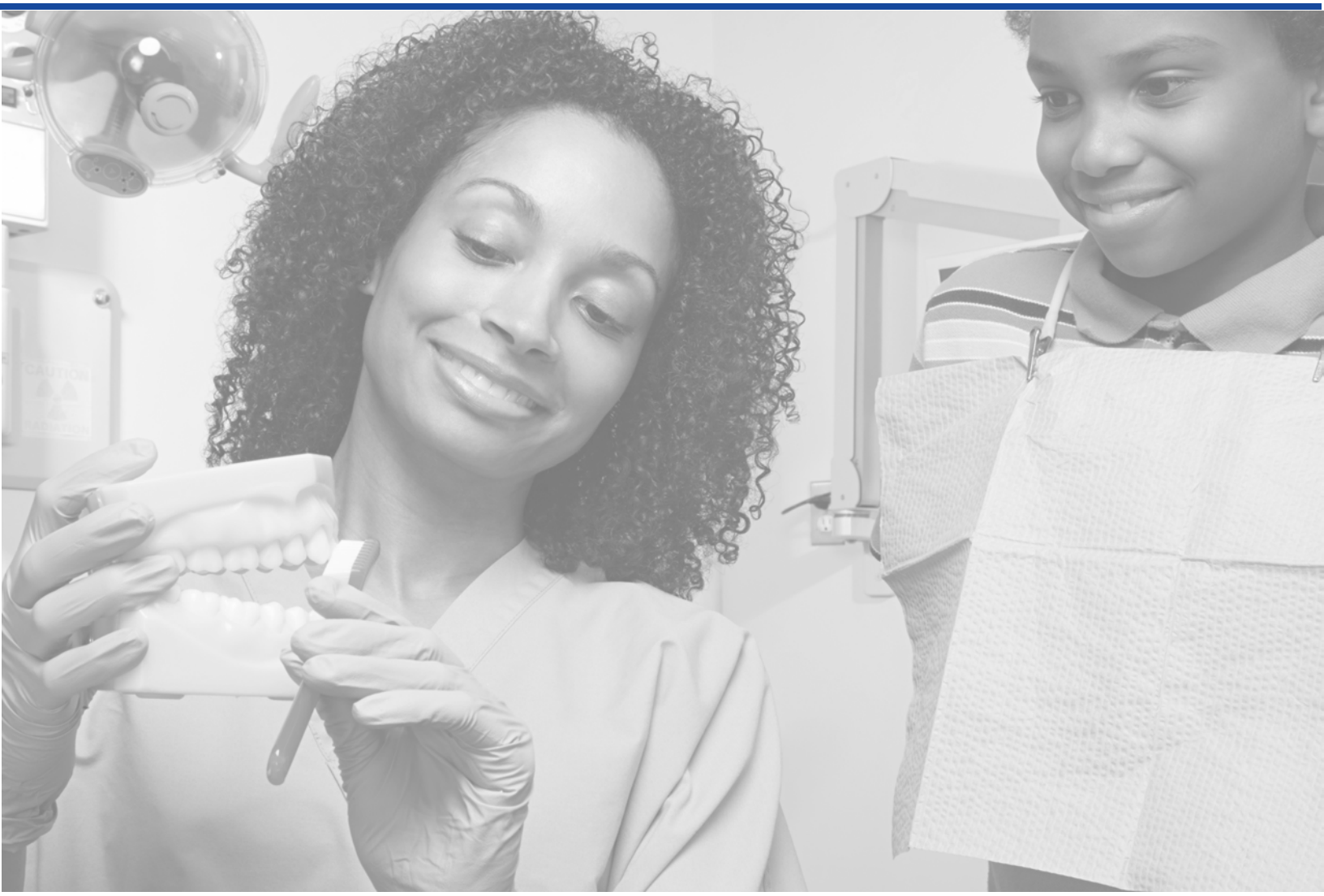
2012

The Oral Health Workforce in Maine:

Executive Summary



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The Oral Health Workforce in Maine: Executive Summary

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The Center for Health Workforce Studies is a not-for-profit research organization whose mission is to provide timely, accurate data and conduct policy-relevant research about the health workforce. The Center's work assists health, professional, and education organizations; policy makers and planners; and other stakeholders to understand issues related to the supply, demand, distribution, and use of health workers.

Preface

In 2012, the Center for Health Workforce Studies (the Center) at the School of Public Health, University at Albany with support from the Maine Oral Health Funders (MOHF)[1] completed a study of the oral health workforce in Maine. The purpose of the study was to assess the distribution and type of oral health professionals in Maine relative to access to oral health care in the state. The study included interviews of oral health stakeholders in Maine and surveys of dentists, registered dental hygienists, registered dental hygienists working under public health supervision status, independent practice dental hygienists, and expanded function dental assistants in Maine. While denturists are an important part of the oral health workforce in Maine, the number of licensed denturists was too small to provide a meaningful response rate to a survey. Therefore, they are not addressed in this document.

This report summarizes the data from the four workforce surveys and includes an executive summary followed by separate technical reports about each of the professional surveys. This report was written by Margaret Langelier, Jean Moore, and Tracey Continelli of the Center. The authors can be contacted with any questions about the content of the report at (518) 402-0250.

Special appreciation is expanded to Barbara Leonard of the Maine Health Access Foundation and Karin Anderson of the Maine Oral Health Funders for their help with this work. The authors are especially grateful to the dentists, registered dental hygienists, and dental assistants who responded to the surveys and provided information about their professional practices.

Established in 1996, the Center is a not-for-profit research organization whose mission is to provide timely, accurate data and conduct policy-relevant research about the health workforce. The Center's work assists health, professional, and education organizations; policy makers and planners; and other stakeholders to understand issues related to the supply, demand, distribution, and use of health workers. Today the Center is a national leader in the field of health workforce studies. It supports and improves health workforce planning and access to quality health care through its collection, tracking, analysis, interpretation, and dissemination of information about health professionals at the national, state, and local levels. Additional information about the Center can be found at http://chws.albany.edu.

