Factors Associated with the Economic Sustainability of the Registered Dental Hygienist in Alternative Practice

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Abstract

Purpose: The purpose of this study was to investigate key factors associated with the economic sustainability of the Registered Dental Hygienist in Alternative Practice (RDHAP).

Methods: An invitation to participate in a 38-question electronic survey was sent via postal mail to 440 RDHAP licentiate addressees obtained through the Dental Hygiene Committee of California (DHCC). Legal restrictions did not allow for obtaining the RDHAP licentiate email addresses from the DHCC. The survey was disseminated via email to the 254 RDHAPs who were members of the California Dental Hygienists' Association. Additional invitations to participate were made via flyer distribution at an RDHAP symposium, and on RDHAP only social media sites.

Results: The response rate was an estimated 16%. While 44% of the RDHAPs reported some employment in a traditional dental practice, given the opportunity, 61% of these respondents indicated that they would practice exclusively as an RDHAP. With regard to practice strategic planning and alliances, 31% felt that dentists lacked knowledge of the RDHAP, and 25% indicated dentists were resistant to this workforce model. Regarding RDHAP practice staffing patterns, 75% indicated not having any employees. When asked about business systems, 64% had solo, portable practices and 16% had standalone practices. Economic sustainability challenges included practice business/equipment expenses (29%), insurance/reimbursement issues (21%), patient flow (19%) and RDHAP visibility (14%).

Conclusions: RDHAP practices face challenges including the need for strategic planning and intra- and inter-professional alliances, efficient and effective patient flow, optimal staffing patterns and effective business systems. Focus on enhancing RDHAP visibility within the dental and medical communities should be a priority. In addition, further research should explore RDHAPs aligning with community-based clinics, Federally Qualified Health Centers and Dental Support Organizations (DSOs) with a commitment to disease prevention in addition to the financial resources and staff to manage practice business systems.

Keywords: Registered Dental Hygienist in Alternative Practice, oral care, direct access, sustainability, intraprofessional alliances, interprofessional alliances, patient flow, personnel staffing

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Introduction

The "silent epidemic" of oral disease affects one out of every five people in the United States.[1] This epidemic disproportionately affects racial and ethnic minorities and children who live below federal poverty levels, and highlights the disparities in access to oral health care.[1] Barriers impeding access to care for these vulnerable and underserved populations are due in large part to socioeconomic barriers and the limited number of providers that accept Medicaid, or due to living in underserved areas that may not be well populated with dental providers.[1]

Direct Access Workforce Models

The profession of dental hygiene is working to address access to care issues through legislative efforts expanding dental hygienists' ability to "directly access" vulnerable and underserved populations. 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 maintaining a provider-patient relationship."[2] Currently, 39 states have direct access workforce models with each state defining the setting for services.[2]

Dental hygiene direct access providers focus on delivering preventive services to vulnerable populations such as those in long-term care facilities, the disabled and elderly, school-aged children, preschool children in Head Start, and migrant

workers.[3] Direct access also addresses the Institute for Health Care Improvement's Triple Aim, an approach to optimizing health system performance through (a) improving patient experience of care, (b) improving the health of populations, and (c) reducing per capita cost of health care.[4] 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.[5] The ability of the dental hygienist to practice in these alternative settings promotes better oral health through the delivery of safe and affordable preventive care.[5]

In most states, a modification of the supervision requirement waives the need for the dentist to examine the patient prior to receiving dental hygiene services.[3] This allows for the dental hygienist to access patients first to initiate care, in the settings and within the scope of practice defined by each state. Supervision ranges from general, to remote, to none depending on the state.[3] In a number of states that have remote general or remote supervision, collaborative practice agreements are developed between the dental hygienist and the dentist outlining the dental hygiene services that can be provided, describing how the dentist will remain in contact with the dental hygienist, and defining follow-up care protocols.[3]

