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# ADVANCING DENTAL HYGIENE EDUCATION

## A Strategic Framework for Developing Differentiated Doctoral Pathways

SUGGESTED CITATION: Bono, L.K., Brame, J.L., & Cullen, J. (2026, June). *Advancing Dental Hygiene Education: A Strategic Framework for Developing Differentiated Doctoral Pathways*. American Dental Hygienists' Association. https://www.adha.org/WhitePapers.

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# Advancing Dental Hygiene Education


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# Executive Summary

## Building the Foundation for Doctoral Dental Hygiene Education

Dental hygiene education has evolved from a clinically focused certificate-based model to a discipline increasingly grounded in scholarship, leadership, and interprofessional collaboration. In that context, the American Dental Hygienists' Association (ADHA) now has policy positions that support doctoral education in dental hygiene, including both entry-level clinical/professional doctorates and advanced, research-focused doctoral degrees. These policies represent an important inflection point for the profession, signaling readiness to build discipline-specific pathways that strengthen faculty preparation, expand research capacity, and cultivate the leadership needed to advance oral health equity.

This paper outlines a strategic framework for developing differentiated doctoral pathways, entry-level and advanced, by synthesizing historical trends, policy drivers, and lessons from other health professions. It proposes models, competencies, and recommendations to guide implementation and to ensure doctoral preparation is clearly defined, rigorous, and aligned with workforce and academic needs. Moving forward, coordinated action among academic institutions, professional organizations (including ADHA), accreditors, and policymakers will be essential to operationalize these policies into sustainable programs that prepare scholars, educators, and practice leaders for the future of oral health care.

# Introduction and Background

## From Certificate to Doctorate: A Century of Evolution

Dental hygiene education in the United States has evolved significantly since its inception in 1913, when Dr. Alfred Fones established the first formal program to train dental hygienists as preventive oral health professionals (Gurenlian, 2017). Initially focused on certificate-level clinical education, the discipline has transformed into a field that integrates scholarly research, community engagement, and interprofessional collaboration. This transformation reflects the profession's enduring commitment to improving public oral health and aligning with the broader goals of healthcare reform. As the role of the dental hygienist has expanded, the profession has moved beyond its clinical origins to embrace education, research, and leadership as essential components of practice (Battrell et al., 2014).

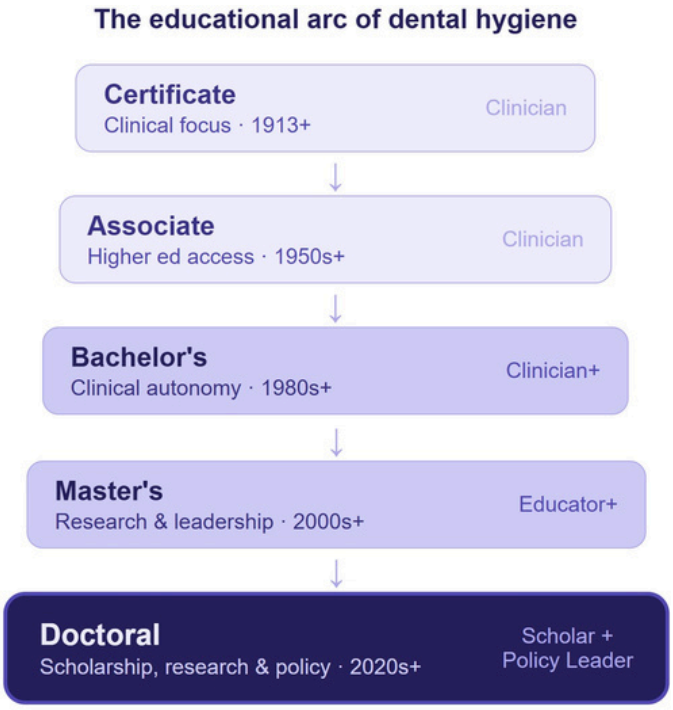
Policy initiatives and accreditation standards have been instrumental in shaping the academic trajectory of dental hygiene. The American Dental Hygienists' Association (ADHA) has consistently advocated for elevating entry-level education to the baccalaureate level, asserting that higher education strengthens clinical decision-making and professional autonomy (Battrell et al., 2014). Similarly, the Commission on Dental Accreditation (CODA) has implemented standards emphasizing competency-based outcomes, critical reasoning, and ethical practice. These frameworks ensure that educational programs prepare students not only for licensure but also for lifelong learning and leadership (CODA, 2025).

The development of academic degrees in dental hygiene reflects an intentional progression

toward professionalization and disciplinary identity. Early associate and baccalaureate programs prioritized clinical competence, while the emergence of master's programs created pathways for specialization in education, research, and administration (Walsh & Ortega, 2013). Doctoral education in dental hygiene has been discussed since 2005 when the ADHA published Dental Hygiene: Focus on Advancing the Profession, a document that included a goal to create a doctoral degree program in dental hygiene within 20 years. Specific recommendations were to develop curricular models for both professional (Doctor of Science in Dental Hygiene) and academic (Doctor of Philosophy) doctoral programs in dental hygiene, conduct educator workshops at professional meetings to promote the development of doctoral programs in dental hygiene, and publish curricular models for dental hygiene professional journals (ADHA, 2005).

In recent years, discourse on doctoral education has intensified, emphasizing the need to cultivate researchers and academic leaders capable of generating new knowledge and advancing the profession's evidence base (Gurenlian & Spolarich, 2013; Palmer et al., 2021). Globally, dental hygiene education is advancing toward doctoral-level preparation. Canada and the United Kingdom have developed graduate programs that empower hygienists to assume academic and research leadership roles (Kanji et al., 2011; Katyal et al., 2024). These models underscore the need for U.S. programs to align with international standards, ensuring that dental hygiene education remains competitive and continues to produce scholars capable of shaping oral health policy and practice at the global level.

Despite these advancements, gaps persist in leadership development, research capacity, and faculty preparation. The absence of formal doctoral programs in dental hygiene limits opportunities for academic mentorship, independent scholarship, and professional advancement (Davis et al., 2016; Reis et al., 2024). Faculty shortages, as reported by the American Dental Education Association (2025), hinder the ability of institutions to sustain program growth and innovation.




*The next frontier for dental hygiene education*

The convergence of historical trends, policy evolution, and current educational gaps underscores the need for doctoral education in dental hygiene. A doctoral program would promote research excellence, strengthen academic infrastructure, and foster innovation across educational and clinical domains. By preparing hygienists as scholars, administrators, and advocates, doctoral education would elevate the profession's status and align it with other health disciplines that have already embraced doctoral preparation (Gurenlian, 2017; Battrell et al., 2014).

