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Inequity Along the Medical/Dental Divide

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FROM THE EDITOR

Inequity Along the Medical-Dental Divide

Lisa Simon, MD, DMD

It's obvious that our mouths are part of our bodies. Yet within the modern health care system, it's hard to imagine any other body part that is treated as distinctly. The isolation of oral health affects how we pay for oral health care, who provides that care, and, most importantly, how patients access it. Although the separation of medicine and dentistry in the United States stems from decisions made decades and even centuries ago, it continues to have lasting and meaningful impact on the lived experiences of millions of Americans, especially those from at-risk communities already poorly served by the medical system.[1]

This is what led me to become a physician. Working as a dentist in a community health center, I was heartbroken by the failings of our health care system to prevent suffering caused by oral disease. Yet, for many people in pain from a dental problem, the first (and sometimes only) stop is not to a dentist, but to a physician, physician assistant, or nurse practitioner in a primary care practice or emergency department. Only about 50% of patients who visit an emergency department (ED) with a toothache ultimately see a dentist within 6 months of their ED visit,[2] and 21% of patients with a toothache-related ED visit return to the ED for the same problem.[3] As a current resident physician, I am regularly struck by the frequency with which oral health issues arise in both the hospital and the clinic. I am equally struck by how much of this suffering I am unable to treat even having a dual identity as a physician and a dentist. The technological, financial, and educational barriers that continue to exist between dentistry and medicine, highlighted by contributors to this issue, contribute to the pain, poor health, shame, and lost hours of work and school caused by untreated dental disease.

These barriers to oral health care are yoked to societal harms that impact health and well-being on a larger scale, including structural racism, environmental injustice, and workforce inequity. Yet as we work to bring about needed change both inside and outside of health care, there is also an opportunity to rectify the exclusion of oral health care from health policy and health delivery systems. Many groups are making remarkable strides to do so—from sovereign tribal nations training a unique oral health workforce to meet community need[4] to accountable care organizations that integrate oral health services into primary care funding.[5] Health policy initiatives to increase integration of behavioral and physical health and to address the social determinants of health can serve as paths forward for oral health care innovation as well.

Poor oral health affects other health outcomes, including diabetes, heart disease, and preterm birth.[6,7] Some studies even suggest that providing dental treatment to high-risk patients with these conditions might reduce overall health care costs and rates of hospital admission.[7,8] While these are important areas of inquiry, the most important reason to bridge the medical-dental divide is not to reduce costs or the risk of other health conditions, but because oral health itself is critically important to human dignity and well-being.

Exploring the ethics of oral health within the *AMA Journal of Ethics* is itself a milestone insofar as it acknowledges that oral health is a vital component of human health and that delivery of oral health care is a component of health care ethics. Authors from diverse disciplines, including medicine, dentistry, social work, nursing, and economics, explore how our current system of medical and dental separation harms patients and clinicians and how the future of health care can bring about innovation that will ensure oral health for individuals and communities.

When the first physicians gathered in the 1840s to found the United States' first dental school, it would have been hard for them to imagine the system of dental care that sprang from their efforts and the ways it has evolved over time through both historical accident and intentional policy decisions. This separation continues to cause tangible and preventable harm to the patients I meet as both a physician and a dentist. Health equity is not attainable without also understanding the idiosyncrasies and injustices embedded in the oral health care system and working to eliminate them. This issue represents an effort to do just that.

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Lisa Simon, MD, DMD is a resident physician at Brigham and Women's Hospital, a faculty affiliate at the Harvard Medical School Center for Primary Care, and a fellow in oral health and medicine integration at the Harvard School of Dental Medicine in Boston, Massachusetts. Her work centers on achieving health equity through medicine and oral health integration.

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CASE AND COMMENTARY: PEER-REVIEWED ARTICLE

Should Dentists Treat Despite Medical Contraindications?

Bernard Friedland, BChD, MSc, JD

Abstract

Dental treatment is contraindicated by some health conditions. As patients live longer and dentists treat more patients with underlying disease, patients often need general medical care before dental care can proceed. For US patients without access to health care and their dentists, lack of medical-dental integration can generate inequity, poor outcomes, and ethical questions. Individual dentists should advocate for patients who need general health care prior to dental care, but the professions of dentistry and medicine must also respond to macro-level health system gaps and failures.

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Case

Dr V is a general dentist completing a series of restorative procedures for Mr S. Today, during a visit for some fillings, a dental assistant, DA, informs Dr V that Mr S's blood pressure is 182/98 mm Hg. DA informs Mr S that his blood pressure is too elevated for elective treatment, so Mr S's appointment will have to be rescheduled. DA also notes that Mr S's blood pressure has been recorded as greater than 140/90 mm Hg for the past 3 visits, suggesting hypertension. Dr V encourages Mr S to visit his primary care physician for diagnosis and intervention. Mr S begs, "My teeth hurt. *Please* do the fillings. And I don't even have a physician."

Commentary

When a health care practitioner enters into a professional relationship with a patient, she enters into a therapeutic alliance with that patient. The therapeutic alliance describes the partnership through which the health care professional and patient effect beneficial change in the patient's health. The rationale underlying the therapeutic alliance is that it strengthens the personal bond between the treating clinician and the patient. Although it has been most extensively studied in the context of mental health,[1,2] it is important in dentistry, too, as the patient and dentist typically have a long-term relationship.[3] By going beyond the minimum ethical duty owed to a patient by establishing a therapeutic alliance, a clinician can enhance the patient-clinician bond and effectuate a better outcome for her patient in all aspects of that patient's health care.[3]

Dr V, like all health care professionals, is formally bound by the code of ethics of her profession. Although a number of organizations in dentistry, including the American College of Dentists,[4] have a code of ethics, the code most widely used in the United States is the Principles of Ethics and Code of Professional Conduct of the American Dental Association (ADA).[5] Even if she is not a member of the ADA, Dr V is bound by the ADA Code, as it is de facto the standard of ethical care for the dental professional. Additionally, many dental boards incorporate the ADA Code into their regulations, either explicitly or implicitly, making it the de jure code of ethics. For example, in its instructions on how to prepare for its dental ethics and jurisprudence exam, the Massachusetts Board of Registration in Dentistry lists as one of the resources the "Principles of Ethics and Code of Professional Conduct, American Dental Association."[6] Some state codes are more explicit in their incorporation of the ADA Code. The California Code, for example, states: "California Dental Association (CDA) members agree to abide by the tenets embodied in the American Dental Association (ADA) Principles of Ethics and Code of Professional Conduct (ADA Code) and the CDA Code of Ethics."[7] Similarly, the Washington State Dental Association declares "The professional conduct of Association members is governed by the American Dental Association Principles of Ethics, the dentistry Code of Ethics, and applicable federal or state criminal statutes."[8] Several other states besides these two subscribe to the ADA Code,[9,10,11,12] to which we now turn to assess Dr V's ethical responsibility to Mr S.