[1] Maine Oral Health Funders that funded the study are the Maine Health Access Foundation, the Betterment Fund, and the Bingham Program.

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Executive Summary

Background

Over the past decade, access to oral health care has become a growing concern. Despite efforts to improve the oral health of the nation's population, oral health disparities continue. These disparities are characterized by compromised oral health status for certain vulnerable populations, including the poor, children, racial and ethnic minorities, people with special needs, and the elderly. One of the factors believed to influence access to oral health services and contribute to these disparities is the available supply of oral health professionals.

Oral health stakeholders in Maine have worked collaboratively in developing strategies aimed at increasing access to oral health services. There are, however, persistent concerns that oral health workforce issues including uneven distribution could affect access to oral health services for Maine's underserved populations.

In 2012, the Center for Health Workforce Studies, with support from the Maine Oral Health Funders,[2] conducted a study of the oral health workforce in Maine. The purpose of the study was to assess the distribution and type of oral health professionals in Maine relative to access to oral health care in the state. The study included surveys of licensed oral health professionals, including dentists, registered dental hygienists (RDHs), RDHs working under public health supervision (PHS),[3] independent practice dental hygienists (IPDHs), and expanded function dental assistants (EFDAs).[4]

As part of its broader research study on oral health in Maine, the Center completed a comprehensive literature review, examined historical data on the oral health professions in Maine, and conducted a large number of interviews with oral health stakeholders in the state. Information and insights obtained from these efforts provided important context for the development of survey questions. The oral health workforce surveys collected data on demographic, educational, and practice characteristics of Maine's oral health professionals as well as their perspectives on access barriers to oral health services in Maine.

In April 2012, invitations to complete the surveys were emailed to dentists, RDHs, IPDHs, and EFDAs in Maine. The invitations explained the reasons for the research, described the survey process, and provided assurances of confidentiality to survey respondents. In July 2012, a

[2] Maine Oral Health Funders that funded the study are the Maine Health Access Foundation, the Betterment Fund, and the Bingham Program.
[3] The RDH survey included a module completed by RDHs who worked under public health supervision at any time in their career.
[4] Denturists, are licensed oral health professionals in Maine who specialize in fitting and constructing removable prosthetic devices and prosthodontics. While there were plans to survey all denturists in Maine as part of this study, their numbers were too small to make such a survey feasible.

follow-up letter was mailed to non-respondents. Follow-up emails were sent every 10 to 14 days throughout the summer. In September 2012, a paper copy of the respective surveys was sent to oral health professionals who had not responded to prior solicitations. Email reminders to non-respondents continued through November 2012. Responses to each of the surveys were processed, cleaned, and placed into separate SPSS[5] databases for analyses.

The response rates to the surveys were as follows:

- Surveys were mailed to 664 dentists. The response rate for the dentist survey was 52.8%.
- Surveys were mailed to 1,196 RDHs. The response rate for the RDH survey was 34.2%. While the response rate to the RDH survey was lower than the target response rate of 50%, the responses were geographically comparable to the distribution of RDHs in Maine.
- Surveys were mailed to 37 IPDHs and the response rate was 52.8%.
- Surveys were mailed to 34 EFDAs and the response rate was 53.1%

Key findings from the analyses of the four oral health workforce surveys are summarized below.

Dentists in Maine: Survey Findings

Ninety-five percent of dentists in Maine were actively working in dentistry. The following is based on survey responses from active dentists.

Most dentists in Maine practice in the more populated areas of the state.
There were 5.1 dentists per 10,000 population in Maine (ME BDE, 2012), which is similar to the national ratio of dentists to the U.S. population. Three-quarters (74.9%) of dentists in Maine practiced in either a metropolitan or micropolitan area while fewer practiced in small towns (11.7%) and rural communities (13.5%).

Dentists in Maine are predominantly older, White males. One-quarter of actively practicing dentists expect to retire within the next five years.
Dentists were mainly non-Hispanic White. Dentists in Maine were predominately male (80.4%). They were more racially and ethnically diverse than the population in the state but were less diverse than dentists in the U.S. The mean age of dentists was 54 years (ME BDE, 2011). Almost one-quarter of survey respondents (23.7%) expected to retire within the next five years and an additional 16.3% expected to reduce their work hours over the same time period.

The majority of dentists in Maine practice general dentistry in private dental practices.
Eighty percent of dentists in Maine practiced general dentistry, while 6.1% practiced orthodontics, 4.9% practiced oral and maxillofacial surgery, and 3.2% practiced pedodontics.

[5] IBM SPSS Statistics is a proprietary software package used for statistical analysis and data management.

Dentists worked primarily in solo or group private practice (88.7%) and more than three-quarters owned their primary practice.

Thirteen percent of dentists in Maine report working with RDHs who practice in expanded roles.

Thirteen percent of dentists had provided standing orders to an RDH working under PHS status. On average, these dentists had supervised two RDHs working under PHS. More than one-quarter of dentists had accepted patient referrals from an RDH working under PHS (24.1%) or from an IPDH (27.4%).

The majority of dentists report working with other oral health professionals in their primary practices.

More than half (56.9%) of the dentists who owned dental practices indicated they employed at least one other full-time dentist in their primary practice site. Two-thirds (67%) employed at least one full-time RDH and 98.4% employed at least one full-time dental assistant (DA) in their primary practice. Fifteen percent of respondents reported using EFDAs in their practices and, on average, employed 1.5 EFDAs.

Commercial dental insurance payments and self-pay payments comprise the majority of practice revenue for many dental practices in Maine.

More than one-third of dentists (37.4%) reported that commercial dental insurance payments represented more than 50% of practice revenue, while nearly two-thirds of dentists (64.7%) reported that self-pay patient payments represented more than 26% of practice revenues. Approximately 10% of dentists reported that MaineCare represented more than one-quarter of practice revenues.

While more than half of dentists in Maine (57.7%) report serving MaineCare-insured patients, most limit the number in their practices.

