2005 Colorado Pharmacist Workforce Survey

Findings

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Introduction

This publication reports on findings from the Colorado Health Institute's 2005 workforce survey of licensed pharmacists in Colorado and is set in the context of supply and demand issues facing Colorado's health professions workforce.

PHARMACISTS: A NATIONAL PERSPECTIVE

Nationwide, pharmacists make up the third-largest group of health care professionals with approximately 233,000 pharmacists practicing in 2006 and more than 305,000 active pharmacists expected by 2020.[1] The U.S. Bureau of Labor Statistics projects that increasing pharmacist demand will be fueled in part by the need to replace pharmacists who leave or retire from the profession or who begin working part time and that pharmacist jobs will "grow much faster than the average for all occupations"—22 percent between 2006 and 2016.[2] While these numbers portend excellent job prospects, they don't reflect the current and predicted future shortages of pharmacists that have concerned the pharmacy community, Congress and state policymakers since the 1990s.

Accurately predicting the shortage of pharmacists is complicated by a changing profession and population. A congressionally mandated study in 2000 found that demand had outstripped the supply of pharmacists and was likely to do so for some time, resulting in decreased access for consumers and increased stresses on the profession[3] such as longer working hours and less flexibility in scheduling. Updated federal estimates published in late 2008, however, found that the outlook for the pharmacy workforce was not that grim. The Health Resources and Services Administration (HRSA) reported that pharmacist vacancy rates which had hovered around 8 percent or higher in 2000 had been reduced to approximately 5 percent by 2004. HRSA pointed to higher salaries, the opening of new pharmacy education programs, increased enrollment in existing programs and older pharmacists staying in the workforce longer.[4]

Offsetting hopes of an end to the projected shortage, is the increasing prevalence of prescription drug use; population growth, especially among the 65+ population that fills more prescriptions than any other age group; pharmacists' changing roles with more time spent in counseling and patient education; and increased use of technology. Additionally, there has been a dramatic increase in the percentage of women pharmacists who tend to work part time more often than men and work fewer hours overall.[5]

Compounding these demand-driven factors further is an aging pharmacy workforce, particularly in rural areas. Rural pharmacies are often independent businesses that find it hard to compete with chain stores such as Wal-Mart and mail-order pharmacies that sell a greater volume of prescription drugs. In addition, rural areas throughout the country tend to have higher rates of uninsured residents and thus less coverage for the costs of prescription drugs.[a] These and other factors have resulted in smaller profit margins for rural pharmacies and therefore make recruitment of pharmacists more difficult in rural communities, particularly when pharmacists can negotiate higher salaries and better benefits in an urban area.

Not only is the pharmacy workforce aging, so too is the population—a fact likely to increase use of prescribed medication and pharmacists' other services such as patient education and consultation. The

first Baby Boomers turned 60 three years ago, and research has shown that adults aged 65 years and older use nearly three times as many prescription drugs as individuals between the ages of 19 and 64 years.[6] A number of environmental factors such as the proliferation of direct-to-consumer drug advertising, lower-priced generic drugs, market growth and competition among pharmacies and the 2006 implementation of the Medicare Part D drug benefit portend that drug use volume will rise significantly over the coming decades.

At the same time, pharmacists spend less time on simply filling prescriptions as this traditional role is being replaced by a much broader one that recognizes pharmacists as key members of a patient's health care team.[a] Rather than serving purely as a dispenser of prescribed medications, today's pharmacists collaborate with physicians on drug therapy counseling, educate patients about safe drug use, serve on clinical care teams and participate in clinical trials research. [7]

PHARMACISTS: A COLORADO PERSPECTIVE

Western states consistently have "the highest level of unmet pharmacist demand," according to Aggregate Demand Index (ADI) data[b] analyzed by the Western Interstate Commission on Higher Education.[8] In June 2009, Colorado's need for pharmacists was classified as "moderate"—a 3.86 on a five-point scale—indicating "some difficulty filling positions." For the past decade, Colorado's monthly rating has hovered around that number, indicating that the state's pharmacist shortage has remained constant.

