



California's Health Workforce Needs

Training Allied Workers

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SUMMARY

Over the next decade, California's health workforce is expected to require almost 450,000 new workers—mostly due to population growth and aging, but also to expanded coverage under the Affordable Care Act. While physicians and other highly trained clinicians are critical to health care delivery, the majority of health care jobs are technical and support positions—referred to in this report as the allied health workforce—that tend to require associate degrees or vocational certificates. Overall, about 40 percent of all health care jobs that need to be filled over the next decade will require some college but less than a bachelor's degree.

The need for an adequately trained allied health workforce is an important component of California's overall "skills gap": in addition to a shortfall of workers with college degrees, by 2025 the state is projected to have a shortage of more than 1.5 million workers with some college education but less than a bachelor's degree. To respond to this looming workforce gap, California's two-year higher education institutions need to provide training opportunities for jobs that are well matched with future workforce demand. Current trends in degree completion in allied health programs indicate that there is room for improvement.

Recent growth in the number of associate degrees and postsecondary certificates in health programs has largely been driven by for-profit institutions. These institutions serve a high number of underrepresented students, but the higher cost of for-profit programs, their focus on short-term certificates that may not provide labor market returns, and the

mismatch between the training these institutions provide and health workforce demand are causes for concern. Given the importance of associate degrees and postsecondary certificates in growing health care occupations—and the need for a workforce that can serve California's increasingly diverse population—the state needs to ensure that its two-year institutions are meeting demands and providing good employment opportunities.

To plan and prepare for future needs, state and regional decisionmakers need accurate information and timely analysis. The state has some capacity to monitor health workforce needs but would benefit from more information about training across the many occupational areas in the health care sector. In the absence of a state entity that coordinates policy planning and research across the state's higher education system, individual public systems could share and combine their information. Linkages to employment information via the state Employment Development Department could be developed, and legislative action could improve the accessibility and consistency of health workforce training, employment, and wage information.

The state could increase and diversify its health workforce through California's diverse and well-situated public two-year institutions. But to meet future workforce demands, community colleges will need to increase access to high-demand and high-return programs and improve student outcomes without losing sight of their open-access mandate. Targeted policies—involving the level and allocation of resources at state schools—could significantly increase the number of graduates in health fields within the next decade.

The health workforce is a large and growing part of California's economy, but many additional workers will be needed over the near term to keep up with demand. With careful analysis, planning, and investment, the state can meet future health care needs and offer career opportunities to a diverse group of Californians.

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Demand for Health Care Services Is Growing

Building and maintaining a well-trained workforce that can provide quality health care to California's diverse population has long been an important policy goal. The Affordable Care Act (ACA) has brought renewed attention to the health workforce, as millions of Californians are expected to gain insurance coverage over the next several years. But the biggest challenge faced by California's health care system is the large number of baby boomers reaching retirement age.

As a result of the ACA's expansion of Medi-Cal (California's Medicaid program) and subsidized coverage available through Covered California, the state's new insurance marketplace, the number of insured Californians is projected to increase by as much as three million over the next five years (California Simulation of Insurance Markets 2013). The success of the first ACA enrollment period, which ended in April of this year, indicates that California will see a large increase in the number of people with health insurance. The ACA includes several provisions intended to help meet this new demand, including measures to support workforce development and invest in training programs.¹ But funding for many of these workforce investments has been reduced or eliminated through the annual appropriations process and because of other federal budgetary issues.²

Despite the uncertainty of how the ACA will change health coverage and delivery systems, recent studies have projected changes in health workforce needs resulting from the law's passage. Focusing mostly on physicians and

More than 80 percent of the increase in demand for health care services through 2020 will result from aging and population growth rather than from ACA coverage expansions.



AP PHOTO/REED SAXON

The growth in demand for skilled health workers will be driven primarily by California's growing—and aging—population, but expanded coverage under the Affordable Care Act will also play a role.

the primary care workforce (including nurse practitioners and physician assistants), these studies estimate a 2 to 3 percent increase in demand nationwide over the next five years (Hofer, Abraham, and Moscovice 2011; Huang and Finegold 2013).³ This is consistent with projections made by the U.S. Health Resources Service Administration (HRSA), the arm of the federal Health and Human Services Department focused on health workforce issues.

But population growth—particularly the growth in the number of older adults—will have by far the biggest impact on the demand for health care. National projections of primary care workforce needs—including physicians, nurse practitioners, and physician assistants—estimate that more than 80 percent of the increase in demand for health care services through 2020 will result from aging and population growth rather than from ACA coverage expansions (U.S. Department of Health and Human Services, Health Resources and Services Administration 2013).⁴ This is partly because of the projected increase in the older adult population and partly because people's use of health care services increases substantially as they age (Institute of Medicine 2008). Over the next decade, California's population is projected to increase by about

10 percent, but the older adult population (age 65 or older) is expected to increase by nearly 50 percent, with an especially large increase in the population age 75 to 85. (By contrast, the increase among children and working-age adults is expected to be only 5 percent.) More than 92 percent of older adults nationwide report at least one chronic condition, and more than 70 percent report two or more (Hung et al. 2011). To meet the health care needs of the aging population, there have been repeated calls to expand and improve training for many types of health care workers, including technicians and support staff (Institute of Medicine 2008). According to employment projections, California will need to add nearly half a million health care workers by 2020.⁵

Moreover, the changing demographics of health care demand add urgency to the state's long-standing goal of diversifying its health workforce. Some California regions—particularly the Northern Sierra and the Central Valley—will experience especially high rates of growth in their older adult populations. The racial and ethnic composition of California's elderly population will also change considerably in the coming decade. California's Latino and Asian populations age 65 and over are projected to grow by 85 percent and 66 percent, respectively, between 2014 and 2025. Statewide, nearly half (48%) of California's total population age 65 and over will be nonwhite in 2025, compared with about 40 percent today.⁶

Many new health care jobs require some college credentials but less than a bachelor's degree.

While physicians and other highly trained clinicians are critical to health care delivery, many new health care jobs require some college credentials but less than a bachelor's degree. This makes educational programs that offer vocational degrees below the bachelor's level—associate degrees and certificates that require less than two years of

training—very important. Both public and private institutions play a large role in training workers with less than a college degree for health care occupations. California's community college system offers a number of health programs that confer certificates and associate degrees. Private, predominantly for-profit institutions also train many people in health care fields, with a large focus on less-than-two-year certificates.

Meeting the state's growing health workforce needs will require considerable planning and coordination across multiple state and regional actors involved with workforce development, health care services and planning, and education and training. It will also require accurate and up-to-date sources of information on health workforce supply and demand, training program capacity and success, and the ability to conduct timely analysis and share information across different segments.

This report seeks to provide context and analysis that can help inform the discussion. We begin with a broad overview of California's current health workforce, examining the occupational distribution, education levels, and other key characteristics of California workers employed in health care jobs. We then discuss projected job growth and potential workforce shortages among health care occupations, as well as factors that may affect the supply of California's health workforce. Then we turn to a detailed examination of health training programs in California two-year institutions, including community colleges and for-profit colleges. Finally, we assess the state's options in meeting health workforce needs.

Health Workforce Overview

The health workforce is a large and growing sector of the California economy; the number of Californians working in health care occupations is projected to grow about 23 percent by 2020 and to account for nearly 10 percent of all new jobs.⁷ Employment in the health care sector has been growing over the past decade, and it weathered the recent recession much better than the economy as a

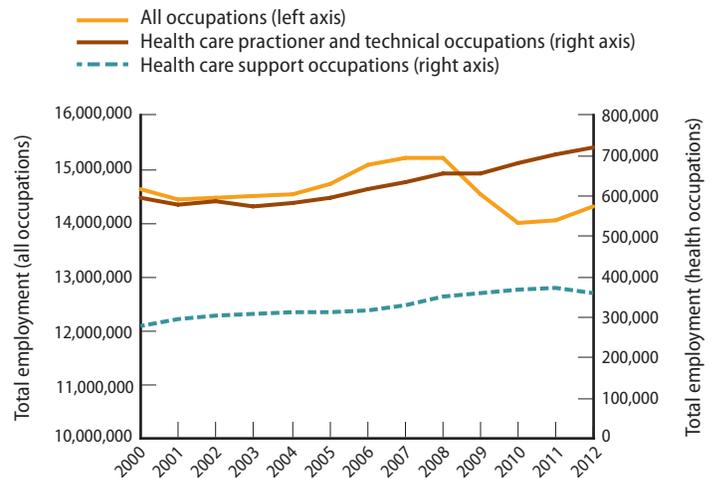
whole (Figure 1). While total employment in the state has declined by more than 1 million jobs since 2000, employment for health care practitioners, technical workers, and support staff has increased by more than 200,000 jobs. This growth has occurred across all health categories, with the largest increases among high-level clinicians—including physicians and other treating practitioners—and health care support staff.