Over 42% of dentists in Maine served no MaineCare-insured patients, and 57.2% limited the number of MaineCare-insured patients in their caseloads. Among dentists who accepted MaineCare, 47.0% treated MaineCare-insured children (age 4 to 18 years), but only 21.2% treated MaineCare-insured older adults (age 65 and older). The most common reason cited for limiting the number of MaineCare-insured patients in a practice was low MaineCare reimbursement rates.

Most dentists in Maine report providing some uncompensated care.

While most dentists (78.9%) indicated they provided some uncompensated care for patients each year, only one-third provided reduced-fee or sliding-fee scale services for low-income patients. Forty-seven percent of dentists who provided uncompensated care reported doing so for one to five patients per month. Dentists usually provided 10 or fewer services for uncompensated or

reduced-fee patients monthly, and the average wait time for a restorative visit was 11.9 days. Twenty percent of dentists in Maine volunteered in free dental clinics and 16.6% participated in the Maine Donated Dental Services program.

While dentists report serving patients of all age groups, very young children and the elderly constitute the smallest portions of average patient caseloads.
Well over one-third of dentists (36.2%) treated no very young children (birth to 3 years), while an additional 57.4% of dentists indicated that only a small percentage (between 1% and 10%) of their patient caseload was very young children. More than one-third of dentists (36.7%) indicated that most (between one-half and three-quarters) of their patients were adults, age 19 to 64 years.

Over three-quarters of dentists report that the recent economic downturn has contributed to a decline in utilization of dental services in their private practices.
The majority of dentists (77.1%) indicated that the weak economy had adversely affected demand for services in their practices. This was true for all specialties, but especially for general dentists (80.8%).

The barriers to oral health care most frequently cited by dentists are financial in nature. Dentists also identify low-income and uninsured populations as having the most substantial unmet oral health needs.
The most significant barriers to oral health care identified by dentists in Maine were the cost of dental services, the lack of finances to pay for care, and lack of dental insurance. Low-income children and adults and uninsured children were cited as the populations most in need of oral health services in the state, with restorative and preventive oral health services as the most important unmet oral health needs

Registered Dental Hygienists in Maine: Survey Findings

RDHs in Maine are not as diverse as the population in Maine.
The mean age of RDHs in Maine was 44 years (ME BDE, 21011). RDHs in Maine were female (99.4%) and non-Hispanic White (99.1%). While RDHs nationally were also mainly female, the racial/ethnic backgrounds of RDHs in the U.S. were more diverse than those of RDHs in Maine.

The majority of RDHs in Maine work in metropolitan areas.
More than half (52.4%) of the RDHs who responded to the survey worked in metropolitan areas of the state. Twenty-nine percent worked in either rural areas (15.8%) or small towns (13.2%).

The majority of RDHs in Maine work for a single employer.
A significant percentage of RDHs in Maine (84.7%) worked for a single employer. Among those with more than one employer, 66.7% worked 10 or fewer hours per week at the secondary worksite.

Half of RDHs in Maine work part time for their primary employer and many indicated difficulty finding RDH employment in their geographic areas.
Half of RDHs (50.4%) worked 30 or fewer hours per week for their primary employer. Some RDHs (14.1%) indicated working for a secondary employer. More than one-third of employed RDHs (36.3%) in Maine reported working part time.

Most RDHs (86.7%) indicated that it was currently either somewhat or very difficult to find a dental hygiene job in the geographic areas where they lived and worked. RDHs indicated that the reasons for difficulty finding employment were an oversupply of RDHs in the area (61.8%) and too few dentists in the area (48.7%).

The vast majority of RDHs in Maine work in private dental offices of general dentists.
Over 82% of active RDHs in Maine reported working in private dental offices with either solo practitioners or in group practices. RDHs in Maine also worked in federally qualified health centers (FQHCs) (4.8%), school-based dental programs (3.3%), and other settings (3.9%). More than 80% of RDHs worked with general dentists, while 6.9% worked with pediatric dentists.

RDHs in Maine report serving patients in all age groups but few served young children.
RDHs in Maine served patients in all age groups; however, young children (birth to 3 years) were a very small percentage of RDH caseloads. Twenty-one percent of RDHs saw no children in this age cohort and 65.1% indicated that they treated only a few young children (between 1% and 10% of the RDH's caseload). Half of RDHs (50.0%) indicated that they treated only a small number of children age 4 to 18 years (between 11% and 15% of their caseload).

One-third of RDHs in Maine (34.6%) indicated that adults age 65 years and older were between one-quarter and one-half of their caseload. More than one-third of RDHs (38.8%) indicated that most (between 51% and 75%) of their patients were adults age 19 to 64 years.

RDHs in Maine mostly provide preventive and educational services to patients.
The clinical service most commonly performed by RDHs was cleaning and prophylaxis with 55.3% of RDHs spending 17 to 40 hours weekly providing these services. All RDHs (98.4%) conducted dental hygiene assessments of patients. The vast majority of RDHs reported providing patient education on a regular basis. The majority of RDHs (57.8%) spent less than 10% of their weekly work time on administrative activities, with 11.1% indicating no weekly administrative activities.

Most active RDHs expect to remain in dental hygiene practice over the next five years.
Seventy percent of RDHs indicated plans to remain in their current position for the next five years and an additional 11.0% reported plans to seek a similar position in another setting.

Approximately 8.7% of RDHs expected to retire during the coming five years, and another 3.3% plan to obtain employment in another field.

Many RDHs expressed interest in working in advanced practice models of care.
Forty percent of RDHs who responded to the survey indicated either great (25.2%) or considerable (14.6%) interest in becoming an advanced dental hygiene practitioner[6] should the model be established in Maine. RDHs were also greatly (18.7%) or considerably (12.1%) interested in the dental hygienist therapist[7] workforce model.

RDHs in Maine identified many underserved populations in Maine who lacked access to oral health services.
RDHs indicated that many populations were in need of oral health services in the state, particularly low-income and uninsured children and adults. RDHs indicated that the greatest unmet need in oral health was for preventive services followed by restorative services and oral health education.

