California Registered Dental Hygienist in Alternative Practice: Working, Learning and Evolving

By

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DEDICATION

I dedicate the work in this thesis first and foremost to my fabulous family without whom I would never have gotten this far.

To my wonderful parents whose support has always been unwavering and unconditional. To borrow words from one of your favorite songs, you have always been the wind beneath my wings.

To my fab three, Jason, Nico and Michelle, thank you for standing with me, by me but most importantly beside me. I love you all muchly. Fattece largo passamo noi!!

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CHAPTER 1
INTRODUCTION

1.1 Problem Statement

Untreated oral disease is epidemic among the underserved and vulnerable populations in America.[1] They are the most challenged to receive care due in large part to socioeconomic barriers, limited number of providers that accept Medicaid or live in areas that may not be as well populated by providers. The Health Resources and Services Administration (HRSA) determines the underserved areas according to geography and population.[2] Current estimates of underserved areas indicate that each state has at least one health professional shortage area (HPSA) which amounts to approximately 10% of the national population.[2]

Over 47 million people are underserved nationwide.[3] In order to meet the current oral health needs, over 9500 new dental providers will be necessary.[4] Unfortunately, the number of dentists per capita is expected to decline from 60 dentists per 100,000 as noted in 1994 to 55 per 100,000 by 2020.[2] Conversely, the number of registered dental hygienists (RDH) has been steadily increasing over the past 10 years; and, according to the Bureau of Labor Statistics, the projected growth for registered dental hygienists is 37.7% by 2020.[5] The profession of dental hygiene is heading in a direction that could help address access to care.

Throughout history, changes to the dental workforce have been met with some resistance. In the early 20th century, Dr. Albert Fones began training his assistant to educate and provide oral care to children in local schools. Although these "hygienists" worked under direct supervision, there was opposition to this care being delivered outside of the traditional settings and by non-traditional personnel.[6] With time the benefit of the dental hygienist as an integral part of the dental team was realized. Now, 100 years later the profession is undergoing similar opposition.

In the 1970's, California and several other states began the conversation about an alternative workforce model as a solution to the unmet dental demands of vulnerable and underserved populations. In 1972 the Health Manpower Pilot Projects Act #139 (HMPP 139) was created to evaluate expanded workforce models and ways to deliver health care to populations that did not have access.[7,8] Legal challenges to HMPP 139 stopped this program in 1990 but HMPP 155, which effectively replaced HMPP 139, started that same year. The results of the pilot study concluded that dental hygienists provided access to care, satisfied their patients and referred patients to dentist for treatment, charged lower fees, accepted Medicaid patients and most importantly provided care with no increased risk of patient health and safety.[8] The 2009 PEW Report pointed out that the argument against this particular model may be more political in nature rather than a public health and safety issue.[9] As a result of these pilot studies in 1998 legislation was passed creating licensure for the Registered Dental Hygienist in Alternative Practice (RDHAP).

Registered Dental Hygienists Alternative Practice are licensed dental hygiene professionals who provide preventative services to patients with limited access to dental care including those with special needs, such as patients with mental or physical

disabilities.[8] The RDHAP delivers dental hygiene services to homebound clients, children in school settings and clients in residential care facilities and other institutions.[8] RDHAPs may also establish practices in communities that have been designated as dental health professional shortage areas.[8]

With oral health care needed for the underserved and vulnerable populations, dental hygienists serving in public health settings are beginning to fill a this gap in care. Currently 37 states allow the hygienist some form of direct access to underserved and vulnerable populations.[2] The American Dental Hygienists' Association defines direct access as "the dental hygienist initiating treatment based on his or her assessment of patient's needs without the specific authorization of a dentist, treating the patient without the presence of a dentist, and the maintaining a provider-patient relationship."[10] According to the 2013 report by the National Governors Association the dental hygienist is able to deliver safe and affordable health care and can help fill the access to care need.[2]

In California, similar to what is seen across the nation, access to care is limited for the underserved population, especially those living in rural communities and in inner cities.[11,12,13] The Denti-Cal insurance program is funded by both the state of California and federal government.[12] It is a public insurance health care program, under the umbrella of Medi-Cal that provides dental care services for low-income individuals and families who meet defined eligibility requirements.[14] In 2007, the California Dental Association reported only 24% of dentists accepted Denti-Cal; additionally 30% of the population has at least one issue related to dental care access whether it is economic, geographic or cultural.[15] In 2009, the Denti-Cal program eliminated most services to adults over the age of 21 because of the California fiscal crisis.[12] According to the 2009 PEW Report, inadequate

public subsidies and the lack of any kind of a dental safety net are two of the "underlying factors that give rise to these unmet oral health needs."[9] With the passage of the Affordable Care Act, the Denti-Cal program reinstated adult coverage in May of 2014 and the 850,000 children that were covered under the Healthy Families program were added to Denti-Cal.[12]

Although the access to oral health care need is great not all 540 RDHAPs are actively practicing according to the 2014 data from the Dental Board of California (DBC) - Dental Hygiene Committee of California (DHCC).[16] The challenges and barriers to maintaining a viable practice have been identified in several reports. Ergonomic conditions in treating patients in non-traditional settings and complex needs of the vulnerable populations are some of the challenges stated the 2009 report by Wides et al. Barriers to the RDHAP practice included reimbursement and payment issues from insurance companies such as Denti-Cal, scope of practice limitations pertaining to patient care, and lack of public awareness.[17] *The Good Practice: Treating the Underserved Dental Patients While Staying Afloat* report by Scott et al. provides a health economist's perspective of how to sustain a community-based practice.[18] It explores business practice related concepts such as strategic planning, patient flow, staffing patterns, and creating efficient and effective business systems.[18] These concepts are relevant and important to the economic sustainability of the RDHAP practice.

1.2 Goal Statement

The goal of this study was to investigate the status of the current RDHAP model relative to key factors associated with economic sustainability.

1.3 Specific Aims

Specific Aim 1: To identify key factors associated with the economic sustainability of the RDHAP practice.

Hypothesis: There are key factors associated with the RDHAP economic sustainability. Key factors include:

1. Need for strategic planning and alliances

2, Need for an efficient and effective patient flow

3. Need for optimal staffing patterns

4. Need for efficient and effective business systems

1.4 Significance

In lieu of the need for increased access to care, a study on the economic sustainability of the RDHAP practitioner would address one of the issues associated with barriers faced by this workforce model. Although the number of RDHAP providers is increasing, there is limited information on their practice economics. The RDHAP's practice is dedicated to serving the needs of the underserved and vulnerable populations. The fiscal reality of serving those in need is complex and includes issues such as limitations of coverage/reimbursement by Denti-Cal, the limited acknowledgment of the RDHAP as a provider and the difficulty of accessing the patients to provide care. So the question becomes, can RDHAP practice be economically sustainable? This study would add to the increasing research on the viability of the RDHAP as one solution to address access to care in the state of California. This study would also be applicable to other developing models and independent practice hygienists nationwide.

1.5 Thesis Overview

An overview of the content of this thesis is as follow. **Chapter II** is the Review of the Literature which, offers the reader a thorough summary of the current research and history involved with the RDHAP in California. Critical topics include; access to care, workforce models, direct access workforce models, access to care in California, the creation of the RDHAP, RDHAP challenges and barriers, Denti-Cal, practice economics and sustainability, survey research, and a conclusion. **Chapter III** covers the Materials and Methods details of the study, followed by **Chapter IV** which will present the results of this project. **Chapters V and VI** will complete the thesis with a comprehensive Discussion and Conclusion.

CHAPTER II
REVIEW OF THE LITERATURE

2.1 Access to Care

An epidemic of untreated oral disease exists in the vulnerable and underserved populations in America.[19] The lack of access to necessary treatment can lead to complications such as tooth loss, pain, lack of adequate dietary intake and delay in social development.[2] It is the responsibility of the dental health professional team to address dental disease, to educate the public on prevention and to provide access to care for all.[20] Vulnerable and underserved populations are the most challenged to receive care due in large part to socioeconomic barriers and limited number of providers that accept Medicaid or live in areas that may not be as well populated.[21]

The Health Resources and Services Administration (HRSA) determines underserved areas according to geography and populations specifically based on provider-to-population ratios not population density.[2] Current estimates of underserved areas indicate that each state has at least one Health Professional Shortage Area (HPSA) or Medically Underserved Area (MUA) which amounts to approximately 10% if the national population.[2] The determination of a HPSA is based on infant mortality, percent of population below the poverty line, percent of population that is 65 and older and the number of providers per 5000 people.[2] Additional dentists would need to enter the workforce to eliminate the 4900 current HPSAs.[2] Unfortunately, the number of dentists

per capita is expected to decline from 60 dentist per 100,000 as noted in 1994 to 55 per 100,000 in 2020.[2] There are large populations of underserved and access to care is limited especially for those in rural communities and inner cities nationwide.[19]

The passing of the Patient Protection and Affordable Care Act (PPACA) allows close to 31 million people to gain insurance with another 15 million added to the federal Medicaid program.[22] Although the PPACA will address the medical issues of this population there is currently no provision for dental care for adults. Over the past 10 years there has been a decrease in the number of adults that have received dental care.[23] This has led to the alarming increase of emergency departments (ED) having to attend to dental problems.[24] ED's are often the only solution for families that have no access, cannot afford to go to a private dentist or cannot find a dentist that accepts any of the federal programs, such as Medicaid. A study by Nalliah et al. (2010) reported that in 2006 the cost of treating tooth decay related emergencies in the ED's was $110 million.[25] Of the roughly 330,000 visits 45% were by uninsured adults and 53% by children covered by Medicaid.[25] The common theme among the studies reviewed indicated ED visits comprise the primary dental care for adults who are uninsured and for children covered under a federal program, usually Medicaid.[24-26]

The basic principle of the code of ethics by which dentists and dental hygienists govern themselves states that professionals are compelled to promote health and prevent disease.[20,27] There are five basic ethical principles that oral health professionals need to embrace; patient autonomy, nonmaleficence, beneficence, veracity, and justice.[20,27] This combination of principles addresses not only a professional's responsibility to individuals but also to communities, especially those who are vulnerable and/or lack access.[20,27] One

possible approach to addressing these responsibilities as it relates to access to care is through expanding the current oral health workforce.[28]

2.2 Workforce Models

The need for access to care applies to both physical and oral health. The medical field addressed the need for an expanded workforce to address access with the addition of the midlevel provider (MLP). In the United States medicine has two midlevel providers; the advance practice registered nurse (APRN) and the physician assistant (PA). Studies have indicated that these providers safely supplement the understaffed ED's and efficiently treat patients at a lower cost.[29,30] Both of these MLP have filled the gap of professionals needed in underserved and rural communities as well as serving in the ED's that are limited by the number of physicians.[31,32] Ginde et at. (2010) reported 13% of ED visits involved a MLP and 20% of ED visits were attended by an MLP without physician involvement.[29] The average salary for a MLP in 2009 was targeted at $92,000 while a physician earned $162,000.[29] Therefore, from an economic standpoint the care provided by an MLP is more cost effective than treatment provided by a physician.[29]

Change in any profession is often met with some degree of resistance and the creation of the MLP in medicine was no different. A study by Brown and Draye (2003) indicated that initially nurse practitioners reported opposition from within the nursing population, as well as from physicians, insurance companies and pharmacies.[33] However over 50 years later, these providers play an essential role in all aspects of the United States health care system. Regardless of the struggles the need to provide care for the vulnerable and underserved outweighs the discomfort of the growing pains of developing workforce models to address this crisis.

Throughout history, changes to the dental workforce have also been met with some resistance. In the early 20th century, Dr. Albert Fones began training his assistant to educate and provide oral care to children at local schools. Although these "hygienists" were under his direct supervision there was opposition to the care being delivered outside of the traditional dental setting and by non-traditional dental personnel.[6] With time the benefit of the dental hygienist as an integral part of the dental team was realized. Now 100 years later the profession is undergoing similar opposition.[32] With oral health care needed for the underserved and vulnerable populations, dental hygienists serving in public health settings are beginning to fill a needed gap.

At the House of Delegates meeting in 2004 the American Dental Hygienists' Association approved the concept of the midlevel provider, the Advanced Dental Hygiene Practitioner (ADHP). This practitioner would require a master's level education in order to provide services beyond dental hygiene scope. The ADHP would be able to perform restorative treatment, simple extractions and have limited prescriptive authority.[34] Currently this model has been adopted in Minnesota and education is being provided through Metropolitan State University.[35]

2.2a Direct Access Workforce Models

The profession of dental hygiene is working to address access to care through the development of a MLP as well as through expanding the ability for licensed dental hygienists to "directly access" patients in public health settings with relaxed supervision. The American Dental Hygienists' Association defines 'direct access as the dental hygienist initiating treatment based on his or her assessment of the patient's needs without the specific authorization of a dentist, treating the patient without the presence of

a dentist and the maintaining a provider-patient relationship'.[10] Currently 37 states have some form of direct access workforce model.[2] Each state defines the settings for services.

Direct access providers most often focus on delivering dental hygiene services to populations such as those in long-term care facilities, the disabled and elderly, school-aged children, preschool children in Head Start and Early Head Start programs and migrant workers.[36] In 2013 The National Governors Association published a paper which concluded that the underserved, especially children, were gaining access to care through state programs that allowed the expanded use of the dental hygienist.[4] The ability of the dental hygienist to practice in these alternative settings promotes better oral health through the delivery of safe and affordable preventative care.[4]

The 'direct access model' does not change the scope of practice for the dental hygienist. However, in most states it involves a modification of the supervision requirement. Supervision ranges from general, to remote, to none depending on the state.[36] In a number of states that embraced 'remote' supervision, collaborative practice agreements are developed between the dental hygienist and the dentist.[36] This agreement waives the need for the dentist to examine the patient prior to receiving dental hygiene services.[36] Additionally the agreement may define procedures allowed, populations served and follow-up care protocols.[36]

States such as California, Maine, Massachusetts and Minnesota have all created models that require further education for direct access certification/licensure while others require none.[10] In addition, some states require a specified number of hours of previous clinical experience during a specific time period under the direct supervision of a dentist as part of their application process.[36] State laws also may require the dental hygienist to

obtain their own professional liability insurance, have referral and emergency protocol documentation and may require practice-related data reporting.[36] Furthermore, public health practice-related continuing education courses may also be an element of the law.[36]

The first state to address in law the autonomous practice of dental hygiene was Colorado. The Colorado Dental Practice Act which was passed in 1986, allowed for hygienists to practice independently without supervision or additional education. The independent practice services are limited to prophylaxes, fluoride treatments, x-rays and sealant application.[4] A study by Astroth and Cross-Poline on the Colorado model examined data pertaining to the dental hygienist productivity, type of services performed and on whom care was delivered.[37] In Colorado there is no requirement for a hygienist to establish a practice in an underserved area and the six practices that were used for this study were office-based, institution based and a combination of both office and institution. The most common institution was the nursing-care facility.[37] This study found that care delivered by the independent practitioners was safe and effective.[37]

The access to care issue was addressed in a study on the Extended Cared Permit (ECP) Dental Hygienist in Kansas. In 2003, ECP I allowed dental hygienists, through an agreement with a sponsoring dentist, to provide preventative service to underserved and vulnerable populations.[38] Four years later in 2007, an amendment to ECP I expanded the setting and populations this model could treat creating the ECP II.[38] With an additional 600 hours of clinical practice the ECP II could now treat developmentally disabled and the elderly.[38] The legislation for ECP III passed in 2012 allowing the dental hygienist to remove decay using a hand instrument and place temporary fillings, perform denture

adjustments, smooth a sharp tooth with a slow speed handpiece and, within certain limitations, deliver local anesthesia and extract deciduous teeth.[39]