ADA Code of Ethics

The ADA Code subscribes to the 4-principles approach to medical ethics—respect for patient autonomy, nonmaleficence, beneficence, and justice—popularized by Beauchamp and Childress[13] and added a fifth: veracity.[14] As is commonly the case when applying the 4 principles approach, Dr V finds herself caught between 2 seemingly irreconcilable principles—respect for patient autonomy and nonmaleficence. The degree of deference that patient autonomy ought to be accorded is a well-known point of contention. Some authorities are of the opinion that there are no limits to patient autonomy as long as there is no risk of harming others.[15] Other commentators, however, express the view that a patient's autonomy may be restricted if there is a threat of severe harm to a patient's well-being or for other reasons, including, but not limited to, futility.[16,17,18,19] If Dr V subscribes to the view that there are no limits to patient autonomy as long as there is no risk of harming others, then she has resolved her dilemma and is free to go ahead and treat Mr S. However, that point of view seems untenable to me. It is difficult to believe that there is no procedure or treatment that a physician or dentist would refuse to undertake no matter the patient's protestations that he wants it and agrees to the treatment. An example of such a circumstance is when patients request the extraction of one or more teeth and especially when they request extraction of all their teeth for no sound dental or medical reason.[20] However, the most compelling argument that respect for autonomy is not without limit is to be found in the 4-principles approach itself, which is, after all, the *4*-principles approach. If respect for autonomy always prevails, there would be no need for the other 3 principles. Moreover, if respect for autonomy is limitless, the relationship between patient and clinician would be determined purely by the marketplace and would render standard of care, among other things, a nullity. That the standard of care should not be deviated from is supported by the ADA Code, which states: "professionals have a duty to treat the patient according to the patient's desires, *within the bounds of accepted treatment*" (emphasis added).[21] The ADA Code's admonition that treatment is to be rendered "within the bounds of accepted treatment" is in place partly in order to uphold the principles of nonmaleficence and beneficence. Thus, based on the ADA Code, which incorporates the

4 principles, and on the ADA's standard of care, which requires that elective dental care be delayed if the patient's blood pressure is greater 160/100 mm Hg and that even emergency dental treatment be delayed if a patient's systolic blood pressure is greater than 180 mm Hg and/or a patient's diastolic pressure is greater than 109 mm Hg,[22] Dr V cannot ethically treat Mr S at today's session simply because he is insisting on it.

Next Steps

The next question facing Dr V is whether she has any obligation to Mr S beyond not treating him today. Based on the standard of care and also on the ADA Code's principle of veracity, which requires that dentists "be honest and trustworthy in their dealings with people,"[21] she clearly has an obligation to inform him why she cannot treat him and to advise him that he should seek medical care to lower his blood pressure. The principle of veracity serves a number of purposes. It clearly requires a dentist not to lie outright, but it has a more nuanced application. Veracity also applies to the manner in which the information is presented to the patient; namely, it should be presented in an unbiased manner and not in accordance with the dentist's belief that a certain treatment is or is not indicated, which serves to bias the patient's decision in a certain direction.[14]

Having explained to Mr S why treatment cannot proceed, Dr V must decide whether she has an ethical obligation to help Mr S find a primary care physician. Nowhere does the ADA Code directly aver that a dentist has an ethical obligation to assist a patient in finding medical care. However, in the preamble, the Code states: "each dentist should share in providing advocacy to and care of the underserved."[21] Since he lacks a primary care physician, Mr S can reasonably be construed to fall within the category of the underserved, and Dr V is therefore ethically obligated to advocate for his medical care. Furthermore, in Section 2, the Code holds that "professionals have a duty to protect the patient from harm. Under this principle, the dentist's primary obligations include keeping knowledge and skills current, knowing one's own limitations and when to refer to a specialist *or other professional*, and knowing when and under what circumstances delegation of patient care to auxiliaries is appropriate" (emphasis added).[21] The words "or other professional," especially when read in conjunction with those in the preamble, can reasonably be interpreted to include nondental clinicians. This interpretation is supported by the ADA's General Guidelines for Referring Dental Patients, where it is stated that possible referral situations include "medical complications,"[23] as well as by the ADA's Advisory Opinion 4.A.1 concerning medically compromised patients, which states: "The dentist should also determine, after consultation with the patient's physician, if appropriate, if the patient's health status would be significantly compromised by the provision of dental treatment."[24]

The principle of justice, embraced by the ADA Code, requires that "health services be accessible to individuals according to need" and accounting for resource availability.[25] Mr S certainly has a need, and the resource—access to a primary care physician or nurse practitioner—is not so limited as to render access to it impossible. He might simply need help accessing appropriate care. Virtue ethics and the principle of justice suggest that health care professionals must advocate for patients and promote equity[26]; Dr V has a duty to assist Mr S in finding medical care.

Barriers

Although Dr V has as an ethical duty to assist Mr S in obtaining medical care that is no different than she would have if he required specialty dental care, a dentist attempting to refer a patient to a physician faces a number of barriers. As will become evident, her

attempt as an individual to aid Mr S in finding medical care runs into the dental profession's long-standing position on public insurance that stymies and often completely thwarts such attempts. Dentistry successfully opposed the inclusion of dental coverage under Medicare.[27,28] While organized dentistry has been careful as to how it couched and continues to couch its opposition to the inclusion of dentistry under Medicare, the real reason underlying its opposition is the profession's concern that reimbursement rates would not be sufficient and would result in reducing dentists' level of income.[28] Even today, the ADA's position on the inclusion of dental benefits in Medicare is noncommittal at best and arguably opposed to it. As recently as 2018, the *ADA News* reported: "The ADA contributed data to the white paper [on adding a dental benefit to Medicare], but the Association's input," according to ADA President Joseph P. Crowley, "does not constitute endorsement of inclusion of a dental benefit under Medicare at this time."[29] As a result, with rare exceptions, dentists do not work in the same practice or even the same setting as physicians, and physicians are not in the habit of receiving referrals from dentists. Furthermore, neither ethics nor the law requires a physician to accept a new patient. The difficulty facing Dr V is not one of her making, but rather one that is the result of a systemic shortcoming. She cannot reasonably be expected to singlehandedly change the "system." Referring Mr S to an emergency room is an unreasonable use of that resource. If Dr V knows (of) a physician who is accepting new patients, she can refer him there. Referral to a community health clinic would very likely result in success. Additionally, options other than physicians exist. Nurse practitioners and physician assistants are 2 such groups. If Dr V has assiduously attempted to refer Mr S to any of the above, then she has fulfilled her ethical duty.

Conclusion

The situation in which Dr V finds herself—namely, attending a patient who requires medical care before dental treatment can proceed—is not unusual. For patients who have ready access to medical care, the situation is easily resolved, but for those who do not, the road to receiving dental care is often fraught with frustration and difficulty. This state of affairs is not helped by the United States being the only industrialized country without universal health insurance[30]; this, while even some developing countries, such as South Africa, are examining ways to introduce universal health insurance to its population.[31,32] While it certainly improved the state of affairs in the United States, the Affordable Care Act of 2010 still leaves millions without health insurance.[33]

Based on the ADA Code, therapeutic alliance, and virtue ethics, Dr V has a duty to advocate on Mr S's behalf and to encourage him to seek and pursue treatment for his hypertension and health care generally. She should endeavor, independently of Mr S's efforts, to find a physician able to treat him. If, despite reasonable efforts on her part, Dr V is unable to secure medical care for him, she cannot be held responsible for society's choice, acting through its elected representatives, to forego universal health insurance or for Mr S's choice to forsake medical care even when it is available to him.

