

WICHE



A Closer Look at Healthcare Workforce Needs in the West

Oral Healthcare

A Closer Look at Healthcare Workforce Needs in the West: Oral Healthcare

Oral health is an important component of overall health and well-being. Advances in dental care and public health over the past century have significantly improved the nation's oral health. However, the surgeon general has identified a "silent epidemic" of oral disease that affects our nation's most vulnerable populations: poor children, elderly and disabled people, immigrants, those who live in rural areas, and many members of racial and ethnic minority groups.¹ These disparities in oral health have a heavy impact in the West, which has an increasingly diverse population (especially children), a growing elderly population, and a significant number of people living in rural areas.

Access to affordable, high-quality dental care is essential to the oral health of all Americans. The oral healthcare workforce is a critical component of our nation's ability deliver oral health education and preventive and restorative services. The dental workforce is primarily developed and deployed to work in private practice, a care delivery model which has been successful for providers yet has been ineffective in expanding access to dental care for underserved populations. Trends in the dental workforce, including projected declines in supply, lack of workforce diversity, and rising educational debt, raise serious concern about dentists' ability to provide adequate oral healthcare services for the entire population, both now and in the future.² Changes in the education and care delivery systems are underway to develop

alternative solutions which may better address the continued challenge of providing access to dental care. The success of these new models will depend on support from the professions, educators, payors and local communities, and will require states to align their workforce development policies with new realities related to the need and demand for dental care, as well as the supply of practitioners.

The development of the future oral healthcare workforce is a central focus of the Western Interstate Commission for Higher Education (WICHE), which has a long history of partnering with states to improve access to dental and other professional training via the Professional Student Exchange Program (see box below). This report highlights some of the key trends, issues, and challenges the WICHE region is facing with regard to the oral health care workforce, including:

- The changing population's need for oral healthcare services.
- The shifting supply, distribution, and composition of the dental workforce.
- Trends in dental education enrollment, tuition, and curriculum.
- The expansion of new care delivery models and creation of new types of providers to address oral health disparities in rural and underserved communities.

WICHE's Role in Professional Healthcare Education

WICHE has a long history of providing Western students with better access to the health professions. Its Professional Student Exchange Program (PSEP – <http://wiche.edu/sep/psep>) has been in operation for more than 55 years. It provides students in 12 Western states with access to a wide range of professional programs that otherwise might not be available to them because the fields of study are not offered at public institutions in their home states. The program includes dentistry, allopathic medicine, osteopathic medicine, physician assistant, physical therapy, occupational therapy, optometry, pharmacy, podiatry, and veterinary medicine.

Over 14,000 students have earned professional degrees since the program's inception in 1951. In the 2008-09 academic year, more than 750 students paid reduced tuition to train in one of the healthcare professions, with almost \$14.6 million in appropriations from their home states offsetting the nonresident or full private tuition costs.

Alaska, Arizona, Hawaii, New Mexico, North Dakota and Wyoming financially supported 144 students to study dentistry at 14 cooperating public and private schools of medicine through PSEP in 2008-09. Some states use PSEP as a loan-for-service program, requiring graduates to return to their home state to practice; others use it primarily as an access program.

WICHE's member states are Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming

The Changing Need for Oral Healthcare Services

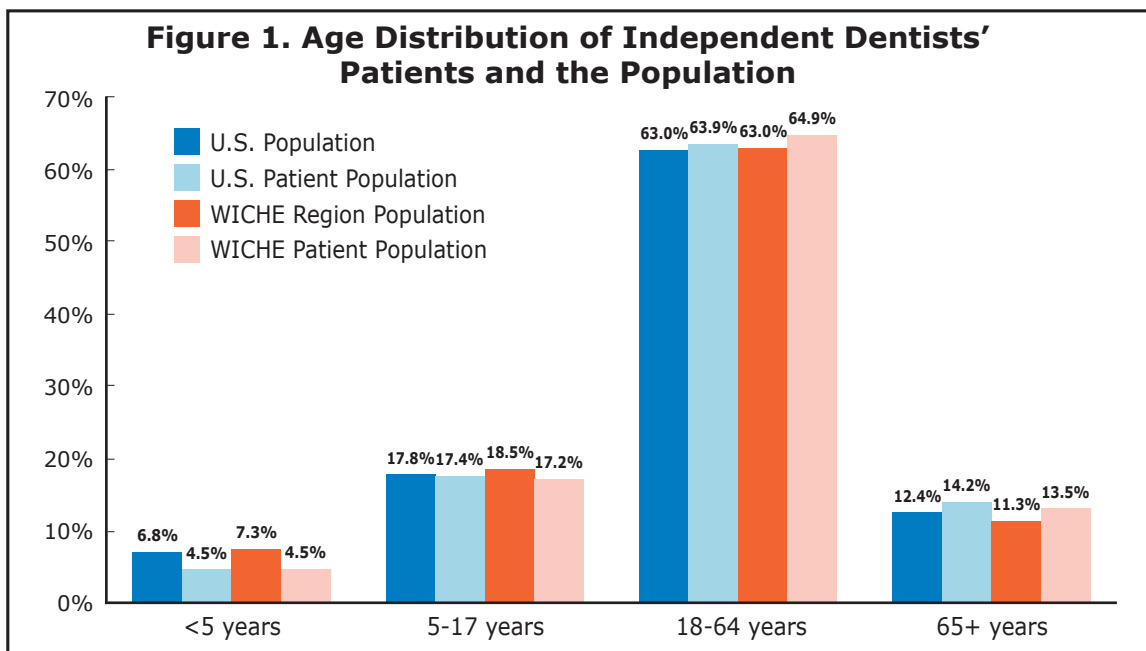
Individuals need a changing array of dental services over their lifespan. Children need oral health education, preventive care, and, in particular, early intervention fluoride applications and sealants to help to keep their primary and developing permanent teeth healthy. Adults need regular maintenance and restorative, periodontal, and some prosthetic care, as well as implants. Elderly people may need more advanced periodontal and prosthetic services and assistance with managing oral health in the midst of chronic diseases and multiple medications.

Utilization of dental care varies by geography, income, sociodemographic characteristics, and insurance coverage. Individuals who do not belong to a minority group and those who earn higher incomes are more likely to have dental coverage and to have had a dental visit in the prior year than those from low-income or minority populations.³ In the WICHE region, 64.1 percent of patients had private insurance, 5.6 percent received public assistance, and 30.3 percent were not covered by insurance. These statistics are very similar to national numbers. New dentists are slightly more likely than all dentists to take patients with public assistance in the West (where 8.3 percent of them do) and nationally (7.4 percent).⁴

The age distribution of the patient population of independent dentists in 2005 in the WICHE region includes a smaller proportion of children and a larger proportion of those over age 65, compared to the region's overall population (see Figure 1). Nationally, the trend is similar, but with smaller disparities between patient and population percentages. However, the utilization of dental services tends to decrease over time, with 76 percent of children having a dental visit in the past year and only 58 percent of the over 65 population having one.⁵

Much of the land area in the WICHE region is rural (see Figure 2), and rural populations have a long history of problems with access to dental care. The private-practice model is unsustainable in many sparsely populated areas, and dentists with rural practices are having a difficult time selling them when they retire. The community health centers that serve these communities often do not provide dental care or cannot recruit a provider even if they have a clinic.