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In 2012, more than 1.3 million Californians reported working in health care occupations, accounting for nearly 7 percent of California’s total workforce.⁸ California’s health workforce comprises a diverse set of occupations and workers. Physicians and nurses are perhaps the most widely recognized members of the health workforce, and they make up about one-third of health care workers. But dozens of other occupations providing clinical and therapeutic services, technical services, and direct care support also play essential roles.

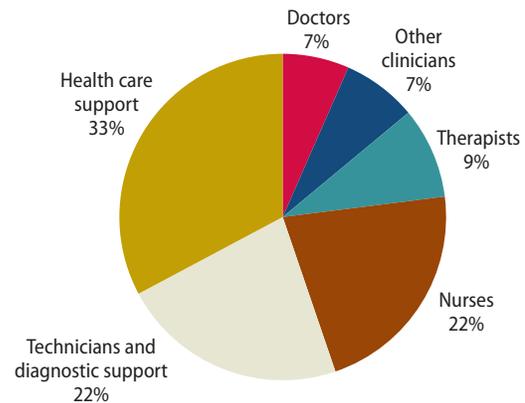
About 15 percent of health care workers are physicians—including primary care doctors, specialists, and surgeons—or other clinicians with professional, doctoral-level degrees, such as dentists and pharmacists (Figure 2). Registered nurses, including nurse practitioners and certified midwives, account for 22 percent of the health workforce. Several types of therapists—including occupational and physical therapists and other practitioners such as physician assistants—make up another 9 percent. More than half of health care workers are technicians or support staff; they are often referred to as the allied health workforce.⁹ About one in five health care workers is a technician or diagnostic support worker—for example, licensed

Figure 1. Health care employment has grown over the past decade despite the recession



SOURCE: Bureau of Labor Statistics, Occupational Employment System.
 NOTES: The occupational sectors are defined based on 2-digit standard occupational system (SOC) coding (Health Care Practitioners is 29 and Health Care Support is 31). Both vertical axes show employment; the left-hand side shows total employment in all occupations, and the right-hand side shows total employment in the health workforce occupations.

Figure 2. The majority of California’s health care workers are in technical and support roles



SOURCE: Authors’ calculations from California Employment Development Department 2010–2020 occupation projections.
 NOTE: For more information on the occupational codes (SOC) used to categorize health care workers into these groupings, please refer to the technical appendix.

vocational nurses, dental hygienists, and imaging technologists. The largest share of workers—one-third—are nursing assistants, home health aides, medical and dental assistants, and other direct care support staff.

Educational Diversity

The health workforce is highly educated but has a wide distribution across education levels. More than a quarter of California's health workforce has a degree beyond the bachelor's level, compared with only one in ten workers in the non-health workforce (Table 1). But slightly more than half of health care workers have less than a bachelor's degree. About 36 percent have an associate degree, certificate, or some education beyond high school. According to U.S. Bureau of Labor Statistics (BLS) estimates, an even larger share of health care jobs—53 percent—requires such credentials for entry.¹⁰

In health care jobs, however, employers tend to choose workers with more than the minimum required education, indicating high demand for skills among employers. Not only are workers more likely to have higher-than-minimum skills, they also earn more than those with less education. For example, in California, health care support workers with some college education or an associate degree earn 11 percent more than workers in similar jobs who have only a high school education. The returns to higher education beyond the minimum required are even higher—33 percent—for all other health care workers.¹¹

Postsecondary schooling that does not result in an associate degree is referred to in Table 1 as “some college” (but could be a certificate or other short-term credential);

this level of education is a common requirement among health care occupations.¹² More than 20 percent of workers fall into this category, and this level of education is a minimum entry requirement for more than 25 percent of positions (compared with only 6 percent of nonhealth positions). The highest share of health care workers with this level of education is in support occupations (Figure 3). While some workers—home health aides, for example—are required only to have a high school education, other positions typically require postsecondary certification. This includes nursing assistants, the single largest employment category of California health care support workers. Medical and dental assistants also account for a large share of health care support workers, and these occupations also require a postsecondary certificate.

Slightly more than 10 percent of health workforce jobs require a bachelor's degree, but more than twice as many workers have one. Most of the workers with educational levels higher than those required to enter the field are in the nursing profession: an associate degree is the minimum requirement for entry (per BLS), but almost two-thirds of all nurses in 2012 report a bachelor's degree or higher (Figure 3).

The educational levels of workers in some health care occupations have changed over time. Understanding these changes is critical to designing training programs that

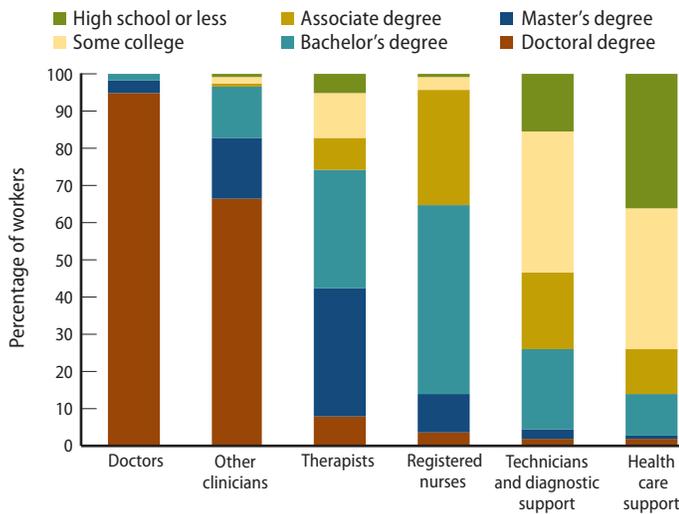
Table 1. The health workforce is highly educated but also educationally diverse

	Current education levels		Minimum education for entry	
	Non-health workforce (%)	Health workforce (%)	Non-health workforce (%)	Health workforce (%)
Doctoral/professional	3.0	15.3	2.0	16.7
Master's degree	7.3	10.0	1.1	6.4
Bachelor's degree	20.3	24.2	21.5	10.9
Associate degree	7.2	15.5	1.6	26.1
Some college	25.6	20.6	6.0	27.3
High school diploma or less	36.7	14.4	67.8	12.6

SOURCES: Current education levels are based on estimates from the American Community Survey (ACS), 2010–2012 3-year Public Use Microdata Sample (PUMS). Data on minimum education for entry are from the BLS education-training matrix.

NOTE: For more information on the occupational codes (SOC) used to categorize health care workers into these groupings and the method for assigning BLS training and education requirements to occupational codes in the ACS, refer to the technical appendix.

Figure 3. Most technicians and health care support workers have some college training



SOURCE: ACS 2010–2012 3-year PUMS.
 NOTE: For more information on the occupational codes (SOC) used to categorize health care workers into these groupings, please refer to the technical appendix.

address the need of California's future health workforce. In some areas, including nursing and health care support occupations, the number of workers with higher levels of training has increased in the past decade.

In 2000, more than 42 percent of health care support workers had a high school education or less. By 2012, only 36 percent had a high school education or less, and a higher share had some college (including postsecondary certificates) or an associate degree. These higher education levels could indicate that employers are demanding more from health care support workers. Although there has been a general increase in the proportion of workers with at least some college across all occupations in California, this growth is more pronounced among health care support workers. This is consistent with findings that certificates generally do not bring significant returns for workers, but that certificates and associate degrees from health care programs do confer benefits (Lang and Weinstein 2012). This trend is likely to continue as the aging population demands more and possibly higher-quality health care services.

The percentage of nurses with at least a bachelor's degree has also increased, from 56 percent in 2000 to 65 percent in 2012. This increase in educational attainment among nurses may reflect an increase in wage returns for degree holders, a shift in the composition of nurses, changes in the preferences of employers, or some combination of these factors.¹³ Many senior positions now require at least a bachelor of science in nursing (BSN), and there is some evidence that more entry-level positions require or prefer a BSN (California Institute for Nursing and Health Care 2014). In addition, the Institute of Medicine recently recommended that 80 percent of the nursing workforce have at least a bachelor's degree by 2020, to keep up with the increasing complexity of care (Institute of Medicine 2010).

