



American
Dental
Hygienists'
Association

Transforming Dental Hygiene Education and the Profession for the 21st Century

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CHAPTER ONE

Introduction

GOAL AND PURPOSE

The American Dental Hygienists' Association (ADHA), with the support of Johnson & Johnson Consumer Inc., for the distribution of this paper, is pleased to provide this white paper supplement on the future of dental hygiene education and practice, and how dental hygienists will contribute to the expansion of oral health services. This white paper will:

- Provide a summary of the “Transforming Dental Hygiene Education, Proud Past, Unlimited Future” (“the Symposium”);
- Describe the future needs of dental hygiene practice;
- Outline strategies that will contribute to the expansion of oral health services to underserved populations, including mothers and children; and
- Identify the future standards of education and practice — including examining current dental hygiene curriculum, and offer ideas on potential revisions and enhancements to prepare dental hygienists for future practice.

The issues addressed in this paper as it relates to changes in dental hygiene education and transforming the way graduates are prepared for the future highlight how, with these changes, dental hygienists will be better equipped to serve the health and wellness needs of the entire population.

BACKGROUND AND SETTING THE STAGE

The core ideology of the ADHA is to lead the transformation of the dental hygiene profession to improve the public's oral and overall health. In 2013, the dental hygiene profession celebrated its 100th anniversary, a milestone that contributed as a catalyst to change — in fact transform — the profession. With recognition that dental hygiene education required change so that the profession would remain relevant in a changing environment, the ADHA enlisted the help of the Santa Fe Group (SFG), an organization composed of internationally renowned scholars and leaders from business and the professions united by a commitment to improve oral health. Together with the SFG, ADHA worked to bring dental hygiene educators, researchers and

practitioners together with leaders from other health disciplines, government, philanthropy and business to strategically address this need for change in dental hygiene education.

Part of the profession's responsibility to the public includes evaluating its own ability to provide care and taking the steps necessary to ensure its maximum effectiveness. The ADHA is committed to best positioning the profession of dental hygiene to be viewed as an integrated part of the health care system through strategic partnerships, as well as maximizing the ability of dental hygienists to take advantage of opportunities in more integrated health systems.¹ The SFG and ADHA co-developed the Symposium and invited guests from diverse professional backgrounds to examine the dental hygiene educational system through the lens of its historical beginning, the current environment, and the future oral health care needs of the public. It provided the platform to explore questions that had not been fully deliberated before. Ultimately, the purpose of advancing education in dental hygiene is achieving better oral and overall health for more people. To that end, a partnership was born.

TRANSFORMING DENTAL HYGIENE EDUCATION SYMPOSIUM

In September 2013, the ADHA, in collaboration with SFG and the ADHA's Institute for Oral Health, convened a Symposium titled “Transforming Dental Hygiene Education, Proud Past, Unlimited Future.” The fundamental question behind the Symposium was how to best prepare dental hygienists to serve the health and wellness needs of society by transforming the way dental hygiene graduates are prepared for the future. In addition, the Symposium explored where dental hygiene education has been, where it is now, where it will need to be in the future and how changes to dental hygiene education can move the profession forward. The Symposium's learning objectives included:

- Exploring how the change in the health care environment could inform the transformation of the profession of dental hygiene.

- Identifying the broad range of roles that the dental hygiene profession could play and new models of health care within and beyond dental care.
- Considering the broad skills, attitudes and competencies needed by dental hygienists to meet the future needs of the public.

Michael Sparer, PhD, JD, Department Chair, Health Policy and Management, Columbia University School of Public Health, served as the Symposium's keynote speaker. His presentation, "The Transformation of the U.S. Health Care System," centered on the imminent changes underway in the U.S. health care system, many of which preceded the Affordable Care Act. "Given the changes that are going on in the health care system today," Sparer said, "the agenda that you have before you for the next couple of days could not be more important."²

Over the course of the Symposium, key stakeholders in health care policy, education, financing and care delivery discussed innovative dental hygiene education models that would enable dental hygiene to increase access to oral health care. This increased access would be achieved by preparing dental hygienists for an expanded scope of practice and integration into the health care system as essential primary care providers.

The Symposium featured several distinguished authorities. Marcia Brand, PhD, BSDH, MSDH, who was then Deputy Administrator, U.S. Department of Health and Human Services, provided the federal perspective. Pamela Zarkowski, JD, MPH, BSDH, Provost and Vice President, Academic Affairs, University of Detroit Mercy, provided the educational and administrative perspective. Hal Slavkin, DDS, Professor, Ostrow School of Dentistry, University of Southern California, provided the research perspective. Ann Battrell, MSDH, Chief Executive Officer, ADHA, provided organized dental hygiene's perspective.

The group heard from several health professions that have advanced their professional education and curriculum. Panelist Maria Dolce, NP, PhD, Interim Director, School of Nursing, Bouvé College of Health Sciences, Northeastern University, ascribed the education and practice transformations within the nursing profession to the changing health care needs of the public. This transformation in nursing education led to the incorporation of leadership and professional development competencies so that nurses

are well-prepared to become full partners with physicians and other health care professionals. Competencies incorporated within the nursing curriculum include leadership, health policy, system improvement, research and evidence-based practice.³ The nursing profession has set an example for the dental hygiene profession to follow in response to the increasingly complex health care needs of the public.

Panelist Lucinda L. Maine, PhD, RPh; Executive Vice President and Chief Executive Officer, American Association of Colleges of Pharmacy, discussed the transformation of the pharmacy profession over the last 40 years. Until 2004, a pharmacist required only a baccalaureate degree; today, a doctoral degree is the entry level for the profession.² Increasing the educational requirement for the pharmacy profession occurred due to the growth and complexity of the pharmaceutical industry and increasing changes in health care.² The new doctoral curriculum "[incorporated] Institute of Medicine (IOM) core competencies for the health professions: patient-centered professionals functioning in team-based care that is evidence-based and emphasizes quality and health information technology competence."²

Panelist Ruth Ballweg, PA, MPHA, Director, MEDEX Northwest Physician Assistant Program, described the similarities between dental hygiene and the physician assistants (PA) profession, especially regarding the lack of clarity about the identity of the profession as perceived by the public. The PAs' working environments expanded from primary care and emergency rooms to all fields of health care as a result of the profession's transformation. The speaker encouraged dental hygienists to explore areas where services are needed, whether these needs are geographic, economic or demographic. Ballweg recommended that "dental hygienists consider broader leadership roles as systems of oral health care are introduced, and in case management or quality and compliance management."²

Themes that recurred throughout the Symposium were the need for collaboration, interprofessional education and the demand for a workforce as diverse as the communities it needs to serve. Repeatedly, participants stressed the need for changes in the regulatory and educational infrastructure to support change. Small group discussions at the Symposium identified challenges and barriers that will affect the future of dental hygiene education and practice.

Groups discussed challenges, barriers and opportunities associated with five key topic areas:

- State practice acts.
- Accreditation standards.
- Financing and business plans.
- New practice locations and collaborations.
- Interprofessional education.

The SFG attributed difficulty in accessing oral health care to a variety of factors. Among these are the affordability of dental care for low-income populations, low health literacy, inadequate public spending for Medicaid dental

care, the exclusion of dental care for Medicare beneficiaries, the maldistribution and/or shortages of dental health care providers, and restrictive scope-of-practice laws in many states. The group believes that innovation and change are needed to improve equity in access to oral health care.

“The Santa Fe Group applauds the openness of the ADHA to explore both new educational paradigms as well as alternative practice models that may enhance the potential for more people to gain access to oral health care,” said the SFG President Raul Garcia, DMD, MMSc.

CHAPTER TWO

Current State of Dental Hygiene Education

Dental hygienists are primary oral care practitioners who have contributed to the oral health of Americans for more than 100 years. The dental hygiene profession was founded upon the promotion of oral health and the prevention of disease for children in school-based settings. While educational changes have occurred over time, current dental hygiene curricula are designed to meet the oral health needs of a 20th-century patient base — not the requirements of today’s 21st-century patient. Clinical expertise has remained the primary educational focus for application in the private dental practice setting. Today, dental hygienists provide preventive and therapeutic services specified by their respective state practice acts. These services are essential; however, a delivery system in which dental hygienists are permitted to provide additional services and use additional knowledge could increase access to underserved populations in alternative practice settings such as community health centers and health care organizations.

