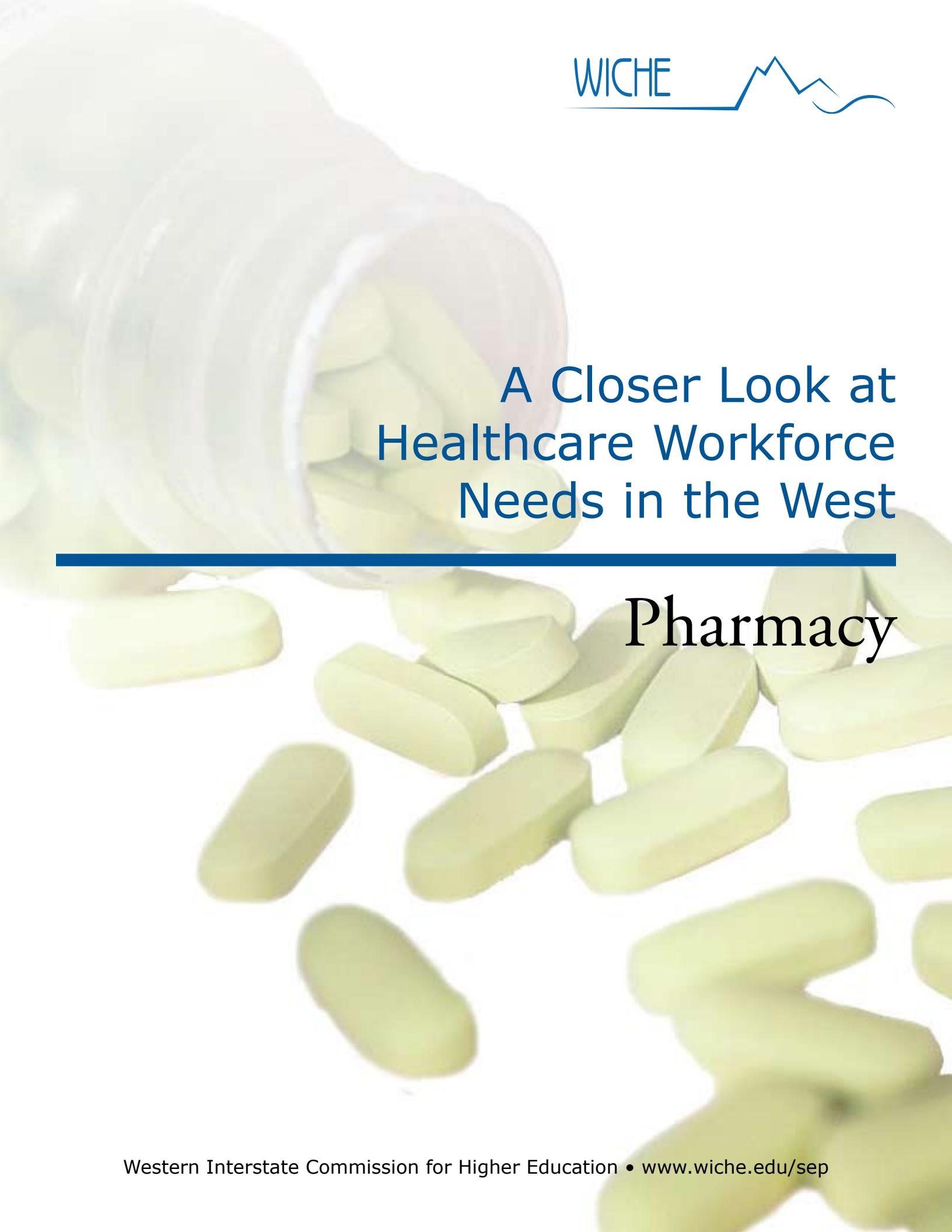


WICHE

# A Closer Look at Healthcare Workforce Needs in the West

## Pharmacy

Western Interstate Commission for Higher Education • www.wiche.edu/sep

# Pharmacy Workforce Needs

## National Trends

Pharmacy, with more than 230,000 practitioners today, is the third-largest health profession in the United States after nurses (2.4 million) and physicians (830,000).

## Projected Shortages and Causes

Research on the national pharmacist workforce points to a continuing shortage of pharmacists, related to growth in medication use, the aging of the baby boomer generation, and the emergence of more clinical activities within pharmacies. Surveys that track shortage levels showed that there was a slow downward trend in the severity of shortages up until fall 2005, followed by higher shortage levels during the past year. Changes in shortage levels appear to parallel growth in prescription medication usage.

## Expanding Career Options

Increasing numbers of pharmacists are working in nontraditional positions. For example, career options have emerged with medication-use programs within managed care organizations and health plans; Medicare's adoption of a prescription drug benefit; Medicaid programs' prescription-drug benefit; and any healthcare provision that includes a formulary for medications and outcomes analysis for medication use.