Direct access model requirements vary from state to state and may include further education for certification/licensure and/or a specific number of hours of previous clinical experience.[2,3] Additionally, state laws also may require the dental hygienist to obtain their own professional liability insurance, have referral and emergency protocol documentation, and may include practice-related data reporting.[3] Furthermore, public health related continuing education courses may also be an element of the law.[3] Despite dental hygiene's efforts to increase access, barriers exist for providing care. A study conducted by Delinger et al. examining the Extended Care Permit direct access model in Kansas identified funding, lack of knowledge about this model's scope of practice, practice sustainability, and lack of availability of practice sites as barriers.[6] Coplen and Bell, in their study of Expanded Practice Dental Hygienists (EPDH) in Oregon, found challenges with insurance reimbursement, lack of knowledge/acceptance of EPDHs, equipment/maintenance costs, issues obtaining a collaborative agreement, as well as with finding a cooperating facility.[7]

California's Registered Dental Hygienist in Alternative Practice (RDHAP)

In 1973 California created the Health Manpower Pilot Project (HMPP) in order to evaluate expanded workforce models, and to explore alternative ways to deliver health care to populations that did not have access.[3,8] In 1981, the dental hygiene pilot, HMPP 139, began raising funds for the project. In 1986 and 1987, groups of dental hygienists participated in training cycles, and provided care in approved sites through 1990.[8,9] This pilot concluded that dental hygienists were able to provide safe and effective care, under remote supervision of a dentist, with no increased risk to patients' health and safety.[9,10] The project also found that dental hygienists practicing in this way satisfied their patients, provided appropriate referrals, and charged lower fees.[10]

As a result of this pilot project, legislation was passed in California in 1998 creating licensure for the Registered Dental Hygienist in Alternative Practice (RDHAP), a direct access workforce model. 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.[3] With a collaborative agreement with a dentist, 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.[11] RDHAPs may also establish stand-alone practices in communities that have been designated as dental Health Professional Shortage Areas (HPSAs).[11] 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.[11] 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.[11] 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 agreement with a dentist, and passing the state examination on "Ethics and Law."[11]

Although the access to oral health care need is great in California, not all of the 540 licensed RDHAPs are actively practicing.[12] Wides et al. identified some of the challenges and barriers of maintaining a viable practice such as ergonomic issues related to treating patients in non-traditional settings as well as the challenge of treating vulnerable populations with complex needs.[13]

Additional 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.[13] *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.[14] These concepts are also relevant and important to the economic sustainability of the RDHAP practice.

The purpose of this study was to investigate the economic sustainability of the RDHAP practitioner as it pertains to the need for strategic planning and alliances, efficient and effective patient flow, optimal staffing patterns, and effective business systems, as identified in the Scott et al. report.[14] While the number of RDHAP providers is increasing, there is limited information on their practice economics. The fiscal realities of RDHAP practice may also have implications for other direct access models across the country.

Methods

This cross-sectional descriptive study surveyed a convenience sample of RDHAPs in the state of California. The University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board determined this research as exempt from IRB oversight (HUM00092316).

A 38 question, electronic survey focusing on RDHAP economic sustainability was developed based on the four key concepts cited in the Scott et al. report and in consultation with faculty from the University of Michigan (U-M), research directors from the American Dental Hygienists' Association (ADHA), the President of the Dental Hygiene Committee of California (DHCC), and faculty from University of California in San Francisco (UCSF).[11] In addition, a survey research expert from the U-M Center for Research on Learning and Teaching (CRLT) provided guidance on the instrument's development. Thirty-two multiple choice, two Likert scale, and four open ended questions were disseminated in Qualtrics survey software. To determine content validity, the survey was pilot tested by five dental hygienists, three of whom were direct access dental hygiene providers in states other than California, one held an expanded function permit in another state, and one was a government administrator of a direct access program in another state. Revisions to the survey were made based on feedback provided.

As of 2014, the DHCC reported there were 540 licensed RDHAPs. However, by law, the DHCC was not able to release the licentiate email addresses. Thus, in October 2014, multiple approaches were taken to invite RDHAPs to participate in this study. All approaches included an introduction describing the purpose of the project, the intended significance, and informed consent.

