

A Qualitative Study of Limited Access Permit Dental Hygienists in Oregon

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Abstract: Many states have adopted alternative oral health care delivery systems that include expanded roles for dental hygienists. This qualitative study was designed to evaluate the impact of the Limited Access Permit (LAP) legislation in Oregon and to understand the relationship between dental hygienists and dentists within this delivery system. The snowball sampling technique was used to identify LAP dental hygienists and collaborating dentists. The snowball sampling technique begins with the identification of a known expert in the field who serves as the initial “sampling unit.” Subsequent individuals are then recommended, or nominated, to the investigator by the initial study participant and are selected based upon the need to fill in or extend information. The final sample consisted of seven LAP dental hygienists and two collaborating dentists. Interviews, field observations, and document analysis were utilized for data collection. Factors that led to the creation of LAP dental hygiene practice, current LAP practice, personal characteristics, relationships between LAP dental hygienists and dentists, and the impact that LAP dental hygienists have had on access to oral health care were explored. Data revealed that the Oregon legislature twice expanded the LAP scope of practice to increase access to oral health care services. LAP dental hygienists practice in community and school-based settings. Common characteristics of LAP dental hygienists include entrepreneurship, lifelong learning, and a commitment to underserved populations. The findings from this study indicate that LAP dental hygienists and collaborating dentists have positive relationships. No evidence of lower quality of care in unsupervised dental hygiene practices was found. However, the impact of the LAP legislation is still unknown due to the limited numbers of LAP dental hygienists and the early nature of the LAP practice.

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The first U.S. surgeon general’s report on oral health was released in May 2000. This report emphasized that oral health is fundamental to overall health and well-being and that profound and consequential oral health disparities exist in the U.S. population.¹ As the United States seeks to ensure the public’s access to quality oral health care services, alternative forms of delivery of oral health care are being sought. The expanded use of dental hygienists has been recommended as one means to increase the public’s access to oral health care.²⁻⁵

State practice acts and licensing regulations have been cited as one factor that can influence access to oral health care. The George Washington University Center for Health Services Research and Policy examined state dental practice laws that permit alternative models of delivering preventive oral health care to low-income children.⁶ A quote from the study authors captures their findings on the role of licensure regulations in access to care:

The licensing system and self-regulation by the dental and medical professions have profound implications for low-income children.

In many jurisdictions, state laws restrict the delivery of preventive oral health care to dentists. In other jurisdictions, restrictive licensing laws restrict the scope of practice of dental hygienists. These legal restrictions operate as a barrier to the provision of preventive oral health services to low-income children by limiting the number of individuals who can provide such services.

Specific states such as California, Minnesota, New Mexico, Colorado, and Washington have enacted legislation allowing dental hygienists to practice with less restrictive supervision requirements under new models of dental delivery systems designed to increase access to oral health care.⁷ In states allowing for an expanded role for dental hygienists, the educational requirements for these practitioners vary considerably. Educational models for preparing dental hygienists to practice unsupervised and increase access to oral health care have been developed.⁸

Oregon was one of the first states to recognize the need to utilize dental hygienists to increase access to oral health care. Oregon recognized that dental hy-

Table 1. Limited access dental hygiene permit criteria

To receive a limited access permit, dental hygienists must:

- Hold a valid, unrestricted Oregon dental hygiene license
- Have 5,000 hours of supervised dental hygiene clinical practice within the previous five years
- Have current professional liability insurance
- Have completed 40 classroom hours of courses including but not limited to
 - a. General medicine and physical diagnosis
 - b. Pharmacology
 - c. Medical emergencies and cardiopulmonary resuscitation
 - d. Oral pathology
 - e. Management and psychology of geriatric and disabled patients
 - f. Jurisprudence relating to unsupervised practice with limited access patients

giene supervision requirements restricted the public's access to preventive dental hygiene services and legislatively authorized dental hygienists to provide services in a variety of health care settings without the supervision of a dentist. In 1997, the state of Oregon enacted legislation allowing for a "Limited Access" dental hygiene permit or LAP.⁹

Through this legislation, a dental hygienist certified with a limited access permit was legally allowed to "examine the patient, gather data, interpret the data to determine the patient's dental hygiene treatment needs, and formulate a patient care plan." LAP dental hygienists are required to have additional education and clinical practice experience to receive this special permit to provide dental hygiene services without supervision by a dentist (see Table 1). Collaborating dentists are identified to whom the LAP dental hygienists can refer patients needing services (e.g., restorative) beyond the LAP scope of practice.

Limited research has been conducted since the mid-1990s on alternative oral health delivery systems involving dental hygienists, despite the number of states that have expanded the dental hygiene scope of practice. A level of understanding of how new laws designed to increase access to oral health care actually work within the context of state and local implementation becomes important as it gives lawmakers and other stakeholders a sense of "reality in practice." The purpose of this study was to examine how the LAP legislation works in practice and what impact it has had on increasing the public's access to oral health care services in Oregon.

Methodology

This study used a qualitative research methodology to examine Oregon's Limited Access Permit

Registered Dental Hygienists (LAP-RDH) through the eyes of the LAP-RDHs and their collaborating dentists. The research questions that guided the qualitative inquiry method can be found in Table 2. This research was conducted by the primary author in fulfillment of the graduate requirements of the master's of science degree in dental hygiene education at the University of Mis-

souri-Kansas City School of Dentistry. The study was approved by the University of Missouri-Kansas City Institutional Review Board.

Sampling for LAP-RDHs and collaborating dentists was accomplished through a qualitative technique, maximum variation sampling, which is more commonly known as snowball sampling. The snowball sampling technique begins with the identification of a known expert in the field who serves as the initial "sampling unit." Subsequent individuals are then recommended, or nominated, to the investigator by the initial study participant and are selected based upon the need to fill in or extend information. Participants included seven LAP dental hygienists and two collaborating dentists. Four of the LAP dental hygienists and one of the collaborating dentists were employed through the Willamette Dental Group, which is a staff-modeled, closed panel dental health maintenance organization. The Willamette Dental Group philosophy of practice is to concentrate on prevention and utilize evidence-based science to develop practice guidelines. One of the LAP dental hygienists was employed through the Head Start system. Two of the LAP dental hygienists owned their own dental hygiene practice and contracted their services primarily to long-term care facilities focusing care on elderly or disabled patients. The other collaborating dentist worked within the community health center system and worked with a number of LAP dental hygienists. Nearly all of the study participants volunteered an extensive amount of time through a variety of systems including mobile dental vans and public dental fairs.

