



THE CENTER
FOR THE HEALTH PROFESSIONS
University of California, San Francisco

Pharmacy technicians in California: Snapshot of an emerging profession

The pharmacy technician profession is experiencing rapid change, mirroring changes in the pharmacy profession and in pharmaceutical treatment. During the 1990s, prescription use in the U.S. rose by 44 percent while the number of active pharmacists rose by only five percent and rate of prescriptions per work shift increased by 54 percent in retail settings¹. Much attention has been directed to pharmacist shortages, but less attention has been paid to the technician workforce that supports the of work pharmacists. The U.S. Bureau of Labor Statistics (BLS) recognizes pharmacy technicians as one of the fastest growing occupations nationally through 2010².

Growth of pharmacy technician profession, 1996-2010, United States²⁻⁴

1996	2001	2010
82,650	207,140	259,000

History of the technician profession

The technician profession arose from the U.S. military classification, “pharmacy specialists” developed in the mid-1940s. Between 1968 and 1975, the U.S. Department of Health, Education and Welfare and professional pharmacy associations studied and defined tasks and roles that could be played by technicians, and established, in 1975, the American Society of Health-System Pharmacists (ASHP) education

guidelines for hospital pharmacy technicians. These guidelines were formalized in 1982 as accreditation standards. Between 1994 and 1996, a national task force completed a task analysis of technician jobs and reported findings and recommendations advocating uniform national education and training standards. In 1997, several national associations collaborated to write the ASHP Model Curriculum⁵. Because hospital pharmacists took the lead in defining roles and training requirements for pharmacy technicians through the 1960s when retail (community) pharmacy was resistant to establishing a technician role, the utilization of technicians in hospital settings has traditionally been more standardized and expansive than that in retail settings¹. (Tasks commonly performed by technicians are described in the table below.)

Work and practice patterns

Approximately 70 percent of pharmacy technicians work in retail settings, 20 percent in hospital settings, and 10 percent in other settings (including long term or residential care, public agencies and industry)¹. Job satisfaction among pharmacy technicians nationally is fairly high⁶ and in a 1999 survey, 70 percent of pharmacists reported that they were very or extremely satisfied with their technicians’ job performance⁷. Over 80 percent of pharmacists and technicians in 1999 and 2002 surveys agreed that technicians free pharmacist time, that the number of technicians supervised by pharmacists could be increased, and that experienced technicians could do basic medication use counseling with patients and receive phone orders from physician offices^{6,7}. Although technicians responding to the 2002 survey indicated they plan to remain in their positions for a mean of five years, 70 percent indicated no wish to attend pharmacy school. Two-thirds of

Most commonly performed technician tasks⁷

Hospital pharmacies	Community pharmacies
filling medication carts	ringing up purchases
maintaining inventory	stocking
bringing medications to nursing floors	packaging and labeling
preparing unit-dose packaging	entering prescription information into computer
clerical duties	checking patient profile information
	clerical duties

respondents believed that pharmacy technicians have limited advancement opportunities, but explained that limitations were based on their individual supervisors' attitudes (e.g., limiting skill development opportunities) or the conditions of their workplaces (e.g., limiting computer skills training). Technicians agreed that robotics had not displaced them and many reported that their workplace has difficulty hiring enough technicians⁶.

In the 1999 pharmacist survey, many community pharmacists suggested that too much technician time is wasted in cashiering, and that if these responsibilities were shifted to non-skilled retail staff, technicians could better assist pharmacists. Many respondents supported technicians relieving pharmacists of paperwork and administrative functions (an estimated 45 percent of pharmacist time⁸). The majority of respondents saw a good future for well-trained technicians with increasing dispensing and pharmacy management duties, but were concerned that if salaries do not keep pace, technicians will begin to leave the field⁷. Participants at a 2002 Summit on the technician profession indicated that pharmacists' attitudes about working with technicians have become more favorable in recent years: many considered technicians an asset and supported developing the profession through improved training and education. There was a general sense at the Summit that a partnership is evolving between pharmacists and technicians to address the challenges facing both professions⁵.