DENTAL HYGIENE PROGRAM INFRASTRUCTURE

Dental hygienists are formally educated and licensed in all 50 states and the District of Columbia. Dental hygienists are able to graduate from one of the nation’s 335 accredited dental hygiene education programs, and successfully complete both a national written examination and a state or regional clinical examination. The average entry-level dental hygiene education

program is 84 credits, or about three academic years, in duration.⁴ Approximately 6,700 dental hygienists graduate annually from entry-level programs that offer a certificate, an Associate’s degree or a Bachelor’s degree and prepare graduates for the clinical practice of dental hygiene. Currently, 21 dental hygiene education programs offer Master’s degrees.⁴ Presently in 48 states and the District of Columbia, dental hygienists are required to undertake continuing education as part of the licensure renewal process to maintain and demonstrate continued professional competence.⁵

In March 2016, Colorado will also begin requiring continuing education. At that time, Wyoming will remain the only state that does not require continuing education as a provision for licensure renewal.

ACCREDITATION STANDARDS FOR DENTAL HYGIENE EDUCATION PROGRAMS

A discussion of dental hygiene education must include the Commission on Dental Accreditation’s (CODA’s) “Accreditation Standards for Dental Hygiene Education Programs” (subsequently referred to as “The CODA Standards”) as a reference point.⁶ The CODA Standards are the guidelines and requirements for accredited dental hygiene educational programs. The current CODA Standards include some essential content areas that provide key foundations for future dental hygiene practice. Examples of

these content areas include health promotion, disease prevention, clinical practice and community service. With changes in societal needs, advances in technology, new research highlighting the oral-systemic link and the growing complexity of the health care delivery system, current educational standards and curricular content will need augmentation.² Curricula may need to expand beyond a primary focus on clinical expertise to include a broader focus on primary care, public health service delivery, population wellness, cultural and linguistic awareness, and health literacy.

Specifically, more focus on disease prevention and health promotion related to the oral-systemic link, the role of inflammation, and the use of new technology to determine risk levels would enhance current guidelines. Additional curriculum time could be made available for physical, head, neck, and oral cavity assessment and diagnosis through the use of chair-side diagnostics, salivary testing, nanotechnology, genomic mapping, telehealth, and other state-of-the-art methodologies.^{7,8}

The CODA Standards, at present, provide for entry into the profession with either an associate degree from a two-year college program or a four-year college or university with an associate degree, post-degree certificate or baccalaureate degree; however, the ADHA's policy statement supports a baccalaureate degree for entry into the profession.⁹ Currently, 288 dental hygiene academic programs award an associate degree, further impeding movement to a higher entry-level degree.⁴ Associate degree programs are more attractive than baccalaureate programs to many students because they are less expensive and require less time before graduation. A dilemma is that associate degree programs may lack the curricular time necessary for dental hygiene educational enhancement.

DENTAL HYGIENE LICENSURE REQUIREMENTS

Current clinical licensing examinations primarily measure a dental hygienist's competence by evaluation of specific clinical skills as well as the candidate's compliance with professional standards during the course of treatment. As an example, the Central Regional Dental Testing Services (CRDTS) exam scoring rubric awards a majority of its total 100 points for Scaling/Subgingival Calculus Removal and Supragingival Deposit Removal. Traits conducive to collabora-

tive practice such as teamwork, critical thinking skills and professional judgment are not assessed. The National Board Dental Hygiene Examination (NBDHE) is a written exam that assesses the ability to understand important information from basic biomedical and dental hygiene sciences, and the ability to apply such information in a problem-solving context. Although the NBDHE does measure didactic and academic knowledge, a more comprehensive test would be needed to incorporate the additional content required for future dental hygiene practice.

According to the Robert Wood Johnson Foundation, advanced education benefits patients, employers and communities. To take an example from the nursing profession, baccalaureate-prepared nurses tend to contribute to safer working environments, to lower rates of mortality for hospital-acquired conditions, and to provide a ready pipeline of professionals to fill leadership and management roles. In the nursing profession, demand is growing for advanced practice registered nurses prepared by post-graduate work for licensed independent practice. With these credentials, nurses may assume advanced clinical roles. Likewise, dental hygienists with advanced degrees could offer parallel benefits to patients, employers and the communities they serve.^{10,11}

Revising both the clinical and didactic licensing examinations is a complex endeavor requiring redevelopment of both the administration and the content of the tests. The processes followed by other professions that have elevated their terminal degrees provide some guidance. Stakeholders integral to realizing this change process are regional clinical licensing boards (e.g., Northeast Regional Board), the ADHA, the American Dental Education Association (ADEA), professional and community dental public health advocacy groups, other health profession groups and the Joint Commission on National Dental Examinations (JCNDE).

Dental hygienists can help fulfill the nation's goal of providing the public with improved access to oral and general primary health care services. The dental hygiene profession's potential to help achieve the health care goals of the United States depends on the transformation of dental hygiene education. Curriculum modification, and in many instances, reinvention, can create a profession ready to accept the challenges of the 21st century.

CHAPTER THREE

Imperatives for Change

THE ACCESS-TO-CARE CRISIS

In 2000, the U.S. Surgeon General's report, "Oral Health in America," called for action to address the oral care needs and disparities within the United States.¹² Seven years later, in December 2007, 12-year-old Deamonte Driver died after bacteria that spread from an abscessed tooth infected his brain. Driver's death is an unfortunate example of the potential impact of untreated oral disease. Driver had been covered by Medicaid sporadically, but he was dropped from the program during critical times due to unfiled paperwork. At the time of his death, his family did not have insurance but were making repeated efforts to find a dentist who would accept Medicaid.¹³

In 2012, Kyle Willis, a 24-year-old father who was unemployed and lacked health and dental insurance, went to the emergency room because of a toothache. Willis was prescribed pain medication and antibiotics, but died from a tooth infection because he couldn't afford the antibiotics he needed.¹³ Willis' death is additional evidence of the importance of oral health and the serious consequences for people without access to dental care.

Lack of access to dental care forces too many Americans to enter hospital emergency rooms seeking treatment for preventable dental conditions that emergency rooms are typically ill-equipped to handle. Despite the fact that dental hygienists, along with dentists and other members of the oral health care team, provide care in private offices to a large portion of the population in the United States, millions of people remain unserved. More than 46 million people in the U.S. currently live in dental health professional shortage areas (DHPSAs), lacking basic access to dental care.¹⁴

The National Governors Association's (NGA) January 2014 issue brief entitled, "The Role of Dental Hygienists in Providing Access to Oral Health Care," found that "Innovative state programs are showing that increased use of dental hygienists can promote access to oral health care, particularly for underserved populations, including children," and that "such access can

reduce the incidence of serious tooth decay and other dental disease in vulnerable populations."¹⁵

The Centers for Medicare and Medicaid Services (CMS) has worked with federal and state partners, the dental and medical provider communities, and other stakeholders to continue to improve children's access to dental care. The Children's Health Insurance Program (CHIP) provides health coverage to eligible children, through both Medicaid and separate CHIP programs. CHIP is administered by states, according to federal requirements. In April 2010, CMS launched the national Oral Health Initiative, which asks states to increase the use of preventive dental services by children enrolled in Medicaid by at least 10 percentage points over five years. The CMS noted in an informational bulletin issued on July 10, 2014, that, "Although dental disease in children is largely preventable, and tooth decay remains the most common chronic illness among children in the United States, too many children still do not have access to regular oral health care. Children enrolled in Medicaid and CHIP are more likely to suffer from dental disease and less likely to use dental services than privately insured children. Increasing and diversifying the dental workforce can be an important part of a strategy to address these oral health disparities."¹⁶

All children enrolled in Medicaid and CHIP have coverage for dental and oral health services. However, according to the 2014 Secretary's Report on the Quality of Care for Children Enrolled in Medicaid and CHIP, the 2013 median of total eligible children receiving preventive dental services was 48 percent and a median of 23 percent received dental service.¹⁷

CHANGING DEMOGRAPHICS AND COMPLEXITY OF CARE

Children are not the only population that might benefit from increased direct access to dental hygienists. The geriatric population is burgeoning, with one in eight U.S. adults now aged 65 or older. In this age group, almost 1.5 million reside in long-term-care facilities.¹⁸ It is predicted that the number of individuals living in nursing homes will

double between 2000 and 2050.¹⁹ These changes in population demographics and access to affordable oral health care may provide opportunities for dental hygienists — while concurrently offering improved access for elder populations faced with limited oral health care options as well.

