

Oral Physicians: Redefining Dentistry's Role in Chronic Disease Management

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ABSTRACT

Aims: This article aims to explore the evolving role of dentistry in chronic disease management by emphasizing the oral-systemic health connection and advocating for an interdisciplinary approach that positions dentists as pivotal players in early diagnosis and management of systemic diseases.

Background: The connection between oral health and systemic conditions such as diabetes, cardiovascular disease, and stroke has been increasingly recognized, highlighting the importance of an integrated approach to healthcare. Dentists, often the first to detect oral manifestations of systemic diseases, are uniquely positioned to contribute to early diagnosis and management, thereby improving patient outcomes and potentially reducing the burden on the healthcare system.

Case description: The article discusses specific examples where oral health serves as an indicator of systemic conditions. For instance, periodontal disease is linked to diabetes, and oral inflammation may signal cardiovascular issues. By identifying these early signs, dentists can initiate timely interventions and coordinate with medical professionals to manage chronic diseases more effectively.

Conclusion: The article concludes that the integration of dental care with general healthcare practices offers significant potential for improving public health. Dentists, acting as "Oral Physicians," can contribute to preventive care and early management of chronic diseases, thus playing a crucial role in a more holistic, efficient, and patient-centered healthcare system.

Clinical significance: By recognizing and embracing their role in chronic disease management, dentists can enhance patient outcomes and help optimize healthcare resources. This integrated approach represents a promising avenue for addressing the growing burden of chronic diseases and improving overall public health.

Keywords: Curriculum innovation, Dental care access, Oral-systemic links, Public health professional.

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INTRODUCTION

The mouth is often referred to as a "window to general health."¹ It represents the point where dentistry and medicine converge, two fields that, while somewhat autonomous, are united in their overall goal of improving patient health and quality of life. Moreover, at the core of both fields is the conviction that appropriate interventions in their respective areas can greatly enhance the health, well-being, and quality of life of patients.² For example, estimates suggest that over 100 systemic diseases and around 500 medications exhibit symptoms in the oral cavity.³ The oral manifestations of systemic diseases include periodontal disease, which has been linked to diabetes, heart disease, and stroke, indicating a bidirectional relationship between oral and systemic health.⁴ However, the significance and influence of oral health on systemic conditions have only gained full recognition in recent times.

The rationale for focusing on dentists in the management of chronic diseases stems from this growing understanding. Dentists, with their expertise in oral health, are uniquely positioned to identify early signs of systemic diseases, which often manifest in the oral cavity first.⁵ For example, infection with human immunodeficiency virus (HIV) is currently the fourth leading cause of death worldwide.⁶ However, oral symptoms frequently appear as initial indicators, especially in patients unaware of their status, and are observed in approximately 30–80% of those already diagnosed.⁷ Moreover, another example would be inflammatory bowel disease (IBD), specifically Crohn's disease, where one study has found oral

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lesions may precede gastrointestinal symptoms in up to 60% of patients.^{8,9} By recognizing these signs, dentists can play a crucial role in early diagnosis and management, potentially reducing the severity and impact of these diseases. Thus, the strategic position of dentists in healthcare pathways could substantially alleviate the burden on physicians and the wider healthcare system.¹⁰ This shift in early detection and management from medical doctors to dental professionals could translate to more efficient use of healthcare

resources, allowing physicians to focus on treating complex cases and managing ongoing care for chronic conditions. It enables a collaborative care model where dentists act as an integral part of the healthcare team, offering a triage point for systemic health issues.

Thus, this article aims to explore the role of dentistry in chronic disease management comprehensively. It seeks to examine how dental professionals can be trained to identify and manage signs of systemic diseases, assess the effectiveness of such training on patient health outcomes, and explore ways dental schools can incorporate this interdisciplinary approach into their programs. This article also aims to discuss the challenges and potential barriers in implementing this approach, as well as propose strategies for overcoming these hurdles. Ultimately, the goal is to highlight how integrating dental and medical care can enhance patient outcomes and contribute to a more holistic approach to healthcare.