As in other states, Colorado's rural areas have the most difficult time recruiting and retaining pharmacists since it is difficult for them to match the higher salaries and better benefits offered in urban areas. In early 2009, seven Colorado counties had no resident pharmacist and another 10 counties (up from five counties two years earlier) reported having only one. In 2008, 13 counties (up from eight in 2006) lost pharmacists.[9] In 2004, in Colorado the pharmacist per population ratio was 74/100,000, down from 79/100,000 in 1990.[10]

The Colorado Department of Labor and Employment (CDLE) projects an additional 1,173 pharmacists will be needed in Colorado from 2008-18—a 27 percent increase over the10-year period. This projected increase translates to an annual average growth rate of almost 3 percent, significantly faster than the .6 percent growth rate projected for all occupations in Colorado for this time period. CDLE estimates that of the estimated 203 openings available annually through 2016, two-thirds will be new positions and one-third will be replacements for pharmacists who retire or leave Colorado.[11]

Entry-level pharmacists in Colorado earned an average of $84,000 in 2008, up from $77,000 a year earlier. Experienced pharmacists' salaries averaged $118,000, up from $109,000 in 2007.[12] Among

[a] The Accreditation Council for Pharmacy Education recognized pharmacists' changing, more complex role when it instituted the doctor of pharmacy (PharmD) as the sole degree acceptable for entry into the profession. The last pharmacy students to graduate with only a bachelor's degree did so in 2004-05.

[b] ADI is a monthly survey of employers of pharmacists by the Pharmacy Manpower Project, which has tracked the shortage since 1999.

Colorado metropolitan areas, pharmacists practicing in Greeley had the highest annual salaries with an average of $117,000. Looking at salaries on a regional basis, the eastern and southern regions of the state reported the highest average salaries at $113,000.

As wages and employment opportunities have increased, so, too, have enrollments in pharmacy training programs. Nationwide, professional pharmacy student enrollments have risen for eight consecutive years with 10,500 first professional pharmacy degrees awarded in 2007-08[13] and applications at an all-time high. Colorado's sole pharmacy school at the University of Colorado Denver, however, has experienced a significant decrease in applications since recently raising entrance requirements.

In 2007-08, there were 1,265 applicants for admission, down from more than 1,800 a year earlier.[14] The school's move to a new campus in 2010 will increase the number of student slots by 25 percent to 160 newly enrolled students a year,[15] and a new pharmacy program at Regis University expects to admit 50 students when it opens in the 2009-10 academic year.[16]

Regardless of program expansions in Colorado, there continue to be insufficient faculty resources to meet the projected demand for clinically trained pharmacists. In announcing approval of its new pharmacy program, Regis University reported: "With only one other pharmacy program offered in Colorado, and fewer than 100 pharmacy schools in the nation, students face tough competition and only have about a one in 10 chance of getting into pharmacy school."[17] The American Association of Colleges of Pharmacy reported more than 425 faculty vacancies and/or lost positions nationally in 2007-08.

2005 Colorado Pharmacist Workforce Survey

METHODS AND RESPONSE RATE

To address the problem of shortages in various health professions, the Colorado Health Institute (CHI), with funding from The Colorado Trust, has been compiling a health professions indicators monitoring database to inform health workforce policy in the state. CHI will use this information to document changes in the supply and demand of Colorado's primary health care workforce over time.

In October 2005, CHI sent survey questionnaires to 5,602 pharmacists holding an active license in Colorado with addresses from the Department of Regulatory Agency's (DORA) licensure database. Of these, CHI received survey responses from 2,198 pharmacists (39%). To increase the generalizability of the findings to all Colorado pharmacists, not just those who responded to the survey, CHI added non-response "weights" to the data. Weights are constructed using basic demographic information from responders and non-responders and are applied to the data in order to scale the results to represent the entire population rather than just the sample population**.** For more information on the methods, including weighting, see http://www.coloradohealthinstitute.org/Documents/workforce/2005PharmacyCodebook.pdf.

Data and findings from other CHI workforce surveys, including registered nurses, physicians, dentists, rural dentists, dental hygienists, licensed practical nurses and certified nurse aides, are also available at http://www.coloradohealthinstitute.org/resourceHotissues/hotissuesViewItemFull.aspx?theItemID=25.