A myriad of societal factors and new research support the need for dental hygiene’s growth and expansion. Demographic trends indicate that the U.S. population is changing, with an increase in underserved patients and demographic groups that are underrepresented in both patient and practitioner populations. Many of the underserved populations will present with complex health care needs including complications that far exceed oral concerns. Behavioral, financial, cultural and medical issues will have to be addressed, as they often cannot be separated from oral health needs. All of these trends will be instrumental in defining future dental hygiene roles, as meeting societal needs will require oral health care providers from more backgrounds, in more roles, and in more settings than just the traditional private practice dental office.

As of the last U.S. Census, 40.3 million people over the age of 65 were living in the United States. Each day 10,000 adults retire in the United States but only two percent keep their dental benefits, and 35 percent of lower-income older adults have not seen a dental provider in four years or more.²⁰ These are just some of the statistics highlighting the fact that the oral health of America’s aging population is in serious peril.

According to a 2013 report by Oral Health America (OHA), “A State of Decay,” while improvements in oral health have been observed over the last 50 years, significant challenges remain for the 10,000 Americans retiring each day. The OHA report found, “Limited access to dental insurance, affordable dental services, community water fluoridation, and programs that support oral health prevention and education for older Americans are significant factors that contribute to the unmet dental needs and edentulism among older adults, particularly those most vulnerable.”²¹

The report highlights a critical issue — the strained dental workforce infrastructure. Thirty-one states, or 62 percent, have high DHPA rates and consequently are meeting only 40 percent or less of the need. Among the OHA conclusions was a recommendation to address these shortage areas by improving the primary oral health

workforce through alternative workforce models, including expanding the role of dental hygienists and dental therapists.

FUTURE ORAL HEALTH WORKFORCE PROJECTIONS

While demand for oral health care services continues to grow, changes in the availability of those who provide those services will put a greater demand on the need for dental hygienists — and for dental hygienists to be able to practice to the fullest extent of their scope in order to adequately meet the oral health needs of the public. The U.S. Department of Health and Human Services’ Health Resources and Services Administration (HRSA) Bureau of Health Workforce brief titled “National and State-Level Projections of Dentists and Dental Hygienists in the U.S., 2012-2025,” states that nationally, the increases in the supply of dentists will not meet the demand for dentists as they are incorporated into the current oral health care system, exacerbating an already existing shortage; and that “All 50 states and the District of Columbia are projected to experience a shortage of dentists.”¹⁴

Exploring the changing role of the dental hygienist as an integrated member of the 21st century oral health care team, HRSA states that “Changes in oral health delivery and in health systems may somewhat ameliorate dentist shortages by maximizing the productivity of the existing dental health workforce,” and that “Increased use of dental hygienists could reduce the projected dentist shortage if they are effectively integrated into the delivery system.”¹⁴

EMERGING TECHNOLOGY

In recent years, extensive advancements in dental technology — especially telecommunications, digital diagnostics and imaging — have helped dental professionals collaborate, diagnose, manage and provide dental services in distant locations. The process of networking, sharing information, consultations and analysis through technology is called telehealth, of which teledentistry is a part.^{22,23} Teledentistry offers the potential to improve access to oral health care, eliminate health disparities, enhance the delivery of services and provide specialist expertise in remote areas where a dental hygienist may be the only oral health care provider in the community.²⁴

As teledentistry continues to emerge and evolve, dental hygiene education must prepare for the future. Students who are educated to use information and communication technology as a part of dental hygiene practice will have the foundational knowledge to adopt future technological advancements as they occur. Dental hygienists with this expertise will function with more inter-collaboration in clinical decision making, case management, provision of direct care, and patient education on treatment regimens and adoption of healthy lifestyles and oral health practices.

Understanding and utilizing digital information, patient data and other assessments can provide a blueprint for improving access to care. An example of this in use can be found in a practice model instituted by Willamette Dental Group, a large group dental practice with affiliated dental insurance and management service companies. The Willamette model demonstrates how a dental hygiene practitioner can play a role in improving access to oral health care. For example, nurses in an emergency department who identifies a patient with a dental issue will contact a Willamette facility and speak directly to a dental hygienist. The Willamette Dental Group strives for their dental hygienist employees to have digital literacy skills and the ability to enter essential data points and risk assessments into electronic dental records, as well as understand the divergent needs of a diverse patient base — including how to communicate across cultures, ethnicities and generations. This practice model also necessitates interprofessional collaboration and collaboration with other provider settings, such as Federally Qualified Health Centers (FQHCs), medical homes, and health systems. The processes in the Willamette model are focused on interprofessional interaction, collaboration and the “four dimensions of right:” the right provider, the right location, the right time and the right services.^{2,25,26}

TWO SYSTEMS OF DELIVERY

The oral health care system is primarily composed of two separate delivery models that use different financing systems, treat different population groups and offer care in different settings. Private dental office care is typically provided in small offices and financed primarily through employer-based or privately purchased dental coverage and out-of-pocket payments. The safety net, in contrast, is made up of a diverse and fragmented group of providers in various

settings. It is financed primarily through Medicaid and CHIP, other government programs, private grants, and out-of-pocket payments. The non-dental health care workforce is becoming increasingly involved in this provision of oral health care.²⁷

Underserved and vulnerable populations face many barriers to accessing the traditional oral health system — including lack of dental insurance or inability to pay, difficulty accessing services due to low levels of health literacy, physical disabilities, geographic barriers and maldistribution of oral health care providers. Therefore, those underserved populations tend to rely on the “dental safety net.” Generally, the dental safety net is composed of a variety of providers, including FQHCs, FQHC look-alikes, non-FQHC community health centers, dental schools, school-based clinics, state and local health departments, and not-for-profit and public hospitals. In spite of the number of dental safety net providers, the needs of those who are left out of the private system are still often not met, due to a lack of capacity of these providers or a perceived lack of affordable options by individuals.

DIRECT ACCESS

Currently, 37 states have provisions in their state practice acts that allow dental hygienists to provide various levels of direct access services.²⁸ Direct access allows a dental hygienist to initiate treatment based on their assessment of a patient’s needs without the specific authorization of a dentist, treat the patient without the presence of a dentist, and maintain a provider-patient relationship.²⁹ In some instances, dental hygienists must meet specific educational requirements and have designated experience to work in federal, state, school or other non-traditional settings.³⁰ Often, the dental hygiene services provided under direct access are limited and may require public health supervision or a written agreement, i.e. a Collaborative Management Agreement established between the dental hygienist and the collaborative dentist that dental hygienist works with.²⁸

One model in Nevada that has been creative in obtaining funding for its operations and has forged community partnerships is “Future Smiles.” This Nevada nonprofit corporation and IRS status 501(c)(3) utilizes the Nevada public health specialty license that may be obtained under a registered dental hygiene license. Public Health Dental Hygienists who hold a Public

Health Dental Hygiene Endorsement (PHDHE) approved by the Nevada State Board of Dental Examiners (NSBDE) can deliver a variety of preventive services that include: oral health screenings, prophylaxis, fluoride varnish and digital x-rays in a multitude of community and school based settings. Terri Chandler, RDH, Future Smiles Founder/Executive Director, has worked with many groups to achieve success, with a financial support system that includes solid private/public partnerships, corporate-sponsored community grants, philanthropic foundations, local businesses, Medicaid reimbursement, and a social service program that addresses the oral health needs of the underserved and provides technical assistance.³¹

A South Carolina business that has been effective was launched by Tammi Byrd, RDH, called Health Promotion Specialists (HPS). HPS employs dental hygienists to provide care to school children. The school-based program brings dental hygienists directly to low-income students in 413 schools in 45 targeted school districts. Importantly, the program has 20 restorative partners, dentists who agree to see referred children in their private offices, thus promoting the receipt of comprehensive services. Caregivers are provided with lists of dentists in the child's neighborhood, noting which ones accept Medicaid patients. Data from the state demonstrated that in the first five years the program was effectively in place, sealant use for Medicaid children increased while the incidence of untreated cavities and treatment urgency rates decreased for that population. The 2007-2008 South Carolina Oral Health Needs Assessment showed that there were no disparities between black and white third-grade children for sealant use in South Carolina.³²

VIRTUAL DENTAL HOME

The Pacific Center for Special Care at the University of the Pacific, Arthur A. Dugoni School of Dentistry (Pacific) has created a new oral health delivery system utilizing teledentistry, the "Virtual Dental Home (VDH)." The VDH is a community-based delivery system in which people receive preventive and simple therapeutic services. Pacific has partnered with a number of organizations to bring much-needed oral health services to California's most vulnerable and underserved citizens. Care is delivered where people live, work, play, go to school, and receive educational and social services.