# Rationale for a Doctoral Education in Dental Hygiene

## Value Proposition: Advancing the Profession Through Doctoral Education

The establishment of a doctoral program for dental hygiene represents a transformative milestone in the advancement of the discipline. Doctoral education is the foundation for producing scholars who can lead research, shape curriculum design, and influence oral health policy (Gurenlian & Spolarich, 2013; Bono & Gurenlian, 2024). While master's programs have strengthened leadership and research literacy, they are not sufficient to sustain a robust research infrastructure within the profession. A doctoral program would cultivate advanced competencies in theory development, methodological design, and interdisciplinary collaboration, skills essential for addressing the complex oral health challenges of the future.

One of the most pressing challenges in dental hygiene education is the shortage of qualified faculty and research leaders. The American Dental Education Association (2025) identified persistent vacancies in allied dental programs, driven by retirements and limited pipelines of doctoral-prepared educators. These shortages restrict the profession's ability to maintain accreditation standards, mentor new faculty, and advance scholarly productivity (Reis et al., 2024). Doctoral preparation would ensure a sustainable leadership structure, equipping future educators with the research and administrative expertise necessary to guide academic innovation and policy development.

## Justification for the Program: Discipline-Specific Knowledge Generation and Application

A discipline-specific doctoral program is crucial to the continued growth of dental hygiene as an academic field. Currently, many dental hygienists pursue doctoral degrees in education or public health (Carpenter et al., 2018). Although valuable, these programs lack a focus on the theoretical frameworks and research priorities unique to dental hygiene. A doctoral program dedicated to the discipline would enable scholars to generate original research, expand the evidence base for preventive care, and translate findings into clinical and educational practice (Gurenlian, 2017; Palmer et al., 2021). Such an approach would strengthen the profession's scientific identity and academic influence.

## Societal and Individual Impact: Oral Health Equity, Public Health, and Population Outcomes

Doctoral-prepared dental hygienists have the potential to make significant contributions to public health by addressing oral health inequities and promoting population-level outcomes. Doctoral education fosters expertise in community-based research, health policy analysis, and program evaluation, enabling scholars to identify and reduce systemic barriers to care (Bono & Gurenlian, 2024). These leaders can design and implement interventions that improve health literacy, prevention, and access to services among underserved communities. By integrating oral health into the broader framework of public health, doctoral-prepared hygienists can play a vital role in improving overall population well-being (Katyal et al., 2024).

### Incentives: Academic Promotion, Research Funding, and Policy Influence

Doctoral preparation offers both personal and institutional incentives. For individuals, the degree enhances eligibility for tenure-track positions, leadership roles, and competitive research funding opportunities (Reis et al., 2024). Doctoral-prepared faculty are positioned to secure grants that advance evidence-based practice and interdisciplinary collaboration. Institutions also benefit, as doctoral-trained educators enhance the academic reputation of programs, strengthen research output, and contribute to policy reform that supports workforce expansion and oral health equity (Davis et al., 2016).

The establishment of a doctoral program for dental hygiene represents a pivotal advancement for the profession. It will prepare the next generation of scholars, educators, and policy leaders who can drive innovation, promote oral health equity, and strengthen the discipline's scientific foundation. Doctoral education affirms the profession's commitment to excellence, research, and societal impact, positioning dental hygiene as an integral contributor to the future of healthcare.

## Comparative and Published Program Models

### Introduction to Comparative Models

By examining the drivers and outcomes of other disciplines, such as nursing, physical therapy, and pharmacy, that have transitioned to their own doctoral programs, dental hygiene can draw valuable lessons from their experiences. These insights could help guide the development of a dedicated doctoral degree in dental hygiene, reducing reliance on degrees from other fields such as education, public health, or administration.

This section is organized to provide a broad, evidence-based foundation for understanding the landscape of doctoral education relevant to dental hygiene. It begins by reviewing published programs and models from other disciplines, then examines how health professions such as nursing, physical therapy, and pharmacy successfully transitioned to doctoral-level entry. The section concludes with key lessons learned from these professions, highlighting insights that can inform and strengthen dental hygiene's own pathway toward developing doctoral education.

### Other Health Professions' Transition to Doctoral Degrees

**Nursing**

Education of nurses in the U.S. dates back to the 1870s, their skills and services having grown in demand during the Civil War. Education programs were often affiliated with a hospital and conferred a diploma. By the early 1920s, all states had implemented some form of formal licensure. Community college programs conferring an associate degree emerged during the world wars and succeeded in part due to their ability to produce large numbers of nurses via a blended model of higher education and traditional bed-side care. However, as patient needs and healthcare systems became more complex, the demand for baccalaureate-prepared nurses began to grow (Egenes, 2009). By the 1960s a new movement promoting advanced practice nursing certification (APRN) was gaining momentum. The APRN specialty programs, including clinical nurse specialist, nurse anesthetist, nurse midwife, and nurse practitioner, began conferring a certificate with most transitioning to a master's degree by the late 1980s (Boehning & Punsalan, 2023).

Nursing originally developed a Doctor of Nursing (DN) degree back in 1979 followed by research-focused degree paths (PhD, DNS). Understanding about the relationship between the academic and practice components of the discipline gradually emerged. By 2004, the American Association of Colleges of Nursing (AACN) published its position paper advocating for a clinically-focused doctorate. The organization called for a transition from master's degree for APRNs to the doctor of nursing practice (DNP) degree by 2015 (AACN, 2004). National leaders in clinical and academic nursing noted that the move of APRNs to the DNP degree was consistent with other healthcare professions [e.g. Dentistry (DDS), Pharmacy (PharmD), Occupational Therapy (OTD), Physical Therapy (DPT), Audiology (AuD), Chiropractic (DC)]. Many health disciplines noted that due to scope of practice expansion and complexity of patient care, the master's degree no longer sufficiently prepared practitioners (McCauley et al., 2020). Further incentive for advancing health professions' degrees were reports published by the Institutes of Medicine calling for improvements in preparing health professionals and introducing specific competencies beyond those commonly expected of historical models (IOM, 2000, 2001).

