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ENVIRONMENTAL SCAN

DENTAL OCCUPATIONS

San Bernardino & Riverside Counties

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CENTER OF EXCELLENCE
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REAL-TIME DATA TO ADVANCE COMMUNITY COLLEGES

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Mission: The Centers of Excellence, in partnership with business and industry, deliver regional workforce research customized for community college decision making and resource development.

Vision: We aspire to be the premier source of regional economic and workforce information and insight for community colleges.

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Centers of Excellence, Economic and Workforce Development Program

GIS Maps: created by Phenpak Sungvornrajasabh

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Table of Contents

Executive Summary	4
Introduction	5
Industry Overview	6
Industry Projections	12
Occupational Overview, Projections & Wages.....	12
Industry’s Workforce Needs	15
Community Support and Resources.....	19
Education and Training	19
College Response and Issues	22
Conclusion and Recommendations.....	23
References	26
Appendix A: How to Utilize this Report	28
Appendix B: Denti-Cal	29
Appendix C: Inland Empire Dental Occupations Survey	30
Appendix D: EMSI Data Source and Calculations	36
Appendix E: Dental Assisting Categories Effective January 1, 2010.....	37
Appendix F: GIS Maps	44
Appendix G: Skills and Experience.....	47
Appendix H: Dental Associations	48
Appendix I: Expanded Functions Training Requirements, California.....	49

The number of both Dental Assistant and Dental Hygienist jobs in the Inland Empire is projected to grow over the next ten years, resulting in 1,881 new and replacement jobs for Dental Assistants and 641 jobs for Dental Hygienists.

— Source: EMSI Complete Employment Data

Executive Summary

The dental care industry is experiencing unprecedented growth and requires highly qualified workers. By 2018, Dental assisting will be the fastest growing allied health occupation in the Inland Empire with 1,136 new jobs and 745 replacement jobs. Dental hygienists have a steady projected growth rate of 374 new jobs and 267 replacement jobs by 2018 making it the second-fastest growing allied health occupation in the Inland Empire. Dental laboratory technicians are projected to increase only slightly with 20 new jobs and 42 replacement jobs within the same period. Currently, the median hourly wages are \$14.20 for Dental Assistants, \$42.44 for Dental Hygienists, and \$17.94 for dental laboratory technicians.¹

There are several factors contributing to the high rate of job growth and replacement demand in the industry. Some of these factors include: the aging population in California; increased numbers of patients with insurance; rising demand for cosmetic services; changes in the way dentistry is practiced; and expanding services to underserved populations.

Although some data indicates that more than enough graduates are being produced to fill the hiring demand, employers claim to have difficulty finding qualified candidates for jobs. Dentists generally prefer hiring experienced Dental Assistants or those who have certificates from an approved school and/or have earned their Registered Dental Assistant (RDA) licenses. In the Inland Empire, there are two community college Dental Assistant programs, three Regional Occupational Programs (ROP), and four programs at proprietary schools with one additional program just starting up this year.

ROP & Community College Dental Assistant and Dental Hygienist Programs

Inland Empire	Institution	Location
Dental Hygienist Program	Riverside Community College	Moreno Valley
Dental Assistant Programs	Baldy View ROP	Rancho Cucamonga
	Chaffey Community College	Rancho Cucamonga
	Concorde College	San Bernardino
	Everest College	Ontario
	Kaplan College	Riverside
	Riverside Community College	Moreno Valley
	Riverside County Office of Education ROP	Riverside
	San Bernardino County ROP	San Bernardino
	Summit Career College	Colton
	United Education Institute	Ontario

¹ Economic Modeling Specialists, Inc. (EMSI) Complete Employment - 2nd Quarter 2009 v. 2

Because of the numerous existing programs and the recent California state law that allows dentists to train Dental Assistants, this report recommends careful study and partnership with local employers before the creation of new programs.

A ten year projection for San Bernardino and Riverside Counties estimates these three dental occupations will increase by 26% from 5,897 to 7,427 jobs. However, according to IPEDS data, there were 430 program completers in 2008 within the region. Even accounting for replacement jobs caused by normal attrition and retirees, in analyzing both the labor market data and the local survey results there does not seem to be any gap in the quantity of available dental assistants, hygienists, or laboratory technicians. However, there are significant licensure and certification changes for dental assistants which will be fully implemented January 1, 2010. These changes will dramatically alter the field and tasks permissible for dental assistants to perform.

Multiple recommendations for community colleges are not focused on program development but in partnership development and curriculum modification for existing programs. Recommendations include:

1. Build partnerships with employers and associations
2. Consider a strategic regional response to training for Registered Dental Assisting expanded functions
3. Consider adding Dental Hygienist specialty certificates
4. Monitor regulation and licensure changes
5. Share facilities to leverage resources
6. Monitor the new state dental regulatory body
7. Form a single regional advisory board
8. Provide Continuing Education Units through contract education

Introduction

The California Community Colleges Economic and Workforce Development Program (EWD) has charged the Centers of Excellence (COE) with identifying industries and occupations that have unmet employee development needs. The Centers provide information to community colleges so that they can respond to industry needs with appropriate education and training programs. (See Appendix A for more information on the Centers of Excellence and how to use this report).

As a result of the 2008 Inland Empire Allied Health Occupations environmental scan, Dental Hygienists (DH) and Dental Assistants (DA) were identified among 12 occupations in the region that will provide the greatest number of new and replacement jobs over the next five years. In recognition of the dramatic growth projected for this industry, the Center of Excellence is providing Inland Empire community colleges with this separate environmental scan of the local dental care industry.

Dental offices have been experiencing shortages of workers for years. An analysis of the Offices of Dentists (NAICS 62121) for the 2008-2018 period reveals that the demand for all occupations in this industry (including dental, clerical, etc.) will increase in the Inland Empire by 17%.² An integral part of overall health, oral health professionals play a key role in fighting diseases (some as serious as heart disease) and diagnosing over 90% of systemic diseases (like diabetes and leukemia) which appear in the mouth cavity first. Thus, the dental health care employee is an allied health worker who is at the same time a technician, a detective, and an educator.³

² Economic Modeling Specialists, Inc. (EMSI)

³ Sarasohn-Kahn, J. "Beyond tooth whitening: the decline of oral health." *Health Populi*.

Interestingly, while the tooth whitening industry has now surpassed \$1 billion,⁴ the most recent data shows that tooth decay affects more than a quarter (1/4) of American children aged 2-5 and over half aged 12-15.⁵ Efforts to improve access for underserved populations are complicated. Large professional associations like the American Dental Association are opposed to using Dental Hygienists and other dental office workers to provide basic care outside of the physical dental office site.⁶ Fortunately, in spite of this opposition, recent California law allows specially licensed Dental Hygienists to practice oral hygiene and provide basic services without the supervision of a practicing dentist. In the Inland Empire, Riverside Community College's Dental Hygiene program has been providing basic oral care services to young children and seniors since 2004.

This environmental scan focuses on the education, training, and employment of three occupations in the dental office industry: Dental Assistants, Dental Hygienists, and Dental Lab Technicians.

Industry Overview

The dental industry includes occupations which support the practice of general or specialized dentistry or dental surgery. Professionals working within this industry provide comprehensive preventative, cosmetic or emergency dental care.⁷ In California, nearly all dentists work in private practice and provide general dental care.⁸ Almost all of these private practice establishments employ fewer than five individuals.

Dental Offices include general, specialized, and pediatric services, with general dentistry composing 82% of all employment in the Inland Empire.⁹ General practitioners handle a variety of dental needs, and specialized dentists practice in any of nine specialty areas. Orthodontists, the largest group of specialists, straighten teeth by applying pressure to the teeth with braces or retainers. The next largest group, oral and maxillofacial surgeons, operates on the mouth and jaws. Remaining specialists work as pediatric dentists (focusing on dentistry for children); periodontists (treating gums and bone supporting the teeth); prosthodontists (replacing missing teeth with permanent fixtures, such as crowns and bridges, or with removable fixtures such as dentures); endodontists (performing root canal therapy); public health dentists (promoting good dental health and preventing dental diseases within the community); oral pathologists (studying oral diseases); or oral and maxillofacial radiologists (diagnosing diseases in the head and neck through the use of imaging technologies).¹⁰

There are several factors contributing to the steady rate of job growth and replacement demand in the dental industry. These factors include: the aging population in California; increased number of patients with insurance; rising demand for cosmetic services; changes in the way dentistry is practiced; and expanding services to underserved populations. Explanations of each of these factors follow.

The Aging Population: California's population is getting older. In 2011, the oldest baby-boomers will begin the traditional retirement age of 65 in 2011. Within the next ten years, 12 percent of the workforce is expected to retire, even after accounting for delays such as improved physical health and saving longer for retirement.¹¹ This level of retirement will create about 2,300 replacement job openings in the dental care industry in the Inland Empire over the next ten years.¹²

High Level of Insured Patients: California is only one of a handful of states that includes preventive and restorative dental services for children and adults in its federally-funded Medicaid program. Denti-Cal

⁴ Sarasohn -Kahn, J. "Beyond tooth whitening: the decline of oral health." *Health Populi*.

⁵ National Center for Chronic Disease Prevention and Health Promotion

⁶ Berenson, A. (October 11, 2007). "Boom Times for Dentists, But Not for Teeth," *New York Times*.

⁷ North American Industry Classification System, 2007

⁸ UCLA Center for Health Policy Research

⁹ EMSI Complete Employment – Spring 2008 Release v.2

¹⁰ Bureau of Labor Statistics, *U.S. Department of Labor, Occupational Outlook Handbook, 2008-09 Edition, Dentists*, on the Internet at <http://www.bis.gov/oco/ocos072.htm>

¹¹ Center for Continuing Study of the California Economy

¹² Economic Modeling Specialists, Inc.

(California's Medicaid dental program) insures 8.5-million low-income, disabled and elderly adults and children (See Appendix B). While on average about 35% of eligible children and adults in the Inland Empire use the services provided, the overall demand for Denti-Cal benefits will rise as the population increases and ages.¹³ In the private sector, employers have been adding dental insurance to employee benefit packages increasing consumer demand for dental services dramatically. The number of adult Californians with dental insurance increased by over 18% from 1995-2003, and dental office visits increased by 11.2% between 1997 and 2004. Ironically, as the demand for dental services continues to climb, the number of uninsured and untreated patients continues to grow as well.¹⁴

New Demand for Cosmetic Treatments: A 2007 report released by a national research firm estimates that 5% of all dental practices in the country offer "dental spa services," which include cosmetic treatments and relaxing spa services. This emerging market is due to the growing number of image conscious consumers that are interested in more than just basic dental care and are requesting such services as tooth whitening, veneers, smile design (orthodontics), and anti-clenching products and services. Not only does the addition of new services provide revenue increases as high as 30% per customer visit, but it also is increasing the demand for Dental Assistants and Dental Hygienists.¹⁵

Evolving Dentistry Practices: Because of the growing emphasis on basic preventative dental care and patient education, many dentists are relying heavily on Dental Assistants and Dental Hygienists. "To meet this demand, facilities that provide dental care, particularly Dentists' offices, will increasingly employ dental hygienists, and more hygienists per office, to perform services that have been performed by Dentists in the past."¹⁶ Recent California law has increased the number of registered dental assistants and registered dental hygienists that can be *simultaneously* providing services in an office.¹⁷

Expanding Dental Health Care Services to Underserved Populations: Recent studies have highlighted the lack of dental health care for low income, non-English speaking, and disabled populations. Existing educational programs for dental office workers do not include training on disabled patient care (e.g. patients with Autism) so Dentists are sometimes unwilling to accept these types of patients into their practices.¹⁸ Many Dentists will also not accept Denti-Cal patients for a variety of reasons, including the fact that they frequently miss their appointments.¹⁹ The California Dental Pipeline Project has been addressing the disparity in services for these underserved populations by convincing schools to recruit and enroll more underrepresented minority and low-income students, and altering their curriculum to prepare students to provide care to patients in underserved communities. Fifteen schools in California had implemented these changes by 2007.²⁰

Other efforts to address this problem on a national level include a recommendation from the American Dental Hygienists Association for colleges to create a curriculum for a Registered Dental Hygienist in Alternative Practice who is allowed to provide primary oral care services without the supervision of a Dentist in settings available to underserved populations.²¹ If these efforts to expand service to underserved populations are successful, they will further add to the rising demand for Dental Assistants and Dental Hygienists.

¹³ Denti-Cal Facts and Figures: A Look at California's Medicaid Dental Program-May, 2007

¹⁴ Berenson, A. (October 11, 2007). "Boom Times for Dentists, But Not for Teeth," New York Times.

¹⁵ Diagonal Reports. (July, 2007). The US Dental Spa Market.

¹⁶ Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2008-09 Edition*, Dental Hygienists, on the Internet at <http://www.bis.gov/oco/ocos097.htm>

¹⁷ Committee on Dental Auxiliaries, "Portions of the Business and Profession Code and California Code of Regulations, Title 16, as they relate to Dental Auxiliaries," www.comda.ca.gov.

¹⁸ Bauer, P. (June 4, 2008). Shortage of Dental Care Worsening for People with Disabilities.

¹⁹ Berenson, A. (October 11, 2007). "Boom Times for Dentists, But Not for Teeth," New York Times.

²⁰ Pipeline, Profession & Practice: Community-Based Dental Education

²¹ McKinnon, M., Luke, G., Bresch, J., Moss, M., and Valachovic, R. (November 2007). Emerging Allied Dental Workforce Models: Considerations for Academic Dental Institutions. *Journal of Dental Education*, Volume 71:11.

Legislative Impact

With the passage of Assembly Bill 2637 in 2008, which came into effect January 1, 2009 and will be fully implemented by January 1, 2010, the training and hiring practices of Dental Assistants are about to significantly change.²² Additional duties that dental assistants will be allowed to perform, include:

- Intraoral and extra-oral photography
- Take intraoral impressions
- Take face bow transfers and bite registrations
- Place and remove rubber dams
- Place patient monitoring sensors
- Monitor patient sedation

Additionally, the scope of registered dental assistants' duties will be expanded to include:

- Use of automated caries detection devices and materials to gather information for diagnostics by the dentist
- Obtain intraoral images for computer-aided design (CAD)
- Place bonding agents
- Chemically prepare teeth for bonding
- Place, adjust, and finish direct provisional restorations
- Adjust dentures extra orally
- Remove excess cement from surfaces of teeth with a hand instrument

In addition to modifications in the existing Dental Assistant (DA), Registered Dental Assistant (RDA) and Registered Dental Assistant in Extended Functions (RDAEF) categories, two specialty permits in Orthodontic Assisting and Sedation Assisting will be created. RDAs and RDAEFs may obtain the new specialty permits by completing educational requirements and successfully passing a written examination. (See table below).