The VDH project utilizes registered dental hygienists in alternative practice (RDHAP), registered dental hygienists working in public health programs, and registered dental assistants. In addition to their traditional scope of practice the VDH model has also demonstrated the safety and acceptability of two procedures when performed by allied dental personnel — placing interim therapeutic restorations (ITR) to stabilize patients until they can be seen by a dentist for definitive care, and the ability to decide which radiographs to take in order to facilitate an oral evaluation by a dentist.³³

The virtual dental home project has successfully demonstrated the ability to deploy geographically distributed, collaborative, telehealth facilitated teams who are seeing patients, performing prevention and early intervention services, and making and supporting referrals to dentists as needed. Plans are underway in California to expand this system throughout the state.³⁴

EXPANDING SCOPE OF PRACTICE

Affording dental hygienists the ability to practice to the fullest extent of their education is another pathway that would improve the access to care. States' dental hygiene scopes of practice and supervision requirements vary considerably.³⁵ Even in states where dental hygiene is self-regulating, degrees of self-regulation and supervision requirements vary widely.^{30,36} Self-regulation enables professions to effect change in their scopes of practice to reflect their natural evolution.³⁷ Nursing, physical and occupational therapy, physicians' assistants, and pharmacy have mandated higher levels of education within their professions; these mandates transpired because all of these professions are self-regulated and have their own professional accreditation bodies. These changes have enhanced services and broadened scopes of practice.⁷

In primary care roles, dental hygienists do not work in isolation, but leverage the contributions and expertise of other health professionals while on-site or through telehealth. The dental hygiene profession can learn from current practice models that have been developed in various states and countries.

In January 2015, Families USA released Health Reform 2.0, which outlines several proposals to increase health care coverage and reduce health care costs.³⁸ Many insured families still face bar-

riers to access particularly in underserved communities. The Focus for Families USA, in part, is ensuring that health coverage is synonymous with access to health services. Among the proposals in Health Reform 2.0 is universal dental coverage and the utilization of dental therapists to address the access gap. “States should revise their scope of practice laws to allow existing mid-level providers, such as nurse practitioners and dental hygienists, to practice at the highest level allowed by their training, and to allow other mid-level providers, such as dental therapists, to practice at the top of their licenses.”³⁸ The public will benefit from hygiene-based mid-level providers as this type of provider can deliver both the preventive scope of a licensed dental hygienist and the specified restorative scope of a dental therapist. Increased access will afford the public greater opportunities to receive care, and improve both their oral and overall health.

DENTAL HYGIENE DIAGNOSIS

Discussions related to dental hygiene scope of practice should also include dental hygiene diagnosis. It is imperative that dental hygiene diagnosis be included in the education and practice of dental hygienists for the successful transformation of the dental hygiene profession. Appendix A provides the ADHA position on dental hygiene diagnosis.

Dental hygiene diagnosis has been defined by ADHA as, “The identification of an individual’s health behaviors, attitudes, and oral health care needs for which a dental hygienist is educationally qualified and licensed to provide. The dental hygiene diagnosis requires evidence-based critical analysis and interpretation of assessments in order to reach conclusions about the patient’s dental hygiene treatment needs. The dental hygiene diagnosis provides the basis for the dental hygiene care plan.”³⁹

ADHA supports dental hygiene curricula that leads to competency in the dental hygiene process of care: assessment, dental hygiene diagnosis, planning, implementation, evaluation and documentation.⁴⁰

State statutes are most often silent on what degree of patient evaluation is included in the dental hygiene scope. In 2004 and 2009 respectively, Oregon⁴¹ and Colorado⁴² became the first states to specifically authorize the dental hygiene diagnosis as part of the dental hygienists’ scope of practice.

HISTORY OF DENTAL HYGIENE DIAGNOSIS

The CODA was established in 1975 and is nationally recognized by the United States Department of Education as the sole agency to accredit dental and dental-related education programs conducted at the post-secondary level.

On Jan. 1, 2010, the CODA removed “dental hygiene treatment plan” and “dental hygiene diagnosis” from the CODA Accreditation Standards for Dental Hygiene Education Programs.⁴³ The terms dental hygiene treatment plan and dental hygiene diagnosis had been a part of the accreditation standards for dental hygiene education programs since 1998.

The removal of “dental hygiene diagnosis” from the dental hygiene education standards was not supported by any evidence and does not correlate with the dental hygiene process of care. In fact, dental hygiene diagnosis was retained in the “definition of terms” used in the CODA dental hygiene education standards.⁶ Dental hygiene education programs have been including and many continue to include assessment, dental hygiene diagnosis, planning, implementation, evaluation and documentation as education competencies.⁴⁴ Further, those aforementioned competencies will enable dental hygienists to efficiently and effectively bring people into the oral health pipeline and make referrals when necessary.

MINNESOTA PAVES THE WAY

In 2009, Minnesota became the first state in the country to authorize a mid-level oral health provider, known as the Dental Therapist (DT) and Advanced Dental Therapist (ADT). Licenses may be granted in Dental Therapy, permitting a prescribed scope of practice under either the general or indirect supervision of a licensed dentist. With additional education and testing, a DT may be eligible for certification as an ADT, permitting many functions to be delegated under general supervision and allowing additional specified restorative procedures. The delegation of duties is governed under a Collaborative Management Agreement, essentially a contract between the collaborating dentist and the DT or ADT.

Minnesota State Colleges and Universities (MNSCU) supported the development of the ADT program. Normandale Community College/Metropolitan State University created a dental hygiene-based program that builds on the expertise of dental hygienists by offering a mas-

ter's degree that develops a new career path and enables employment in settings outside of private dental offices such as schools and safety net clinics. Graduates of the program are then eligible to be dually licensed as registered dental hygienists (RDH) and ADTs.

In February 2014, the Minnesota Board of Dentistry, in consultation with the Minnesota Department of Health released a preliminary report on the impact of dental therapists in Minnesota.⁴⁵ Appendix B lists highlights from its executive summary.

In 2014, Maine passed legislation creating the Dental Hygiene Therapist (DHT). DHTs in Maine will be dually licensed as RDHs and DHTs, as the Maine statute requires that applicants to the program must possess a license in dental hygiene. DHTs must work under the direct supervision of a Maine licensed dentist, with a written practice agreement. It remains to be seen if the outcomes will be the same as in Minnesota, due to the different levels of supervision.

CODA ADOPTS AND IMPLEMENTS THE ACCREDITATION PROCESS FOR DENTAL THERAPY EDUCATION STANDARDS

Allowing the dental hygienist direct access to the patient is a starting point for enabling the public's greater access to oral health care — a topic that the United States Federal Trade Commission (FTC) has addressed within the context of the deliberations on dental therapy. In response to the CODA's proposed Accreditation Standards for Dental Therapy Education Programs, the FTC issued a 15-page letter of comment. The FTC stated, "Expanding the supply of dental therapists by facilitating the creation of new dental therapy training programs ... is likely to increase the output of basic dental services, enhance competition, reduce costs, and expand access to dental care. This could especially be true for underserved populations."⁴⁶

At its February 6, 2015, meeting, the CODA adopted the Accreditation Standards for Dental Therapy Education Programs.⁴⁷ Subsequently, the CODA requested additional information from communities of interest. The CODA had requested additional information, based on the "CODA Evaluation & Operational Policies & Procedures."⁴⁸ The document includes The Principles and Criteria Eligibility of Allied Dental Programs for Accreditation by the CODA, which outlines the criteria that must be met for new

allied dental education areas or disciplines. The criteria that required further comment were:

Criterion 2: Has the allied dental education area been in operation for a sufficient period of time to establish benchmarks and adequately measure performance?

Criterion 5: Is there evidence of need and support from the public and professional communities to sustain educational programs in the discipline?

The FTC provided a second letter of comment to the CODA regarding adoption of the standards, concluding that, "The timely adoption of accreditation standards by the CODA has the potential to enhance competition by supporting state legislation for the licensure of dental therapists, and also to encourage the development of dental therapy education programs consistent with a nationwide standard, which would facilitate the mobility of dental therapists from state to state to meet consumer demand for dental services."⁴⁹

On August 7, 2015, the CODA determined that the criteria had been met and voted to implement the accreditation process for dental therapy education programs. Implementation of the dental therapy accreditation process will take place during the next few years. This was a critical step forward in addressing the growing interest in the potential for dental therapists to meet dental care needs in the United States and create a new career path for dental hygienists.