Registered Dental Hygienists in Maine Working Under Public Health Supervision Status: Survey Findings

RDHs were asked if they had ever worked under PHS status. The following describes the responses of those RDHs who are currently using PHS status. More than one-quarter of RDHs who responded to the survey (25.5%) reported practicing under PHS status at some point in their career, while 13.8% reported currently working under this status.[8]

Many RDHs have utilized PHS status during their careers and currently about 14% work under this status. Most do so as paid employment.
Among RDHs currently working under PHS, only 15.6% indicated that they did so only as a volunteer. Half of the RDHs using PHS currently spent all of their work time in paid employment under PHS status and an additional 12.5% of these RDHs spent between 76% and 99% of paid work time under PHS status. Some of the RDHs who were paid for clinical services provided under PHS also provided some volunteer services under this status.

RDHs working under PHS status serve patients in a variety of settings.
Most RDHs working under PHS reported working in school-based oral health programs (90.6%) and "other" settings including day care centers, Head Start programs, and WIC clinics. RDHs

[6] The advanced dental hygiene practitioner (ADHP) is a workforce model proposed by the American Dental Hygienist Association. The ADHP is a master's degree-educated RDH with advanced education and training in preventive care with some training in basic restorative services.
[7] The dental hygienist therapist (DH-T) is an oral health professional that is trained to provide both preventive and basic restorative oral health services. These professionals are working in several countries including New Zealand, Australia, and Great Britain.
[8] This does not include IPDHs in Maine who may also use PHS for reimbursement of services provided to MaineCare children.

who used this status did so mainly to address lack of dental access in the areas where they lived and worked (84.4%) or because of an interest in working in a public health setting (68.8%).

RDHs working under PHS status mainly serve children in Maine
RDHs using PHS status mainly served children (birth to 18 years) who were uninsured (100.0%), low-income (96.4%), and MaineCare-insured (96.4%). About half of RDHs working under PHS served some uninsured or low-income adults.

RDHS working under PHS status provide preventive services and apply more fluoride varnishes and sealants for patients than their RDH peers in traditional practice.
RDHs working under PHS almost always (90%) performed oral inspections on their patients and often (13.3%) or always (66.7%) took dental histories. They also often (13.3%) or always (60.0%) provided complete prophylaxis. These RDHs frequently (93.6%) applied sealants (45.2% applied them often and 48.4% applied them always). Fluoride varnish was also often (29%) or always (67.7%) applied.

Over 70% of RDHs working under PHS status are employed by an organization that bills for their services.
Only 18.8% of RDHs working under PHS status billed directly for their services to patients. Almost three-quarters of RDHs working under PHS (71.9%) were employed by an organization that billed for their services. About one-third (31.3%) were paid through grant funding.

While many RDHs working under PHS status have established dental referral networks, many indicate that finding dentists to accept referrals is challenging.
More than 70% of RDHs working under PHS indicated they had an established dental referral network. About one-third of RDHs indicated they gave the patient a referral and suggested the patient find a dentist (34.4%) or they helped the patient to find a dentist (34.4%) to provide needed care. More than half (56.3%) of currently practicing RDHs working under PHS found it either somewhat (34.4%) or very (21.9%) difficult to find a dentist to accept referrals in the communities where they worked.

Independent Practice Dental Hygienists in Maine: Survey Findings

Many IPDHs work in small towns or rural areas of Maine
Half (50.0%) of the IPDHs who responded to the survey worked in a rural area or a small town.

RDHs working as IPDHs tend to have higher levels of educational attainment compared to their RDH peers.
Seventy percent of the licensed IPDHs in Maine were actively practicing as IPDHs. IPDHs were licensed as RDHs on average 20.2 years. Half (50.0%) of IPDHs indicated that an associate degree was their highest level of education currently (compared to 69.7% of RDHs) and 42.9%

indicated a bachelor's degree as their highest educational attainment (compared to 23.1% of RDHs).

While many IPDHs are self-employed, many also work at least part time in dental practices in Maine.

Ninety percent of IPDHs indicated they were self-employed at least part of the time with 50.0% indicating self-employment most of the time (76% to 100%). One-quarter of IPDH respondents worked 31 or more hours per week for an employer and practiced independently only a few hours each week. Almost two-thirds of IPDHs (64.3%) indicated they sometimes worked under the supervision of a dentist, while 21.4% reported never working under the supervision of a dentist.[9]

IPDHs treat more adults in their practices than RDHs who work under PHS status.

IPDHs treated a wide variety of patients including uninsured and low-income adults and children. One-fifth (21.4%) of IPDHs indicated that more than half of their patients (between 51% and 75%) were adults age 19 to 64 years. More than one-third of IPDHs (35.7%) saw no very young children (birth to 3 years). However, 42.9% of IPDHs indicated that children age 4 to 18 years were between one-quarter and one-half of their patient caseload.

Half of IPDHs (50.0%) treated no MaineCare-insured children. Until recently, IPDHs were not permitted to bill MaineCare for services to patients. Some IPDHs also worked under PHS status and were permitted to bill MaineCare when working under that PHS status.

IPDHs mainly provide preventive and educational services to patients.

All IPDHs (100.0%) provided dental hygiene assessments, complete prophylaxis, and oral cancer screenings for their patients. Most also provided patient education (92.3%), fluoride treatments (92.3%), and sealant applications (84.6%) for their patients.

IPDHs are mainly compensated by payments from patients.

While IPDHs were compensated for their services from a variety of sources, most IPDHs (85.7%) indicated that some of their compensation came from patients who paid for their services. Forty percent of IPDHs received some reimbursement directly from MaineCare. The IPDHs who received reimbursement from MaineCare likely worked under PHS when providing services to MaineCare-eligible patients. Many IPDHs (71.4%) received at least some portion of their practice revenue from private dental insurance companies.

[9] IPDHs who used PHS status to obtain reimbursement for services provided to MaineCare-insured children are required to have standing orders from a dentist to provide those services.