Racial and Ethnic Diversity

Increasing the racial and ethnic diversity of California's health workforce to better reflect the state's population is also essential to meeting health workforce needs. A wide body of research has found that racial/ethnic concordance among providers and patients is crucial to quality care (LaVeist and Nuru-Jeter 2002; Cooper et al. 2006).¹⁴ In particular, provider cultural competence and Spanish language proficiency are important indicators of improved health care quality for Latino populations (Fiscella et al. 2002; Fernandez et al. 2004). This is a particularly salient issue in California, where nearly 40 percent of the population is Latino.

A wide body of research has found that racial/ethnic concordance among providers and patients is crucial to quality care.

The state's health workforce has become more diverse over the past decade but is still not representative of California's racial/ethnic makeup. Latinos are underrepresented in the health workforce, relative to both their share of the

Health workforce data sources

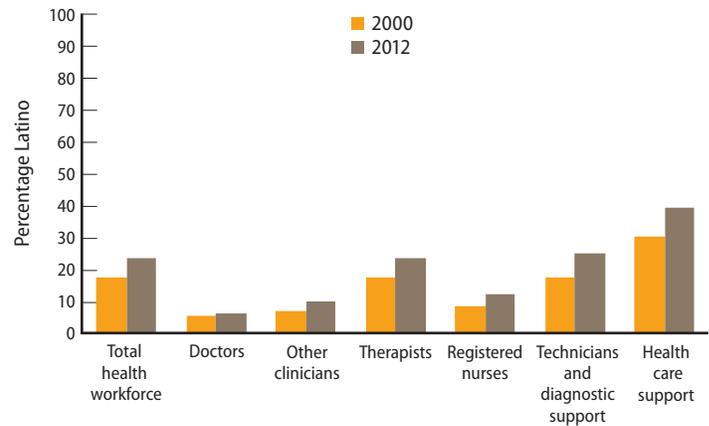
The workforce information presented in this report comes from state and federal labor agencies—including the California Employment Development Department and the U.S. Bureau of Labor Statistics—and from Census Bureau surveys. These sources allow us to provide a broad overview of the state's total health workforce, as well as wage and current employment information. Licensing data are another source of information on the supply of health care workers in specific occupations; however, some health care occupations do not require licensing and thus are not captured by these data and also do not provide any information on wages.

The California state agency responsible for overseeing most licensing information is the Department of Consumer Affairs, although the actual licensing process and data collection in most cases is left to the various boards and professional organizations governing different health care occupations. For a detailed analysis of licensing data across several health care occupations, see Bates et al. (2011). California's Office of Statewide Healthcare Planning and Development has created a clearinghouse for available health care licensing and workforce data (www.oshpd.ca.gov/hwdd/hwc/).

At the federal level, the Health Resources and Services Administration, a division of the U.S. Department of Health and Human Services, maintains the Area Health Resource File, a county-level data set assembled from multiple sources that contains estimates for some health care professions as well as health care facilities and service use and population demographics. There are also federal efforts under way to develop a "minimum data set" for various health care occupations; these efforts are intended to support health workforce planning and development at the state and national level.

state's total population and their share in non-health care occupations. There has been growth in the share of Latino health care workers across some occupational categories: in 2012, nearly 25 percent of all health care workers were Latino, compared with 17 percent in 2000. But the proportion of Latino nurses, doctors, and other clinicians has not grown much: for example, only 12 percent of nurses were Latino in 2012, up slightly from 9 percent in 2000 (Figure 4).¹⁵ Asian and Pacific Islanders are generally overrepresented across all health care occupations, particularly among physicians, other clinicians, and nurses.

Figure 4. Latinos have made small gains but are still underrepresented in the health workforce



SOURCES: Authors' calculations from the Census 2000 5% PUMS and the ACS 2010–2012 3-year PUMS.

Future Health Workforce Demands

Studies suggest that there may not be enough Californians in the workforce with college degrees or some college training to meet economic demands over the next decade (Johnson 2005; Neumark 2005; Johnson and Reed 2007; and Bohn 2014). Although the shortage of college-educated workers has been the subject of much discussion, the projected shortfall of workers with some college training is actually higher. By 2025, California is projected to face a gap of more than 1.5 million workers with some college training but less than a bachelor's degree (Bohn 2014). A shortage of trained workers in specific occupations may keep the state from reaching its economic potential—or from meeting the needs of the population.

California's health workforce is projected to require an additional 250,000 workers by 2020 to meet the growing demand for services (see technical appendix Table A2). In the same time frame, another 200,000 health care workers are expected to leave the workforce and will need to be replaced. Rates of retirement will differ across occupational groups. For example, a larger share of new health care support openings will result from job growth due to

The state is expected to need nearly half a million health care workers by 2020 in order to meet demand.

increased demand for services, whereas several other occupational groups will see a larger share of new job openings due to retirement of existing workers. In total, the state is expected to need nearly half a million health care workers by 2020 in order to meet demand.

Job growth is projected across all areas of the health workforce. In all except the “other clinicians” category, employment is projected to grow faster than overall state employment. The highest job growth—in both number and rate—is expected in health care support occupations, already the largest subgroup of health care workers. More than a third of new jobs in health will be in health care support roles, and about a quarter will be in technical allied health care occupations (Figure 5). Of the new jobs needed in the health sector, about 190,000 or 42 percent are likely to require an associate degree or postsecondary certificate.

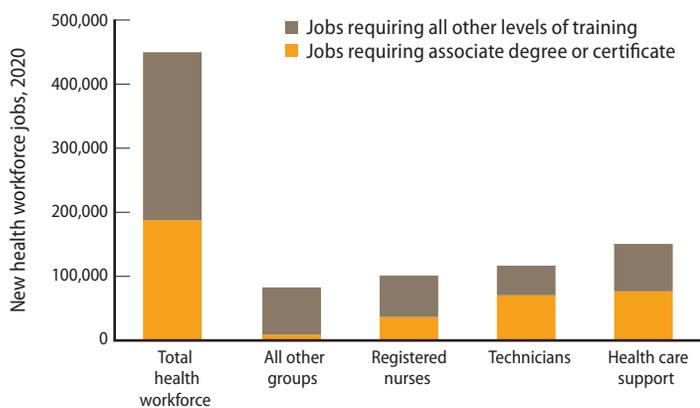
These rigorous estimates of workforce needs are premised on healthy economic conditions. But, as the recent recession showed, economic conditions can affect the demand for health care services—and in ways that are difficult to predict. Also, ACA’s impact on the health workforce is uncertain and not fully accounted for in Employment Development Department and BLS projections.¹⁶



AP PHOTO/RICH PEDRONCELLI

Demand for skilled workers is projected across all areas of the health workforce, though the largest increase is expected to be in health care support occupations.

Figure 5. Nearly half of new health jobs will require associate degrees or postsecondary certificates



SOURCES: California Employment Development Department 2010–2020 occupational projections; ACS 2010–2012 3-year PUMS. See the technical appendix for further details.
 NOTES: “All other groups” combines doctors, other clinicians, and therapists. The proportion of new jobs requiring an associate degree or certificate is calculated by applying the share of current workers in detailed (6-digit) occupations with these training levels to projected total new jobs. The proportion of jobs requiring all other levels of training includes jobs requiring both higher and lower than an associate/certificate level.

Gaps Projected in Several Health Care Occupations

California’s ability to augment its health workforce in response to future needs hinges on the postsecondary educational credentials of workers. But at the same time that employers are demanding more skilled workers—in the health care industry and elsewhere—the education levels achieved by the workforce are stagnating. Retiring workers are more likely to have attended college than young workers who are entering the California labor market. These trends portend skills gaps in California’s future workforce. Of course, unforeseen economic changes, altered migration patterns to and from California, workers’ responses to educational and job opportunities, and other factors may affect these trends. Thus, projections are simply a lens

into how economic demands may or may not be met in the future, highlighting areas worthy of policy attention.

Overall, by 2025 the state is likely to face a shortfall of about 2.5 million workers with postsecondary training—1.5 million with less than a bachelor's degree and 1 million with a bachelor's degree or above (Bohn 2014). Recent estimates suggest that health care fields may be among those affected by workforce shortages. Moreover, health workforce shortages vary along geographical and demographic lines. California's health care workers need to be located throughout California's regions and need be able to communicate with and provide care to the state's diverse population.