Delinger et al. completed a qualitative study of this model examining the education and personal attributes of the ECP I and II hygienists.[38] Seven themes emerged from the analysis of the eight interviews conducted. Themes included: the dental hygienist as entrepreneur, partnerships, funding, barriers, models of care, sustainability and impact of the ECP.[38] The results of this study indicated ECP hygienists were entrepreneurial and had to develop a business orientation in order to make their desired impact on the populations of underserved children, elderly and those with special needs.[38] The conclusions of this study affirm the link between socioeconomic status and lack of access, quality of life as it pertains to oral health and the economic impact of poor oral health.[38] The focus of the ECP is similar to the RDHAP as are the identified barriers. Delinger et al. describe four themes that directly relate to this study which are, funding barriers, lack of knowledge of scope of practice, sustainability and available sites.[38]

Oregon passed legislation in 1997 developing a "Limited Access Permit" (LAP) allowing dental hygienists, with previous supervised dental hygiene clinical practice experience and completion of specified courses the ability to provide preventive services without supervision of a dentist.[40] To obtain a LAP, the dental hygienist needed to complete 2500 hours of clinical practice, 40 hours of continuing education, and obtain a collaborative agreement with a dentist.[41] In 2011, a law was passed changing the nomenclature "limited access permit" to "permit to practice as an expanded practice dental hygienist (EPDH)."[42] This change also eliminated the need for a collaborative agreement with a dentist to initiate dental hygiene care for underserved populations and

provided an alternative pathway to practice through obtaining 500 hours of dental hygiene practice in limited access settings through an accredited dental hygiene program.[42]

In 2008, a qualitative study was published by Battrell et al. to assess the impact of the LAP legislation over its first decade of exsistence.[40] Seven LAP dental hygienists and two collaborating dentist were selected through a snowball sample technique.[40] Documentation, interviews and observation of the LAP's and their collaborating dentists were used to analyze what led to the development of their LAP practices, current state of their practices, personal characteristics, collaborative relationships, and impact their practices had on access to oral health care.[40] Results of the study found that positive relationships existed with the collaborating dentist and dental hygienists, care was being delivered in community and school-based settings and the quality of care provided was safe.[40] Because this model had only been in existence for 10 years at the time of this study, actual impact on access could not be fully ascertained.[40]

2.3 Access to Care in California

In California, similar to what is seen across the nation, access to care is limited for the underserved populations.[11,12,13] According to the 2009 Pew Report the oral health care needs are not addressed due to lack of public subsidies and no viable safety net.[43] The population of the underserved in California is comparable with that across the nation. Thirty percent of the population in the state has limitations to care involving one or more of the following issues; economics, culture, education and geography.[43] Due to the economic collapse of the past few years school-based programs for low income children have been eliminated.[15] Additionally, the adult coverage under the Medi-Cal/Denti-Cal

program was discontinued in 2009 causing an increase in emergency department (ED) visits for dental issues.[44]

2.4 Registered Dental Hygienist in Alternative Practice

In 1972 the Health Manpower Pilot Projects Act #139 (HMPP 139) was created to evaluate expanded workforce models and alternative ways to deliver health care to populations that did not have access.[7,8] In California, Health Manpower Projects are overseen by the Office of Statewide Planning and Development (OSHPD) and evaluated new roles or delivery alternatives such as nurse practitioner, physician assistants and emergency medical technicians.[7] In 1986, HMPP 139 was initiated so data on increasing access to care could be gathered as well as information on the efficiency and safety of delivered care by dental hygienists in an unsupervised capacity.[7] The study also looked at a dental hygienists' capacity to maintain a preventive practice and what additional content would need to be assimilated into an educational curriculum. Thirty-four hygienists participated in this pilot study that incorporated 118 hours of business management training, 300 hours of supervised residency and 52 hours of in-service management practice.[8] The results of this pilot program concluded that dental hygienists provided access to care, satisfied their patients, appropriately referred patients for treatment, accepted Denti-Cal, charged lower fees and did not increase the risk of patient safety.[8] As a result of this pilot study legislation was passed in 1998 creating licensure for the Registered Dental Hygienist in Alternative Practice (RDHAP), a direct access workforce model.[8]

RDHAPs are licensed dental hygiene professionals who provide preventative and therapeutic services to patients with limited access to dental care including those with

special needs.[36] The RDHAP delivers dental hygiene services to homebound clients, in school settings, clients in residential care facilities, skilled nursing facilities, state/federal/tribal institutions, public health clinics and community centers.[46] RDHAPs may also establish stand-alone practices in communities that have been designated as HPSAs.[46] An RDHAP can care for a patient for up to 18 months before needing a prescriptive order from a physician or a dentist to continue to see the patient, subsequently this order must be updated every two years.[46] RDHAPs must have a bachelor's degree or the equivalent, three years of clinical experience with a minimum of 2000 practice hours during the 36 months prior to licensure.[46] Licensure is awarded after completing 150 hours of classes in subjects relating to working in alternative settings, submitting to the Dental Hygiene Committee of California (DHCC) a signed collaborative dental agreement and passing the state examination on "Ethics and Law."[46]

RDHAP's practice in alternative settings for a variety of reasons including a desire for autonomy, dedication to working with vulnerable populations, and scheduling flexibility. Mertz (2008) described the RDHAP as committed to continued professional growth, devoted to increasing access to care and to helping the underserved populations.[45] The initial RDHAP pioneers persevered through legal roadblocks so they could practice in a capacity in which they were trained, on a population of people who did not have access to care.

In California there are two schools approved by the DHCC that offer RDHAP educational training, West Los Angeles College and the University of the Pacific. Included in the 150 hour curriculum is coursework in: (a) medical and dental emergencies**, (**b). oral health sciences, (c) working with the elderly and those with special needs, (d) medically

compromised, (e) Medi-Cal and Denti-Cal reimbursement and (f) business administration principles including billing and record keeping.[47,48] The goal of this curriculum is to prepare the individual RDHAP candidate to provide services in alternative settings and maintain good business practices.

2.5 RDHAP Challenges and Barriers

According to data from the DHCC as of 2013 there were 540 licensed RDHAP's.[16] However not all are actively practicing or may be practicing part-time in addition to traditional private practice. The challenges and barriers to maintaining a viable RDHAP practice have been identified in several reports. Ergonomic conditions in treating patients in non-traditional settings and complex needs of the vulnerable populations are some of the challenges stated the 2009 report by Wides et al.[17] Other barriers to the RDHAP practice identified in this report included reimbursement and payment issues from insurance companies such as Denti-Cal, scope of practice limitations pertaining to patient care, and lack of public awareness of the RDHAP.[17]

2.5a Denti-Cal

In California one of the barriers to access to oral health care is the lack of Denti-Cal providers. Medi-Cal/Denti-Cal is a public insurance program which provides health coverage for low-income individuals and families.[13] In 2007, 24% of California dentists accepted Denti-Cal.[12] In 2009 the Denti-Cal program eliminated services to adults over the age of 21 because of the state's fiscal crisis.[15] At that time California implemented the Healthy Families program which was a low cost vision and dental plan for children similar to the federal Children's Health Insurance Program (CHIP).[13] With the passage of PPACA, Denti-Cal was reinstated for the adult population in 2014 and the 850,000

children that were covered under Healthy Families were added to Denti-Cal as well adults over 21 with special needs.[14]

The RDHAP is a recognized provider under Denti-Cal insurance.[14] The process for obtaining provider status can be long with the turnaround time from application to acceptance in the program taking as much as six months. The provider must also be sure the patient is covered prior to services being rendered and that the claim forms are filled out accurately, otherwise the claim is returned with no payment. In addition to Denti-Cal, RDHAPs can file claims under indemnity insurances such as Blue Cross/Anthem and Metropolitan Life.

2.6 Practice Economics & Sustainability

The need for access to care has been discussed and services of the direct access provider have been shown to be safe and effective for the public.[4,8,36] The question then becomes whether or not this workforce model is economically sustainable and if so, what are some of the factors that might jeopardize its economic success?

RDHAPs may work in private practice, community-based clinics or Federally Qualified Health Centers (FQHCs). Most often in those settings the RDHAP is an employee. However, an RDHAP can also establish their own practice. In that practice setting, the RDHAP becomes the business owner and with that comes additional responsibilities, primarily the necessity to manage an economically sustainable practice and maintain sound business principles. Additionally, those businesses that are community-based in non-traditional settings, such as an RDHAP practice, face economic challenges including those related to treating patients with Medicaid, lower

reimbursement rates as well as uninsured patients.[18] For financial sustainability and growth, maximizing revenue is paramount.[18] Financial sustainability in business is driven by a cost/visit ratio that is less than the revenue/visit ratio.[18] Good business practices combined with optimizing revenue will result in financial sustainability that allows for providing services to those populations that may not be able to pay.[18]

A study conducted by Mertz in 2011 concluded that barriers may exist that impede a practice from being economically sustainable.[8] In an earlier study by Wides et al. in 2009, 244 RDHAPs were surveyed and asked questions about their demographics, education and licensure, employment as a registered dental hygienist, RDHAP practice characteristics, and RDHAP professional development and practice.[17] When asked about additional training that would have better prepared them for RDHAP practice, four of the top five answers were related to running a business.[17] These included insurance and Denti-Cal billing, marketing, business planning, and financial practice management.[17]

Finances and the economics of the RDHAP practice were also reported in the Wides study. Of the 244 RDHAPs surveyed, 98 reported having some sort of startup cost with more than 50% having those costs paid off.[17] Procedure fees varied with relation to patient setting and type.[17] When comparing RDHAP fees to those in a traditional dental office, it was found that 80% of the RDHAPs charged the same or less than a dental office did for the same service.[17] Most patients seen by the RDHAP received some sort of public insurance and 60% of the RDHAPs used a sliding scale or even discounted their fees.[17] Practice income of the RDHAPs studied came from public insurance (43.8%) and self-pay (37.9%) with other sources and private insurance making up the remaining

categories. The average annual income of 40% of the RDHAPs in this study was $15,500 or less with just under 20% reporting earnings of $60,000 or better.[17]

The Good Practice: Treating the Underserved Dental Patients While Staying Afloat report by Scott et al., provides a health economist's perspective of how to sustain a community-based practice.[18] Three key foci of the study include identifying and managing the balance of cost, reimbursement and revenue.[18] Furthermore, Scott advises planning for the future in terms of changes in care and business models as this approach lays the foundation for growth. In addition, Scott also shares that having a business is akin to maintaining a relationship.[18]

A critical element of sustaining a good practice involves strategic planning. Strategic planning describes the present status of the business, what the future could hold and how to get there. It is an in-depth look at the mission statement of the practice and the actual business practice.[18] Another important component of managing a successful practice is proper scheduling of patients. Due to the nature of the RDHAP's patients and the alternative settings, organization and daily planning would increase efficiency, effectiveness and sustainability.[18] incorporating a plan for staffing directly affects the flow of patient and optimizes scheduling.

The Scott report identified the needs of a practice in terms of types of patient payer mix meaning insured or uninsured and Denti-Cal versus indemnity insurance coverage, how employees may positively affect the financial and administrative qualities of the practice, and the affects thishas on the practice.[18] The payer mix is the mix of money that is received by the practice, i.e. Medi-Cal/Denti-Cal, indemnity, and self-pay. Cross-subsidizing supports economic sustainability because income from other types of

reimbursement (i.e. self-pay or privately insured patients) supports the lack of adequate reimbursement rates of the public insurances.[18] Understanding the effects and benefits of cross-subsidizing is important for providers of Medi-Cal/Denti-Cal or any of the public insurance programs. In addition, the complexity of billing and understanding the specificity of what procedures can be billed, what is accepted, who is eligible and on whom dental treatments can be billed is also important.[18] The combination of low and slow reimbursement rates, complex billing, and eligibility verification all add to the lack of willingness on the part of practitioners to accept public insurance for treatment reimbursement and/or economic challenges for the practice.[18]

Delinger et al. (2014) also addressed the issue of direct access workforce model sustainability.[38] For example, ECP dental hygienists related that for those working in long-term care facilities, the unpredictable nature of patients' health and availability for care was an issue. In addition setting up portable equipment took up a significant amount of potential patient care time and was challenging to transport due to its weight and size.[38] The ECP dental hygienist also managed the scheduling of patients with the nursing staff and this took away from time available to provide care for nursing home residents.[38] The advantages of the use of an employee to fill the ECP's schedule as well as coordinating and maintaining agreements with facilities was identified.[38] The benefit of having that extra person allowed the ECP to work more efficiently and had a positive effect on revenue.[38]

2.7 Survey Research

The survey is a versatile and efficient way to gather data on a given subject. The use of a survey can address different variables of a given subject and can be

disseminated to many people through a myriad of mediums; email, fax, through the Internet or traditional mail. The cost of doing a survey is minimal and using an electronic medium can speed the process so data can be gathered soon after dissemination.[49]

In order to increase the probability of achieving a statically significant response rate, careful design of survey questions is important. Questions should not be wordy, should not be vague or leading, and the survey should not be very long. The respondent should have a clear idea of what the significance of the survey is and what data will be extracted from it.[50]

Response rates for surveys vary by method of dissemination. The response rates for email surveys have steadily declined over the past 3 decades to between 25-30%. That does not produce statistically significant data. However, if the emailed surveys are reinforced by follow-up emails the response rate can go as high as 70%.[50] According to the study by Funkhouser (2014) the use of traditional mail increased the response rate of the survey by 10%.[51]

The survey's success depends on the design of the questions and the multimodal approach of the dissemination and follow up procedures. These factors increase the success of acquiring a statistically significant response rate.[49]

2.8 Conclusion

There are large populations of underserved in America and access to care is limited especially for those in rural communities and inner cities nationwide.[19] However as the number of people who have access to health care increases due to the PPACA,

providers available to treat this population and the geographic distribution of these providers will continue to be a barrier to the delivery of care.[2,4,22]

Direct Access Workforce models have been developed across the country in an effort to address access to care. From the ECP's in Kansas to the LAP/EPHA's in Oregon and finally the RDHAP in California vulnerable populations now have direct access to dental hygiene preventive services.[8, 36,38,40]

Workforce model studies have identified barriers and challenges that exist with developing and sustaining these practices. Some of the barriers are the perceived lack of adequate business training, difficulty with accessing the specific patient populations and economic sustainability.[17, 18]

It is the right of **all** people to have health care. Furthermore, it is the right of **all** people to have access to health care. It is the **responsibility** of those in health care to address the needs of all people. Looking beyond traditional settings and working to develop and sustain a direct access dental hygiene workforce is an important step in addressing access to oral health care.

CHAPTER III
METHODS AND MATERIALS

3.1 Study Population

As of 2014 the Dental Hygiene Committee of California (DHCC) reported there were 540 licensed RDHAPs. The main component of this study was a survey disseminated to all licensed RDHAPs who were invited to voluntarily be participants.

3.2 Procedure

The survey focusing on RDHAP economic sustainability was developed using information from an extensive literature review and in consultation with faculty from the University of Michigan (U-M), directors from the American Dental Hygienists' Association (ADHA), Dental Hygiene Committee of California (DHCC) and California Dental Hygienists' Association (CDHA) and faculty from University of California in San Francisco (UCSF). In addition, a survey research expert from the U-M Center on Learning and Teaching (CRLT) provided guidance on the instrument's development.