While many IPDHs have an established dental referral network, as do RDHs working under PHS, IPDHs also report difficulty finding dentists to accept referrals.
Many IPDHs (64.3%) indicated they had established a dental referral network in the area where they worked. However, the majority of IPDHs (64.3%) indicated that it was moderately, considerably, or extremely difficult to find dentists to accept patient referrals for care.

IPDHs like other oral health professionals volunteer their clinical services.
More than three-quarters (78.6%) of IPDHs participated in volunteer activities in which they provided oral health services. More than one-third (36.4%) volunteered on average between one and five hours annually and more than one-quarter (27.3%) volunteered on average between 16 and 20 hours annually. IPDHs volunteered at community health/dental fairs (50.0%) and at school-based oral health programs (50.0%) as well as during other volunteer opportunities.

IPDHs indicate that their patients are generally satisfied with the services they provide.
IPDHs appraised patient perceptions about receiving oral health care from an IPDH and indicated that patients were appreciative to have oral health care available (92.9% of IPDHs) and were not at all concerned about receiving care from an IPDH (85.7%).

The vast majority of IPDHs are motivated to establish independent practices, in part, because of lack of dental access in their geographic areas.
IPDHs provided their reasons for choosing IPDH practice, including a desire for expanded practice opportunities (92.9%), concern about lack of dental access in their areas (85.7%), and an interest in owning a business (85.7%).

Many IPDHs were interested in other expanded practice opportunities should they become available in Maine, including advanced practice dental hygiene (78.6%), dental hygiene therapy (60.0%), and dental therapy (54.4%).[10]

IPDHs indicate that a lack of dental insurance and poor oral health literacy are the most significant barriers to access to oral health services.
The most significant barriers to obtaining oral health services identified by IPDHs were lack of dental insurance and poor oral health literacy. IPDHs identified preventive services and restorative services as the greatest unmet needs in oral health.

IPDHs also identified the populations in Maine who were most in need of oral health services. They cited low-income children, age birth to 18 years, and MaineCare-insured children as the populations in greatest need of oral health care. The elderly and low-income older adults were also identified as in need of oral health services.

[10] The dental therapist is an oral health professional in Alaska and Minnesota who is trained to provide some restorative dental services.

Expanded Function Dental Assistants in Maine: Survey Findings

EFDAs in Maine are experienced oral health professionals with higher education than many of their DA peers.
On average, EFDAs in Maine who were DAs had worked 11.75 years as a DA. One-quarter of the EFDAs (25%) were RDHs in Maine. More than 40% of EFDAs indicated that a certificate/diploma was their highest level of education and 31.3% indicated they held a bachelor's degree.

EFDAs mainly work in the more populated areas of Maine.
EFDAs mainly worked in metropolitan areas of the state (75%). Since EFDAs must be directly supervised by dentists, they work in the same areas as dentists in Maine.

Most EFDAs trained in expanded functions because they have an interest in learning to do more professionally.
Most EFDAs (93.3%) cited a personal interest in learning to do more or career advancement (86.7%) as reasons for becoming an EFDA. Sixty percent of EFDAs indicated they received encouragement from their employers to become an EFDA. Forty percent of EFDAs indicated that they shared the cost of the EFDA training with their employer.

EFDAs mainly work in private dental practices and many work only part time.
EFDAs mainly worked part time (defined as 30 hours or less) for their primary employers, but 46.7% worked more than 31 hours weekly for a primary employer. Most EFDAs in Maine (75.0%) primarily worked in private solo (50.0%) or group (25.0%). dental practices. Most EFDAs worked with general dentists in their primary work locations (93.8%).

EFDAs commonly work with other EFDAs in their workplaces.
All EFDAs worked with at least one other EFDA in their workplaces. Eighty-six percent of EFDAs worked with two or more other EFDAs.

EFDAs provide a variety of clinical services for patients.
EFDAs provided a wide variety of services in their workplaces. All EFDAs (100%) exposed radiographs while 62.5% placed temporary restorations.

EFDAs identify low-income people in Maine as the population in greatest need of oral health services.
EFDAs ranked low-income children, birth to 18 years, as the population in greatest need of oral health services and low-income adults, age 19 to 64 years, as the second group most in need of oral health care in the state.

Discussion

There is growing concern across the U.S. about uneven access to oral health services especially for the poor, children, the elderly, immigrants and refugees, and special needs populations. Stakeholders in Maine share these concerns. The rural geography of the state complicates efforts to improve access to oral health services for those residents living in northern and central Maine. A well trained oral health workforce is a critical resource when developing strategies to increase the availability of oral health care services in the state.

Distribution of Oral Health Professionals
Maine's oral health professionals are not well distributed. Dentists, RDHs, and EFDAs in Maine are most likely to practice in the more populated areas of the state. Oral health professionals working in public health settings or in independent dental hygiene practices are increasing the availability of oral health services in rural areas and in settings outside private dental practices (see Table 2 on page 22) where most dental services are usually provided. Analyses of the oral health workforce surveys found that RDHs working under PHS status and IPDHs were more likely than other professionals to be working in small towns and rural areas of Maine, which was the intent of the legislation that enabled these models. While the numbers of professionals active in these workforce models remains small, they are providing oral health services to needy populations.

Workforce innovation in Maine has been used to address disparities in access to oral health care. To date, Maine has enabled a number of oral health professions including EFDAs, RDHs working under PHS status, and IPDHs. Maine also licenses denturists to provide services directly to patients. These efforts are positively impacting the availability of oral health services in the state.