The implementation of the DNP degree has met with mixed success. The National Organization of Nurse Practitioner Faculties (NONPF) has been a leader in supporting adoption of DNP degree programs. The group developed and made public a range of resources for educational programs including policy, competencies, and curricula as well as a business template to support programs transitioning from master's to to doctorate or developing new DNP programs (Idzik, 2021; NONPF, 2024). Although the number of DNP education programs increased substantially over the decade following the AACN statement, many programs' curricula diverged from the original AACN intention of a clinically-focused degree (AACN, 2022). In the absence of universal accreditation support and the failure of nursing to distinguish between masters- and doctoral-prepared APRNs, most nursing schools maintained their master's programs and introduced post-graduate DNP degrees as an extension of existing degrees, often requiring minimal additional clinical training (McCauley et al., 2020). Efforts toward consistency have been further hindered by varying adoption of standards across the four APRN accreditation bodies. For example, the Council on Accreditation of Nurse Anesthesia (COA) requires a doctoral-level degree for practice, whereas the American College of Nurse Midwives (ACNM) explicitly opposed the DNP requirement in its 2012 position statement (ACNM, 2012).

The move toward a universal DNP continues to evolve. In 2018, the NONPF brought together nursing leaders from academia, clinical practice, and professional organizations to collaboratively develop a proposal for advancing the DNP as the entry-level degree for NP education by 2025 (Idzik, 2021). Four workgroups were formed, Education, Capacity, Messaging and Outcomes, to identify barriers and outline strategies for achieving this goal. NONPF remains a driving force in the transition, reaffirming its commitment in its 2022 Strategic Plan, Priority #1: Advance the Transition to the Doctor of Nursing Practice by 2025 (NONPF, 2022).

**Physical Therapy**

Similar to the field of dental hygiene, physical therapy began as a profession predominantly composed of women. The American Physical Therapy Association (APTA) was originally founded in 1921 as the American Women's Physical Therapeutic Association and was led by its first president, Mary McMillan. Physical therapy (PT) grew its roots in rehabilitating soldiers injured over the course of two world wars and individuals affected by the ongoing polio epidemic of the early 20th century (Plack, 2002). PT post-war workforce shortages highlighted the need to maintain shorter paths to practice thus keeping certificate-granting programs as the main path to professional entry. Further supporting the growth of PT were social and political changes of the 50s-70s. Ongoing wars, effects of polio, a burgeoning older adult population, and patients with more complex medical needs resulted in an unprecedented demand not just for PTs, but those PTs with advanced skills and education.

By the 1950s, financial resources from the federal government and professional organizations supported pursuit of higher education in the field and the baccalaureate degree in PT became the educational standard. While New York University did establish the first master degree program in 1942, it wasn't until 1960 that the APTA House of Delegates (HOD) officially determined that the baccalaureate degree would be the minimum degree for entry into the profession. The baccalaureate degree would remain the standard through the 1980s.

External forces were also happening at the policy level. The Allied Health Professions Personnel Training Act (AHPPTA) of 1966 was a bill designed to increase opportunities for training of personnel in some allied health professions (AHPPTA, 1966). While the AHPPTA did not mandate any doctoral education paths, it established the policy environment and funding infrastructure that allowed select allied health fields to expand capacity, build faculty expertise, and move toward more sophisticated education standards, ultimately creating conditions that made the eventual shift to advanced degrees like the DPT feasible.

By 1999 the APTA HOD formally required a minimum post-baccalaureate degree for entry into the profession. While some physical therapy colleges did develop doctoral programs at this time, for example Creighton University's first class graduated in 1996, it would be 2016 before the Commission on Accreditation in Physical Therapy Education (CAPTE) made the DPT a requirement for all accredited PT education programs. Notably, in the years leading up to and after APTA-HOD resolution, the APTA published the Guide to Physical Therapy Practice. "The Guide" articulated in great detail the PT's role in the examination, evaluation, diagnosis, prognosis, program planning and design, patient education, and case management in all aspects of PT practice. Critically, this advanced the understanding of the widening scope of practice and education PTs needed to treat increasingly complex medical conditions.

Finally, PT started out being self-regulated in the early 1920s-30s, but came under the regulation of the American Medical Association (AMA) in 1935. It would be 1977 before the APTA was recognized as an accrediting body and established the CAPTE, and 1983 before the AMA extracted itself from the APTA's accreditation process. The profession's ability to return to self-regulation was a pivotal factor in physical therapy's eventual success in advancing its entry-level education requirements, as it allowed the field to define its own standards, competencies, and scope of practice independent of medical oversight.

This history highlights a comparable challenge in dental hygiene. Accreditation and regulatory authority remain largely under the purview of organized dentistry, limiting the profession's ability to autonomously establish doctoral-level standards and fully advance its professional scope and mission.

### Pharmacy

In 1989, the American Council on Pharmacy Education (ACPE) began the implementation of the Doctor of Pharmacy (Pharm. D.) and it would become the entry-level degree by 2003. The prioritization of clinical and patient interactions over the 20th century facilitated a major shift in the profession's philosophy. This became the foundation for the adoption of patient-centered care, thus moving the role of the pharmacist from "product-oriented to patient-oriented" (Crocker, 2013). Further, as the healthcare system moved toward interdisciplinary care as best practice, a clinical doctorate in pharmacy opened opportunities to work on multidisciplinary teams in the care of patients.

Also in 1989, the American Association of Colleges of Pharmacy (AACP) established the Commission to Implement Change in Pharmaceutical Education. The Commission developed a series of recommendations to guide pharmaceutical education as it evolved to meet the changing demands of the profession, the health care system, and society (Bradberry, 2007). Not unlike the APTA's "TheGuide," the Commission published position statements on the following five topics: mission of pharmacy practice and education; educational requirements and outcomes; support for the Doctor of Pharmacy as the entry to practice degree; support for pharmacy educators to engage in scholarship; and support for the preparation of graduates to practice in a rapidly changing healthcare system.

A significant challenge revealed in the transition to the PharmD degree was a shortage of qualified clinical faculty. Early growth of PharmD programs outpaced the available pool of credentialed educators (Crocker, 2013). This illustrates how structural changes in professional education depend heavily on faculty capacity. Dental hygiene may encounter similar hurdles, as the profession's current terminal degree is the master's and its educational workforce is predominantly composed of bachelor and master's-prepared faculty.

### Lessons Learned

Other allied health disciplines' transition to doctoral degrees succeeded through a combination of accrediting-body action, legislative support, and professional association advocacy. Dental hygiene will need to consider lessons learned from their cross-discipline colleagues as they develop a comparable three-pronged strategy.

### Accreditation

Experiences from nursing, physical therapy, and pharmacy show that accreditation plays a central role in developing new doctoral degrees. In each profession, the fit between accreditation expectations, institutional commitment, and the discipline's own sense of identity shaped how successfully programs were developed and adopted. These lessons offer practical guidance for the dental hygiene doctoral degree.