During the week of September 22nd, 2014 a pilot survey and feedback form was distributed to several educators for review and evaluation. The feedback form consisted of yes/no and open ended questions. Questions from the feedback form addressed the clarity of the project description in the cover letter, the intelligibility of the directions and the questions, and the ease with which the survey flowed. Additional questions related to any ambiguity found in the construction of the questions, discomfort in answering any

specific topic, time it took to complete, technical difficulties and finally any comments or recommendations.

The electronic survey in Qualtrics software was disseminated on October 20, 2014 by the California Dental Hygienists' Association (CDHA) via email to 254 licensed RDHAPs who were also members of CDHA. A cover letter explaining the purpose of the survey, the assurance of confidentiality and an invitation to participate was included in the email (Appendix A). A follow up email reminder was sent by CDHA on October 27, 2014. In addition, announcements for the survey were sent via United States Postal Service to the addresses of 440 RDHAP's that were acquired from the DHCC (Appendix A). Furthermore, a flyer was distributed to RDHAPs who were attending the CDHA's symposium on October 24th, 2014 (Appendix A). The survey was also posted on two social media websites that are accessible to RDHAPs by invitation-only. Qualtrics servers are password protected and are protected by high-end firewall systems.[52] Vulnerability scans are performed regularly by Qualtrics.[52]

3.3 Data Collection Instrument

The survey contained 38 questions (Appendix A). **Section I** addressed questions regarding the personal demographic characteristics (gender, age, race). **Section II** was titled Practice Demographics, which asked questions about RDHAP practice. **Section III** addressed Strategic Planning and Alliances. **Section IV** questions focused on Patient Flow. **Section V** dealt with Staffing Patterns. **Section VI** addressed Business Systems. Question types included Likert-type scale questions, open ended, and multiple answer questions.

3.4 Statistical Analysis

The data was collected in Qualtrics and downloaded in the form of an excel file. The excel file was imported to SPSS version 22 for analysis. Univariate analyses included descriptive statistics and frequency tables.

3.5 Human Subjects

This study requires the involvement of human subjects. The Institutional Review Board at the University of Michigan approved this study as exempt (Appendix B). The investigators involved in the study have completed the PEERRS training on the protection of human subjects. Participation was completely voluntary with no consequence for non-participation. The survey did not create any physical, psychological, legal or any other risk factors to the respondents.

3.6 Consultants and Collaborators

Elizabeth Mertz, PhD, MA, has done extensive research on health professional workforces including topics of supply and demand of providers, healthcare regulations, access to care and evolving workforce models. She is currently on staff at the University of California San Francisco (UCSF) in the School of Dentistry, Department of Preventative and Restorative Dental Sciences and the Department of Social and Behavioral Science in the School of Nursing. Dr. Mertz is also affiliated with the UCSF Center to Address Disparities in Children's Oral Health (CANDO) (Appendix C).

Mary Kate Scott, MBA, is the principal at Scott & Company, Inc., a consulting firm that specializes in health care strategies. She is also an adjunct professor at the University

of Southern California. She is a national public speaker on health issues and sits on the board of several health organizations including an FQHC (Appendix C).

Noel Kelsch, RDH, RDHAP, AS, BS, is a past president of the California Dental Hygienists' Association and is an RDHAP provider of services to the homeless populations of Ventura and Los Angeles counties (Appendix C).

Michelle Hurlbutt, RDH, MSDH, is Chair of the California Committee of Dental Hygiene. She is the former Director of the Bachelor of Science in Dental Hygiene (BSDH) Degree Completion Program (BSDH) at Loma Linda University, Loma Linda, California. In 2014 she became the Dean of Dental Hygiene at West Coast University in Anaheim, California (Appendix C).

Pam Steinbach, RN, MS, is the Director of Education and Research for the American Dental Hygienists' Association. **Sue Bessner** is the manager of the Research for the American Dental Hygienists' Association (Appendix C).

Mary Wright, PhD, is the Director of Assessment and an Associate Research Scientist at the Center for Research on Learning and Teaching (CRLT) (Appendix C).

CHAPTER IV
RESULTS

4.0 Introduction

Currently there are 540 RDHAPs licensed in California. Multiple approaches were taken to disseminate the survey. One strategy was to disseminate the survey via email to the 254 RDHAPs who are were members of the California Dental Hygienists' Association at the time of the distribution of the survey. In addition, there were 440 postcards with a link to the survey sent to the addresses of the RDHAPs on file with the Dental Hygiene Committee of California. Also, 40 fliers with an invitation to participate and link to the survey were distributed at the 2014 California Dental Hygiene Symposium registrants. Finally, recruitment announcements were made through invitation only social media sites available to the RDHAP community (Facebook and Yahoo Groups).

A total of 98 survey respondents began the Qualtrics survey however only 88 completed substantive portions. Early in the survey, participants were asked if they were currently practicing as an RDHAP, had done so in the past, or had never practiced as an RDHAP at all. Those that indicated they had never practiced were asked why and then exited the survey. Those that indicated they currently were practicing as an RDHAP or had in the past, continued on with the remainder of the survey. The remaining questions were worded to ask participants to respond based on their current practice or, if they were no longer practicing, from their past RDHAP experience.

In reporting results, responses (in most cases) are reported in whole numbers. Rounding up (0.5 and higher) and rounding down (under 0.5) took place to achieve this.

4.1 Participant and Practice Demographics

Demographic descriptive statistics are provided in **Table 1**. Of the 88 respondents 99% were female (n=87). Approximately 35% of the sample was between the ages of 45-54 (n=31) and 30% from ages 55-64 (n=26). Eighty percent (n=70) identified their race/ethnicity as White followed by the next significant response, 13% (n=11), indicating Hispanic.

There is additional demographic information also included in **Table 1**. Forty-five (52%) of the respondents have had their RDH license for more than 20 years, followed by 17% (15) at 16-20 years and in descending order 11-15 years 14% (12), 6-10 years 12% (10) and finally 5% (4) who have had their RDH for 5 years or less. Fifty-nine percent (n=51) of the RDHAPs completed a bachelor's degree. Of the respondents, close to half 49% (n=42), have had their Alternative Practice license for 5 years or less. The next largest group was the RDHAPs who have had their license 6-10 years, 41% (n=35). Of the 86 respondents, 87% (n= 75) were members of the American Dental Hygienists' Association (ADHA).

Information about practice demographics was also obtained (**Table 2**). Within this section respondents were asked if they were or were not working as RDHAPs. Out of the 86 who responded to this question 73% (n= 63) were working as an RDHAP, 10% (n=9) were not currently practicing but had in the past, and 16% (n=14) had never practiced as an RDHAP. Of those who indicated they are not currently working as an RDHAP, when

asked why, the top three reasons were that it was not financially profitable (36%, n=5), it was too physically difficult (29%, n=4) and it was difficult to start a practice (21%, n=3). Those reporting they had never worked as an RDHAP indicated that the cost of starting a business outweighed the benefit (22%, n=4), and issues with patient flow (22%, n=4). Additional responses included having other job commitments (11%, n=2) and feeling unprepared for the responsibility of business ownership (11%, n=2).

When asked if in addition to RDHAP practice are/were you working in any of the following, 44% (n=47) continue to work in a traditional clinical practice as a registered dental hygienist (RDH) (**Table 3**). Interestingly, 19% (n=20) work exclusively in RDHAP practice. Seventeen percent (n=18) teach in an RDH, RDHAP or dental assisting (DA) program. When asked if given the opportunity to practice exclusively as an RDHAP, would you, 61% (n=43) indicated they would. Twenty four percent (n=17) indicated they would not with 14% (n=10) undecided.

Additionally, RDAHPs were asked where in the state their practices were located. Zip codes were provided and data were organized by county as designated by the California's voter statewide regional map.[54] **Table 4** indicates the specific regions/counties and the respective number of RDHAPs that practice in zip codes reported. The greatest area of RDHAP practice in the Southland region (49%; n=69) which includes Ventura, Los Angeles, Orange and San Diego counties. There were two regions, Northern Mountains and Easter Sierra, where no RDHAPs practice.

4.2 Practice Strategic Planning and Alliances

The respondents were asked a series of questions focusing on practice strategic planning and alliances. One question focused on challenges in obtaining collaborative agreements with dentists (**Table 5**). Thirty one percent (n=30) felt that dentists lack knowledge of the RDHAP practice, 25% (n=24) listed dentists' resistance to the workforce model, 18% (n=17) cited dentists felt that agreements increased their liability and an additional 26% (n= 25) had no issue obtaining a collaborative agreement.

In addition to a collaborative agreement, there is the need for the RDHAP to obtain a prescription from a dentist or physician in order to continue treatment after seeing a patient for the first 18 months. When asked what, if any, are the challenges in obtaining a prescription, 34% (n= 30) reported not having any challenges (**Table 5**). Seventeen percent (n=15) reported dentists' lack of knowledge about the RDHAP practice as a challenge, 13% (n= 12) found concern from practitioners that RDHAP patients were not their patients of record, 11% (n= 10) identified dentists' resistance to the RDHAP model, 11% (n= 10) found dentists concerned about increased liability, 7% (n=6) noted that they obtain prescriptions from physicians, and 7% (n= 6) reported physicians lack time or will not cooperate with RDAHP by providing a prescription. Of note, 7% (n= 6) reported obtaining prescriptions exclusively from physicians.

Work practice agreements need to be developed with facilities/sites where RDHAPs practice. Participants were ask about challenges, if any, regarding establishing work practice agreements with sites (**Table 5**). The greatest challenge identified was lack of agency administration/staff knowledge of the RDHAP (31%, n=41). The remaining challenges included resistance from agency administration (26%, n=35), resistance from

on-site dentist (21%, n= 28), lack of knowledge of RDHAP practice by on-site dentist (13%, n=18) and a dental corporation taking over facility (1%, n=1). The response of "no challenges" was indicated by 8% (n=11) of RDHAPs.

Challenges accessing patients in underserved settings were addressed (**Table 6**). Responses identified challenges being collaboration with on-site dentists (19%, n=30), difficulty contacting appropriate agency personnel (16%, n=26) and Denti-Cal coverage and billing (15%, n=24). Additionally, 14% (n=23) of the respondents cited problems acquiring insurance provider status, and another 14% (n=22) had difficulty contacting and/or explaining the RDHAP scope of practice to responsible caregivers. Other challenges identified included the frail and medically complex nature of patients 9% (n=15), while the ability to obtain permission from parents/guardians was also recognized (9%, n=14). Four percent (n=7) found there were no challenges to accessing patients in underserved settings.

Two questions were asked about the need for increasing RDHAP visibility, one within the community and the other among health care professionals (i.e. nurses, doctors, dentists, social workers, etc.). **Table 7** 25% (n=57) of the respondents indicating the need for conducting educational programs in adult day care centers, community center and schools as opportunities for increasing visibility within the community. Another 24% (n=55) thought conducting in-service programs for health care providers would be beneficial. Joining networking groups, advertising in community papers, newspapers, church bulletins and senior health care bulletins or utilizing social media was identified by 21% (n=47), 14% (n=32) and 14% (n=32) respectively.

Professional visibility among other health care providers was addressed and responses were distributed into five categories. Networking and/or marketing with individual health care provider practices was the top response with 31% (n=66), followed by speaking at health care professional associations meetings (24%, n=51), attending health care professional association meetings (23%, n=49) and developing articles about the RDHAP for other professional associations (22%, n=47). One respondent felt improving visibility among other health care professionals was not needed.

Practice alliances were addressed in terms of mentorship opportunities and support from experienced RDHAPs. Participants were asked their thoughts about having an organized mentorship program aligning new RDHAPs with RDHAPs with experience (**Table 8**). Mentorship in understanding insurance programs (17%; n=51) and guidance on how to approach facility staff in order to obtain work practice agreements (17%; n=51) were the top two indicated. These were followed closely by assistance with product and equipment recommendations (16%; n=50) and examples of forms such as health history or patient agreement forms (16%; n=47). Fifteen percent (n=46) thought suggestions on treating and managing cases would be useful while another 15% (n=46) felt guidance on conducting a staff in-service to be of value. Sharing marketing and/or business practices was mentioned by 1% (n=4) of the survey participants. Six respondents (2%) felt that a mentorship program would not be feasible due to multiple barriers and 1% (n=2) did not think a mentorship program would be helpful.

4.3 Practice Patient Flow

This portion of the survey addressed settings in which the respondents work. In addition to settings, information on number of locations the RDHAP worked within each

setting, average number of days per week worked, average hours per day and average number of patients seen per day were requested. Settings included: schools, Head Start programs, residential/ assisted living facilities, home health agencies, Federal/state tribal institutions, public health clinics, FQHC, skilled nursing facilities, community health clinics, independent offices in HPSA, hospitals, homebound, and developmentally disabled residential facilities (**Table 9**). For the question, "*For each setting in which you work/worked, please provide answers/estimates to the categories,"* the responses were as follows:

A – Schools

Seven participants answered this question, with 5 providing answers to all parts of the question. When asked how many schools they provide/provided RDHAP services to, all 7 participants responded. The number of schools reported ranged from 1 to 7 with the average being 3 schools. Five participants responded to the question about the average days per week they work/worked in this setting. The range of days per week was 1 to 2, with the average of slightly over 1 day per week (1.2 days/week).

Six participants responded to the question asking about the average hours per day they work/worked in this setting. The range of hours per day was 3 to 8 with the average being 5.5 hours per day. Six participants also responded to the question asking about the average number of patients seen per day in this setting. The range of number of patients was 3 to 40 with the average being 12 patients per day.

B – Head Start

Three participants answered this question, with 2 providing answers to all parts of the question. When asked how many Head Start programs they provide/provided RDHAP

services to, only 2 participants responded. The number of programs reported ranged from 1 to 2 with the average being 1.5 programs.

Two participants responded to the question asking about the average days per week they work/worked in this setting. Both respondents indicated that they work/worked 1 day per week in this setting. All three participants responded to the question asking about the average hours per day they work/worked in this setting. All respondents indicated that they worked an average of 4 hours per day in this setting. Three participants responded to the question asking about the average number of patients seen per day in this setting. The range of number of patients was 4 to 25 with the average being 15 patients per day.

C – Residential/Assisted Living Facility

Thirty-two participants answered this question, with 19 participants providing answers to all parts of the question. When asked how many facilities they provide/provided RDHAP services to, 31 participants responded. The number of facilities reported ranged from 1 to 20 with the average being 5 facilities.

Nineteen participants responded to the question about the average days per week they work/worked in this setting. The number of days per week worked in this setting ranged from 0.10 to 5 with the average being 1 day per week. Twenty-one participants responded to the question asking about the average hours per day they work/worked in this setting. The range of hours was 1 to 8 with the average being slightly over 3.5 hours per day (3.6 hours/day). Twenty-two participants also responded to the question asking about the average number of patients seen per day in this setting. The range of number of patients was 1 to 8 with the average being 3 patients per day.

D – Home Health Agency

Only one person responded to this question and indicated that they work/worked in 2 home health agency settings. The respondent did not provide answers to any of the other parts of this question.

E – Federal/State/Tribal Institutions

Only one person responded to this question and indicated that they work/worked in 25 federal/state/tribal institutions. When asked about the average days per week they work/worked in this setting, the respondent said that the average number of days per week was "sporadic." When asked about the average hours per day they work/worked in this setting, the responded answered 6 hours per day. And finally, when asked about the average number of patients seen per day in this setting, the respondent indicated 5 patients per day.