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Bernard Friedland, BChD, MSc, JD is an associate professor in the Department of Oral Medicine, Infection and Immunity at Harvard School of Dental Medicine in Boston, Massachusetts.

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The people and events in this case are fictional. Resemblance to real events or to names of people, living or dead, is entirely coincidental. The viewpoints expressed in this article are those of the author(s) and do not necessarily reflect the views and policies of the AMA.

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CASE AND COMMENTARY: PEER-REVIEWED ARTICLE

How Should Emergency Department Clinicians Respond to Unmet Dental Needs?

Alexa Curt and Margaret Samuels-Kalow, MD, MPhil, MSHP

Abstract

The division between medical and dental care exacerbates health inequity and forces many with compromised access to seek oral health care in emergency departments (EDs). Since dentists are best positioned to offer quality care for most patients' oral health problems, this commentary on a case suggests why ED clinicians should offer appropriate oral health referrals and resources to those they serve and why all health professionals should advocate for systems-level policy and organizational changes to increase patients' access to oral health care.

Case

Dr M is working a shift in an emergency department (ED) when Dr M meets Ms O, who presents with stable vital signs but severe oral pain she describes as a recurrent toothache. Dr M notes this ED visit is Ms O's third during the past month for this problem and confirms, upon examination, this patient's extensive tooth decay. Dr M prescribes an antibiotic and urges Ms O to visit a dentist as soon as possible. Ms O starts to cry and states, "I can't afford to see a dentist, that's why I'm here."

Commentary

Access to the health care system is often influenced by social determinants of health, such as poverty, insurance status, race, and ethnicity,[1,2,3,4] because of historically exclusionary and discriminatory practices.[5] The divide between medical and dental care exacerbates inequity in access to care.[6] Bridging this gap between medicine and dentistry is an imperative step to creating a more equitable health care system. One critical location for the development of strategies to bridge this gap is the emergency department (ED), which serves as the safety net of the health care system and often as the primary source of care for vulnerable patient populations.[7]

Ms O presented with 3 ED visits in 1 month without receiving definitive care at any visit and experienced a clear clinical deterioration in her oral health due to delayed dental care. In addition to experiencing personal harm, patients presenting to the ED with dental needs are costly for the system.[8,9] The number of patients like Ms O who lack access to dental care is increasing.[10] Often, these patients are discharged with antibiotics or a palliative care plan without receiving definitive treatment for the root

cause of the oral discomfort,[11] which is most likely why Ms O returned to the ED 3 times in 1 month for the same pain. A possible reason for discharge without definitive treatment is inability to provide the definitive dental procedure within the ED (eg, extraction or cavity filling).[3]

Delayed dental care has ramifications for mental and physical health. Poor oral health is associated with diminished self-confidence and self-control[12]; long-term comorbidities, such as cardiovascular disease, respiratory disease, and diabetes mellitus[13]; and acute infections, such as increased risk of bacteremia and infectious endocarditis.[6,14] Moreover, treating the symptoms of infection and pain instead of treating the underlying problem increases the risk of worsening antimicrobial resistance and overprescribing addictive pain medications. For these sequalae and more, bridging the medical-dental divide to eliminate delayed delivery of dental care is essential and begins with appropriate referrals from the ED and concurrent advocacy to improve policies that will have positive, long-term impact.

Ethical Responsibilities

The ethical dilemma for Dr M is how much dental care and longitudinal follow-up are within the scope of her responsibility as a physician. Dr M most likely does not have the clinical training to provide definitive oral care but nonetheless can help Ms O by following the 4 principles of medical ethics—respect for autonomy, nonmaleficence, beneficence, and justice—in addressing this ethical dilemma.[15] *Respect for autonomy* requires that Ms O be provided the information needed to make an informed decision and to do so by her own will. *Nonmaleficence* and *beneficence* highlight the need to do no harm and actively to do good. *Justice* demands equitable treatment regardless of other factors, which is a vital tenet when factors such as insurance status affect access to care. Justice also obligates Dr M to help improve the system of care for patients like Ms O. Dr M has 2 primary ethical responsibilities toward patients:

1. To care for the patient in the moment.
2. To provide appropriate follow-up referral or care.

Overall, Dr M's care plan for Ms O should ensure that her pain and infection are appropriately treated and that a clear plan is in place to address both current and future tooth decay or to avoid infection. Dr M should investigate the options available to Ms O to access public dental insurance or local dental clinics. Collaborating with a social worker or case manager, if available, might provide Dr M with expert advice on programs for which Ms O is eligible. Depending on the resources of Dr M's ED, a dentist could see Ms O in the ED as well.

Dr M has these same obligations to any other patient with an acute medical need in the ED. However, because dental insurance is not standardly included as part of medical insurance[16,17] and limited (or no) coverage is included in most public insurance plans,[16] accessing dental care is often more challenging than accessing other forms of routine medical care. As a result, patients like Ms O are forced to turn to EDs that often lack dental staffing and are limited to treating pain or acute infection and to providing referrals to area free clinics and dental schools. Because of dental care's specific insurance challenges, ED clinicians must be educated on community resources for the provision of dental care to patients without insurance.

Vulnerable Populations

It has been estimated that atraumatic dental pain is responsible for 1.8% of all ED visits at a cost of upwards of $2.4 billion annually.[18] High users of the ED for oral health care are more likely to identify as non-Hispanic Black and be young adults (19-34 years old) than low users (3 or less ED visits within 2 years).[1] Patients who are medically uninsured[1,2] or have public medical insurance[3,4] are also more likely to use the ED for dental complaints, along with patients experiencing homelessness.[4] As of 2018, the dental uninsured rate was estimated to be 2.5 times higher than the medical uninsured rate.[6] Given that 93% of Americans with private dental coverage in 2018 had dental insurance through their employer or other group program[17] and that the COVID-19 pandemic might drive unemployment rates higher, the number of patients without dental insurance is likely to rise.