AB 2637 will have a wide-ranging impact on all unlicensed DAs and their employers, as well as applicants for RDA or RDAEF licensure. For example, unlicensed Dental Assistants who are in a dentist's continuous employment 120 days or more must complete, within a year of the date of employment, a course in basic life support, an 8-hour board-approved course in infection control, and a board-approved course in the California Dental Practice Act. Industry associations and education providers will be needed to provide these new required training programs. The following table outlines these new employment and training requirements within AB 2637.

Dental Assisting Categories	
Dental Assistant (DA) Unlicensed	Employers are responsible for the following new requirements. Within 12 months, unlicensed DAs must complete a Dental Board of California (DBC) approved course which includes: <ul style="list-style-type: none"> • CA Dental Practice Act - 2 hours • Infection Control - 8 hours • Obtain and/or maintain basic life support (BLS certification)

²² California Dental Assistants Association. (September, 2008). Legislative Update.

Dental Assisting Categories	
Registered Dental Assistant (RDA)	<ul style="list-style-type: none"> • All course and BLS requirements for DA. Completion of RDA education program or 15 months of dental assisting work experience. • Passage of DBC administered written and practical examination • Passage of DBC administered law and ethics examination • 25 hours of qualifying continuing education (CE) in each two-year license renewal cycle
Registered Dental Assistant in Extended Functions (RDAEF)	<ul style="list-style-type: none"> • Completion of all RDA requirements • Completion of RDAEF postsecondary program • DBC administered written and practical examinations • 25 hours of qualifying CE in each two-year license renewal cycle
Specialty-Specific (Add-On) Permits	
Orthodontic Assistant Permit (OAP)	12-months DA work experience or RDA / RDAEF license. Completion of 84-hour DBC approved orthodontic assistant course. Passage of DBC administered written examination and 25 hours of qualifying CE in each two-year renewal cycle.
Dental Sedation Assistant Permit (DSAP)	12-months DA work experience or RDA/ RDAEF license. Completion of 110-hour DBC approved sedation assistant course. Passage of DBC administered written examination and 25 hours of qualifying CE in each two-year renewal cycle.

A second piece of recent legislation that will affect the industry is Senate Bill 853. SB 853 abolishes the Committee on Dental Auxiliaries (COMDA) and places the Dental Board of California responsible for licensing dental assistants and administering all examinations for licensure. Registered Dental Assistants and Registered Dental Assistants in Extended Functions will be represented by, and fall under, the jurisdiction of the Dental Board of California. The law creates the "Dental Hygiene Committee of California" (DHCC) to replace COMDA and DHCC will represent the Registered Dental Hygienists, Registered Dental Hygienists in Extended Functions, and Registered Dental Hygienists in Alternative Practice.

Industry Survey

Recognizing the expanded workforce need within the industry, the Inland Empire Center of Excellence partnered with The Atticus Group Inc., a consulting and research firm focused on the healthcare industry, to gain input from employers to determine how education can best respond to their need for a qualified workforce. The survey was designed to evaluate a wide range of issues affecting the Inland Empire dental industry including:

- Current and future workforce needs for Dental Assistants (DA), Dental Hygienists (DH), and Dental Lab Technicians (DLT)
- Effects of the economic downturn on IE dental practices
- Denti-Cal
- Key concerns (not including workforce development)
- Entry level Skills, Educational preference and Experience
- Program Development Recommendations



Industry partners in developing and disseminating the survey included Penny Gage, the executive director and Robert Stevenson DDS, board president, of the Tri-County Dental Society (TCDS). TCDS is the regional component of the American Dental Association (ADA) and the California Dental Association (CDA) representing the interests of dentists throughout the Inland Empire. In addition, Joni Stephens, Professor of Dental Hygiene and Charles Goodacre, dean, School of Dentistry, Loma Linda University (LLU) provided critical feedback. Based on discussions with industry, it was decided that an on-line survey sent from TCDS would generate the most responses. An email was sent to 1,037 of their members located in San Bernardino and Riverside Counties. A total of 146 surveys were completed representing a 14% response rate. The responding dentists currently employ 481 DAs and 211 DHs. Results from this survey are cited throughout this report. A complete list of survey questions and responses is provided in Appendix C.

Regional Employers

Ninety-one percent of all employment in the dental care industry is in dental offices. There are currently 1,560 dental offices in the Inland Empire employing more than 1,100 Dental Hygienists and over 4,000 Dental Assistants.²³ Using Geospatial Information System (GIS) software, the COE identified the proximity of these employers to the 10 community colleges within the Inland Empire according to average driving times from the college to the dental offices. The numbers of employers within each college’s drive time are:

Community College	Number of Dental Offices Within: ²⁴		
	30 minutes	45 minutes	60 minutes
Barstow College	14	69	
Chaffey College	613	369	
College of the Desert	172	8	
Copper Mountain College	13	0	
Crafton Hills College	484	502	
Mt. San Jacinto College	104	396	503
Palo Verde College	3		
Riverside Community College	905	202	
San Bernardino Valley College	872	211	
Victor Valley College	90	30	

These counts, and their corresponding GIS maps, help illustrate the concentration of employers close to each community college are and important in determining a) the local workforce demand, b) the need for incumbent worker training given AB 2637, c) the strongest local need for educational programs given employer concentration, and d) the number of possible advisory group participants. See Appendix F for detailed GIS maps of the drive time analysis from each college to local employers.²⁵

Effects of the Economic Downturn

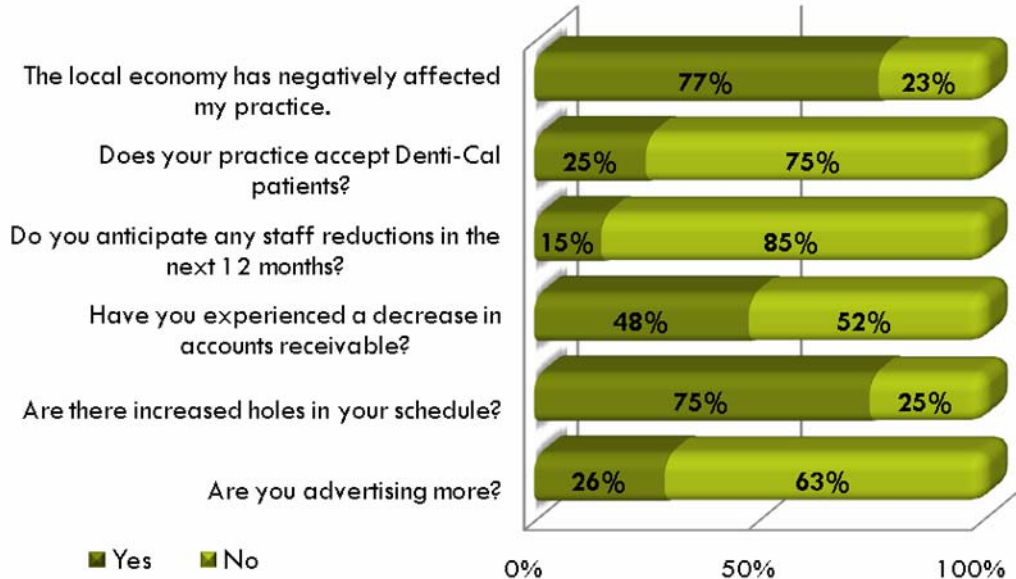
²³ InfoUSA business data 2008 using NAICS 621210. EMSI Complete Employment, Fall 2008.

²⁴ The employer counts within the 45 and 60 minute drive time areas to not include the 30 minute employers.

²⁵ Note that since some regional colleges are close to one another, many dental offices fall within a 30 minute drive time of multiple colleges and are thus counted more than once. Additionally, a 30 minute, 45 minute, and 60 minute drive time analysis was not completed for each community college. Our goal was to identify the college closest to each employer while minimizing duplication as much as possible. If the majority of employers are located within a 30 minute drive of a college, a 45 and 60 minute analysis was not deemed necessary. Only for Mt. San Antonio College was a 60 minute drive time analysis conducted to include employers that would not otherwise be captured.

Seventy-seven percent (112) of the dental practices surveyed have recently had difficulties due to a lagging economy in the region. Yet, only 15% will find it necessary to reduce staff.

Have you experienced any of the following changes in your practice due to the economic downturn?



Primarily, reductions will be DA staff, including, 12 full-time and 2 part-time employees from among survey respondents. Further reductions from our sample include two full-time DHs, one reduction in DH hours, one manager, three back office and seven front office employees. It appears the dentists are working hard to maintain staff considering 48% have experienced a decrease in accounts receivable, yet only 15% are considering staff reductions. The economic downturn also makes it more difficult for local dentists to allow the staffing hours required to pursue Denti-Cal approvals and reimbursement (see page 29).

From the comments given, dentists would prefer to run their practices more efficiently in order to compensate for decreases in accounts receivable. TCDS will attempt to address the need for this type of knowledge; perhaps in partnership with the local community colleges.

Industry Projections

As a population serving industry, dental offices and laboratories can be expected to grow consistent with the regional population growth. Collectively, Offices of Dentists and Dental Laboratories are projected to increase 16% by 2018.²⁶ Not surprisingly, most of that growth (98%) will occur within the Offices of Dentists.

NAICS	Industry	2008 Jobs	2018 Jobs	Change	% Change
621210	Offices of Dentists	9,975	11,947	1,972	17%
339116	Dental Laboratories	316	319	3	1%
	Total	10,291	12,266	1,975	16%

While there is a strong growth projection within this sector, new job growth is anticipated to be slightly less in the Inland Empire (16%) than statewide (22%) through 2018.

Location	2008 Jobs	2018 Jobs	Change	% Change
Inland Empire	10,291	12,266	1,975	16%
California	132,447	161,936	29,489	22%
United States	924,723	1,122,841	198,118	21%

Occupational Overview, Projections & Wages²⁷

A 2002 study of dental office workers reported that about 96% of the dentists in California employ dental assistants in their offices and over half of those employ more than two full time equivalent assistants per dentist.²⁸ The study also concluded that dentists more often employ registered dental assistants than those without licenses and the trend in new hires leans heavily toward registered dental assistants. According to the Dental Assisting National Board (DANB), registered dental assistants make an average of \$2.38 an hour more than assistants who are not registered.²⁹

Within the dental industry cluster in the Inland Empire, the majority of jobs are for dental assistants and dental hygienists. Both play supportive roles in dental offices and because of this the two jobs might seem interchangeable. However, important differences exist between the two careers fields, especially in the areas of job duties, required education and training and compensation. The primary difference between the two jobs is that the dental hygienist largely works independently to provide oral hygiene care to patients while dental assistants generally work with the dentist to help provide patient care in general dentistry and the dental specialties.³⁰

²⁶ Economic Modeling Specialists, Inc. See Appendix D for Data Calculations and Sources

²⁷ Excerpts from this section extracted from the Los Angeles County and Central Valley Center of Excellence reports. www.coecc.net

²⁸ CDA Foundation, & UCLA Center for Health Policy Research. (November, 2005). Is there a shortage of dental hygienists and assistants in California?

²⁹ Dental Assisting National Board 2008 Salary Survey.

³⁰ Coastal Carolina Community College, Dental Hygiene Department

Dental Assistants

Dental assistants are the fastest growing dental occupation in the Inland Empire with 1,136 new jobs and 745 replacement jobs by 2018.³¹ Dental assistants work with dentists and hygienists to perform patient care, office and laboratory duties. Dental assistants prepare patients for treatment and examinations as well as ensure that dental records, supplies and instruments are ready for the dentist to use. They may also prepare patients for x-rays, take x-rays, process films, sterilize and disinfect instruments and equipment, take impressions, and instruct patients in post-treatment care.

Most Dental Assistants work in privately owned dental offices but other opportunities for employment exist in hospitals, schools and clinics. Dental assisting is considered to be the entry occupation in the dental field and are thus the lowest paid of all the dental office occupations. Dental Assistants in the Inland Empire earn a median hourly wage of \$13.49. With further training and an examination, Dental Assistants can become either Registered Dental Assistants or Registered Dental Assistants in Extended Practice, or they can go back to college to become Dental Hygienists. Any of these steps toward further education and/or training will advance their career and generally result in higher hourly wages.

Until recently, a dental assistant could have a certificate of completion or even simply on the job training. Many dental assistants began working at this level while completing a training program in dental hygiene. With the new changes in requirements for dental assistants, training programs are now required and will likely result in higher wages and increased demand for registered dental assistants. The California Dental Association anticipates a shortage in the dental assistants' field, particularly for registered dental assistants with specialized training (orthodontics, surgery, etc.) as a result of the new requirements. As mentioned, and detailed on page 40, effective January 1, 2010 the typical tasks performed by Dental Assistants will be expanded. Expanded tasks can include, for example, measuring and making impressions, removing sutures and periodontal dressings, and administering gases for sedation purposes under the direct supervision of a licensed dentist.

Registered Dental Assistants (RDA)³²

A registered dental assistant (RDA) is a licensed dental professional slightly different from a dental assistant. The RDA performs a variety of patient care, office and laboratory duties which may include assisting the dentists, dental radiology, oral health education (e.g. toothbrushing, flossing, and nutritional counseling), implementing infection control, providing post-operative instructions, taking impressions, and communicating with patients. Some of the duties that may also be performed include:

- Mouth-mirror inspection of the oral cavity to include charting of obvious lesions, existing restorations and missing teeth
- Placement and removal of temporary sedative dressings
- Obtain endodontic cultures
- Test pulp vitality
- Remove excess cement from supragingival surfaces of teeth with a hand instrument
- Placement of post-extraction and periodontal dressings

“Dental assisting as a profession needs to organize and prepare for the changes brought by the evolution of dentistry. As educators, we have an obligation to prepare tomorrow’s professionals for tomorrow’s world.”

~ American Dental Assistants Association

Registered Dental Assistants are preferred because they can perform more complex tasks than unlicensed assistants and are allowed to perform many tasks without the required direct supervision of a licensed dentist or health care professional.³³ With an additional 96 hours of training from an approved program (currently

³¹ Economic Modeling Specialists, Inc.

³² Riverside Community College. <http://www.rcc.edu/programs/index.cfm>.

