



## Diversity in California’s Health Professions: Pharmacy

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A report of the California Health Workforce Tracking Collaborative  
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### Introduction

This issue brief is one in a series of briefs presenting a profile of California’s current and projected population, selected health professions, and trended data describing selected health professions education programs in the state. In this brief we present data describing key characteristics of the state’s pharmacist labor force including income, age, gender, race/ethnicity, and trended enrollment data describing gender and race/ethnicity for students in California’s seven Doctor of Pharmacy (PharmD) programs.

### California’s Current & Projected Population

California has become one of the most racially and ethnically diverse states in the country, and is projected to become even more so in the coming decades. In 2000, roughly 53% of California’s population was non-White.<sup>1</sup> By 2006 this proportion had grown to approximately 57%.<sup>2</sup> Population projections suggest that by the year 2030, 66% of the state’s population will be non-White.<sup>3</sup> Over the next 25 years the state’s population is projected to grow by roughly 12 million people. Over 90% of this population growth is projected to occur among California’s Latino (75%) and Asian (17%) populations.<sup>3</sup> These dramatic changes underscore the need to address the lack of racial and ethnic diversity among key health professions in the state.

### Active Pharmacists in California

The following tables present estimates describing active pharmacists in California over the period 2005-2006.<sup>4</sup>

**Table 1: Mean Annual Wage of Pharmacists in California in 2006 Inflation-adjusted Dollars<sup>5</sup>**

<b>All Pharmacists</b>		Mean Wage <sup>†</sup>	\$103,126
		(+/-) <sup>‡</sup>	\$5,408
<b>Gender</b>	<b>Men</b>	Mean Wage	\$114,795
		(+/-)	\$8,320
	<b>Women</b>	Mean Wage	\$91,083
		(+/-)	\$5,741

Source: Combined 2005 & 2006 American Community Survey, Public Use Microdata Sample for California

The 2006 average annual wage for all California pharmacists was \$103,126. There are statistically significant differences in earnings based on gender. The 2006 average annual wage for male pharmacists (\$114,795) was almost \$25,000 more than women pharmacists (\$91,083). However, these income estimates do not reflect factors known to impact differences in earnings. These factors include years of experience, geographic location of the practice, whether the pharmacist specializes in a particular field, and the pharmacy practice setting.

<sup>†</sup> The mean annual wage of pharmacists was obtained by first estimating an hourly wage, which was then multiplied by 2080 hours to obtain a full-time equivalent annual income.

<sup>‡</sup> The (+/-) column expresses a margin of error which represents a 95% confidence interval. This means that with 95% confidence, the estimate for mean income is within the interval expressed by the margin of error.

**Table 2: 2005/2006 Mean Age of Active Pharmacists in California by Gender and by Race/Ethnicity (White vs. non-White)**

	Gender		Race/Ethnicity	
	Men	Women	White	Non-White
<b>Mean Age of Active Pharmacists</b>	50	41	50	42

Source: Combined 2005 & 2006 American Community Survey, Public Use Microdata Sample for California

Male pharmacists are, on average, nine years older than female pharmacists. The mean age of White pharmacists is an estimated eight years greater than non-White pharmacists in California.

**Table 3: Comparing the 2005/2006 Composition of Active Pharmacists with the General Labor Force in California by Gender, Race/Ethnicity\***

		Proportion of Active Pharmacists	Proportion of CA Labor Force <sup>6</sup>
<b>Gender</b>	<b>Men</b>	50.3	50.1
	<b>Women</b>	49.7	49.9
<b>Race / Ethnicity</b>	<b>White</b>	45.3	44.5
	<b>Asian</b>	<b>48.5</b>	<b>13.2</b>
	<b>Latino</b>	<b>3.3</b>	<b>33.8</b>
	<b>African American</b>	<b>2.4</b>	<b>5.8</b>
	<b>Other Race<sup>7</sup></b>	2.2	2.7

Source: Combined 2005 & 2006 American Community Survey, Public Use Microdata Sample for California

\*Estimates in bold indicate the comparative estimates are statistically, significantly different from one another (alpha = .05).

The gender composition of California's active pharmacists is nearly identical to the gender composition of the state's general labor force. However, an estimated 93% of California's active pharmacists are either White or Asian, compared with just 57% of California's general labor force.

Asians represent nearly half of active pharmacists in California, but just 13% of the general labor force. Latino pharmacists represent an estimated 3.3% of the state's pharmacist workforce, but roughly 34% of California's general labor force. And while African Americans represent nearly 6% of California's general labor force, they account for only 2.4% of the state's pharmacists.

Collectively, Native Americans, Native Hawaiians & Pacific Islanders, and multiracial Californians are represented in roughly equal proportions among the state's pharmacists and general labor force. It may be that one or more of these population groups are underrepresented among pharmacists. However, these are comparatively small groups and the limitations of available data prevent us from conducting analysis at the required level of detail.