Expanding public insurance to include dental care could decrease barriers to visiting the dentist for atraumatic dental pain and routine dental care.[3] Ideally, dental practices would accept every patient who presents for care regardless of insurance. Financially incentivizing dental practices to accept both private and public insurance and implementing an accountability system to guarantee that practices accept adequate numbers of publicly insured patients are essential steps to ensure that increased insurance coverage translates into increased access. However, expanding dental insurance coverage is necessary but not sufficient to reduce disparities in oral health[19] because social determinants of health, such as transportation,[20] food insecurity,[21] income,[22] and education,[19] also play a significant role in patients' access to quality dental care. Additionally, people might underutilize dental care because of mistrust, unfamiliarity with dentistry, or inability to take time off work during the day.[20]

Planning for Ms O's follow-up dental care within the current system will take time and resources while Ms O is in the ED. Ideally, Ms O would be linked with an outpatient dental clinician who can assess her acutely and then follow her longitudinally. It has been shown that patients with fair-to-poor oral health status can have more misconceptions about oral health and lower dental literacy than other groups.[23] Physicians and dentists can encourage manageable habits, such as flossing, brushing, dietary changes, and use of fluoridated water and regular dental appointments, to help prevent additional oral health deterioration. It is critically important for clinicians to recognize social factors that may make it challenging for patients to follow advice (eg, food insecurity that makes dietary changes impossible or limited hours of dental clinics).

Assisting With Access to Care

Dr M could use this patient story and others like it to advocate for the expansion of hospital facilities and resource navigational systems. One potential institutional improvement would be a staffed dental clinic within the hospital that would accept patients from the ED when they present with atraumatic dental pain. This arrangement would allow for immediate and appropriate dental care. While the patient is receiving care in the hospital's dental clinic, a social worker, case manager, or community health worker could connect the patient with a free clinic or, if the patient has insurance, with a community-based dentist who would accept the patient's insurance. Familiarizing patients with dental care through the hospital clinic dentists, in addition to the warm hand off, might improve follow-up rates and ensure that patients receive rapid access to definitive care. Such a clinic was opened in a hospital in Maine and staffed by a dental hygienist for patients presenting to the ED with a dental need.[24] If the patient required higher-level care from a dentist, the clinic connected the patient to a local dental office willing to take the patient.

If a clinic like this is not feasible, the ED could partner with community dental practice that would provide acute care for patients presenting to the ED with dental caries or cavities. A few such partnerships exist. For example, in Detroit, the VINA Community Dental Center accepts patients with dental needs referred from local EDs, and about half of the patients referred acutely from the ED were followed longitudinally by dentists at the clinic.[25]

While working to implement the aforementioned institutional changes, the ED could build a database of resources to help physicians develop knowledge of community-based options for patients, especially if social workers or case managers are unavailable. In particular, helping patients understand how to access these resources and what they need to demonstrate eligibility (eg, necessary form of identification, referral paperwork) would streamline follow-up care.

For example, when a patient sprains an ankle, the ED physician could refer the patient to a sports medicine clinic they frequently work with. Cultivating and reinforcing similar connections with dental practices would not only allow for better care for the patient, but also streamline the referral process. Setting these expectations for quality clinical care as early as medical school would yield new generations of doctors and dentists who view medical and dental care as cohesive forces that should work together.

Conclusion

Dr M and Ms O's clinical scenario is an unfortunate reality that many clinicians and patients experience. Ms O was repeatedly failed by a fragmented system that perpetuates an existing gap between medicine and dentistry. This gap harms patients' physical and psychological health and is costly for the system. With immediate understanding of community resources, Dr M could guide Ms O to quality dental care when she initially presents to the ED; and with long-term advocacy for improved dental coverage and care, Dr M could help improve the current system to prevent future patients from experiencing what Ms O did.

Major institutional adjustments, such as opening dental clinics within hospitals, would provide the most seamless bridge to integration but would face significant limitations within the current insurance structure. Expanding dental insurance coverage and building relationships between EDs and community dentists are crucial steps to integration as well. Ensuring that enough quality dental clinics committed to accepting public insurance exist in areas where they are needed most is a necessary supplement to coverage expansion that would effectively reduce barriers to care. Addressing broader social determinants of health, such as income and education disparities, will also improve oral health outcomes.

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Alexa Curt is a first-year medical student at Harvard Medical School in Boston, Massachusetts. Her research interests include improving access to quality health care and bolstering connections between emergency departments and community members with unmet health needs.

Margaret Samuels-Kalow, MD, MPhil, MSHP is an associate professor of emergency medicine and pediatrics at Harvard Medical School and an attending physician in emergency medicine and pediatric emergency medicine at Massachusetts General Hospital in Boston, Massachusetts. Her work focuses on developing interventions that mitigate inequity and improve care quality.

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CASE AND COMMENTARY: PEER-REVIEWED ARTICLE

Why Should Primary Care Clinicians Learn to Routinely Examine the Mouth?

Jesse Feierabend-Peters, MD, PhD and Hugh Silk, MD, MPH

Abstract

Most medical schools and primary care residency programs do not teach proper oral examination skills. Despite the existence of proven national oral health curricula for medical professionals, many medical trainees and graduates are ill-equipped to identify oral cancers, make proper referrals, avoid unnecessary referrals, or help patients focus on oral disease prevention. This commentary on a case suggests the importance of educating clinicians to promote and evaluate patients' oral health and proposes curricula for and reasonable scope of such training.

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Case

Dr A examines a new patient, NP, and, when looking in this patient's mouth, notices a large mass midline in the hard palate. Dr A refers NP for urgent consultation with Dr O, an oral surgeon. Dr O calls Dr A to explain that NP's palate mass is called a palatine torus: a benign, normal, common bony growth.[1] Dr A feels embarrassed about not knowing this and recalls never really being taught during internal medicine residency or medical school how to properly conduct an oral examination.

Commentary

In the United States, primary care generally includes family medicine, internal medicine, and pediatrics and collectively involves a responsibility for "comprehensive care of unselected patients with undifferentiated problems … regardless of age, gender, illness, or organ system."[2] The World Health Organization expands on this definition of primary care to encompass comprehensive, whole-person care across the lifespan and an effort to address health inequity and social, economic, and environmental determinants of health.[3] Addressing patients' oral health falls within this purview, especially given the prevalence and severity of oral disease in the United States,[4] the potential for oral health problems to exacerbate systemic disease,[5,6] and the fact that disparities in oral disease burden and outcomes intersect with other societal inequities and disproportionately impact vulnerable communities.[4] Furthermore, many people in the United States may see a primary care clinician (PCC) but not a dentist, making the

interaction with their physician perhaps the only chance for an oral exam and preventive advice.

To address unmet oral health needs, robust oral health curricula should be implemented in undergraduate and postgraduate medical training. Evidence-based curricula exist, and some schools/programs are committed to teaching learners to offer full spectrum care. Yet, currently in the United States, medical schools are failing to properly prepare PCCs to routinely and confidently address oral disease and wellness, despite clear evidence of burden of untreated oral disease.[4] In a survey conducted among program directors of 195 family medicine residencies, most programs had only 0 to 3 hours of oral health curriculum.[7] Additional studies yielded similar findings on the dearth of oral health curricula in medical schools and pediatric residency programs.[8,9] Here we argue for the importance of educating clinicians to promote and evaluate patients' oral health and propose curricula for and reasonable scope of such training.