- The DHCC was legally allowed to release postal mailing addresses of RDHAPs, however, their address database was not fully up-to-date at the time of this study. Thus a postcard announcing the survey, that included the survey link, was sent via postal mail to the addresses of 440 RDHAPs available from the DHCC.
- As of 2014, 254 of the 540 licensed RDHAPs were members of the California Dental Hygienists' Association (CDHA). On October 20, 2014, the California Dental Hygienists' Association (CDHA) distributed the survey electronically to 254 member RDHAPs. A follow-up email reminder was sent two weeks later.
- A flyer, including a link to the survey, was distributed at the CDHA symposium for RDHAPs on October 24, 2014.
- The survey link was also posted on two social media websites that were accessible only to RDHAPs.

Statistical Package for the Social Sciences (SPSS) version 22 was utilized for data analysis. Survey results were analyzed by obtaining descriptive statistics, specifically the number of respondents and percentage of respondents for each survey item.

Results

There were a total of 98 responses out of a potential 540 survey recipients. Of those, 88 provided complete data for an estimated response rate of 16%. This response rate is an estimate, as it cannot be certain that all 540 RDHAPs received the survey. Respondent demographic data is provided in Table I, including practice related information. Of note, 44% continue to be employed in a traditional clinical dental practice as a registered dental hygienist (RDH). Interestingly, only 19% work exclusively in a RDHAP practice, however if given the opportunity 61% reported that they would practice exclusively as an RDHAP.

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 II). Thirty one percent felt that dentists lack knowledge of the RDHAP practice, 25% listed dentists' resistance to the workforce model, 18% cited dentists' concern that collaborative agreements increased their liability, and 26% had no issues obtaining a collaborative agreement.

In addition to a collaborative agreement, RDHAPs are required to obtain a prescription from a dentist or physician in order to continue treatment after seeing a patient for the first 18 months. Thirty-four percent reported no challenges in obtaining a prescription, and 7% indicated that these prescriptions were acquired exclusively from physicians (Table II).

Work practice agreements need to be developed with facilities/sites where RDHAPs practice. Participants were asked about challenges, if any, regarding establishing work practice agreements with sites (Table II). The greatest challenge identified was lack of agency administration/staff knowledge of the RDHAP (31%). The response of "no challenges" was indicated by 8%.

Table I. RDHAP Survey Participant & Practice Demographics (N=88*)

Gender	**Frequency (%)**	**Member of ADHA**	**Frequency (%)**
Female	87 (99%)	Yes	75 (87%)
Male	1 (1%)	No	11 (13%)
Age		**Currently working as RDHAP?**	
25-34	7 (8%)	Yes	63 (73%)
35-44	15 (17%)	No, but have in the past	9 (10%)
45-54	31 (35%)	Never worked as RDHAP	14 (16%)
55-64	26 (30%)		
65 and over	9 (10%)		
Race/Ethnicity (Select all that apply)		**Not currently practicing as an RDHAP (reasons why)?**	
White	70 (80%)	Not financially profitable	5 (36%)
Hispanic	11 (13%)	Too difficult physically	4 (29%)
Asia	6 (7%)	More difficult than I thought to start a practice	3 (21%)
African American	1 (1%)	Lacked support/guidance from RDHAP program after completion	1 (7%)
Other	4 (5%)	Moved	1 (7%)
Level of Degree		**Never practice as an RDHAP (reasons why)?**	
Associates/Certificate	18 (20.5%)	Cost of starting a business outweighed benefit	4 (22%)
Bachelor's Degree	51 (59%)	Patient flow (number of patients, establishing a business, physical/financial issues)	4 (22%)
Master's Degree	18 (20.5%)	Other job commitments	2 (11%)
		Not prepared/fearful of business ownership	2 (11%)
RDH license for		**In addition to RDHAP practice, are/were you working elsewhere?**	
5 years or less	4 (5%)	RDH clinical practice	47 (44%)
6-10 years	10 (12%)	RDHAP practice only	20 (19%)
11-15 years	12 (14%)	Teach in RDH, RDHAP, or DA program	18 (17%)
16-20 years	15 (17%)	Public Health	13 (12%)
More than 20 years	45 (52%)	Corporate health/product Educator	4 (4%)
		Government position	3 (3%)
		Corporate sales	1 (1%)
RDHAP license for		**Given the opportunity would you practice as an RDHAP exclusively?**	
5 years or less	42 (49%)	Yes	43 (61%)
6-10 years	35 (41%)	No	17 (24.5%)
11-15 years	5 (6%)	Undecided	10 (14.5%)
16-20 years	3 (3%)		
More than 20 years	1 (1%)		