In addition to meeting the demand for physicians, California needs to address skills gaps among other health care workers—the overwhelming majority of the workforce. The fast-growing allied technical and support fields are also likely to face shortages of workers over the next decade. One recent study estimated that, despite some growth in training capacity, the state will face a gap of between 55,000 and 145,000 allied workers by 2020 and as many as 375,000 by 2030 (Fenton Communications and Beacon Economics 2010; see the technical appendix for details). Projections at this level of detail have fairly wide margins of error due to the range of assumptions that must be made. However, by harnessing a variety of data sources and reasonable models of expected changes in health care delivery, these estimates can provide useful insights.

In addition to meeting the demand for physicians, California needs to address skills gaps among other health care workers—the overwhelming majority of the workforce.

In particular, the projections suggest that the supply of workers will be sufficient in some allied health care occupations but not in others. The largest shortages are expected among licensed vocational nurses, dental hygienists, and

dental assistants (see technical appendix Table A4). Surpluses are projected in a few other areas by 2020—among medical assistants, emergency medical technicians, and pharmacy technicians. These projections of large gaps and large surpluses in the allied workforce underline the importance of carefully allocating human resources and training opportunities.

Many Factors Influence the Future Supply of Health Care Workers

The state and national economy, relative wage levels across sectors, and workforce participation rates all play an important role in determining the supply of workers for any given health care occupation. For instance, the recent recession was a factor in easing California's nursing shortage between 2005 and 2011 (Spetz 2011). The state may have some ability to meet demand by altering the “scope of practice” of some health care occupations. But it has

Scope of practice

One policy option that might help address shortages is to change the roles and responsibilities—often referred to as the scope of practice—of health care occupations. Across the country, many states have passed or are considering laws that expand the types of services that certain health care workers can provide. The goal of these laws is to expand patient access and fully utilize the training that health care professionals are required to receive. In California, recent legislative changes have expanded the scope of practice for certified nurse midwives and pharmacists, but changes for other health professionals, including nurse practitioners and optometrists, have not succeeded. There are similar initiatives to extend the roles of health care workers with less training, including dental hygienists, medical assistants, and other allied health workers. For example, a current workforce pilot project in California is evaluating an expanded role for emergency medical technicians/paramedics to improve efficiency and improve access (Office of Statewide Health Planning and Development, State of California 2014). As changes to the scope of practice are implemented for more highly trained health care workers, other members of the health workforce could perform additional tasks to relieve some of the increased clinical workload.

The most direct way for the state to spur growth in the supply of health care workers lies in the realm of education—particularly in allied technical and support fields that require only some college training and thus have shorter completion timelines.

relatively little direct control over business cycles and wage-setting.

The most direct way for the state to spur growth in the supply of health care workers lies in the realm of education—particularly in allied technical and support fields that require only some college training and thus have shorter completion timelines. The supply of health care workers in California will depend heavily on the ability of the state's institutions to recruit and educate qualified students for these positions. Because community colleges are spread throughout the state and serve a large and diverse student population, they may be especially helpful in training an occupationally relevant and culturally competent workforce.

Targeted policies—mostly involving the allocation and level of funding at state schools—have the potential to significantly increase the number of graduates in these fields within the next decade. However, to make informed decisions, we need to know more about the health care programs in California's higher education institutions, particularly the public and for-profit two-year institutions that provide training to much of California's nursing and allied health workforce.

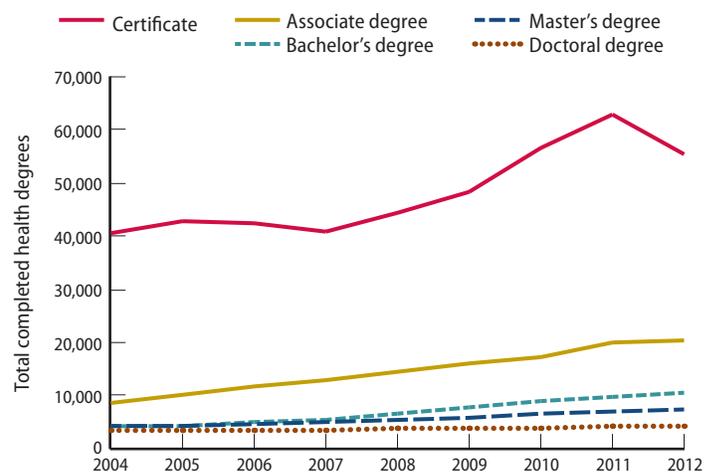
Allied Health Training Programs in California

The past decade has witnessed growth in health degrees across most educational levels. The most sizable increase has been in the number of associate and other sub-baccalaureate health degrees, mostly driven by private institutions. The state's public institutions, particularly its community colleges, continue to play an important role, especially in

nursing. But private, for-profit institutions have expanded their presence considerably. Given the importance of associate degrees and postsecondary certificates in growing health occupations, it is vital to maximize the effectiveness of the state's two-year institutions so that they meet employment demands and provide good employment opportunities for their students.

In 2012, nearly 100,000 health degrees were conferred by higher education institutions in California (Figure 6). The total number of health degrees has increased significantly over the past decade, and most of the growth has been driven by associate degrees and certificates completed in less than two years. Growth in the number of bachelor's degrees has been driven by an increase in the number of registered nurses who pursue four-year degrees. Nursing

Figure 6. The number of health degrees has increased significantly over the past decade



SOURCE: Integrated Postsecondary Education Data System (IPEDS), U.S. Department of Education, National Center for Education Statistics.

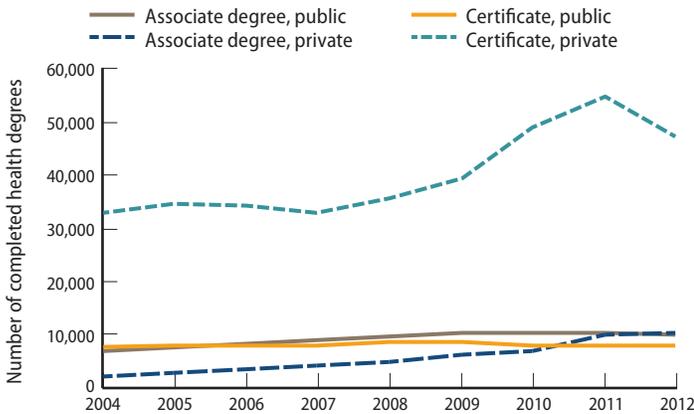
NOTE: Certificates include both short-term awards requiring less than 1 year to complete and long-term awards requiring more than 1 year, but less than 2 to complete.

accounts for more than half of bachelor’s degrees conferred by health programs, and the number of BSN degrees completed has more than doubled over the past decade.¹⁷ In contrast, the number of doctoral degrees awarded in California has remained relatively constant.

The number of associate degrees and postsecondary certificates in health programs awarded by the state’s public institutions, particularly community colleges, has increased slightly over the past decade; most of the additional associate degrees were in nursing (Figure 7). There has been considerable growth in both associate degrees and certificates awarded by private institutions, mostly by for-profit institutions. By 2012, these private institutions conferred almost as many associate degrees in health programs as did the community colleges.

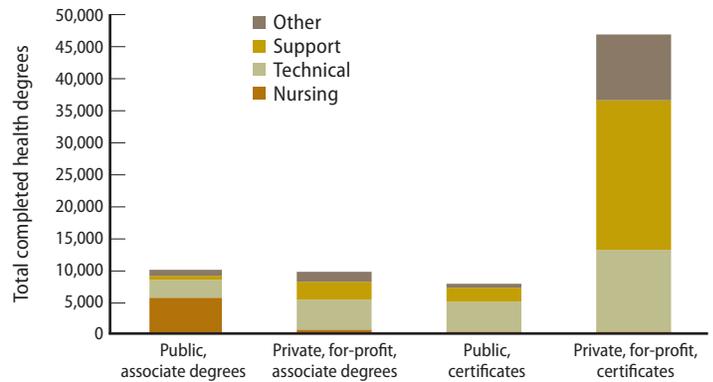
There are considerable differences in the level and type of degrees awarded by public and private, for-profit schools (Figure 8). The community college system confers almost 90 percent of all associate degrees in nursing in the state, and nursing degrees constituted nearly 60 percent of associate degrees in health programs awarded by community

Figure 7. The number of associate and postsecondary degrees conferred by private, for-profits has grown considerably over the past decade



SOURCE: IPEDS, U.S. Department of Education, National Center for Education Statistics.
 NOTES: Associate degrees at public institutions are all completed at community colleges. Certificates at public institutions are completed at community colleges (80%) and vocational education programs (20%). Private institutions include both for-profit and nonprofit private institutions, although nonprofit private institutions make up a very small proportion of sub-baccalaureate health degrees. About 3% of associate degrees and 1% of certificates completed at private institutions are at nonprofits; the remainder are completed at private, for-profit institutions.