Oral Disease Burden

Oral disease, while largely preventable, affects a substantial portion of the US population, with an incommensurate impact on poorer communities and communities of color.[4] Within these communities, there are increased rates of untreated tooth decay, periodontal disease, and missing teeth.[4] Poor oral health contributes to adverse socioeconomic, psychological, and health outcomes.[4] For example, dental caries is the most pervasive infectious disease in the world,[4] affecting 90% of adults ages 20 to 64 in the United States.[10] Untreated caries "cause local pain and infections, have important social implications such as missed school and failure to gain employment, and can even lead to death."[11] In the United States, caries is more prevalent among individuals of color and those experiencing poverty, with almost twice as many Black and Mexican American adults having untreated cavities as non-Hispanic White adults.[12]

Similarly, almost half of the adults in the United States over the age of 30 have periodontal disease,[5] inflammation of the gingiva extending to the periodontal ligament and alveolar bone. This chronic inflammatory process has far-reaching consequences, including exacerbating diabetes and heart disease and contributing to poorer birth outcomes.[5,6,13] Conversely, uncontrolled diabetes can affect oral inflammation and mouth health.[14] As is the case with caries, there are higher rates of periodontal disease among Black, Hispanic, and poor people in the United States.[12]

Another common oral health problem that contributes to morbidity and mortality is loss of teeth. Complete edentulism before the age of 65 is associated with a 1.5 times increased risk of all-cause mortality.[15] Race and socioeconomic status matter here, too; US adults who are Black or Mexican American, have lower incomes, and have no more than a high school education have higher rates of edentulism.[16]

Oral lesions caused by infections, systemic disease, and other causes are seen by PCCs on a weekly, if not a daily, basis. In particular, PCCs must be aware of oropharyngeal cancer; an estimated 10 850 people in the United States will die of it in 2021.[17] While the incidence of oropharyngeal cancer is similar among Black and White US adults, the average 5-year survival for Black people is about 30% compared to greater than 55% for White people.[17]

Lack of Training

Although many common oral diseases are preventable, many in the United States have limited access to oral health care.[18] Along with social determinants of health, including poverty, racism, and environmental factors,[19] an additional impediment to oral health care is a lack of knowledge, skills, and training among PCCs.[20] If clinicians are not trained to make the oral exam part of a thorough physical exam, do not have the knowledge to discern different oral lesions, and lack the skill to find lesions that are symptom free, many patients will never be properly referred for timely definitive care. Clinicians' lack of dental training is particularly troubling, as tens of millions of Americans have no access to a dentist for various reasons, including a shortfall of approximately 10 000 dentists.[21,22] Physicians like Dr A may be the only clinician a patient sees, and yet many PCCs do not receive training in oral health.

What to Avoid

Primary care clinicians must have adequate skills, knowledge, and training to avoid overdiagnosis, underdiagnosis, and inadequate management of common oral problems.

Overdiagnosis. The case exemplifies overdiagnosis, which resulted in inappropriate referral for a benign condition and unnecessary resource expenditure for the patient, the oral surgeon, and the health care system. Although the oral surgeon in this case accurately diagnosed the lesion and no direct harm (eg, inappropriate or unnecessary intervention) was done to the patient, the case fails to consider that, for some patients, additional appointments can mean hours spent on public transit, loss of income, or other hardships.

Underdiagnosis. In a similar vein, underdiagnosis of oral disease may result in worse health outcomes and increased morbidity and mortality for patients. An important example of a "can't miss" diagnosis is oral leukoplakia, a premalignant oral lesion that is often asymptomatic and frequently presents with subtle exam findings.[23] Many oral cancers and precancers are not easily visualized without a proper oral exam that includes gloves, proper lighting, and manipulation of lips and tongue. Since 5-year oral cancer survival is related to stage at diagnosis, early detection is critical,[23] which underscores the importance of PCCs making this diagnosis and either learning to provide oral biopsies or appropriately referring patients for biopsy.

Management. PCCs should also have knowledge of oral diseases they are able to treat independently—both to ensure that patients receive appropriate therapy and to avoid unnecessary referrals. An inexhaustive list of such conditions includes symptomatic oral lichen planus, herpes labialis, recurrent aphthous stomatitis and oral candidiasis, as well as many systemic diseases with oral manifestations.[24,25,26] In addition, PCCs are in a unique position to offer preventive oral health advice about the importance of daily brushing and flossing and the benefits of reducing tobacco and alcohol use. There are many other aspects of prevention that can be learned and addressed (eg, fluoride varnish for children, dental care safety discussions with pregnant patients), depending on a PCC's state scope of practice laws.

PCCs must also be aware of normal anatomical variants in appearance and pigmentation of the tongue, lips, gingiva, and mouth to avoid inappropriate diagnoses, particularly when caring for patients who have darker skin and darker mucosa. Clinicians often do not receive training that explicitly includes patients with darker skin, which has the potential to make overdiagnosis and underdiagnosis more likely.[27] Lack of

training is especially salient, given the racial disparities in oral disease prevalence and outcomes that exist in the United States.[11,12] Clinical training materials should include cases with images of individuals with dark skin and pigmented mucosa. A recent review found that only 4% to18% of images in dermatology textbooks contain images of dark skin; however, newer editions are adding more.[28]

Navigating Unclear Recommendations

In addition to sufficient knowledge of common oral pathologies and normal variants, requisites for avoiding the potential pitfalls of overdiagnosis, underdiagnosis, and inadequate management include competency in performing a consistent and thorough oral, face, and neck examination; the ability to distinguish between normal and abnormal findings; and an oral cancer examination of patients. However, in the case of screening for oral cancer, the question of whether to examine a patient is complicated by the United States Preventive Services Task Force (USPSTF) recommendations.

The USPSTF recommendations state that the "evidence is insufficient to determine the balance of benefits and harms of screening for oral cancer in asymptomatic adults by primary care providers."[29] These recommendations acknowledge tobacco use, alcohol use, and prior human papillomavirus infection as major risk factors for oral cancer, but they do not offer additional guidance about screening high-risk patients.[29] They could create doubt for PCCs in terms of when and for whom to perform routine oral examinations.

Perhaps the most illuminating statement in the USPSTF recommendations is that there is "inadequate evidence that the oral screening examination accurately detects oral cancer."[29] Although not addressed in the USPSTF report, this conclusion may have less to do with intrinsic limitations of the oral exam and more to do with gaps in physician competency regarding the exam. (Interestingly, evidence of dental professionals' training and interest in and ability to routinely screen and detect oral cancers is mixed.[30,31,32]) Ultimately, PCCs should receive more than the typical 0 to 3 hours of residency training in oral health both so that they can navigate the USPSTF's ambiguous recommendations and perform excellent oral exams and so that they can more effectively address the oral and systemic health needs of their patients. Fortunately, models already exist that can help guide this oral health training.

Training Primary Care Clinicians

Clear core competencies and entrustable professional activities (EPAs) in oral health have been established for medical students and primary care residents.[33] There are 7 EPAs that are relevant to clinical practice, including risk assessment, proper examination of the oral cavity, documentation, patient education, and dental referrals. Meeting the oral health needs of patients in the United States requires that national academic organizations (eg, the American Council of Graduate Medical Education, the Association of American Medical Colleges, the American Academy of Oral Medicine, the Society of Teachers of Family Medicine, the American Academy of Pediatrics, the Society of General Internal Medicine) embrace these guidelines and tie them to educational requirements to ensure that trainees achieve competency in oral health knowledge, skills, and attitudes.