A more expedient approach to mobilizing the dental hygiene profession and accelerating access to oral health care would be to acknowledge and utilize the cadre of already licensed dental hygienists. The dental hygiene workforce is educated, prepared and available, and by lifting restrictions and allowing dental hygienists to practice to the full extent of their scope, this would provide the public with improved access to care. Further, the removal of these restrictions would also allow dental hygienists who wish to pursue further education and become a mid-level oral health provider the opportunity to do so. This would provide the public the benefit of having greater access to a practitioner who can provide both preventive and restorative services. Several states are now considering a variety of proposals that would facilitate licensed dental hygienists pursuing additional

education to administer an advanced clinical scope of services, including restorative care.

FUTURE OF DENTAL HYGIENE

A 2014 report on expanding preventive oral health services outside dentists' offices from the NGA noted that states have looked into altering supervision or reimbursement rules, as well as creating professional certifications for advanced-practice dental hygienists. To date, studies of pilot programs have shown safe and effective outcomes.¹⁵

The impact of dental hygienists' expanded roles in various countries around the world has been measured in numerous reports and studies, and positive reports from projects implemented in different regions throughout the U.S. show that underserved populations obtain needed care when dental hygienists have a broader scope of services and are able to practice in a variety of environments. There is a need for a comprehensive summary of such data from examples within the U.S.

EXPANSION OF ORAL HEALTH SERVICES TO UNDERSERVED POPULATIONS

Evidence of dental hygienists' ability to alleviate access barriers can be found across the country. Imperatives for transformation include the responsibility to leverage the momentum of successes as illustrated in the following examples.

California

In 1998, after an extensive pilot project, the state of California officially recognized the Registered Dental Hygienist in Alternative Practice (RDHAP), with a goal of improving access to dental hygiene care among high-need populations with limited access to care. In 2002, the first RDHAP educational program was approved at West Los Angeles College.

The RDHAP is a licensed registered dental hygienist with additional education to allow him or her to practice in settings outside of the traditional dental office, without the prior authorization or supervision of a dentist. These practice settings include, but are not limited to, schools, residential facilities, private homes and, in some instances, RDHAP offices. RDHAPs provide patients the same type of professional preventive care they would receive in a traditional dental

office but allows patients with limited or no access to receive care conveniently.

Data indicates that compared to traditional dental hygienists practicing in California, RDHAPs see more patients from underserved populations. These include patients in clinics, schools, federally-designated dental health professional shortage areas, as well as homebound patients. Elizabeth Mertz, PhD, MA; and Paul Glassman, DDS, MS, MBA, report that, given the practice settings of RDHAPs, it is clear that underserved populations are being reached.⁵⁰

Kansas

In 2003, Kansas passed legislation that expanded the scope of practice for dental hygienists, in an attempt to combat DHPSAs that affected more than 90 percent of the counties in the state. The measure created the Extended Care Permit (ECP), which "allows dental hygienists to provide preventive services, to underserved and unserved populations in explicit locations, through an agreement with a sponsoring dentist."⁵¹ In 2007, the legislature further expanded the settings and populations that a dental hygienist with an ECP could serve.

The ECP I permit authorizes treatment for children in various limited access categories, and requires the dental hygienist to have 1,200 clinical hours or two years as an instructor at an accredited dental hygiene program in last three years. The ECP II permit authorizes treatment for seniors and persons with developmental disabilities and mandates 1,600 hours or two years as an instructor in last three years, plus a six-hour course. ECP I and II functions include: prophylaxis, fluoride treatments, dental hygiene instruction, assessment of the patient's need for further treatment by a dentist, and other services if delegated by the sponsoring dentist.

The ECP III permit, which requires 2,000 hours of clinical experience plus an 18-hour board approved course, authorizes dental hygienists to treat a wider range of patients and to perform even more expansive functions including atraumatic restorative technique, adjustment and soft relining of dentures, smoothing sharp tooth with a handpiece, local anesthesia in a setting where medical services are available and extraction of mobile teeth.

In a 2011 qualitative study conducted by Delinger et al, there were a total of 1,750 den-

tal hygienists practicing in Kansas, with approximately 124 in possession of an ECP.⁵¹ Delinger's study interviewed eight ECP dental hygienists to investigate why dental hygienists applied for an ECP, and what barriers they encountered. Not surprisingly, Delinger found that "ECP dental hygienists that were participants in this study had a very entrepreneurial spirit. Their passion for working with these specific populations was a major driving force for them to consider applying for an extended care permit."⁵¹ Data indicates that ECP dental hygienists not only value the permit, but believe it is having a positive impact providing preventive dental services.⁵¹ However, getting these patients' restorative needs treated continues to be challenging or impossible so more is necessary to address the issue. There has been active legislation in Kansas for the past five years to create a Registered Dental Practitioner (mid-level provider) to address these concerns.

Oregon

In 1997 Oregon passed legislation to allow dental hygienists to obtain a limited access permit.⁵² This legislation was revised in 2012, and created the Expanded Practice Permit (EPP). An EPP "enables dental hygienists to provide a variety of dental hygiene services, without the supervision of a dentist, for "limited access" regions or populations."⁵²

The state of Oregon distinguishes these expanded practice dental hygienists (EPDHs) as dental hygienists that do not need a collaborative agreement with a dentist to initiate dental hygiene care for populations that qualify as having limited access to care. EPDHs can obtain their EPP through one of two pathways. Pathway one focuses on dental hygienists currently in possession of an unrestricted Oregon dental hygiene license who have also completed 2,500 hours of supervised dental hygiene practice and 40 hours of courses in either clinical dental hygiene or public health.⁵² Pathway two allows dental hygienists to complete a course of study approved by the board that includes 500 hours of dental hygiene practice, completed before or after graduation from a dental hygiene program on limited access patients while under the supervision of a member of the faculty of a dental program or dental hygiene program accredited by the CODA.⁵²

EPDHs in Oregon are able to work in a variety of settings, such as nursing homes and schools,

and many are employed as private business owners.⁵² In a 2015 study conducted by Coplen et al, 71 EPDHs were surveyed, and 21 percent were planning to start their own independent practice.⁵²

The impact of EPDHs was measured in a study conducted by Bell et al.⁵³ In this study, it was determined that many EPDHs were providing care in two distinct settings — residential care facilities, and schools. The most common services they provided also indicated a heavy emphasis on pediatric populations. According to the study, "Child prophylaxes, child fluoride, fluoride varnish and sealants were the most frequently reported services among practicing EPDHs."⁵³ This data indicates that many vulnerable populations would go without care without Oregon's EPDHs and the utilization of the EPP permit.

Studies such as those described are the basis for a body of evidence supporting the contention that dental hygienists in a variety of practice settings can improve the oral health of specific populations. Populations that have already benefitted from access to dental hygienists include the elderly, children, individual communities, special needs groups and those most at-risk and vulnerable. To continue amassing evidence for transformation of dental hygiene education, areas of study could include collaborations with non-dental health care providers in assisted-living and long-term care facilities, community-based education facilities, medical offices or clinics, specialty practices or corporate environments. Outcomes data could be gathered on the success of these new practice locations, business plans and interprofessional practice in the delivery of dental hygiene services as background to change policy.

MOVING FORWARD

Dental hygiene curriculum must change to provide dental hygienists with the requisite education necessary to serve in instrumental roles that address the oral health needs of diverse populations and also contribute to improved access to care. Advanced education and training within interprofessional teams will prepare dental hygienists to better fulfill these needs. Service learning in community-based programs, long-term care facilities, government-run facilities and other locations can enable dental hygiene students to provide care to the underserved. These experiences also can help develop expertise in addressing diverse populations in a

variety of health care settings. The CODA Accreditation Standards for Dental Hygiene Education Programs currently include service learning as a required part of the dental hygiene curriculum.⁶ Furthermore, the IOM recommends increasing community-based education experiences to improve proficiency in this setting and to “reinforce the professional and ethical role of caring for the vulnerable and underserved populations.”²⁷

Greater community involvement also would both expose students to populations in need and enable attainment of competencies that address population health and primary care service delivery to a multicultural and heterogeneous society. In addition, with many associate degree programs lacking sufficient time to augment their expanded learning experiences, the broad-

er curricula offered within entry-level baccalaureate programs would provide a solid foundation on which to build this approach.

Standardized databases are needed to assess the outcomes of operational and new expanded scope of practice models. Individual reports from diverse programs and projects need to be summarized and published. Forward movement to increase the dental hygienist’s scope of practice requires outcomes data that are rigorously collected, analyzed, interpreted and evaluated. The establishment and maintenance of the body of evidence to support the envisioned role of the dental hygienist in the future health care system is the responsibility of the dental hygiene profession, and fulfilling that responsibility will require an educational preparation beyond what dental hygienists receive today.