The race category "Asian" is very broad and encompasses many subpopulations, some of which may be underrepresented among the state's active pharmacists. To better illustrate Asian representation among California's active pharmacists, Table 4 presents detailed data describing Asian pharmacists and the Asian general labor force by selected subpopulation.

**Table 4: Comparing the 2005/2006 Composition of Asian Pharmacists with the Asian General Labor Force in California\***

Selected Asian Group	Proportion of CA's Asian Pharmacists (%)	Proportion of CA's Asian General Labor Force <sup>8</sup> (%)
<b>Chinese</b>	<b>32.9</b>	<b>25.9</b>
<b>Vietnamese</b>	<b>20.7</b>	<b>12.3</b>
<b>Japanese</b>	<b>13.3</b>	<b>6.7</b>
<b>Korean</b>	10.0	9.9
<b>Asian Indian</b>	9.7	10.6
<b>Filipino</b>	<b>8.2</b>	<b>24.6</b>
<b>Other Asian</b>	<b>5.2</b>	<b>10.0</b>

Source: Combined 2005 & 2006 American Community Survey, Public Use Microdata Sample for California

\*Estimates in bold indicate the comparative estimates are statistically, significantly different from one another (alpha = .05).

Chinese pharmacists represent an estimated one-third of Asian pharmacists in California, but just one-quarter of the state's Asian general labor force. Other Asian groups that are proportionally overrepresented among pharmacists compared to their presence among the general labor force are Vietnamese and Japanese. Filipinos are comparatively underrepresented among California's pharmacist labor force. There are several Asian subpopulations represented by the broad group "Other Asian" that may also be underrepresented in the state's pharmacist labor force including Laotians, Hmong, and Cambodians.

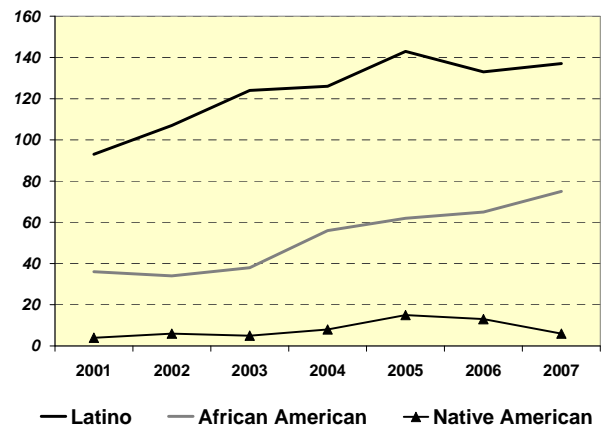
Collectively over the past seven years, Asian and White PharmD students have accounted for about 90% of the total enrollment<sup>10</sup> in California's seven programs. This is comparable to national PharmD enrollment statistics.

In the same period, women consistently represented about 70% of total enrollment, and Asian women roughly 45% to 50% of total enrollment<sup>10</sup> in the state's PharmD programs. The proportion of Asian women enrolled in California's PharmD programs is roughly three times the size of Asian women enrollment in PharmD programs nationally.

**Pharmacy Education in California (PharmD Programs)**

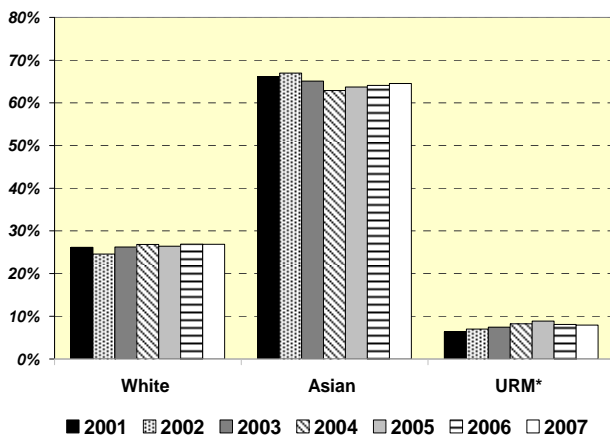
The following section describes enrollment in California's seven Doctor of Pharmacy (PharmD) programs<sup>9</sup> between 2001 and 2007. Total enrollment during this period has grown from about 2,200 students to approximately 3,000 students. About 85% of this increase is the result of three new PharmD programs opening since 2002: Loma Linda University, UC San Diego, and Touro University.

**Figure 2: Latino, African American, and Native American Total Enrollment in California's PharmD Programs: 2001-2007**



Source: American Association of Colleges of Pharmacy

**Figure 1: Total Enrollment (%) in California's PharmD Programs by Race/Ethnicity: 2001-2007**



Source: American Association of Colleges of Pharmacy  
 \*URM (Underrepresented Minority) includes Latino, African American, and Native American students

Figure 2 shows a slight upward trend in the number of Latino and African American students enrolled in California's PharmD programs over the period 2001-2007. This is mainly the result of the three new programs opening and not an increase in their proportional representation. The number of Native American students enrolled in PharmD programs peaked in 2005 and has since declined. Collectively, underrepresented students continue to represent only about 8% of the PharmD student body in California.