Non-participant observation, interviews, and document review and analysis were the three methods of data collection. Non-participant observation was conducted in a health care setting in which LAP dental hygienists provided services. Patients were not

Table 2. Interview questions

Phase I: General Overview Questions

- What are the educational and practice qualifications of a limited access permit (LAP) dental hygienist?
- How does an LAP dental hygienist practicing unsupervised differ from a dental hygienist practicing in a traditional dental practice?
- How do the certification requirements for LAP dental hygienists relate to the delivery of safe and effective oral health care within an alternative practice setting?
- What is the relationship between an LAP dental hygienist and a collaborating dentist?
- Do the relationships differ between different LAP-RDH and collaborating dentists?
- What makes for a successful relationship between an LAP-RDH and collaborating dentists?
- Does this differ from the relationship between a dental hygienist and a dentist in a traditional private practice dental delivery system?

Phase II: Focused Exploration

(to obtain information in greater depth)

Questions for LAP Dental Hygienists

- How many different settings do you practice in as an LAP-RDH?
- How would you compare practicing without supervision to practicing with supervision?
- How many dentists do you collaborate with?
- How would you describe the dentists' oversight under the LAP delivery system?
- How has the LAP practice evolved over time for you as an LAP-RDH?
- How would you describe your educational preparation to practice unsupervised?
- What changes would you recommend to the current dental hygiene educational system?
- Do you feel that the intent of the LAP legislation has been met?
- What is the relationship between dentist supervision and the delivery of safe and effective oral health care?
- How do you monitor whether or not your patients followed up on your referral for a dentist examination and/or treatment?
- What do you do if they have not?
- What, if any, changes would you further recommend to the authorization of Limited Access Permit registered dental hygienists?

Questions for Collaborating Dentists

- How many LAP-RDHs do you collaborate with?
- How has the LAP practice evolved over time for you as a collaborating dentist?
- Describe the oversight process under the LAP legislation. What are your responsibilities?
- Has your oversight changed over time? If so, why and how?
- How is working with unsupervised dental hygienists different from supervising dental hygienists in a traditional private practice delivery system?
- What are your impressions of the educational preparation of Limited Access Permit registered dental hygienists?
- Do you feel that the intent of the LAP legislation has been met?
- What changes, if any, would you recommend to the LAP authorization?
- How important is dentist supervision of dental hygienists to the delivery of safe and effective oral health care?
- In your opinion, have the patients followed up on the LAP-RDH referrals to you? How do you monitor the referral process?

interviewed; however, authorization from the patient was obtained to grant permission to observe the patient appointment. Interviews were conducted with seven LAP dental hygienists and two collaborating dentists. To ensure validity and reproducibility of the data, all interview sessions were audio recorded. Additionally, to ensure the trustworthiness of the data collection and analysis, study subjects were given a copy of their completed transcripts with an opportu-

nity to provide further clarification to their transcript (member checking). All data were collected in 2005 with subsequent analysis in 2006.

A document review of initial and follow-up LAP legislation was conducted (original legislation in 1997 and revised legislation in 2003 and 2005) as the third and final method of data collection. Multiple methods of data collection (non-participant observation, interview, and document analysis) allowed for

Table 3. Categories and subcategories

- I. Background
 - Access
 - Oregon demographics
 - LAP purpose
 - II. Characteristics
 - Entrepreneurship
 - Qualifications
 - Motivation
 - Dental background
 - III. Nature of the LAP work
 - Day in the life
 - Scope/roles
 - IV. Challenges
 - Referral
 - Reimbursement
 - V. Systems
 - Willamette
 - Organizational systems
 - Advocates
 - VI. Outcomes
 - Specific outcomes
 - Evolution
 - Recommendation
-

triangulation of the data. Termination of data collection occurred with saturation and redundancy of the information collected or, in other words, when no new information was emerging. Due to the fact that the LAP legislation has been authorized only in Oregon, the number of LAP dental hygienists is relatively small, and the nature of dental hygiene treatment is well defined. Therefore, the point of redundancy was quickly reached.

Inductive data analysis was used to generate a grounded theory, which has been defined as theory that follows from data rather than preceding data.¹⁰ The constant comparative method was utilized for data interpretation.^{11,12} Data were examined by the primary author and two analytical reviewers and sorted into major themes and categories. The analytical reviewers were faculty with experience in qualitative research and combined careers of over thirty-five years in dental education.

Results

Six major coding categories (or themes) emerged from the data analysis: 1) background; 2) characteristics; 3) nature of LAP work; 4) challenges; 5) systems; and 6) outcomes/impact of the LAP. Within those major categories, several subcategories

emerged. (See Table 3.) Due to the volume of data collected, the major categories of background, characteristics, nature of LAP work, and outcomes will be discussed in this article. A subsequent article is planned to address the categories of challenges and systems.

Background of Oregon LAP

Oregon demographics, challenges to access to oral health for underserved populations, and the original purpose of the LAP emerged from data analysis as subcategories explaining the rationale for the LAP legislation. The population growth rate, lack of fluoridated water, high decay rates in children and the elderly, inability of many population groups to pay for dental care, and availability of referring dentists were cited as key factors impacting the lack of access to oral health care services.