There are also national oral health curricula geared to health professionals, including Smiles for Life (SFL), which has online modules, cases, and a downloadable app.[34] The SFL modules span the life cycle and include Adult Oral Health,[26] The Oral Examination,[35]

and Geriatric Oral Health.[36] The SFL curriculum has been shown to improve clinical practice, especially by initiating caries risk assessments and fluoride varnish applications.[37] Other clinical resources (eg, DynaMed®, UpToDate®) have acknowledged the importance of oral health and have comprehensive sections that can be useful point-of care tools for physicians.[38,39]

Conclusion

Consequences of untreated oral disease are dire for patients, including harm to psychological and financial well-being and increased morbidity and mortality. Untreated oral disease is also an issue of health equity, as the burden of oral disease is disproportionately shouldered by low-income communities and people of color. Thus, it is unethical not to train medical students and primary care residents in oral health. Consider this possible continuation of the case:

After inappropriately referring his patient with an asymptomatic palatal torus to an oral surgeon, Dr A recognizes the gaps in his oral health knowledge, skills, and training. As a faculty member at an internal medicine residency program, he also realizes that the residency training does not include any oral health curriculum. Adamant about providing exceptional care for patients and training for residents, Dr A becomes a champion and advocate for oral health education at his institution. He completes the Smiles for Life online oral health curriculum (or similar program) and makes this curriculum a formal component of the residency training. He also partners with local dentists, dental hygienists, and oral surgeons to provide hands-on clinical opportunities for residents. Because of Dr A's efforts, he, his trainees, and his colleagues feel more confident performing oral exams, diagnosing oral lesions, and thus providing better quality care to their patients.

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Jesse Feierabend-Peters, MD, PhD is a first-year resident in the Lawrence Family Medicine Residency Program in Lawrence, Massachusetts. His interests include health equity, primary care, antiracism, and caring for individuals whose health is influenced by their experiences with the criminal justice systems and practices.

Hugh Silk, MD, MPH is a professor of family medicine and community health at the University of Massachusetts Medical School in Worcester, Massachusetts. He is a co-founder of the Center for Integration of Primary Care and Oral Health, a co-founder of Smiles for Life, and a former recipient of the American Association of Public Health Dentistry's Public Service Award.

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MEDICAL EDUCATION: PEER-REVIEWED ARTICLE

Education Solutions to the Medical-Dental Divide

Chad M. Rasmussen, DDS, Kale B. McMillan, MD, DDS, MS, Dane C. McMillan, MD, DDS, MS, Leon A. Assael, DMD, and Kevin Arce, MD, DMD, MACM

Abstract

Arbitrarily cordoning off the mouth from the rest of the body is the educational approach that, since 1840, has been responsible for the medical-dental schism that persists today, preventing oral health's integration with overall health. This divide has also thwarted oral disease prevention initiatives, access to services, and health equity. This article offers an educational plan for reunifying medicine and dentistry, which involves interprofessional education, dual degree training, integrating oral health into medical education, and integrated residency training.

Rebuff and Persistent Schism

Long referred to by dentists as the "historic rebuff,"[1] the divide between medicine and dentistry began in 1840 when physicians at the University of Maryland College of Medicine rejected a proposal from colleagues to include dental instruction in the medical curriculum, resulting in the formation of the school's separate College of Dentistry.[2] Dentistry's rejection of Medicare in the 1960s[2] exacerbated the longstanding schism and created the current imbalance in reimbursement structures for medical and dental care.[3,4,5,6] (Interventions deemed "dental" for patients with serious and complex oral, facial, and cranial conditions, for example, still incur tremendous financial burden on patients and families.) The depth of the division between medicine and dentistry is discernible even within a single organization in the separation of patients' medical and dental electronic health records, although integration would help coordinate comprehensive care, reduce inefficiency, enable and ease referrals, and facilitate access to diagnostic and treatment services.

Dentistry as Medicine

The separation of professional education, reimbursement structures, and records management has underscored the arbitrary separation of mouth from body, preventing oral health integration into general medical care and obstructing oral disease prevention initiatives, access to care, and equity.[2,7] Some leaders in health care continue to call for medical-dental integration. The Mayo Clinic, for example, maintains an oral surgery service it included over a century ago.[8] Charles H. Mayo, MD, addressed the American Dental Association in 1928, stating: "The practice of medicine includes dentistry and dentistry is the practice of a special branch of medicine."[9] In 1962, Surgeon General

Luther Terry, MD, DSc, stated: "Health is indivisible,"[10] foreshadowing the first Surgeon General's report on oral health in 2000.[11]

Dentistry is already included in medicine in some places in Canada and the United States. The Mayo Clinic, for example, promotes medically supportive oral health collaborations between dentists and physicians, with interprofessional teams treating head and neck cancers, craniofacial syndromes and growth dysplasias, temporomandibular disorders, and obstructive sleep apnea and ensuring that cardiovascular and transplant patients are free of oral disease prior to surgery. Yet, despite enhanced integration, the division between medicine and dentistry remains entrenched, with collaboration especially needed for patients with known oral health comorbidities (eg, diabetes, cardiovascular disease, rheumatologic conditions, preterm labor[12,13]). Long-held beliefs among some that medicine is a profession and dentistry is a business[2,14] or that dentistry's focus is on surgery rather than on oral diseases prevention[2,15] do not generally serve patients well and must be overcome.

Purposeful Educational Unity

Mayo stated: "It may be going too far to say that all dentists should be doctors of medicine, but certainly all dentists should know much more about the practice of medicine as a whole; and, conversely, all physicians should know more about dentistry, its importance and possibilities."[9] In line with Mayo's remarks, several strategies are possible for promoting cross-disciplinary knowledge.

Interprofessional education. With more than 200 000 practicing primary care physicians,[16] more than 200 000 practicing dentists,[17] 155 accredited US medical schools with more than 94 000 students,[18] and 68 US dental schools enrolling more than 25 000 students per year,[19] unification of medicine and dentistry is unlikely without a long-term implementation plan for interprofessionalization. Interprofessional education (IPE) is being actively advanced by health professions organizations,[20] and limited IPE has been widely adopted in North American dental and medical schools, although students in some programs learn together in the first year of preclinical and basic science classes.[21,22] Donoff and Daley[22] argue that collaborative learning should be even more deeply integrated, such that medical schools incorporate oral health competencies into curricula and dental schools incorporate competencies for taking a patient's medical history (including vaccinations) and chronic disease screening. (Such integration has been undertaken by the University of Massachusetts Medical School, Virginia Tech Carilion School of Medicine, and the University of Colorado School of Medicine.[23]) Westberg and Jason note: "If learners are encouraged to collaborate while in school or residency, they are more likely to function collaboratively when they graduate" and doing so leads to better patient outcomes.[24] Moreover, IPE in academic health centers cultivates clinicians' and researchers' capacity for collaborative health care and innovation.[25,26]

Multidisciplinary programs. In 1972, the first class graduated from Harvard University's oral and maxillofacial surgeons (OMFS) residency program in which dental residents complete medical school while qualifying for certification in OMFS.[27] As of 2020, 46% of OMFS residencies incorporated medical degrees into their programs.[28] The Commission on Dental Accreditation (CODA) approves fellowships in craniofacial and special needs orthodontics and maxillofacial prosthetics (including dental oncology).[29] Each of these multidisciplinary specialties (and their patients) would likely benefit from dental subspecialists acquiring medical degrees.