## Discussion & Policy Implications

Estimates of the racial and ethnic composition of California's current pharmacist workforce illustrate the predominance of Asian and White practitioners. Collectively, Asian and White pharmacists represent over 90% of the workforce. However, it appears that certain Asian sub-populations are underrepresented by comparison with their presence in California's general labor force and population.

Education data mirror this composition. Over the past seven years, the student body in California's doctor of pharmacy programs has remained largely Asian or White. The concentration of Asian women is particularly striking, as the proportion of Asian women enrolled in California's seven PharmD programs is roughly three times the size of the national average. It may be that Asian cultures particularly favor pharmacy as an occupation for women.

Among the many reasons for seeking more underrepresented groups in California's doctor of pharmacy programs is the continuing movement of the pharmacy profession toward direct patient care. A recently published position paper authored by members of the American College of Clinical Pharmacy envisions a future pharmacist workforce assuming "responsibility and accountability for managing drug therapy in direct patient care settings."<sup>11</sup> Over the course of the next decade, providing direct care for patients in all patient care settings will become standard practice for "virtually all pharmacists."<sup>11</sup>

The future role of the pharmacist as an integral member of a patient's team of primary caregivers raises important issues regarding the level of cultural competence practiced by pharmacists. There is a need for multilingual and multicultural pharmacists to communicate complex drug information as well as address cultural beliefs and practices around the use of pharmaceuticals.

Recognizing the importance and the value of racial/ethnic diversity among students in pharmacy education has been a policy position of the American Association of Colleges of Pharmacy since the late 1990s. However, as the data illustrate, broadly increasing student diversity in California's

pharmacy education programs remains an unmet goal. One factor may be the cost of education. Four of the seven schools of pharmacy in California are private<sup>12</sup> and generally have higher tuition compared with the public universities. Schools of pharmacy need to continue to remain competitive with the financial incentives they offer to students from economically disadvantaged backgrounds.

Another factor may be low levels of awareness of pharmacy as a profession among students who are considering health professions education. This possibility is being addressed by a new initiative undertaken by the school of pharmacy at the University of Southern California (USC). USC recently announced an effort to increase student diversity in the school of pharmacy.<sup>13</sup> The program will employ a "multi-tiered approach" focused on raising awareness of the pharmacy profession among students of color in particular, throughout the entire education pipeline: from students in middle school, through high school and into undergraduate programs. The main component of the initiative will involve mentoring and pairing interested students with PharmD graduates to give students a better sense of the profession. It may be this kind of outreach, in combination with financial incentives, that will help to develop a more racially/ethnically diverse pool of pharmacy school applicants and enrollments, ultimately leading to a more diverse and culturally competent pharmacy workforce in California.

## References

<sup>1</sup> Census 2000 Summary File 1 (SF1) 100-Percent Data, Table P4. Hispanic or Latino, and Not Hispanic or Latino by Race (Total Population).

<sup>2</sup> 2006 American Community Survey, Public Use Microdata Sample for California.

<sup>3</sup> State of California, Department of Finance, *Race/Ethnic Population with Age & Sex Detail 2000-2050*. Sacramento, CA, July 2007.

<sup>4</sup> PUMS data for the 2005 & 2006 ACS surveys were combined in order to have enough observations to generate useful estimates.

<sup>5</sup> In order to generate comparable earnings estimates we limited the sample to pharmacists that reported having worked at least 40 weeks in the last year and at least 30 hours per week.

<sup>6</sup> We use the population between the ages of 18 and 65 (inclusive) as a proxy for the general labor force.

<sup>7</sup> Other race combines sample observations of American Indian, Native Alaskan, Native Hawaiian, Pacific Islander, and multiracial pharmacists.

<sup>8</sup> The state's Asian population between the ages of 18 and 65 (inclusive) is used as a proxy for the Asian general labor force.

<sup>9</sup> The California Northstate College of Pharmacy in Rancho Cordova, CA will matriculate its inaugural class in September 2008, bringing the number of PharmD programs in California to eight. The initial class size for this new program is 80 students but plans for expansion could increase annual first-year enrollments as high as 150 students.

<sup>10</sup> This calculation is based on total enrollment of students for whom race/ethnicity is identified. During the period 2001-2007, students enrolled in California's PharmD programs whose race/ethnicity is unknown represent anywhere from from 5% (2001) to 9% (2007) of total enrollment.

<sup>11</sup> Murphy, J., Nappi, J. et al. "American College of Clinical Pharmacy's Vision of the Future: Postgraduate Pharmacy Residency Training as a Prerequisite for Direct Patient Care Practice" *Pharmacotherapy*. 26(5). November 2006.

<sup>12</sup> The new program at the California Northstate College of Pharmacy opening in September 2008 is also private.

<sup>13</sup> A press release describing the USC School of Pharmacy outreach program is available at [www.usc.edu/uscnews/stories/15064.html](http://www.usc.edu/uscnews/stories/15064.html)

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