At the time of data collection for this study (2005), Oregon's estimated population was 3,641,056.¹³ By 2030, Oregon's projected rate of population growth is 41.3 percent, making Oregon the tenth-fastest-growing state.¹⁴ According to the Centers for Disease Control and Prevention, 20.4 percent of the Oregon population sixty-five years of age and older have lost all their teeth, and only 19.4 percent of the population's public water systems is receiving fluoridated water.¹⁵ The lack of fluoridated water has had a major impact on the decay rates in Oregon. One of the collaborating dentists observed the following discrepancies of decay rates in fluoridated versus nonfluoridated Oregon counties:

“There's a really good example of that in Head Start because Florence has fluoridated water in Lane County and nobody else does. Kids in Florence, while they have no decay, just don't have the horrendous problems that the kids in Eugene and Springfield Head Start programs [do]. Big populations do not have fluoridated water. I think that's true in Washington, too. The Pacific Northwest has always had a high decay rate.”

Poverty levels and the ability to pay for dental care impact the ability of underserved populations to receive dental care. Of Oregon's children in K-12, 62 percent are on free/reduced-cost school lunch program.¹⁵ In regard to children under the age of nineteen, 40.9 percent are at or below 200 percent of poverty levels.¹⁶ The lack of dental insurance and people “paying for their own dental care” were iden-

tified by an LAP dental hygienist and collaborating dentist as a major factor in “really bad dental problems” and the ability of underserved populations to receive dental care. One LAP dental hygienist working within the Head Start system explained: “Currently, 28 percent of the Oregon population does not have dental insurance according to the Department of Human Services. So much of the population is not able to afford basic preventive dental care.”

Collaborating dentists and LAP hygienists noted the severe oral diseases and the need for hospitalization in some children. When asked why kids would get care in a hospital, one collaborating dentist explained:

“Because they’re two- and three-year-olds with rampant decay. They need general anesthesia to get this done. These are horrendously expensive. The last case that I know about from Head Start cost \$8,000 list price. You’ve got to pay an anesthesiologist; you’ve got to pay for the short stay room and the people that take care of the kid while he or she is waking back up. You’ve got to pay for the dentist. Unless you’re very well set up to do this, it’s not very productive for dentists to do dentistry in hospitals. If you expect dentists to donate their time for everybody that needs this care, you’re crazy. We can’t afford to do that.”

One LAP dental hygienist concurred and explained her experience with the numbers of children requiring hospital dentistry: “I have 10-12 kids every visit that need hospital care. They can’t all be seen in a dental office. It’s very painful. They come in with multiple abscesses. I don’t know if the anesthetics really work, and there’s so much infection in there, I don’t know if it is really working.”

The availability of a referring dentist was frequently cited as a problem, even among the collaborating dentists. Population growth combined with a decline in dental school graduation rates, the lack of dentists willing to work in settings outside of the private practice, and dentists reaching retirement age were consistent observations by both dentists and LAP dental hygienists. One collaborating dentist observed:

“It’s the rare dentist that would go into a nursing home, although some of them do. And it’s a rare dentist that would go into a Head Start program and provide services in

those locations. And it’s even the rare dentist anymore who is willing to set up practice in a remote rural community. Based on conversations I’ve had with the dentists in the rural communities, many feel trapped because they have nobody to buy their practices. So we’re going to see a growing problem even greater than what we are seeing now for patients in those locations.”

Another collaborating dentist concurred by saying:

“The population is growing and the dental school is not graduating any more dentists. There’s going to be a giant group of my friends, who are about 10 years younger than I am, that are all going to retire real soon. In the next 10 years a huge percentage of the number of experienced dentists in practice won’t be there anymore.”

These factors led to the enactment of the Limited Access Permit legislation. One dentist reflected:

“The original purpose was to improve access in rural parts of Oregon and in communities where children and older adults traditionally were not able to receive dental services. The focus was primarily on educational and preventive services within the scope of practice of dental hygienists.”

Both LAP dental hygienists and collaborating dentists cited “education, prevention, and identification of oral health needs” as the primary services of LAP dental hygienists. One LAP dental hygienist noted: “There were good legislators at the time. They all realized the disparity that was out there and that many people weren’t getting treatment that they needed.”

In 1997, the Oregon legislature authorized the Oregon Board of Dentistry to grant a limited access permit to dental hygienists who met the criteria described in Table 1. The LAP legislation authorized dental hygienists to provide services to “patients or residents of the following facilities or programs, who, due to age, infirmity, or disability, are unable to receive regular dental hygiene treatment: nursing homes, adult foster homes, residential care facilities, adult congregate living facilities, mental health residential programs.” Dental hygienists were also required by law to refer each patient or resident to a dentist who is available to treat the patient or

resident. LAP dental hygienists were not allowed to administer local anesthesia, provide sealants, denture soft lines, temporary restorations, and radiographs except under the general supervision of a dentist. The administration of nitrous oxide by an LAP dental hygienist could only be performed under indirect supervision. All changes to the LAP scope of unsupervised practice could only be determined by the Oregon legislature.

In 2003, the LAP legislation was clarified to allow LAP dental hygienists to “render dental hygiene services without the supervision of a dentist.” By 2005, LAP practice settings were expanded to include facilities for mentally ill persons, local correctional and juvenile detention facilities, nursery school, day care programs, Job Corps, primary and secondary schools, including private schools and public charter schools, public and nonprofit community health clinics, homebound adults, and persons entitled to benefits under the Women, Infants, and Children Program (WIC). The services provided by LAP dental hygienists were expanded to include providing sealants and prescriptive authority for all applications of fluoride. The Oregon legislature then granted the Oregon Board of Dentistry the authority to expand the settings in which the LAP dental hygienists could provide services.

When asked whether or not the respondents believed that the original purpose of the LAP legislation has been met, the respondents indicated that “it’s still too early to tell. They’re just barely getting started.” The large volume of unmet oral health needs was cited as one of the reasons that more time is needed to evaluate the impact of LAP dental hygienists. One of the collaborating dentists described the relationship between the large volume of unmet dental needs and the expectations of LAP dental hygienists: “I don’t know if the full expectation of the LAP will be met because there is still so much to do out there.” As of 2006, there were seventy-one LAP dental hygienists in the state of Oregon.¹⁷

Factors such as lack of fluoridated water, high decay rates, declining availability of dentists to meet the demand for dental services, and increasing populations without dental insurance led to the creation of a Limited Access Permit for dental hygienists. The Oregon legislature recognized the need to expand the traditional services of licensed dental hygienists with additional education and granting of a permit to provide dental hygiene services to underserved populations without the supervision of a dentist. Over a period of eight years, both the LAP settings and

services they provide were expanded. Recognizing the large volume of unmet oral health needs, the full impact of the LAP dental hygiene legislation is yet to be determined.