- Curricula quality and consistency. The DNP suffered setbacks due to lack of early consensus on competencies and standards. Nursing developed a template to facilitate standardization of curriculum across the discipline. Similarly, Ortega and Walsh emphasized that doctoral curriculum development in dental hygiene should be anchored in a clear articulation of the discipline's core concepts and defining framework, just as nursing relied on its disciplinary paradigm to guide the DNP (Ortega and Walsh, 2014).

- Institutional commitment to the goals and mission of advanced education rather than just compliance with new accreditation standards. The DNP was initially seen as just more graduate education; thus, the coursework and clinical practice didn't align with the intention of the doctoral degree. Pharm D leaders at the time of the transition also wrote that the degree "could not be mandated into greatness…or it could result in less than desirable outcomes" (Cartwright

and Reed, 2005). For dental hygiene, successful transition to doctoral programs will depend on institutions investing in the profession's evolving identity and purpose, not simply adopting the degree title.

- Differentiated paths in doctoral education. The DNP was developed to offer a practice-based and an academic or research-based doctoral degree. A doctoral degree in dental hygiene could consider the benefits and challenges of similarly developing multiple paths. Gurenlian and Spolarich proposed three variations of dental hygiene doctoral degrees; education, clinical science, and philosophy (Gurenlian, 2013).

**Policy**

Policy momentum can be just as important as accreditation in advancing doctoral education. When federal legislation or national initiatives recognize a profession as vital to the health workforce, it can accelerate academic growth, strengthen professional identity, and open the door to expanded roles. These dynamics offer useful insights for dental hygiene as it considers how policy support could bolster the development of its own doctoral pathways.

- Legislation, such as the AHPPTA, that explicitly identifies a profession as essential to the national health workforce increases its visibility, supports academic development, and positions it for future scope-of-practice and educational expansion. Dental Hygiene could position doctoral education as essential for improving population health, expanding interprofessional practice, and building research capacity in oral health systems and policy.

- Federal resources supported PT programs in scaling, modernizing, and transitioning into university-based structures. Dental hygiene could benefit from similar funding streams for curriculum redesign, faculty hiring, and advanced-degree program development.

**Professional Association Advocacy**

A consistent lesson across nursing, physical therapy, and pharmacy is that strong, coordinated professional association advocacy is essential for the successful evolution of a doctoral degree. In each discipline, national organizations played a central role in defining competencies, setting expectations for educational quality, and unifying programs around a shared purpose. Support from professional associations can help ensure that a dental hygiene doctoral degree emerges as a coherent, mission-driven advancement of the profession, not merely a structural change in education.

- Nursing: the NONPF provided crucial leadership by establishing NP competencies and later developing extensive DNP resources. These efforts helped education programs align curriculum, clarify role expectations, and reduce early variability that had undermined credibility.

- Physical Therapy: the APTA built consensus through documents like "The Guide," which articulated the profession's scope, standardized terminology, and created a reference point for curriculum planning.

- Pharmacy: the AACP, through its commissions and position statements, laid the groundwork for the PharmD transition by consistently articulating the rationale, expected competencies, and the profession's future direction from product-focused to patient-focused. Their sustained and unified messaging helped ensure the PharmD was seen not as a bureaucratic requirement, but as the essential credential for a modern pharmacist.

# Barriers and Challenges

## Institutional and Policy Barriers

While many champions have placed effort into the development of a doctoral program for dental hygiene, multiple challenges have hindered progress and program establishment. Several barriers and challenges have emerged, including professional stereotyping, the need for more dental hygienists with doctoral degrees, and university and institutional policies.

Consideration for a new degree program requires significant institutional resources, and proposals must demonstrate alignment with the university's mission, accreditation standards, and regulatory requirements. Academic administrators review and seek justification for factors including faculty utilization and salaries, administrative support, IT infrastructure for online programming, resources to support accessibility standards for students, curriculum development, adequate research infrastructure, and internal and external accreditation requirements. Institutional policies may also be in place that require extensive evidence to demonstrate the need and potential of success for such a program, thereby justifying the allocation of resources.

Although there is evidence showing support for a doctoral degree program in dental hygiene, backing is needed at multiple university levels, even if strong internal agreement exists (Tumath & Walsh, 2015). Institutional engagement and commitment become paramount, and there is a need for champions to advocate for the creation of this program. Universities require examination of the necessity, demand, and sustainability of a program, much of which would be supported by environmental scans and needs assessment data. Without having data on current programs, there are no existing outcomes assessments to lean on, which creates a greater challenge to the argument for planning a new program.

While data may support new program development, stakeholder interests and political dynamics can have a significant impact. These aspects may drive decisions based on uncertainty and anecdotal narratives rather than data-driven analyses. Additionally, institutional red tape exists at every level, with the potential to delay progress and limit efforts that could support program advancement. Navigating institutional processes and identifying key advocates are essential steps in advancing the doctoral dental hygiene degree program.

## Financial and Structural Barriers

Financial considerations are central to a new program proposal. Budgetary challenges may include faculty effort and salaries, student support (including stipends and scholarships), administrative functions (such as admissions and program management), and infrastructure to facilitate doctoral-level research. The 2025 higher education environment is navigating shifting trends, uncertain budget forecasts, and increased scrutiny of spending, all of which may have implications for spending allowances and moratoriums on new programs (Clark et al., 2025). This climate of uncertainty will affect university decisions around budgets, faculty workload, and resource allocation. Smaller or financially vulnerable programs may face increased review and potential closure. Tightening budgets and reduced funding, such as grants and state support, may constrain academic leaders. These turbulent conditions could stall progress for developing doctoral programs in dental hygiene.

## Faculty Shortages

Current and future educator shortages have been well-documented in dental hygiene academics, with a gap in educators who have doctoral degrees (Bono & Gurenlian, 2024). The 2024 ADEA Survey of Allied Dental Program Directors reported 150 open faculty positions (n=214) and projected continued attrition due to retirements and resignations (ADEA, 2025). These trends have been previously documented and will continue to impact dental hygiene education in entry-level and graduate programs, generating challenges in identifying qualified instructors to fill the necessary positions and remain in compliance with accreditation standards for undergraduate programs, as well as to expand programs across all degree levels (Istrate & Stolberg, 2021).