Oral health in medical education. In 1875, James Garretson, MD, DDS, whom some consider a father of oral surgery, stated with regard to the MD degree: "One degree in medicine is enough; the greater covers the lesser, and includes it."[30] In an era of unprecedented student debt,[31,32] it could be hard to disagree with Garretson that "one degree … is enough" and require students to continue to incur costs of separate medical and dental training. Creating an oral health curriculum in medical school would open doors to students interested in the mouth and digestive system, and medicine's adoption of oral health education would provide a holistic approach to alimentary health. New Accreditation Council for Graduate Medical Education (ACGME) programs that incorporate outpatient microsurgical procedures originating in dentistry (eg, orthodontics, prosthodontics, endodontics, periodontics) could be created for resident physicians whose training in oral health assessment would make their physical examinations more comprehensive and better informed. OMFS training should also have a place in surgical subspecialty training, without interrupting dental residents' surgical education with medical school. Because most graduate medical education and some hospital-based dental residencies (eg, in general practice, OMFS, and pediatric dentistry) are funded through Medicare, in many places, structures to finance integration already exist.

Integrated residency training. IPE programs could be created for clinicians with DDS, DMD, MD, DO, and MBBS degrees. Dental anesthesiology, dental public health, oral and maxillofacial pathology, oral and maxillofacial radiology, oral medicine, orofacial pain management, and general practice residency programs each have much to contribute to and learn from medical education. Residents in CODA-approved programs would benefit from increased cooperation with colleagues in ACGME programs and vice versa, with hopes of continued collaboration in the care of patients during their careers. Combined ACGME/CODA training is achievable over time with a good implementation plan and sustained common interest in motivating good patient care and health equity.

Forging Alliance

The ACGME names *systems-based practice* and *practice-based learning* as core competencies,[33] and both are developed by incorporating dentistry in existing medical curricula. Collaborative education is an important start, and all health professions students must learn the importance of efficiency in insurance, billing, and health record systems to good team-based patient care. Medical and dental codes of professionalism and ethics[34,35] require health professionals to practice as best they can for each patient and recommend collaboration. Relationships between medicine and dentistry have continued to evolve, and further strengthening alliances can help maximize the capacity of each to respond well to patients' needs.

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Chad M. Rasmussen, DDS is a consultant, assistant professor, vice chair of education, and vice chair of research for dental specialties at Mayo Clinic in Rochester, Minnesota. A diplomate of the American Board of Orthodontics, he has practice interests in multispecialty care of patients with orofacial growth dysplasias, craniofacial disorders, oral cancer, facial trauma, and complex dental restorative needs.

Kale B. McMillan, MD, DDS, MS is a resident in oral and maxillofacial surgery at Mayo Clinic in Rochester, Minnesota, where he completed medical school at the Mayo Clinic Alix School of Medicine. He is a diplomate of the American Board of Prosthodontics and a fellow of the Royal College of Dentists of Canada (prosthodontics). His practice interests include full-scope oral and maxillofacial surgery as well as complex surgical and prosthetic reconstruction.

Dane C. McMillan, MD, DDS, MS is a resident in oral and maxillofacial surgery at Mayo Clinic in Rochester, Minnesota, where he completed medical school at the Mayo Clinic Alix School of Medicine. He is a diplomate of the American Board of Prosthodontics and a fellow of the Royal College of Dentists of Canada (prosthodontics). His practice interests include full-scope oral and maxillofacial surgery as well as complex surgical and prosthetic reconstruction.

Leon A. Assael, DMD is the dean emeritus of the University of Minnesota School of Dentistry in Minneapolis, where he is also emeritus professor of oral and maxillofacial surgery in the Department of Developmental and Surgical Sciences. A diplomate of the American Board of Oral and Maxillofacial Surgery, he formerly was a professor and the director of community-based education and practice at the University of California, San Francisco, and served as editor-in-chief of the *Journal of Oral and Maxillofacial Surgery* and chairman of the Council on Dental Education and Licensure of the American Dental Association.

Kevin Arce, MD, DMD, MACM is a consultant, an assistant professor, and the chair of the Division of Oral Diagnosis and Oral and Maxillofacial Surgery at Mayo Clinic in Rochester, Minnesota. He is board certified in oral and maxillofacial surgery, and his practice interests include treatment of benign and malignant pathology and complex maxillofacial reconstruction.

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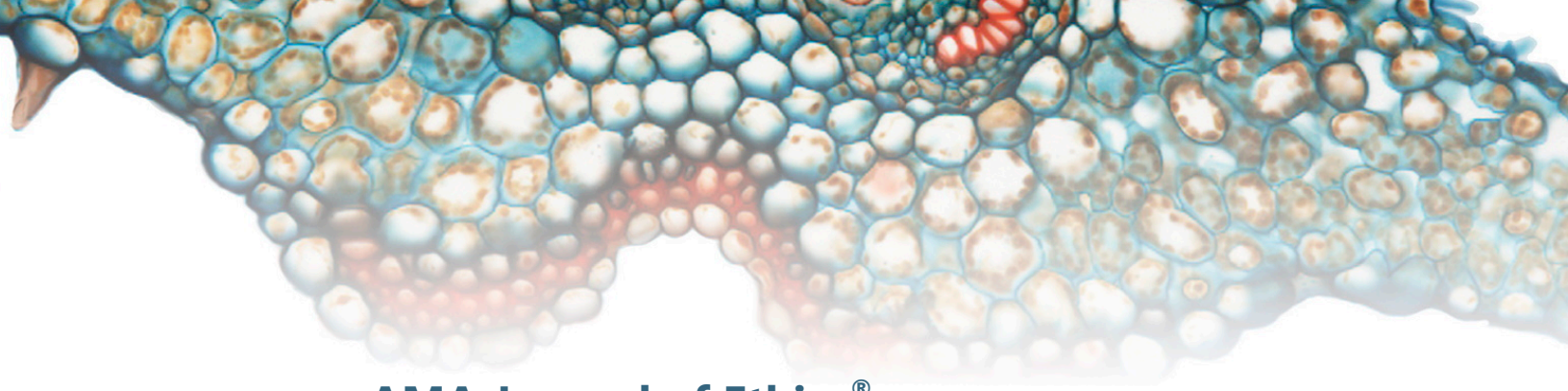

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ORIGINAL RESEARCH: PEER-REVIEWED ARTICLE

Promoting Children's Health Equity With Medical-Dental Integration

Ana Zea, DDS, DrPH and Michelle Henshaw, DDS, MPH

Abstract

Background
Successful medical-dental integration is key to achieving children's health equity. In 2015, a community health center (CHC) in Boston, Massachusetts, implemented a model of interdisciplinary care in a nationwide pilot. Based on the Oral Health Delivery Framework, pediatricians were trained to assess dental caries risk and apply fluoride varnish. They were trained to offer education materials to patients, incorporate oral health assessment in pediatric practice, and document preventive dental care in the electronic health record. This study assessed the level of medical-dental integration achieved by the pilot and maintained over 2 years after program implementation.