Figure 8. There are large differences in the level and type of degrees conferred by private and public institutions



SOURCE: IPEDS, U.S. Department of Education, National Center for Education Statistics, 2012.
 NOTES: Private, nonprofit institutions are not shown in the figure, because they produce a very small share of sub-baccalaureate health degrees relative to public and private, for-profit institutions. The categories are based on groupings of Classification of Program (CIP) codes; for more information on the specific groupings, refer to the technical appendix. The “Other” category includes medical administration, premedical preparatory programs, massage therapy, and other bodywork/alternative medicine programs.

The majority of certificates awarded by public institutions—both community colleges and adult vocational education programs—are in allied technical support fields.

colleges in 2012. The state’s recent intervention to address the shortage of nurses seems to have solidified the community college system’s role in training the nursing workforce with associate degrees. As the labor market continues to demand higher education levels among nurses, the state may need to consider additional pathways to bachelor’s degrees in nursing.¹⁸

At private, for-profit institutions, most students earn associate degrees and certificates for health care support occupations. The majority of certificates awarded by public institutions—both community colleges and adult vocational education programs—are in allied technical support fields.

There also appear to be differences in the programs being completed at public and for-profit institutions (Table 2). For instance, more than 90 percent of emergency medical technicians are certified by public schools, while private schools award large shares of licensed vocational nurse and pharmacy technician credentials. Private, for-profit institutions also confer an overwhelming majority of certificates in health care support fields. Nearly four in ten certificates in health programs completed at private, for-profit institutions are awarded to medical assistants—one of relatively few occupations in the health workforce with projected surpluses over the next several years.

To look more closely at degree production in the context of labor market demands and opportunities, we examined data on wages earned in these occupations. The final column of Table 2 presents wage information for occupations related to select health degree programs. In general, workers with associate degrees in allied health technical support occupations earn more than those with less-than-two-year degrees. But there is a substantial amount of variation in earnings across occupations. This may reflect labor market demand, worker characteristics, hours worked, or a variety of other factors unrelated to training program alignment (or misalignment). However, it is worth noting that more than half

Table 2. The degrees awarded most frequently by private, for-profit schools are in occupations with the lowest wages

Type of health degrees	Associate degree		
	Public	Private, For-Profit	Median Wage, 2012
Nursing	5,668	475	\$70,000
Technical support	2,849	4,684	
Licensed vocational nurse	367	788	\$42,000
Dental hygienist	298	206	\$50,000
Respiratory therapist	488	747	\$61,242
Imaging technology	575	1,030	\$63,283
Health care support	589	3,244	
Medical assistant	271	2,753	\$25,517
Dental assistant	130	308	\$27,852
Total associate degrees	9,884	9,769	
	Certificate (less-than-2-year awards)		
Technical support	4,807	12,969	
Emergency medical technician	1,881	162	\$33,500
Licensed vocational nurse	806	4,001	\$39,807
Pharmacy technician	336	3,516	\$33,010
Health care support	2,149	23,530	
Medical assistant	920	17,314	\$25,517
Dental assistant	521	4,284	\$25,789
Nursing assistant/home health aide	558	1,357	\$19,500
Total certificates	7,796	46,805	

SOURCES: IPEDS, U.S. Department of Education, National Center for Education Statistics, 2012. Wage information is from the ACS 2010–2012 3-year PUMS.

NOTES: Only select degrees are shown for each category, and they do not sum to total for the group. Total associate degrees and total certificates include all degrees conferred, including those not categorized in technical or health care support, such as medical administration degrees, massage therapy, and premedical preparatory degrees. Median wages are calculated from ACS 2010–2012 3-year PUMS that matches the health training program (based on CIP codes) and to occupational codes (based on SOC codes). Median wages presented are restricted to the California adult sample with the same education level of the degree program; in the case of certificates, reported education level in the ACS is “Some College.”

of the degrees awarded by private, for-profit schools in 2012 are certificates for health care support—occupations with the lowest median wages.

It is also important to consider how well these programs are meeting the needs of those who enroll, particularly among underrepresented students. We now turn to an examination of students completing associate and certificate degrees in health programs with a focus on the racial/ethnic distribution of students across programs and institutions. Given the growing need for diversity in the health care sector, ensuring training opportunities for California’s diverse population is particularly important.

Relative to California’s college-age (18 to 34) population—which is 44 percent Latino, 33 percent white, 13 percent Asian, and 6 percent black—Latino, Asian, and black students are well represented in health program completions for associate degrees and postsecondary certificates, while white students are underrepresented (Figure 9).

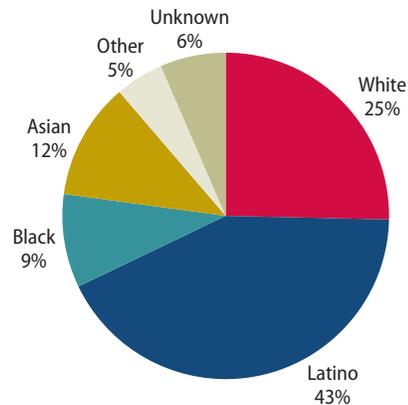
When we look beyond these aggregate groupings, we find large differences in the level of degree and type of institutions. Nearly three-quarters of all degrees below the bachelor level earned by black and Latino students are certificates from for-profit institutions (Figure 10). Only 7 percent are associate degrees from community colleges—

Latino, Asian, and black students are well represented in health program completions for associate degrees and postsecondary certificates, while white students are underrepresented.

as compared to about 20 percent among white students and 25 percent among Asian students. Moreover, white and Asian students receive more certificates from public institutions than do black and Latino students.

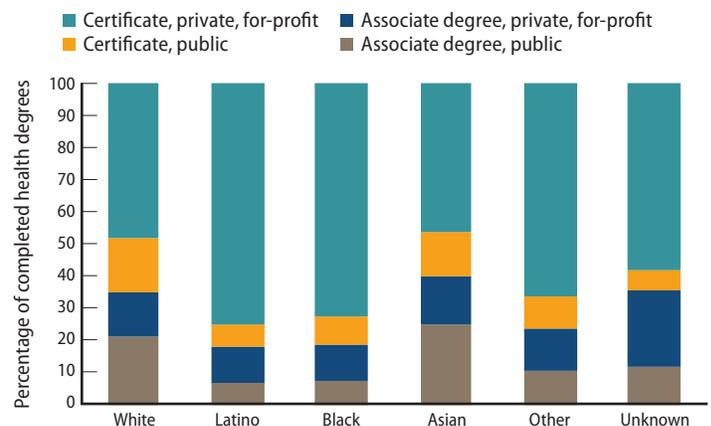
The differences between public and for-profit institutions in the type of degrees completed and the students

Figure 9. Nonwhite students are well represented in health associate degree and postsecondary certificate completions relative to California’s college-age population



SOURCE: IPEDS, U.S. Department of Education, National Center for Education Statistics, 2012.
NOTE: The “Other” racial/ethnic category includes American Indians, Alaskan Natives, Pacific Islanders, multirace categories, and a nonresident alien category.

Figure 10. A large share of black and Latino students complete health certificate degrees from private for-profits



SOURCE: IPEDS, U.S. Department of Education, National Center for Education Statistics, 2012.
NOTE: The “Other” racial/ethnic category includes American Indians, Alaskan Natives, Pacific Islanders, multirace categories, and a nonresident alien category.

completing them point to an important aspect of training opportunities for the allied health workforce: the growing role of private, for-profit institutions.

The Rise of Health Degrees from For-Profit Institutions
For-profit institutions focus on health degrees: one-quarter of all associate degrees and certificates conferred by private,

for-profit institutions in California are for health-related programs. As public institutions have grappled with budget cuts and funding constraints, for-profit schools have met some of the excess demand for associate education (Deming, Goldin, and Katz 2013). In California in particular, there is strong evidence that budgetary constraints in community colleges have led to an increase in for-profit colleges entering the market (Cellini 2009).