Research in 2016 surveyed dental hygiene educators on their perceptions about the establishment of doctoral education programs in dental hygiene education (Davis et al., 2016). The findings noted several barriers, one being the need for educators who have doctoral degrees with experience in research and education, and who can support the teaching, research, and mentoring of dental hygiene doctoral students (Davis et al., 2016). Respondents agreed that there is a lack of dental hygiene educators with doctoral degrees who could teach in these programs and provide dental hygiene-specific curricular and research guidance. Other research findings align with the need for dental hygienists with research acumen to establish a more robust research infrastructure necessary for research-based doctoral degree programs. (Carpenter et al., 2018; Palmer et al., 2021).

Faculty shortages are also a contributing factor to the lack of mentors who encourage and guide dental hygienists toward advanced degrees. Research assessing dental hygienists with doctoral degrees found that 43% of respondents were motivated by dental hygiene educators to pursue an advanced degree (Jones-Teti et al., 2021). There is an imperative need for doctoral-prepared dental hygiene academicians to identify potential in students, promote curiosity and lifelong learning, and serve as drivers for inspiring the next generation of dental hygiene educators, researchers, administrators, and advocates.

## Limited Insight into Doctoral Degree Impact

While dental hygienists pursue postgraduate degrees in various disciplines, there is limited research assessing job patterns after completing their degrees. A 2021 study examined career paths and satisfaction levels for dental hygienists with graduate degrees (Jones-Teti et al., 2021). Findings revealed a wide range of career choices for those with graduate degrees, including education, entrepreneurship, administration, public health, and corporate employment. Study participants described their advanced degree as advantageous, empowering, and facilitating job opportunities, with an overall feeling that the time and finances were delivering a good return on investment, leaving them with a sense of 'being worth it.'

The perceived need for doctoral degrees among dental hygienists poses a challenge not only to institutions considering these programs but also to intraprofessional and interprofessional health professional colleagues. For decades, the dental hygiene profession has existed with entry-level and master's-level degrees, so individuals, especially those not in academia, may question its value and perceived need. Overcoming antiquated professional stereotypes and educating our colleagues on the worth of a doctoral degree program in dental hygiene would require long-term effort and collaborative support.

There is a need for additional research on the positive outcomes, impact, and value of dental hygienists holding doctorate degrees. However,

data in nursing provides clear evidence for the value and impact of doctoral education, including career advancement in academia, research, leadership roles, research productivity, and high levels of professional satisfaction (Ellenbecker et al., 2017). Looking at our colleagues in other fields, such as nursing and physical therapy, can show clear delineation between education and advancement of professions.

## Enrollment and Motivation Changes

Concerns exist regarding a potential challenge to recruit students for newly developed doctoral programs in dental hygiene (Davis et al., 2016). Several factors may affect the awareness and reachability of entry-level and master's-level dental hygienists, including financial and time constraints. For programs in their infancy, student recruitment may be challenging until marketing and institutional awareness is established.

Dental hygienists may lack awareness of the value and expanded professional opportunities available with doctoral degrees (Boyd & Bailey, 2011; Kanji et al., 2011). In a study examining perceived barriers to graduate degrees, one-third of respondents expressed uncertainty about the benefits and opportunities associated with earning a graduate degree in dental hygiene, which contributed to their hesitation to pursue additional education (Boyd & Bailey, 2018). Similarly, in a review of barriers for nurses pursuing PhDs, results indicated that nursing students do not understand the range of practice roles, career opportunities, and educational pathways available (Granner & Ayoola, 2021). However, Plunkett et al. (2010) had promising research to show that when nursing students had more awareness of the long-term benefits and practical relevance of graduate education, it was a predictor of their intention to pursue advanced academic degrees.

Research has demonstrated that dental hygienists have an interest in advanced degrees; yet, several consistent barriers impede decisions to pursue graduate degrees (Boyd & Bailey, 2011; Carpenter et al., 2018; Coruth et al., 2019; Davis et al., 2016, Smith et al., 2016; Tumath & Walsh, 2015). One research study that explored the barriers for dental hygienists to pursue graduate education identified several obstacles, with the most prominent being the expense of tuition, competing family obligations, limited personal financial resources, time management with a perceived difficulty of balancing academic commitments and employment, as well as anxiety surrounding research expectations (Boyd and Bailey, 2011). Additional research has replicated these findings, adding flexibility considerations and a lack of confidence and support (Smith et al., 2016; Davis et al., 2016). In a scoping review of barriers for bachelor-level nurses to pursue a PhD in nursing, the findings echoed these challenges, adding the shortage of mentorship due to a lack of role models and unclear pathways to doctoral education. (Granner & Ayoola, 2021). Research studies have consistently identified recurring barriers to pursuing doctoral education in health professions, despite reporting high levels of career satisfaction, entrance into academia, and scholarly productivity (Ellenbecker et al., 2017; Plunkett et al., 2010; Sasek & Quincy, 2024; Williams et al., 2021).

While consistent barriers have been identified, awareness of these challenges can promote proactivity and lead to the creation of solutions to support future programs. Advocates can learn from research in other fields and from our health professions partners who have made professional education advances. The barriers should not overshadow the return on investment to advance dental hygiene.

**The Power of Mentorship in Doctoral Education**

**43%**

**of dental hygienists with doctoral degrees were motivated by a dental hygiene educator to pursue an advanced degree.**

Source: Jones-Teti et al. (2021)

**Doctoral-prepared faculty are essential to inspiring the next generation of dental hygiene scholars.**

# Models and Competencies

In 2016, two curricular models were proposed for doctoral dental hygiene education (Gurenlian et al, 2016). These two proposed models were designed to represent a paradigm shift in dental hygiene education. These new educated professionals would add value to emerging delivery models in health care and educational scholarship.

One model focused on doctoral education for entry level dental hygiene (Table 1). This model was designed to prepare students for the six roles of the dental hygienist including clinician, public health, administrator/manager, educator, researcher, and advocate. The model emphasized that students would enter the doctoral program having already obtained a baccalaureate degree. This doctoral program would prepare students to function independently without supervision and work collaboratively in interprofessional settings.