Within traditional pharmacy practice, clinical activities have expanded, with the universal adoption of the doctor of pharmacy (PharmD) degree as the entry-level educational requirement for pharmacy practice. The growth of postgraduate pharmacy residencies has also had an effect. The PharmD degree includes additional biomedical and clinical training that enables pharmacists to assume more clinical and management responsibilities. Younger pharmacists are trained in providing educational and monitoring services for chronic diseases, administering immunizations, and offering medication management services for Medicare patients.

In institutions pharmacists are being added to transplant units, critical-care units, emergency departments, oncology services, and other areas where intensive medication-therapy management is enhanced by pharmacy expertise. To fill these roles, pharmacists require advanced training, which is generally acquired through formal postgraduate professional education in pharmacy residencies.

The number of accredited pharmacy residencies nationally has expanded from about 1,000 annually 10 years ago to over 1,500 annually; and specialized residencies (a second year with a focus in a specific area, such as critical care) have increased concomitantly. The Board of Pharmaceutical Specialties (BPS) offers certification examinations in five practice areas, and board-certified pharmacists are increasing in each of these areas: pharmacotherapy (3,191), oncology (557), nutrition (348), psychiatric pharmacy (463), and nuclear pharmacy (495) (*www.bpsweb.org*).

## Factors Driving Workforce Demand

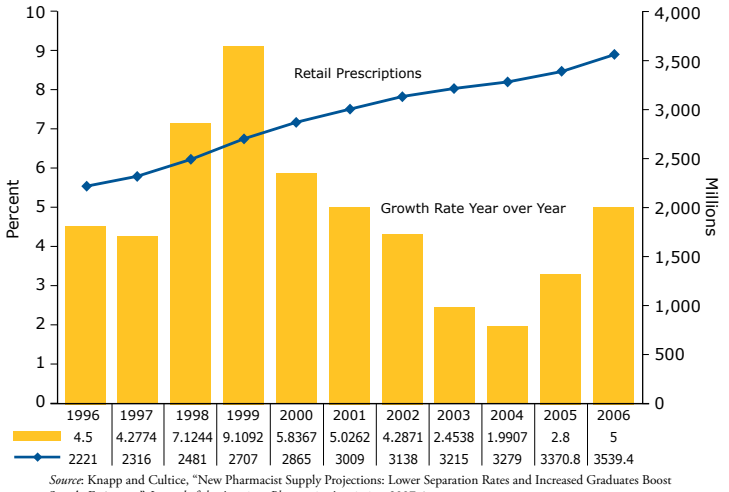
### Growing Part-time and Female Workforce

The Bureau of Health Professions' pharmacist supply model estimates that 3,911 pharmacists will retire in 2007. This number will gradually increase to 4,562 in 2020. Recent studies have shown that since 2000, pharmacists are remaining in the workforce longer, and more are working part-time. Retiring pharmacists are predominantly male; this is significant because male pharmacists have traditionally worked more than female pharmacists.

The increasing female pharmacist workforce is an important supply issue because women pharmacists have consistently worked fewer hours than their male counterparts. Recent surveys show women pharmacists working 0.81 FTE on average, compared to male pharmacists at 0.91 FTE (*Mott et al., National Pharmacist Workforce Data, 2004*). The current pharmacy-student population is about two-thirds female. Supply models estimate that part-time participation will reduce the workforce "headcount" by about 15 percent (*Knapp and Cultice, 2007, in press*).

### Recent Increases in Prescription Volume

The demand for pharmacists is closely tied to the number of retail prescriptions (*Walton et al., 2004*). Prescription volume continues to grow each year, but the growth rate has varied greatly in the last 10 years, as shown in the table below. The growth rate hit its highest level in 1999 and fell steadily to about two percent in 2004. Growth increased again in 2005 and 2006.




| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4.5 | 4.2774 | 7.1244 | 9.1092 | 5.8367 | 5.0262 | 4.2871 | 2.4538 | 1.9907 | 2.8 | 5 |
| | 2221 | 2316 | 2481 | 2707 | 2865 | 3009 | 3138 | 3215 | 3279 | 3370.8 | 3539.4 |

*Source:* Knapp and Cultice, "New Pharmacist Supply Projections: Lower Separation Rates and Increased Graduates Boost Supply Estimates," *Journal of the American Pharmacist Association,* 2007, in press.

### Beyond Prescriptions

When we think of pharmacists, dispensing medications comes to mind. However, their expanded role now includes many other tasks, like managing medication therapy related to Medicare Part D. Many immunization programs are now administered through community pharmacies. Pharmacists are also active in chronic disease medication-management programs and elsewhere, as noted above.