Table 1. Geographic Location of Oral Health Workforce in Maine by RUCA Code*, 2012

Type of Oral Health Professionals	Metropolitan	Micropolitan	Small Town	Rural
Dentists	51.5%	23.4%	11.7%	13.5%
RDHs	52.4%	18.6%	13.2%	15.8%
RDHs under PHS status	44.2%	15.6%	19.5%	20.8%
IPDHs	35.7%	14.3%	7.1%	42.9%
EFDAs	75.0%	6.3%	0.0%	18.0%

Source: CHWS, 2012. Surveys. * Note: RUCA codes are a comparatively new Census tract-based classification scheme that utilizes the standard Census Bureau Urbanized Area and Urban Cluster definitions in combination with work commuting information to characterize all of the nation's Census tracts. The metropolitan classification includes areas where there is an urban cluster of 50,000 or more people. The micropolitan classification includes areas where there is a cluster of 10,000 or more people. Small towns include areas with at least 2,500 residents and rural areas comprise settlements with fewer than 2,500 residents. (See USDA Economic Research Service http://webarchives.cdlib.org/sw15d8pg7m/http://www.ers.usda.gov/briefing/Rurality/MicropolitanAreas/).

Experience and Education

On average, oral health professionals in Maine have been licensed for many years (e.g., dentists were licensed on average 25 years and RDHs over 20 years). The average age of a dentist in Maine was 54. Many dentists expect to retire or reduce hours over the next five years. The supply of dentists in Maine is expected to increase with the opening of the new dental school at the University of New England (UNE). The new dental school will admit students from Maine so the percent of dentists from the state is likely to increase over time.

Nationally, RDHs are mainly associate degree-educated and DAs are educated mainly in certificate programs with a limited number holding associate degrees. RDHs in Maine were similar to RDHs in the U.S., with 70% of RDHs in the state reporting an associate degree as their highest degree. About one-quarter of RDHs in Maine (23.1%) hold a bachelor's degree and 4.8% hold an advanced graduate degree.

RDHs and DAs working in expanded practice are more highly educated than their professional peers. While the numbers of RDHs working under PHS status or as IPDHs or EFDAs in Maine were relatively small, there were noticeable differences in their educational attainment in comparison to their peers. One-third of the RDHs who had ever worked under PHS status (33.7%) had either a bachelor's degree (24.4%) or a master's degree (8.1%). About 43% of IPDHs indicated that a bachelor's degree was their highest education and 7.1% of IPDHs held a master's degree.

While DAs nationally are educated mainly in certificate programs and occasionally in associate degree programs, EFDAs in Maine also had higher levels of educational attainment. Forty percent of EFDAs reported a certificate/diploma as their highest level of education, 31.3%

indicated they held a bachelor's degree, and 6.3% had a master's degree. Proportionately more oral health professionals with higher levels of educational attainment were practicing in expanded practice roles in the state.

Excess Capacity in the Dental Hygiene Workforce

Stakeholders who were interviewed for this study expressed concern about excess capacity within the RDH workforce in Maine. An analysis of the RDH survey responses found a large number of RDHs either working part time and/or having difficulty finding full-time RDH employment. In contrast to the 25% of dentists who expect to retire in the next five years, only a small percentage of RDHs expect to leave practice in the near term (8.7%). Seventy percent of RDHs expect to remain in their current position for the next five years and 11% expect to seek a similar position in another setting. These data suggest limited availability of dental hygiene jobs for new graduates in the next five years.

Work Settings and Collaboration

Use of innovative oral health workforce models has increased the array of settings where oral health services are available. While the majority of oral health professionals in Maine work in solo and group private dental practices, higher percentages of RDHs working under PHS status and IPDHs worked in public health settings, including school-based oral health programs, nursing homes, and other community settings. This suggests that legislative and regulatory changes for these professionals have increased the availability of oral health services.

In addition, it is critical that collaborations between new oral health professionals and dental providers in all settings be encouraged given the limited resources for safety net oral health services. Table 2 describes the practice settings of oral health professionals in Maine as well as the practice settings of dentists who supervise or collaborate with personnel working in expanded oral health roles. While dentists in private practice worked with EFDAs, supervised RDHs under PHS status, and accepted referrals from RDHs under PHS status and/or from IPDHs, proportionately more dentists in FQHCs and community dental clinics accepted patient referrals from these professionals. RDHs working under PHS status and IPDHs were more likely than others to be providing oral health services in alternative settings such as school-based oral health programs or nursing homes.

Table 2. Percent of Oral Health Professionals by Work Setting and by Type of Collaboration, Maine, 2012

Settings	All Dentists by Primary Work Setting	All Dentists by Secondary Work Setting*	Only Dentists Who Worked with EFDAs	Only Dentists Who Supervised RDHs Under PHS Status	Only Dentists Who Accepted Referrals from RDHs under PHS Status	Only Dentists Who Accepted Referrals from IPDHs
Private Dental Practice-Solo	55.4%	2.9%	44.1%	59.6%	52.4%	62.6%
Private Dental Practice-Group	33.3%	4.0%	32.2%	21.2%	29.5%	27.8%
Federally Qualified Health Center	4.1%	2.0%	10.2%	13.5%	6.7%	3.5%
Community/Migrant/Rural Dental Clinic	3.5%	1.4%	8.5%	3.8%	8.6%	3.5%
Indian Health Services	0.3%	0.3%	0.0%	1.9%	0.0%	0.0%
School-Based Dental Program	0.3%	2.3%	0.0%	0.0%	0.0%	0.0%
Academic/Educational Institution	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%
Nursing Home/Long-Term Care	0.3%	1.4%	0.0%	0.0%	0.0%	0.0%
Veterans Hospital	0.6%	0.3%	1.7%	0.0%	0.0%	0.0%
Other	2.0%	3.7%	3.4%	0.0%	2.9%	1.8%
Totals	**100.0%**	**18.6%**	**100.1%**	**100.0%**	**100.1%**	**99.2%**

Settings	All RDHs by Primary Work Setting	All RDHs by Secondary Work Setting*	All RDHs under PHS Status by All Work Settings	All IPDHs by All Work Settings	All EFDAs by Primary Work Setting	All EFDAs by Secondary Work Setting
Private Dental Practice-Solo	53.7%	6.0%	0.0%	71.4%	50.0%	12.5%
Private Dental Practice-Group	28.7%	3.9%	0.0%	28.6%	25.0%	0.0%
Federally Qualified Health Center	4.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Community/Migrant/Rural Dental Clinic	1.8%	1.2%	0.0%	0.0%	12.5%	6.3%
Indian Health Services	0.9%	9.0%	0.0%	0.0%	0.0%	0.0%
School-Based Dental Program	3.3%	3.3%	90.6%	7.1%	0.0%	0.0%
Academic/Educational Institution	3.0%	1.8%	0.0%	0.0%	12.5%	6.3%
Nursing Home/Long-Term Care	0.0%	0.0%	3.1%	21.4%	0.0%	0.0%
Veterans Hospital	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	3.9%	0.6%	40.7%	42.9%	0.0%	0.0%
Totals	**100.1%**	**25.8%**	**	**	**100.0%**	**25.1%**

Source: CHWS, 2012, Surveys. Note: *Totals do not equal 100% because not all dentists or RDHs worked in a secondary setting. Note: **Totals exceed 100% because IPDHs and RDHs under PHS worked in multiple settings.