DEMOGRAPHIC CHARACTERISTICS

Gender

The pharmacy workforce in Colorado mirrors the national workforce in that it is becoming more female and younger. Among pharmacists actively practicing in Colorado at the time of CHI's October 2005 survey, more than half (52%) were women. This rate is higher than the national average of 45 percent in 2004[18] and, given the fact that women are more likely to work part time, could have implications for the state's future supply of pharmacists.

Women pharmacists in Colorado reported they worked an average of 65 hours in a two-week period, compared to male pharmacists who reported working 73 hours. Nationally, more than one-fourth of female pharmacists worked part time in 2004, while only 15 percent of men did.[19]

Again like the nation as a whole, women pharmacists in Colorado are younger than their male colleagues. In 2005, only 6 percent of pharmacists in the state were women aged 55 and older compared to 19 percent of men. Women dominated younger pharmacists; nearly twice as many women as men (64% vs. 33%) were 44 years of age or younger.

One possible bright spot is that Colorado's female pharmacists of all ages reported planning to work longer than men. Responses to the CHI survey showed that 31 percent of women but only 17 percent of male pharmacists planned to work more than 15 years from the time the survey was administered. Conversely, 7 percent of men and 3 percent of women planned to work fewer than five years.

It's unlikely that Colorado's trend toward female pharmacists will slow. Enrollment at the University of Colorado School of Pharmacy shows that women made up nearly 62 percent of the 2008 enrollment,[20] a figure in line with the national average.[21]

Table 1. Average number of hours worked by Colorado pharmacists in two-week period by age group, gender, rural/urban practice location, 2005

Average hours worked by age group	
34 years or younger	74.3
35-44 years	66.3
45-54 years	72.2
55-64 years	66.8
65 years and older	44.0
Average hours worked by gender	
Women	64.9
Men	73.3
Average hours worked by rural/urban	
Rural	69.1
Urban	70.5

SOURCE: 2005 Colorado Pharmacist Workforce Survey

Men and women pharmacists differed in ways other than hours worked and years they plan to continue working. Women reported spending somewhat more of their time (21.5%) on patient care than men (14.7%). They also appeared to be more satisfied in their jobs with 72 percent of women indicating they would choose a pharmacy career again compared to 61 percent of men.[c]

Age

Colorado's pharmacists were fairly evenly distributed on the age continuum with approximately one-quarter falling into each of four age groups—34 years or younger, 35-44 years, 45-54 years and 55 and older. Little variation was reported in hours worked among the age groups (except those 65 and older) with all reporting an average of 66 to 74 hours worked in a two-week period. Pharmacists aged 34 and younger and 45-54 years reported working more hours than those 35-44 and 55-64 years old.

The survey reveals variation, however, in how Colorado pharmacists of different ages spent their time on the job. Older pharmacists tended to spend more time filling prescriptions and less time on other activities such as direct patient care, pharmacy-related teaching or research, and continuing education. Pharmacists aged 55-64 years reported spending 66 percent of their time on prescription dispensing and 15 percent of their time on patient care and counseling. The figures were 47 and 23 percent, respectively, for those under age 35 years.

[c] Respondents were asked whether they would choose to become a pharmacist again by marking 1-5 on a scale, with 1 being "disagree" with the statement and 5 "agree." Satisfaction levels were determined by adding the numbers of pharmacists who marked 4 or 5.

Table 2. Percent of time spent by Colorado pharmacists on various activities in two-week period by age group, 2005

Activity	34 years and younger	35-44 years	45-54 years	55-64 years	65 years and older
Dispensing prescriptions	46.7%	48.8%	56.5%	66.0%	83.2%
Direct patient care/counseling	23.1%	19.8%	16.0%	15.4%	10.8%
Pharmacy-related teaching/research	7.3%	4.8%	3.0%	2.2%	0.5%
Pharmacy-related training/education	5.6%	5.4%	3.0%	2.7%	0.8%
Other pharmacy-related activities	17.3%	21.2%	21.6%	13.8%	4.7%

SOURCE: 2005 Colorado Pharmacist Workforce Survey

Satisfaction as a pharmacist declined with age, with 57 percent of those aged 55-64 years saying they would choose pharmacy as a career if they had it to do over again as opposed to 79 percent of pharmacists 34 years old or younger.