Demographics

As of July 2002, there were approximately 30,769 registered pharmacy technicians in California. There have been no analyses of the pharmacy technician workforce in California that could indicate whether or not the state is experiencing a shortage. Individuals interviewed for this project reported that hiring is competitive and that hospital and retail pharmacies across the state are engaged in "bidding wars" for technicians, particularly for experienced and nationally certified ones. The California Labor Market Information Division (LMI) projects a 39.8 percent increase in pharmacy technician positions in California through 2010

(approximately 7,600 positions)^{9, 10}. In 2001, there were an estimated 207,140 pharmacy technicians employed in the U.S., and the BLS projects a 36 percent increase (69,000 positions) by 2010^{2, 4}.

Analysis of the geographic distribution of pharmacy technicians in California showed patterns that differ greatly from those of major health professions (e.g., physicians, nurses). Very high and very low ratio (pharmacy technicians per 100,000 population) counties did not correspond to distribution of wealth, population, training programs or large/research hospitals. Not surprisingly, rural and low-population counties such as Alpine, Sierra and Mono had very low ratios of technicians to population. However Marin had one of the lowest ratios in the state, and Shasta had nearly double (172.8 per 100,000) the statewide average ratio of 94.5^{11, 12, 1}.

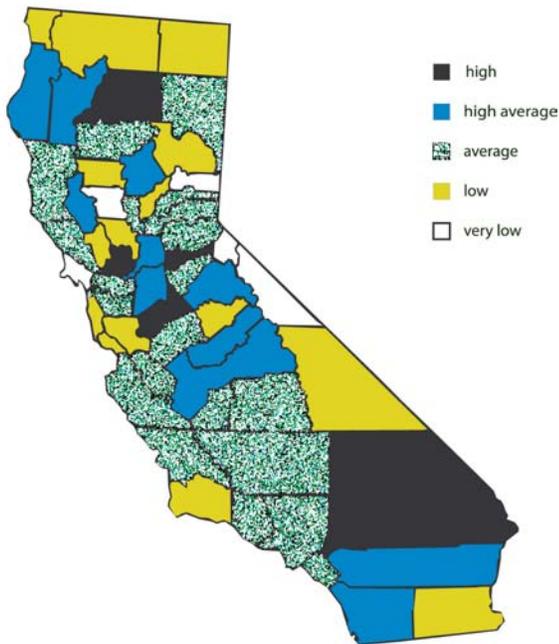
The ratio-to-population of pharmacy technicians in 14 of California's 15 wealthiest counties averaged 76.1, barely within the "average" category, and 20 percent lower than the state average^{11, 13, 2}. Twenty-three counties had ratios of technicians lower than the state average ratio of pharmacists to population^{11, 12, 14, 3}. Both these statistics could indicate additional pressures on pharmacies in these counties to meet staffing demands. In contrast, only three of California's ten fastest growing counties had below average ratios of technicians-to-population (Alpine, Mariposa, Yolo), as did two of the ten most populous counties (San Mateo, Santa Clara).

Statewide, 2001 technician mean salary was \$31,602 annually (median hourly wage was \$14.61 or \$30,389 annually), compared to California's mean employee salary of \$37,321¹⁰.

¹ Derived from data of cited sources

² Derived from data of cited sources

³ Derived from data of cited sources



Comparative ratio of pharmacy technicians to population by county, California, 2003

Ratios per 100,000 population - High: >115; high average: 96-114; average: 76-95; low: 50-75; very low: <50.
 Source: derived from data ^{11, 12}.

California’s population is quite culturally and linguistically diverse, yet pharmacy educational data suggest that California pharmacists are largely Caucasian or Asian American ¹⁵. There are no data available to describe the ethnicity of California pharmacy technicians, however, individuals interviewed for this project reported that it is common for pharmacists to hire technicians who can assist with language or cultural issues for patients served in a their local area.