But the poorer labor market outcomes among graduates of for-profit institutions are cause for concern. Nationwide studies have found that, among students completing health programs, those at for-profit institutions are more than twice as likely as community college graduates to be unemployed, and the earnings of those who are employed are about 12 percent lower (Deming, Goldin, and Katz 2013). For-profit institutions are more likely to offer certificate programs in health care support fields that tend to have lower wages. Related research suggests that financial returns on postsecondary certificates in health degree programs may be lower relative to associate degrees in related fields (Lang and Weinstein 2012). It should be noted that the student population at private, for-profit institutions appears to be more disadvantaged than the population at community colleges—there are fewer high school graduates and more single parents and lower-income students (Deming, Goldin, and Katz 2013). This raises the possibility that students who complete programs at for-profit schools are better off than they would be without any postsecondary schooling.

However, we also need to consider the high cost of attending these schools. Health degree programs in private, for-profit schools are generally more expensive than community college programs. We do not have comprehensive cost data, but information available through the College Navigator run by the National Center for Education Statistics suggests a wide gap in costs for health programs between for-profit and community colleges in California. For example, the tuition and fees for a licensed vocational nurse certificate program at a group of for-profit institutions ranged from \$20,000 to \$35,000. By contrast, tuition costs for the same program at community colleges are about

\$2,500 and total program costs (including books and other fees) are about \$4,500. Most financial aid comes from federal loans that students must repay rather than grants or other institutional support. More than half of California students in default in 2011 attended a private, for-profit college (Johnson et al. 2013).

Health degree programs in private, for-profit schools are generally more expensive than community college programs.

To regulate for-profit postsecondary institutions, federal and state governments have relied mainly on controlling the availability of financial aid. At the federal level, “gainful employment” regulations have been proposed to provide enhanced oversight of vocational programs beyond the existing requirement that for-profit schools obtain at least 10 percent of their revenues from sources other than federal student aid (this is often referred to as the 90/10 rule).¹⁹ In California, Cal Grants are the primary source of state aid; they are available to students enrolled at qualified institutions, with a special category for vocational and technical programs. The 2011–2012 state budget included major changes to the Cal Grant program: institutional eligibility is now based on student outcomes (graduation rates and financial aid default rates), and the California State Commission on Student Assistance develops lists of ineligible institutions for each school year. Institutions are deemed ineligible if their graduation rates are below 30 percent or their federal student loan cohort default rates are above 15.5 percent.²⁰ More than 60 percent of health care certificates and associate degrees conferred by private, for-profit schools are conferred by institutions that have not been eligible for Cal Grants at least one year since these rules took effect.²¹ This means that students attending many private, for-profit institutions are not eligible for Cal Grant financial aid, which does not need to be repaid.

The distribution of degrees across training programs and institutional sectors suggests mismatches in training capacity and employment demands. The large differences in the racial and ethnic distribution of students across institutions and programs also suggest that there is room for improvement. There may be avenues for state institutions, in particular the community college system, to better address both health workforce and student needs.

The Importance of Community Colleges

California's community college system is poised to play a major role in training the nearly 200,000 workers needed by 2020 to fill occupations in the health care sector likely to require some college education below a bachelor's degree. California's is the largest public higher education system in the country, educating more than 2 million students in 112 community colleges across the state.

The success of the Nurse Education Initiative in increasing training opportunities and associate degrees in nursing over the past decade suggests that the system can expand programs and produce more workers in high-demand occupations.²² Between 2005—when the state, facing a dramatic shortage of nurses, launched the initiative—and the end of 2009, the number of students enrolled in nursing programs increased by more than 75 percent, and 35 new nursing programs were established (California Nurse Education Initiative 2010). Though other factors—including the labor force dynamics of the recent recession and wage increases—also played a role in addressing the shortage, it is clear that strong state action, including financial investment, can help improve health workforce supply over a relatively short period of time.

There has been concern about relatively low levels of student success in the community colleges (California Community Colleges Chancellor's Office 2012a), but success rates are higher in allied health programs (82%) and registered nursing (91%) than in other courses (70%).²³ These successful outcomes are probably driven by a number of factors, including the selectivity of health care programs,²⁴ student ability, and program or teaching quality.

While these higher rates of student success suggest that state policy can increase health workforce skills, access may

not be broad enough to meet future workforce demands. Bohn, Reyes, and Johnson (2013) estimate that constrictions during the Great Recession brought the enrollment rate for college-age Californians close to a two-decade low. While community colleges ostensibly shielded high-priority courses from severe cuts, most areas were affected—including health programs. During the most severe years of the state budget crisis, 26 percent of health care courses were cut—a higher share than in other programs (see technical appendix Table B1). Some areas of health care training were more deeply affected than others—for example, the relatively small dental hygienist and respiratory therapist programs actually expanded, while fewer registered nursing courses were offered. It is worth noting there may have been some consolidation into larger courses and therefore no decline in prerequisite course availability. And because most community college students are not required to declare or apply for a particular program of study, excess demand for programs or courses is difficult to measure. A full understanding of whether access to health care programs was—and continues to be—constricted would require additional research.

Strong state action, including financial investments, can help improve health workforce supply over a relatively short period of time.

Community colleges are intended to be an open entry point to higher education for all Californians, with low fees and high use of need-based aid. Participation rates are substantially higher among historically underrepresented minority groups, such as African American and Latino students, relative to whites (California Community Colleges Chancellor's Office 2012b, 2013). This positions the community college system to become a key player in closing gaps in educational achievement—and ultimately fostering

employment opportunity—in California. The system may also be able to diversify the state's health workforce, a long-standing goal that is becoming increasingly important as older Californians become more and more diverse. However, our examination of recent health degree completions suggests that black and Latino students are not utilizing the community college system for health training opportunities at the same levels as other groups.

Moving Forward

California may not be on track to meet future health workforce needs for occupations requiring only some college training. This workforce skills gap could constrain the delivery and quality of health care services, particularly to California's growing elderly population. At the same time, many Californians will miss opportunities for employment in a fast-growing sector. How can the state address these workforce needs, and how can it monitor the progress of state and private institutions in training and serving the needs of students?