Impact of the Economic Downturn on Demand for Oral Health Services
Dentists who responded to the survey expressed concern that the weak economy in Maine was adversely affecting demand for oral health services. Three-quarters of dentists (77.1%) indicated that the recession had negatively impacted their dental practices. Dentists reported additional capacity in their practices as established patients were reducing both the frequency of dental visits and the quantity of elective dental services. Decreased demand appeared to affect both general and specialty dentists. Eighty percent of dentists reported capacity to accept new patients in their practices. RDHs also reported a decreased demand for oral health services in the practices where they worked.

It is important to recognize the difference between demand and need for oral health services. In fact, need for oral health services may be increasing even as demand for services declines. Patients who delay preventive and basic restorative care may require more extensive restorative services in the future.

Participation with the MaineCare Program
Most dentists (96.8%) reported that commercial dental insurance was a major source of revenue for their dental practices. Only 57.6% of dentists indicated any practice revenue from MaineCare. Among dentists who treated MaineCare patients, just 11.7% indicated that proceeds from MaineCare reimbursement constitutes more than half of their practice revenues. In addition, 57.2% of dentists who treated MaineCare patients indicated that they limited the number of MaineCare patients in their practices. Of the 80% of dentists who reported some capacity to serve new patients, 39.0% indicated they would limit new patients to those who were commercially insured or self-pay.

In addition, dentists who treated MaineCare-insured patients mainly treated children between age 4 and 18 years (47% of dentists). About 30% of dentists treated some adults, age 19 to 64 years, who were covered by MaineCare. Dentists cited low reimbursement rates, limited coverage for adult dental services, broken appointments, and lack of compliance with treatment recommendations as reasons for their reluctance to work with MaineCare-insured patients.

Oral health professionals in Maine are improving access to oral health services by providing uncompensated care, reduced-fee services, and volunteering their clinical services to patients in need. However, the quantity of these services is limited and not sufficient to fully address unmet need for oral health services. Many dentists indicated that they provide some uncompensated care to patients and some dentists also volunteer their clinical services. On average, dentists who provide uncompensated care for patients indicated that they do so for a small number of patients monthly. Other oral health professionals in Maine including RDHs, IPDHs, and EFDAs also volunteer their professional services for many organized oral health special events including Dentists Who Care for ME, Give Kids a Smile, and Special Olympics.

Table 3. Percent of Dentists Providing Care to MaineCare-Insured Children or Providing Reduced-Fee or Uncompensated Care in Their Primary Practice, by Specialty, Maine, 2012

Dental Specialty	Sees MaineCare-Insured Children	Provides Reduced-Fee Services	Provides Some Uncompensated Care
General Dentistry	76.9%	81.7%	81.7%
Pedodontics	5.0%	2.8%	2.8%
Orthodontics	5.8%	7.3%	7.3%
Periodontics	0.8%	1.8%	1.8%
Prosthodontics	2.5%	0.9%	0.9%
Endodontics	0.0%	1.8%	1.8%
Oral and Maxillofacial Surgery	9.1%	3.7%	3.7%
Totals	**100.1%**	**100.0%**	**100.0%**

Source: CHWS, 2012. Survey of Dentists in Maine, Questions 6 and 18. Total exceeds 100% due to rounding error.

Attitudes and Opinions

Oral health professionals agreed that there is unmet need for oral health services in Maine especially for low-income children and low-income adults in the state. Survey respondents were asked to rank the populations in Maine who were most in need of dental services in their geographic areas. Respondents were provided a list of population groups to rank on a 5-point Likert Scale. The responses to this question were weighted with a mean weighted score closest to 5 indicating the neediest populations.