The WICHE region's population of children is very racially and ethnically diverse with many children from immigrant families, and many more children living below the poverty line. Addressing the oral health needs of this population will require a continuum of services, from public health to pediatric dental services, deployed in a low-cost, culturally competent, community-based model.

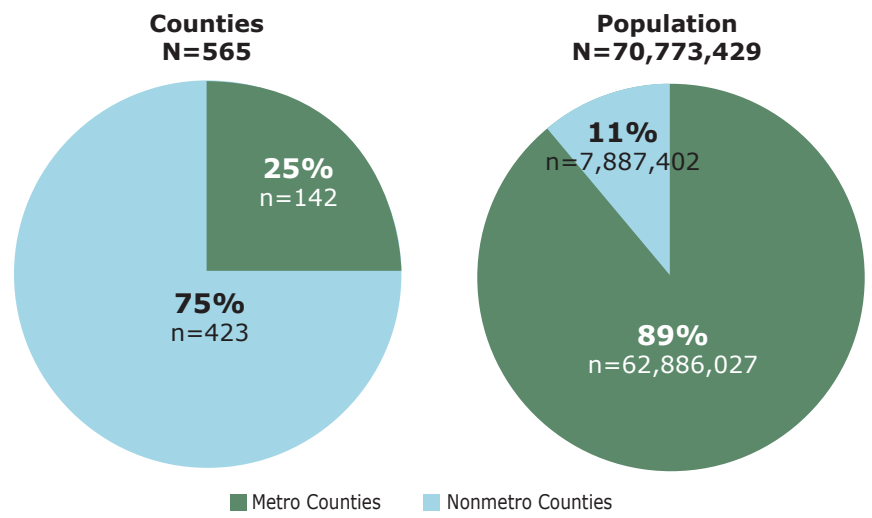


Sources: U.S. Census Bureau, 2006 American Community Survey (Washington, D.C.: U.S. Census Bureau, 2006); and *The 2005 Survey of Dental Practice, Custom Tables* (Chicago: American Dental Association; July 2006).

Figure 2. Counties in WICHE Region

Metro/Nonmetro Status vs. Population

Of the 565 counties composing the WICHE states, 75 percent (423) are considered nonmetro. Within those 423 nonmetro counties, only 11 percent of the population resides.



Sources: Office of Management and Budget, "Metropolitan Statistical Areas, Metropolitan Divisions, Micropolitan Statistical Areas, Combined Statistical Areas, Combined New England City and Town Areas," *OMB Bulletin* no. 06-01 (Washington, D.C.: Office of Management and Budget, 5/26/2006), accessed 2/26/08 from <www.whitehouse.gov/omb/bulletins/fy2006/b06-01_rev_2.pdf>; U.S. Census Bureau, "Population Estimates by County," (Washington, D.C., U.S. Census Bureau, 3/22/2007), accessed 2/27/2008 from <www.census.gov/popest/counties/CO-EST2006-01.html>.

Another population also faces challenges: as baby boomers reach the age where they can use Medicare, which does not provide dental coverage, they will find themselves needing to pay for services out of pocket. And older people who are homebound or in residential facilities will continue to find themselves with few if any options for accessing dental care. Lastly, those who are institutionalized or incarcerated will also find few options for receiving dental care, as few dentists will work in these settings. The WICHE region's changing demographics will continue to challenge the dental system's ability to care for a population that's increasingly diverse – culturally and ethnically – and aging, particularly populations in rural communities.

Supply of Oral Healthcare Providers

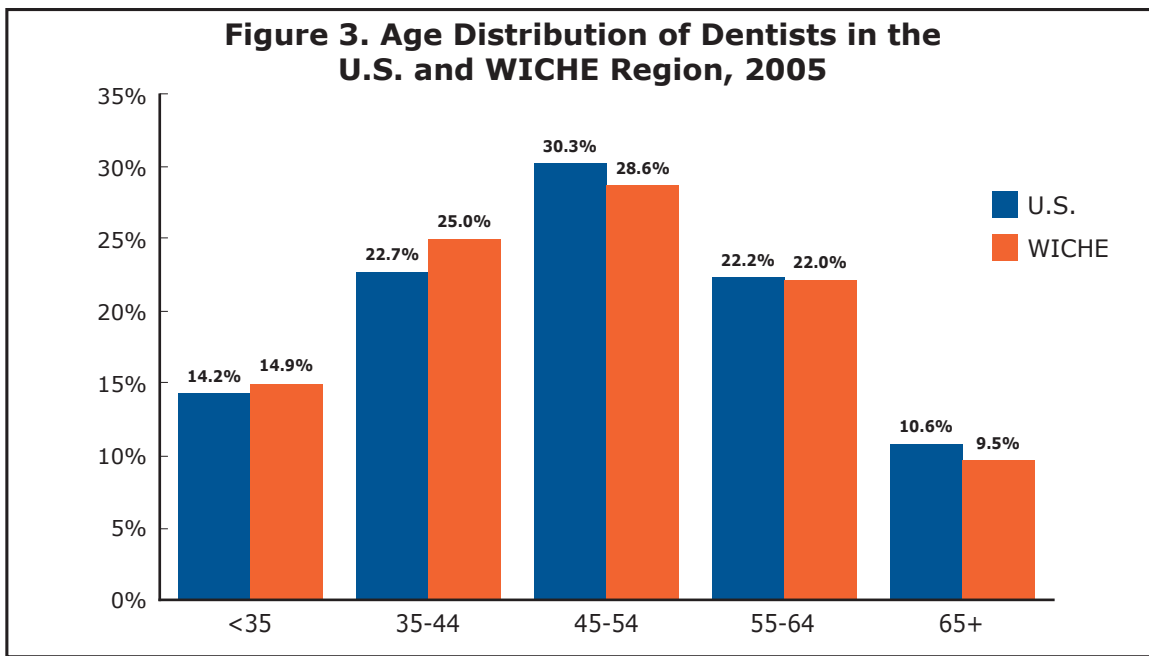
The dental workforce has traditionally been composed of dentists, dental hygienists, and dental assistants, who practice primarily in private dental offices, where 80 to 90 percent of dental services are delivered, as well as in public dental clinics and community health centers – a fast-growing sector of the delivery system. The private practice model of care continues to be the central component of the dental delivery system.