Data Coordination and Planning

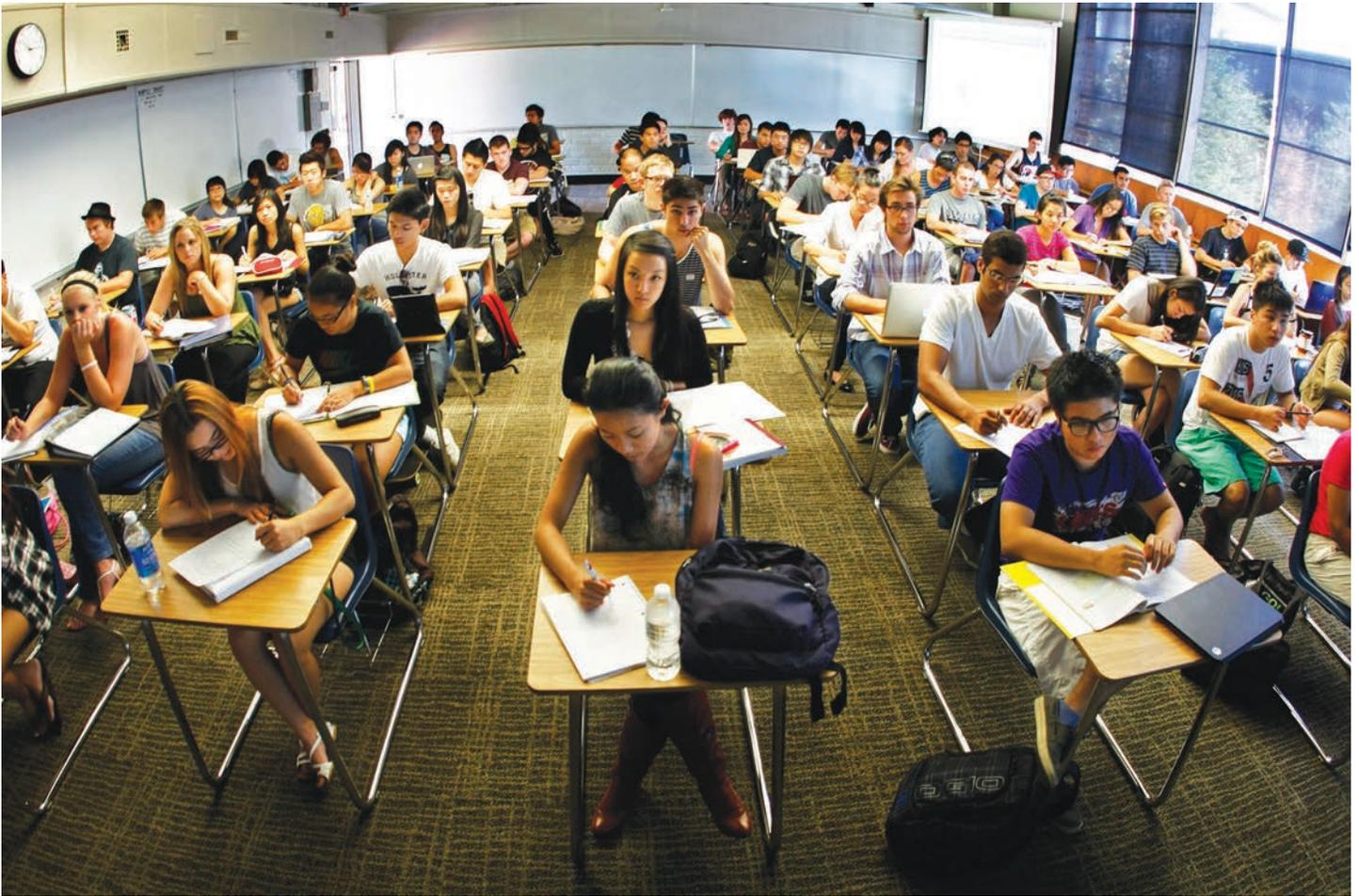
To ensure that California can meet health workforce needs and train an adequate number of workers, state and regional policymakers require good data. The state has infrastructure devoted to monitoring health workforce needs and supporting training opportunities across different education levels. The Office of Statewide Health Planning and Development's Healthcare Workforce Development Division coordinates state planning related to the health workforce. It also administers several programs that provide financial assistance and in-kind support to institutions and individuals in a wide variety of training areas.²⁵ In addition, legislation passed in 2007 tasked the agency with assembling licensing, employment, and education data on the health workforce. The resulting Healthcare Workforce Clearinghouse has done an admirable job pulling together data from a variety of sources, but it is limited by the availability and type of information collected.

Information about workforce training has been further limited by the decommissioning of the California Postsecondary Education Commission in 2011—formerly a clearinghouse for comprehensive higher education training information. But individual public systems—including the California Community College Chancellor's Office (already a leader in making data publicly available), the California State University system, and the University of California system—could coordinate information on health workforce training within their institutions. Linkages to employment information via the state Employment Development Department would be an important next step. Legislative action could improve the accessibility and consistency of workforce training, employment, and wage information across the many occupational groups that make up the health workforce.

To ensure that California can meet health workforce needs and train an adequate number of workers, state and regional policymakers require good data.

Oversight of For-Profit Institutions

As part of its effort to meet workforce needs, the state must monitor the quality of existing health programs. As we have shown, for-profit colleges are playing a large and growing role in training health care workers with less than a college degree, but they may not be offering the best opportunities for students, particularly those from disadvantaged backgrounds. These schools typically have higher costs, and many have been cited recently for misleading practices, low graduation rates, and high loan-default rates among their graduates. In October 2013, California's attorney general filed a suit against Corinthian Colleges, Inc., and its subsidiaries, which operate many colleges around the state and nation, accusing them of false and predatory advertising and making intentional misrepresentations to students, among



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Community colleges could play a key role in preparing Californians to enter the fast-growing health care sector.

other violations (Office of the Attorney General 2013). Federal sanctions against Corinthian Colleges, including withholding of federal financial aid funding, led Corinthian Colleges to recently announce the sale and closure of many of its campuses, including several in California.

The agency responsible for overseeing the state's for-profit higher education institutions is the Bureau of Private Postsecondary Education, housed within the Department of Consumer Affairs. In a March 2014 report, the California State Auditor concluded that the bureau "consistently failed to meet its responsibility to protect the public's interests" and recommended shutting it down. The report found that the bureau had failed to respond to numerous student complaints regarding practices at private, for-profit

schools, failed to regulate the information the schools provided to students on expected graduation rates and salaries, and mismanaged the Student Tuition Recovery Fund (California State Auditor 2014).

The lawsuit and auditor's report indicate a need for improved state oversight and monitoring of private, for-profit institutions and the educational opportunities they can offer to students. As discussed earlier, one state strategy has been to tie state financial aid for students through the Cal Grant program to school performance. The California Student Aid Commission maintains a list of schools that are ineligible to participate in the Cal Grant program because they do not meet minimum criteria for student graduation rates and financial aid default rates. Many

private, for-profit colleges have been deemed ineligible for Cal Grants, so students attending these schools cannot receive these state grants, which do not need to be repaid. The higher costs and poorer labor market outcomes of for-profit institutions indicate that the state's community college system could play a larger role in providing training opportunities for students in health programs.

Expanded Access to Community Colleges

California's community colleges serve a number of missions, including preparing students to meet workforce needs. As part of its mission to bridge workforce needs, the Chancellor's Office Division of Workforce and Economic Development coordinates the efforts of employers, labor organizations, government training programs, and individual college districts within regions. Supported by an overarching Health Workforce Initiative, the office has made the health sector a planning and investment priority in each region of the state.

To increase the number of allied health care workers, community colleges could expand access to high-demand and high-return programs and improve student outcomes.²⁶ As noted previously, the recent recession spurred cuts that limited the availability of courses and ultimately lowered college attendance in the state. Because technical courses (and many other health care courses) are among the most expensive to administer (Shulock, Moore, and Offenstein 2011; Shulock, Lewis, and Tan 2013), it may be more difficult to increase their availability to pre-recession levels and beyond than to restore access to less technical or low-infrastructure courses.²⁷ For example, in 2011–2012, respiratory care therapy courses nationwide cost \$265 per student hour, and allied health and medical assisting courses cost \$131 per student hour, compared with only \$52 per hour in the humanities and \$73 per hour in engineering (Shulock, Lewis, and Tan 2013). In addition to high costs, budget fluctuations from year to year and categorical funding streams may impede the ability of colleges to plan for workforce training needs.

Another important step toward meeting the state's health workforce needs is to improve access to training programs among underrepresented student groups.

Strengthening outreach and mentoring to minority students is important, as many would be first-time college-goers. The relatively small increase over the past decade in the number of Latino nurses, despite the state's largely successful expansion of nursing training opportunities, indicates that there is room for improvement in engaging and supporting underrepresented students in health programs. A number of state health foundations and local initiatives offer grants and targeted programs to diversify the pipeline of students in health degree training. Closer collaboration and coordination with these programs could help community colleges expand their outreach to underrepresented students.

To increase the number of allied health care workers, community colleges could expand access to high-demand and high-return programs and improve student outcomes.

But diversifying and broadening access to training programs is unlikely to meet broad workforce needs unless steps are taken to foster student success rates within those programs. Community college health courses have relatively high success rates, in part because, unlike many other courses of study, a number of them have admission requirements. But most community college students struggle to complete degrees or certificates within a reasonable amount of time. The Student Success Task Force and a number of research studies have identified ways for the community college system to improve student outcomes (California Community College Chancellor's Office 2012a). Several recommendations have been or will soon be implemented, and it will be important to measure their impact on student success. In the field of health care, requiring admission procedures similar to those in nursing programs for allied health training may incentivize student success, or at least ensure that training slots are allocated efficiently. In fact, it

would be useful to develop a better understanding of student intentions upon entering a community college, so that pitfalls could be identified and addressed. Of course, the system must balance its efforts to improve outcomes with its open-access mission and its goal of diversifying the student body.