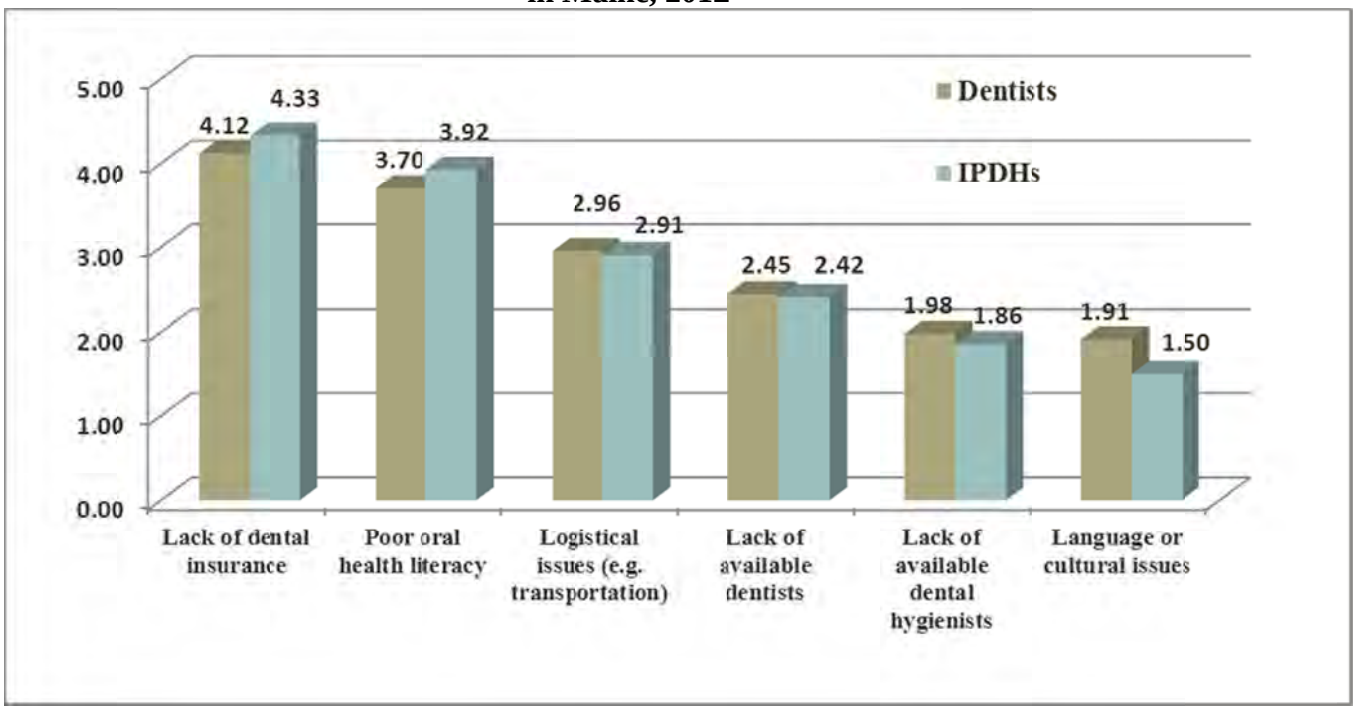
Table 4. Mean Ranking* of Populations Most in Need or Oral Health Services in Maine, by Profession, 2012

Patients	Profession Specific Ranks**			
	Dentists	RDHs	IPDHs	EFDAs
Low-income children (0 to 18 years)	4.08	3.85	4.30	4.42
Low-income adults (19 to 64 years)	3.72	3.38	2.43	3.75
Low-income older adults (65 years and older)	2.88	2.76	3.13	2.83
Uninsured children	3.05	3.45	2.43	2.62
Uninsured adults	2.65	2.78	2.25	2.21
MaineCare-insured children	2.49	3.14	3.63	1.00
Confined elderly	2.77	2.71	3.45	2.75
People with special needs	2.48	2.40	2.00	2.50
Homeless people	2.87	2.96	3.00	3.00
Other***	4.19	4.60	1.00	2.00

Source: CHWS, 2012, Surveys of Dentists, RDHs, IPDHs, and EFDAs. .Note: * A mean score of 5 indicates the neediest population. Note: ** Shaded areas show mean ranked scores above 3.00. Note: *** Other was described variously but was generally defined as all of the populations listed as response options.

On a weighted Likert scale with 5 being most significant and 1 being least significant, dentists and IPDHs identified lack of dental insurance and poor oral health literacy as the most significant barriers to access to oral health care in Maine.

Figure 1. Dentists' and IPDHs' Mean Ranking* of Barriers to Oral Health Care in Maine, 2012



Source: CHWS, 2012, Surveys of Dentists and IPDHs. * A mean score of 5 is the most significant barrier.

Narrative Comments

Survey respondents had the opportunity to provide comments about access to oral health care in Maine that were not covered in the survey content. While it is not possible to describe all topics of concern, there were some common themes across professions.

Survey respondents identified lack of oral health literacy as a primary barrier to improved oral health. Maine's oral health professionals were clear that an overarching barrier to improved oral health outcomes was a lack of education about the importance of oral health and its relationship to systemic well-being. For populations for whom seeking routine preventive oral health services is not normative behavior, the value of oral health may not be appropriately understood among some populations.

Future improvements in population oral health status must be linked to better education about its importance. Preventive care and routine oral hygiene in the present can reduce the future costs of therapeutic or reparative services and improve outcomes over the lifespan. Education is key for every age group and it is especially important for the young to build a future adult generation

with a desire for good oral health. While lack of dental insurance was widely noted as an important barrier to obtaining oral health services, respondents commented that even people with dental insurance may not seek appropriate care because they lack a basic understanding of the importance of oral health.

Dentists and other oral health professionals emphasized that economic issues in oral health are major barriers to improving access. Dentists identified the cost of dental services, lack of finances to pay for care, low MaineCare reimbursement rates, and lack of dental insurance as the most significant barriers to oral health care in Maine. There were pervasive concerns that until these barriers to care were addressed, there would be little progress in improving oral health outcomes for the population.

While there was general agreement about the need for improved oral health literacy and the economic problems that impact demand for oral health services, there were many divergent opinions about the oral health workforce models that were needed to improve access to oral health services for Maine's people. Many dentists felt that it was ill advised to consider further workforce innovations, especially a midlevel oral health provider, since the new dental school would be producing dentists, some of whom are expected to practice in Maine. Some dentists expressed concern that patients could not afford any oral health care regardless of the type of provider offering the services. Some thought the current supply of oral health professionals was adequate and felt that increases in the number of professionals was unnecessary. Others expressed concern that creating new oral health providers would further fragment the delivery of oral health services in Maine.

On the other hand, other oral health professionals including those already working in expanded professional roles expressed interest in further training and education to enable them to work in other roles and in more settings including schools and nursing homes. These professionals suggested that expanded practice professionals could supply more accessible and more affordable care than is currently available. From their perspective, the ability of providers other than dentists to provide more services to diverse populations in a variety of alternative settings could positively impact the oral health of the populations served. Many acknowledged that professionals working in expanded roles would need sufficient training to provide x-rays, preventive care, and basic restorative services.

Nationally, Maine is recognized as being at the forefront of efforts to address unmet need for oral health care for its residents. Maine's history of open discussion and thoughtful planning for oral health programs and oral health workforce initiatives has resulted in improved access to oral health care and reduced barriers to care for some populations. While there is still significant unmet need in the state, past efforts to expand accessibility of oral health services appear to have been fruitful.