**Table 1.** Entry-Level Doctoral Degree in Dental Hygiene

| | | |
|---|---|---|
| ***Fall semester–year 1***<br>Methods and design/learning theories (3)<br>Business management/marketing strategies (3)<br>Risk assessment for public health and communities (3)<br>Research methods I/critical appraisal of the literature (3)<br>Public health systems (3)<br>**Total credits = 15** | ***Spring semester–year 1***<br>Introduction to health care practices, management, and administration (3)<br>Evaluation, test, and measurement (3)<br>Research methods II/biostatistics (3)<br>Epidemiology (3)<br>Disease prevention and behavioral health & change (3)<br>**Total credits = 15** | ***Summer semester–year 1***<br>Translational research & dissemination/scientific writing (3)<br>Leadership & organizational change (3)<br>**Total credits (6)** |
| ***Fall semester–year 2***<br>Anatomical sciences (4)<br>Medical emergencies (3)<br>Ethics and law (3)<br>Professional identity/foundations of interprofessional education (3)<br>Health literacy (3)<br>**Total credits = 16** | ***Spring semester–year 2***<br>Clinical care I (3)<br>Physiological sciences (3)<br>Dental hygiene diagnostic methods & evaluation (3)<br>Preventive strategies (3)<br>Pharmacology (3)<br>Cariology (3)<br>**Total credits = 18** | ***Summer semester–year 2***<br>Clinical care II (3)<br>**Total credits = 3** |
| ***Fall semester–year 3***<br>Clinical care III (3)<br>General & oral pathology (3)<br>Pain/anxiety management (3)<br>Customized care (3)<br>Evidence-based dental hygiene practice (3)<br>**Total credits = 15** | ***Spring semester–year 3***<br>Clinical care IV (3)<br>Special needs populations (3)<br>Periodontology (3)<br>Interprofessional activities (3)<br>Health policy & advocacy/governmental affairs (3)<br>**Total credits = 15** | ***Summer semester–year 3***<br>Clinical care V (3)<br>Practicum (3)<br>Proposal development/grant management (3)<br>**Total credits = 9** |
| ***Fall semester–year 4***<br>Advanced dental hygiene practice I (3)<br>Health informatics (3)<br>Practicum (3)<br>Practicum (3)<br>**Total credits = 12** | ***Spring semester–year 4***<br>Advanced dental hygiene practice II (3)<br>Practicum (3)<br>Practicum (3)<br>**Total credits = 9** | |

*Source: Gurenlian, J., Rogo E. J., & Spolarich, A. E. (2016). The doctoral degree in dental hygiene: Creating new oral healthcare paradigms. Journal of Evidence Based Dental Practice, 16S, 144-149. https://doi.org/10.1016/j.jebdp.2016.01.011.*

The authors proposed capabilities for an individual with the entry level doctoral degree. Capabilities represent the broader future-focused potential to adapt, learn, and apply skills to new situations. Key capabilities for entry level doctoral dental hygiene education appear in Table 2.

**Table 2.** Capabilities of Doctoral Degree in Dental Hygiene Graduates

| Capabilities |
|---|
| Design and administer programs to improve the oral health of the public |
| Manage/operate programs in health care facilities |
| Conduct original and practice-based research |
| Measure outcomes of dental hygiene interventions provided to individuals and communities |
| Evaluate health outcomes and propose quality improvement initiatives |
| Evaluate current trends in health care |
| Assess effectiveness of new workforce models |
| Translate new knowledge into education and practice |
| Advocate for changes in health policy and direct reimbursement for hygiene services |
| Create legislation to reduce restricted access to care, expand scope of practice, and advance availability of oral health care services |
| Create new models of care delivery |
| Create, implement, and evaluate models of prevention |
| Serve as a case manager to monitor health outcomes and contribute data to public health surveillance systems |
| Design community health programs that improve oral health literacy |
| Educate consumers, health care workers, policy makers, and stakeholders |
| Lead interprofessional health care teams |
| Self-regulate and assume responsibility and accountability of competency/continued competency |
| Create standards of clinical care |
| Assess and update clinical standards to reflect current health care needs |
| Validate that current models of dental hygiene care delivery actually address needs of the population |
| Ensure that dental hygiene services are delivered in a safe and effective manner through quality assurance mechanisms |
| Provide customized, patient-centered advanced oral health care and patient self-care education to individuals in hospitals, long-term care, and home health settings |

*Source: Gurenlian, J., Rogo E. J., & Spolarich, A. E. (2016). The doctoral degree in dental hygiene: Creating new oral healthcare paradigms. Journal of Evidence Based Dental Practice, 16S, 144-149. https://doi.org/10.1016/j.jebdp.2016.01.011.*

The other model proposed in 2016 related to the development of a PhD program for licensed dental hygienists pursuing an advanced degree (Table 3). The capabilities identified for individuals who obtained this PhD degree appear in Table 4.

**Table 3.** Curriculum for Doctorate of Philosophy in Dental Hygiene

| Course title | Credits |
|---|---|
| Doctoral career and scholarly identity development | 3 |
| Change strategies | 3 |
| Philosophy of inquiry | 3 |
| Theoretical analysis of dental hygiene science | 3 |
| Advanced research design I: quantitative research | 3 |
| Advanced research design II: qualitative research | 3 |
| US and global health systems | 3 |
| Global health advocacy | 3 |
| Scientific writing and grantsmanship | 3 |
| Advanced statistical methods | 3 |
| Applied scholarship I | 3 |
| Applied scholarship II | 3 |
| Dissertation I: preparation | 2–6 Credits, minimum of 6 credits |
| Dissertation II: research application | 3–9 Credits, minimum of 9 credits |
| Dissertation III: dissemination | 3 Credits |
| Electives | Minimum of 9 credits |

Total credits = 63.

*Source: Gurenlian, J., Rogo E. J., & Spolarich, A. E. (2016). The doctoral degree in dental hygiene: Creating new oral healthcare paradigms. Journal of Evidence Based Dental Practice, 16S, 144-149. https://doi.org/10.1016/j.jebdp.2016.01.011.*

**Table 4.** Capabilities of Doctorate of Philosophy in Dental Hygiene Graduates

| Capabilities |
| --- |
| Propose new theory and test existing theoretical models |
| Conduct original research |
| Prepare grants to secure program funding |
| Establish priorities for research |
| Provide foundational evidence that supports research, education, and practice |
| Serve as gatekeepers of the scientific literature to ensure continued quality of published evidence |
| Continue to build the research infrastructure of the profession |
| Envision and forecast activities for professional organizations |
| Participate and lead strategic planning initiatives to advance the profession |
| Affect change on a global scale on behalf of the profession |
| Mentor students and colleagues for personal and professional growth |
| Create leaders in academia, business, and health care |
| Serve as key opinion leaders who influence, motivate, persuade, and inspire others |
| Prepare a cadre of future scholars |

*Source: Gurenlian, J., Rogo E. J., & Spolarich, A. E. (2016). The doctoral degree in dental hygiene: Creating new oral healthcare paradigms. Journal of Evidence Based Dental Practice, 16S, 144-149. https://doi.org/10.1016/j.jebdp.2016.01.011.*

In 2024 two additional models of doctoral education were proposed for both dental hygienists and dental therapists. The purpose of these models was to prepare dental hygienists and dental therapists with advanced education, research, leadership, and practice. One curricular model creates a Doctor of Philosophy while the other promotes a doctor of oral health practice (Table 5).