Education and certification

Currently, the requirements to register as a pharmacy technician in California are: a minimum of associate’s degree in pharmacy technology/technician, biology or related health science; completion of a private or military training program accredited by American Society of Health-System Pharmacists (ASHP); eligibility to take the California pharmacist licensure examination; or a minimum of 1,500 hours of supervised on-the-job experience. Applicants must have completed 240 hours of theoretical and practical contact hours, including a minimum of 120 “clinical” hours ¹⁶. In January 2003, the Board

of Pharmacy Legislation and Regulation Committee agreed to sponsor legislation limiting registration requirements for technicians registering after January 2004 to an Associate’s degree in pharmacy technology/technician or completion of an accredited college, military or industry training program; eligibility for the state pharmacist examination; or national certification by the Pharmacy Technician Certification Board (PTCB) ¹⁷.

These more stringent requirements will likely have a significant impact on training and recruiting pharmacy technicians in California, since historically, most technicians have trained on-the-job and only 3,876 have passed PTCB certification ¹⁸. California community colleges award an average of just over 50 pharmacy technician associate’s degrees and certificates per year ¹⁹. Individuals interviewed for this project believed that the majority of pharmacy technicians in California enter the profession through on-the-job training because of their immediate need to earn income; academic programs delay their ability to do so.

California training programs for pharmacy technicians²⁰⁻²²	
Type of program	number
Community college	3
Adult education/ROP	8
Proprietary/vocational college	39
ASHP accredited programs	21

Data describing the educational and training backgrounds of pharmacy technicians is limited. The California Board of Pharmacy receives data about the educational preparation of pharmacy technician applicants but these data are not analyzed to determine the number who receive formal education or to obtain information about the relative production of graduates from California educational programs. Limited summary data of completion rates is available for California community colleges and independent colleges and universities¹⁹, but there is no centralized source of enrollment or graduation data for California's approved proprietary trade and vocational schools²².

In 2002, there were approximately 247 schools in 42 states issuing degrees or certificates for pharmacy technicians; 36 percent were ASHP-accredited. Clinical or contact hours vary among programs, from 540 to 2145; ASHP-accredited programs require a minimum 600 contact hours¹. Pharmacy organizations are concerned that clinical hours need to be expanded, but that shortages of technicians will encourage programs to reduce academic and clinical requirements. Math and calculation skills are also a concern since about 30 percent of technicians' work involves calculation. Further areas of educational development include basic therapeutics, anatomy, physiology and pharmacology¹. Model educational curricula and occupational training programs acknowledged by interviewees and professional literature include the ASHP Model Curriculum for Pharmacy Technician Training²³ and training through the Veteran's Administration and military branches.

National certification

Established in 1995, PTCB certification has grown nationally from around 60,000 in 1998 to over 122,000 (over half the workforce) in 2002^{18, 24}. The

educational pre-requisite for PTCB examination is a high school diploma or GED and candidates must have no felony convictions. Exams are offered three times per year and cost \$120²⁵. The examination focuses on knowledge about assisting pharmacists in serving patients, maintaining inventory control systems and pharmacy administration and management. Certified technicians may use the suffix "CPhT" behind their name, and must recertify every two years through 20 hours of continuing education (including 1 hour of pharmacy law). Recertification costs \$35²⁶. A 2001 national survey found that certified technicians earned 23 percent more than non-certified technicians²⁵, but pay differentials may be more common in retail than in hospital settings^{6, 7}.

Employers and regulators are encouraged by growth in certification because it is one of the few standardized methods of assessing competency of job candidates. Texas, Montana and Washington have made PTCB certification mandatory for registration and other states are considering this move; in 2002, the National Association of Boards of Pharmacy (NABP) voted to encourage all its members to require it²⁷. In addition to the PTCB certification, the National Association for Pharmacy Technicians (NPTA) offers four specialized (non-accredited) certificates in compounding, admixture, diabetes monitoring and healthcare sales & marketing²⁸. Although this is a nascent effort at specialization in the profession, interviewees for this project suggested there is support for specialization in addition to the creation of step-levels that create a career path for technicians. Demographics of PTCB applicants in 2001 included: 32 percent with formal training beyond high school, 78 percent female and 42 percent between ages 21 and 30. This survey found that many applicants were long-term employees with between 5 and 20 years of experience¹.