CHAPTER FOUR

A Framework for Transformation

ADHA’S NATIONAL DENTAL HYGIENE RESEARCH AGENDA

The ADHA National Dental Hygiene Research Agenda (NDHRA) was developed in 1993 by the ADHA Council on Research (COR) and released in 1994. A Delphi study was used to establish consensus and focus the research topics for the agenda. This was the first step to guide research efforts that support the ADHA strategic plan and goals. A research agenda provides direction for the development of a unique body of knowledge that is the foundation of any health care discipline. In dental hygiene, this body of knowledge is used to establish dental hygienists as primary care providers in the health care system.

In 2001, the COR revised the agenda to reflect a changing environment based on two national reports: The Surgeon General’s Report on Oral Health¹² and Healthy People 2010.⁵⁴ Input from the 2000 National Dental Hygiene Research Conference sponsored by the ADHA was considered in the revision. The revised document was released in October 2001 and prioritized the key areas of research.

In 2007, the agenda was revised by the COR to reflect current research priorities aimed at

meeting national health objectives and to systematically advance dental hygiene’s unique body of knowledge. These revisions were based on a Delphi study that was conducted to gain consensus on research priorities.⁵⁵

Currently the COR is conducting a further revision of the NDHRA to align it with the most current evidence as well as future national and international priorities in dental hygiene research. This revision will integrate global feedback received from recent interorganizational research meetings with representatives of the International Federation of Dental Hygiene, the Canadian Dental Hygienists Association, and The National Center for Dental Hygiene Research and Practice. Additionally, this revision will mirror the profession’s transformation by viewing dental hygiene research as a relevant and integral component of overall health research.

The role of dental hygienists in research and practice must build on existing research and practice models and grow beyond reliance on research originating from other disciplines to emerge from within dental hygiene itself. The

dental hygiene research agenda framework directs dental hygiene researchers in contributing to the body of knowledge unique to dental hygiene, and the five primary objectives that were the basis for the creation of the NDHRA still remain applicable today:

- To give visibility to research activities that enhance the profession's ability to promote the health and well-being of the public;
- To enhance research collaboration among the dental hygiene community and other professional communities;
- To communicate research priorities to legislative and policy-making bodies;
- To stimulate progress toward meeting national health objectives; and
- To translate the outcomes of basic science and applied research into theoretical frameworks to form the basis for dental hygiene education and practice.

The revised research agenda will allow for ongoing investigation of specific scientific findings supporting growth of the profession. It also allows for investigation and testing of new ideas that will further the transformation of dental hygiene as a profession and as part of an interprofessional network with other health care professionals.

ADVANCING THE PROFESSION BY LEARNING FROM OTHERS

Other health professions such as nursing, pharmacy, and PAs have moved forward by redefining the educational basis for their practice roles. The guiding principles from these professions may provide road maps for dental hygiene educational transformation where parallel pathways exist. The IOM Consensus Report on Nursing, "The Future of Nursing: Leading Change, Advancing Health," has significant implications for dental hygienists.³ In May 2010 the Tri-Council for Nursing issued a consensus statement calling for all registered nurses to advance their education in the interest of enhancing quality and safety across health care settings. This statement advocates for changes in nursing practice and education to the baccalaureate level and beyond and calls for state and federal funding for initiatives that facilitate nurses seeking academic progressions.^{3,56} Similar to nurses, dental hygienists continue to face a number of barriers to advancing in the health

care system. Dental hygienists must also have the opportunity to achieve the highest level of education with seamless progression and articulation to higher degrees. More leadership opportunities are needed for dental hygienists to partner with other professionals to redesign health care.

To achieve transformation, the dental hygiene profession might also look to the PA profession. The entry-level master's degree was initiated in the late 1980s, with several key institutions restructuring their curricula to accommodate this change and award a graduate degree.⁵⁶ All new programs established after 2006 must award a bachelor's degree or higher. All certificate- and associate-level programs must have articulation agreements with institutions that award a bachelor's or master's degree. Entry to practice is advancing to the graduate level with the PA accrediting body requiring programs accredited prior to 2013 to transition to offering the graduate degree to all who matriculate after 2020.

FOCUS ON INTERPROFESSIONAL EDUCATION (IPE) AND COMPETENCY

IPE has been defined as "members or students of two or more professions associated with health or social care, engaged in learning with, from and about each other."⁵⁷ IPE provides health care professional students the opportunity to place value on working within interprofessional teams before they begin to practice.⁵⁸ In addition to IPE, the oral health professional education system also must focus on intraprofessional teams to better prepare future clinicians for practice within the new team based paradigm.

Teamwork training for interprofessional collaborative practice in education is at various stages of development among the health professions. The American Association of Colleges of Nursing, for example, has integrated interprofessional collaboration behavioral expectations into its "Essentials" for baccalaureate (2008) master's (2011) and doctoral education for advanced practice (2006).⁵⁸

Similarly, dental education has also been developing competencies for dentists. Among them is for dentists to "participate with dental team members and other health care professionals in the management and health promotion for all patients."⁵⁸ In 2010, the standards for predoctoral dental education programs, found

in the CODA Accreditation Standards for Dental Education Programs, were revised to promote collaboration with other health professionals.⁵⁹

The dental hygiene accreditation standards include the expectation that graduates must be competent in interpersonal and communication skills to effectively interact with diverse population groups and other members of the health care team. The CODA Accreditation Standards for Dental Hygiene Education Programs clearly state:

- “The dental hygienist functions as a member of the dental team and plays a significant role in the delivery of comprehensive patient health care. The dental hygiene process of care is an integral component of total patient care and preventive strategies. The dental hygiene process of care is recognized as part of the overall treatment plan developed by the dentist for complete dental care.”⁶
- “The curriculum should include additional coursework and experiences, as appropriate, to develop competent oral health care providers who can deliver optimal patient care within a variety of practice settings and meet the needs of the evolving health care environment.”⁶
- Dental hygiene sciences provide the knowledge base for dental hygiene and prepares the student to assess, plan, implement and evaluate dental hygiene services as an integral member of the health team.”⁶

As of 2014, only 23 dental hygiene programs were located within a dental school and another 37 were located on health sciences campuses that also educate nurses, physical therapists, occupational therapists, pharmacists and other professional groups who would benefit from knowing about the importance of oral hygiene and its relationship to general health. With only 18 percent of dental hygiene programs being co-located, either within a dental school or on a health sciences campus, there are both a tremendous gap and significant barriers to maximizing IPE opportunities.

An example of an innovative, interprofessional practice model was tested by Patricia Braun, MD, MPH, Associate Professor, Pediatrics and Family Medicine at the University of Colorado Anschutz School of Medicine. This experimental project added an oral health component to well-child visits by co-locating a dental hygien-

ist in the pediatrician’s office. Over the course of 27 months, five part-time dental hygienists provided care to 2,071 patients. Major factors facilitating adoption of the project idea were funding, recognition by pediatricians of the importance of children’s oral health needs, and the desire to create the “one-stop shopping” of a medical home. Factors helping to sustain the program were development of a patient base, rotating dental hygienists through the clinic during well-child medical visits, and the satisfaction of parents or caregivers. Caregivers liked the convenience of having the services all under one roof — they said that they would be more likely to take their child to a doctor’s office with a dental provider than one without. Some of the barriers encountered during the project included logistical issues and, in some cases, the need to educate staff at the pediatric office site about the importance of the oral-systemic relationship. The study noted that “RDHs’ confidence in working independently may improve as more of their peers experience success with the practice and with more education on small business development and management.”⁶⁰

Co-locating dental hygienists into medical practices is a feasible and innovative way to provide oral health care, especially for those who have limited access to preventive oral health services.⁶⁰

PREPARING A FUTURE GENERATION OF DENTAL HYGIENISTS

Transforming dental hygiene education is imperative to achieving the ADHA’s vision for the integration of dental hygienists into the health care delivery system as essential primary care providers to expand access to oral health care.¹ Since education is the foundation of any profession, the envisioned future of the dental hygiene profession will depend on the transformation of the educational preparation required to better prepare dental hygienists to practice within the integrated health care delivery structure and impact the public’s oral and overall health.