### Aging Baby Boomers

Counterbalancing the increased supply of pharmacists is the aging baby boomer generation, which will increase the

demand for pharmacy services. For example, people under 65 annually consume 10.1 prescriptions on average, while those 65 years and over consume 23.5 prescriptions on average *(Agency for Healthcare Research and Quality (AHRQ), derived from Medical Expenditure Panel Survey Data, 1997-2000*). The oldest baby boomers have not yet reached 65 years, where medication consumption increases significantly.

### Filling the Gaps: Technicians

There are approximately 250,000 certified pharmacist technicians in the United States. These allied health professionals play an important role in increasing productivity in pharmacies. A 2004 state-level study showed that technicians generally complement pharmacists rather than substitute for them; there are more technicians where there are more pharmacists.

### Growth of the Biotech Industries

The number of pharmacists working in drug development is relatively small. Pharmacists sometimes play roles in clinical trials, but not often. The principal relationship between the biotech industry and the pharmacist workforce is that pharmacists are clinically involved in the use of expensive and potentially dangerous biotech drugs in hospitals and elsewhere. Oral dosage forms of biotech drugs, such as oral oncology medications and transplant maintenance medications, are now readily available. The biotech industry acknowledges the significant role that community pharmacies and pharmacists play in helping patients use these medications effectively.

### Technology's Effects on Pharmacy Demand

Pharmacists play a significant role in medication error reduction. New technologies such as electronic prescription generation and transmission increase pharmacist productivity and reduce medication errors. Generally, where technology is introduced on a large scale — for example, in the Veterans Affairs system and in Kaiser Permanente — pharmacists have been redeployed to clinical roles in chronic disease clinics, where their activities have been shown to be cost effective.

### Regional Occupational Outlook for Pharmacists in the WICHE States

| Region | Population 2005 | ADI* Feb. 2007 |
|---|---|---|
| **United States** | **296,410,404** | **4.13** |
| **WICHE States** | **69,703,732** | **4.34** |
| Alaska | 663,661 | 4.00 |
| Arizona | 5,939,292 | 4.17 |
| California | 36,132,147 | 4.60 |
| Colorado | 4,665,177 | 3.71 |
| Hawaii | 1,275,194 | 4.00 |
| Idaho | 1,429,096 | 4.40 |
| Montana | 935,670 | 4.00 |
| Nevada | 2,414,807 | 4.25 |
| New Mexico | 1,928,384 | 3.83 |
| North Dakota | 636,677 | 3.67 |
| Oregon | 3,641,056 | 4.29 |
| South Dakota | 775,933 | 4.00 |
| Utah | 2,469,585 | 4.50 |
| Washington | 6,287,759 | 4.00 |
| Wyoming | 509,294 | 3.33 |

*Aggregate Demand Index (ADI)

## Demand for Pharmacists in the West

The preceding table presents Aggregate Demand Index (ADI) data for WICHE states as compared to national averages. The ADI is a monthly, national survey of the unmet demand for pharmacists by the Pharmacy Manpower Project Inc. The survey is conducted by having panelists, selected by their direct involvement in hiring pharmacists, submit monthly ratings for each state where they hire pharmacists, based on this five-point scale:

**5** = High demand; difficult to fill open positions.
**4** = Moderate demand; some difficulty filling open positions.
**3** = Demand is in balance with supply.
**2** = Demand is less than the pharmacist supply available.
**1** = Demand is much less than the pharmacist supply available.

Ratings are aggregated, and a population-weighted average is determined for the month; they are also available at the regional, divisional, and state levels.

**Demand data show that the Western region consistently has the highest level of unmet pharmacist demand.** At the division level, the Pacific division has frequently had the highest ADI ratings, while the Mountain division has generally been closer to national averages. These findings are consistent across several national surveys and support attention to producing more pharmacists in the West just to meet current population demands.

For the future, baby boomers retiring in the next three decades are likely to move to Western states in disproportionate numbers. This trend will likely increase the population of many Western states beyond national averages for growth and will increase the need for pharmacists and other health care professionals. Most Western schools of pharmacy have high percentages of in-state students already (see the table on p. 4) so expansion and stimulating in-migration of pharmacists from other states are important options for increasing the workforce.

## Expansion of Pharmacy Education

In the last decade new pharmacy programs, expansion of existing programs, and development of distance-learning campuses have increased the number of pharmacy seats across the nation. The Accreditation Council for Pharmacy Education reports that the expansion of existing programs is generating even more new pharmacists than new schools and colleges are (*Knapp and Cultice, 2007, paper in press*).

Part of the educational expansion effort results from the recognition that pharmacists in rural areas will be retiring in the next 10 to 15 years without a significant prospect of their being replaced.

During the early 2000s, a plan to include pharmacy students in the National Health Service Corps to assist in loan repayment was introduced but not funded. A difficulty in implementing pharmacy programs for medically underserved areas is that there are no measures of pharmacist service levels, like those that exist for medicine and dentistry.