Characteristics of LAP Dental Hygienists

Interviews with LAP dental hygienists and collaborating dentists revealed unique characteristics of dental hygienists that further explained their reasons for pursuing the LAP credential. The overall qualifications of LAP dental hygienists along with their motivations, backgrounds, and sense of entrepreneurship emerged as the themes from data analysis.

While enacting the LAP legislation provided the opportunity for dental hygienists to practice in an alternative setting, specific skill sets or motivations to venture into LAP practice were common among the LAP dental hygienist subjects. The motivations of dental hygienists to receive the LAP endorsement included obtaining a degree of independent decision making, a dedication to providing dental hygiene services to populations that received little to no oral health care, and the desire for continuing their education. LAP dental hygienists described the following skill sets as being key to their overall success: sense of entrepreneurship, the ability to access support networks, having a strong mentor, and marketing skills.

The responses from LAP practitioners varied when they were asked specifically about why they were interested in the independent dental hygiene practice that could be obtained by LAP credentialing. One LAP dental hygienist explained her initial interest in the LAP endorsement by stating: “When I was in school, they talked about the future of dental hygiene, that eventually we would be independent practitioners, able to own our own business and work independently of a dentist. I knew somewhat about a program in Colorado where they did just that. And I set my sights at that time. I knew that was what I wanted to do.” Another LAP hygienist expressed little interest in independent dental hygiene practice and her “close connection” with a dentist by stating: “No, that [independent practice] was not any particular reason; it wasn’t really an attraction because I’ve always worked a long time with a practitioner and very closely with a dentist. I’ve always had a very close connection with a dentist.” One of the collaborating dentists described the independent practice of a male dental hygienist: “Most hygienists

don't want to do that. Financial things, responsibility things, it's hard."

Helping children and adults with limited or no access to care was identified as the major motivating factor by LAP dental hygienists. Most of the LAP dental hygienists witness the beginning of oral disease as "white and brown spots" in "little tiny kids" and believe that the children "need us." Getting to children "sooner and more consistently" was one of the benefits of employing LAP dental hygienists in school-based settings.

Several of the LAP dental hygienists identified that they had to use a "business" approach to beginning their LAP careers. One of the first LAP dental hygienists to receive her LAP endorsement explained her perspective on those dental hygienists who were just starting out in their careers by stating:

"They're going to have to take the ownership and responsibility of finding out where they can use these services; they are not knocking at their doorstep. They're going to have to hit the pavement and make connections, do networking within the community to promote their services, promote what they can and cannot do in the community and to champion reimbursement processes."

Identifying markets, or practice settings, in which LAP dental hygienists could practice and receive payment for their services was initially difficult for many of the LAP dental hygienists. Marketing their services, either by LAP dental hygienists themselves or by their practice facilities, was a critical factor in securing employment positions. An LAP dental hygienist explained her experience within the Head Start system:

"I contacted Head Start, and while I was looking for places I could work and they could use my services, I found out I could work, but I couldn't get paid. They had a huge need. And the need was how can they stretch their dental dollars they have for their 800 children."

Mentoring and networking were identified by all the LAP dental hygienists as being important to their first introduction to the LAP endorsement possibility and to their entry into the LAP practice environment. One LAP dental hygienist reflected on the importance of her mentor, describing her as "a go-to" person and that she "had a lot of information"

and was "really the pioneer of the whole thing." One of the first LAP dental hygienists reflected upon her role and responsibility as a mentor for other dental hygienists to pursue their LAP endorsement:

"We would be among the first to go into that world while others are getting their education and their bachelor's and their master's [degrees] and getting those skills. But we would be holding the door open for others to come on board whose skills are going to be better."

When asked about the qualifications of LAP dental hygienists to provide services to underserved populations without supervision of a dentist, both the LAP dental hygienists and the collaborating dentists stated that these hygienists was "qualified to do what they were educated to do." The collaborating dentists noted the ability of LAP dental hygienists to "manage the conditions" and to "recognize what is high priority and what is not." Another collaborating dentist spoke about the ability of dental hygienists to recognize decay by stating: "I think a hygienist can recognize decay as well as or better than a dentist and recognize those that are going to benefit from a temporary restoration."

The additional education and training required for the LAP endorsement were recognized by both groups as important to working with special needs populations. In describing the typical or average LAP dental hygienist, one collaborating dentist described them as "motivated people; they pick up stuff. They're frequently a little bit older and more mature."

Given the relatively new nature of the LAP dental hygienist in Oregon, those first dental hygienists who actively pursued the achievement of the LAP credential all exhibited an eagerness or entrepreneurial spirit to practice dental hygiene in a new way and to reach out to those populations with little to no access to care. Mentoring, networking, and the development of marketing skills were among the key skill sets developed by LAP dental hygienists as they began their careers.

Nature of the LAP Work

Understanding a day in the life of an LAP dental hygienist includes insights or unique perspectives into where they work, what they see, what services they provide, and the interdisciplinary nature of their scope of responsibilities. LAP practice settings were identified in the original LAP legislation

and have expanded over the nine-year period that LAP dental hygienists have been in existence. LAP practice settings or health care systems are linked to types of patients that are treated by LAP dental hygienists. LAP practice settings and patient groups that emerged from the data include Head Start (three- to five-year-old children), Early Head Start (up to three-year-old children), Women, Infants, and Children Program (WIC) recipients, community health centers, nursing home and long-term care patients, disabled and special needs patients, uninsured or migrant school children, and Medicaid clients. LAP dental hygienists also noted mobile van delivery of LAP services as a common way of reaching patient populations with little to no access to dental services. These health care delivery systems, such as Head Start, emerged from the data as portals to reaching underserved populations. Community health centers were identified by the collaborating dentists as primary employment settings for LAP dental hygienists. One collaborating dentist explained his perspective on community health centers' use of LAP dental hygienists:

“The community health centers, I think, are at the forefront of using LAPs and that’s going to continue. The reservoir of untreated people in Oregon, that’s the reason that they have a community health center. Absolutely for sure one of the areas that LAP hygienists are going to be needed.”