Ethnicity

The large majority of Colorado pharmacists in 2005 were White, with only eight percent of respondents indicating they were non-White. In the fall of 2008, 14 percent of enrolled students in the University of Colorado (CU) doctor of pharmacy program as the first professional degree were minority students.

RURAL VERSUS URBAN PRACTICE LOCATION

Results from the CHI survey found fewer differences between urban and rural pharmacists than has been found nationally. Pharmacists in Colorado were distributed in proportion to the general population. Approximately 13 percent of Colorado pharmacists practiced in a rural area compared to 87 percent who worked in urban areas (Colorado's population was 85 percent urban and 15 percent rural at the time the survey was administered, as reported by the Colorado state demographer). Like other health care professionals, a majority of pharmacists practiced in urban areas, although those who grew up in a rural area were more likely to practice in a rural community.

Of pharmacists practicing in rural areas of the state, 54 percent grew up in a rural area, while only 22 percent grew up in an urban area. Overall, nearly four in 10 (38%) Colorado pharmacists grew up in rural areas. The CU pharmacy school includes rural rotations in its curriculum in an effort to interest students in rural sections of the state.

Although Colorado's rural pharmacies anecdotally say they can't compete with salaries paid in urban areas,[22] salaries paid to Colorado pharmacists were fairly similar in urban and rural areas of the state. Based on survey data, pharmacists practicing in rural areas averaged $70,000-80,000 a year compared to those in urban areas who averaged $80,000-90,000 annually. Additionally, about 30 percent of urban pharmacists and 27 percent of rural pharmacists reported earnings of $100,000 a year or more.

Hours worked were basically the same for urban and rural practicing pharmacists, with rural pharmacists reporting they worked an average of 68 hours in a two-week period compared to 69 hours for urban pharmacists. Colorado's rural pharmacists tended to spend more time dispensing prescriptions than their urban counterparts. Rural pharmacists reported spending approximately 67 percent of their time filling prescriptions, while urban pharmacists filled prescriptions 54 percent of the time. The percentage of time spent on direct patient care was similar at 16 percent for rural pharmacists versus 18 percent for those in urban areas.

Urban pharmacists surveyed appeared to be more satisfied with their career choice than rural pharmacists; approximately 69 percent of urban pharmacists compared to 60 percent of those in rural areas said if they were beginning college today, they would choose pharmacy.

PRACTICE SITES

Colorado pharmacists were more likely to work in a chain store and less likely to work in an independent pharmacy than pharmacists nationally. Approximately 38 percent of Colorado pharmacists worked for chains compared to 32% nationally, followed by hospitals or other inpatient facilities (22%), independent community pharmacies (8% compared to 15% nationally) and pharmacies associated with managed care organizations (8%).

Of pharmacists working in urban areas of Colorado, the largest percentage worked for chains or mass merchandisers (39%), followed by hospitals or other inpatient health care facilities (22%). In rural areas, the percentages of pharmacists working in chain stores and inpatient hospital pharmacies were similar (37% and 21%, respectively), but more than one-quarter (27%) reported they worked for independent community pharmacies.

Of the most reported sites where pharmacists practiced, the highest salaries were reported for pharmacies associated with managed care organizations and chains/mass merchandisers where more than one-third of pharmacists reported earning $100,000 a year or more.

In addition to earning the highest salaries, pharmacists in managed care organizations reported the highest degree of satisfaction with their job. Approximately 87 percent of those practicing in a managed care organizations said they would choose pharmacy again as a career compared to 66 percent at community independent pharmacies and 50 percent of pharmacists working or long-term care facilities.