**Table 5.** Curricular Models for Doctoral Programs

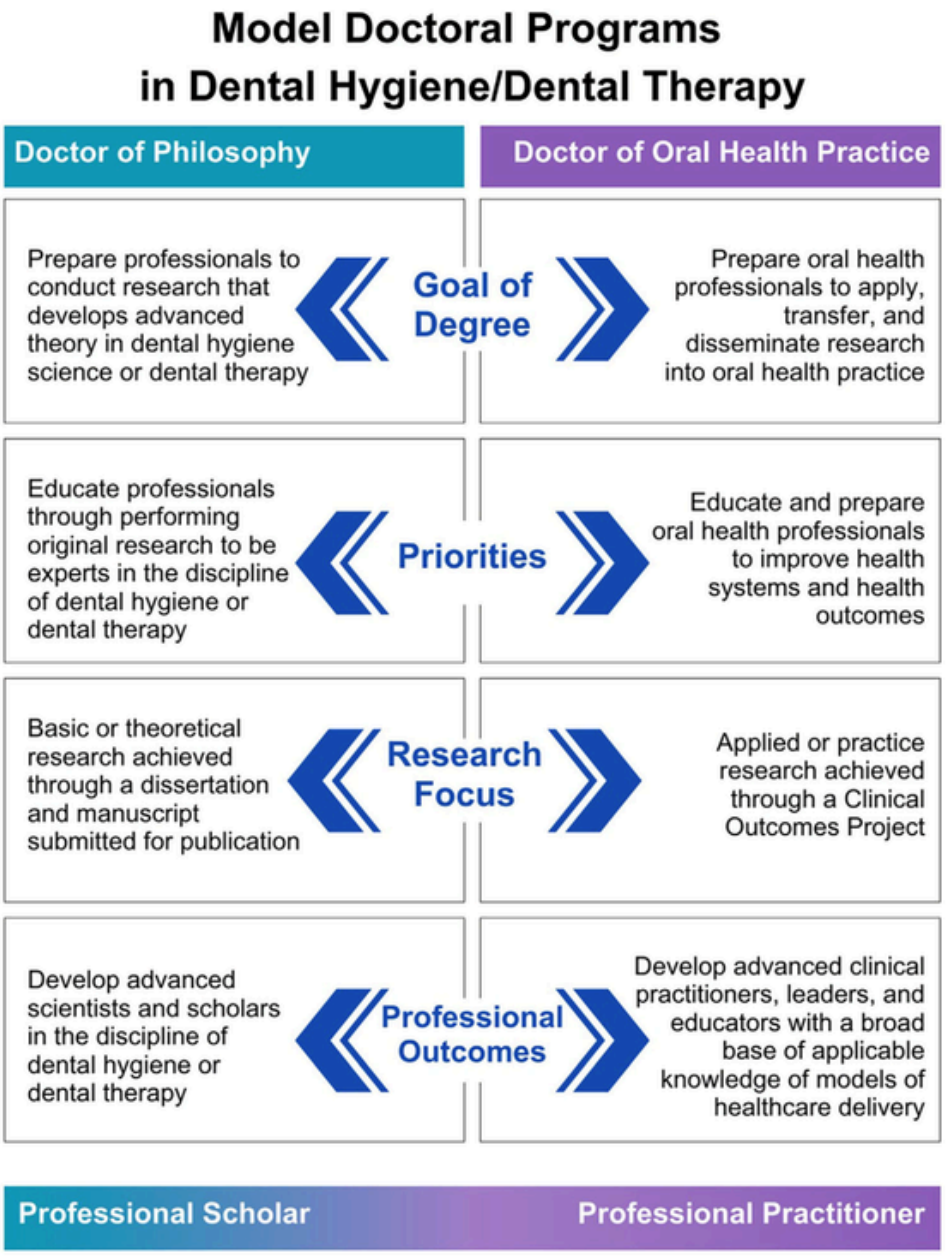
| Doctor of Philosophy | Doctor of Oral Health Practice |
|---|---|
| **Discipline core—12 credits** | **Discipline core—12 credits** |
| DENT Theoretical and conceptual analysis in dental hygiene science | DENT Theoretical and conceptual analysis in dental hygiene science |
| DENT Professional identity development | DENT Professional identity development |
| DENT Leadership and health policy | DENT Leadership and health policy |
| DENT Improving health outcomes | DENT Improving health outcomes |
| **Research core—15 credits** | **Research core—15 credits** |
| NURS Statistical analysis in evidence-based practice | NURS Statistical analysis in evidence-based practice |
| NURS Current trends in research designs and methods | NURS Current trends in research design and methods |
| NURS Qualitative inquiry and analysis | NURS Qualitative inquiry and analysis |
| POLS Grant writing | POLS Grant writing |
| NURS Approaches to scholarly writing (2 credits) | NURS Approaches to scholarly writing (2 credits) |
| DENT Dissemination of scholarly writing (1 credit) | DENT Dissemination of scholarly writing (1 credit) |
| **Specialized focus—15 credits** | **Specialized focus—15 credits** |
| DENT Cultural humility and multicultural education | DENT Advanced assessment for person-centered care |
| DENT Innovative teaching strategies | DENT Pharmacotherapeutics for advanced dental hygiene practice |
| DENT Student assessment and educational program evaluation | NURS Genetics for healthcare professionals |
| DENT Finance and budgeting to sustain programs | DENT Primary care throughout the lifespan |
| EDLP Change strategies | DENT Professional issues of the advanced oral health practitioner |
| **Dissertation (18)** | **Doctor of oral health practice clinical outcomes project (18)** |
| DENT Dissertation | DENT DOHP clinical outcomes project |
| **Total credits: 60 credits** | **Total credits: 60 credits** |

*Source: Bono, L. K., & Gurenlian, J. (2024). Advancing the voice of women through doctoral education: Proposed models for dental hygienists and dental therapists, Journal of Dental Education, 88, Suppl 1, 665-670. https://doi.10.1002/jdd.13500.*

Both models have the same discipline core courses and research courses. The specialized focus courses are different for each program and degree. The PhD program ends with a dissertation and the DOHP program ends with a clinical outcomes project. A conceptual framework for these programs was developed to differentiate the two degrees based on the goal of the degree, priorities, research focus and professional outcomes. This conceptual model appears in Figure 1.

