

WHOLE-PERSON HEALTH AND MEDICAL DENTAL INTEGRATION

Medical-Dental-Behavioral Integration: Embracing Whole-Person Health in Research and Practice

L.J. Heaton¹ , T. Tiwari² , and E.P. Tranby³

Abstract: *This editorial describes the 9 articles in this supplement that emphasize and support establishing and maintaining integrated health care systems that address all aspects of a person's health, given the complex links between oral, behavioral, and systemic health. The 9 articles in this supplement represent original data collection from clinical and big data studies, a theoretical discussion of the implementation of medical-dental-behavioral integration models, and a scoping review of the links between oral health and one health. These articles involve providers representing oral health care, primary care, nursing, behavioral health, and other health care providers in the delivery of integrated, whole-person care. This editorial discusses barriers and opportunities that emerge when we understand overall health as a complex interplay of factors, including individual, emotional, social, and environmental. The articles described briefly in this editorial provide strong evidence for the importance, feasibility,*

and necessity of integrated health care and concept of overall health.

Knowledge Transfer Statement:

The goal of this editorial and following supplement articles is to present different perspectives on the implementation of medical-dental-behavioral integration to provide comprehensive, whole-person care. Through a discussion of barriers to and opportunities that emerge from this type of integrated care, this editorial and supplement provide strong evidence for the importance, feasibility, and necessity of integrated health care and concept of overall health.

Keywords: oral health, primary health care, nurse practitioners, mental health, interprofessional education, electronic health records

Oral health, behavioral health, and systemic health are inextricably linked with one another. Evidence of the oral-systemic link has burgeoned since 2001, when the then-United States Surgeon General, C. Everett

Koop, famously declared, “You cannot be healthy without oral health” (United States Public Health Service et al. 2000). More than 2 decades later, an umbrella review revealed nearly 300 systematic reviews with meta-analyses affirming connections between oral diseases and noncommunicable diseases, such as diabetes and cardiovascular disease (Botelho et al. 2022). Further, behavior is a fundamental aspect of both oral and systemic health—in addition to social determinants of health—in terms of establishing and maintaining healthy self-care habits and seeking routine and preventive health care (World Health Organization 2023). Individuals with behavioral (mental) health conditions (Health Resources and Services Administration 2023) such as depression or anxiety are at a significantly increased risk for both oral diseases and chronic physical conditions; in turn, both poor oral and systemic health are linked with negative mental health outcomes (Kisely 2016).

Given the complex links between oral, behavioral, and systemic health,

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a health care system integrating these 3 aspects of health is key to providing comprehensive, whole-person care. The articles in this supplement provide strong evidence for establishing and maintaining integrated health care systems that address all aspects of a person's health.

In section 1, "Setting the Stage: Examples of the Oral-Systemic Connection," studies add valuable evidence to the ever-growing literature surrounding the oral-systemic connections. Jeftha and colleagues (2024) examine periodontitis in patients with diabetes mellitus and find that the odds of having poor glycemic control (HbA1c > 7%) are significantly higher for individuals with more advanced periodontitis. Limo and colleagues (2024) examine large-scale data for correlations between multimorbidity and poor self-rated oral health and the presence of oral health problems. These authors find that oral health problems are significantly associated with multimorbidity risk, and these associations are exacerbated for those without dental insurance and/or those who avoided dental care due to cost. Both studies emphasize that access to routine preventive and clinically appropriate care helps to maintain systemic health for the costliest patients and is a crucial way to improve outcomes and reduce costs in the health care system.

In section 2, "Medical-Dental-Behavioral Integration: An Overall View," McNeil and colleagues (2024) present a review of existing models of medical-dental integration and medical-behavioral integration, including the importance of interoperability of electronic health records in establishing and maintaining collaborative care. The authors provide a framework and outline clear steps for integrating medical, dental, and behavioral health together to provide comprehensive care.

Section 3, "Real-Life Examples of Integrated Health Care," includes 5 studies that each examine ways in which medical, dental, and behavioral health care can be integrated. The first 3 articles

focus on screening and referring for oral health problems or providing preventive oral health care in medical settings (e.g., primary care, school nurse's offices). Braun and colleagues (2024) describe 3 medical-dental integrated models involving medical team members providing preventive oral health services at medical visits, integrated dental hygienists providing preventive care at medical visits, and a hybrid of these 2 models. The authors find all 3 models produce significant improvements in the provision of preventive oral health care in community health care settings. Neapole and Bhoopathi (2024) present a survey in which school nurses are asked to identify oral health conditions and choose appropriate referral routes. This study finds that 50% or more of school nurses correctly identify oral health conditions (e.g., root tips, untreated caries, dental abscess) and need for dental referrals, and nearly all (91%) wish for more oral health training. Bales and colleagues (2024) describe a pilot study in which primary care physicians, nurse practitioners, and other medical staff are trained to use an integrated electronic health record (EHR) system to identify oral health problems and refer patients for oral health care through the integrated EHR. Most patients (94%) reported receiving oral health information from their providers, and two-thirds (66%) requested electronic referrals for dental care. These articles provide examples of how different types of medical providers can help improve their patients' oral health across settings and throughout the life span.

The second 2 articles in this section address the integration of oral and behavioral health in either oral health or behavioral health settings. Lpidos and colleagues' study (2024) compares 2 peer-based models (a single class of education and motivation versus an educational video) for delivering oral health education in behavioral health settings. After 2 months, more than half of the individuals in both groups had met a dental self-care goal, and approximately one-third had scheduled a

dental appointment due to participating in the program; however, there were no significant differences between the 2 groups in either outcome. Ticku and colleagues (2024) survey and interview pediatric dentists and orthodontists about implementing mental health screenings for their adolescent patients. While most providers feel it is important to screen patients for behavioral health conditions (80.7%), few such screenings (14.8%) were actually carried out. Barriers to screening included concerns about legal liability, lack of time and training, and difficulties in referring patients for behavioral health care. These 2 articles emphasize the importance of bidirectional screening and referral pathways to provide comprehensive health care.

In the final section, "Where Do We Go from Here? Tying into One Health," Huang and colleagues (2024) present a scoping review of 13 studies that describe the relationship between oral health and one health, the latter of which is described as the interconnectedness of the health of people, animals, and environment. This concept of one health expands beyond that of medical-dental-behavioral integration and provides a pathway by which such integrative efforts may be incorporated into a more global conceptualization of health.

The decades-long understanding of the links between oral, systemic, and behavioral health stands in stark contrast to the siloes in which health care continues to be provided. To the patients' detriment, stand-alone EHRs, physically separate health care settings, and lack of interprofessional education often impede effective communication between medical, oral health, and behavioral health care providers in the comprehensive treatment of their mutual patients. Understanding overall health as a complex interplay of factors—including individual, emotional, social, and environmental factors—requires previously siloed health care systems to connect, communicate, and collaborate with one another to provide optimal health care for their patients. The articles

presented in this supplement provide strong evidence for the importance, feasibility, and necessity of integrated health care and concept of health overall.

Author Contributions

L.J. Heaton, T. Tiwari, E.P. Tranby, contributed to conception, design, data acquisition and analysis, drafted and critically revised the manuscript. All authors gave their final approval and agree to be accountable for all aspects of work.

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