³³ California Business and Professional Code 1752.4.

at UC San Francisco or UC Los Angeles), RDAs can take an examination to register for extended function status. Registered Dental Assistants in Extended Functions (RDAEFs) may perform all the duties of an RDA and an additional ten duties. Appendix E provides the list of allowable duties that may be performed by Dental Assistants, RDAs, and RDAEFs.

Registered Dental Assistant programs prepare graduates to work in a variety of settings such as solo or group private dental practices; specialty practices such as oral and maxillary surgery, orthodontics, endodontics, periodontics, prosthodontics, and pediatric dentistry; the public health dentistry, including settings such as schools and clinics; hospital dental clinics; and dental school clinics. Presently, dentists most often employ licensed Registered Dental Assistants rather than those without licenses. In fact, survey results indicate that the trend in new hires leans heavily toward Registered Dental Assistants.

Dental Hygienists

Dental hygienists have a projected growth rate of 374 new jobs and 267 replacement jobs by 2018.³⁴ Dental Hygienists work with the dentist to provide comprehensive dental care to patients; they clean and polish teeth using scaling instruments and a rotating polisher. They apply decay preventive agents such as fluorides and sealants, chart medical and dental histories, and take and develop dental X-ray films. They examine patients' teeth and gums, recording the presence of diseases or abnormalities. Further, they also gather all of the patient data and information for the dentist and teach patients good oral hygiene practices. Hygienists do not diagnose problems, but over time they acquire more responsibility. They can administer anesthesia for pain control and prepare clinical and laboratory tests for interpretation by dentists.³⁵

In the state of California, dental hygienists must be licensed. Education requirements for this occupation are the completion of a 2-year degree from an accredited dental hygiene program, successfully passing both the National Board exam and State Board practical exam, and obtain a license by the State Board of Dental Examiners. The median wage earned by Dental Hygienists in the Inland Empire is currently \$38.80 per hour.



Registered Dental Hygienists (RDH)³⁶

A registered dental hygienist (RDH) is a licensed dental professional who provides preventive, educational, and therapeutic services to patients which can include oral examinations, oral prophylaxis (scaling, root planning, soft tissue curettage and selective polishing), dental radiography, pain control (administering local anesthesia and nitrous-oxide/oxygen sedation), dental sealants, preventive and adjunct therapies, nutritional counseling and oral health education. Dental Hygiene Programs prepare graduates to work in a variety of settings, such as private dental offices, schools, health centers, government agencies, and private industry.

³⁴ EMSI, Complete Employment, 2nd Quarter 2009 v. 2

³⁵ Employment Development Department, *Health Care Careers*

³⁶ Riverside Community College. <http://www.rcc.edu/programs/index.cfm>.



Dental Laboratory Technicians

Dental laboratory technicians construct and repair dental appliances such as crowns, bridges, dentures, and orthodontic appliances. They use a variety of hand tools to perform tasks. The tasks may include mixing ingredients, filling dental appliance molds, sculpting and building forms, bending and soldering wires, and grinding and polishing finished work. In some laboratories, dental laboratory technicians have full responsibility for studying prescriptions, planning the work, and designing, constructing, repairing, reworking, or adjusting dental appliances. In most laboratories, however, each technician concentrates on one aspect of the work. While there are no licensure requirements for this position, many employers prefer to hire employees with a two-year degree in dental laboratory technology.³⁷

Although median earnings are a respectable \$17.94, labor market projections for the Inland Empire are not going to make any headlines with dental laboratory technicians projected to increase only slightly with 20 new jobs and 42 replacement jobs by 2018.³⁸ Interestingly, interviews with industry representatives reported that many regional dental offices are not satisfied with their current dental labs revealing an entrepreneurial opportunity

within the Inland Empire. Presently, there are only 152 dental laboratories throughout the Inland Empire, most of which have less than 20 employees. See Appendix F for GIS maps indicating the location and size of dental laboratories.

Industry's Workforce Needs

(Registered) Dental Assistant

Inland Empire survey respondents currently employ 481 DAs, of which 392 (81%) are employed full time and 89 are part time employees. Sixty-three percent of all Dental Assistants employed by this sample are licensed as Registered Dental Assistants. Due to the change in requirements for dental assistants, employers will not be able to hire unlicensed dental assistants in the future – all assistants will be required to become Registered Dental Assistants (RDA).³⁹

Employers were asked, “Do you anticipate hiring any Dental Assistants in the next 24 months?” A yes response was provided by only 26% of the total number of respondents. Those respondents anticipate hiring 87 new DAs of which 50 will be full-time positions. Seventy-four percent of the dentists surveyed will not be hiring DAs in the next 24 months indicating that developing additional programs at this time does not seem warranted.

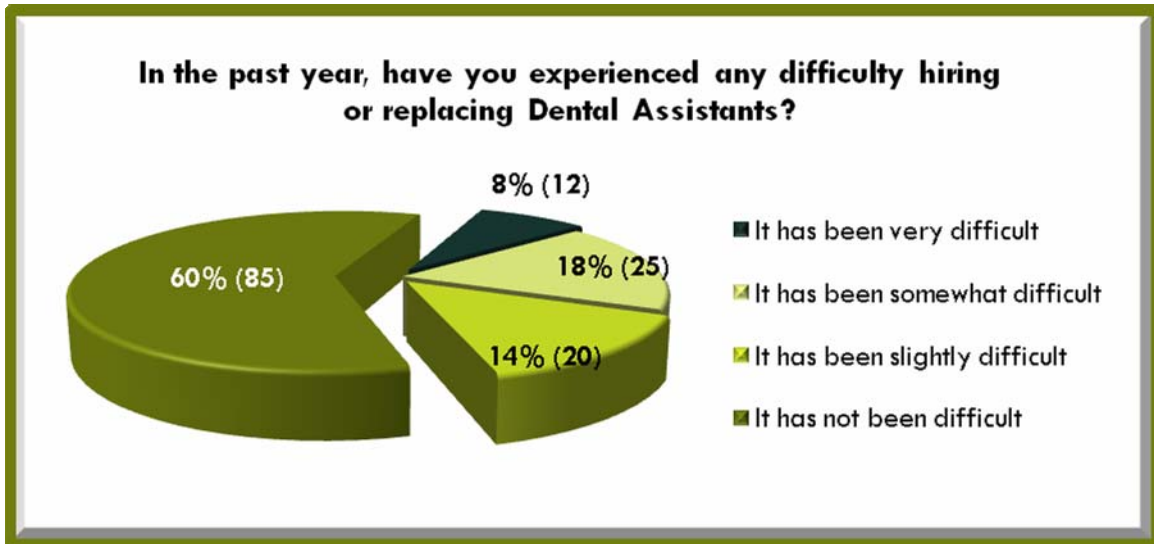
When asked about the difficulty in filling open positions, only 8% of survey responded that “it has been very difficult” and 18% found it was “somewhat difficult” to hire or replace Dental Assistants. Sixty percent of respondents report it is not difficult to hire or replace DAs (as shown in the pie chart on the following page). Confirming this information, JobCentral (the National Labor Exchange) listed only two DA jobs available in the Inland Empire.⁴⁰

³⁷ Employment Development Department, *Health Care Careers*

³⁸ EMSI, Complete Employment, 2nd Quarter 2009 v. 2

³⁹ California Dental Association

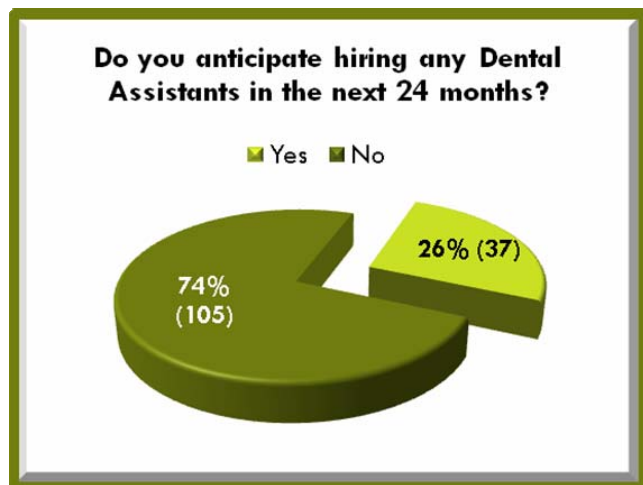
⁴⁰ Job Central. <http://www.jobcentral.org/results.asp>



(Registered) Dental Hygienists

A recent study conducted by the California Dental Association reveals that in the state of California, there is not a shortage of dental hygienists. Several years ago, a shortage was identified, and many community colleges responded by implementing hygienist programs. During the employer validation process for this study, employers in the Inland Empire echoed this sentiment.

One hundred and forty dentists responded to the COE survey questions pertaining to dental hygienists (DH). Respondents currently employ 211 DHs of which 91% are Registered Dental Hygienists, 130 are full time and 81 are employed part time. When asked if they expect to hire DHs over the next 24 months, 84% (118) said “no” and only 16% (22) said “yes.” Of the dentists hiring DHs over the next two years, 10 full time and 17 part time positions are expected from our sample. These expectations are lower than the labor market figures for the region and seem to suggest a limited occupational outlook considering the number of graduates in the educational pipeline.



Joni Stephens, professor of Dental Hygiene and Charles Goodacre, dean, School of Dentistry Loma Linda University, participated as advisors and assisted with the survey development. Professor Stephens meets regularly with leadership from all of the regional DH programs including, Loma Linda, Riverside Community College, and San Joaquin Valley College (proprietary). At the present time, LLU accepts 40 students, RCC recently increased to 24, and San Joaquin Valley has enrolled 24 students. Professor Stephens shared that all of the schools are receiving complaints from recent graduates that full time positions are extremely hard to find. This is consistent with the hiring intent of the survey respondents and per JobCentral (the National Labor Exchange) upon which there is only one part time DH job listed for the Inland Empire.

Further evidence confirming that our region has sufficient training providers and student graduates was given by the CDA in a report released July 2005, *Dental Hygiene School Business Plan* for the State of California. The CDA Dental Task Force eliminated the Inland Empire Metropolitan Statistical Area as a potential site because the region already has a number of DH schools and the hygienist-to-dentist ratio is reasonable compared to other regions in the state.

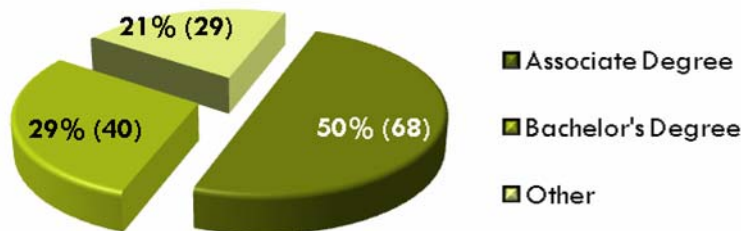
In spite of market saturation, Concorde will be opening a Dental Hygiene program in San Bernardino (date undetermined) and West Coast University, Anaheim campus, admitted its first class of 50 students in April 2009 for an accelerated 33 month Baccalaureate DH program. Two out of the four baccalaureate programs in Dental Hygiene located in California are in Anaheim and Loma Linda. Both are convenient for Inland Empire community college program completers wishing to access a related baccalaureate education. The occupational outlook for DH graduates is bleak as employers report maintaining or reducing DH staff in the months to come.

As the occupational outlook improves for DHs and future programs are considered, our survey advisory group thought it was important to identify how employers viewed the Baccalaureate prepared vs. the Associate prepared Dental Hygienists within the region. Three questions relating to educational preparation were posed.

- What is the minimum level of formal education you require when hiring DHs?
- Do you provide equal salaries for DHs with a Bachelors vs. an Associates degree?
- What are your perceptions regarding hiring DHs with a Bachelors degree vs. an Associates degree?

Sixty-four dentists stated “none” or “no difference” between DH educational preparatory programs. The common sentiment given by those stating a preference for a BS degree (29%) were, “the employee is well-rounded, mature and has received more general education.” Comments from those not stating a preference include “the clinical knowledge and DH skills are the same,” and “as long as the person is committed, and productive, the degree doesn’t matter.”

What is the minimum level of formal education you require when hiring dental hygienists?



Sixty-one percent of respondents provide equal salaries for DHs regardless of degree. These results support the community college system (and Riverside Community College in particular) as a Dental Hygienist education provider of choice.

Dental Laboratory Technicians

In San Bernardino and Riverside counties, and throughout California, there are very few employers that hire dental laboratory technicians (DLT). During interviews with the American Dental Association and California Dental Association, both organizations indicated that in the next 5-10 years, there may be a change in hiring practices as technologies change and it becomes increasingly difficult to off-shore the duties of a DLT.

Moreover, the survey advisory team knew of dentists who were dissatisfied with existing dental lab services in the Inland Empire. Therefore, survey questions were included to assess satisfaction with lab services as well as the local occupational outlook for DLTs. Results demonstrate that Inland Empire dentists are utilizing an astonishing number of different providers, over 120 different labs were named, with no clear frontrunner dominating the IE market. Seventy five percent of respondents claimed satisfaction with their current dental lab services.

The 25% of respondents who indicated they were not satisfied with their current lab were then asked what additional services are needed. The consensus was that consistent, high quality work is lacking. Dentists stated that there are, “too many large mill type labs” with “a lack of quality control and poorly trained DLTs.” However, of the 152 Dental Labs identified in the Inland Empire by NAICS code, 84% have 1 to 4 employees (see Appendix F for a regional GIS map of employee locations). The aforementioned occupational projections on page 12 anticipate 62 jobs by 2018 which equates to only an approximate 7 new openings per year. RCC is the only education provider in the IE for DLTs. Based on the small number of DLT positions available, there doesn't appear to be a need for more training programs at this time. However, further research into the lab quality and regional service issues is warranted.