BACKGROUND AND CURRENT UNDERSTANDING

The intricate link between oral health and systemic diseases forms a crucial aspect of modern medical understanding. Common systemic diseases, notably diabetes, and cardiovascular diseases, exhibit significant correlations with oral health conditions.¹¹ For instance, the prevalence of periodontal disease is notably higher in diabetic patients, suggesting a bidirectional relationship where each condition potentially exacerbates the other.^{4,12} Similarly, emerging evidence points towards a connection between periodontal disease and cardiovascular health, indicating that poor oral health can be a contributing factor to heart diseases.¹³ Such associations are particularly pronounced in certain demographics, with varying impacts based on age, socioeconomic status, and geographical factors, necessitating a nuanced approach to patient care.¹⁴

In the realm of research, a wealth of studies has been dedicated to identifying oral health indicators that might signal systemic diseases. Key indicators such as gum inflammation, tooth loss, or the presence of specific oral lesions have been closely examined.¹⁵ The methodologies and findings of these studies provide critical insights, yet they also reveal limitations and gaps. For instance, while correlations are often established, causation remains a topic of ongoing investigation, highlighting areas for future research.

The role of dentists in the detection of systemic diseases has evolved significantly in contemporary healthcare settings. Currently, dentists are not only responsible for oral healthcare but also play a vital role in the early detection of systemic conditions.¹⁶ They are often the first to notice signs of systemic diseases, thanks to the manifestations in the oral cavity. Their training and protocols have been adapted to include the identification of such signs, with an emphasis on biopsies and early referral to medical specialists.¹⁷ This approach necessitates close collaboration with other healthcare professionals, fostering an interdisciplinary strategy in patient care. However, this expanded role also presents challenges, including the need for additional training and potential scope-of-practice limitations, presenting both opportunities for growth and areas for further development in dental education and practice.

This background sets the stage for a detailed exploration of how dentistry and medicine intersect and how this relationship can be leveraged for better health outcomes. It highlights the need for ongoing research and collaboration between dental and medical professionals to fully harness the potential of oral health in detecting and managing systemic diseases.

The Role of Dentists as Oral Physicians

The concept of dentists as “Oral Physicians” is gaining importance, acknowledging their extended role in the broader healthcare spectrum.¹⁸ This paradigm shift reflects the advanced training and capabilities of dentists in diagnosing and managing not only oral health issues but also in identifying signs of systemic diseases. Moreover, dentists frequently encounter patients who lack access to other primary care providers and regularly schedule repeat visits, further emphasizing their integral role in ongoing patient care.¹⁹ Their expertise in recognizing over 100 manifestations of various conditions, including genetic disorders and lifestyle-related diseases, during routine oral examinations, places them in an ideal position to play a more proactive role in primary healthcare delivery.²⁰ With the increasing complexity of patient profiles, especially in aging populations with more intricate healthcare needs, the role of dentists is evolving. They are equipped with essential medical and surgical skills, often interacting with patients who lack other primary healthcare contacts. Their routine practice encompasses assessments beyond oral health, like blood pressure checks and medical history reviews, making them well-suited to offer limited preventive primary care.

The move towards establishing dentists as oral physicians marks a significant shift in healthcare, focusing on maintaining overall health, not just restoring oral health. This role expansion allows for a comprehensive approach to patient care, where dentists spend more time on diagnosis and counseling, thus enhancing the preventive aspect of healthcare. By delegating routine dental tasks to other dental professionals within their team, such as dental hygienists or therapists, dentists as oral physicians can concentrate on this expanded scope.²¹ This integration of oral health with general health practices is not only beneficial for patients, offering more accessible and thorough care but also positions the dental profession at the forefront of preventive healthcare.²² Such a holistic approach in healthcare delivery underscores the vital role of dentists in not just treating oral diseases but in contributing significantly to the overall health and well-being of their patients.

Training and Education in Dental Programs

Dental education is at a turning point, preparing students for a future where collaboration with other healthcare professionals is the norm, and shared experiences in education and patient care are essential.²³ As the dental field progresses, we may see a shift where routine dental tasks are allocated to other healthcare workers, enabling dentists to concentrate on comprehensive patient care within a unified healthcare team framework. Consequently, new dentists will be called upon to play pivotal roles in guiding oral healthcare policies and leading within the healthcare community.