Regulation

California pharmacy technician practice is outlined within the California Business & Professions Code²⁹. To practice, technicians must register with the Board of Pharmacy. They may legally perform "packaging, manipulative, repetitive or other nondiscretionary tasks, only while assisting, and while under the direct supervision and control of, a

pharmacist." They may not perform any task requiring a pharmacist's professional judgement and they must be supervised within the direct view of a pharmacist in non-inpatient settings²⁹.

As of 2003, 49 states addressed pharmacy technicians in their pharmacy practice acts (excluding Ohio) and 38 delineated the work of "technicians" from other pharmacy support positions¹. Mandated ratios of technicians-to-pharmacists varied from 1:1 to 4:1. In California, one pharmacist may supervise only one technician performing dispensing tasks (clerical tasks are exempt), and two or more pharmacists can supervise not more than two technicians apiece. Supervision is at the pharmacist's discretion, meaning that if the pharmacist believes that a dangerous situation is created by having to supervise more than one technician, he or she may refuse to supervise a second²⁹. Ratios are important since other staff in a pharmacy setting must also be "visually" or indirectly supervised by the pharmacist, including: pharmacy interns, pharmacy technician trainees, clerks and aides²⁹. Pharmacy technicians in all states can legally label, record, package and stock medications, but policies vary greatly regarding technicians receiving prescription orders from physicians and compounding medications³⁰. Since 1996, 25 states have liberalized their technician-to-pharmacist ratios¹. Echoing the perspectives of key national organizations, there was general agreement among interviewees for this project that ratios could be liberalized in California and other states because of the varied nature of contemporary technician work and the need for pharmacists to be able to determine ratios in their individual workplaces.

Critical issues and policy concerns

One of the most prominent policy concerns in the technician profession, Tech-Check-Tech (TCT), has been debated since the early 1990s with no resolution in sight. The basic concept of TCT is that specially trained pharmacy technicians are authorized to check the work of other technicians in filling unit dose medication cassettes in inpatient settings. Two primary objections to TCT are that in most states, pharmacists bear the liability for pharmaceutical errors, and that retail pharmacists fear this expanded role will spill over into non-hospital settings where there are no systemic

check-points for technician work as there are in hospitals where nurses or other medical staff review cassettes before administering medications^{1, 31, 32}. In a 2002 survey, nearly 54 percent of pharmacy technician respondents suggested that TCT is unsafe because many technicians are inexperienced and echoed concerns about pharmacists bearing liability⁶. Several states (Minnesota, Kansas and Washington) have experimented with TCT with mixed results³¹. Between 1998 and 2002, two pilot programs to evaluate the efficacy of TCT operated at Cedars-Sinai Medical Center and Long Beach Memorial Medical Center. Evaluation of these pilot programs suggested that technician accuracy in checking the work of other technicians exceeded accuracy rates for pharmacists³³. It is estimated that TCT could free California hospital pharmacists one hour per day. Pharmacists in the pilot sites used this time to provide direct patient care services and physician drug consultations³³.

Participants in several national meetings of pharmacy professional organizations have reviewed changes taking place in technicians' work and concluded that more stringent, standardized education and training requirements will be necessary to address expanded roles and providing support for pharmacists as their work changes. There has been general consensus that low-level training and skills should be phased out for technicians. Ideas have included creating a "trainee" category for entry-level technicians that requires they actively pursue education and skills, requiring PTCB applicants to hold formal education credentials, and urging states to clarify technician work roles and look at ways to hold technicians more accountable for their actions^{1, 5, 34}.

Mandated ratios of technicians-to-pharmacists are under review nationally. A National Association of Boards of Pharmacy (NABP) task force found in 1999 that 49 percent of surveyed pharmacists felt comfortable supervising two technicians. Nearly 80 percent believed that having more technicians available to assist with dispensing duties would increase pharmacist time for patient counseling, and about half believed that having more technicians would improve error rates³⁵. In January 2003, the Legislation and Regulation Committee of the California Board of Pharmacy voted to

recommend legislation to liberalize supervision ratios, enabling pharmacists to supervise up to four of any type of staff based on their particular needs and at their discretion¹⁷.