F – Local/County Public Health Clinic

Two people responded to this question, both providing answers to all parts of the question. When asked how many sites they work/worked at, the range was 1 to 2 with an average of 1.5 sites. The average number of days per week work/worked in this setting ranged from less than 1 to 1, with the average about half a day (.55 days/week). When asked about the average hours per day they work/worked in this setting, the responds answers ranged from 5 to 8 hours per day, average of 6.5 hours/day. And finally, when asked about the average number of patients seen per day in this setting, the range was 10 to 25 with 18 patients per day being the average (17.5 patients/day).

G – Federal Government Hospital/Clinic Health Center (e.g., Community Health Center, FQHC)

Only one person responded to this question and indicated that they work/worked at 1 site. When asked about the average days per week they work/worked in this setting, the respondent answered 1 day per week. When asked about the average hours per day they work/worked in this setting, the respondent answered 8 hours per day. And finally, when asked about the average number of patients seen per day in this setting, the respondent indicated 8 patients per day.

H– Nursing Homes/Skilled Nursing Facility

Thirty-nine participants answered this question, with 30 providing answers to all parts of the question. When asked how many nursing homes/skilled nursing facilities they provide/provided RDHAP services to, 37 participants responded. The number of sites reported ranged from 1 to 90 with the average being 12 facilities (11.7 sites).

Twenty-nine participants responded to the question about the average days per week they work/worked in this setting. The range of days per week was less than 1 to 5, with an average of 1.5 days per week. Thirty-one participants responded to the question asking about the average hours per day they work/worked in this setting. The range of hours per day was 1 to 10 with the average being slightly over 4 hours per day (4.3 hours/day). Thirty-one participants also responded to the question asking about the average number of patients seen per day in this setting. The range of number of patients was 1 to 13 with the average being 5 patients per day (4.5 pts/day).

I– Community/Migrant Health Clinic

Two participants answered this question and provided answers to all parts of the question. When asked how many Community/Migrant Health Clinics they provide/provided RDHAP services to, both respondents indicated one site. When asked about the average days per week they work/worked in this setting, only two respondents answered indicating an average of 1 day per week (0.5 days/wk). When asked about the average hours per day they work/worked in this setting, both respondents answered. The range of hours per day was 1 to 4 with the average being 2.5 hours per day. When asked about the average number of patients seen per day in this setting, both respondents answered. The range of number of patients was 10 to 40 with the average being 25 patients per day.

J– Independent Office – Practice Located in Dental Health Professional Shortage Area

Only one person responded to this question. They indicated that they work/worked at one site. The average number of days per week working at the site was 0.5 days/wk. They respondent also indicated that the average number of hours they work/worked per day was 0.5 hrs/wk. The responded did not indicate the number of patients seen per day at this setting.

K– Hospital

Four participants answered this question with two participants providing information to all section of the question. When asked how many hospitals they provide/provided RDHAP services to, four participants responded. The number of facilities reported ranged from 1 to 90 with the average being 23.5 hospitals. When asked about the average days per week they work/worked in this setting, two respondents

answered this question and stated that the average days per week they work/worked at this site was 1 day per week. When asked about the average hours per day they work/worked in this setting, two respondents answered this question. The range of hours was 4 to 9 with the average being 6.5 hours per day. When asked about the average number of patients seen per day in this setting, two respondents answered. The range of number of patients was 6 to 9 with the average being 8 patients per day (7.5 pts/day).

L– Residences of the Homebound

Thirty-eight participants answered this question, with 24 providing answers to all parts of the question. When asked how many sites they provide/provided RDHAP services to, 37 participants responded. The number of sites reported ranged from 1 to 100 with the average being 9 sites (8.9 sites).

Twenty-four participants responded to the question about the average days per week they work/worked in this setting. The range of days per week was less than 1 to 3, with the average of 1 day per week (0.7 days/wk). Twenty-five participants responded to the question asking about the average hours per day they work/worked in this setting. The range of hours per day was 1 to 6 with the average being slightly over 2 hours per day (2.3 hrs/day). Twenty-nine participants responded to the question asking about the average number of patients seen per day in this setting. The range of number of patients was 1 to 8 with the average being 2 patients per day.

M– Developmentally Disabled Residential Facility

Fifteen participants answered this question, with 13 providing answers to all parts of the question. When asked how many sites they provide/provided RDHAP services to,

all 15 participants responded. The number of sites reported ranged from 1 to 90 with the average being 15 sites.

Twelve participants responded to the question about the average days per week they work/worked in this setting. The range of days per week was less than 1 to 3, with the average of 1.5 days per week. Fourteen participants responded to the question asking about the average hours per day they work/worked in this setting. The range of hours per day was 1 to 9 with the average being slightly over 5 hours per day (5.4 hrs/day). Thirteen participants also responded to the question asking about the average number of patients seen per day in this setting. The range of number of patients was 1 to 10 with the average being 6 patients per day.

4.4 Practice Staffing Patterns

A series of questions was asked about RDHAP practice staffing patterns. Of the fifty-seven respondents, 75% (n=43) did not have any employees (**Table 10**). Another question asked if you do/did not have any employees, why not. The respondents indicated they did not have enough work to justify an additional employee (39%, n=30) or expenses (i.e. salaries and taxes) were too great (24%, n=18). Twenty percent (n=15) responded that they did not have employees due to administrative time needed and complexity of managing payroll and insurance and an additional 17% (n=13) identified that they preferred to work alone. A narrative for the question pertaining to employees follows (**Table 11**). For the question, *For how many employees do/did you have and how often do/did they work per week,* responses were as follows:

A – RDHAPs

Seven participants provided responses to this category, with 6 providing answers to both parts of the question. When asked about the number of other RDHAP employees, all 7 responded. The number of RDHAPs ranged from 1 to 5 with the average being 2. Five participants responded to the number of days per week the RDHAP employees work. The range of days was 1 to 6 with the average being 3 days per week.

B – Dental Assistants

Ten participants provided responses to this category, with 9 providing answers to both parts of the question. When asked about the number of dental assistant employees, all 10 responded. The number of assistants ranged from 1 to 4 with the average being 2.5. Nine participants responded to the number of days per week the dental assistants work. The range of days was less than 1 to 5 with the average being 2 days per week.

C – Office Staff

Nine participants provided responses to this category, with 8 providing answers to both parts of the question. When asked about the number of office staff employed, 9 responded. The number of staff ranged from 1 to 3 with the average being 2. Seven participants responded to the number of days per week office staff works. The range of days was 1 to 5 with the average being 3 days per week.

In addition to the question regarding employees, respondents were asked to categorize time spent on practice related activities **(Table 12**). For the question, *Please address the questions below estimating both the average hours per week you and/or your employee(s) spend/spent on practice related activities,* the responses were as follows:

A – Direct Patient Care

Forty-seven participants provided responses to the average number of hours per week they spent on patient care (including clinical services, behavior management, etc.). The range was less than 1 to 50 hours with the average being 11. Eleven participants provided data on the number of hours per week their employees spend on patient care. The range was 2 to 40 with the average being 16.

B – Patient Case Management

Forty-eight participants provided responses to the average number of hours per week they spent on patient case management (i.e. chart review, referrals, conferring with other health providers, etc.). The range was less than 1 to 10 hours with the average being 3. Five participants provided data on the number of hours per week their employees spend on patient case management. The range was less than 1 to 15 with the average being 4.

C – Insurance Billing

Thirty-three participants provided responses to the average number of hours per week they spent on insurance billing. The range was less than 1 to 8 hours with the average being 2. Five participants provided data on the number of hours per week their employees spent on insurance billing. The range was less than 1 to 25 hours with the average being 9.

D – Patient Scheduling

Thirty-six participants provided responses to the average number of hours per week they spent on patient scheduling. The range was less than 1 to 6 hours with the

average being 2. Four participants provided data on the number of hours per week their employees spent on patient scheduling. The range was less than 1 to 40 hours with the average being 15.

E – Travel Time To/From Sites

Forty-six participants provided responses to the average number of hours per week they spent on traveling to/from sites. The range was less than 1 to 12 hours with the average being 3. Seven participants provided data on the number of hours per week their employees spend on traveling to/from sites. The range was less than 1 to 6 hours with the average being 3.

F – Equipment Set-Up/Tear Down

Forty-three participants provided responses to the average number of hours per week they spent on equipment set-up/tear down. The range was less than 1 to 5 hours with the average being 2. Ten participants provided data on the number of hours per week their employees spend on equipment set-up/tear down. The range was less than 1 to 10 hours with the average being 2.

G – Obtaining RDHAP Agreements/Prescriptions with DDS/MD

Thirty-five participants provided responses to the average number of hours per week they spent obtaining RDHAP agreements/prescriptions with dentists/physicians. The range was less than 1 to 10 hours with the average being 1. Four participants provided data on the number of hours per week their employees spent obtaining agreements/prescriptions with dentists/physicians. The range was less than 1 to 30 hours with the average being 8.

H – Securing Agreements with Sites

Twenty participants provided responses to the average number of hours per week they spent securing agreements with sites. The range was less than 1 to 30 hours with the average being 3. Two participants provided data on the number of hours per week their employees spent securing agreements with sites. The range was between 2 to 15 hours with the average being 7.

I – Obtaining Business Permits

Fifteen participants provided responses to the average number of hours per week they spent obtaining business permits. The range was less than 1 to 5 hours with the average being 1. No participants provided any data on the hours their employees spent obtaining business permits.

J - Community Service Activities

Thirty-four participants provided responses to the average number of hours per week they spent involved in community service activities. The range was less than 1 to 10 hours with the average being 2. Three participants provided data on the number of hours per week their employees spent involved in community service activities. The range was less than 1 to 1 hour with the average being 10.

K – Accounting and Bill Collection

The category of 'other' was also an option for participants and from this response the theme of 'accounting and bill collection' emerged. Three participants indicated this response however no hours per week were associated with these answers.

4.5 Business Practice Systems

Participants were asked about their business practice systems including type of practice, number of cities in which they practice and need business licenses and the costs of the licenses (**Table 13**). The solo portable practice was reported to be the practice of choice by 64% (n= 44) of the respondents, followed by 16% (n=11) with stand-alone practices. Stand-alone practice is described as a brick and mortar practice. Smaller percentages of RDHAPs reported that they worked in group practices (13%, n= 9), for Federally Qualified Health Centers (FQHCs) (6%, n= 4), or for Head Start programs (1%, n= 1).

The RDHAP is required by the state of California to have a business license for each city in which they perform services (**Table 13**). Forty-nine respondents reported having licenses in 1-5 cities, while one respondent had between 10 and 12 licenses. Fifty-three participants responded to the question on cost of the business license (**Table 13**). Thirty percent (n=16) paid between $26-50, $51-75 accounted for 19% (n=10), $101-150 was the next highest range at 17% (n=9), followed by amounts more than $151 (13%, n= 7). Eleven percent (n=6) were in the range of $76 -100 and finally business license costs under $25 pertained to 9% (n=5) of the RDHAP who responded.

With regard to practice income, the participants were asked to estimate the percentages of their overall practice income from a variety of sources (**Table 14)**. The question was: *Estimate the percentage of your overall practice income that it/was received from the following:*

A - Denti-Cal

Twenty-five respondents answered this question with 23 providing usable data. Of the two respondents who entered unusable data, one entered an amount in dollars, but not as a percent. The other respondent gave an answer that was greater than 100 percent. Both entries were not included in the analysis. The percent of income that is/was received from Denti-Cal ranged from 5 to 100%, with an average of 74%. When categorizing the responses by percent ranges, it was found that the most (13 /23) of the respondents earned 76 to 100% of their income from Denti-Cal.

B - Private (Indemnity) Insurance (i.e. Delta Dental, Blue Cross Blue Shield, etc.)

Twenty-six participants responded to this question with 25 providing usable data. One person provided an amount in dollars; therefore their data was not included in the analysis. The percent of income that is/was received from private insurance ranged from less than 1 to 50% with an average of 10%. When categorizing the responses by percent ranges, it was found that the majority (23/25) of respondents earned 0 to 25% of their income from private sources.

C - Fiduciary Representative Payment (i.e. guardians, power of attorney representatives)

Seventeen respondents answered this question. The percent of income that is/was received from fiduciary representative payment ranged from less than 1% to 90%, with an average of 23%. When categorizing the responses by percent ranges, it was found that the majority (12/17) of respondents earned 0 to 25% of their income from this source.

D - Private Pay by Patient

Forty-three participants answered this question, 41 provided usable data. Of the two respondents who entered unusable data, both entered an amount in dollars, not percent. Therefore, this data was not included in the analysis. The percent of income that is/was received from private pay by patient ranged from less than 1% to 100%, with an average of 46%. When categorizing the responses by percent ranges, about half of the respondents (20/41) indicated that they received between 0-25% of their income through this source while approximately the other half (15/41) said that they received between 76-100% of their income through this source.

E - Grant Funding

Three participants answered this question. One participant entered an invalid answer; therefore that data was not included in the analysis and left two respondents' data for consideration. The percent of income that is/was received from grant funding ranged from 15 to 50%, with an average of 33%. One respondent stated that 15% of their income was earned through this source while the other respondent indicated that 50% of their income was earned through this source.

RDHAPs were also asked if they tracked data related to their practice (**Table 15**). Gross monthly income was tracked by 21% (n=29), and total monthly expenses by 20% (n=28) of the participants. In addition, 17% (n=24) track monthly production, 13% (n=18) keep data on the net monthly profit, 12% (n=17) have records of number of new patients per month, 2.5% (n=3) monitor number of cancellations, and 1.5% (n=2) the number of monthly "no-shows." Thirteen percent (n=18) stated they did not track any practice related data.

A Likert scale question about the need for RDHAP clinical practice data to be submitted to a governmental agency was asked and responses were as follows: 46% (n=25) strongly disagreed with the need, 30% (n=16) neither agreed nor disagreed, 6 (11%) disagreed, another 6 (11%) agreed with the need for reporting and 1 (2%) participant strongly agreed (**Table 15**). In addition, RDHAPs were asked if they felt aggregated RDHAP clinical service data would be helpful in understanding state-wide practice outcomes. The Likert scale responses included 37% (n=20) agreeing, 31% (n=17) were neutral, 15% (n=8) strongly disagreed, 9% (n=5) strongly agreed and 7% (n=4) disagreed (**Table 15**).

Adding to the information pertaining to business systems, the participants were asked about the type of data that should be collected and submitted **(Table 16**). Collecting and submitting the total number of patients receiving care was identified by 11% (n=26) of the respondents as important to be collected/submitted. Interestingly, 11% (n=26) did not believe data should be collected or submitted. Ten percent (n=24) thought the number of adult prophylaxis treatment should be documented and 10% (n=24) also felt the number of child prophylaxes should be identified. Nine percent (n=22) of the participants thought the number of patients screened was important to know, 9% (n=22) wanted the number of children receiving sealants reported and another 9% (n=22) addressed the number of patients referred for dental treatment. The number of children screened was identified by 8% (n=19), as well as number of sealants placed (8%, n=19), and fluoride varnish placement (8%, n=20). Six percent (n=15) thought it important to submit the number of other fluoride treatments and 1% (n= 1) felt the reporting of locally delivered antimicrobials should be included.

Respondents were asked to report gross and net incomes (**Table 17**). Thirty-one RDHAPs indicated they worked part-time and reported gross income. The range of gross incomes for those RDHAP's working fulltime was $0.00 - 150,000.00 and the mean amount $23, 454. 45. Of the 31, 23 RDHAPs reported the corresponding net income the range was from (-) $11,765.00 -90,000.00 with the mean being $11,584.13. In addition there was one respondent who quoted gross income of $1,200.00 but the corresponding net income was listed as $45,600.00 so this entry was eliminated. Gross income for full-time practice was identified by 13 respondents. The range of gross income was $0.00 - 254,000.00 and the mean was calculated to be $108,307.69. Of the 13 who reported gross income, 10 entered amounts for net income. The range was $0.00 - 180,000.00 and the mean $91,900.