The pressing challenges of our current healthcare system, marked by inefficiencies and limited access to care, necessitate an expansion in the educational scope and professional opportunities for dental graduates.^{24,25} These future professionals must be well-versed in the scientific developments that are shaping a forward-looking oral healthcare paradigm. This evolution in dental education will necessitate substantial modifications in both the curriculum and the educational environment to foster a continuous learning culture that emphasizes the critical evaluation of scientific evidence and its application to patient care and professional advancement.

Echoing the ideals of the Gies report, which advocated for dentistry's integration within the university ecosystem and a

commitment to scholarly excellence, today's dental schools are tasked with championing the scientific underpinnings of the profession within a research-oriented culture. Looking ahead, the success of oral healthcare will depend on adopting a more collaborative stance towards general healthcare, emphasizing genomic medicine, proteomics, and metabolomics to tailor personalized oral health strategies. This shift towards preventive and anticipatory care, over traditional restorative and surgical methods, marks a paradigm shift in managing chronic conditions.

The vision of a "health home," a collaborative nexus for primary care providers, families, and patients, aims to enhance health outcomes and life quality for those with chronic conditions. This vision necessitates a reevaluation of dentistry's role, emphasizing risk assessment and disease prevention. As dentistry aligns with this integrative and prospective healthcare model, the focus will increasingly shift towards empowering patients in their health management, moving away from conventional focuses on restorative and surgical interventions for chronic oral diseases like dental caries and periodontal disease. This transition underscores a significant evolution in dental practice, reflecting broader changes in healthcare perspectives and practices.

Effectiveness of Dentist Intervention in Chronic Disease Management

The increasing prevalence of chronic conditions among U.S. adults, combined with a projected shortage of up to 35,600 primary care physicians by 2025, highlights a critical gap in healthcare delivery.²⁶ Dentists, who are effectively oral physicians with extensive training in medical and surgical skills, are well-placed to bridge this gap. Approximately half of American adults suffer from chronic diseases such as hypertension, cancer, heart disease, and diabetes, and dentists frequently encounter patients who lack regular access to other healthcare providers.²⁷ This positions dentists uniquely to engage in chronic disease monitoring and management, a role supported by research suggesting significant healthcare savings if dentists screen for common conditions like diabetes and hypertension.²¹

The concept of dentists playing a more integral role in primary medical care is gaining traction, as evidenced by initiatives in states like Massachusetts and countries like India, Germany, and Sweden.^{19,28,29} In Massachusetts, experts in the dental, medical, and public health fields indicated that integrating chronic disease management into dental practices could vastly improve access to primary care, especially for underserved populations.¹⁰ This expanded scope could alleviate the burden on systemic health practices, allowing physicians to focus on more complex cases. However, this transition requires careful adaptation of dental education, legal frameworks, and public perception. The potential benefits are substantial, aligning with the quadruple aim of healthcare: Enhancing patient experience, improving population health, reducing costs, and improving the work life of healthcare providers.³⁰ Expanding the role of dentists in this way presents a significant opportunity for the future of dental practice and overall healthcare delivery.

Challenges and Limitations

However, a notable hurdle to improving interprofessional collaboration, overlooked by oral health providers, involves potential scope disputes. This situation arises when some physicians and other medical professionals, including physician

assistants and nurse practitioners, may seek to have regulatory authorities limit the involvement of dentists, aiming to maintain their dominant position in primary care medicine.³¹ These scope disputes are magnified by challenges such as the duplication of care, highlighting the inefficiencies and confusion that arise from overlapping responsibilities between dental and medical practitioners. Additionally, the absence of an integrated electronic health record system hinders the seamless sharing of patient information between healthcare providers, creating barriers to effective collaboration and coordination of care. Attitudinal barriers from both patients and providers, who may not see dentists as part of the broader healthcare team, further restrict dentists' ability to serve as primary care providers. Addressing these challenges through educational reforms, the development of integrated health records, and changing perceptions is essential for overcoming scope disputes and enhancing the role of dentists in interprofessional healthcare teams.