Table 3. Colorado pharmacists who would choose to become a pharmacist* again by practice site**

Practice site	
Managed care pharmacy	86.5%
Hospital/health system outpatient	74.2%
Hospital/health system inpatient	71.3%
Public health	67.0%
Community independent	66.1%
Chain/mass merchandiser	63.7%
Multi-unit community (2-14 sites)	60.0%
Freestanding outpatient clinic	59.9%
Long-term care/nursing home	50.4%
Urban/rural	
Urban	69.3%
Rural	59.7%
Gender	
Male	60.6%
Female	72.3%

SOURCE: 2005 Colorado Pharmacist Workforce Survey

*Percent of pharmacists who chose a 4 or 5 on a five-point scale with 5 indicating "agree"

**Practice sites representing less than 2% of all sites reported were omitted from this table

EDUCATION

The doctor of pharmacy (PharmD) degree is now the sole professional degree for individuals pursuing a pharmacy practice in the United States. The PharmD is a professional program requiring at least two years of undergraduate studies followed by four academic years (or three calendar years) of professional study. The curriculum emphasizes six areas of instruction: pharmaceutical chemistry, pharmacognosy (the nature and sources of drugs obtained from plants or animals), pharmacology, business management, pharmacy practice and clinical rotations.

As noted earlier, Colorado's production of pharmacists is expected to reach 160 annually by 2010 and approximately 210 when the future Regis University pharmacy program graduates its first class. Most of Colorado's pharmacists have received their training out of state. Of respondents to the 2005 survey, a little over one-third (38%) graduated from Colorado's pharmacy school.

One-third (32%) of pharmacists practicing in Colorado had PharmD degrees at the time of the survey. Slightly more 5 percent said they were seeking another degree or planned to do so within a year, with 38 percent of those seeking a PharmD and 28 percent pursuing master's degrees in other fields.

LICENSED PHARMACISTS OUTSIDE COLORADO

A number of individuals licensed to practice in Colorado were not working or not working in Colorado. Approximately 90 percent of individuals licensed to practice in Colorado[d] were working as a pharmacist in October 2005, although only 62 percent were working in Colorado.

Of those who were not working as a pharmacist, more than three in 10 were retired. Other reasons given for not working as a pharmacist were home/family responsibilities, pharmacy not a rewarding field, salary, inconvenient hours and the work environment.

Of the licensed pharmacists who reported their primary pharmacy position was outside of Colorado, more than half (53%) listed family as their main reason for not working in the state. Significant percentages cited "professional opportunity" (28%), cost of living (22%) and better pay elsewhere (21%) as reasons for not practicing as a pharmacist in Colorado.

A large number of Colorado pharmacists—62 percent—reported being licensed in at least one other state besides Colorado. Twenty percent were licensed in a state bordering Colorado, with Arizona listed most often.

POLICY IMPLICATIONS

Trends nationally and in Colorado suggest that the state is unlikely to see an end to pharmacist shortages for some time and could see an intensification of competition for pharmacists. The shortage itself provides pharmacists with the opportunity to be selective about where, when, how much they work and what they earn.[23]

Additionally, the trend toward younger pharmacists, who generally aren't as tied to a particular location as older workers, and female pharmacists, who work fewer hours than men, could have serious implications for the workforce. This scenario could affect rural areas the most because they are less able than urban areas to compete in salary, benefits and flexible work schedules. Rural pharmacists are also often the only pharmacist in town and lack assistance from pharmacy technicians or other aides.

Another issue that could adversely affect Colorado's pharmacist workforce is its age. One-fourth of Colorado pharmacists are 55 years of age or older. In rural areas, 38 percent are that old, including seven percent who are 65 years or older.

It also appears likely that Colorado will have to continue recruiting pharmacists from out of state. As noted above, most of Colorado's pharmacists were graduated from pharmacy schools in other states, and only six in 10 pharmacists licensed to practice in Colorado were actually doing so in fall 2005. While trends indicate a growing interest in pharmacy as a career, there currently are not enough schools and faculty to catch up with the need.

[d] The data in this section pertain to all pharmacists licensed in Colorado, not just those practicing in the state at the time of the survey.

Although the opening of a new pharmacy school in Colorado in 2009-10 will add additional graduates to the pipeline, there is no guarantee those graduates will remain in Colorado. Even if they do, it won't be enough to accommodate the number of new positions the state estimates it will need to cover retirements and increasing population, not to mention the rapid increase in the rise of prescription drugs consumer.

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