One of the final questions on the survey asked the RDAHP to identify the two greatest challenges in attaining economic sustainability (**Table 18**). The top four themes that emerged included practice expense as it pertains to business and equipment (29%, n=26), insurance/reimbursement issues (21%, n=19), patient flow (19%, n=17) and RDHAP visibility (14%, n=12). These were followed by 7% (n=6) issues with dentists, 5% (n=4) ergonomics and/or the physical demands of the practice, 2% (n=2) intraprofessional competition among the RDHAP to be trying and another 2% (n=2) had issues/concerns with lack of support from the Dental Hygiene Committee of California (DHCC) and the California Dental Hygienists' Association (CDHA). Lack of business knowledge was identified by 1% (n=1) of the respondents.

Lastly, participants were asked for any additional comments they wanted to share. Thirty-three participants included comments and they fell into 10 themes (Table 18). The

themes were: insurance/ reimbursement issues (18%, n=12), lack of support from government and professional organizations (DHCC, CDHA) (18%, n=12), financial/productivity (14%, n=9), only maintaining a small RDHAP practice (11%, n=7) and issues with DDS/ corporate groups (9%, n=6). RDHAP visibility was identified by 6% (n=4) and another 6% (n=4) stated that the potential for the RDHAP practice was great but it was a lot of work. Four and one-half percent (n=3) stated issues with population of patients including physical and financial problems. Ergonomics/physical demands was a theme among 4.5% (n=3), more support from within the RDHAP community (4.5%, n=3) and 3% (n=2) indicated they stopped practicing due to the physical demands and the risk/liability. Comments about RDHAP practice being rewarding work and financially viable was noted by 1.5% (n=1) of the respondents.

CHAPTER V
DISCUSSION

The purpose of this study was to investigate the current RDHAP model relative to key factors associated with economic sustainability. The specific aim was to identify key factors associated with this sustainability. These included: the need for strategic planning and alliances, the need for an efficient and effective patient flow, the need for optimal staffing patterns and finally the need for efficient and effective business systems. The results of this study support the hypothesis that these factors are impacting economic sustainability of the RDHAP model. In addition, findings from this study relate to previous direct access workforce model studies.

Over the past several decades studies and reports on direct access have determined that dental hygienists are able to provide care to vulnerable populations in underserved areas efficiently, economically and safely with remote supervision.[2, 8,17,37,38,40,45] Those specifically addressing RDHAP practice have focused on the ergonomic conditions, complex needs of the vulnerable populations, scope of practice, public awareness and reimbursement issues with insurance companies.[17, 45] To date, there has not been a study that has focused on the economic sustainability of the RDHAP.

5.1 Practice Demographics

The majority of the RDHAP survey respondents (65%) were between 45-64 years of age. However, the majority (90%) have had their RDHAP licenses for only 10 years or

less. Interestingly, the majority of survey participants (69%) have been registered dental hygienists' (RDH) for 16 years or more. This is slightly less than the Coplen and Bell study that assessed Oregon's direct access workforce model, the Expanded Practice Dental Hygienist (EPDH), where the largest percentage of practicing EPDHs had held their dental hygiene license for 20 years or more.[55] It appears that experienced professionals are those who most consistently obtain their RDHAP license. This may be due, in part, to the fact that a minimum of 2000 practice hours are needed to even apply for an RDHAP license. When asked where they were working in addition to their RDHAP practice, almost half (44%) indicated that they also continued RDH clinical practice. The assumption here is that RDHAPs continue to practice as an RDH to subsidize their overall income.

In the 2008 study by Mertz, the RDHAP population, when compared to the RDH population, had a higher level of education.[45] Although the current study did not compare the RDH to the RDHAP, similar findings were reported. In addition, in the findings from the Coplen and Bell study, the majority of EPDHs, had bachelor's degrees.[55] The level of education of the majority of the RDHAP respondents was a bachelor's degree (59%) with a lesser number (21%) having a master's degree. These data are also supported by the fact that in order to obtain an RDHAP license, you must have a, "bachelor's degree or its equivalent from a college or institution of higher education that is accredited by a national or regional accrediting agency recognized by the United States Department of Education."[46]

With regard to practice demographics, over half (63%) were currently working as RDHAPs. However, of those RDHAPs who had been working, but were not currently practicing (10%) the top three reasons given were: it was not financially profitable, too

difficult physically and it was difficult to start a practice. These align with the reasons for not practicing that were identified in the 2009 study by Wides, et al. with two out of the three reasons for not continuing to work as an RDHAP related to economic factors.[17] Additionally, Coplen and Bell's study presented similar challenges, including lack of business knowledge, inability to make a salary/living wage, and start-up costs.[55]

Interestingly, there was a small proportion (16%) of respondents who indicated they had taken the educational training to become and RDHAP but never practiced. Three out of the four response themes for this question revolved around economics. These included: cost of starting a business outweighed the benefit, patient flow issues (number of patients, establishing a business, physical/financial issues) and not being prepared/fearful of business ownership. Taking these respondents (16%) in combination with those who had worked, but were not currently practicing as an RDHAP (10%), it appears that economic challenges emerge early on for some RDHAPs and in some cases ended their RDHAP career before it even started.

Even though responses for those not practicing mainly indicated economic challenges, a majority of all RDHAP respondents (61%) stated that they would choose to work as an RDHAP exclusively. This aligns with the finding in the Wides et al. report that stated that RDHAPs have high job satisfaction.[17] When asked by Wides et al. what motivated them to practice, "personal satisfaction" was the highest response.[17] Although RDHAP practice appears to have challenges, the desire to provide dental hygiene direct access care to underserved populations remains strong.

A significant finding when assessing sustainability was identifying where the dental Health Professional Shortage Areas (HPSAs) are across the state. According to the state

voter map, California is divided into 11 regions consisting of 58 counties.[54] Of those 58 counties there are only two in the entire state that are not HPSAs. With 56 of the 58 counties designated shortage areas the reality of practice possibilities for the RDHAP becomes more relevant as the need for health care providers is prevalent in California. Interestingly however, the majority of RDHAP practice (49%) is clustered primarily in the Southland region that includes Ventura, Los Angeles, Orange and San Diego counties. It is unclear why this is the case especially with two RDHAP educational institutions providing training, one in the north (University of the Pacific, San Francisco) and one in the south (West Los Angeles College, Culver City). Furthermore, there are two regions (Eastern Sierra and Northern Mountains) two counties where no RDHAPs indicated they practiced. Interestingly, it was not possible to determine which specific counties were responsible for the practices that appeared most viable from the information gathered on gross and net incomes. Further information should be collected in order to determine the makeup of successful practices and where they are located.

5.2 Practice Strategic Planning and Alliances

Strategic planning and the development of alliances are important aspects of any business or practice and can affect economic sustainability. The lack of knowledge about RDHAP practice from both the dental community and the community at large is another issue that could impede economic sustainability. It is necessary for any business/practice to be understood in the professional and public domain in order for it to become a viable endeavor. Close to half of the respondents (46%) identified practice challenges involving other professionals including the ability to obtain collaborative agreements due to dentists' lack of knowledge of RDHAPs as well as dentists' resistance to the concept of the RDHAP

workforce model. The need for professional visibility was also addressed in the report by Wides et al. as one of the largest impacts on RDHAP practice viability.[17] The Delinger et al. study on Extended Care Permit Dental Hygienists in Kansas also identified this as a barrier to practice.[38]

In order to continue to see a patient after 18 months of being in the RDHAP's care, a prescription must be obtained from a dentist or physician. Surprisingly, 34% of the respondents indicated no challenges experienced with obtaining prescriptions with 7% obtaining prescriptions from physicians only. This may be attributed to the fact that in order to begin practice the RDHAP must have a collaborative agreement with a dentist. This dentist may then be more likely to provide the RDHAP a prescription for continued treatment. Unfortunately, 50% of the respondents did indicate having dentist-related challenges with obtaining prescriptions. This, coupled with similar challenges with obtaining collaborative agreements, indicates that developing strategic alliances with the dental community should be a priority. Doing so should enhance the economic viability of an RDHAP practice.

Obtaining work site practice agreements was challenging due to the lack of knowledge of RDHAP practice as well as resistance to the RDHAP practice model for the agency/ administrative staff for 57% of the respondents. Another 24% of practice agreement challenges were related to the resistance of the on-site dentist and the on-site dentists' lack of knowledge of the RDHAP. Clearly the need to inform both the health care community on the scope of practice and the purpose of the RDHAP workforce is an area to that needs to be addressed. The need for the development of strategic alliances with the dental community was reaffirmed here. In addition, those alliances must also be

developed and strengthened with agencies that serve vulnerable populations. Efforts to do so should include creating a working relationship with the medical communities in the underserved areas. The Scott et al. report identifies a working medical-dental relationship as opportunistic because patients may be more likely to seek dental care if it is recommended by the medical team.[18]

Challenges with accessing patients in underserved settings centered around two issues. Thirty-five percent of the respondents indicated having challenges with facilities including collaborating with the on-site dentist and finding an appropriate person within the agency to contact about accessing patients. Another 29% reported insurance related issues including Denti-Cal coverage/billing and obtaining insurance provider status. This follows the conclusion of the Wides et al. report which stated that besides the lack of knowledge of the RDHAP, Denti-Cal funding/regulations had a large impact on the practice.[45] In addition these findings align with the Scott et al. report which states that, "Denti-Cal's low reimbursement rates is the primary hurdle in obtaining dental services for the underserved."[18]

The impact of the RDHAP's community visibility has been recognized in the past as an issue that affects the economic sustainability of the practice and the results of this study confirm this.[45] Survey respondents also acknowledged this as important with the top two recommendations for increasing visibility identified as conducting programs in adult day care centers, community centers and schools (25%) as well as conducting in-services for health care providers (24%).

Improving visibility among other health care providers is an issue that was identified in the Scott et al. report as a means to increase patient flow which in turn

increases revenue.[18] The results of this survey supported this premise with 55% indicating networking with health care provider practices and at health care professional association meetings as beneficial to improving RDHAP visibility.

Practice alliances were addressed in terms of mentorship opportunities and support from other RDHAP's. The two most noted areas relating to mentorship were the desire to have help approaching agency staff in order to obtain a work practice agreement and wanting support understanding insurance programs. Scott et al. stated that understanding the rules and regulations of the insurance companies is an integral part of establishing a productive practice.[18] Additionally, respondents indicated wanting recommendations on products and equipment and providing examples of the various forms that are necessary for proper documentation as other means of mentorship. Of the studies that have been done on the RDHAP and other direct access workforce models, the areas of mentorship and intraprofessional support have not been addressed. In this study however there were a significant number of respondents that felt strongly about the need for support by their fellow RDHAPs with only 2% indicating a mentorship program would not be helpful.

5.3 Practice Patient Flow

The RDHAP provides service for a population of people who are underserved and can include patients who are home bound, in residential facilities, hospitals, migrant clinics, skilled nursing facilities, FQHCs, public health facilities, home health agencies, assisted living facilities, schools and Head Start programs. The economic viability of the RDHAP practice relies on the payer mix (i.e. Denti-Cal (public insurance), private pay, indemnity insurance) as well as the number of patients that are seen per day. The most

common sites where RDHAPs provide care are residential/assisted living facilities, skilled nursing facilities, the homebound and developmentally disabled residential facilities. The more patients per day that are seen at one site the more economically advantageous it becomes. The Scott et al. report states that the need for good scheduling practices will increase, "efficiency, effectiveness and financial sustainability."[18] However, most of the RDHAP practice sites have patients with medical, physical, and developmental disabilities that requires more time per patient to deliver care. The fact that the RDHAP deals with the special needs population with numerous health issues was addressed by approximately 5% of the respondents as one of their greatest challenges. In addition, as a group this population has health concerns that could limit the RDHAPs access due to illness or even death more so than any other population and that directly affects the economic stability of the practice.

The dilemma from an economic viewpoint is time needed to provide care for these populations as it relates to income received. The results of this study indicate RDHAP direct patient care constitutes on average, 11 hours per week. However in the calculation of profit it is necessary to also include time spent on other practice related activities. Respondents spent on average 15 hours/ week on combined practice responsibilities such as case management, scheduling, travel time, set-up/tear-down, securing sites and obtaining prescriptions from DDS/MDs. Similar patient flow factors associated with economic sustainability were reported in the Delinger et al. sudy.[38]

For financial sustainability to be achieved in a practice, the payer mix needs to include both insurance and private pay so potentially the revenue/visit will be greater than the cost/visit.[18] In the case of the RDHAPs who reported their sources of income half

indicated 76-100% of their income came from Denti-Cal and claim up to 25% from private insurance companies. Eighty-nine percent of the respondents identified 25% of their income from private pay patients. On further analysis approximately 50% of the respondents' income came from a source other than Denti-Cal, which supports the Scott, et al. recommendation for a mix of revenue sources.

5.4 Practice Staffing Patterns

The questions on the staffing pattern of the RDHAP practice consisted of identifying the number of employees hired, days worked and hours worked on practice activities for both the RDHAP and/or the employee. What was notable was that 75% of the respondents did not have any employees. The main reason given was that there was not enough work to justify having employees (39%). Twenty-four percent stated that it was too expensive to have an employee. These data align with the Wides et al. report stating 80% of the RDHAP respondents did not have an employee.[18] Those that had employees also responded to a question about type of practice-related activities that employees supported and how many hours/week were spent on them. Patient care, scheduling, and community service activities were the top three categories of activities that employees spent time doing. In many of the practice settings where the RDHAP provides services, having an assistant can decrease the amount of time it takes to set up and tear down, but more importantly having another person to help with patient care especially when dealing with special needs patients is advantageous. In addition, when working with an assistant, the number of patients seen can increase. Studies have shown that the use of a dental assistant increases the productivity of dentists; these data should also hold true for the use of an assistant with the RDHAP.[18] The use of an employee for

scheduling and community service activities frees the RDHAP to also market their services through networking with agency and health professional personnel. Aligning the correct staffing pattern with the practice can maximize efficiency and economic sustainability.[17]

The interesting observation from **Table 12** was the comparison between the RDHAP and the employee on hours spent on various activities. The highest number of practice management activity hours per week for the RDHAP was under patient care at a mean of 11 hours/week yet the employee spent a mean of 16 hours/week. More importantly, and in line with good business practices, was the smaller amount of time the RDHAP spent scheduling patients (2 hours/week) versus the employee who spent a on average 15 hours per week.[18] Adding to the respondents concern in previous questions on visibility, it was interesting to note that 34 indicated they participated an average of 2 hours/ week in community service activities, with the employees participating in 10 hours/week. Further investigation on whether or not having the both RDHAP and employees participate in community activities increases the visibility and/or the patient base of the RDHAP is warranted.

5.5 Business Practice Systems

The initial questions pertaining to business practice systems covered the type of RDHAP practice, the number of business licenses and their cost. Sixty-four percent of the respondents maintain a solo, portable practice, 16% have a stand-alone practice and 13% participate in a group practice. Although 80% of the respondents own their own practices, most felt unprepared to start-up/run their own business In both this study and four others.[8,17,45,55] The RDHAP educational program offers 150 hours of course work divided into

several content areas of which business systems is 25% or less.[46] Having the RDHAP educational programs explore ways to enhance their business systems curriculum is advised. Additionally, professional associations, such as CDHA, might also investigate opportunities to provide continuing education courses in this area.