Three patient population groups are frequently seen within community health centers. One of the collaborating dentists with experience in community health centers in Oregon described the types of patients seen within these centers:

“Young families—mostly Hispanic, who don’t have any money. Senior citizens who used to have pretty good dental care, often because they had jobs, they had insurance, but now they don’t have any pensions; they’re living on social security and they don’t have any money. People with drug and alcohol problems—the most disheartening group of people. Lots of young women that are or were methamphetamine addicts and lots of alcoholics.”

Like the community health centers, Head Start also serves a large percentage of the Hispanic population in Oregon. One Head Start LAP dental hygienist described the growth of Hispanic children

in Head Start: “Three years ago the Head Start Hispanic population of children was 26 percent. Now it is approximately 46 percent. They are coming to Oregon from Mexico.” Another LAP dental hygienist noted: “There is a big Hispanic population, and people who just aren’t getting treated by traditional practitioners.” Long waiting lists to enroll in Head Start were noted by one of the LAP dental hygienists employed in Head Start: “For the 800 enrolled spots that Head Start of Lane County has, there are at least that many more on a waiting list that never make it into Head Start in our area.”

Regardless of the LAP practice settings, all study participants noted the severity of oral diseases treated by LAP dental hygienists. An LAP dental hygienist who owns her own practice also observed a high level of oral disease in the elderly population and the difficulty in finding dentists within the traditional dental practice to treat the patients she sees:

“What I’ve found has been appalling, to be truly horrible. Just no care and terrible infections in people’s mouths. An oral earthquake. Little crags and fragments of teeth remaining. Black holes, craters down to the gumline. You knew if you touched it with an explorer that it would be very soft. Kind of gooey looking in the center. Yellow sometimes, sometimes darker. I saw healthy teeth, but that wasn’t the norm.”

One LAP hygienist employed in Head Start described her observations of oral disease:

“My first week at Head Start I saw two or three fistulas. I had never seen a fistula in my life, in over twenty years in dental hygiene. None of the children that came into our private dental office had bombed out teeth.”

Data analysis revealed a variety of services provided by LAP dental hygienists that could be divided into two categories: direct patient care services and nonclinical services. Direct clinical patient services include “knee-to-knee” dental hygiene examinations, screenings, prophylaxis or toothbrush prophylaxis, fluoride varnish, oral cancer screenings, and denture care. The second category, nonclinical services, was perceived to have the most value to LAP dental hygienists. Nonclinical LAP roles of “case management and educator” emerged from the data as a primary role for LAP dental hygienists regardless of their practice setting. One dentist familiar with LAP practice through WIC noted:

“She does basically case management for pregnant women through WIC. The whole goal is to try and prevent transmission of decay to their kids, get their teeth in shape. She makes sure they get to the dentist, the dentist takes care of them, they do a chlorhexidine rinse before the baby is born and then they do a Xylitol gum after the baby is born. It is a promising program.”

An LAP hygienist explained her experience with case management within Head Start:

“I’m just starting more of the case management of the patient. More than I used to last year. You have to call and remind the patient, you have to make sure if you are not the one making the appointment for them that they’ve called to make the appointment, to find out how the patient is doing, are they in any pain at this point, has it changed, those kind of things. So you’re doing those kinds of case management.”

In terms of referring children for dental restorative services, several LAP hygienists explained their educator role with parents, especially when English is not the primary language of the parent. LAP dental hygienists involved in case management with children needing restorative dental care serve a primary role of assisting parents with making appointments and explain that some parents “don’t know how to go about doing that [making appointments].” LAP dental hygienists noted their frequency of making the follow-up dental appointments for parents in the event that the parent is working or unable to make a phone call.

Managing not only the oral health care of elderly or disabled patients, but managing the patients themselves, was identified as a significant challenge to LAP dental hygienists. One LAP dental hygienist with an elder care practice described some of her patients as “very very challenging” and described the experiences of patients’ “biting and hitting” the caregivers.

In contrast to traditional dental hygiene practice within a private dental office, LAP dental hygiene practice is more interdisciplinary in nature. Data analysis indicated that LAP dental hygienists work not only with dentists, but also physicians, school nurses, Head Start nurses, WIC counselors, caregivers, dental students, dental assistants, parents, family advocates, interpreters, administrative staff, and “whoever is available to get the job done.”

The awareness of the oral disease problem in Oregon has impacted other health care providers such as physicians and nurses. One of the collaborating dentists explained his discussions with physicians at a primary care conference:

“I talked with lots of physicians and they’re putting fluoride varnish on kids when they’re giving them their immunizations. They’ve gotten the message that tooth decay is the number one infectious disease of kids. Especially the ones in public health centers. Kids don’t get measles, chicken pox, mumps and any of that stuff anymore—they get tooth decay. It’s a lifelong disaster if it gets out of hand.”

LAP dental hygienists routinely observe and treat significant oral diseases, regardless of their practice setting or patient populations they serve. Unlike dental hygiene practice within a traditional private dental office, LAP dental hygienists have a more interdisciplinary practice and frequently face unique challenges in delivering dental hygiene care. In addition to direct clinical services provided by LAP dental hygienists, it is the nonclinical LAP roles of case manager and educator that are highly valued by LAP dental hygienists and their patients.

Outcomes of the LAP Program

The evolution of LAP regulations and practice, their preliminary outcomes, and recommendations for improving the LAP educational system emerged from data analysis as three factors used by study participants when discussing their perceptions of the overall impact of the LAP program. LAP dental hygienists practice without the supervision of a dentist. One of the key areas of study was the relationship between dentist supervision and the quality of care provided by LAP dental hygienists. Data analysis revealed that the issue of unsupervised LAP practice was not linked to the quality of LAP services and did not emerge as a primary interest of either the collaborating dentists or LAP dental hygienists.