*Where totals are less than 88, all respondents did not answer the question.

The top five responses identified as challenges in accessing patients in underserved settings were collaboration with on-site dentists (19%), difficulty contacting appropriate agency personnel (16%), Denti-Cal coverage and billing (15%), difficulty obtaining insurance provider status (14%), and difficulty contacting/explaining RDHAP scope of practice to the care-giver/responsible party (13.5%) (Table II). Four percent responded that there were no challenges to accessing patients in underserved settings.

Table II. Practice Strategic Planning and Alliances

Questions (Select all that apply for each question)	Frequency (%)
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%)
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 caregiver/responsible party	22 (13.5%)
Frail/medically complex nature of patient	15 (9%)
Ability to obtain permission for treatment	14 (8.5%)
No challenge experienced	7 (5%)

Patient Flow

The top four RDHAP practice settings respondents identified in the survey were residences of the homebound, residential facilities for those with developmental disabilities, residential/assisted living facilities, and nursing home/skilled nursing centers. An overview of the averages of the number of locations the RDHAP worked within each setting, number of days per week worked, as well as hours and number of patients seen per day is shown in Table III.

Staffing Patterns

A series of questions were asked about RDHAP practice staffing patterns. Seventy-five percent reported having no employees. (Table IV) Those without employees were asked to state the reason. The respondents indicated they did not have enough work to justify an additional employee (39%), or expenses (i.e. salaries and taxes) were too great (24%). Table IV provides an overview of the number and type of employees hired by RDHAPs along with the days per week worked.

Business Practice Systems

Participants were asked about their business practice systems. (Table V) Sixty-four percent of the respondents have solo portable followed by 16% with stand-alone (brick and mortar) practices. Smaller percentages of RDHAPs reported that they worked in group practices (13%), for Federally Qualified Health Centers (FQHCs) (6%), or for Head Start programs (1%).

With regard to practice income, the participants were asked to estimate the percentages of their overall practice income from a variety of sources. Five sources of income were identified with Denti-Cal being the most frequent source. (Table V)

RDHAPs were also asked if they tracked data related to their practice. Gross monthly income (21%), total monthly expenses (20%)

Table III. Practice Patient Flow

Sites	Number of Locations			Days/Week			Hours/Day			Patients/Day		
	Range	Mean	n	Range	Mean	n	Range	Mean	n	Range	Mean	n
Residences of the Homebound	1-100	9 sites	37	1-3	1 days/wk	24	1-6	2 hrs/day	25	1-8	2 pts/day	29
Residential Facilities for those with Developmental Disabilities	1-90	15 sites	15	1-3	1.5 days/wk	12	1-9	5 hrs/day	12	1-10	6 pts/day	13
Residential/ Assisted Living Facilities	1-20	5 sites	31	10-5	1 days/wk	19	1-8	3.5 hrs/day	21	1-8	3 pts/day	22
Nursing Homes/ Skilled Nursing Facilities	1-90	11 sites	37	1-5	1.5 days/wk	29	1-10	4 hrs/day	31	1-13	5 pts/day	31

and monthly production (17%) were the three most frequently monitored. Thirteen percent stated they did not track any practice related data. (Table V)