Schools in Western states that have large rural areas generally have very high percentages of in-state students who are more likely to remain in their home state to practice. Expansion of programs in these states and establishing new campuses in rural areas are strategies that several states have adopted to maintain pharmacy services in rural areas.

Five new pharmacy schools have opened in the West in just the last four years. Three of them graduated their first classes in 2006: the University of Southern Nevada, a private institution, now fully accredited; Loma Linda University School of Pharmacy; a private institution that is not yet fully accredited but holds candidate status; and the University of California, San Diego, a public institution that also holds candidate status.

Two new programs in the West are scheduled to receive full accreditation by fall 2009. Touro University's College of Pharmacy (California campus) admitted its first class in fall 2005 and is a traditional four-year program. Pacific University's School of Pharmacy (Oregon) admitted its first class in fall 2006 for its three-year intensive program.

Two pharmacy schools are in the planning phase: the University of Hawaii Hilo's College of Pharmacy plans to admit its first class in fall 2007. The University of Nevada Reno and the University of Nevada Las Vegas have planned a pharmacy school as part of Nevada's proposed health sciences center. Unfortunately, approval of state funding for the initiative has proved illusive over the past few legislative sessions.

There is a strong interest in the field of pharmacy, and there has been a steady increase in the number of applications over the past five years. According to the American Association of Colleges of Pharmacy, the applications to pharmacy schools increased 53.9 percent to 72,799 in 2003-04 from 47,306 in 2002-03. Nationally, schools of pharmacy reported receiving 7.4 applications per entering student in fall 2005, a slight increase from 7.0 from the previous year. Graduates are courted before they have their diplomas in hand, with starting salaries in the $80,000 range.

**WICHE's Professional Student Exchange Program (PSEP)** allows students from states that do not have a public school of pharmacy to pay reduced tuition to a cooperating institution in the West. Sending states determine the number of new students to be supported each year. In 2006-07, 40 students from Alaska, Hawaii, and Nevada attended 16 cooperating pharmacy schools.

For more information, visit *www.wiche.edu/sep/psep.*

The chart below shows that an estimated 7,080 students will graduate with a PharmD in 2007; schools located in WICHE states will graduate 26 percent of the nation's PharmD students (1,817) in the same year. There are 92 schools of pharmacy in the U.S.; 23 of them are located in the Western states. The higher graduation numbers in 2007 are due to new schools and program expansion. The nation saw a 39 percent increase in the number of graduates from 1999 to 2007; during the same period, the WICHE states saw a 48 increase.

*WICHE thanks Katherine K. Knapp, dean of Touro University – California's College of Pharmacy, for her assistance in writing this workforce brief.*

## Projected Increase in Pharmacy Graduates: 1999 and 2007

| State | Population 2005 | Pharmacy Graduates 1999 | Estimated Pharmacy Graduates 2007 | No. of Pharmacy Schools 2007 | Annual Average No. of Graduates per 1,000,000: 1990-1999 | Percent of Pharmacy Enrollment from In-State Applicants 1998 |
|---|---|---|---|---|---|---|
| **United States** | **296,410,404** | **7,080** | **9,857** | **92** | **28** | **80** |
| **WICHE States** | **69,226,623** | **1,225** | **1,817** | **23** | | |
| Alaska* | 663,661 | 0 | 0 | 0 | 0 | N/A |
| Arizona | 5,939,292 | 53 | 211 | 2 | 11 | 64 |
| California | 36,132,147 | 480 | 674 | 7 | 14 | 96 |
| Colorado | 4,188,068 | 113 | 123 | 1 | 28 | 84 |
| Hawaii* | 1,275,194 | 0 | 0 | 1 | 0 | N/A |
| Idaho | 1,429,096 | 53 | 56 | 1 | 39 | 65 |
| Montana | 935,670 | 43 | 59 | 1 | 51 | 88 |
| Nevada* | 2,414,807 | 0 | 123 | 1 | 0 | N/A |
| New Mexico | 1,928,384 | 98 | 88 | 1 | 40 | 83 |
| North Dakota | 636,677 | 62 | 81 | 1 | 87 | 55 |
| Oregon | 3,641,056 | 98 | 80 | 2 | 32 | 93 |
| South Dakota | 775,933 | 47 | 56 | 1 | 69 | 69 |
| Utah | 2,469,585 | 44 | 45 | 1 | 23 | 96 |
| Washington | 6,287,759 | 134 | 175 | 2 | 21 | 78 |
| Wyoming | 509,294 | 0 | 46 | 1 | 67 | 61 |

*Note:* Alaska and Hawaii do not have schools of pharmacy. Hawaii plans to open a public school of pharmacy in fall 2007. A private school of pharmacy in Nevada just graduated its first class in 2006.
*Source:* American Association of Colleges of Pharmacy.