The LAP legislation was enacted in 1997. Since the inception of the legislation, practice settings, prescriptive authority, and the role of the Oregon Board of Dentistry in the LAP regulations have evolved. A small but growing number of dental hygienists have become aware of and interested in pursuing the LAP permit. Citing the current limited numbers of LAP dental hygienists, the majority

of study participants indicated that it was “too early to tell” whether or not the original purpose or legislative LAP intent has been achieved. Study participants were united in their recommendations to improve upon the LAP system by continuing to expand the LAP scope of practice, equating LAP dental hygienists with physician assistants and nurse practitioners, revising the LAP educational process to allow dental hygiene students to receive their LAP endorsement upon graduation, recognizing the baccalaureate degree as the entry-level credential for dental hygiene, and increasing the supervisory role for LAP dental hygienists.

The LAP legislative intent was to provide access to oral health care to unserved or underserved populations in Oregon. The study participants described different ways in which they assessed outcomes of the LAP legislation. Numbers of children and the elderly who received oral health care from an LAP, cost savings, direct clinical services provided, the value of prevention education, and increase in the number of referrals to dentists emerged as outcome markers for the LAP legislative intent.

When asked about the quality of the LAP program, one of the collaborating dentists explained his perspective:

“I think it’s still premature to judge the overall quality of the program because at this point we’ve only had fifty-some LAP hygienists. The numbers have been increasing, especially in the last couple of years, but there haven’t been enough of them out there providing these services yet. I would say that, so far, the returns are very impressive. The patient charts that I’ve reviewed and the cases that I’ve seen when I go out into Head Start programs and look at kids that have previously been seen by LAP hygienists, there is no question about the quality of assessments and hygiene services that they’re doing.”

One LAP dental hygienist working within the Head Start system explained the outcomes she achieved during the school year:

“Within Southern Oregon Head Start program which encompasses two counties, over 850 children received visual exams, fluoride varnish applications three times during the school year, preventive education was given to many parents and appropriate referral and

advocating to receive the necessary dental treatment.”

Prevention education to parents within the Women, Infants, and Children (WIC) setting was identified by an LAP dental hygienist as an important service: “In the three months that I have served at WIC, I have served over 400 families. I have already received feedback from many parents as to the motivation received and behaviors that they changed for good preventive practices in their homes.”

LAP dental hygienists may practice without the supervision of a dentist. Both dentists involved in the study supported unsupervised practice of LAP dental hygienists. One dentist explained his perspective on the purpose of supervision:

“Mainly, you supervise people that they stay within what they’re capable of doing. And to be sure they’re doing a good job. I think dentists need to be supervised and there need to be guidelines for dental treatment, too, especially in a public health setting. The catch in a public health setting is there isn’t enough money that you can afford to do bad treatment. And there isn’t enough time either. You got to do stuff that’s going to work and hold up because you don’t get to do it over.”

Efficient utilization of both dentists and dental hygienists was cited by one dentist as a key factor in supporting unsupervised LAP practice:

“The dentist could then move on to another site and that way we get more efficient utilization of dentists, which is a shrinking professional group, and better utilization of the hygienists who can work independently.”

LAP practice settings have evolved since 1997, but one LAP dental hygienist expressed a negative perception of what she described as the “laundry-listing” of LAP practice settings: “it’s a personal disappointment that we have a laundry list of sites crafted in state legislation and rules.” In 2005, the Oregon Board of Dentistry was granted rule-making authority for the LAP program. One LAP dental hygienist described the collaborative nature of the communities that came together during the 2005 legislative year:

“Collaboratively, we put the scope of limited access permit dental hygienists back in the purview of the state board of dentistry. I

think with the board of dentistry, they have more in-depth scope and knowledge of ‘how do we protect the public?’ And how do we ensure that the public is receiving good, quality services from limited access permit dental hygienists. And I’m thankful now that it is back into the state board’s hands.”

The LAP legislation evolved over time to address the issue of whether LAP dental hygienists could conduct an examination, diagnose the patients’ condition, and develop a treatment plan. The use of screening terminology and the development of training and screening protocols were adopted by the Oregon Board of Dentistry in 2003. However, the law also clarified that screening results are “not a diagnosis.” One LAP dental hygienist explained her frustration with being unable to advise parents that their children have a cavity:

“One of the hurdles we had to make also was that we couldn’t diagnose and call something ‘caries.’ We couldn’t call it a cavity. I’ve gone way beyond that now. I stood up at the board of dentistry and told my story that in trying to talk to a parent on the phone and talk about a ‘suspicious area’ and what you’re really saying is ‘that tooth is decayed to the gum line’ but trying to follow the rules and not call it cavities. They don’t understand and they’re not going to take off from work and take the child to the dentist if you are just talking about ‘suspicious areas.’ I knew there was no way that I could get them to understand what I was talking about until I called it cavities. I’ve been calling it cavities ever since. I don’t think there is anything wrong with calling it a cavity. We are trained in school to identify caries, to diagnose, and to treatment plan. And in general practice, they want you to identify these areas before the dentist comes in. They want you to point out the cavities, just not call it cavities. But I do call it cavities now because the populations that I deal with know what a cavity is.”

By 2005, the LAP regulations were amended to permit an LAP dental hygienist to examine the patient, gather data, interpret the data to determine the patient’s dental hygiene treatment needs, and formulate a patient care plan. LAP services that were expanded include dental sealants and prescription privileges for fluoride, as well as antimicrobial solu-

tions for mouth rinsing or resorbable antimicrobial agents.