The supply of dentists is not keeping pace with population growth, resulting in projections of a decreasing dentist to population ratio.⁶ Nationally, there are an estimated 227,749 licensed dentists, of which 176,634 (77.6 percent) are professionally active.⁷ The WICHE region has a greater share of new dentists (29.4 percent), defined as having been in the workforce for fewer than 10 years, as well as existing dentists (26.5 percent) than its share of the total U.S. population (23.7 percent). The result is a higher than average dentist to population ratio in the West: 67/100,000, compared to the national average of 60/100,000.⁸

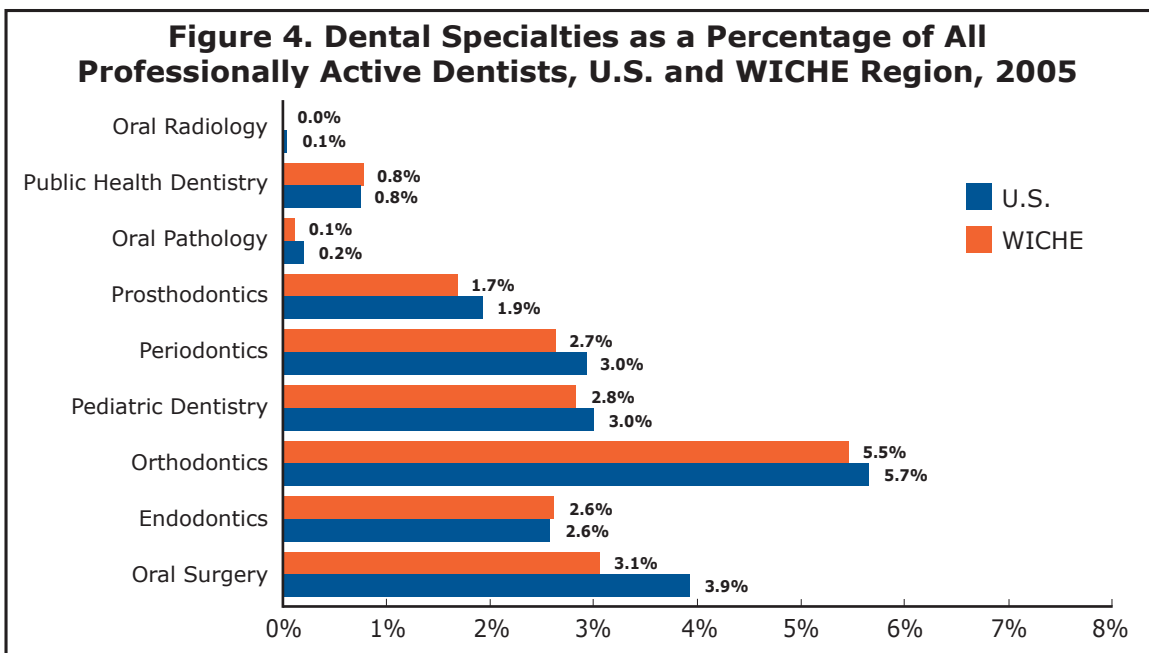
The demographics of the dental workforce are changing. Women make up 18 percent of the dentist workforce in both the U.S. and WICHE states, although they compose a greater percentage of new dentists in the U.S. (34.9 percent) than in the WICHE region (30.9 percent).⁹

The dentist workforce is not as racially or ethnically diverse as the population at large, with 86 percent of the workforce being white, and only 7.1 percent being from an underrepresented minority group (African-American, Hispanic, and Native American).¹⁰ Like many health professions, the dental workforce is aging, with almost a quarter of its practitioners expected to reach retirement age in the next 10 years. Many of those projected to retire live and work in rural communities. On average, dentists in the WICHE region tend to be slightly younger than the national average, but the West will still be faced with a large exit from the workforce in the next decade (see Figure 3).

The specialty mix of the profession is still heavily geared toward independent general practice, where incomes have risen and hours worked have declined, raising concerns about the accessibility of dental care for underserved populations. Among professionally active dentists, the WICHE region has a greater proportion of generalists (80.6 percent) than the country on average (78.8 percent), although the distribution of total specialists in the WICHE region matches that of the country overall (see Figure 4).¹¹



Source: "Distribution of Dentists in the United States by Region and State, 2005" (Chicago: American Dental Association, July 2007).



Source: "Distribution of Dentists in the United States by Region and State, 2005" (Chicago: American Dental Association, July 2007).

The majority of professionally active dentists (89.6 percent) practice as independent dentists who own all or part of a dental practice; about 85 percent of these are sole proprietors, with the remaining 15 percent in partnerships.¹² Of all independent dentists, 92.8 percent employ chair-side assistants, 66.4 percent employ dental hygienists, and 5.9 percent employ dental laboratory technologists.¹³

In 2005 the average net income of independent dental practitioners in the WICHE region was slightly lower than the national average in four categories of practice (see Table 1). However, the average net income of dental providers rose 89 percent between 1990 and 2006, and now surpasses that of many primary care physicians.¹⁴

Table 1. Net Income from Dental Practice U.S. and WICHE Region, 2005				
	Solo General Practice Dentist	Solo Specialist Dentist	Non-Solo General Practice Dentist	Non-Solo Specialist Dentist
U.S.	\$183,420	\$280,860	\$240,050	\$356,270
WICHE Region	\$174,620	\$278,570	\$197,020	\$338,980

Source: "The 2005 Survey of Dental Practice, Custom Tables" (Chicago: American Dental Association, July 2006).

Nationally and in the West, an estimated 85 percent of all active private practitioners and 89 percent of new active private practitioners work full time, defined as 30 hours week or more. Within the WICHE region, the average ranges from 90.4 percent of Utah dentists working full time to 84.2 percent of California dentists working full time.¹⁵

Dental Hygienists

In contrast to dentists, dental assisting and dental hygiene have been among the fastest-growing occupations in the country, projected to see an increase of approximately 30 percent between 2006 and 2016.¹⁶

There are an estimated 156,066 licensed dental hygienists nationally, of which 34,633 (22.2 percent) reside in the WICHE region, slightly fewer than the proportion of dentists (26.5 percent) and the share of the overall population (23.7 percent) in these states.¹⁷ There is not a one-to-one correlation between dental hygiene positions and hygienists, as dental offices tend to employ hygienists for part-time work, and many hygienists work in multiple dental offices. Of licensed dental hygienists, between 9 and 16 percent are likely to be inactive due to family responsibilities (many are likely to return) or for retirement or other reasons, such as disability or a change of careers.¹⁸

The growth in dental hygiene programs has led to fewer jobs than graduates in some regions and wide variations in the job market by state (see Table 2).¹⁹

Dental hygienists are primarily female (96 to 98 percent) and white (76 to 93 percent). Most are employed in private dental practices (95 to 97 percent). Median hourly wages nationally were reported at \$30.19, but this varies between and within states.²⁰ Average hourly wages were reported at \$38.98 in Washington and \$45.56 in California, with just over half reporting some type of benefits. However,

wages and benefits vary between urban and rural areas and between those working full-time or part-time.²¹

There has been a national movement within the profession of dental hygiene toward the reduction of supervision requirements and the expansion of the scope of hygienists' practice. Independent hygienists may work without supervision of a dentist, usually in public health programs or in underserved