To address concerns about pharmacist shortages, the California Board of Pharmacy established a Pharmacy Manpower Task Force in 2001. This task force acknowledged the important role played by technicians in providing patient services and in ameliorating staffing shortages in California and discussed policy changes for staffing ratios and for raising educational requirements³¹. The task force also discussed the merits of creating a “pharmacist assistant” classification with a minimum two-year degree preparation to relieve pharmacists of administrative and management duties, establishing articulation between pharmacy schools and technician training programs, standardizing technician training curricula, and collecting educational statistics for workforce planning purposes.

Tina McRee, March 2003

© 2003 UCSF Center for the Health Professions

The California Workforce Initiative is grateful for the generous contributions of the following individuals interviewed for this project:

Katherine Knapp, PhD, Director, Center for Pharmacy Practice Research & Development, Western University of Health Sciences, Pomona CA.

Irene Moreno, Coordinator of Professional and Technical Councils, SEIU Local 250, Oakland CA

Ron Nagata, Director of Pharmacy, San Jose Regional Medical Center, San Jose CA

Paul Riches, Legislative Analyst, California Board of Pharmacy, Sacramento CA

Katherine Warren CPhT, Chair, Academy of Pharmacy Technicians, California Pharmacists Association, Sacramento CA

Staff of the National Association for Chain Drug Stores (NACDS), Alexandria VA

References

1. American Journal of Health-System Pharmacy. White paper on pharmacy technicians 2002: Needed

2. changes can no longer wait. *American Journal of Health System Pharmacy*. January 1 2003;60:37-51.

3. U.S. Bureau of Labor Statistics. Fastest growing occupations, 2000-2010. *BLS*. Available at: www.bls.gov/emp/emptab3.htm. Accessed 2/18/03.

4. HRSA Bureau of the Health Professions. *The pharmacist workforce: A study of the supply and demand for pharmacists*. Washington DC: HRSA/BHPr; December 2000.

5. U.S. Bureau of Labor Statistics. 2001 National occupational employment and wage estimates. Available at: www.bls.gov/oes/2001/oes292052.htm. Accessed 2/18/03.

6. Council on Credentialing in Pharmacy, National Association of Chain Drug Stores, National Community Pharmacists Association. Pharmacy technology, pharmacy technicians and the new role of the pharmacist. Paper presented at: Sesquicentennial Stepping Stone Summits; May 9-10, 2002; Baltimore MD.

7. LuBuono C. Helping hands. *Drug Topics*. August 5 2002;15(59):online.

8. Conlan MF. Pharmacists' survey finds technicians taking on more duties. *Drug Topics*. November 15 1999;22(52):online.

9. Fraher EP, Smith LM, Dyson S, Ricketts TC. *The pharmacist workforce in North Carolina*. Chapel Hill NC: Cecil G. Sheps Center for Health Services Research; August 2002.

10. California Labor Market Information Division. *Occupational employment projections 2000-2010, California*. Sacramento CA: LMI; August 19, 2002.

11. California Labor Market Information Division. *Occupational employment (2000) and wage data (2001), by SOC code*. Sacramento CA: LMI; December 2001.

12. California Board of Pharmacy. Selected access data: Clear license data for pharmacy technicians by county. Available at: www2.dca.ca.gov/pls/wllpub/WLLQRYNASLCEV2.ActionQuery. Accessed 1/29/03.

13. California Department of Finance. E-1 City/County population estimates, with annual percent change January 1, 2001 and 2002. Available at: www.dof.ca.gov/HTML/DEMOGRAP/E-1text.htm. Accessed 2/20/03.

14. California Department of Finance - Economic Research Unit. *Per capita personal income by county, California, 1989 to 1999 (Residence adjusted)*. Sacramento CA: DOF; January 1, 2001.

15. California Board of Pharmacy. Current licenses by license type. Available at: www.pharmacy.ca.gov/license_totals.htm. Accessed 1/28/03.

16. American Association of Colleges of Pharmacy. *Pharmacy's vital statistics, Pharmacy student facts, and Table 29*. Alexandria VA: AACP; 2002.