Five different fiscal sources were identified as sources of practice income: Denti-Cal, private insurance, fiduciary representatives, private pay and grant funding. Respondents were asked to estimate the percentage of income from each. The highest income was noted from Denti-Cal with half of those responding to this question receiving from 76%-100% of their income from this entity. California has one of the lowest Denti-Cal reimbursement rates in the country as well as being noted for constantly changing regulations and coverage parameters.[17,18,45] This historically has been a large barrier to practice for the RDHAP.[17,18,45] Indemnity insurances were listed as providing up to 25% of their income. The ability for the RDHAP to become a provider for all indemnity insurances would expand their financial reimbursement prospects.

Although the survey asked questions about the gross and net income of the responding RDHAPs, depending on the question there were only between 10 and 31 who answered. It appears that RDHAPs may be hesitant to divulge financial information. Thirty-one respondents stated that they work part-time and earn a mean gross of $23,454.45. This is slightly higher than the EPDH income reported by Coplen and Bell where 85% of the participants indicated their expanded practice income was $20,000 or less when working a mean of 9.3 hours per week.[55] A corresponding net income was given by 23 participants with a mean of $11,584.13 annually. Of the full-time practices the gross income amount from 13 respondents was $108,307.69 and the corresponding net

income was listed as $91,900.00 by 10 RDHAPs. It appears from the data in this study that there are a small number (13) of RDHAPs whose full-time income is lucrative. An in-depth study should be done to examine what these RDHAPs are doing that is contributing to their economic success.

When asked about tracking practice data 13% of the respondents indicated they did not track any data while 71% did track information on gross monthly income, totally monthly expenses, monthly productions and net profit. Hesitancy to divulge practice financial information also appeared to be the case when RDHAPs were asked if they felt it necessary to report pertinent business information. Interestingly, 87% did not feel it was necessary to submit clinical practice data to any sort of governmental agency.

Contrary to that response, 77% felt obtaining aggregate clinical service data was needed to evaluate the impact RDHAP practice was having on access to care. Although not required to report data to any government agency, the 71 respondents to the Bell and Coplen study focusing on the EPDH practice in Oregon, voluntarily supplied these data.[56] Michigan's direct access workforce model, PA 161, has a mandatory reporting requirement. The reports that are generated from Michigan's Department of Health and Human Services-Oral Health Program annually, along with studies like Bell and Coplen's provide rich data on numbers of patients seen and procedures provided to underserved populations.[56,57]

The final questions asked for perceived challenges and additional comments. Practice expense, insurance reimbursement, patient flow, RDHAP visibility and issues with dentist were the challenges that were stated by 90% of the respondents. The top five challenges aligned with the key factors associated with economic sustainability defined

by Scott and Bingham.[18] Those include strategic alliances and planning (issue with dentists), efficient patient flow (patient flow), and effective business systems (insurance reimbursement, practice expense, visibility). The only factor that was not addressed in the comments was the need for optimal staffing patterns.

The need for further business training was previously identified in the Wides et al. study. When those respondents were asked to identify additional training that would have been useful the four most common selections had to do with maintaining a business (billing, marketing, business planning, and financial management).[17] Similarly in this study areas concerning need for assistance with insurance billing, marketing, and business practices were identified. In addition, the lack of knowledge or interest in tracking any sort of clinical of business data as part of a business yet wanting the information and feeling it would be valuable may indicate a lack of understanding or even confusion about the importance of this information in running a business. Scott, et al. created a list of data that is important when looking at a practice and finding the weakness that undermines its financial sustainability. The top two include tracking the number of visits and regularly running profit and loss statements. Profit and loss statements provide data on gross charges, net revenue, expense, cost/visit, revenue/visit, and the difference between the last two.[18]

Thinking beyond increasing business education and training, RDHAPs as a group, might want to explore a model beyond solo practice. Consideration should be given to aligning themselves with community-based clinics, Federally Qualified Health Centers and Dental Support Organizations (DSOs) that have a commitment to prevention and have financial resources and staff to manage practice business systems.[58] This would

allow the RDHAP the ability to focus on providing their clinical services to and building relationships with underserved and vulnerable populations without the challenges of running a business. Working with in a team-based clinic/practice, while still retaining autonomy as an RDHAP, would benefit both the practitioner and the patient. Medical practices have been moving in this direction for the past two decades. This model is now gaining traction in dentistry as well.[59]

Another challenge that was identified by the approximately 20% of the RDHAP was the perceived lack of support from the CDHA and the DHCC. This workforce model took a long time to get to where it is today. The road to the RDHAP started in 1972 and it wasn't until 1998 that we gained licensure. As Emmerling and Stanley have described this has been a "long and winding road" and professional associations have been working behind the scenes in order to make this model a reality.[7]

From a national perspective, the RDHAP direct access workforce model has had a positive impact on addressing *Healthy People 2020* goals and objectives. Access to health care and oral health are addressed as two of the 12 *Leading Health Indicators.*[60] The preventative oral health care the RDHAPs provide to the vulnerable and underserved populations address both the access to health care and oral health that are significant health concerns according the Healthy People 2020.[60]

Limitations

There were limitations to this study that should be noted. Although there are 540 RDHAP registered with the DHCC, postal mailing information was only available for 440 and no email information could legally be given out by the DHCC. The CDHA, however

was able to email the survey to the 254 RDHAPs that were members of their association. In an attempt to reach other RDHAPs that were not on either of these lists, announcements about the survey and the link were distributed via invitation only Facebook and Yahoo sites as well as via flier at the California Dental Hygienists' Association Symposium. Thus, it was not able to be determined if all 540 RDHAPs received this survey and for the actual survey response rate to be calculated.

Another limitation was the perceived reluctance of the RDHAP to provide information on either their clinical practice data or business information, including income. In addition, the length of the survey and formatting of the questions may have been confusing or too involved and time consuming. Finally, the study was geared to the economic challenges and barriers of RDHAP practice so it did not capture the benefits of practice respondents may be experiencing.

CHAPTER VI
CONCLUSION

The specific aim of this research project was to identify key factors associated with the economic sustainability of the RDHAP practice. Those key factors were the need for: strategic planning and alliances, for an efficient and effective patient flow, for optimal staffing patterns and finally for efficient and effective business systems.

Oral health is untreated in over 47 million people nationwide.[3] The Registered Dental Hygienist in an Alternative Practice addresses access to care and can provide preventive services safely and satisfactorily.[8] However, initial RDHAP reports, indicated challenges experienced by these practitioners. This study was designed based on one of these issues, economic sustainability. Although, the RDHAPs practice is dedicated to serving the need of the underserved and vulnerable, the fiscal reality of serving those in need includes issues of insurance coverage limitation, professional visibility, accessibility of the patient base and acceptability of the workforce model by other health care providers.

The discussion around practice demographic brought up several insights. The RDHAP also continues to work as an RDH, however given the opportunity they would choose to only work as an RDHAP indicating RDHAP practice may not be fiscally sustainable as a sole means of income. Some of the reasons RDHAPs chose to not practice included fear/difficulty of starting a practice and struggles with recognition from

insurance providers making reimbursement options limited. Data gathered from respondents on gross and net income indicated that a minimal number of RDHAPs had lucrative full-time practices. An in-depth study should be done to determine what these RDHAPs are doing that contributes to their economic success. Consideration should also be given to RDHAPs obtaining collaborative agreements with community clinics, Federally Qualified Health Centers and Dental Support Organizations to provide their services.

The concept of strategic planning and alliances was addressed and key results suggested that the RDHAP felt there was limited visibility about their profession in their communities and among professionals. The community that the RDHAP serves is comprised of a population that relies on care takers and skilled nurses for their care. Access is limited by a number of factors that are exacerbated by the lack of knowledge and/or visibility of the RDHAP. The lack of information surrounding this model creates difficulty in cultivating practice opportunities, which in turn affects the fiscal reality of the practice.

Another issue related to economic sustainability is the use of employees. On the one hand the RDHAPs who responded to the survey stated they did not have enough work to justify the use and expense of an employee. However, having an extra set of hands when providing care in non-traditional settings allows the RDHAP to increase number of patients being treated. Increasing the number of patients increases revenue which increases the RDHAP's bottom line. So while a small percentage of RDHAPs use staff it appears that it would benefit the fiscal bottom line to add employees in a planned

and organized way making sure their time is utilized to increase productivity and improve treatment.[18]

The concentration of the RDHAP practice by zip code brought to light the fact that out of the 58 counties in the state of California, there are only 2 that are not dental HPSAs. From this data it appears that there are enough HPSA within the state to accommodate more than the current numbers of RDHAPs. This finding suggests that the fear of starting a business may be more than an educational barrier. Related to areas of practice and HPSA by county, the study found the concentration of RDHAP respondents were primarily from the Southland region of California. Further investigation on the gross and net incomes by region is warranted to determine which areas are most amenable for the RDHAP practice.

One of the biggest areas of concern is the reimbursement and recognition of the RDHAP by insurance companies. The RDHAPs indicated the two largest sources of income were from private paying patients and Denti-Cal. It has been noted in this study and from previous reports that California rates for dental care are well below the national average.[9] The need to understand the payer mix for the RDHAP practice in the realm of the economic sustainability is further documented by creating a strategic plan that involves identifying staffing needs, public insurance versus private pay patients and payer source.[18]

This study is the first to specifically focus on factors associated with the economic sustainability of the RDHAP practice. Although this workforce model has been touted by the PEW Report as a viable answer to the access to care issue, the temperament of the RDHAP remains lukewarm as to it financial viability. Most RDHAPs continue to practice

as RDHs in order to subsidize their RDHAP practice. Whether it is out of fear of starting a business or the perceived competition from either the on-site clinician or other RDHAPs, more studies should be created to explore the reasons why RDHAPs either do not stay in practice or never start practicing. From the initial HWPP study, PEW Charitable Trust and the National Governor's report the RDHAP not only serves the underserved, but also provides clinical care safely, efficiently and non-traditionally.[4,7,8,9]

The benefits of this workforce model have been shown to make a difference in the lives of the community of people the RDHAP serves. This population needs the RDHAP to meet the challenges that exist and to work through them. It is the growing recognition and acknowledgement of the RDHAPs unique services and care that will motivate this author and others to continue to conduct relevant research about this profession.

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TABLES

Table 1: Demographics of the RDHAP Survey Participants

Gender:	Percentage
Female	87 (99%)
Male	1 (1.0%)
Age:	
25-34	7 (8%)
35-44	15 (17%)
45-54	31 (35%)
55-64	26 (30%)
65 and over	9 (10%)
Race/Ethnicity:	
White	70 (80%)
Hispanic	11 (13%)
Asia	6 (7%)
African American	1 (1.0%)
Other	4 (5%)
Level of Degree:	
Associates/Certificate	18 (21%)
Bachelor's Degree	51 (59%)
Master's Degree	18 (21%)
RDH license for:	
5 years or less	4 (5%)
6-10 years	10 (12%)
11-15 years	12 (14%)
16-20 years	15 (17%)
More than 20 years	45 (52%)
RDHAP licenses for:	
5 years or less	42 (49%)
6-10 years	35 (41%)
11-15 years	5 (6%)
16-20 years	3 (3%)
More than 20 years	1 (1%)
Members of ADHA:	
Yes	75 (87%)
No	11 (13%)

Table 2: RDHAP Demographics

Question	Frequency (Percentage)
Currently working as RDHAP?	
Yes	63 (73%)
No, but have in the past	9 (10%)
No, have never worked as RDHAP	14 (16%)
Not currently practicing as an RDHAP (reasons why)?	
Not financially profitable	5 (36%)
Too difficult physically	4 (29%)
More difficult than I thought to start a practice	3 (21%)
Lacked support/guidance from RDHAP program after completion	1 (7%)
Moved	1 (7%)
Never practice as an RDHAP (reasons why)?	
Cost of starting a business outweighed benefit	4 (22%)
Patient flow (number of patients, establishing a business, physical/financial issues)	4 (22%)
Other job commitments	2 (11%)

Table 3: RDHAP Practice Demographics

Question	Frequency (Percentage)
In addition to RDHAP practice, are/were you working elsewhere?	
RDH clinical practice	
RDHAP practice only	47 (44%)
Teach in RDH, RDHAP or DA program	20 (19%)
Public Health	18 (17%)
Corporate health/product Educator	13 (12%)
Government position	4 (4%)
Corporate sales	3 (3%)
Given the opportunity would you practice as an RDHAP exclusively?	
Yes	43 (61%)
No	17 (24%)
Undecided	10 (14%)

Table 4: Concentration of RDHAP Practice by Zip Codes

Area	Regions/Counties	RDHAPs Working in Zip Code Region/Counties Frequency (Percentage)
10	Southland: Ventura, Los Angeles, Orange, San Diego	69 (49%)
9	Bay Area: Marin, San Francisco, Solano, Contra Costa, Santa Clara, San Mateo, Alameda	16 (11%)
8	Central Coast: Santa Cruz, San Benito, Monterey, San Luis Obispo, Santa Barbara	10 (7%)
3	Gold Country: Plumas, Sierra, Nevada, Placer, Eldorado, Amador, Calaveras**, Tuolumne, Mariposa	10 (7%)
4	Wine Country: Lake, Napa, Sonoma	9 (6%)
5	Inland Empire: San Bernardino, Riverside, Imperial	9 (6%)
7	San Joaquin Valley: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, Kern	9 (6%)
2	North Coast: Del Norte, Humboldt, Mendocino	5 (4%)
6	Sacramento Valley: Glenn, Butte, Colusa, Yuba, Sutter, Yolo, Sacramento	5 (4%)
1	Northern Mountains: Siskiyou, Modoc, Trinity, Shasta, Lassen, Tehama	0 (0%)
11	Eastern Sierra: Alpine**, Mono, Inyo	0 (0%)
** = indicates county has no Health Professional Shortage Area (HPSA)		

Table 5: Practice Strategic Planning and Alliances

Question	Frequency (Percentage)
Challenges obtaining a collaborative agreement:	
Dentists lack of knowledge of RDHAP	30 (31%)
Dentists are resistant to RDHAP workforce model	24 (25%)
No challenges experienced	25 (26%)
Dentists feel there is an increased liability	17 (18%)
Challenges obtaining a prescription from DDS/MD:	
No challenge experienced	30 (34%)
Dentists lack of knowledge of RDHAP practice	15 (17%)
Patient is not a "patient of record"	12 (13%)
Dentists are resistant to the RDHAP model	10 (11%)
Dentist feel there is and increased liability	10 (11%)
Use only physician	6 (7%)
Physician lack of cooperation with RDHAP	6 (7%)
Challenges obtaining work practice site agreements:	
Agency administration/staff lack of knowledge of RDHAP practice	41 (31%)
Resistance from agency administration	35 (26%)
Resistance from on-site dentist	28 (21%)
On-site dentist lack of knowledge of RDHAP practice	18 (13%)
No challenges experiences	11 (8%)
Dental corporation took over facility	1 (1%)

Table 6: Challenges Accessing Patients in Underserved Settings

Question	Frequency (Percentage)
What are challenges accessing patients in underserved settings?	
Collaboration with on-site dentist	30 (19%)
Difficulty contacting appropriate agency personnel	26 (16%)
Denti-Cal coverage and billing	24 (15%)
Difficulty obtaining insurance provider status	23 (14%)
Difficulty contacting/explaining RDHAP scope of practice to care-giver/responsible party	22 (14%)
Frail/medically complex nature of patient	15 (9%)
Ability to obtain permission for treatment	14 (9%)
No challenge experienced	7 (4%)