Table 2. The Dental Hygiene Labor Market in the West			
State	Dental Hygienists per 100K Population (2006)	Dental Hygiene Graduates per 100 Dental Hygienists	Dental Hygienists (2006) per Dentists (2004)
U.S. Total	51.5	4.23	.88
AK	72.7	2.5	1.0
AZ	44.2	5.8	1.0
CA	38.4	3.5	0.5
CO	60.2	2.0	1.0
HI	77.7	1.8	1.0
ID	68.9	6.5	1.3
MT	53.1	2.4	1.0
ND	71.6	5.7	1.4
NM	41.4	3.6	.9
NV	41.8	3.6	1.0
OR	68.8	3.0	1.1
SD	60.6	10.1	1.3
UT	50.1	7.3	0.8
WA	65.8	3.7	1.0
WY	65.0	12.8	1.2

Source: "Dental Hygiene Education Program Director Survey, 2006" (Chicago: American Dental Hygienists' Association, 2008).

communities, where few if any dentists are practicing. These providers sometimes set up their own practice (often in dental health professional shortage areas), but more often they work with mobile equipment in school-based fluoride and sealant programs, community health centers, and long-term care and residential care facilities, as well as with homebound patients.²² In addition to clinical services, many of them provide case management for patients who need restorative dental treatment. A number of states in the WICHE region have some variation on independent hygiene practice, and a small but growing number of providers are choosing this career path.

Dental Assistants

There are an estimated 280,000 dental assisting positions nationally, and dental assisting is projected to grow at a rate of 29 percent from 2006 to 2016. A dental assistant's median hourly wage in 2006 was \$15.43.²³ The scope of practice for dental assistants varies widely by state, as do regulation and licensure requirements. In some states assistants are still trained on the job, but most states now require certification or licensure, particularly for extended function assistants, which are those with formal education allowing them to do an advanced number of procedures under the supervision of a dentist.

Dental Technicians

Dental technicians (there are about 53,000 nationally) and denturists (practicing in a few areas of the country) provide technical support services. A dental technician's median hourly wage in 2006 was \$15.67. Dental laboratory technician positions are growing at a slower rate than jobs overall, 4 percent per year.²⁴ This is in part due to a trend to send dental technical work (fabrication of crowns, bridges, etc.) overseas, as well as to some mechanized fabrication of prosthetics.

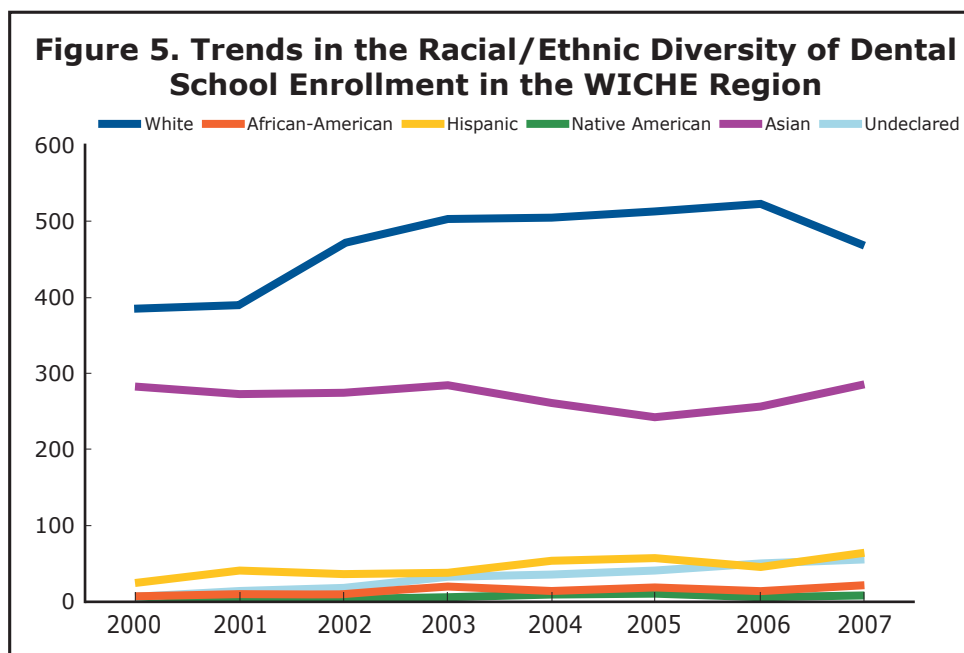
Educational Trends in Oral Healthcare

The oral healthcare workforce is educated at various levels, from on-the-job training for dental assistants to associate and baccalaureate level education for hygienists to advanced postgraduate education for dental specialists. There is little articulation or collaboration between levels of training, and most providers do not work in a dental team until they are licensed and begin to practice.

Dental Education

The number of dental education programs reached a peak in 1978 at 60 programs, dropping to 54 programs in 1993 and rising to 56 programs in 2003. This resurgence promises to continue, with a dozen or so new programs in the works nationally and 58 programs slated to accept applications for 2009-2010. There are two new programs in the West: Midwestern University in Glendale, AZ enrolled its first class in fall 2008, and Western University of Health Sciences in Pomona, CA is slated to enroll its inaugural class in fall 2009. Several more programs are in the planning stages. Nationally, there has been a sharp increase in applicants (27.3 percent) to dental school since 2001, as well as a small increase in graduates (4.7 percent) of dental school.²⁵

Between 2000 and 2007, enrollment in WICHE schools increased 27 percent, compared to 10.2 percent nationally. Increasing the racial/ethnic diversity



Source: American Dental Association, survey center, surveys of dental education (2000-2007).