Advancing education in dental hygiene includes raising the profession’s entry level to the baccalaureate degree, which has been formally supported by the ADHA since 1986.⁹ In addition, associate degree programs have been encouraged by ADHA and ADEA to create articulation agreements and utilize distance learning technology as mechanisms for creating a pathway to achieving academic progression to a bachelor’s

degree. Progress is being made, as 100 of the entry-level dental hygiene education programs reported to the ADHA that they have existing articulation agreements to enable students to transition from a community college to a university.⁶¹

Dental hygiene education leaders and researchers have discussed the value of doctoral programs differentiated by focus area. Options might include a doctoral degree focused on research in a PhD program, a doctorate in dental hygiene education (EdD), or a practice-based Doctorate of Dental Hygiene Practice or Doctorate of Clinical Science for dental hygienists who want to provide advanced clinical practice in a variety of health care delivery settings.⁶² A proposed curriculum for a doctorate in dental hygiene curriculum was submitted in early 2015 to the Executive Dean and Vice Provost in the Division of Health Sciences at Idaho State University by JoAnn Gurenlian, RDH, PhD, Graduate Program Director, Dental Hygiene. Program approval is pending.

THE ROLE OF DENTAL HYGIENE EDUCATORS

Transforming the education and preparation of a new generation of dental hygienists will require faculty who have the leadership and determination to integrate change into the curriculum. To prepare graduates who are adept at addressing the complex needs of today's patient populations and are able to work effectively with other health care providers, faculty must share a vision of the profession functioning in higher-level clinical, administrative and public health positions. The transformation of dental hygiene education begins with faculty — educators who demonstrate a firm commitment to dental hygiene leadership, lifelong learning and the pursuit of advanced education that qualifies them to teach others.

As a result of the Symposium, a joint workgroup of the ADHA and ADEA Commission on Change & Innovation (CCI) was established to create leadership in dental hygiene education that can adapt to change and transformation. The charge of the workgroup is to increase and enhance professional development and leadership opportunities for dental hygiene professionals to prepare them for the future transformation of the dental profession.

The initial project of the joint workgroup will be the development of a series of webinars de-

signed to empower adjunct faculty and new master's level graduates with leadership skills necessary to take the next step professionally and to prepare them for more advanced leadership programs. Topics may include leadership skills, assertiveness, conflict resolution, work/life balance and advocacy.

CHANGE CHAMPIONS NEEDED

"We are at a crossroad where suddenly, the environment seems ready and willing to foster change. The environment is riper than it has ever been before. Oral health care access is being recognized as a social justice issue and dental hygienists have an integral role to play in that conversation."

— Pamela Overman, EdD, RDH, Associate Dean for Academic Affairs at the University of Missouri Kansas City School of Dentistry and Senior Consultant for the Academy for Academic Leadership (AAL)

From November 2013-June 2014, the ADHA, in collaboration with the AAL, facilitated a pilot project with seven dental hygiene education programs to create change within their curricula and learning domains. Dental hygiene programs that participated in this pilot project included Eastern Washington University (EWU), Idaho State University, Miami Dade College, University of Detroit Mercy, University of Missouri-Kansas City, University of New Mexico, and Vermont Technical College (VTC). The AAL's Tobias Rodriguez, PhD, and Overman served as facilitators.

DEVELOPING NEW DOMAINS AND COMPETENCIES

The new domains as defined by the ADHA pilot group participants focused on the following areas:

- **Foundation Knowledge:** Includes basic, behavioral and clinical science knowledge that can be recalled and applied to patient care. A solid foundation in liberal education provides the cornerstone for the practice of dental hygienists.
- **Patient-Centered Care:** Includes skills in patient assessment, dental hygiene diagnosis and the dental hygiene process of care to foster oral and systemic health.
- **Management in Health Care Systems:** Works within the oral care system and with the overall health care system to foster opti-

- mal health. Includes business management skills, advocacy, and change agent skills to integrate oral health into health systems.
- Interpersonal Communication and Inter-professional Collaboration: Communication skills with patients and within health care teams, including cultural sensitivity and fostering health behaviors. Communication and collaboration are essential to the delivery of high quality and safe patient care.
 - Critical Thinking: Use of knowledge and critical evaluation of the research and evidence-based skills and clinical judgment in providing dental hygiene care. Professional dental hygiene practice is grounded in the translation of current evidence into one's practice.
 - Professionalism: Inculcates the values and ethics needed for the provision of compassionate, patient-centered, evidence based care that meets standards of quality.

As dental hygiene roles in each entry-level practice setting change, the competencies in each domain must change to keep pace. These alterations will help to ensure that competencies continue to address diversity, linguistic and cultural competence, health care policy, health informatics and technology, health promotion and disease prevention, leadership, program development and administration, integration of oral health into health systems, and business management (Figure 1).

PILOT PROJECT REPORTS: EWU AND VTC

Faculty from the pilot groups were asked to have their respective dental hygiene programs focus on preparing dental hygiene students for future practice environments. The pilot programs selected represent diverse geographic locations, patient populations and academic profiles. The two examples that follow — one a community college in the Northeast and the other a university-based program on the West Coast — illustrate the types of curricular transformations initiated by the pilot groups.

In Vermont, VTC approved a “three plus one” dental hygiene program to replace the traditional two-year Associate Degree program. The new program is a three-year Associate Degree program and a one-year Bachelor of Science in dental hygiene (BSDH) online completion program. The first three years of coursework are completed on campus where students utilize VTC’s high-tech dental hygiene lab. The final year of

Figure 1: Transformational Outcomes

Added Bioethics as a required course. This was originally an elective.
Expanded Community Oral Health (COH) course to be two semesters instead of one (COH I and COH II). COH I focuses on classroom instruction. COH II requires students to complete a community-based outreach project.
Added two semesters of weekly 90-minute clinical seminar lectures. This provides for increased lecture time for ethics, personal responsibility, leadership, advocacy, advanced instrumentation skills, motivational interviewing, cultural competence, interdisciplinary work models, alternative practice settings, and evidence-based decision making/critical thinking.
Implemented an Interprofessional Education format which includes: <ul style="list-style-type: none"> Business/Practice Management Affordable Care Act Health Informatics Electronic Health Records Interprofessional Education and Interprofessional Practice Advocacy Leadership
Expanded practice management content to include tracking, analyzing, and implementing steps to improve productivity in the clinic.
Deleted a dental anatomy lab course and replaced it with a new course entitled: Oral Health Literacy.
Decreased the number of credits for Nutritional Counseling and added a course entitled: Inter-Professional Education.
Added Leadership/Health/Policy/Advocacy/Ethics/Law.
Added Practice/Business Management/Risk Management.
Removed topics that are only tested on the national boards, but not clinically relevant. Plan to provide handouts to the students on those topics.

the program is completed online, after which students earn a Bachelor of Science degree.

Changes made to the Associate Degree curriculum include:

- Addition of Bioethics as a required course (was originally an elective).
- Two semesters of Community Oral Health (COH I and COH II) in place of one semester. This allows VTC to teach content in COH I and have students do a community-based outreach semester-long project in COH II.
- An additional two semesters of weekly 90-minute clinical seminar lectures.

VTC is not anticipating any additional changes to their dental hygiene degree program, but are actively planning on developing a dental therapy education program. The Vermont state legislature is currently reviewing legislation that would establish mid-level oral health practitioners, known in the state as licensed dental therapists.

EWU is also making significant strides in transforming their curriculum. Currently, the school offers two baccalaureate-level dental hygiene paths — an entry-level program and a degree-completion option for already practicing dental hygienists. The programs are in the process of transitioning from a quarter-system to a semester-based program.

Changes made to the curriculum include:

- Addition of a course focused on leadership development, health policy, advocacy and ethics.
- Addition of a course focused on business and risk management.
- Removal of unnecessary items from the curriculum to focus on the most clinically relevant topics.

For example, EWU removed coursework on alginate impressions, impression material chemicals and components. In Washington state, RDHs do not perform these functions, and while the national board exam still tests the subject matter, EWU elected to provide a brief handout to students instead.

The EWU dental hygiene faculty met with the instructors responsible for teaching pre-requisite courses and thoroughly reviewed the curriculum. This approach allowed the dental hygiene faculty to remove redundancy within individual

courses, and also hold students more accountable for what they have already learned. Specifically, EWU identified a nutrition pre-requisite course that satisfied much of the nutrition topics covered in the subsequent dental hygiene nutrition content. This periodic review of course curriculum across the dental hygiene program has helped EWU address instances of teaching content already covered.

According to Professor Rebecca Stolberg, RDH, BS, MSDH, Dental Hygiene Department Chair at EWU, as administrators and faculty develop course content and syllabi, the Symposium and the pilot project have helped guide EWU's dental hygiene program to focus on the future as dental hygienists become more fully integrated into the health care delivery system as essential primary care providers.

Similar to Vermont, the Washington state legislature also has pending legislation that would create a mid-level dental hygiene practitioner. In anticipation of the bill's passage, EWU has already taken steps to develop a curriculum and is positioned to move forward when the legislation passes.