17. California Board of Pharmacy. What is a pharmacy technician? Available at:

- www.pharmacy.ca.gov/applicant_pharmacy_technician.htm. Accessed 1/28/03.
17. California Board of Pharmacy. Action items - January 2003 Board meeting. *Board of Pharmacy*. Available at: www.pharmacy.ca.gov/pdfs/03_jan_actions.pdf. Accessed 2/18/03.
 18. Pharmacy Technician Certification Board. PTCB statistics. Available at: www.ptcb.org/about_stats.asp. Accessed 2/5/03.
 19. California Community Colleges Chancellor's Office. Program awards: Award county statewide in year 2001-2002. Available at: http://misweb.cccco.edu/mis/onlinestat/awards_rpt.cfm. Accessed 2/18/03.
 20. Health Careers Education - California State Polytechnic University. *Programs in health careers (California)*. Pomona CA: author; September 2000.
 21. American Society of Health-System Pharmacists. ASHP-Accredited technician training program directory. Available at: www.ashp.org/directories/technicians/index.cfm. Accessed 2/18/03.
 22. California Bureau for Private Postsecondary and vocational Education. Selected access data: Directory of degree granting, non-degree granting and registered institutions and programs - pharmacy technician programs. Available at: <http://app1.dca.ca.gov/bppve/school-search/>. Accessed 2/7/03.
 23. American Society of Health-System Pharmacists. Model curriculum for pharmacy technician training. *ASHP*. Available at: www.ashp.org/technician/model_curriculum. Accessed 2/5/03.
 24. California Pharmacists Association - Technician Members. Just for technicians: Apply for the PTCB exam. Available at: <http://cpha.com/member/tech.php>. Accessed 2/5/03.
 25. Pharmacy Technician Certification Board. Examination information. Available at: www.ptcb.org/...Examination Information. Accessed 2/21/03.
 26. Pharmacy Technician Certification Board. Recertification information. Available at: www.ptcb.org/...Recertification information. Accessed 2/21/03.
 27. Ukens C. Tech certification gains momentum in the states. *Drug Topics*. January 2003;2(28):online.
 28. National Pharmacy Technician Association. Technician specialization: General information. Available at: www.pharmacytechnician.org/technician_special/ts_generalinfo.html. Accessed 2/5/03.
 29. California Business and Professions Code Section 4115 & 4202. Sacramento CA: Legislative Counsel of California; 2003.
 30. National Association of Boards of Pharmacy. Survey of pharmacy law: Status of pharmacy technicians. Available at: www.nabp.net/pharmacy_law. Accessed 1/28/03.
 31. California Board of Pharmacy. *Pharmacy manpower task force: Final report*. Sacramento CA: Board of Pharmacy; November 2001.
 32. Drug Topics. Squaring off: Is tech-check-tech good for the profession? *Drug Topics*. July 7 1997:online.
 33. Ambrose PJ, Saya FG, Lovett LT, Tan S, Adams DW, Shane R. Evaluating the accuracy of technicians and pharmacists in checking unit dose medication cassettes. *American Journal of Health System Pharmacy*. June 15 2002;59:1183-1188.
 34. Ukens C. Competency exam for technicians gets a "Go" from NABP. *Drug Topics*. 2000;16(18):online.
 35. Ukens C. More techs equal more efficiency, survey finds. *Drug Topics*. 2000;9(36):online.

Acknowledgements

This report was made possible through the support of the California HealthCare Foundation, which, in partnership with The California Endowment, funds the California Workforce Initiative. The findings and views contained in this report do not necessarily reflect the views of the California HealthCare Foundation, The California Endowment, the University of California, the reviewers, or contributors of the project.

California HealthCare Foundation

The California HealthCare Foundation, based in Oakland, is an independent philanthropy committed to improving California's health care delivery and financing systems. Formed in 1996, its goal is to ensure that all Californians have access to affordable, quality health care. For more information, visit us online at www.chcf.org.



The California Endowment

The California Endowment, a private, statewide health foundation, was established to expand access to affordable, quality health care for underserved individuals and communities. The Endowment provides grants to organizations and institutions that directly benefit the health and well-being of the people of California.



California Workforce Initiative

UCSF Center for the Health Professions
3333 California Street, Suite 410
San Francisco CA 94118
Phone: 415.476.8181
Fax: 415.476.4113