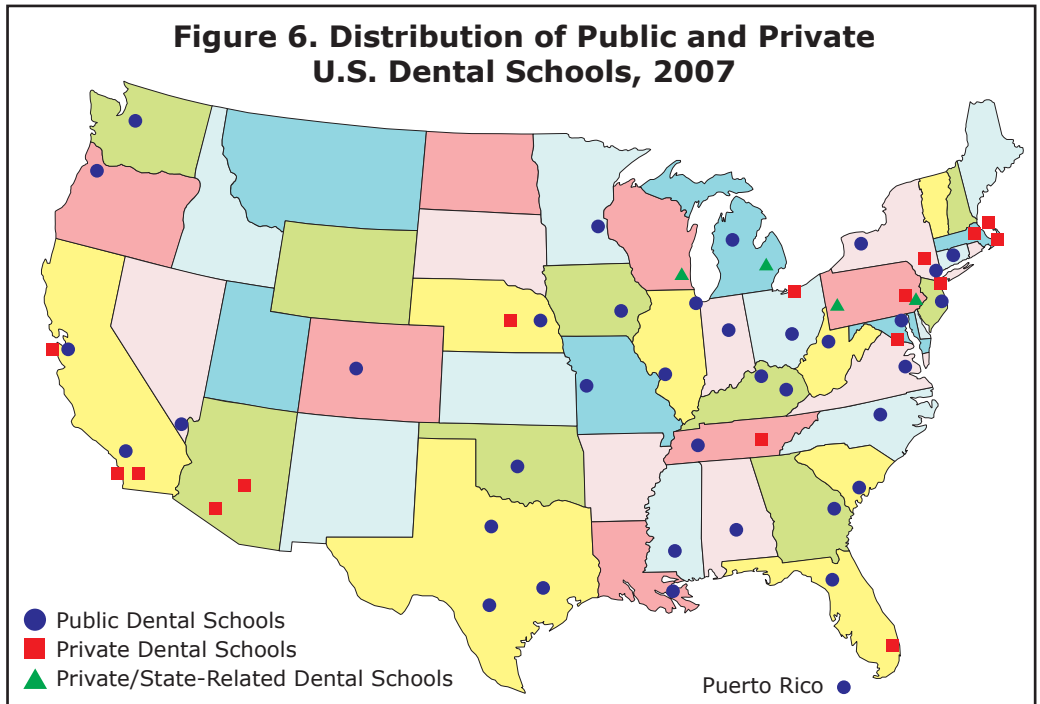
of the dental workforce has been a goal of dental educators. Enrollment of underrepresented minority (URM) students (African-American, Hispanic, and Native American) has increased 29 percent nationally and 160 percent in WICHE schools. However, the WICHE region still lags the nation in percent of URM students, enrolling them as 10.2 percent of the 2007 entering class in WICHE schools versus 13.2 percent nationally. (See Figure 5 for trends in the WICHE region.)

Two dental schools participating in WICHE's PSEP reported recent increases in class size (by two to eight slots), but most project generally stable enrollment through 2012, with some growth expected in international dentist and residency slots. These schools noted limited ability to expand due to facility size, operating costs, and faculty recruitment. Recruitment of dental faculty has been problematic for some time, and with new dental schools opening, there has been an increase in unfilled faculty positions (365 unfilled positions in 2006).²⁶

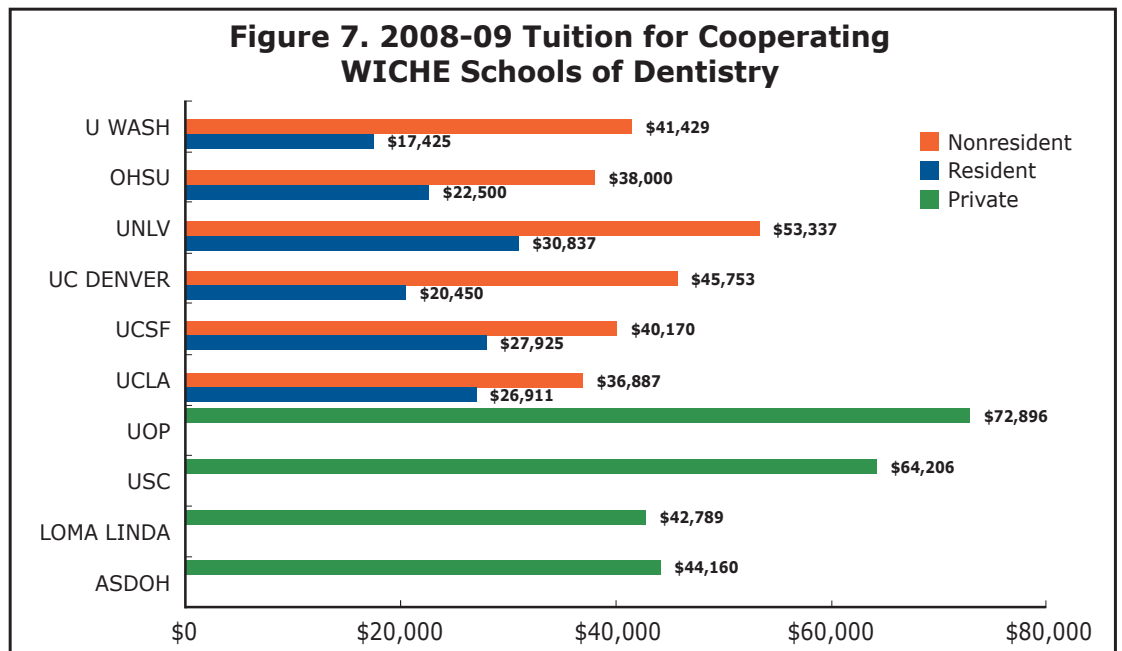
The cost of dental education continues to increase. The average debt of dental school graduates in 2006 was \$145,465.²⁷ Nationally, 2005 tuition averages were \$24,286 (\$39,267 for private, \$16,593 for public).²⁸ In 2008-09 cooperating public WICHE schools averaged \$24,341 for resident tuition and \$42,596 for nonresident tuition (see Figure 7). Private school tuition

averaged \$56,012. Seven WICHE member schools projected a 4 to 10 percent tuition increase in the 2009-10 academic year and cited decreases in state support and increases in the costs of education as the key contributing factors.

There is no requirement for postgraduate training in dentistry; however, there has been steady growth in these residency programs over the past 30 years. About



Source: American Dental Education Association, www.adea.org (2006)



Source: Western Interstate Commission for Higher Education, Survey of Cooperating Schools of Dentistry (Boulder, CO: WICHE, August 2008).

30 percent of graduates apply to a general practice residency or a program for advanced education in general dentistry, while 20 percent apply to a specialty residency.²⁹

Allied Dental Education

There has been significant growth, both nationally and in the WICHE region, in graduates and programs in dental hygiene and dental assisting, but a decline in dental technicians (see Table 3.) The WICHE region currently produces 21.5 percent of the nation's dental hygienists, 35.8 percent of dental assistants, and 28.5 percent of dental technologists.

Dental hygiene programs may be two- or four-year programs, with assisting and technician programs almost universally situated at community or vocational colleges. In 2007, 78.2 percent of all dental hygiene programs were at the associate's degree level (or fewer than four years), 19.1 percent were baccalaureate, and 2.7 percent were master's programs. Many institutions offer multiple completion options that include: associate's; bachelor's; master's; award of less than one academic year; at least one but less than two academic years; at least two but less than four academic years; and a postbaccalaureate certificate. The WICHE region degree programs reflect a similar breakdown.³⁰ A recent study on dental education reported that 52 percent of dental hygiene programs are situated in

public community colleges and that recruitment and retention of faculty is an ongoing problem, with 22 percent of programs reporting vacancies for faculty. The small number of master's programs both nationally and in the WICHE region contributes to a shortage of educators, as does the salary differential between the education and private sectors. While recruitment of students is not problematic, programs struggle to attract a culturally and gender-diverse student body.³¹

In those states with independent or public health tracks for dental hygienists (such as in California's Alternative Practice programs), the trends in enrollment have steadied at 20 to 30 graduates a year. Trends in extended function certification for dental assisting are not available, but these certifications are predicted to continue to grow. In California the licensing and education system is undergoing a substantial reorganization, creating several new categories of dental assistants and various levels of certification. A 2006 study by the Dental Assisting National Board found such wide variation that it produced a position paper advocating for uniformity.³²