Respondents were asked to report gross and net incomes. Thirty-one RDHAPs indicated they worked part-time and reported their annual gross income. The range of annual gross incomes for those RDHAP's working part-time was $0.00-150,000.00 and the mean amount was $23,454.45. For those who reported net income, the range was from (-) $11,765.00-90,000.00 with the mean being $11,584.13. Gross income for full-time practice was identified by 13 respondents with a range of $0.00 - 254,000.00 and mean of $108,307.69. The net income range was $0.00-180,000.00 and the mean was $91,900. (Table V)

One of the final questions on the survey asked the RDAHP to identify the two greatest challenges in attaining economic sustainability. The top four themes that emerged included practice expense as it pertains to business and equipment (29%), insurance/reimbursement issues (21%), patient flow (19%) and RDHAP visibility (14%). (Table VI)

Discussion

Identifying key factors associated with the economic sustainability of the RDHAP brought attention to several important points. The majority of the RDHAP survey respondents held their RDH license for at least 16 years and their RDHAP licenses for 10 years or less. When asked where they were employed in addition to their RDHAP practice, almost half indicated that they also continued dental hygiene clinical practice. It is possible that RDHAPs continue to practice as an RDH to subsidize their overall income.

There were 10% of the respondents who had practiced as RDHAPs but were not currently practicing because it was (a) not financially profitable, (b) too difficult physically and (c) it was difficult to start a practice. These results align with the reasons for not practicing that were identified in the study by Wides, et al.[13] and Coplen and Bell.[7] In addition to those who had previously worked as an RDHAP but currently were not, 16% of those respondents indicated they had taken the RDHAP educational training but had never practiced. Three out of the four response themes for this question revolved around economics including (a) the cost of starting a business outweighed the benefit, (b) patient flow issues (number of patients, establishing a business, physical/financial issues) and (c) not being prepared/fearful of business ownership. Taking these respondents in combination with those who had worked, but were not currently practicing as an RDHAP, 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 economic challenges were identified, a majority of all RDHAP respondents 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.[13]

Table IV. Staffing Patterns

Employees		
Question	**Frequency (%)**	
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%)	
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

When asked by Wides et al. what motivated them to practice, "personal satisfaction" was the highest response.[13] Although RDHAP practice appears to have obstacles, the desire to provide dental hygiene direct access care to underserved populations remains strong.

Strategic planning and the development of alliances are important aspects of any business or practice and can affect economic sustainability. Strategic intra- and inter-professional alliances must be developed and strengthened both within the dental community and with other professionals that serve vulnerable populations. Efforts to do so should include creating working relationships with the medical communities in underserved areas. The lack of knowledge about RDHAP practice from both oral health professionals 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 identified practice challenges involving other providers 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 by those dental hygienists involved with direct access was also addressed in the report by Wides et al.[13] and in the Kansas study by Delinger et al.[6]

Challenges with accessing patients in underserved settings centered on collaborating with a facility's on-site dentist, finding an appropriate person within the agency to contact about accessing patients, 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 in addition to the lack of knowledge of the RDHAP, Denti-Cal funding/ regulations had a large impact on the practice.[13] These findings also 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."[14]

The economic viability of the RDHAP practice is dependent upon 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 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."[14] However, most of the RDHAP practice sites have patients with medical, physical, and developmental disabilities requiring more time per patient to deliver care. 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, directly affecting the economic stability of the practice.

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 break down, and increase the number of patients seen, but more importantly, help with patient care, especially when dealing with patients with special health care needs. The economic limitations of the RDHAP practice effects the financial justification of having an employee. Meanwhile, it has been 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.[14] In addition, the use of office staff for scheduling and bookkeeping frees the RDHAP

Table V. Business Practice Systems

Type of Practice	
Question	**Frequency (%)**
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%)

Sources of Income				
Source (total N=)	**Number of responses 0 to 25% of income**	**Number of responses 26-50% of income**	**Number of responses 51-75% of income**	**Number of responses 76-100% of income**
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

Tracked Practice Data	
Question	**Frequency (%)**
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%)

Annual 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

to provide clinical care and also network with agency and health professional personnel. Aligning the correct staffing pattern with the practice can maximize efficiency and economic sustainability.[13]

Although the majority of RDHAPs own their own practices, most felt unprepared to start-up/run their own business. This had been identified in previous California direct access studies and one from Oregon as well.[7,8,9,15] The RDHAP educational programs offer 150 hours of course work divided into several content areas, of which business systems is 25% or less.[11,16,17] Having these 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.