General Workforce Challenges

During the survey and validation process, employers expressed some general challenges in hiring and retaining a skilled workforce. Each employer and association contacted for this study also strongly believe it is important for employers and training programs to work together in order to provide the best opportunities for program graduates. Some of the general challenges expressed by employers include:

- **The community college lottery system:** The existing lottery system for impacted programs such as dental and other allied health professions deters students and greatly increases attrition within the programs. It is difficult to get into the programs and sometimes the most qualified students are unable to get into the programs. Employers would like to see the most qualified students given priority into dental hygienist and dental assisting programs.
- **Private, proprietary schools:** Many proprietary institutions ‘pop up’ every time there is a workforce need for a vocational occupation to fill the gap left by community colleges. Dentists expressed great frustration with hiring students trained at proprietary institutions. There is a strong preference for community college trained students. (Yet students are attracted to the seamless processes, short program duration, and one-on-one support services including job placement).
- **Clinical/Dental Industry knowledge:** Dentists overwhelmingly reported dissatisfaction with the amount of general knowledge and basic skills most recent graduates possess. The most commonly referenced deficient areas include: maintenance of equipment and instruments, patient management skills, communication skills (particularly phone etiquette), insurance knowledge, hands-on technical skills, and even common sense and intellect was mentioned more than once.
- **Employability Skills:** As found within virtually all industries studies the last few years, dental employers reported a significant void in work ethic and basic employability skills within job applicants. Professionalism, customer service, maturity, organization, basic spelling and grammar, fluent English, and computer skills were all common responses. One dentist suggested instilling pride in the industry and understanding the concept of what it takes to become a “valuable” employee.

See Appendix G for additional survey responses regarding clinical/dental industry knowledge and employability skills.

Community Support and Resources

Community colleges in the Inland Empire have many resources available to assist in addressing program development and curriculum redesign in the dental field. A primary resource is the Regional Health Occupations Resource Center (RHORC) for the community colleges.⁴¹ The regional RHORC is located at Golden West College and serves all community colleges in Orange, San Bernardino and Riverside Counties. The purpose of the RHORC is to promote the advancement of the region's health and economic growth through quality education and services focusing on workforce development and continuous workforce improvement in health care delivery. The role of the RHORC is to facilitate collaboration between the education segments and the health care delivery system to respond to identified needs.

Education and Training

Dental Assistant

Currently the minimum education requirement for Dental Assistants is a high school diploma or its equivalent and the licensed dentist who supervises is responsible for determining the competency of the Dental Assistant to perform basic procedures. Effective January 1, 2010, the employer of a dental assistant shall be responsible for ensuring that the dental assistant who has been in continuous employment for 120 days or more successfully completes all of the following within a year of the date of employment:

- (1) A board-approved course in the Dental Practice Act,
- (2) A board-approved course in infection control, and
- (3) A course in basic life support.⁴²

Dental Assistants can obtain permits from the Dental Board of California in two newly created categories. Effective January 1, 2010, a Dental Assistant can obtain an Orthodontic Assistant permit that authorizes the permit holder under the direct supervision of a licensed dentist to perform advanced tasks such as preparing teeth for bonding and curing orthodontic brackets; sizing, fitting and securing orthodontic bands; and attaching archwires.⁴³ Training requirements for this permit include:

- (1) Completion of at least 12 months of work experience as a dental assistant.
- (2) Successful completion of a board-approved course in the Dental Practice Act and a board-approved, course in infection control.
- (3) Successful completion of a course in basic life support.
- (4) Successful completion of a board-approved orthodontic assistant course, which may commence after the completion of six months of work experience as a dental assistant.
- (5) Passage of a written examination administered by the board that shall encompass the knowledge, skills, and abilities necessary to competently perform all duties.

Also effective January 1, 2010, a Dental Assistant can obtain a Dental Sedation Assistant permit that authorizes the permit holder to administer sedation or general anesthesia in the dental office under the direct supervision of a licensed dentist or other authorized health care professional.⁴⁴ Training requirements for this permit include:

- (1) Completion of at least 12 months of work experience as a dental assistant.
- (2) Successful completion of a board-approved course in the Dental Practice Act and a board-approved, course in infection control.
- (3) Successful completion of a course in basic life support offered by an instructor approved by the American Red Cross or the American Heart Association, or any other course approved by the board as equivalent.

⁴¹ Regional Health Occupations Resource Centers. <http://healthoccupations.org>

⁴² California Business and Professions Code 1750.

⁴³ See Appendix E for a complete list of tasks.

⁴⁴ Ibid

- (4) Successful completion of a board-approved dental sedation assistant course, which may commence after the completion of six months of work experience as a dental assistant.
- (5) Passage of a written examination administered by the board that encompasses the knowledge, skills, and abilities necessary to competently perform all duties.

Dental Hygienists

A career in Dental Hygiene requires an Associate degree from an accredited dental hygiene program and licensing by the State of California. The American Dental Association's Joint Commission on National Dental Examinations administers the written exam and the California Dental Board administers the clinical and legal examination.

Just over half of the active Dental Hygienists in the state have AA degrees. About 43% of practicing Dental Hygienists have BA degrees and 4.5% have MA or PhD degrees. About 0.5% of active hygienists are currently enrolled in programs to obtain their Registered Dental Hygienist Extended Care (RDHEF) license (allowing them to perform additional duties) or their Registered Dental Hygienist Alternative Practice (RDHAP) license (allowing them to work without the direct supervision of a Dentist in settings like nursing homes, schools or independently in underserved areas). There are currently over 200 hygienists in California who possess these specialized licenses and about 5% of all active hygienists say they are likely to pursue these licenses in the future.⁴⁵

The RDHEF license requires the same 96-hour approved training program at UCSF or UCLA as that taken by Dental Assistants to earn their Extended Functions status. To be eligible for the RDHAP license, a hygienist must be a Registered Dental Hygienist, have 2,000 hours of work experience, hold a BA degree, complete 150 hours of additional training, and pass a California Law and Ethics examination administered under the California Dental Board. The RDHAP license was approved in 1998 and a recent report details the progress of this new sub-sector of Dental Hygienists.⁴⁶

Dental Lab Technicians

Instructional programs include topics and experience working with dental materials, dental anatomy, ceramics technology, impressions, complete dentures, partial dentures, orthodontics, crowns and bridges, sculpture, bonding and assembly techniques, and equipment operation. Although formally codified by the Department of Labor as only requiring long-term on-the-job training, the required skills, knowledge, and precision hand work often requires a 2-year degree.

There is no license required for dental lab technicians, but optional certification is available. Certification recognizes does recognize a dental lab technician's knowledge and technical abilities. It involves passing an exam administered by the National Board for Certification in Dental Laboratory Technology. In order to take the certification exam, students must have completed an accredited dental laboratory technology program and had two years of professional experience, or, if trained on the job through a non-accredited program, students can take the exam after five years of work experience as a dental lab technician. Upon passing the exam, workers become a Certified Dental Technician (CDT).⁴⁷

The National Board for Certification in Dental Laboratory Technology has also recently launched the very first Dental Laboratory Technology Certificate of Competency under the Modularization Program. The Modularization program is comprised of short written and practical examinations that assess the competency of process/task technicians who perform a specific set of tasks needed to make dental prosthetics. Currently,

⁴⁵ University of California, San Francisco. (March 2007). California Survey of Dental Hygienists, 2005-2006, Descriptive Findings. Center for the Health Professions.

⁴⁶ Mertz, E. (May, 2008). "Registered Dental Hygienists in Alternative Practice: Increasing access to Dental Health Care in California," Center for the Health Professions, University of California at San Francisco.

⁴⁷ All Allied Health Schools. http://www.allalliedhealthschools.com/faqs/dental_lab_tech

less than 15% of all dental lab tech are certified through the National Board for Certification in Dental Laboratory Technology.⁴⁸



⁴⁸ The content of the exam is available at: <http://www.nbccert.org/modularization/wrttnexam.cfm>.

College Response and Issues

To find existing community colleges within the Inland Empire who may already offer certificate or degree programs within the dental field, a review of the California Community College's Taxonomy of Programs (TOPs) was conducted. There are two community college programs which provide training for dental assisting professionals. One program in both dental hygiene and dental laboratory technology is offered located at Riverside Community College.

Existing Dental Programs: Inland Empire⁴⁹

TOPS Code	Program Name	College(s)	Program Description
1240.10	Dental Assistant	Chaffey College Riverside Community College	Techniques used in the clinical chair side procedures of dentistry, including preparation of the patient, radiographic exposures, the mixing of dental materials, and dental office management specific to the licensure examination.
1240.20	Dental Hygienist	Riverside Community College	Oral health education, control of oral disease, preventive, educational, and therapeutic techniques used in dental treatments specific to the licensure examination.
1240.30	Dental Laboratory Technician	Riverside Community College	Construction and repair of dental appliances; operations and procedures used in support of a dentist or orthodontist.

All community college programs in the county are accredited or approved by the State of California. Note that five proprietary institutions and three Inland Empire Regional Occupation Centers also provide Dental Assistant programs and the large majority are also approved by the State of California.

Of particular interest is the one Dental Hygienist program in the region. At Riverside Community College Moreno Valley Campus, only 22 students will be admitted to the program this year from a pool of over 100 applicants.⁵⁰ The shortage of qualified job candidates will grow more critical each year and since Dental Hygienists must have a minimum of an AA degree, this challenge falls squarely on the shoulders of the community colleges.

The Workforce Gap

Labor market data indicates a steady proportional increase in job openings for both dental assistants and dental hygienists with a very slight increase in dental lab technicians. There is also a slight projected workforce need due to turnover and retirements, and the new regulations and expanded functions for dental assistants should increase the workforce need for RDA's. In order to determine what, if any, gap may exist in these occupations, labor market data was compared with data on program completions. On the following page, the table demonstrates the supply versus demand for these occupations. For this analysis, program completions from both community colleges and private institutions were examined using data from the Integrated Postsecondary Education Data System (IPEDS).⁵¹

⁴⁹ California Community Colleges Taxonomy of Programs, Sixth Edition

⁵⁰ Reported by Donna Lesser, Director, Dental Hygiene Program, RCC Moreno Valley Campus.

⁵¹ U.S. Department of Education, National Center for Education Statistics: Integrated Postsecondary Education Data System (IPEDS).

Inland Empire 2008 Supply and Demand Analysis

Occupation	Number of reported program completers	Average number of job openings (including new and replacement jobs) ⁵²	Gap
Dental Assistant	296	188	108 (oversupply)
Dental Hygienist	127	64	63 (oversupply)
Dental Laboratory Technician	7	6	1 (oversupply)

Based on data presented in the table above, there appears to be an oversupply of dental assistants and dental hygienists with a proper supply of dental lab technicians towards the regional workforce demand.

Conclusion and Recommendations

Throughout the 1990's and early 2000's, the dental industry experienced sudden growth as a result of an increase in employers providing dental insurance to employees and an increase in public assistance dental programs. The increase in case loads made it difficult for dentists to recruit qualified dental assistants and hygienists, which led to inflation in wages for these occupations. Training providers responded by developing training programs to address the workforce needs and to better align California's educational system with the dental office labor force needs.

Within California, some workforce needs in the dental industry still exist. Within the Inland Empire, employers report dissatisfaction with the quality of program completers, citing the source of the deficiency as private vocational schools. Additionally, the newly implemented legislation for dental assistants is sure to have an impact on workforce needs. Over the next 10 years, the dental industry in Southern California is expected to experience a steady increase in workforce needs for dental assistants and hygienists for several reasons:

- The aging population
- A high level of insured patients
- New demand for cosmetic treatments
- Evolving dentistry practices
- Expanding dental health care services to underserved populations
- Changes in legislative requirements and expanded functions for dental assistants

Based on the factors impacting workforce needs in the dental industry, there are several recommendations for community colleges in the Inland Empire — not in program development but in partnership development and curriculum modification for existing programs:

1. **Build partnerships with employers and associations:** During the validation process, employers expressed frustration in hiring graduates of programs from private schools and are interested in working with community colleges to recruit qualified applicants. Partnerships with employers and associations can strengthen existing programs and inform new program development by ensuring community colleges are meeting employers' needs and industry regulations (see Appendix H for a listing of associations). Working with employers could also provide increased access to clinical and hands-on experience.
2. **Consider a strategic regional response to training for Registered Dental Assisting Expanded Functions:** There is an opportunity for colleges in the region to implement training programs for the expanded function areas of: Registered Restorative Assistant, Registered Orthodontic Assistant, and

⁵² Economic Modeling Specialists, Inc.

Registered Surgical Assistant. Appendix I contains the training requirements for the expanded functions. While there is not a need for multiple colleges to have a training program for the expanded functions, the region can decide which colleges are best placed to host such a program.

3. **Consider adding Dental Hygienist specialty certificates:** Similar to DA education, RDH's can receive specialty certification in Extended Function (RDHEF) or Alternative Practice (RDHAP). The sole Dental Hygienist program in the Inland Empire, at Riverside Community College, should explore the costs and possibilities of providing these emerging options for their students.
4. **Monitor regulation and licensure changes:** New state regulations which are currently scheduled to go into effect in January, 2010, would establish two new specialized categories of licenses and some added continuing education requirements for Dental Assistants. Colleges with Dental Assisting programs should watch these developments closely and be prepared to develop and offer the required courses.⁵³ In addition to modifications to the existing programs, the colleges can offer continuing education or contract education courses to help the industry meet the requirements of the new laws. This way the colleges can also support the "professionalization" of Dental Assistants as referenced in the industry survey.
5. **Share facilities to leverage resources:** Colleges should partner with workforce investment boards and industry to explore how to obtain or leverage resources needed to keep programs functioning and current. This may have to be done creatively, since fiscal support for college programs was recently reduced by the state of California. Perhaps alliances with employers, vendors, or healthcare facilities could result in access to equipment for clinical labs and hands-on components of the programs. One suggestion for a viable partnership is for colleges to partner with county facilities that provide dental care services for their communities to use their facilities at times when they are underutilized (e.g. evenings and weekends). This type of partnership will significantly reduce the continuing facility costs of a program.
6. **Monitor the new state dental regulatory body:** On June 13, 2008, a new law was enacted in California creating the Dental Hygiene Committee, which will function under the California Dental Board to regulate and oversee the education and licensure of Dental Hygienists in the state. This Committee is expected to take over some of the functions of COMDA as well as dedicate itself to expanded access to oral health care through the use of Dental Hygienists. Colleges will also want to watch this new regulatory body for information on developing educational requirements and opportunities.⁵⁴
7. **Form a single regional advisory board:** Since only 2 community colleges and 3 ROP programs within the region provide dental programs, a single regional advisory board should be created to build upon the relationships established in the surveying process and provide industry the opportunity to speak with a unified voice. Such an approach would minimize the time and effort involved in building and engaging an advisory board while maximizing impact, outcomes, feedback, and industry involvement from within the Inland Empire. In addition to Loma Linda and the Tri-County Dental Society, members of ADA and CDA should be invited to participate.



⁵³ Summary of the Meeting of the Dental Board of California, May 15-18, 2008, found online at http://www.cspd.org/advocacy/pdf/DBCMeeting_0508.pdf

⁵⁴ California Dental Hygienists Association (June 13, 2008). Governor Signs Landmark Law for California Dental Hygienists.