Allied dental education is significantly less expensive than dental education. Average in-state/in-district tuition and fees in 2004 were \$13,346 for dental hygiene, \$5,053 for dental assisting, and \$6,635 for dental laboratory technician.³³

Table 3. Allied Dental Programs and Graduates, 2002 and 2007 Comparison

	U.S. (2000)	U.S. (2007)	Percentage Change	WICHE (2002)	WICHE (2007)	Percentage Change
Dental Hygiene						
Institutions	270	318	17.7%	53	66	24.5%
Degree Programs	307	372	21.2%	60	80	33.3%
Total Graduates	5,777	6,923	19.8%	1,146	1,492	30.1%
Dental Assisting						
Institutions	425	515	21.2%	119	166	39.5%
Degree Programs	505	631	25.0%	151	221	46.4%
Total Graduates	11,194	16,891	50.9%	4,754	6,054	27.3%
Dental Technology						
Institutions	62	45	-27.4%	21	10	-52.4%
Degree Programs	81	67	-17.3%	29	20	-31.0%
Total Graduates	727	499	-31.4%	354	142	-59.9%

Source: Integrated Postsecondary Education Data System (IPEDS) Program Completions, 2000-2007, National Center for Education Statistics (Washington, D.C.: U.S. Department of Education, 2007).

Health Workforce Policy and Access to Care

The dental profession has been responsive to the economic demand for dental care but continues to struggle with meeting the actual *need* for care for all Americans. The diversity of the workforce continues to lag that of other healthcare professions, and the geographic maldistribution of dentists continues to be a problem impacting access to dental services. This is evidenced by the increase in the number of dental health professional shortage areas in the past few years, a trend which may be partially attributable to more communities seeking the designation to be eligible for federal funding to attract dentists.³⁴ A number of workforce-focused efforts are underway in both the public and private sectors to address the supply and composition of providers in rural and underserved communities.

Practice environment strategies are short-term solutions intended to influence practice location and patient base. Loan repayment and scholarship programs (focused on promoting service in shortage areas), changes in licensure processes (allowing for easier cross-border movement of professions), credentialing of foreign-trained dentists (to increase supply), and increases in scopes of practice (to facilitate efficiency in the clinical setting or extended service provision by nondentists) are mechanisms that seek to have an immediate impact on provider distribution. While certainly these strategies have a positive impact on the communities who attain services, they have had limited impact on the overall landscape of service delivery. For example, the National Health Service Corps funds dental loan repayment placements each year, but these do not come close to meeting the need of the dental health professional shortage areas, which are estimated to need close to 8,500 dentists nationally.³⁵ Community health centers (CHCs) have made great strides in filling the access void for underserved communities, reporting a 92.3 percent increase in dental patients and a 104.4 percent increase in patient visits for dental care between 2000 and 2006.³⁶ Yet CHCs reported an 18.5 percent vacancy rate for dentists in 2004, with a 26.7 percent vacancy rate for rural CHCs.³⁷

Dental education strategies seek to influence eventual practice location by recruiting students from rural or

minority communities and by increasing students' awareness of access-to-care issues by sensitizing them to work with underserved patients during their dental training. Dental educators have been leading the way with a number of programs to develop dental graduates with a commitment to underserved and rural communities. Nationally, the Pipeline, Professions and Practice Program, funded by the Robert Wood Johnson Foundation (RWJF) and The California Endowment (TCE), has influenced dental education across the country by focusing on recruitment of minority applicants to dental schools, curricular changes, and increases in the number of hours spent doing clinical training in community-based settings.³⁸ Six of the original 15 grantees, and six of the 13 second-round grantees (one in the RWJF program and five in the TCE program, which is separate and only operates in California) are from the WICHE region.

The new Arizona School of Dentistry and Oral Health has had preliminary successes with a new educational model focused on community service, which resulted in 25 percent of the first graduating class choosing employment in community health centers (CHCs).³⁹ The University of Washington School of Dentistry launched its RIDE (Regional Initiatives in Dental Education) program, which combines extensive community-based training in Eastern Washington in underserved and rural communities with interprofessional training with medical and dental hygiene students.⁴⁰

Five of the dental schools participating in WICHE's PSEP report a program specifically focused on rural practice. Student participation in most of these programs was reported to be voluntary. The schools report that students in these tracks indicate that they intend to return to rural communities to practice, but no schools reported being able to track the placement outcomes of those who do participate. Seven of the participating dental schools report a program specifically focused on underserved populations. Student participation in these tracks is more likely to be mandatory, and the schools report between 5 to 25 percent of their graduates going on to practice in underserved communities.

Applicant pool strategies seek to influence the pool of available providers many years down the road. Outreach, tutoring, and mentoring programs for high

school and college students, and postbaccalaureate programs for college graduates, particularly disadvantaged or minority students, all attempt to influence the mix of eventual dental providers.⁴¹ In a recent American Dental Education Association (ADEA) survey, 20 to 30 percent of students said service to low-income or particular racial populations is a reason they pursued dentistry.⁴² Underrepresented minority graduates are more likely to want to serve their own communities and think that access to care is an important issue, but they continue to be a small percentage of graduates.⁴³

Dental schools participating in WICHE's PSEP also reported a number of innovative educational models they were using to recruit and educate their students, models that support the overall goals of increasing diversity, capacity, and distribution of the dental workforce. An August 2008 survey of 10 cooperating WICHE schools showed they had implemented the following (eight schools responded):

- Community health center collaboration for community-based dental education that included dental education or a residency (seven schools).
- Use of electronic health records (seven schools).
- Summer programs to expose younger students to the oral healthcare professions (six schools).
- Postbaccalaureate programs to increase applications to dental school by underrepresented or disadvantaged populations (five schools).
- Increasing diversity of providers in the oral healthcare professions (five schools).
- Special curriculum tracks focused on community service (five schools).
- Medical-dental integrated-care delivery models (three schools).
- Expanded function or other alternative workforce training for allied dental providers (three schools).
- Online or other e-learning curriculum options (three schools).
- Training in a dental team with other allied oral healthcare practitioners (three schools).

There are cultural and economic challenges to opening or maintaining a private practice in underserved communities, which tend to have diverse populations and high proportions of low-income individuals who may be uninsured or covered by public insurance

(which very few dentists will accept). These challenges are exacerbated in rural communities because of low population volumes, resulting in diseconomies of scale, and higher proportions of elderly individuals on Medicare, which does not cover dental services.⁴⁴ New graduates must consider not only their personal lifestyle options (rural communities attract some people, but others find that they're isolating and have fewer cultural amenities) but how to purchase a practice when many are already faced with a debt load averaging almost \$150,000. The persistent lack of services in rural communities is testament to existing workforce policies' inability to overcome these hurdles and to the need for a new model of care delivery more suited to these environmental realities.

