

## Guest Editorial



# Promoting oral health care because of its possible effect on systemic disease is premature and may be misleading

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**A**s oral health care providers, we strive to improve our patients' quality of life and overall well-being by preventing and treating oral disease. We provide care for patients who have complex medical histories, and we work with physicians to manage or treat diseases, injuries, or other conditions in the orofacial area. We also consult with physicians and provide care for patients who are receiving head and neck radiation, chemotherapy, organ transplantation, joint replacement, invasive cardiac procedures, and many other diseases and conditions. Moreover, dentists often serve as a point of entry to the health care system and screen patients for conditions such as diabetes and hypertension. Despite the vital role that dentistry has in public health and in the lives of individual patients, there seems to be a need for some to justify the value and benefits of oral health care because it may have an effect on "systemic" diseases, defined as diseases that affect the entire body<sup>1</sup> or several different organs or tissues.<sup>2</sup>

During the past 25 years or so, investigators in many research articles have reported associations between some oral diseases and conditions such as preterm birth, diabetes, cardiovascular disease, stroke, and cancer. The implicit "take-home" message of these studies for the news media, many patients, practitioners, professional organizations, and third-party payers is that preventing and treating oral disease will modify, reduce, or prevent various systemic diseases. The concept that oral disease may cause or exacerbate systemic disease generates media attention and attention-grabbing headlines. Promoting the concept that prevention or treatment of oral disease reduces morbidity, prolongs survival, and reduces the cost of medical care is an attractive strategy for patient recruitment and to justify insurance coverage for oral health care. However, there remains a need for more convincing and higher quality evidence that oral health care actually has a measurable impact on specific systemic diseases before it can be claimed that attaining good oral health can prevent systemic diseases or conditions. It is premature to do otherwise. Simply put, making claims that are not supported by high-quality scientific evidence may damage the credibility of our profession, much like the concept of "focal infection" did a century ago.<sup>3</sup>

Researchers in studies about possible associations between oral and systemic disease have reported a wide range of results. This is not unexpected because the studies include heterogeneous participant populations and study designs, such as small and large cross-sectional surveys, prospective cohort studies, and clinical trials. Meta-analysis can be useful for assessing the results of multiple studies, but it cannot correct shortcomings of existing studies or data.<sup>4</sup> The quality and availability of published research, as well as the selection of disease and outcome measures, can lead to considerable variation in results and conclusions. Overall, it must be recognized that it is relatively easy to "cherry-pick" the scientific literature to make a case for or against the potential role that prevention or treatment of oral disease may have on a systemic disease. Although possible causal mechanisms have been proposed and many studies of associations between various oral and systemic diseases have been published, there is still no definitive evidence that treating oral disease has any clinically meaningful effect on the prevention, treatment, or outcomes of any systemic disease.

The dental community may be taking a "step too far" in embracing associations of oral and systemic disease as a reason to maintain good oral health. Associations and risk factors are identified in observational studies. Although the results of observational studies are helpful in

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generating hypotheses that may be definitively tested in clinical trials, they cannot determine whether an intervention, such as prevention or treatment of periodontal disease, has any beneficial effect on other diseases or conditions. For example, investigators in a large observational study of postmenopausal women (n = 57,001) reported in 2017 that self-reported periodontitis was not associated with cardiovascular disease events.<sup>5</sup> However, these investigators also reported that edentulism was associated with increased risk of developing cardiovascular disease and total mortality and that periodontitis was associated with a 17% higher mortality rate.<sup>5</sup> Researchers in another large observational study of both men and women (n = 7,466) reported that severe periodontitis was associated with increased risk of developing cancer, especially lung and colorectal cancer.<sup>6</sup> Given the results of these large studies, it would be tempting to conclude that preventing tooth loss and treating periodontitis lead to less cancer and prolonged survival. However, this would be incorrect and misleading because association cannot prove causation. Importantly, the authors of these studies concluded that additional research is needed to determine if modification of oral disease risk factors would lessen the burden of cardiovascular disease and cancer or prolong survival.

Our profession should take a cautious view that whereas oral disease might be causally related to other diseases, the main reason for maintaining good oral health is because it is important in and of itself. Why is it not enough to just help people maintain good oral health and keep their teeth? As oral health care providers, we know that having good oral health has many advantages and that poor oral health has many disadvantages. Effective and efficient chewing, enjoyment of food, pleasing appearance, self-confidence, and freedom from pain and infection are just a few of the benefits of good oral health. Good oral health alone justifies preventing oral disease and maintaining oral health.

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The many studies that have been published about the association of oral and systemic health have had an enormous impact on dentistry and its relation to medicine. Clinical and basic oral health research is regularly published in highly respected international medical and biological journals, and dentistry is more closely integrated with medicine than at any time in modern history. There is evidence that providing preventive dental care for people having chronic systemic diseases will improve oral health and lower the cost of dental treatment.<sup>7</sup> Research should continue to explore the association and possible causal relation between oral and systemic health and disease as well as the costs and benefits of preventing and treating oral disease. There is also a critical need for additional research to establish the effectiveness of screening for systemic disease in the dental setting, as well as research into the outcomes of dental care for patients who are receiving treatments such as head and neck radiation, chemotherapy, organ transplantation, joint replacement, and invasive cardiac procedures. However, for most of our patients, the importance of oral health alone is more than sufficient justification to strive for effective prevention and treatment of oral disease by promoting interprofessional education, practice, and research and access to high-quality and affordable oral health care for everyone. ■

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