8. **Provide Continuing Education Units through contract education:** College should partner with the Tri-County Dental Society to develop specialty trainings and seminars for dentists and their DA/DH staff members. The courses could provide Continuing Education Units and be offered in a traditional or online format. Since RDAs and RDAEFs require 25 hours of continuing education every two years, topics could include dental business planning, (Cost cutting measures, efficient staffing, long term forecasting, working with Denti-Cal), patient psychology (dealing with chair side situations, as well as collections, cancellations, cultural differences) and DA/DH specialty courses previously mentioned. Courses for dentists could include how to use technology to run the business at peak efficiency and how to brand and market dental services.

The IE dental industry is struggling to cope with rising costs, new legislation and diminishing compensation. In order to remain solvent and competitive, targeted education is needed for dental business owners and their staff. Working together, industry, education and government can ensure Inland Empire dental practices receives a skilled and prepared workforce and providing the highest quality of care.

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Appendix A: How to Utilize this Report

This report is designed to provide current industry data to:

- Define potential strategic opportunities relative to an industry's emerging trends and workforce needs;
- Influence and inform local college program planning and resource development;
- Promote a future-oriented and market responsive way of thinking among stakeholders; and,
- Assist faculty, Economic Development and CTE administrators, and Community and Contract Education programs in connecting with industry partners.

The information in this report has been validated by employers and also includes a listing of what programs are already being offered by colleges to address those workforce needs. In some instances, the labor market information and industry validation will suggest that colleges might not want to begin or add programs, thereby avoiding needless replication and low enrollments.

About the Centers of Excellence

The Centers of Excellence (COE), in partnership with business and industry, deliver regional workforce research customized for community college decision making and resource development. This information has proven valuable to colleges in beginning, revising, or updating economic development and Career Technical Education (CTE) programs, strengthening grant applications, assisting in the accreditation process, and in supporting strategic planning efforts.

The Centers of Excellence Initiative is funded in part by the Chancellor's Office, California Community Colleges, Economic and Workforce Development Program. The total grant amount (grant number 08-305-013 for \$205,000) represents funding for multiple projects and written reports through the Center of Excellence. The Centers aspire to be the premier source of regional economic and workforce information and insight for California's community colleges.

More information about the Centers of Excellence is available at www.coecc.net.

Important Disclaimer

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. Efforts have been made to qualify and validate the accuracy of the data and the reported findings; however, neither the Centers of Excellence, COE host District, nor California Community Colleges Chancellor's Office are responsible for applications or decisions made by recipient community colleges or their representatives based upon components or recommendations contained in this study.

Appendix B: Denti-Cal

Dental Services are currently provided as one of the many benefits under the Medi-Cal program; this dental program is called Denti-Cal. Beginning July 1, 2009, adult dental services were cut from Denti-Cal due to the state budget crisis.⁵⁵ However, eligible recipients of dental services under the Denti-Cal program are: children under the age of 21, women who are pregnant, and people living in certain skilled nursing facilities or certain Licensed intermediate care facilities.

In the regional industry survey, dentists were asked, “Does your practice accept Denti-Cal patients?” Seventy-five percent or 109 respondents said “no,” while 25% or 37 said “yes.” The dentists who do NOT accept Denti-cal were subsequently asked “why?”

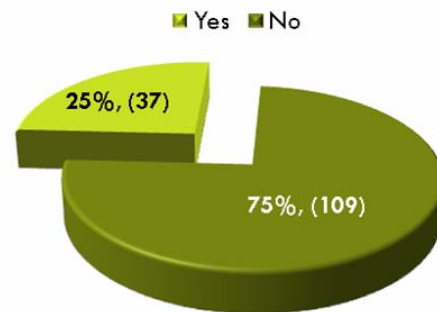
Although there were 68 different responses, four themes were repeated:

- Low reimbursement; (does not cover the cost of providing care, annual cutbacks)
- Too much paperwork
- Difficulty getting paid due to denials and lost claims
- General apathy and irresponsibility of the patient pool (frequent no shows and cancellations)

Some dentists do not choose to accept Denti-Cal, but provide uncompensated or charity care. They are having more difficulty doing so due to lower HMO reimbursements and increased holes in their schedules.

It is unfortunate that low income patients who rely on Denti-Cal as their payor, have such a small number of dental practices to choose from and the dentists trying to serve them must work so hard for approvals and payment. If not already available, a Continuing Education course for dentists could be developed that would help them effectively navigate the Denti-Cal system.

Does your practice accept Denti-Cal patients?



⁵⁵ <http://www.denti-cal.ca.gov/WSI/Default.jsp?fname=Default>

Appendix C: Inland Empire Dental Occupations Survey Questions, Results, & Comments

QUESTION	RESPONSES	ADDITIONAL RESULTS
The local economy has negatively affected my practice.	True 77% (98) False 23% (30)	
Does your practice accept Denti-Cal patients?	Yes 26% (33) No 74% (95)	76 responses explaining why the answer is "no".
Do you anticipate any staff reductions in the next 12 months?	Yes 15% (22) No 85% (124)	Reductions: DAs 12 f/t, 2 p/t. DHs 2 f/t, 1 p/t. 11 misc. office staff
Have you experienced a decrease in accounts receivable?	Yes 48% (70) No 52% (76)	
Are there increased holes in your schedule?	Yes 75% (109) No 25% (37)	
Are you advertising more?	Yes 26% (38) No 63% (92)	N/A 11% (16)
What type of information can Tri County Dental Society provide to help you during these challenging economic times? (check all that apply)	Cost cutting measure 34% (50) More efficient use of staff 33% (48) Long term forecasting for your practice 27% (40) Patient acceptance of treatment 31% (45) Patient payment programs 32% (47) Coping with increased cancellations 32% (46) No information needed 24% (35) Other, please specify (see below) 8% (12)	
Other: co-op purchasing, reduce no shows, insurance reform, all of the above, make patient educational videos for tx presenting, lower annual fees for ADA/CDA/TCDS, help stop State from cutting Denti-cal funds, sleeping dentistry, information in foreign languages, protection from anti-trust laws governing PPO fees, better trained staff from programs, CE Dental courses		
DENTAL ASSISTANTS		
In the past year, have you experienced any difficulty hiring or replacing dental assistants?	It has been very difficult 8% (12) It has been somewhat difficult 18% (25) It has been slightly difficult 14% (20) It has not been difficult 60% (85)	
How many dental assistants does your practice employ?	Full Time 392 Part Time 89 Total 481	
How many are licensed as Registered Dental Assistants?	63% (304)	
Do you anticipate hiring any dental assistants in the next 24 months?	Yes 26% (37) No 74% (105)	If Yes: 50 f/t 37p/t Total 87
DENTAL HYGIENISTS		
In the past year, have you experienced any difficulty hiring or replacing dental hygienists?	It has been very difficult 9% (12) It has been somewhat difficult 8% (11) It has been slightly difficult 9% (12) It has not been difficult 75% (105)	
How many dental hygienists does your practice employ?	Full Time 81 Part Time 130 Total 211	
How many are licensed as Registered Dental Hygienists ?	91% (191)	

QUESTION	RESPONSES	ADDITIONAL RESULTS
Do you anticipate hiring any dental hygienists in the next 24 months?	Yes 16% (22) No 84% (118)	If Yes: 10 f/t 17 p/t Total 27
What is the minimum level of formal education you require when hiring dental hygienists?	Associates 58% (68) Bachelor's 29% (40) Other 21% (29)	Other: 15 do not employ DHs, skills, career training, board cert, xray cert.
What are your perceptions regarding hiring dental hygienists with an AS versus a BS degree?	76 did not have a degree preference.	16 favored a BS
Do you provide equal salaries for dental hygienists with an AS versus a BS degree?	Yes 61% (78) No 39% (50)	
DENTAL LAB TECHNICIANS		
Have you experienced difficulties due to a shortage of dental lab technicians in the region?	It has been very difficult 2% (3) It has been somewhat difficult 9% (11) It has been slightly difficult 10% (13) It has not been difficult 79% (101)	
Are you satisfied with dental lab services available in the Inland Empire?	Yes 76% (97) No 24% (31)	Consensus from "no" responses was that consistent, high quality work is lacking
Which dental labs do you currently use?	Over 120 different labs were listed	
SKILLS		
Overall, are applicants lacking important job skills?	Yes 58% (74) No 42% (54)	
What job skills do you feel they are lacking?	35 Respondents commented on clinical/dental industry knowledge 39 commented on employability skills, including, written/verbal/communication, work ethic, service	
What new dental programs, services, or trainings (if any) should local colleges and universities develop in order to better serve your needs?	89 Dentists responded to this question. Increasing supply of DHs, DAs, and DLTs above demand, advanced skills training in all areas, increased hands on training and more information on the business of a dental practice/dental industry is needed.	

A number of open ended survey questions gave employers the opportunity to pass along their individual comments and ideas for curriculum content. A complete list of their comments are provided below. See Appendix B for comments specifically about Denti-Cal and Appendix G for comments regarding preferred skills and experience

What is the minimum level of formal education you require when hiring dental hygienists?

- 15 do not use DH's
- 5 require RDH
- Career training
- I have no minimal as long as they are a board cert RDH
- Skills and attitude more important
- X-ray certified, and at least a DA certificate

What are your perceptions regarding hiring dental hygienists with an AS versus a BS degree?

64 dentists stated “none” or “no difference”. In addition, the following comments indicate a lack of education preference:

- Some of my most capable Hygienists over the years were AS degree.
- No sig difference, it depends on the personal level of commitment.
- The skill level does not improve with a BS, and the AS RDHs have so many pre-req's for admission, they end up with 4 years of college anyway!
- As long as they perform quality services I do not discriminate.
- No difference in clinical skills, need BS to teach.
- Energy, commitment, ability to adapt to a team mentality, and productivity come with a desire to do the best you can. It's the individual, not the degree.
- It really doesn't matter as long as they have the hygiene license - we don't employ them though.
- There are qualities that a GOOD hygienist must have that have nothing to do with their degree.
- No difference if they have good clinical skills.
- They have less debt from school.
- I guess if they are licensed and able I would be fine with a AS degree.
- It depends on the person

A number of dentists did prefer a BS degree. Their comments include:

- BS has more time on education and training.
- BS Degree Hygienists Have Much Better Critical Thinking Skills and Are Much Better Employees.
- Prefer a dental hygienist with a BS degree.
- Seems as though hygienists from LLUSD seem better educated.
- Maturity, a more vast education results in better general knowledge.
- BS better education and training, more mature.
- My experience is that BS degree hygienists are better trained.
- I feel the BS brings a different level of hygienist.
- BS would be expected to accept more responsibility and require less supervision.
- I think RDH with BS degree is more serious in his/her career and has more basic knowledge like the additional education. I feel they are better rounded and have a greater understanding of the sciences and have gone through a more disciplined and superior program
- The BS on paper will have an edge but it ALWAYS boils down to the individual.
- The BS degree hygienists are better at everything.
- Never hired one w/o a BS.
- Would prefer BS degree.
- More education is always a good thing.
- Skill level the same, hygiene knowledge base the same, level of maturity and sophistication lower with the AS degree, general knowledge level lower with just the AS degree

Other general comments to this question, including those that preferred experience or an AS were:

- I didn't know there were associate degrees.
- RDH should be AS.
- Lack of complete education.
- Both should be paid the same. 33% of production max. They are being paid too much for what they produce---the madness needs to stop.
- I have no perceived perceptions. If they are intellectually mature, articulate and proficient, I am happy to hire them.
- What matters is the experience and the level of CE and post degree education. I don't know. Can they do more with a BS?
- I look for the class standing. Scholastic & community service.

- Knowledge and commitment counts. After all two extra years of study is nothing compared to a lifetime of work!

You indicated that you are not satisfied with dental lab services available in the Inland Empire. What additional services are needed?

- more good techs
- No additional service needed, just plain old high quality lab work.
- Not too many removable prosthetic labs with good, consistent work
- Better Technical Skills
- better quality more consistent
- more labs who do higher quality work
- quality oriented
- better lab tech
- Very hard to find high quality labs in this area, to many large mill type labs.
- Better Quality.
- Better quality control of existing services
- Lab technicians that are good in cosmetic work.
- I have not found a lab in the area that fabricates orthodontic appliances with the quality that I require.
- better crown lab and better denture lab
- poorly trained and not enough
- quality and skill and consistency is uneven and can be hard to find
- better quality, better training
- better removable lab work: lack of prompt, reliable work
- better quality
- A quality lab that can make a good Pedo Partial.
- I am not happy with my particular lab. Appliances are delivered late, etc.
- Removable
- Quality control.
- There is a lack of Removable Labs. and Quality Fixed Labs.
- I make my own crowns due to the poor quality work done by the labs I have tried
- I use labs outside of the I.E.
- Not enough labs in the area that can compete w/ orange county in the quality and value

What new dental programs, services or trainings (if any) should local colleges and universities develop in order to better serve your needs?

89 Dentists responded to this question. Identical responses were combined.

Dental Assistants

- 10 dentists indicated a need for additional DA programs
- Good RDA Programs like what LLUSD had. More high quality
- RDA updates
- RDA who can give local anesthetic. They will need to have more education.
- 3 dentists mentioned new training: Extended Functions for RDAs
- Clinically based Dental Assistant programs
- I would love to see dental assistant training at the CC or ROP level. The proprietary schools are a horrible rip-off. The poor kids who attend those schools are ill-prepared for the real world and graduate with huge school loans.

- We need better dental assistant program. The locally or privately trained dental assistants usually are not well trained with sufficient skills.
- Always better to have more qualified personal to choose from

Dental Hygienists

- 8 dentists indicated a need for more RDH programs, preferably with AS degree path
- AS RDH programs to bring on the competition and saturate the market. Get the supply way higher than the demand.
- Laser certification for RDH
- More hygienists as salaries today are too high to justify patients paying 55-65 dollars per visit
- Increase quantity of mature dental hygienists and dental assistants with enhance critical thinking skills.