New Workforce Solutions

Local, state, and national groups have started to rethink workforce policy, no longer just working to increase the number of existing professionals but actively promoting new workforce models, which include new roles for existing professionals and new dental health occupations. These new initiatives do not seek to replace the existing model but to complement it in the arenas of public health, community-based healthcare delivery models, and allied workforce expansion.

New Roles

The WICHE region has been at the forefront of pioneering new workforce models. In dentistry there has been an enhancement of the ability of general dentists to provide care for infants and young children, as well as the identification of new roles for allied health professionals in public health clinics and school-based programs. Increases in the scope of practice or decreases in supervision requirements usually require regulatory reform, which California, Colorado, Oregon, New Mexico, and Washington have achieved by implementing the independent or collaborative practice of dental hygiene in certain settings or for certain populations.⁴⁵ In these states a small but steady number of hygienists have moved into these types of practices, ranging from 2 to 5 percent of the total hygienist population. Extended function dental assistants are used to improve efficiency of the dental clinic, of particular importance to CHCs in underserved communities with long waiting lists.

In medicine, the movement toward new roles for existing practitioners has been focused around a number of efforts to integrate dental health into general healthcare. Registered nurses, pediatricians, family physicians, and nurse practitioners have provided oral health education, oral health risk assessment, and fluoride varnishes in some states, as these are simple interventions that usually can be done within their scope of practice.

New Oral Healthcare Providers

Expansion of primary care into rural and underserved communities was made possible in part by the creation of midlevel providers, such as nurse practitioners and physician assistants, as well as a host of other allied healthcare professionals. Dentistry has been opposed to the development of any new providers with the ability to do restorative services except when under their direct supervision. Despite this opposition, several new provider types have been developed, although not without first having to overcome legislative and legal challenges. The hope now is that improvements in access and oral health outcomes will be made through these new providers.

Alaska has implemented a program of dental health aid therapists in the Alaska Native Tribal Health Authority, based on the successes of many dental therapist programs around the world.⁴⁶ Minnesota has followed with their proposed oral health practitioner (pilot in progress). To date no other states have created new independent providers with restorative services in their scope of practice. Two additional models have been proposed and are expected to be piloted: the advanced dental hygiene practitioner, sponsored by the American Dental Hygienists' Association; and the community dental health coordinator, sponsored by the American Dental Association.

Education programs are being developed to train these new providers, and oral health curriculum is starting to be included in more medical and nursing training. However, the basic clinical training of dentists remains separated from that of hygienists and assistants, as well as from the rest of medicine, keeping the innovations in these models from being interdisciplinary or team-based and resulting in ongoing challenges for collaborative practice between new and existing providers.

Projected Challenges

There are a number of trends impacting the access, quality, and cost of provision of dental care for Americans, including the increasing diversity and aging of the population, changing consumer preferences, shifting disease trends, increasing health disparities, improvements in technology, and the impact of globalization. The WICHE region, with its increasingly diverse populations, vast rural areas, and large urban underserved communities, will continue to struggle with the geographic distribution of its providers and its ability to provide access to culturally competent and affordable dental care. A one-size-fits-all model of dental care delivery will not meet the diverse needs of this changing population in a dynamic and increasingly complex healthcare environment.

Recommendations

As the healthcare system becomes increasingly complex, so must our understanding of the role, composition, and responsibilities of the workforce in providing oral healthcare services for children and families. Some specific recommendations for the WICHE region:

- Policymakers must continue to monitor the **current and future need for oral healthcare services** of their constituent populations. A lack of attention to oral health, despite many simple and effective methods to treat oral disease, has resulted in dental caries being the most prevalent childhood disease and oral health being a chronic unmet need among seniors.
- The **supply** of dental providers in the West is expected to continue to grow; however, the **composition and distribution** of providers will continue to be problematic until more accessible models of care delivery are developed and deployed. Dental hygienists and assistants will follow the dentists' location and practice for the most part, except where independent or alternative models are expanded.
- The **racial/ethnic and gender diversity** of the dental workforce is not at parity with the population, raising issues about the cultural and linguistic competence of providers, particularly in the diverse WICHE region. Educators need to improve **their recruitment and retention efforts**

in this area, and policymakers need to support these efforts.

- The **dental education system** will need to be responsive to the community needs for new provider types and engage the practice community in developing new educational models, particularly those which are community-based and have a focus on public health.
- Dental educators should **expand their focus on rural service** and should look to physician education programs such as the UCSF/UCLA Prime Program and the UC Davis Rural Plus program, which focus on recruiting medical students from rural or underserved areas into a cohort, with part of their training back in their “home” environment and with the expectations that they will then stay in that environment after graduation.
- **Interdisciplinary educational** experiences, between dentistry and medicine, but also within dentistry between dentists and allied dental providers, are needed to overcome professional turf battles and facilitate collaborative practices that are focused around meeting community oral health needs.

- **New practice models** to address disparities in oral health will require new roles for existing providers; an expansion of medicine and public health’s role in oral health; and new provider types to fill workforce gaps and improve access to affordable, high-quality oral healthcare.
- Unified regional **workforce regulation and licensure policies** would support the West’s development and deployment of new workforce models, each of which are currently restricted to a single state. Licensure by credential enables cross-border movement of traditional providers who are recognized universally (i.e., D.D.S.) but not new provider types, such as registered dental hygienists in alternative practice or extended function assistants in California or limited access permit hygienists in Oregon. Innovative solutions that have been deemed safe and effective in one state should be adopted by all states.

Addressing the oral healthcare needs of the population in the future will require regulatory flexibility, community-based education, and innovations in care delivery. These approaches must extend outside of the traditional professional silos to build a strong partnership commitment between professionals, educators and communities to finding local solutions.

WICHE developed this series *A Closer Look at Healthcare Workforce Needs in the West* to help policymakers and higher education decision makers in the Western states to share resources and develop a regional response to meet the West’s healthcare needs. This issue, focused on the oral healthcare workforce, was prepared by Elizabeth Mertz. WICHE would also like to thank William F. Bird, DDS, MPH, DrPH for his review and comments on the draft. Briefs on medical education, pharmacy and health information technology workforce are also available.