Future Directions and Recommendations

Despite an increase in demand for primary care—the result of an aging and growing population, amongst other factors—the supply of primary care physicians continues on an alarmingly steep decline. Though accounting for primary care that is provided by nurse practitioners and physician assistants mitigates a portion of this decline, there continues to be a net outflux of primary care clinicians.³² In addition to a declining primary care workforce, physicians continue to experience staggeringly high levels of overall burnout and emotional exhaustion.³³ Physicians experiencing burnout report decreased job satisfaction and regret in their career choices, contributing to a threefold increase in the likelihood of turnover.^{34,35} The manner in which primary care is currently being delivered is flawed, in a broken system continues to churn out overworked and under-satisfied providers. Yet primary care clinicians are not the only party that is suffering. The burnout experienced by physicians contributes to a significantly increased risk of medical errors and an annual \$260 million in excess healthcare spending.^{36,37} However, the current model of primary care delivery does not have to stay this way.

Current interdisciplinary care models, consisting of PCPs, NPs, and PAs, have alleviated some of the strain associated with the looming primary care supply and demand imbalance, with clinicians reporting an increase in job satisfaction and a decrease in both burnout and turnover intention when compared to traditional, solo practitioners.³⁵ Still, these efforts to maintain a sustainable primary care delivery system continue to fall short. Yet one group of providers remains critically underutilized—dentists. Dentists practicing in the role of an oral physician are well-suited to fulfill primary and secondary preventative tasks, such as counseling or screening for hypertension, diabetes, and other systemic diseases.³⁸ In assuming an "Oral Physician" role, dentists can serve to triage and act as a contact point within the broader healthcare system for patients who do not routinely see a primary care physician, opening the opportunity for more careful healthcare spending and improved population health.¹⁹

Despite the promising effect of including dentists in the primary care team, there exist multiple barriers to resistance. Incorporating the role of a dental professional into the systematic management of patients may prove to be difficult when other primary care clinicians do not routinely consider the dentist as part of the healthcare team.³⁹ On the other hand, both patients and dentists expressed

comfortability in being evaluated and performing screenings for tobacco use, alcohol use, diabetes, cardiovascular disease, systemic illnesses, and psychological disorders.³⁸ Skeptics to the integration of dentists into primary care may also be concerned about the level of medical education that is taught in current dental school curriculums. In 2018, dental and medical educators met to explore the idea of a "Oral Health Primary Care Provider" (OP-PCP) model, in which dentists can function as both experts in diseases of the oral cavity and providers of basic primary care. The educators constructed a draft set of Proposed Competency Statements for OP-PCPs and discovered a considerable degree of overlap between the proposed statements and the Commission on Dental Accreditation (CODA) standards, a notion that lends itself to bringing the idea of "Oral Physicians" closer to reality.²²

CONCLUSION

Thus, the integration of dentistry into the management of chronic diseases represents a transformative change in healthcare, emphasizing the interconnectedness of oral health and overall well-being. This interdisciplinary approach underlines the importance of dentists' role as oral physicians and identifying early signs of systemic conditions, thereby playing a critical role in the early diagnosis and management of chronic diseases. The evidence presented underscores the bidirectional relationship between oral health and systemic diseases, highlighting the potential for dentists to alleviate the burden on the healthcare system and improve patient outcomes through early intervention. Moreover, looking towards the future, the role of dentistry in chronic disease management is poised for significant expansion. As dental professionals become increasingly involved in the early detection and management of systemic conditions, the potential for improving public health and optimizing healthcare resources becomes more apparent. Training and education programs in dental schools are beginning to reflect this shift, preparing the next generation of dental professionals to embrace their role as oral physicians within the broader healthcare team. Challenges remain, including the need for enhanced interprofessional collaboration and the overcoming of regulatory and perception barriers. However, the direction is clear: integrating dental care with general healthcare practices offers a promising avenue for enhancing patient care and addressing the growing burden of chronic diseases. The evolution of dentistry's role in healthcare is a testament to the dynamic nature of medical science and patient care, heralding a future where the management of chronic diseases is more holistic, efficient, and patient-centered.

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