Lab Technician

- 2 dentists indicated a need for Dental Lab Technician training program
- Dental Lab Tech, or none at all.
- Lab tech clinically oriented training. Patient mgmt
- Continue lab programs

Clinical Program Improvement

- 3 dentists indicated programs should require longer hands on training
- Send them more for internship and increase hours of internship
- Satisfied, needs more on the job training
- Clinically oriented training. Patient mgmt
- More of a hands on DA schools that are not a weekend get your piece of paper school
- Assistants need to learn the basics of assisting and be proficient at it. Suction, making temp, mixing cement, knowing teeth #, and other basics of dentistry. These basic thing does not take 1 to 2 years to learn. Book learning should be min. and clinical should be the bulk of their learning.
- High tech

Billing, Front office skills

- Billing programs by 2 dentists
- More schools for assistants, front office billing, and hygiene
- Dental insurance billing, communication
- Dental business knowledge

Employability Skills

- 5 dentists indicated need for good verbal communication and active listening
- People skill, business skill
- Work ethic
- Appears to be a overall lack of work ethic
- How to anticipate when assisting the dentist
- Customer service
- Spanish speaking
- Ethics does not seem to be on many new dentists mind
- Proficiency in English and foreign language with computer skills, ie Microsoft office, etc.
- Basic alphabetizing, adequate spelling, proper spoken English
- Ethics between doctors to speaking to patients for the treatments
- People skills, interacting with the public and being more sympathetic to their needs
- I don't think you can teach motivation and common sense

No additional programs are needed

- 24 dentists indicated no additional programs are needed

- None - with so many offices cutting staff, I don't see why someone would want to open more schools to prepare people for jobs that are no longer available. Then the students just come out owing money that they can't pay back.
- None just improve education and skills

Miscellaneous Comments

- Specialty training for ortho, endo, perio and oral surgery
- Dental radiology
- Instruction in dental implants, restorative materials, impression materials, 4 handed dentistry
- Treatment Planning
- Dental office Management
- Sleeping dentistry
- Persio surgery and implants
- Oral surgery assistants
- Patient management
- Specialty assistants
- More on-site Training. Busy Offices.
- More Technique, variety of taking X-rays, FMX, PANO, etc.
- More training in maintenance

Additional/General Comments:

- Keep ROP open program
- Hygiene is a problem. The schools are telling them salary and benefit numbers that are WAY out of line. The schools are not talking reality when it comes to practice management. No hygienists should be considering getting paid more than 33%, unless of course they want to own their business themselves. They schools are pitting them against the doctors when it comes to salary considerations.
- More educational programs are NOT necessary at this point in the economy...more jobs are necessary. Maybe more time can be spent on TCDS lobbying to keep Denti-Cal benefits for adults and increasing insurance benefits...sending more unemployable graduates is not the answer, thank you.
- Sleeping dentistry got to be part of dds program in dental school
- Abolish HMO's the fraud is really getting out of hand!
- We are in desperate need for RDAs with extended functions in our area. The only program currently offered is at UCLA, RDAs have difficulty finding Drs. who would go on week ends with them to the program.
- Need more implants seminar or perio surgery as GP point
- We are finding some weeks busier than most, occasionally we run into the "flu" where some are ill but always reschedule, we are scheduling out about 2-3 weeks or more as a rule
- If I've never hired an RDH with an AS degree, I've never even thought about paying them differently
- Very pleased with RCC's hygienist program
- RDH is in short supply in CA
- I am concerned with the number of new dental schools that are opening and the ability of the new graduates to find work.
- If we can minimize the number of Insurance companies, especially HMOs, our job will be much easier.
- Using Hydrocolloid impression machine and material, know basic computer.
- Interpersonal skills and self motivation are very important.

Appendix D: EMSI Data Source and Calculations

State Data Sources

EMSI uses state data from the California Labor Market Information Department.

Industry Projections Data

In order to capture a complete picture of industry employment, EMSI basically combines covered employment data from Quarterly Census of Employment and Wages (QCEW) produced by the Department of Labor with total employment data in Regional Economic Information System (REIS) published by the Bureau of Economic Analysis (BEA), augmented with County Business Patterns (CBP) and Nonemployer Statistics (NES) published by the U.S. Census Bureau. Projections are based on the latest available EMSI industry data combined with past trends in each industry and the industry growth rates in national projections (Bureau of Labor Statistics) and states' own projections, where available.

Occupational Projections Data

Organizing regional employment information by occupation provides a workforce-oriented view of the regional economy. EMSI's occupation data are based on EMSI's industry data and regional staffing patterns taken from the Occupational Employment Statistics program (U.S. Bureau of Labor Statistics). Wage information is partially derived from the American Community Survey. The occupation-to-program (SOC-to-CIP) crosswalk is based on one from the U.S. Department of Education, with customizations by EMSI.

Completions Data

Completions are voluntarily reported by postsecondary institutions through the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS). Completions are organized by program using the Classification of Instructional Programs (CIP) codes and titles.

Economic Modeling Specialists, Inc.
<http://www.economicmodeling.com>

DENTAL ASSISTING CATEGORIES

EFFECTIVE JANUARY 1, 2010

Starting January 1, 2010, dental assisting scope of practice will include new duties and two new “add-on” specialty permits in orthodontics and dental sedation, for which all categories of dental assistants are eligible to obtain after completing required instruction. Along with the new duties, licensure and license renewal requirements will change for registered dental assistants and registered dental assistants in extended functions. Dentist employers will also be responsible for ensuring that unlicensed dental assistants complete courses in the California Dental Practice Act and infection control (8-hour) within a specified time, and that dental assistants maintain certification in basic life support.

AUTHORIZED DUTIES

DENTAL ASSISTANT

(Business & Professions Code §1750)

A dental assistant is an individual who, without a license, may perform basic supportive dental procedures, as authorized by law and by regulations adopted by the Dental Board, under the supervision of a licensed dentist. "Basic supportive dental procedures" are those procedures that have technically elementary characteristics, are completely reversible, and are unlikely to precipitate potentially hazardous conditions for the patient being treated.

General Supervision Duties

1. Extra-oral duties or procedures specified by the supervising licensed dentist, provided that these duties or procedures meet the definition of a basic supportive procedure
2. Operate dental radiography equipment for the purpose of oral radiography if the dental assistant has completed an approved radiation safety course or passed a radiation safety exam.
3. Perform intraoral and extraoral photography.

Direct Supervision Duties

1. Apply nonaerosol and noncaustic topical agents.
2. Apply topical fluoride.
3. Take intraoral impressions for all non-prosthetic appliances.
4. Take facebow transfers and bite registrations.
5. Place and remove rubber dams or other isolation devices.
6. Place, wedge, and remove matrices for restorative procedures.
7. Remove post-extraction dressings after inspection of the surgical site by the supervising licensed dentist.
8. Perform measurements for the purposes of orthodontic treatment.
9. Cure restorative or orthodontic materials in operative site with a light-curing device.
10. Examine orthodontic appliances.
11. Place and remove orthodontic separators.
12. Remove ligature ties and archwires.
13. After adjustment by the dentist, examine and seat removable orthodontic appliances and deliver care instructions to the patient.
14. Remove periodontal dressings.
15. Remove sutures after inspection of the site by the dentist.
16. Place patient monitoring sensors.
17. Monitor patient sedation, limited to reading and transmitting information from the monitor display during the intraoperative phase of surgery for electrocardiogram waveform, carbon dioxide and end tidal carbon dioxide concentrations, respiratory cycle data, continuous noninvasive blood pressure data, or pulse arterial oxygen saturation measurements, for the purpose of interpretation and evaluation by a supervising licensed dentist who shall be at the patient's chairside during this procedure.
18. Assist in the administration of nitrous oxide when used for analgesia or sedation. A dental assistant shall not start the administration of the gases and shall not adjust the flow of the gases unless instructed to do so by the supervising licensed dentist who shall be present at the patient's chairside during the implementation of these instructions.

Under the supervision of a registered dental hygienist in alternative practice, a dental assistant may perform intraoral retraction and suctioning.

The board may specify additional allowable duties by regulation.

The duties of a dental assistant or a dental assistant holding a permit in orthodontic assisting or in dental sedation do not include any of the following procedures unless specifically allowed by law:

1. Diagnosis and comprehensive treatment planning.
2. Placing, finishing, or removing permanent restorations.
3. Surgery or cutting on hard and soft tissue including, but not limited to, the removal of teeth and the cutting and suturing of soft tissue.
4. Prescribing medication.
5. Starting or adjusting local or general anesthesia or oral or parenteral conscious sedation, except for the administration of nitrous oxide and oxygen, whether administered alone or in combination with each other and except as otherwise provided by law.

Requirements of the Dentist Supervising/Employing a Dental Assistant

The supervising licensed dentist is responsible for determining the competency of the dental assistant to perform basic supportive dental procedures. The employer of a dental assistant is responsible for ensuring that the dental assistant who has been in continuous employment for 120 days or more, has already successfully completed, or successfully completes, all of the following within a year of the date of employment:

1. A board-approved course in the Dental Practice Act.
2. A board-approved course in infection control (8-hour).
3. A course in basic life support offered by an instructor approved by the American Red Cross or the American Heart Association, or any other course approved by the board as equivalent and that provides the student the opportunity to engage in hands-on simulated clinical scenarios.

The employer must ensure the dental assistant maintains certification in basic life support.

REGISTERED DENTAL ASSISTANT

(Business & Professions Code §1752.4)

A registered dental assistant may perform all of the following duties:

1. All duties that a dental assistant is allowed to perform.
2. Mouth-mirror inspections of the oral cavity, to include charting of obvious lesions, existing restorations, and missing teeth.
3. Apply and activate bleaching agents using a nonlaser light-curing device.
4. Use of automated caries detection devices and materials to gather information for diagnosis by the dentist.
5. Obtain intraoral images for computer-aided design (CAD), milled restorations.
6. Pulp vitality testing and recording of findings.
7. Place bases, liners, and bonding agents.
8. Chemically prepare teeth for bonding.
9. Place, adjust, and finish direct provisional restorations.
10. Fabricate, adjust, cement, and remove indirect provisional restorations, including stainless steel crowns when used as a provisional restoration.
11. Place post-extraction dressings after inspection of the surgical site by the supervising licensed dentist.
12. Place periodontal dressings.
13. Dry endodontically treated canals using absorbent paper points.
14. Adjust dentures extra-orally.
15. Remove excess cement from surfaces of teeth with a hand instrument.
16. Polish coronal surfaces of the teeth.
17. Place ligature ties and archwires.
18. Remove orthodontic bands.
19. All duties that the board may prescribe by regulation.

A registered dental assistant may only perform the following additional duties if he or she has completed a board-approved educational program in those duties:

1. Remove excess cement with an ultrasonic scaler from supragingival surfaces of teeth undergoing orthodontic treatment.

2. The allowable duties of an orthodontic assistant permit-holder. A registered dental assistant shall not be required to complete further instruction in the duties of placing ligature ties and archwires, removing orthodontic bands, and removing excess cement from tooth surfaces with a hand instrument.
3. The allowable duties of a dental sedation assistant permit-holder.
4. The application of pit and fissure sealants.

Except as provided in Business & Professions Code §1777, the supervising dentist shall be responsible for determining whether each authorized procedure performed by a registered dental assistant should be performed under general or direct supervision.

REGISTERED DENTAL ASSISTANT IN EXTENDED FUNCTIONS

(Business & Professions Code §1753.4)

On and after January 1, 2010, each person who holds a current and active registered dental assistant in extended functions license issued prior to January 1, 2010, who wishes to perform the duties specified below (B&P Section 1753.5) in (1), (2), (5), and (7) to (11), inclusive, must successfully complete an examination described in the “Licensure Requirements” section of this document.

(Business & Professions Code §1753.5)

A registered dental assistant in extended functions licensed on or after January 1, 2010, is authorized to perform all duties and procedures that a registered dental assistant is authorized to perform. A registered dental assistant in extended functions licensed on or after January 1, 2010 may perform the following additional procedures under *direct* supervision and pursuant to the order, control, and full professional responsibility of a licensed dentist:

1. Conduct preliminary evaluation of the patient's oral health, including, but not limited to, charting, intraoral and extra-oral evaluation of soft tissue, classifying occlusion, and myofunctional evaluation.
2. Perform oral health assessments in school-based, community health project settings under the direction of a dentist, registered dental hygienist, or registered dental hygienist in alternative practice.
3. Cord retraction of gingiva for impression procedures.
4. Size and fit endodontic master points and accessory points.
5. Cement endodontic master points and accessory points.
6. Take final impressions for permanent indirect restorations.
7. Take final impressions for tooth-borne removable prosthesis.
8. Polish and contour existing amalgam restorations.
9. Place, contour, finish, and adjust all direct restorations.
10. Adjust and cement permanent indirect restorations.
11. Other procedures authorized by regulations adopted by the board.

All procedures required to be performed under direct supervision shall be checked and approved by the supervising licensed dentist prior to the patient's dismissal from the office.

A licensed dentist may simultaneously utilize in his or her practice no more than three registered dental assistants in extended functions or registered dental hygienists in extended. *(Business & Professions Code §1753.7)*

Employment/Practice at Primary Care Clinics

Business & Professions Code §1777: While employed by or practicing in a primary care clinic or specialty clinic licensed pursuant to Section 1204 of the Health and Safety Code, in a primary care clinic exempt from licensure pursuant to subdivision (c) of Section 1206 of the Health and Safety Code, or a clinic owned and operated by a hospital that maintains the primary contract with a county government to fill the county's role under Section 17000 of the Welfare and Institutions Code, the following shall apply:

- (a) A dental assistant, registered dental assistant, or registered dental assistant in extended functions may perform any extra-oral duty under the direct supervision of a registered dental hygienist or registered dental hygienist in alternative practice.

- (b) A registered dental assistant or a registered dental assistant in extended functions may perform the following procedures under the direct supervision of a registered dental hygienist or a registered dental hygienist in alternative practice, pursuant to subdivision (b) of Section 1763:
- (1) Coronal polishing.
 - (2) Application of topical fluoride.
 - (3) Application of sealants, after providing evidence to the board of having completed a board-approved course in that procedure.

SPECIALTY ASSISTANT PERMITS

Orthodontic

(Business & Professions Code §1750.3)

A DA, RDA, or RDAEF holding an orthodontic assistant permit may perform the following duties under the direct supervision of a licensed dentist:

1. All duties that a dental assistant is allowed to perform.
2. Prepare teeth for bonding, and select, preposition, and cure orthodontic brackets after their position has been approved by the supervising licensed dentist.
3. Remove only orthodontic brackets and attachments with removal of the bonding material by the supervising licensed dentist.
4. Size, fit, and cement orthodontic bands.
5. Remove orthodontic bands and remove excess cement from supragingival surfaces of teeth with a hand instrument.
6. Place and ligate archwires.
7. Remove excess cement with an ultrasonic scaler from supragingival surfaces of teeth undergoing orthodontic treatment.
8. Any additional duties that the board may prescribe by regulation.