All study participants eagerly described their perceptions and opinions on the future practice and education of LAP dental hygienists. The collaborating dentists advocated for increasing the LAP practice settings and the services they provide such as “ART or Atraumatic Restorative Therapy.” Both collaborating dentists suggested that LAP dental hygienists should be allowed to take x-rays (radiographs) so that they can do a “more comprehensive assessment of needs.” Being qualified and authorized to “prep and seal as indicated,” as well as being able to “restore simple class I and class V lesions with utilization of x-rays for thorough diagnosis,” was among the service expansion recommendations of an LAP dental hygienist. One collaborating dentist described his vision for LAP dental hygienists: “LAP dental hygienists should become the equivalent of physician assistants and nurse practitioners in medicine. Nurse practitioners are doing an awful lot of things that LAP hygienists can do right now.”

Dentists and LAP dental hygienists discussed improvements or changes that should be made to the LAP program. The continuing education requirements, practice experience, and inability of dental hygiene students to pursue the LAP endorsement while in school were the most frequently cited improvement areas. One of the collaborating dentists stated:

“I think the additional continuing education is really not necessary in most cases. I think the stipulation that they have 2,000 hours of practice experience is sufficient for most hygienists, because they do their own continuing education and their basic education, I think, is really sufficient. We would like to see a change to the LAP statute or rule that would allow a new hygienist coming out of school to immediately apply for and get an LAP endorsement. I’m not sure I see a purpose of waiting time as long as they are well educated and trained.”

The 5,000-hour requirement of previous work time was cited by many LAP dental hygienists as a barrier to receiving the LAP endorsement. One LAP dental hygienist explained:

“I think the hard part right now within the limited access permit dental hygienist is the classes that they must take to meet this

endorsement are limited, and providers in other than the clinical areas, such as dental hygiene educators, will have a hard time fulfilling the work related hours.”

Like the collaborating dentists, many LAP hygienists spoke about the need for dental hygiene students to work toward their LAP endorsement while in dental hygiene school. Having the LAP coursework included in the dental hygiene curriculum was suggested along with an “internship at Head Start or at a hospital to gain practical experience.” The LAP dental hygienists described the need to get more dental hygiene students and other dental hygienists in the LAP system because “there’s a need now and it’s only going to get worse.” Issues of “undereducating” students and “producing too many hygienists for private practice” were common responses by LAP dental hygienists when asked about entry-level dental hygiene programs. Needing “more than an associate’s degree” and “so much more to know” were cited as reasons for supporting four-year dental hygiene education programs. One LAP dental hygienist explained her perspective:

“I do believe it definitely needs to be more than an associate’s degree. There is so much more to know, and the associate program is already packed. You need to know information about organizational structure, billing, coding, prescription writing in some places, public health systems.”

Making the LAP the norm and the importance of the teaching aspect of the LAP program were recommendations expressed by one LAP dental hygienist:

“I would focus not on the delivery of care, but I would focus on the teaching aspect of it. I think that most hygienists think that they’re going to go out there and clean teeth and they’re going to do big sealants and they’re going to fix everybody because they’ve been trained to work in a dental office and deliver services. If you can’t get them to buy in and think about how they’re going to maintain what you’ve just done for them, it all goes to hell in a hand basket really fast.”

Mentoring emerged as an important recommendation for increasing the numbers of LAP dental hygienists. One LAP dental hygienist explained her interest in working within a nursing home setting and

her frustration at how to go about it. Another LAP dental hygienist working with elderly populations expressed her frustration at the lack of dentists willing to help her in treating elderly patients by saying: “I personally would really like to have a list of dentists who really, really are willing to help the LAP.”

The overall impact of the LAP legislation is yet to be determined. Preliminary data suggest that LAP dental hygienists are reaching a variety of underserved populations through community-based delivery systems such as Head Start. Unsupervised LAP practice was supported by both dentists and LAP dental hygienists as it was viewed to support the efficient utilization of dentists and dental hygienists. The LAP regulations continue to be expanded to allow for greater services and responsibilities for dental hygienists. A corresponding need to expand entry-level dental hygiene program curricula was supported by the study participants.

Discussion

Access to oral health care services remains an important public health issue throughout the United States.¹ Factors such as lack of fluoridated water, numbers and availability of oral health care providers, restrictive regulations, lack of dental insurance, language barriers, transportation challenges, and oral health awareness among parents and other caregivers emerged from this study and are consistent with numerous other studies¹⁻⁶ as major contributors to high rates of oral disease and lack of access to oral health services in underserved populations. Following the release of the first surgeon general’s report on oral health in 2000, several reports were released that included a recognition of the decrease in the numbers of available licensed dentists and recommendations to increase the utilization of other oral health workers including dental hygienists and the creation of new types of dental care team members as a means of alleviating oral health disparities.^{2-6,18}

During the late 1980s and 1990s, the dental hygiene scope of practice expanded across the country and included a reduction in or elimination of dental hygiene supervision by dentists and expansion of practice settings and dental hygiene services.¹⁹⁻²¹ Likewise, in 1997, the state of Oregon recognized the oral health care disparities and lack of access to oral health care services for its citizens and authorized the creation of a “limited permit” or “endorsement” for licensed dental hygienists to provide dental hygiene

services unsupervised in certain settings. In 2005, Oregon was ranked third in the nation in a study that developed a statistical dental hygiene professional practice index (DHPPI) that characterized the professional practice environment of U.S. dental hygienists.²² A higher DHPPI was found to be positively correlated with the use of dental services by the general state populations because services were more widely available. Higher DHPPI scores were also found to be positively correlated with indicators of oral health outcomes in the population. This is one indicator that the LAP legislation has had its intended effect. Limited Access Permit dental hygienists in the study exhibited four motivational traits or characteristics: entrepreneurship, independent decision making, dedication to providing services to underserved populations, and a desire for continuing their education. The desire for establishing an independent practice was found to be a significant factor for pursuing the limited access permit for a minority of the study participants. This is consistent with data reported from a previous study of self-regulation and independent practice among Iowa dental hygienists.²³ Mentoring and networking skills emerged as important to initiating and sustaining an LAP practice.

The relationship between dentist supervision and quality of care delivered by LAP dental hygienists was one of the primary study questions and a principal focus of the study. Both LAP dental hygienists and dentists felt that LAP dental hygienists were qualified to provide dental hygiene services unsupervised, but the issue of supervision did not emerge as important to either the LAP dental hygienists or dentists. The participants were more focused on describing their overall LAP practice and the ways in which they worked not only with dentists but other health care professionals, caregivers, and parents.