Table 7: Community and Professional Visibility

Question	Frequency (Percentage)
To improve community visibility the RDHAP should:	
Conduct educational programs in adult day care centers, community centers, and schools	57 (25%)
Conduct in-services for health care providers	55 (24%)
Join networking groups	47 (21%)
Advertise in community papers, newspapers, church bulletins, senior health care bulletins	32 (14%)
Utilize social media	32 (14%)
Enhance relationships with DDS	3 (1%)
Provide service on volunteer basis	1 (0.5%)
No improvement needed in community visibility	1 (0.5%)
To improve visibility among other health care professionals the RDHAP should:	
Network/market with individual health care provider practices	66 (31%)
Speak at other health care professional associations meetings	51 (24%)
Attend other health care professional association meetings	49 (23%)
Develop articles about the RDHAP practice from other professional associations	47 (22%)
No improvement needed among other health care professionals	1 (0%)

Table 8: Mentorship

Question	Frequency (Percentage)
Having an organized mentorship program would be helpful in the following areas?	
Approaching facility staff to obtain work practice agreement	51 (17%)
Understanding insurance programs (i.e. provider application, reimbursement policies, patient eligibility)	51 (17%)
Recommendations on products and equipment	50 (16%)
Providing examples of forms (i.e. health history, patient agreement forms)	47 (16%)
Suggestions on treating and managing cases	46 (15%)
Guidance on conducting a staff in-service at a facility	46 (15%)
Mentorship not feasible due to multiple barriers	6 (2%)
Sharing marketing/business practices	4 (1%)
Mentorship program would not be helpful	2 (1%)

Table 9: Practice Patient Flow

Site	Number of Locations (Range) (Mean) (N)	Days/Week (Range) (Mean) (N)	Hours/Day (Range) (Mean) (N)	Patients/Day (Range) (Mean) (N)
School	1-7 3 schools (N=7)	1-2 1.2 days/wk (N=5)	3-8 5.5 hrs/day (N=6)	3-40 12 pts/day (N=6)
Head Start	1-2 1.5 programs N=2	1 1 days/wk N=2	4 4 hrs/day N=3	4-25 15 pts/day N=3
Residential / Assisted Living Facility	1-20 5 facilities N=31	10-5 1 days/wk N=19	1-8 3.5 hrs/day N=21	1-8 3 pts/day N=22
Home Health Agency	2 2 agencies N=1	Did not answer	Did not answer	Did not answer
Federal / State / Tribal Institutions	25 25 sites N=1	Did not answer	6 6 hrs/day N=1	5 5 pts/day N=1
Local / Country Public Health	1-2 2 sites N=2	0.10-1 0.55 days/wk N=2	5-8 6.5 hrs/day N=2	10-25 18 pts/day N=2
Federal Government Hospital / Clinical Health Center	1 1 site N=1	1 1 days/wk N=1	8 8hrs/day N=1	8 8 pts/day N=1
Nursing Home / Skilled Nursing	1-90 11 facilities N=37	1-5 1.5 days/wk N=29	1-10 4 hrs/day N=31	1-13 5 pts/day N=31
Community / Migrant Health Clinic	1 1 site N=2	0.01-1 .5 days/wk (N=2)	1-4 2.5 hrs/day (N=2)	10-40 25 pts/day (N=2)
Hospital	1-90 23.5 sites N=4	1 1 days/wk N=2	4-9 6.5 hrs/day N=2	6-9 8 pts/day N=2
Residences of the Homebound	1-100 9 sites N=37	1-3 1 days/wk N=24	1-6 2 hrs/day N=25	1-8 2 pts/day N=29
Developmentally Disabled Residential Facility	1-90 15 sites N=15	1-3 1.5 days/wk N=12	1-9 5 hrs/day N=14	1-10 6 pts/day N=13

Table 10: Staffing Patterns

Question	Frequency (Percentage)
Do/Did you have any employees?	
No	43 (75%)
Yes	14 (25%)
If you do/did not have any employees, why not?	
Not enough work to justify employee	30 (39%)
Expenses (i.e. salaries, taxes)	18 (24%)
Administrative time and complexity of managing payroll, insurance, etc. for employee	15 (20%)
I prefer to work alone	13 (17%)

Table 11: Number of Employees & Days/Week Worked

Employee	Number of Employees (Range) (Mean) (N)	Number of Day/Week Worked (Range) (Mean) (N)
Other RDHAPs	1-5 2 RDHAPs N=7	1-6 3 days/wk N=6
Dental Assistants	1-4 2.5 Assistants N=10	1-5 2 days/wk N=9
Office Staff	1-4 2 Office Staff N=9	1-5 3 days/wk N=9

Table 12: Number of Hours Weekly RDHAPs and Employees Spend on Practice Related Activities

Practice Related Activities	Number of Hours RDHAP Survey Participant Spends (Range) (Mean) (N)	Number of Hours Employees Spend(Range) (Mean) (N)
Patient Care	<1-50 11 hours/wk N=47	1-40 16 hours/wk N=11
Patient Case Management	<1-10 3 hours/wk N=48	<1-15 4 hours/wk N=5
Patient Scheduling	<1-6 2 hours/wk N=36	<1-40 15 hours/wk N=4
Travel Time To/From Sites	<1-12 3 hours/wk N=46	<1-6 3 hours/wk N=7
Equipment Set-Up / Tear Down	<1-5 2 hours/wk N=43	<1-10 2 hours/wk N=10
Obtaining RDHAP Agreements / Prescriptions with DDS / MD	<1-10 1 hour/wk N=35	<1-30 8 hours/wk N=4
Securing Agreements with Sites	<1-30 3 hours/wk N=20	2-15 7 hours/wk N=2
Obtaining Business Permits	<1-5 1 hours/wk N=15	Did not answer
Community Service Activities	<1-10 2 hours/wk N=34	<1-30 10 hours/wk N=3
Accounting & Bill Collection	No range provided No hours/week provided N=3	Did not answer

Table 13: Business Practice Systems

Question	Frequency (Percentage)
RDHAP practice is:	
Solo portable practice	44 (64%)
Stand-alone practice (brick and mortar)	11 (16%)
Group practice	9 (13%)
Federally qualified Health Center (FQHC)	4 (6%)
Head Start Programs	1 (1%)
Number of cities RDHAP has a business license:	
1-5 business licenses	49 (98%)
10-12 business licenses	1 (2%)
Cost of business licenses:	
Under $25	5 (9%)
$26 - $50	16 (30%)
$51 - $75	10 (19%)
$76 – $100	6 (11%)
$101 – $150	9 (17%)
Over $151	7 (13%)

Table 14: Estimated Percent of Income from Various Sources

Source (total N=)	Number of responses 0 to 25%	Number of responses 26-50%	Number of responses 51-75%	Number of responses 76-100%
Denti-Cal (N=23)	2	3	5	13
Private Insurance (N=25)	23	2	0	0
Fiduciary Representative (N=17)	12	3	1	1
Private Pay by Patient (N=41)	20	4	2	15
Grant Funding (N=2)	1	1	0	0

Table 15: Tracked Practice Data

Question	Frequency (Percentage)
Data you track:	
Gross income per month	29 (21%)
Total monthly expenses	28 (20%)
Monthly production	24 (17%)
Net monthly profit	18 (13%)
I do/did not track	18 (13%)
Number of new patients	17 (12%)
Number of cancellations	3 (2.5%)
Number of "no-shows"	2 (1.5%)
RDHAP clinical practice data should be submitted to a California governmental agency:	
Strongly Disagree	25 (46%)
Disagree	6 (11%)
Neutral	16 (30%)
Agree	6 (11%)
Strongly Agree	1 (2%)
Need for aggregated RDHAP clinical service data:	
Strongly Disagree	8 (15%)
Disagree	4 (7%)
Neutral	17 (31%)
Agree	20 (37%)
Strongly Agree	5 (9%)

Table 16: Potential Clinical Service Data for Submission to California Government Agency

Question	Frequency (Percentage)
What data should be collected and submitted:	
No data should be collected	26 (11%)
Number of patients receiving care	26 (11%)
Number of adult prophylaxes	24 (10%)
Number of child prophylaxes	24 (10%)
Number of adult patients screened	22 (9%)
Number of children receiving sealants	22 (9%)
Number of patients referred for dental treatment	22 (9%)
Number of fluoride varnish applications	20 (8%)
Number of children screened	19 (8%)
Number of sealants placed	19 (8%)
Number of other fluoride treatments	15 (6%)
Use of locally delivered antimicrobials	1 (1%)

Table 17: Gross and Net Incomes

	Gross Income (Range) (Mean) (N)	Net Income (Range) (Mean) (N)
Part-time Practice	$0 - 150,000 $23,454.45 N=31	(-$11,765) – 90,000 $11,584.13 N=23
Full-time Practice	$0 - 254,000 $108,307.69 N=13	$0 -180,000 $91,900.00 N=10

Table 18: Challenges and Comments

Question	Frequency (Percentage)
Two greatest challenges:	
Practice expense (business and equipment)	26 (29%)
Insurance/reimbursement	19 (21%)
Patient flow	17 (19%)
RDHAP visibility	12 (14%)
Issues with DDS	6 (7%)
Ergonomics/physical demands of practice	4 (5%)
Competition	2 (2%)
Challenges with DHCC and CDHA	2 (2%)
Lack of business knowledge	1 (1%)
Additional comments:	
Insurance/reimbursement	12 (18%)
Lack of support from government and professional organization (DHCC,CDHA)	12 (18%)
Financial/productivity	9 (14%)
Maintain small RDHAP practice	7 (11%)
Issues with DDS/corporate groups	6 (9%)
RDHAP visibility	4 (6%)
Great potential but takes a lot of work	4 (6%)
Ergonomics/physical demands	3 (4.5 %)
Populations of patients (physical and financial)	3 (4.5 %)
More support within the RDHAP community	3 (4.5 %)
Ended practice due to risk/liability, physical demands	2 (3%)
Rewarding work and financially viable	1 (1.5 %)

APPENDICES

Appendix A: Registered Dental Hygienist in Alternative Practice Survey

Sara Coppola's RDHAP Economic Sustainability-Final

Q47 Dear RDHAP Licensee, I am an RDHAP obtaining a Master of Science in Dental Hygiene degree through the University of Michigan. I am conducting a study to identify key factors associated with the economic sustainability of the RDHAP practice. My thesis chairpersons for this project are Anne Gwozdek, RDH, BA, MA and Janet Kinney, RDH, MS. This study has been submitted to the U-M Institutional Review Board and has been approved as "Exempt." You have been selected to be a participant in this survey as you are a licensed RDHAP. The data on RDHAP economic sustainability collected through this study will provide valuable information for RDHAP practitioners, dental hygiene educational institutions, policy makers and the Dental Hygiene Committee of California. Participation in this study is voluntary and responses are confidential. If you agree to take part in this survey, you will have the option to exit at any time. The survey will take approximately 20-30 minutes of your time. The data you provide will be stored in a secure database for future analysis. There are no anticipated risks to participation. Please contact Sara Coppola (saralaur@umich.edu) if you have any questions. The survey link will remain active until November 3, 2014. Please complete the survey by this date. Thank you for your participation. Sara Laura Coppola, AA, BA, RDH, RDHAP Master of Science in Dental Hygiene Program University of Michigan School of Dentistry 1011 N. University, Room 3066 Ann Arbor, MI 48109-1098

Q37 This first series of questions ask for general demographic information.

Q1 What is your gender?

- ❍ Female (1)
- ❍ Male (2)
- ❍ Decline to answer (3)

Q2 What is your age?

- ❍ Under 25 (1)
- ❍ 25-34 (2)
- ❍ 35-44 (3)
- ❍ 45-54 (4)
- ❍ 55-64 (5)
- ❍ 65 and over (6)
- ❍ Decline to answer (7)

Q3 What is your race/ethnicity? (Select all that apply)

- ❑ White (1)
- ❑ Black or African America (2)
- ❑ Asian (3)
- ❑ Hispanic (4)
- ❑ Native American (5)
- ❑ Alaska Native (6)
- ❑ Native Hawaiian (7)
- ❑ Other Pacific Islander (8)
- ❑ Race and ethnicity unknown (9)
- ❑ Other (10) ____________________

Q4 Highest level of degree earned. (Select one)

- ❍ Associate's/Certificate (1)
- ❍ Bachelor's (2)
- ❍ Master's (3)
- ❍ Doctoral/PhD (4)

Q39 This next series of questions are related to your practice demographics.

Q5 Are you currently a member of the American Dental Hygienists' Association (ADHA)?

- ❍ Yes (1)
- ❍ No (2)

Q6 I have had my Registered Dental Hygienist (RDH) license for:

- ❍ 5 years of less (1)
- ❍ 6-10 years (2)
- ❍ 11-15 years (3)
- ❍ 16-20 years (4)
- ❍ More than 20 years (5)

Q7 I have had my Registered Dental Hygienist in Alternative Practice (RDHAP) license for:

- ❍ 5 years or less (1)
- ❍ 6-10 years (2)
- ❍ 11-15 years (3)
- ❍ 16-20 years (4)
- ❍ More than 20 years (5)

Q8 Where did you obtain your RDHAP certification education?

- ❍ Health Manpower Pilot Project (1)
- ❍ University of the Pacific (2)
- ❍ West Los Angeles College (3)

Q9 Are you currently working in practice as an RDHAP?

- ❍ Yes, I am currently working as an RDHAP (1)
- ❍ No, but I have worked as an RDHAP in the past (2)
- ❍ No, I have never worked as an RDHAP (3)

If No, I have never worked as ... Is Selected, Then Skip To If you have never worked as an RDHAP,...

Answer If Are you currently working in practice as an RDHAP? No, but I have worked as an RDHAP in the past Is Selected

Q10 If you are not currently working as an RDHAP, why? (Select all that apply)

- ❑ It was too difficult physically (1)
- ❑ It was not financially profitable (2)
- ❑ It was more difficult than I thought to start a practice (3)
- ❑ I lacked support/guidance from other RDHAPs (4)
- ❑ I lacked support/guidance from RDHAP educational program after completion (5)
- ❑ Other (6) ____________________

Q46 My RDHAP practice is/was in the following zip codes:

- ❑ Zip code 1 (4) ____________________
- ❑ Zip code 2 (5) ____________________
- ❑ Zip code 3 (6) ____________________
- ❑ Zip code 4 (7) ____________________
- ❑ Zip code 5 (8) ____________________
- ❑ Zip code 6 (9) ____________________

Q11 In addition to your RDHAP practice are/were you working in any of the following? (Select all that apply)

- ❑ Dental hygiene clinical practice (traditional RDH) (1)
- ❑ Teaching in RDH and/or RDHAP programs (2)
- ❑ Corporate sales (3)
- ❑ Corporate health/product educator (4)
- ❑ Public health (5)
- ❑ Government position (6)
- ❑ Other (7) ____________________
- ❑ I only work/worked in my RDHAP practice (10)

Q12 If you had the opportunity to practice exclusively as an RDHAP, would you?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Undecided (3)

Q40 The following questions focus on RDHAP practice strategic planning and alliances.