Dental Sedation

(Business & Professions Code §1750.5)

A DA, RDA, or RDAEF holding a dental sedation assistant permit may perform the following duties under the direct supervision of a licensed dentist or other licensed health care professional authorized to administer conscious sedation or general anesthesia in the dental office:

1. All duties that a dental assistant is allowed to perform.
2. Monitor patients undergoing conscious sedation or general anesthesia utilizing data from noninvasive instrumentation such as pulse oximeters, electrocardiograms, capnography, blood pressure, pulse, and respiration rate monitoring devices. Evaluation of the condition of a sedated patient shall remain the responsibility of the dentist or other licensed health care professional authorized to administer conscious sedation or general anesthesia, who shall be at the patient's chairside while conscious sedation or general anesthesia is being administered.
3. Drug identification and draw, limited to identification of appropriate medications, ampule and vial preparation, and withdrawing drugs of correct amount as verified by the supervising licensed dentist.
4. Add drugs, medications, and fluids to intravenous lines using a syringe, provided that a supervising licensed dentist is present at the patient's chairside, limited to determining patency of intravenous line, selection of injection port, syringe insertion into injection port, occlusion of intravenous line and blood aspiration, line release and injection of drugs for appropriate time interval. The exception to this duty is that the initial dose of a drug or medication shall be administered by the supervising licensed dentist.
5. Removal of intravenous lines.
6. Any additional duties that the board may prescribe by regulation.
7. The duties listed in numbers (2) to (5), inclusive, may not be performed in any setting other than a dental office or dental clinic.

LICENSE REQUIREMENTS

Dental Assistant

Although the dental assistant is an unlicensed dental professional, the employer of a dental assistant is responsible for ensuring that the dental assistant who has been in continuous employment for 120 days or more, has already successfully completed, or successfully completes, all of the following within a year of the date of employment:

1. A board-approved course in the Dental Practice Act.
2. A board-approved course in infection control (8-hour).
3. A course in basic life support offered by an instructor approved by the American Red Cross or the American Heart Association, or any other course approved by the board as equivalent and that provides the student the opportunity to engage in hands-on simulated clinical scenarios.

<p>Dental Assistant with Specialty Permit(s) <i>(Business & Professions Code §1750.2 and 1750.4)</i></p>	
<p>Orthodontic Assistant Permit</p> <ol style="list-style-type: none"> 1. Completion of at least 12 months of work experience as a dental assistant. 2. Successful completion of board-approved courses in the Dental Practice Act and infection control (8-hour), respectively. 3. Successful completion of a course in basic life support offered by an instructor approved by the American Red Cross or the American Heart Association, or any other course approved by the board as equivalent. 4. Successful completion of a board-approved orthodontic assistant course, which may commence after the completion of six months of work experience as a dental assistant. 5. Passage of a written examination administered by the board after completion of all of the other requirements of this subdivision. 	<p>Dental Sedation Assistant Permit</p> <ol style="list-style-type: none"> 1. Completion of at least 12 months of work experience as a dental assistant. 2. Successful completion of board-approved courses in the Dental Practice Act and infection control (8-hour), respectively. 3. Successful completion of a course in basic life support offered by an instructor approved by the American Red Cross or the American Heart Association, or any other course approved by the board as equivalent. 4. Successful completion of a board-approved dental sedation assistant course, which may commence after the completion of six months of work experience as a dental assistant. 5. Passage of a written examination administered by the board after completion of all of the other requirements of this subdivision.

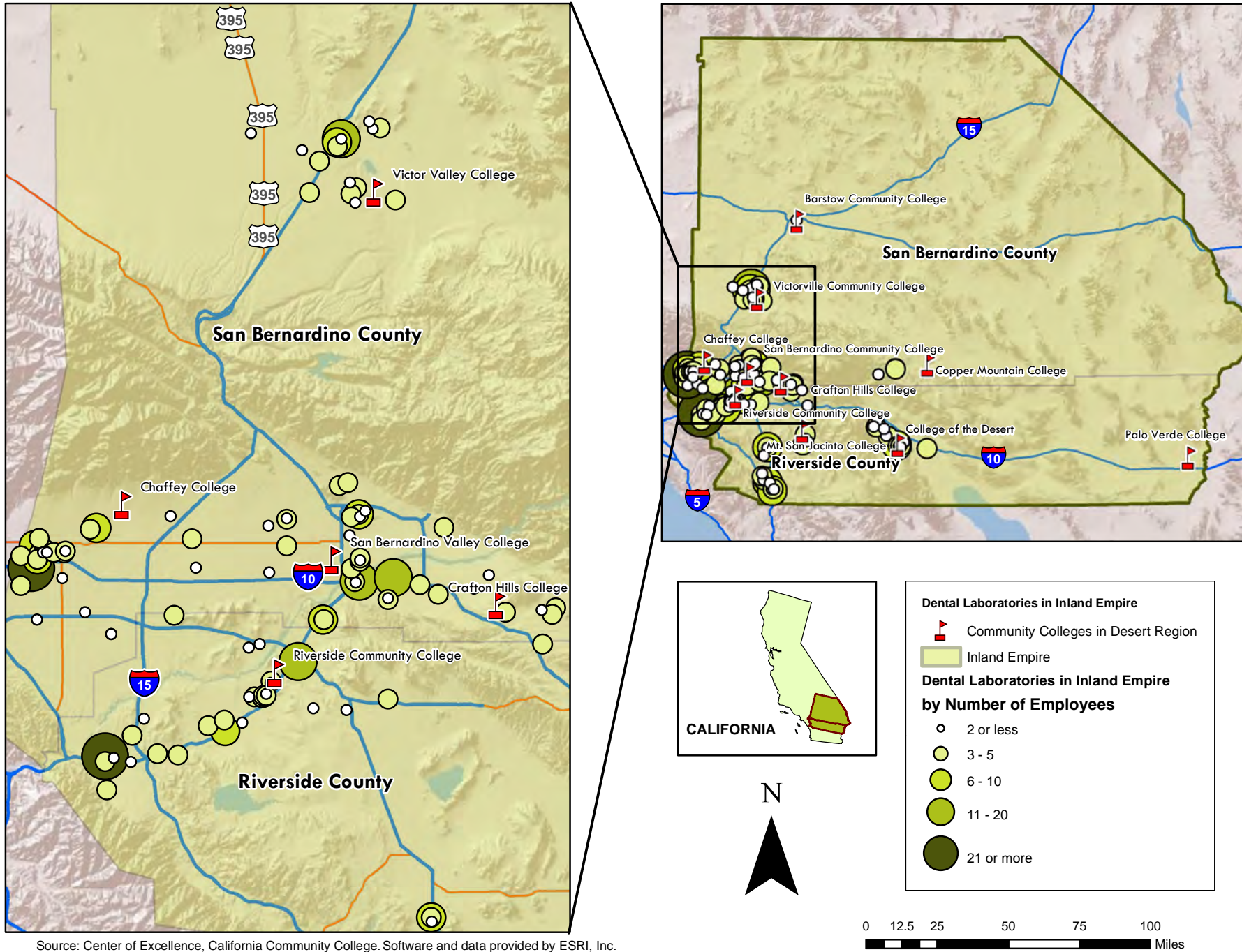
Permit Renewal

A dental assistant who holds a specialty assistant permit must complete the same continuing education and license renewal requirements as are required for registered dental assistants in order to renew the permit.

<p>Registered Dental Assistant (Business & Professions Code §1752.1)</p>	
<p>Submit written evidence to the Dental Board of either of the following eligibility requirements: Graduation from an educational program in registered dental assisting approved by the board, and satisfactory performance on a written and practical examination administered by the board; or</p> <ol style="list-style-type: none"> 1. Evidence of completion of satisfactory work experience of at least 15 months as a dental assistant in California or another state and satisfactory performance on a written and practical examination administered by the board. <p>"Satisfactory work experience" means performance of the duties of a dental assistant in a competent manner as determined by the employing dentist, who shall certify to such satisfactory work experience in the application.</p> <p>The board shall give credit toward the work experience referred to in this section to persons who have graduated from a dental assisting program in a postsecondary institution approved by the Department of Education or in a secondary institution, regional occupational center, or regional occupational program, that are not, however, approved by the board. The credit shall equal the total weeks spent in classroom training and internship on a week-for-week basis. Graduates of programs not meeting established minimum criteria shall not qualify for satisfactory work experience as defined by this section.</p> <p>Each applicant for RDA licensure on or after July 1, 2002, shall provide evidence of having successfully completed board-approved courses in radiation safety and coronal polishing as a condition of licensure. The length and content of the courses shall be governed by applicable board regulations.</p> <p>In addition, individuals applying for RDA licensure shall demonstrate satisfactory performance on a written examination in law and ethics administered by the board and shall provide written evidence of successful completion within five years prior to application of all of the following:</p> <ol style="list-style-type: none"> (1) A board-approved course in the Dental Practice Act. (2) A board-approved course in infection control (8-hour). (3) A course in basic life support offered by an instructor approved by the American Red Cross or the American Heart Association, or any other course approved by the board as equivalent. 	<p>RDA with Specialty Permits</p> <p>An RDA may apply for an orthodontic assistant permit or a dental sedation assistant permit, or both, by submitting written evidence of the following:</p> <ol style="list-style-type: none"> 1. Successful completion of a board-approved orthodontic assistant or dental sedation assistant course, as applicable. 2. Passage of a written examination administered by the board that shall encompass the knowledge, skills, and abilities necessary to competently perform the duties of the particular permit. <p>An RDA with permits in either orthodontic assisting or dental sedation assisting shall be referred to as an "RDA with orthodontic assistant permit," or "RDA with dental sedation assistant permit," as applicable.</p>
<p>RDA Renewal</p> <p>Completion of the continuing education requirements established by the board pursuant to Section 1645 by a registered dental assistant who also holds a permit as an orthodontic assistant or dental sedation assistant shall fulfill the continuing education requirements for the specialty permit(s).</p> <p>RDAs who first become licensed on and after January 1, 2010, shall provide evidence of successful completion of a board-approved course in the application of pit and fissure sealants prior to the first expiration of his or her license that requires the completion of continuing education as a condition of renewal. The license of a registered dental assistant who does not provide evidence of successful completion of that course shall not be renewed until evidence of course completion is provided.</p>	

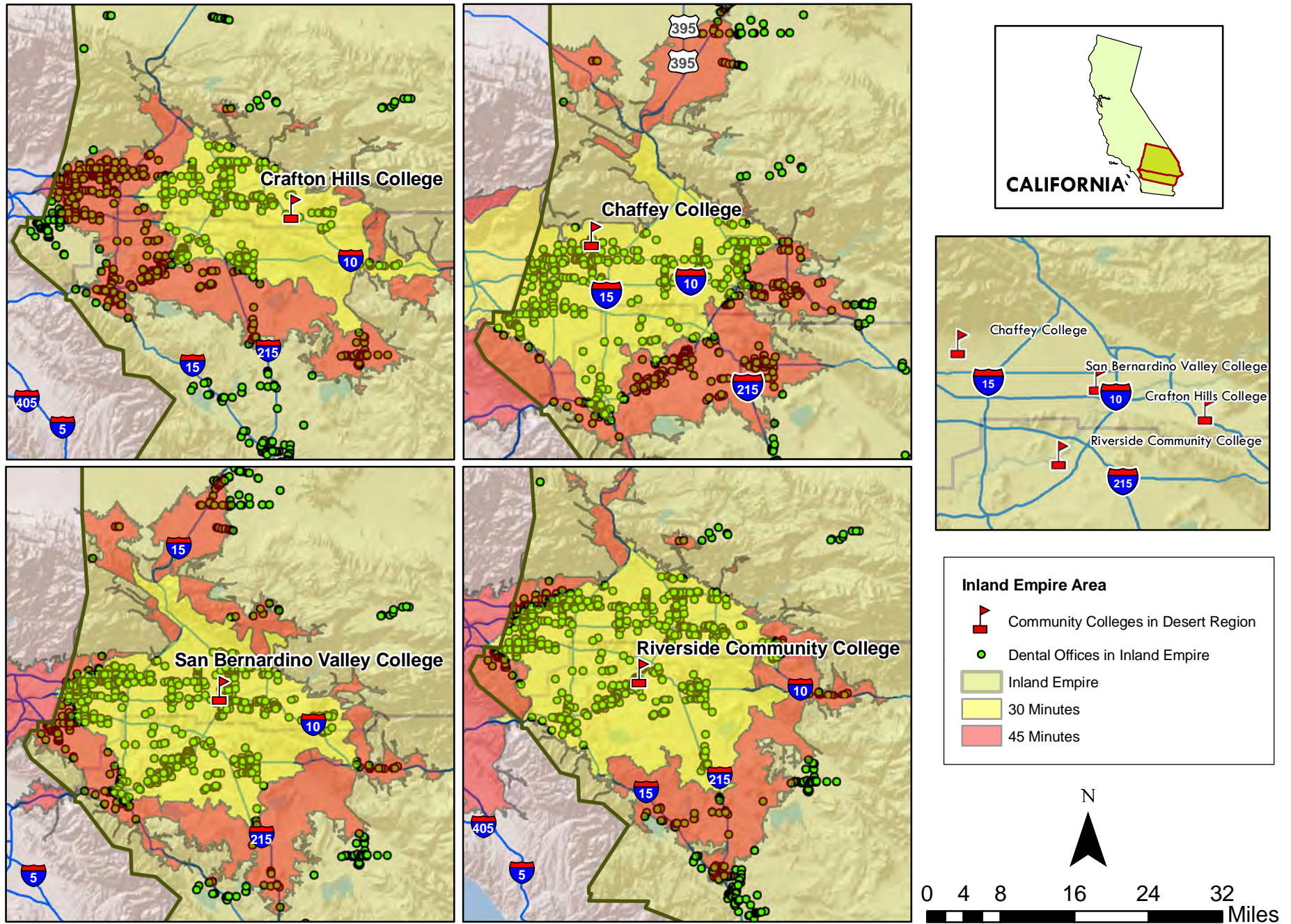
<p>Registered Dental Assistant in Extended Functions <i>(Business & Professions Code §1753)</i></p>	
<p>Submit written evidence to the Dental Board of all of the following eligibility requirements:</p> <ol style="list-style-type: none"> 1. Current licensure as a registered dental assistant or completion of the requirements for licensure as a registered dental assistant. 2. Successful completion of a board-approved course in the application of pit and fissure sealants. 3. Successful completion of either of the following: <ol style="list-style-type: none"> (A) An extended functions postsecondary program approved by the board (B) An extended functions postsecondary program approved by the board to teach the duties that registered dental assistants in extended functions were allowed to perform prior to January 1, 2010, and a course approved by the board in the procedures numbered (1), (2), (5), and (7) to (11), of the RDAEF duties listed above. 4. Passage of a written examination and a clinical or practical examination administered by the board. The board shall designate whether the written examination shall be administered by the board or by the board-approved extended functions program. 	<p>RDAEF with Specialty Permits</p> <p>An RDAEF may apply for an orthodontic assistant permit or a dental sedation assistant permit, or both, by providing written evidence of the following:</p> <ol style="list-style-type: none"> 1. Successful completion of a board-approved orthodontic assistant or dental sedation assistant course, as applicable. 2. Passage of a written examination administered by the board that shall encompass the knowledge, skills, and abilities necessary to competently perform the duties of the particular permit. <p>An RDAEF with permits in either orthodontic assisting or dental sedation assisting shall be referred to as an "RDAEF with orthodontic assistant permit," or "RDAEF with dental sedation assistant permit," as applicable.</p>
<p>Requirements for RDAEFs licensed before January 1, 2010, to perform new RDAEF duties <i>(Business & Professions Code §1753.4)</i></p> <p>Each person who holds a current and active RDAEF license issued prior to January 1, 2010, who wishes to perform the duties specified in paragraphs (1), (2), (5), and (7) to (11), inclusive, of the RDAEF duties listed above, shall successfully complete an examination consisting of the procedures described below. The specific procedures shall be assigned by an RDAEF examination committee appointed by the board and shall be graded by examiners appointed by the board. Each applicant shall furnish the required materials necessary to complete the examination.</p> <p>Successful completion of two of the following procedures on a simulated patient head mounted in appropriate position and accommodating an articulated typodont in an enclosed intraoral environment, or mounted on a dental chair in a dental operator:</p> <ol style="list-style-type: none"> (1) Place, condense, and carve an amalgam restoration. (2) Place and contour a nonmetallic direct restoration. (3) Polish and contour an existing amalgam restoration. 	
<p>RDAEF Renewal</p> <p>Completion of the continuing education requirements established by the board pursuant to Section 1645 by a registered dental assistant in extended functions who also holds a permit as an orthodontic assistant or dental sedation assistant shall fulfill the continuing education requirement for such permit or permits.</p>	