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Endnotes

- ¹ U.S. Department of Health and Human Services (USDHHS), *Oral Health in America: A Report of the Surgeon General* (Rockville, MD: USDHHS, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000).
- ² R.W. Valachovic, "Dental Workforce Trends and Children," *Ambulatory Pediatrics* 2, no. 2, supplement (2002), 154-161.
- ³ USDHHS, *Oral Health in America*.
- ⁴ American Dental Association (ADA), "The 2006 Survey of Dental Practice" (Chicago, IL: ADA, 2006).
- ⁵ National Center for Health Statistics (NCHS), "Fastats A-Z, 2006" (Hyattsville, MD: Centers for Disease Control), accessed on 4 November 2008 from <www.cdc.gov/nchs/fastats/dental.htm>.
- ⁶ R.W. Valachovic, R.G. Weaver et al., "Trends in Dentistry and Dental Education: 2001," *Journal of Dental Education*, 65, no. 6 (2001), 539-561.
- ⁷ American Dental Association (ADA), "Distribution of Dentists in the United States by Region and State, 2005" (Chicago, IL: ADA, 2007).
- ⁸ Ibid. Also see ADA, "The 2006 Survey of Dental Practice"; American Dental Education Association (ADEA), "Trends in Dental Education" (Washington, D.C.: ADEA, 2007), accessed 2 October 2008 from <www5.adea.org/tde/mainindex.htm>; U.S. Census Bureau, Population Division, "Table 1: Annual Estimates of the Population for the United States, Regions, States, and Puerto Rico: April 1, 2000, to July 1, 2007," accessed on 26 September 2008 from <www.census.gov/popest/states/tables/NST-EST2007-01.xls>.
- ⁹ ADA, "Distribution of Dentists."
- ¹⁰ American Dental Education Association (ADEA), "Dental Education at a Glance" (Washington, D.C.: ADEA, 2007), accessed 2 October 2008, from <www.adea.org/publications/adeadentaldataglance/Pages/default.aspx>.
- ¹¹ ADA, "Distribution of Dentists."
- ¹² ADA, "The 2006 Survey of Dental Practice."
- ¹³ Ibid.
- ¹⁴ Ibid.
- ¹⁵ ADA, "Distribution of Dentists."
- ¹⁶ Bureau of Labor Statistics (BLS), "Occupational Outlook Handbook, 2008-09 Edition," accessed on 26 September 2008 from <www.bls.gov/oco/ocos163.htm>. Also see A. Dohm and L. Sniper, "Occupational Employment Projections to 2016," *Monthly Labor Review*, 2007.
- ¹⁷ American Dental Hygienists Association (ADHA), "Master List of Licensed Dental Hygienists in the U.S. as of Winter 2006-07" (Chicago, IL: ADHA, 2007). Also see U.S. Census Bureau, Population Division, "Table 1: Annual Estimates of the Population for the United States, Regions, States, and Puerto Rico: April 1, 2000, to July 1, 2007."
- ¹⁸ C.H. Andrilla and G. Hart, "Practice Patterns and Characteristics of Dental Hygienists in Washington State" (Seattle, WA: WWAMI Center for Health Workforce Studies, University of Washington, 2007). Also see T. Continelli, "Dental Hygiene Practitioner Survey" (Rensselaer, NY: Center for Health Workforce Studies, University at Albany, 2008); and E. Mertz, "Survey of Registered Dental Hygienists" (San Francisco, CA: Center for the Health Professions, University of California San Francisco, 2007).
- ¹⁹ American Dental Hygiene Association (ADHA), "Dental Hygiene Education Program Director Survey, 2006" (Chicago, IL: ADHA, 2008).
- ²⁰ BLS, "Occupational Outlook Handbook."
- ²¹ Andrilla and Hart, "Practice Patterns and Characteristics of Dental Hygienists." Also see Mertz, "Survey of Registered Dental Hygienists."
- ²² E. Mertz, *Registered Dental Hygienists in Alternative Practice: Increasing Access to Care in California* (San Francisco, CA: Center for the Health Professions, University of California San Francisco, 2002).
- ²³ BLS, "Occupational Outlook Handbook."
- ²⁴ Ibid.
- ²⁵ ADA, Survey Center, "Surveys of Dental Education, 2000-2007."
- ²⁶ ADA, "Distribution of Dentists." Also see J. E. Chmar, A. H. Harlow et al., "Annual ADEA Survey of Dental School Seniors, 2006 Graduating Class," *Journal of Dental Education* 71, no. 9 (2007), 1228-53.
- ²⁷ Ibid.
- ²⁸ ADEA, "Trends in Dental Education."
- ²⁹ R.W. Valachovic, "Dental Workforce Trends and Children."
- ³⁰ National Center for Education Statistics (NCES), "Integrated Postsecondary Education Data System (IPEDS) Program Completions, 2000-2007" (Washington, D.C.: NCES, 2007).
- ³¹ ADHA, "Dental Hygiene Education Program Director Survey."
- ³² Dental Assisting National Board (DANB), "Job Title Excerpt: Position Paper of the ADAA/DANB Alliance: Addressing a Uniform National Model for the Dental Assisting Profession" (2007), accessed 21 July 21 2008, from <www.danb.org/PDFs/JobTitles.pdf>.
- ³³ ADEA, "Dental Education at a Glance."
- ³⁴ American Dental Education Association (ADEA), "Dental Education at a Glance" (Washington, D.C.: ADEA, 2004).
- ³⁵ Ibid.
- ³⁶ National Association of Community Health Centers, "A Sketch of Community Health Centers: Chart Book 2008," accessed on 21 July 21 2008, from <www.nachc.com/client/documents/Charbook%202008%20FINAL.pdf>.

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- ³⁷ R.A. Rosenblatt and C.H. Andrilla et al. "Shortages of Medical Personnel at Community Health Centers: Implications for Planned Expansion," *JAMA* 295, no. 9 (2006), 1042-9.
- ³⁸ Pipeline, Profession and Practice, "Pipeline, Profession and Practice Fact Sheet, 2008," accessed on 22 July 2008 from <www.dentalpipeline.org>.
- ³⁹ A.T. Still University, "Arizona's First Dental School Graduates Second Class," accessed on 21 May 2008 from <www.atsu.edu/communications/news_releases/Arizonasfirstdentialschoolgraduatessecondclass.htm>.
- ⁴⁰ University of Washington, School of Dentistry, "Regional Initiative in Dental Education" (Seattle, WA: University of Washington, 2008), accessed on 28 July 2008, from <www.dental.washington.edu/ride>.
- ⁴¹ E. Mertz, G. Anderson et al., *Evaluation of Strategies to Recruit Oral Health Care Providers to Underserved Areas of California* (San Francisco, CA: Center for the Health Professions, University of California San Francisco, 2004).
- ⁴² ADEA, "Trends in Dental Education."
- ⁴³ Chmar and Harlow, "Annual ADEA Survey of Dental School Seniors."
- ⁴⁴ H. R. Heady, "A Delicate Balance: The Economics of Rural Health Care Delivery," *JAMA* 287, no.1 (2002), 110.
- ⁴⁵ Andrilla and Hart, "Practice Patterns and Characteristics of Dental Hygienists." Also see A. M. Battrell, C. C. Gadbury-Amyot et al, "A Qualitative Study of Limited Access Permit Dental Hygienists in Oregon," *Journal of Dental Education* 72, no. 3 (2008), 329-43; and Mertz, *Registered Dental Hygienists*.
- ⁴⁶ D. A. Nash and R. J. Nagel, "Confronting Oral Health Disparities Among American Indian/Alaska Native Children: The Pediatric Oral Health Therapist," *American Journal of Public Health*, 95, no. 8 (2005), 1325-9.



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