Q13 In your experience, which of the following have been challenges with regard to obtaining a collaborative agreement with a dentist: (Select all that apply)

- ❑ Dentists lack knowledge of RDHAP practice (1)
- ❑ Dentists are resistant to the RDHAP model (2)
- ❑ Dentists feel there is an increased personal liability (3)
- ❑ Other (4) ____________________
- ❑ No challenges experienced (5)

Q14 In your experience, which of the following have been challenges with regard to obtaining a prescription from a dentist or physician for continuing patient treatment after 18 month and again after 24 months: (Select all that apply)

- ❑ The patient is not a "patient of record" with the dentist/physician (1)
- ❑ Dentists' lack of knowledge of the RDHAP practice (2)
- ❑ Dentists' resistant to the RDHAP model (3)
- ❑ Dentists' feeling there is an increased liability (4)
- ❑ Other (5) ____________________
- ❑ No challenges experienced (6)

Q15 In your experience, which of the following have been challenges with regard to establishing work practice arrangements with sites: (Select all that apply)

- ❑ Resistance from agency administration (1)
- ❑ Resistance from on-site dentist (2)
- ❑ Agency administration/staff lack of knowledge of RDHAP practice (3)
- ❑ On-site dentist lack of knowledge of RDHAP practice (4)
- ❑ Other (5) ____________________
- ❑ No challenges experienced (6)

Q16 In your experience, which of the following have been challenges with regard to accessing patients in underserved settings: (Select all that apply)

- ❑ Difficulty contacting appropriate personnel at agencies responsible for accessing patients (1)
- ❑ Difficulty contacting and/or explaining to the responsible caregiver the scope of practice of the RDHAP (2)
- ❑ Challenges in collaboration with care facilities' on-site dentist (3)
- ❑ Difficulty with Denti-Cal coverage and billing (4)
- ❑ Difficulty obtaining provider status from Indemnity insurance (i.e. Delta Dental, Blue Cross Blue Shield) (5)
- ❑ Frail and/or medically complex nature of patients (6)
- ❑ Ability to obtain permission for treatment from parents and/or guardians (7)
- ❑ Other (8) ____________________
- ❑ No challenges experienced (9)

Q17 In order to improve the RDHAP visibility in communities, the RDHAP should: (Select all that apply)

- ❑ Join networking groups (1)
- ❑ Advertise (i.e. community papers, newspapers, church bulletins, senior/health care bulletins) (2)
- ❑ Utilize social media to advertise and share information about my RDHAP practice (3)
- ❑ Conduct in-services for health care providers (4)
- ❑ Conduct educational programs in adult day care centers, community centers, schools (5)
- ❑ Other (6) ____________________
- ❑ The RDHAP visibility in the community does not need to be improved (7)

Q18 In order to improve RDHAP visibility among other health care professionals (i.e. nurses, doctors, dentists, and social workers) the RDHAP should: (Select all that apply)

- ❑ Attend other health care professional association meetings (1)
- ❑ Develop articles about RDHAP practice for other professional associations (2)
- ❑ Speak at other health care professional association meetings (3)
- ❑ Network/market with individual health care provider practices (4)
- ❑ Other (5) ____________________
- ❑ The RDHAP visibility among health care providers does not need to be improved (6)

Q19 Upon completion of an RDHAP certification program, having an organized mentorship program aligning new RDHAPs with those with experience would be helpful in the following areas: (Select all that apply)

- ❑ Providing examples of forms (i.e. health history, patient agreement forms) (1)
- ❑ Understanding insurance programs (i.e. provider application, reimbursement policies, patient eligibility) (2)
- ❑ Suggestions on treating and managing cases (3)
- ❑ Recommendations on products and equipment (4)
- ❑ Guidance on conducting a staff in-service at a facility (5)
- ❑ Approaching facility staff to obtain a work practice agreement (6)
- ❑ Other (7) ____________________
- ❑ An organized mentorship program would not be helpful (8)

Q41 These questions are related to your RDHAP practice patient flow.

Q20 For each setting in which you work/worked, please provide answers/estimates to the categories below. (Partial numbers accepted, i.e. ".25")

	Number of locations I provide/provided RDHAP services (eg. # of individual school) (1)	Average days per week worked in setting (2)	Average hours per day in setting (3)	Average number of patients seen per day in setting (4)
Schools (1)				
Head Start (2)				
Residential/Assisted Living Facility (3)				
Home Health Agency (4)				
Federal/state/tribal institutions (5)				
Local/county public health clinic (6)				
Federal Government Hospital/Clinic Health Center (eg.Community Health Center, FQHC) (7)				
Nursing homes/skilled nursing facility (8)				
Community/migrant health clinic (9)				
Independent office-practice located in Dental Health Professional Shortage Area (10)				
Hospital (11)				
Residences of the homebound (12)				
Developmentally disabled residential facility (13)				
Other- (14)				

Q42 The questions below inquire about your RDHAP practice staffing patterns.

Q21 In your RDHAP practice, do/did you have any employees (i.e. other RDHAPs, dental assistant, office staff)?

- ❍ Yes (1)
- ❍ No (2)

Q22 How many employees do/did you have and how often do/did they work per week? (If you do not have employees, note 0.)

	Number of employees (1)	Number of days per week they work/worked (2)
RDHAP (1)		
Dental Assistant (2)		
Office Staff (3)		
Other (4)		

Q23 If you do/did not have any employees, why not? (Select all that apply)

- ❑ Expenses (i.e. salaries. taxes) (1)
- ❑ Not enough work to justify additional employee(s) (2)
- ❑ Administrative time and complexity of managing payroll, insurance, etc. for employee(s) (3)
- ❑ I prefer/preferred to work alone (4)
- ❑ Other (5) ____________________

Q24 Please address the questions below estimating both the average hours per week you and/or your employee(s) spend/spent on practice related activities. (If you/your employees do/did not spend time doing an activity, note 0.)

	Average number of hours you spend/spent per week (1)	Average number of hours your employees spend/spent per week (2)
Direct patient care (including clinical services, behavior management, etc.) (1)		
Patient case management (i.e. chart review, referrals, conferring with other health providers, etc.) (2)		
Insurance billing (3)		
Patient scheduling (4)		
Travel time to/from sites (5)		
Equipment set-up/tear down (6)		
Obtaining RDHAP agreements/prescriptions with DDS/MDs (7)		
Securing agreements with sites (8)		
Obtaining business permits (9)		
Community service activities (i.e. in-service, health fairs, school-based education programs) (10)		
Other (11)		

Q43 This final series of questions focus on RDHAP practice business systems.

Q25 My RDHAP practice is/was: (Select all that apply)

- ❑ A solo stand-alone practice (1)
- ❑ A solo mobile practice (2)
- ❑ A group RDHAP practice (3)
- ❑ Working for another RDHAP (4)
- ❑ Working for a Federally Qualified Health Center (FQHC) (5)
- ❑ Working for Head Start (6)
- ❑ Other (7) ____________________

Q26 Currently, each city in California requires a business license to perform RDHAP services. How many business licenses do/did you have?

Q27 The average annual cost for all city permit business licenses needed in my RDHAP practice is/was:

- ❍ Under $25 (1)
- ❍ $26-$50 (2)
- ❍ $51-$75 (3)
- ❍ $76-$100 (4)
- ❍ $101-$150 (5)
- ❍ Over $151 (6)

Q28 Estimate the percentage of your overall practice income that is/was received from the following?

	Percentage of your current overall RDHAP practice income is/was (1)
Denti-Cal (1)	
Private (Indemnity) Insurance (i.e. Delta Dental, Blue Cross Blue Shield, etc.) (2)	
Fiduciary representative payment (i.e. guardians, power of attorney reps) (3)	
Private pay by patient (4)	
Grant Funding (5)	
Other (6)	
I do not know (7)	

Q45 Identify if you work/worked full or part-time as an RDHAP and estimate your RDHAP's net income and gross income for the last year worked.

	Gross Income (All practice income) (1)	Net Income (Take home pay) (2)
Part-time RDHAP (3 days/week or less in practice) (1)		
Full-time RDHAP (4 days/week or more in practice) (2)		

Q29 I track/tracked the following data related to my RDHAP practice: (Select all that apply)

- ❑ Number of new patients per month (1)
- ❑ Number of cancellations (those providing more than 24 hour notice) (2)
- ❑ Number of no-shows (3)
- ❑ Monthly production (i.e. patient charges) (4)
- ❑ Gross income per month (Accounts receivable: i.e. total payment received from patients, insurances, etc.) (5)
- ❑ Total expenses per month (Accounts payable: i.e. staff salaries, supplies, equipment maintenance, etc.) (6)
- ❑ Net profit per month calculations (Accounts Receivable minus Accounts Payable= Net Profit) (7)
- ❑ Other (8) ____________________
- ❑ I do/did not track these practice-related data (9)

Q43 The next series of questions asks for your thoughts on how to better aggregate state-wide RDHAP data and practice outcomes.

Q30 It should be required that RDHAP clinical services practice data be submitted at least annually to a California governmental agency (i.e. California Department of Health/Maternal, Child and Adolescent Health-oral Health Program, Dental Hygiene Committee of California).

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

Q31 Aggregated RDHAP clinical services data would be useful in understanding overall RDHAP state-wide practice outcomes.

- ❍ Strongly Disagree (1)
- ❍ Disagree (2)
- ❍ Neither Agree nor Disagree (3)
- ❍ Agree (4)
- ❍ Strongly Agree (5)

Q32 Data collected and submitted should include: (Select all that apply)

- ❑ Number of adult patients screened (1)
- ❑ Number of adult prophylaxis (2)
- ❑ Number of children screened (3)
- ❑ Number of child prophylaxis (4)
- ❑ Number of children receiving sealants (5)
- ❑ Number of sealants placed (6)
- ❑ Number of fluoride varnish applications (7)
- ❑ Number of other fluoride treatments (8)
- ❑ Number of patients referred for dental treatment (9)
- ❑ Number of patients receiving care (Total) (12)
- ❑ Other (10) ____________________
- ❑ I do not believe these data should be collected and submitted (11)

Q33 The two greatest challenges I face/faced in economically sustaining my RDHAP practice are/were:

- ❑ Challenge 1 (1) ____________________
- ❑ Challenge 2 (2) ____________________

Q34 Any additional comments?

Answer If Are you currently working in practice as an RDHAP? No, I have never worked as an RDHAP Is Selected

Q35 If you have never worked as an RDHAP, please explain why.

Q38 Thank you for participating in our survey!

Appendix B: Health Sciences and Behavioral Sciences Institutional Review Board- Letter of Exemption

Health Sciences and Behavioral Sciences Institutional Review Board • 540 East Liberty Street, Suite 202, Ann Arbor, MI 48104-2210 • phone (734) 936-0933 • fax (734) 998-9171 • irbhsbs@umich.edu

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SUBMISSION INFORMATION:
Title: California Registered Dental Hygienist in Alternative Practice: Working, Learning and Evoloving
Full Study Title (if applicable):
Study eResearch ID: HUM00092316
Date of this Notification from IRB: 8/21/2014
Date of IRB Exempt Determination: 8/21/2014
UM Federalwide Assurance: FWA00004969 (For the current FWA expiration date, please visit the UM HRPP Webpage)
OHRP IRB Registration Number(s): IRB00000246

IRB EXEMPTION STATUS:
The IRB HSBS has reviewed the study referenced above and determined that, as currently described, it is exempt from ongoing IRB review, per the following federal exemption category:

EXEMPTION #2 of the 45 CFR 46.101.(b):
Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Note that the study is considered exempt as long as any changes to the use of human subjects (including their data) remain within the scope of the exemption category above. Any proposed changes that may exceed the scope of this category, or the approval conditions of any other non-IRB reviewing committees, must be submitted as an amendment through eResearch.

Although an exemption determination eliminates the need for ongoing IRB review and approval, you still have an obligation to understand and abide by generally accepted principles of responsible and ethical conduct of research. Examples of these principles can be found in the Belmont Report as well as in guidance from professional societies and scientific organizations.

SUBMITTING AMENDMENTS VIA eRESEARCH:
You can access the online forms for amendments in the eResearch workspace for this exempt study, referenced above.

ACCESSING EXEMPT STUDIES IN eRESEARCH:
Click the "Exempt and Not Regulated" tab in your eResearch home workspace to access this exempt study.

Thad Polk
Chair, IRB HSBS

Appendix C: Consultants and Collaborators

Elizabeth Mertz, PhD, MA, is an assistant professor in residence at the University of California, San Francisco, with a joint appointment in the Department of Preventive and Restorative Dental Sciences, School of Dentistry and in the Department of Social and Behavioral Sciences in the School of Nursing. She is affiliated with the UCSF Center to Address Disparities in Children's Oral Health (CANDO), the Philip R. Lee Institute for Health Policy Studies and the Center for the Health Professions where she has worked since 1997. Beth has researched, published and lectured on a broad range of health professions workforce, health policy, and health services research topics such as supply and demand of providers, health professions regulation, state and federal workforce policy, access to care, and evolving professional practice models. Beth is currently the principal investigator on a number of projects including an evaluation of the implementation of clinical decision support tools in a large group dental practice and a national sample survey of underrepresented minority dentists. She holds a BA from the University of Southern California, a MA from the Humphrey Institute of Public Affairs at the University of Minnesota and a PhD in medical sociology from the University of California, San Francisco.

Mary Kate Scott, MBA founded Scott & Company, Inc. in 2001 after seven years with McKinsey & Company. She is a health and business management consultant who has worked with health care stakeholders and leaders for over twenty years. Focusing at the nexus of health care, business and technology, her projects focus on

strategic and business planning, financial and technology forecasting and market/channel assessments.

Mary Kate works across the health care industry most frequently with health care systems and technology, medical device and pharmaceutical companies. Healthcare executives and philanthropic leaders, turn to her to assess new business opportunities and markets and provide pragmatic counsel on implementation.

Beyond client work, Mary Kate writes healthcare reports that challenge the ways to deliver and pay for healthcare. Her recent reports on *Implementing the EHRs at Independent Physician Practices*, *HealthCare without The Doctor*, *HealthCare in the Express Lane*, and *A Clinic at Walmart?* are frequently cited by executives, media and regulators.

Mary Kate is an adjunct professor at University of Southern California teaching The Business of Healthcare and a national public speaker on health issues. She sits on the board of several health organizations including an FQHC.

Noel Brandon-Kelsch, RDHAP is an international speaker, writer and Registered Dental Hygienist in Alternative Practice. She is passionate about oral health and has the uncanny ability to motivate and enlighten audiences through her unique humor and cutting edge information. She takes tough subject matter and presents it in such an interesting way that it becomes thought provoking even to those not involved in her industry. She is the infection control columnist for RDH Magazine, a syndicated newspaper columnist and has been published in many books and magazines. She has brought the message of oral health to media networks from Disney Radio to ESPN. Noel's research on infection control and cross contamination continues to enlighten

dental professional and protect patients. Noel has reached out to underserved populations and taken her message and methods of prevention of oral diseases to the street. Her clinical research on the impact of Methamphetamine Abuse on the oral cavity and treatment protocols have changed lives. Noel has received many national awards including Colgate Bright Smiles Bright Futures, RDH Magazine Sun Star Butler Award of Distinction, USA magazine Make a Difference Day Award, President's Service Award, Foster Parent of the Year, Hu-Friedy Master Clinician Award and as if that isn't enough: she is also a five time winner of the Castroville Artichoke cook off! Noel is a Past President of the California Dental Hygienist's Association and Key Organization Leader for: Sunstar America, GC America, Phillip Life Style and Kerr Total Care, Hu-Friedy, Orascoptic, Dux Dental and American Eagle.

Michelle Hurlbutt, RDH, MSDH is Chair of the California Committee of Dental Hygiene. She is the former Director of the Bachelor of Science in Dental Hygiene (BSDH) Degree Completion Program (BSDH) at Loma Linda University, Loma Linda, California. In 2014 she became the Dean of Dental Hygiene at West Coast University in Anaheim, California.

Pam Steinbach, RN, MS is the Director of Education and Research for the American Dental Hygienists' Association. **Sue Bessner** is the manager of the Research for the American Dental Hygienists' Association.