Dental Laboratories by Number of Employees in the Inland Empire



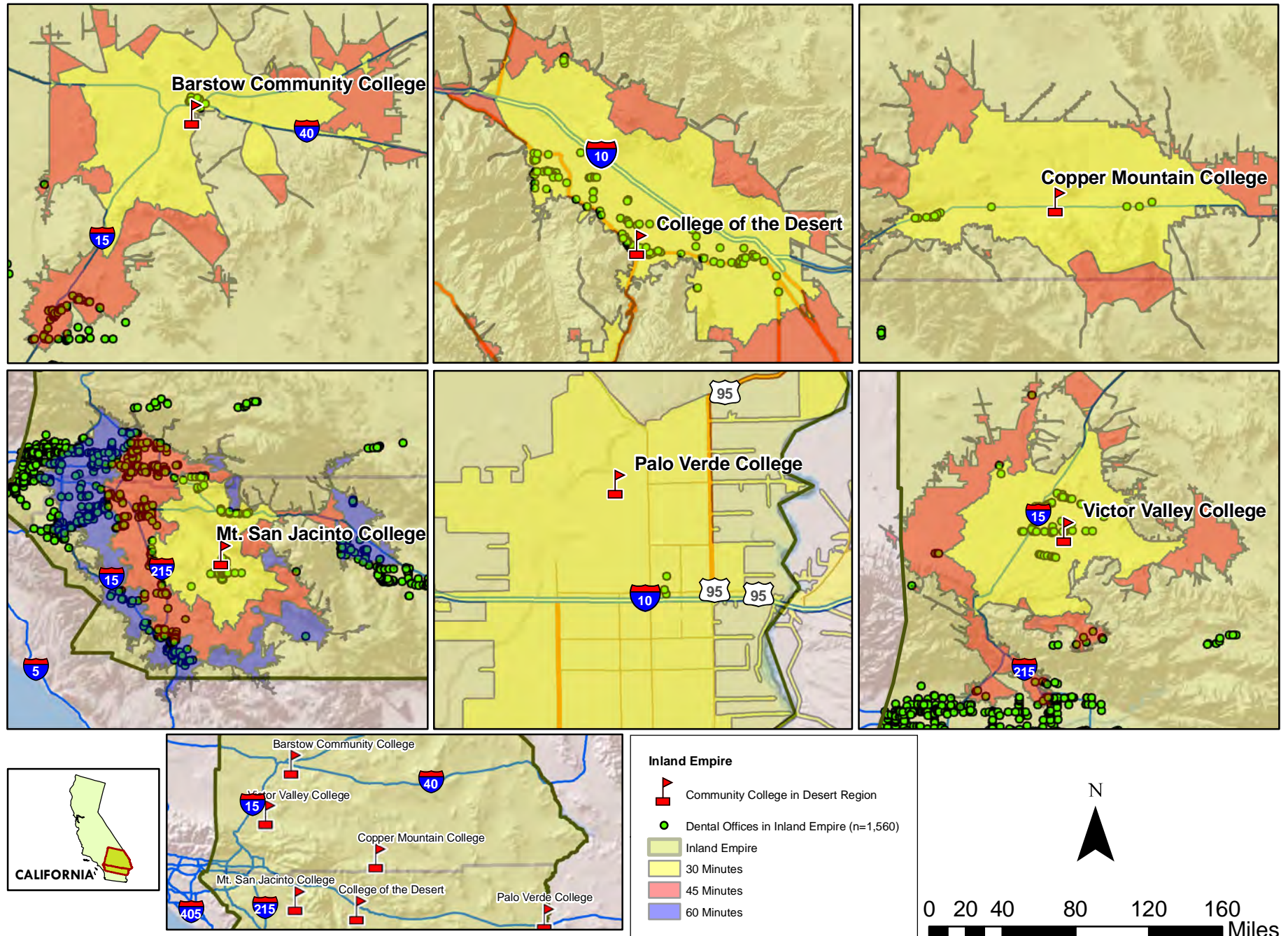
Source: Center of Excellence, California Community College. Software and data provided by ESRI, Inc.

Dental Offices 30 and 40 Minutes Drive Time of Community Colleges in Desert Region



Source: Center of Excellence, California Community College. Software and data provided by ESRI, Inc.

Dental Offices 30, 40, and 60 Minutes Drive Time of Community Colleges in Desert Region



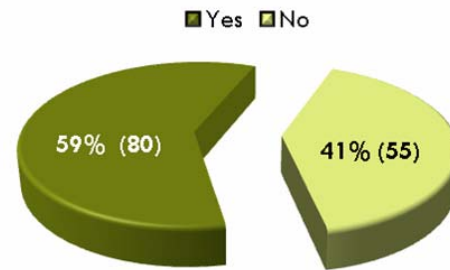
Source: Center of Excellence, California Community College. Software and data provided by ESRI, Inc.

Appendix G: Skills and Experience

One survey question broadly asked, “Overall, are applicants lacking important job skills?” Fifty nine percent (80 respondents) said “Yes,” they are lacking, and 75 expanded on what types of job skills were missing. Responses primarily fell into two major categories:

- Clinical and Dental industry knowledge
- Employability skills

Overall, are applicants lacking important job skills?



Clinical and Dental Industry knowledge: Respondents had very strong feelings about the lack of basic skills. The following quotes capture the essence of 35 individual comments: *Dental Assistants do not have basic skills, can't spell or chart to standard of care, do not anticipate when assisting in procedures they've done multiple times, do not take initiative to begin tasks when completing the task at hand; poor predictors of prioritizing what tasks should be done and in what order, etc*”, “*Assistants that are coming out of school are not prepared for dentistry.*”, “*I don't know what they are teaching at these vocational schools.*” And, several dentists stated there is an overall lack of quality and attention to detail.

Surveyed dentists indicated there is little to no understanding of the bigger picture, i.e.: the needs of the practice and the dental industry as a whole. In addition, there were multiple comments about a lack of clinical training, such as, taking proper Xrays, patient psychology, chair side skills and new technology.

Employability skills: Thirty eight dentists made comments about general employability skills. Seventeen of them mentioned “communication skills” are lacking. They specified all forms of communication, including, written, verbal, spelling and English language. Other skills lacking with multiple mentions include people skills, work ethic, customer service, professionalism, organizational skills, personal appearance, basic math, initiative, basic computer skills and teamwork.

Appendix H: Dental Associations

American Dental Association
<http://www.ada.org>

American Dental Assistants Association
<http://www.dentalassistant.org>

American Dental Hygienists' Association
<http://www.adha.org>

National Association of Dental Laboratories
<http://www.nadl.org>

California Dental Association
<http://www.cda.org>

California Dental Hygienists Association
<http://cdha.org>

California Dental Assistants Association
<http://www.cdaaweb.org>

California Dental Laboratory Association
<http://cdla.org>

Appendix I: Expanded Functions Training Requirements, California⁵⁶

California					State-approved 4/13/06
Education/Training/ Credential Required	Job Title According to State of CA	Proposed Standardized National Job Titles (see below)	Radiology Requirements	Functions NOT Permitted by Dental Assistants in CA	
<p>To perform expanded functions under the direct supervision of a licensed dentist in the state of California, a dental assistant must be licensed as a Registered Dental Assistant in Extended Functions (RDAEF).</p> <p>To register as an RDAEF, one must:</p> <ul style="list-style-type: none"> ■ Hold a valid license as a Registered Dental Assistant (see below) AND ■ Complete a Board-approved extended functions educational program AND ■ Pass a Board-approved clinical exam AND ■ Apply to the Dental Board of California for licensure as a Registered Dental Assistant in Extended Functions <p>The Dental Board of California is in the process of creating four new designations for dental assistants: Registered Orthodontic Assistant (ROA), Registered Surgery Assistant (RSA), Registered Restorative Assistant (RRA), or Registered Restorative Assistant in Extended Functions (RRAEF), which are expected to become effective on January 1, 2008. More information can be found in the California State Dental Practice Act.</p>	Registered Dental Assistant in Extended Functions (RDAEF)	Expanded Functions Dental Assistant (EFDA)	<p>A dental assistant in the state of California must be state certified in radiography to legally operate dental x-ray equipment and perform dental radiologic procedures.</p> <p>To apply for state certification, a dental assistant must:</p> <ul style="list-style-type: none"> ■ Successfully complete a California Board of Dental Examiners-approved radiation safety course which includes theory and clinical application in radiographic technique OR ■ Pass a Board-approved radiation safety exam (prior to January 1, 1985) AND ■ Submit a copy of the certificate of completion to the Dental Board of California 	<p>The following functions are not permitted by any level of dental assistant:</p> <ul style="list-style-type: none"> 6. Place and remove tetracycline cord 9. Remove lime deposits, accretions, and stains from the unattached surfaces of the teeth 12, 33, 51, 61, 70. Placement, condensation, carving, or removal of permanent restorations, including final cementation procedures 18, 40. Apply topical agents essential to complete prophylaxes 20. Oral prophylaxis procedures 33, 51. Place or finish permanent restorations 46. Taking of impressions for prosthodontic appliances, bridges, or any other structures which may be worn in the mouth <ul style="list-style-type: none"> • Diagnosis and treatment planning • Surgical or cutting procedures on hard or soft tissue • Fitting and adjusting of correctional and prosthodontic appliances • Prescription of medicines • Irrigation and medication of canals, try-in cones, reaming, filling, or filling of root canals • Administration of injectable and/or general anesthesia • Removal of excess cement from coronal surfaces of teeth under other than orthodontic treatment by means of an ultrasonic scaler • Preliminary examination, including but not limited to periodontal charting, intra- and extra-oral examination of soft tissue, classifying occlusion, and myofunctional evaluation • Irrigate subgingivally with an antimicrobial and/or antibiotic liquid solutions • Administration of local anesthesia • Administration of nitrous oxide and oxygen • Oral exfoliative cytology • Periodontal soft tissue curettage • Polish and contour restorations for preventive purposes • Root planing • Subgingival scaling • Oral health screenings • Place sutures 	©2008 Dental Assisting National Board, Inc.
<p>To be licensed as a Registered Dental Assistant (RDA) in the state of California, one must:</p> <ul style="list-style-type: none"> ■ Graduate from a Board-approved RDA educational program OR ■ Complete 12 months of work experience as a dental assistant AND ■ Successfully complete Board-approved courses in radiation safety and coronal polishing AND ■ Pass a state written and hands-on RDA exam AND ■ Apply for licensure as a Registered Dental Assistant to the Dental Board of California 	Registered Dental Assistant (RDA)	DANB Certified Dental Assistant (CDA) or Registered Dental Assistant (RDA)	<p>The ADAA/DANB Alliance developed a listing of standardized job titles (left) based on its national Core Competency Study conducted from 2002-05.</p> <p>The same study utilized a list of 70 job functions which were determined to be representative of a broad range of dental assisting core competencies.</p> <p>Functions in this state that relate to the national DANB/ADAA Core Competency Study are numbered to the right, using language directly from this state's dental practice act. (The numbers correspond to the study's task numbering system.)</p> <p>Functions listed with bullets are part of this state's practice act but are not specific matches to DANB/ADAA research.</p>		
<p>A unlicensed dental assistant is an individual who is unlicensed in the state of California. A dental assistant may perform basic supportive dental procedures under the supervision of a licensed dentist specified by the state dental practice act (see opposite page).</p> <p>There are no education or training requirements for this level of dental assisting.</p>	Unlicensed Dental Assistant	Dental Assistant Entry Level Dental Assistant	<p>These state templates reflect the work being done by the ADAA/DANB Alliance to support a uniform national model for one set of dental assisting tasks, levels, and requirements, which will serve as a viable career ladder for dental assistants.</p>	<p>DANB has not received confirmation that this Career Ladder Template has been reviewed and approved by the California's Committee on Dental Auxiliaries. All of the templates in this volume reflect DANB's interpretation of state or district dental practice acts. For authoritative information regarding requirements for dental assistants in each state or district, please contact the relevant dental board.</p>	

⁵⁶ Dental Assisting National Board, <http://www.danb.org/PDFs/Charts/California.pdf>