LAP practice characteristics including community-based preventive programs, direct preventive clinical services, and interdisciplinary health care delivery were consistent with many of the findings from the U.S. surgeon general's report on oral health.¹ This report notes that "community-based preventive programs are unavailable to substantial portions of the underserved populations" and that "interdisciplinary care is needed to manage the oral health-general health interface." Data from this study indicate that community-based prevention programs such as community health centers, Early Head Start, Head Start, and Women, Infants, and Children (WIC) programs are primary practice settings for LAP dental hygienists. The LAPs' reports that they routinely provided

direct clinical services such as prophylaxis, fluoride treatments including fluoride varnish, dental sealants, and oral cancer screenings are also consistent with the findings from that report, which recommended that a "combination of services is required to achieve optimal disease prevention."¹ The interface between oral health and general health is described in the report as being managed most effectively through an interdisciplinary health care focus. Perhaps the reason for the lack of importance assigned to dentist supervision can be found in the interdisciplinary nature of LAP practice. All LAP dental hygienists in the study described the numerous health care practitioners with whom they practiced on a daily basis. Unlike in the private dental practice environment, LAP dental hygienists frequently interact with physicians, school nurses, Head Start nurses, dentists, dental students, parents, caregivers, administrators, and WIC counselors. Many LAP dental hygienists discussed their increasing role as case managers. They frequently initiated examinations with patients, developed treatment plans, provided therapeutic and preventive services, and then followed up with the caregivers to ensure that subsequent restorative treatment needs were met. Cultural competence emerged as an important skill due to the large number of Hispanic populations seen by LAP dental hygienists.

A consistent challenge in evaluating the outcomes of new oral health care delivery systems is the lack of a standard outcomes measure. Previous studies of independent dental hygiene practice^{24,25} examined different evaluative aspects of independent dental hygiene practice. One study²⁴ used a general office audit and patient record audit measuring compliance with infection control, office protocols for emergency situation, practice management protocols, and a high standard for process of care for the independent practice sites. Another study²⁵ focused on services provided, patient visits, fees charged, referral to dentists, acceptance of Medicaid patients, and services to organizational clients. In this qualitative study, the participants described their perceptions of the nine-year impact of the LAP legislation with a near consensus that it is too early to tell due to the limited number (seventy-one) of LAP dental hygienists and the still rampant unmet dental needs. It is important to conduct research on any new alternative oral health delivery system to inform educators, the public, policymakers, and others within the oral health community of their existence and to gain a greater understanding of their potential to reach underserved communities.

As more states expand the practice of dental hygiene, the impact on entry-level dental hygiene education cannot be overestimated. In the mid-1980s, a number of studies²⁶ examined the effect of expanded scope of practice legislation on dental hygiene education and practice. In those states with expanded practice, the dental hygiene programs increased program length to accommodate expanded functions including advanced periodontics, gingival assessment, comprehensive treatment planning, developing clinical judgment, and referrals to various specialists. In addition, the majority of entering dental hygiene students had one or two years of college. The data from the present study are consistent with those in the mid-1980s in that the participants recommended expanding the LAP practice to include radiographs, ART, and simple restorative procedures and the recognition of the baccalaureate degree as the entry-level credential for dental hygiene. An educational model was proposed in 1989 to increase access to quality dental hygiene care through unsupervised dental hygiene practice.⁸ Likewise, data from this study indicate that subjects perceived a need to expand the scope of education to prepare dental hygienists to function in an LAP dental hygiene environment. Additional curricular experiences could include coursework on organizational structure, billing, coding, prescription writing, and public health delivery system. While the early educational studies recommended curriculum expansion based on clinical dental hygiene services, this study demonstrated a need for dental hygienists to be more knowledgeable regarding alternative delivery systems. The American Dental Education Association⁵ acknowledges the traditional primary focus of dental education to prepare students to enter a private practice dental office, yet recommends that academic dental institutions consider curriculum expansion reflective of future workforce requirements and the needs of underserved populations. As more states consider workforce proposals to address the access to oral health care crisis in the United States, it is imperative that further research be conducted to promote a greater awareness and understanding of the impact of new practice models. In addition, educational institutions must have a greater awareness of and commitment to preparing students to practice in settings outside the traditional private practice environment and to provide culturally competent care.

We acknowledge that small qualitative studies such as this are not generalizable in the traditional sense. However, one of the greatest strengths of the qualitative approach is the richness and depth of

exploration and descriptions of a given phenomenon from which much can be learned. Future research using this study as a source for hypothesis generation is needed.

Conclusion

The long-term impact of the LAP legislation on access to care in Oregon is yet unknown. This qualitative study examined how LAP legislation was working in Oregon and the impact that it is having on oral health care in the state from the perspectives of seven LAP-certified dental hygienists and two dentists in the same health maintenance organization. In particular, this study reported subjects' perceptions and perspectives on the background of the LAP legislation, the characteristics of the LAP dental hygienists, the nature of their work, and the outcomes to date. Data from this study indicate that the numbers of LAP dental hygienists in Oregon are growing; there were seventy-one LAP dental hygienists practicing in the state at the time of the study. As a consequence of their expanded scope of practice and the increased number of practice settings, more underserved populations are receiving care from LAP dental hygienists. A positive relationship exists between the LAP dental hygienists and dentists who participated in this study. Study subjects did not perceive that unsupervised practice by LAP dental hygienists resulted in a lower quality of care. Study participants indicated support for continuing advancements in the LAP program, along with revisions to the LAP educational program to make it more accessible to dental hygiene students, practitioners, and educators. Early in the implementation of the LAP legislation, it was recognized by the Oregon legislature that revisions to the original bill were needed to increase the settings and subsequent impact of dental hygienists providing care to underserved citizens in the state. This study provides data intended to contribute to the ongoing assessment of the LAP concept as one piece of the puzzle of providing oral health care to all U.S. citizens.

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