In general, a more comprehensive analysis is needed of the role played by student- and institutional-level characteristics in the success of students in health care programs and the labor market outcomes of those working in health care professions. This analysis could inform the extent to which health care workers are able to climb a career ladder with skills accumulated on the job or via successive

educational credentials. For example, some schools have programs that are structured to provide a training pipeline in nursing, from certified nursing assistant to licensed vocational nurse to registered nurse.²⁸ These kinds of pathways are often cited in discussions about career development options for economically disadvantaged Californians.²⁹ We lack empirical evidence on the effectiveness of this strategy, but it is clear that the capacity to adequately train nursing and allied technical and support workers is a policy goal, and that meeting this goal would benefit Californians who need health care services as well as the workers themselves. ●

Technical appendices to this report are available on the PPIC website:
www.ppic.org/content/pubs/other/914SMR_appendix.pdf

Notes

¹ These investments included large funding increases to the National Health Service Corps (NHSC), which offers scholarships and loan repayment to health professionals who practice in federally designated shortage areas; new grant programs aimed at allied health professionals and direct care workers; and changes to graduate medical education to support primary care physician training.

² For example, the National Health Care Workforce Commission, a new federal entity to coordinate and inform national health workforce policy, has not received any congressional funding and thus has never become operational; the additional support for NHSC is now the sole program investment, and it is scheduled to sunset in 2015 (Redhead 2013). There are limited health workforce demonstration programs moving forward, including grant programs for states, higher education institutions, and workforce investment boards to assist low-income individuals with education and training in health care jobs that pay well and are in high demand, as well as much smaller state grant programs to develop core training competencies and certification programs for personal and home care aides.

³ Other studies have projected that changes in nursing and allied workforce needs resulting from the ACA represent a small share of projected employment growth (Spetz 2013; Spetz et al. 2014). While these and other projection models offer a reasonable source of information on future workforce needs, most are limited to the extent that they base future trends on historical use patterns (Ricketts 2011; Dall 2013).

⁴ HRSA projections assume that all states will expand Medicaid under the ACA and have not been adjusted to account for the fact that several states have chosen not to expand the Medicaid program, suggesting that the increase in demand driven by the ACA nationwide will be smaller.

⁵ California Employment Development Department 2010–2020 occupational projections. Includes new jobs and job replacement. See Figure 5.

⁶ Based on authors' calculations of California Department of Finance population projections.

⁷ Based on California Employment Development Department 2010–2020 occupational projections that count workers in wage and salary jobs as well as self-employed persons. Similar statistics based on industry projections suggest slightly stronger growth, but exclude self-employed persons, agricultural workers, and unpaid family workers.

⁸ Employment figures for 2012 are estimates based on the ACS. In some analysis that follows, we use slightly older employment data (2010) from the California Employment Development Department in order to obtain additional detail on types of jobs within the health care sector. The total employment estimates range between 1.1 and 1.3 million over this time period.

⁹ There is not an official set of occupations that constitute the allied health workforce. Some therapists are often considered part of the allied health workforce, as are other, more technical occupations. We have included most therapists with advanced training in a separate category, choosing to focus our examination of the allied health workforce on those with lower educational requirements.

¹⁰ The BLS reports training and education requirements for entry into occupations for which the BLS produces employment projections. The level of education and training assigned to occupations is based on quantitative and qualitative information, including review of available data, interviews with experts and workers in a given occupation, and examination of specific job postings. The education assignments are based on the typical education needed to get an entry-level job in an occupation. (Richards and Terkalian 2013). For more information, refer to the BLS Employment Projections, Education and Training Data (www.bls.gov/emp/ep_education_training_system.htm).

¹¹ Bohn (2014) estimates wage premiums for large occupational groups using ACS 2010–2012 data. These estimates compare regression-adjusted earnings between workers with some college education and workers in the same occupational category but with only a high school education.

¹² The education information collected in the ACS does not allow us to distinguish between certificates or awards of less than two years and college coursework that does not result in a degree.

¹³ Reed (2008) estimates that the regression-adjusted premium to having a college degree (compared with a high school diploma) increased from 55 percent in 1990 to 75 percent in 2005–2006. Given simultaneous increases in the supply of workers, the existence of an increasing wage premium signals increasing demand for skill in the registered nursing profession.

¹⁴ Studies suggest that patients prefer providers who are of their own race, are less likely to postpone care when they have a physician of their own race, and report higher levels of satisfaction with their medical care when they have a physician of their own race.

¹⁵ For a more detailed discussion of racial/ethnic diversity among California's nursing workforce, see Waneka and Spetz (2012).

¹⁶ The most recent BLS occupational projections to 2022, released in December 2013, do account for some expected changes in health care industry employment as the result of the ACA, but those are not yet included in state-level estimates.

¹⁷ In 2012, about 5,500 of the nearly 12,000 nursing degrees conferred in the state were bachelor's degrees.

¹⁸ In fact, the legislature is considering SB 850, a pilot program that would involve community colleges awarding applied bachelor's degrees in nursing (and other areas). Policies like this might help respond to employers' demand for more nurses with bachelor's degrees, but questions remain about training quality and other issues.

¹⁹ Gainful employment regulations require public and private college vocational programs to meet certain standards related to student debt loads and employment outcomes in order to remain eligible to receive federal financial aid. The U.S. Department of Education released revised regulations in March 2014, after previous attempts at developing federal rules were struck down by the courts in 2012. The revised regulations establish standards for student loan default rates and debt-to-earnings ratios, whereby if institutions exceed a certain percentage, their students will not be eligible to receive federal financial aid.

²⁰ The minimum graduation and default rates eligibility standards apply only to qualified institutions where at least 40 percent of the student population is receiving federal financial assistance.

²¹ Based on authors' calculations of IPEDs data merged with information from California Student Aid Commission (CSAC) Cal Grant Eligible and Ineligible Institutions listing for school years 2011–2012, 2012–2013, and 2013–2014. The CSAC provides listings of both ineligible and eligible institutions. Another one-third of sub-baccalaureate health degrees completed at for-profit institutions is at schools on neither the eligible nor the ineligible list, suggesting they do not participate in the Cal Grant program.

²² The initiative provided state funding and additional public/private investments to support the expansion of nurse training programs across all California public higher education institutions, including \$90 million over five years to increase educational capacity at California community colleges through a competitive grants process. It also added capacity to bachelor's, master's, and doctoral levels of nurse training, created nurse faculty loan programs to incentivize teaching, and invested in

clinical simulation laboratories to improve access for rural and medically underserved areas. For more information, refer to annual reports available from the California Labor and Workforce Development Agency.

²³ California Community Colleges Student Success Task Force (2013), "Advancing Student Success in California Community Colleges."

²³ Authors' calculation from California Community Colleges Chancellor's Office Data Mart. See technical appendix Figure B1 for details and categorization of courses. Success rates are share of students with a passing grade (on a course-by-course level).

²⁴ Student success measures, particularly high retention rates, may reflect external incentives to stay in and successfully complete a course. Many health programs at community colleges are unusual in that they require admittance to a particular program of study, and thus are rationed. This rationing may increase student incentives to keep a course and to pass. Most community college courses are essentially open to all, and course seats are allocated based on student priority, determined by continuing status and other factors. Indeed, this enrollment priority system is one focus of statewide efforts to improve student success at the community colleges, and changes were adopted in 2012 intended to incentivize completion. Recent changes to the priority enrollment system may result in improvements to course success rates.

²⁵ The Health Professions Education Foundation, California State Loan Repayment Program, and National Health Services Corps support scholarship and loan repayment programs for health training in allied health professions, nursing programs, licensed vocational nursing, and others. The Song-Brown Program provides financial support to accredited training programs for registered nursing—among others—with a goal of providing health care in medically underserved areas.

²⁶ The California Community Colleges Chancellor's Office has received state funding in the past and distributed grants to colleges to provide diagnostic and support service to reduce student attrition in nursing programs and promote retention (California Community Colleges Chancellor's Office 2010).

²⁷ The funding formula for community colleges is set by Proposition 98 and is based on student enrollment, not the cost of providing various programs. The financial incentives embedded in Proposition 98 thus discourage high-cost programs, since all funding is allocated at the same rate, regardless of program cost. Additional funding to support high-cost training programs, such as nursing, is sometimes available through various sources on mostly a competitive basis.

²⁸ The pathway for nurses reaches beyond the community colleges. The percentage of students pursuing a bachelor's or master's degree in nursing has grown significantly over the past 20 years. California can encourage this pipeline to higher skills in a few ways. The first would be to increase capacity in the community college system, allowing qualified students a gateway into the field of health care. A further step would be to simplify the process of transferring from a community college campus to a California State University or University of California campus. Students would benefit from a guaranteed path to higher degrees. Finally, Senate Bill 850 suggests that a limited number of bachelor's degrees, including nursing, could be awarded at community colleges.

²⁹ For example, see California Workforce Investment Board (2013).

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