PUBLIC POLICY AND REGULATION

A 2015 report from the Pew Charitable Trusts attributes lack of access to care for children to restrictive state laws. In 13 states and the District of Columbia, a dental hygienist in a school-based program may not place a sealant until a dentist has examined the child. The report states, "This rule runs counter to growing evidence that a dentist's exam is not necessary before a sealant is put in place." With respect to dental hygienists placing interim restorations in children, the report notes that state laws have not kept up with science, and that by changing laws to allow dental hygienists to perform this service, states could make progress in arresting dental decay.⁶³

In a 2013 qualitative case study Dollins, et al,⁶⁴ discussed the legislative process of a hygienist-therapist bill. The study noted a minimal level of awareness and understanding of the oral health access issue, both within the dental community and the general public. In some cases, the sudden comprehension of the scope of the access-to-care problem led legislators and advocates to become engaged.

The Center for Health Workforce Studies at

the School of Public Health, University of Albany SUNY, conducted a study of stakeholders looking at oral health in Michigan and analysis of relevant state and national surveillance data. Several themes emerged from their study, including the lack of provider and policymaker knowledge about the barriers to oral health services en-

countered by underserved populations. The report found that policymakers needed a better understanding of the impact of poor oral health outcomes on employability, absenteeism from school and work, and the ability of children to learn, as well as the systemic barriers to obtaining oral health services, including low funding for oral health in Medicaid.⁶⁵

CHAPTER FIVE

Conclusion

Transformation of a profession and the necessary educational pathway require professional and educational vision and leadership, collaboration with other stakeholders, and navigation of the changing regulatory, legislative and overall health care environment. The ADHA has begun this process by envisioning the educational preparation necessary to ensure that future dental hygiene professionals will be prepared to respond to societal need. The primary goal of advancing the dental hygiene profession is to improve the public's oral and overall health.

Dental hygiene program directors and faculty will need to work together to create new edu-

cational curriculum and delivery strategies for advancing the profession. Dental hygiene leaders will need to focus on the relevance of oral health to systemic health for a broad audience including other health professionals, consumers, corporate entities, academic communities and the public at large. Clear leadership paired with a bold and comprehensive strategic plan are needed to drive and sustain forward movement. The ADHA remains steadfast in its commitment to transforming the profession of dental hygiene and continuing this conversation. The ideas in this paper will pave the way for those conversations and ultimately contribute to the improvement of the public's oral and overall health.

ACKNOWLEDGMENTS

On behalf of the American Dental Hygienists' Association, it is with great pleasure that we bring you this white paper. Based on the 2013 symposium, "Transforming Dental Hygiene Education: Proud Past, Unlimited Future," this document will serve as an invaluable resource now and in years to come. Many important stakeholder groups were involved in the 2013 Transforming Dental Hygiene Education Symposium and we thank them for their support of the dental hygiene profession and ADHA. We also thank our members and staff who were involved in this project and responsible for seeing it come to fruition. In particular, thank you to Johnson & Johnson Consumer Inc., for their support in the distribution of this

landmark publication. The ADHA is leading the effort to transform the profession of dental hygiene and this white paper is a testament to the momentum and interest in moving the profession upward! I hope the ideas in this paper inspire and challenge you to think about the possibilities for the future of our profession. Join us in this journey to better serve the oral health needs of all individuals. We look forward to continuing this conversation and invite you to interact with us at askADHA@adha.net.

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Appendix A: Dental Hygiene Diagnosis

Position
<p>It is the position of the American Dental Hygienists' Association (ADHA) that dental hygiene diagnosis is a necessary and intrinsic element of dental hygiene education and scope of practice.¹</p> <p>ADHA supports dental hygiene curricula that leads to competency in the dental hygiene process of care: assessment, dental hygiene diagnosis, planning, implementation, evaluation, and documentation.²</p>
Dental Hygiene Diagnosis:
<p>The identification of an individual's health behaviors, attitudes, and oral health care needs for which a dental hygienist is educationally qualified and licensed to provide. The dental hygiene diagnosis requires evidence-based critical analysis and interpretation of assessments in order to reach conclusions about the patient's dental hygiene treatment needs. The dental hygiene diagnosis provides the basis for the dental hygiene care plan.³</p>
Background
<p>The Commission on Dental Accreditation (CODA) was established in 1975 and is nationally recognized by the United States Department of Education as the sole agency to accredit dental and dental-related education programs conducted at the post-secondary level. The CODA's mission is to serve the oral health care needs of the public through the development and administration of standards that foster continuous quality improvement of dental and dental related educational programs.</p> <p>As a result of a resolution brought forth by the American Dental Association House of Delegates in 2007, on January 1, 2010, the CODA removed "dental hygiene treatment plan" and "dental hygiene diagnosis" from the CODA education accreditation standards for dental hygiene. These terms had been a part of the standards since 1998.</p>
Dental Hygiene Diagnosis in State Laws
<p>In 2004 and 2009 respectively, Oregon and Colorado became the first states to specifically authorize the dental hygiene diagnosis as part of the dental hygienists' scope of practice. Oregon state statute specifically includes diagnosis within the definition of dental hygiene. Oregon state statute permits dental hygienists to "diagnose, treatment plan and provide dental hygiene services." Under Colorado state statute, "dental hygiene diagnosis" means the identification of an existing oral health problem that a dental hygienist is qualified and licensed to treat within the scope of dental hygiene practice.</p>
Dental Hygiene
<p>The ADHA represents the professional interests of dental hygienists in the United States. Dental hygiene is the science and practice of recognition, prevention and treatment of oral diseases and conditions as an integral component of total health. This includes assessment, diagnosis, planning, implementation, evaluation and documentation and is the profession of dental hygienists.⁴ A dental hygienist is a primary care oral health professional who has graduated from an accredited dental hygiene program in an institution of higher education, licensed in dental hygiene to provide education, assessment, research, administrative, diagnostic, preventive and therapeutic services that support overall health through the promotion of optimal oral health.⁵</p>

1. ADHA Policy Manual [6-09]. Chicago, Ill. American Dental Hygienists' Association. http://www.adha.org/resources-docs/7614_Policy_Manual.pdf
2. ADHA Policy Manual [16-15/16-93]. Chicago, Ill. American Dental Hygienists' Association. http://www.adha.org/resources-docs/7614_Policy_Manual.pdf
3. ADHA Policy Manual [1-14/SCDHP/18-96]. Chicago, Ill. American Dental Hygienists' Association. http://www.adha.org/resources-docs/7614_Policy_Manual.pdf
4. ADHA Policy Manual [3-14/14-83]. Chicago, Ill. American Dental Hygienists' Association. http://www.adha.org/resources-docs/7614_Policy_Manual.pdf
5. ADHA Policy Manual [4-14/19-84]. Chicago, Ill. American Dental Hygienists' Association. http://www.adha.org/resources-docs/7614_Policy_Manual.pdf

Appendix B: Early Impacts of Dental Therapists in Minnesota

- The dental therapy workforce is growing and appears to be fulfilling statutory intent by serving predominantly low-income, uninsured and underserved patients.
- Clinics employing dental therapists are seeing more new patients, and most of these patients are public program enrollees or from underserved communities.
- Benefits attributable to dental therapists include direct costs savings, increased dental team productivity, improved patient satisfaction and lower appointment fail rates.
- Start-up experiences have varied, and employers expect continuing evolution of the dental therapist role.
- Dental therapists offer potential for reducing unnecessary ER visits for non-injury dental conditions.
- Dental therapists appear to be practicing safely, and clinics report improved quality and high patient satisfaction with dental therapist services.
- Dental therapists have made it possible for clinics to decrease travel time and wait times for some patients, increasing access.
- Savings from the lower costs of dental therapists are making it more possible for clinics to expand capacity to see public program and underserved patients.
- Most clinics employing dental therapists for at least a year are considering hiring additional dental therapists.
- With identical state public program reimbursement rates for dentist and dental therapist services, there is not necessarily an immediate savings to the state on each claim paid; however, the differential between DHS rates and clinics' lower personnel costs for dental therapists appears to be contributing to more patients being seen.

Source: Minnesota Department of Health, Minnesota Board of Dentistry. Early Impacts of Dental Therapists in Minnesota. Report to the Minnesota Legislature. Minnesota Department of Health [Internet]. 2014 February [cited 2015 February 2]. Available from: www.health.state.mn.us/divs/orhpc/workforce/dt/dtlegisrpt.pdf

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