The largest practice population of the RDHAP is covered by Denti-Cal. California has one of the lowest Medicaid (Denti-Cal) reimbursement rates in the country as well as being noted for changing regulations and coverage parameters.[13,15] This historically has been a large barrier to practice for the RDHAP.[13,15] Indemnity insurances were cited as providing up to 25% of their income however, not all will allow the RDHAP to bill for services. The ability for the RDHAP to become a provider for all indemnity insurances would expand their financial reimbursement prospects. For economic sustainability to be achieved a mix of revenue sources is needed.[7]

Thirty-one respondents stated that they work part-time and earn a mean gross of $23,454.45. This is slightly higher than the Expanded Practice Dental Hygienist (EPDH) income reported by Coplen and Bell where 85%

Table VI. RDHAP Challenges

Greatest Challenges	Frequency (%)
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%)

of the participants indicated their practice income was $20,000 or less when working a mean of 9.3 hours per week.[7] Of the full-time practices the mean gross income was $108,307.69.[7] It appears from the data in this study that there are a small number 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.

The final questions asked respondents to describe the greatest challenges faced in economically sustaining their practice. The top five were practice expense, insurance reimbursement, patient flow, RDHAP visibility and issues with dentists. Scott et al. identified key factors associated with economic sustainability that included strategic planning and alliances, effective and efficient patient flow, effective business systems and optimal staffing patterns.[14] Of these factors the only issue not addressed by the RDHAPs in response to this question was the need for optimal staffing patterns.

Consideration should be given by the RDHAP to aligning themselves with community-based clinics, Federally Qualified Health Centers and Dental Support Organizations (DSOs) with a commitment to disease prevention in addition to having the financial resources and staff to manage practice business systems.[18] 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 within a team-based clinic/practice or health home 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.[19]

Even with its challenges, from a national perspective, the RDHAP direct access workforce model has had a positive impact on addressing *Healthy People 2020* goals and objectives. The preventive care the RDHAPs provide to vulnerable and underserved populations address both access to health care and oral health, two of the 12 *Leading Health Indicators*.[20]

There were limitations to this study that should be noted. Although there were 540 RDHAP registered with the DHCC at the time of this study, postal mailing information was only available for 440 and no email information could be legally released by the DHCC. The CDHA, however, was able to email the survey to the 254 CDHA member RDHAPs. In an attempt to reach other RDHAPs that were not on either of these lists, announcements about the survey and the link were distributed RDHAP only Facebook and Yahoo sites, as well as via flier at the California Dental Hygienists' Association Symposium. Thus, there was no certainty that all 540 RDHAPs received the invitation to participate in the survey. In addition, the respondents may under-represent non-CDHA members. Other limitations include the small sample size, the fact that the information was self-reported, as well as the perceived reluctance of the RDHAP to provide information on either their clinical practice data or business information, including income. Finally, the study was geared to the economic challenges and barriers of RDHAP practice, so it did not capture the benefits respondents may be experiencing.

Conclusions

The HMPP study and the National Governors Report, *The Role of Dental Hygienists In Providing Access to Care* concluded the RDHAP not only serves the underserved, but also provides clinical care safely, efficiently and non-traditionally.[5,10] The fiscal realities of their practice, however, including the need for strategic planning and alliances, efficient and effective patient flow, optimal staffing patterns, and effective business systems, are major challenges in implementing, providing care, and sustaining this model. Additional research should more fully explore the reasons why RDHAPs either do not stay in practice or never start practicing as well as alternative delivery models beyond solo practice.

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