Together with the entry-level model proposed in 2016, these frameworks represent three distinct doctoral pathways for the profession.

**Figure 1.** Model of Doctoral Programs in Dental Hygiene and Dental Therapy




*Source: Bono, L. K., & Gurenlian, J. (2024). Advancing the voice of women through doctoral education: Proposed models for dental hygienists and dental therapists, Journal of Dental Education, 88, Suppl 1, 665-670. https://doi.10.1002/jdd.13500.*

In 2021, the American Dental Education Association published graduate dental hygiene program aims and outcomes illustrating core competencies of contemporary dental hygiene graduate education. These competencies represented societal needs, scientific knowledge and the roles of the dental hygienist. Specific aims and learning outcomes for doctoral level dental hygiene programs appear in Table 6. These aims and learning outcomes were meant to be used as a framework and resource for creating curricula that establishes a distinction among all types of dental hygiene degrees. Themes within this framework include, "critical thinking, lifelong learning, communication, collaboration, advocacy, evidence-based decision making and ethics" (ADEA, 2021).

**Table 6.** Graduate Dental Hygiene Doctoral Program Aims and Outcomes

| Graduate Dental Hygiene Doctoral Program Aims and Outcomes | | |
|---|---|---|
| **Focus Area** | *Aim* | *Doctoral Outcomes* |
| **Health Care Policy, Advocacy, & Delivery** | Evaluate health policy. | Develop policy and regulatory practices that improve the professional practice of dental hygiene. |
| | Improve the health care delivery system. | Evaluate the effectiveness of risk reduction and health promotion programs.<br><br>Implement workforce planning models and assess their effectiveness in preventing and controlling oral diseases and reducing health disparities.<br><br>Assess the effectiveness of policy changes designed to promote health in diverse populations. |
| **Interprofessional Collaboration & Integrated Care** | Integrate dental hygiene into multidisciplinary teams. | Lead health care teams to deliver person-centered care. |
| **Access, Diversity, & Inclusion** | Integrate cultural competency and inclusion in all professional endeavors. | Integrate cultural humility, diversity and inclusion in research, teaching, service, advocacy, policy, administration, and public health. |
| **Scholarship & Research** | Increase the dental hygiene body of knowledge through original research. | Conduct dissertation research related to a systematic review.<br><br>Conduct dissertation research that creates and validates a theoretical model.<br><br>Conduct dissertation research that translates into policy or practice.<br><br>Disseminate research findings through publication and presentation. |
| **Education** | Model service, scholarship, and teaching to create a cadre of accomplished dental hygiene educators. | Advance skills in teaching, service, and scholarship.<br><br>Mentor students in program administration, curriculum design, and curriculum review. |
| **Leadership** | Create change through leadership development. | Fulfill leadership positions within health care, education, and professional associations.<br><br>Engage in service activities and professional association involvement to advance the profession. |

*Source: American Dental Education Association (2021). Graduate dental hygiene program aims and outcomes. https://www.adha.org/wp-content/uploads/2022/11/Graduate_Dental_Hygiene_Program_Aims_and_Outcomes_March_2021.pdf*

Together, these evolving models and competency frameworks reflect a clear progression toward a more sophisticated and differentiated structure for doctoral dental hygiene education. From early conceptualizations of entry-level and research-focused doctorates to more recent distinctions between PhD and practice-oriented degrees, the profession is moving toward intentional alignment of education with workforce, leadership, and scholarly needs. Grounded in established competencies and guided by professional organizations, these models provide a foundation for developing doctoral pathways that are adaptable, clearly defined, and responsive to the changing landscape of oral health care and higher education.

# Conclusion

## Recommendations

1. Create a guide to articulate doctoral level dental hygiene education and practice programs detailing the dental hygienist's role in advancing education, research, and practice. The guide will increase understanding of the widening scope of practice and education dental hygienists need to engage in scholarship and practice in a rapidly changing health care environment.
2. Standardize curriculum models across the discipline that are anchored in a clear articulation of the discipline's core concepts and defining framework.
3. Obtain institutional commitment to the goals and mission of doctoral dental hygiene education.
4. Implement and support differentiated paths in doctoral dental hygiene education.
5. Expand policy positioning doctoral dental hygiene education as essential for improving population health, expanding interprofessional practice, and building research capacity in oral health care, systems, and policy.
6. Identify funding streams for curriculum design, faculty employment, and advanced degree program development such as workforce and education grants.
7. Leverage professional association support to guide the development of differentiated doctoral education pathways.
8. Create unified messaging to ensure doctoral dental hygiene education is viewed as the essential credential for modern and future dental hygienists.
9. Develop marketing strategies to support student recruitment and increase student and institutional awareness of doctoral dental hygiene of the range of practice roles, career opportunities, and educational pathways available for doctoral prepared dental hygienists.

## Call to Action

Collectively, this paper argues that the next phase of dental hygiene's professional evolution requires intentional, differentiated doctoral pathways that strengthen the discipline's scholarly identity while responding to practice, workforce, and population health needs. Drawing on the historical arc of dental hygiene education, lessons from other health professions' transitions to doctoral preparation, and published curricular models and competency frameworks, the paper outlines how an entry-level professional doctorate and an advanced, research-focused doctorate can serve distinct but complementary purposes. It also identifies key barriers, faculty capacity, institutional resources, policy and regulatory constraints, and recruitment, and offers recommendations to build infrastructure, align accreditation and curriculum, secure institutional and funding support, and develop unified messaging for the field.

Importantly, ADHA now has policies that support doctoral education in dental hygiene at both the entry level and the advanced level, providing a timely and credible policy foundation for moving from concept to implementation. These policy positions signal that doctoral preparation is not a peripheral aspiration, but a profession-supported strategy to expand research capacity, prepare and retain faculty, advance leadership in education and health systems, and strengthen oral health equity efforts.

With ADHA policy support in place, the opportunity and responsibility now rest with academic institutions, accreditors, and professional partners to operationalize differentiated doctoral degrees that are clearly defined, rigorous, and sustainable.

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## American Dental Hygienists' Association

The American Dental Hygienists' Association (ADHA) is the only organization representing the professional interests of the more than 220,000 dental hygienists in the United States. Dental hygienists are preventive oral health professionals, licensed in dental hygiene, who provide educational, clinical and therapeutic services that support whole-body health through the promotion of optimal oral health. To learn more about the ADHA, dental hygiene or the link between oral health and general health, visit adha.org.

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