Methods
Deidentified data were provided by the CHC on all well-child visits during 2014 to 2018 for children 72 months or younger, including appointment dates, age, ethnicity, race, insurance status, and outcomes of interest (ie, whether a dental assessment was performed and whether fluoride varnish was applied). Outcomes were stratified by visit year to allow pilot (2015-2016) outcomes to be compared to pre-pilot (2014) and post-pilot (2017-2018) outcomes. Descriptive statistics were used to summarize the data.

Results
Pediatricians performed fluoride varnish applications and dental assessments in 25% and 0% of visits, respectively, at baseline; in 50.2% and 49.4% of visits, respectively, at the pilot's end; and in 56.7% and 57.3% of visits, respectively, 2 years post-pilot.

Conclusions
The proportion of well-child visits during which pediatricians integrated oral health preventive measures increased by roughly 25% to 50% from baseline (2014) to the end of the pilot (2016) and by at least 5% from 2016 to 2018. The success of this medical-dental integration pilot

underscores the need for broader implementation of interprofessional education and practice to promote children's health equity.

Oral Health Care Is Health Care

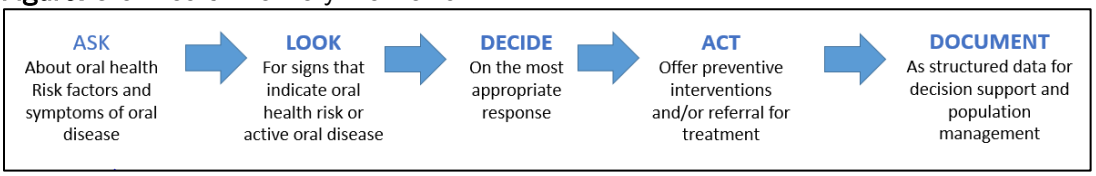
Dental caries is the most common chronic disease of childhood, although it is largely preventable. Caries incurs short- and long-term negative health effects and can diminish both children's and parents' quality of life.[1] Moreover, dental caries inequitably affects racially and ethnically minoritized children and children from families with low income.[2] Medical and dental clinicians have an ethical obligation to respond to the inequitable distribution of dental disease as a matter of social justice.[3]

Oral health is key to children's overall health. Since young children visit pediatricians or family medicine physicians more often than dentists, those physicians need to be allies in promoting oral and overall health equity.[4] The American Academy of Pediatrics (AAP) issued a revised policy statement in 2014 that emphasizes medical-dental integration: "Because dental caries is such a common and consequential disease process in the pediatric population, it is essential that pediatricians include oral health in their daily practice of pediatrics."[5] The AAP also recommends that pediatricians provide anticipatory guidance about caries, perform dental assessments, instruct patients and their parents about at-home oral hygiene practice, and apply fluoride varnish during routine well-child visits.[6] In 2011, the Institute of Medicine's report, *Advancing Oral Health in America*, recommended changing payment policies and expanding physicians' oral health competencies.[7]

*Integrating pediatric health service*s. The Health Resources and Services Administration (HRSA) calls for multidisciplinary team practice in US health care and for infrastructure innovation to implement and evaluate oral health competencies in primary care practice.[8] Medicaid programs in all 50 states and the District of Columbia reimburse physicians for fluoride applications,[9] as do most private insurers, but few Medicaid programs and insurers cover oral health patient education or counseling.[10] An added challenge for the creation of successful multidisciplinary teams is that medical education provides very little training focused on oral health.[11] In the past 10 years, however, interprofessional standards have been included for the accreditation of educational programs in physical therapy, allied health, nursing, pharmacy, and—most recently—medicine and dentistry.[11,12]

Models. Medical-dental education partnerships exist, and some oral health content has been incorporated in medical education,[13] but collaborative interdisciplinary team interactions need to become common. Hummel et al, with funding from Qualis Health, convened an expert panel to develop the Oral Health Delivery Framework (see Figure).[14] The framework prompts clinicians to identify oral health risk factors by asking patients questions about their oral hygiene, diet, health conditions, and symptoms and to visually screen for oral health problems. Clinicians then decide whether the findings are normal and, if not, they intervene as indicated (eg, provide a referral, apply fluoride varnish). Finally, clinicians should document findings as structured data that can be utilized for decision support and for improving care management. This framework is endorsed by several organizations, including the American Academy of Nursing, the American Academy of Pediatrics, and 17 others.[14,15]

Figure. Oral Health Delivery Framework[a]



[a] Adapted from Hummel et al.[14] Adapted with permission of Jeffrey Hummel.

The framework was piloted in 5 states at 19 US sites serving diverse patients, including community health centers (CHCs) and private clinics, by 80 teams of clinicians who received training and support.[15] The program incorporated oral health assessments and fluoride application for patients 0 to 72 months of age in the workflow of the pediatric department using an approach similar to how clinicians screen patients for asthma, diabetes, cardiovascular disease, obesity, and mental illness. Pilot outcomes included 13 771 oral health assessments, 4518 fluoride applications, and 1255 referrals to patients who did not have a dental care home. As reported by Hummel et al, during the pilot, one CHC in Boston, Massachusetts, showed an 80% increase in the number of patients receiving oral health assessments during the first 14 months, a proportion that declined to 60% between months 14 and 17.[15]

The purpose of this article is to examine the outcomes of this CHC's interdisciplinary program by comparing the proportion of well-child visits in which oral health services were provided during the years 2015-2016 (when the pilot was conducted at this site) to the proportion of such visits during the year 2014 (before the pilot was implemented) and during the years 2017 to 2018 (after the pilot concluded).

Methods

Participants. The sample consisted of 1456 patients who were 72 months of age or younger and who had at least one well-child visit during 2014 to 2018. The population served at the site in this study is presumed to be representative of the population that generally seeks health at community health centers.

Data collection. The data used in this study were obtained from patient records of 6949 well-child visits from 2014 to 2018 at an urban CHC and were deidentified prior to being provided to the research team. The variables extracted from the data include outcomes (ie, whether a dental assessment was conducted and fluoride varnish applied), dates of service, and the child's date of birth, ethnicity, race, and insurance status. A total of 633 records were excluded from the analysis because they were missing the child's date of birth.

Statistical analysis. Outcomes were stratified by visit year to allow pilot (2015-2016) outcomes to be compared to pre-pilot (2014) and post-pilot (2017-2018) outcomes. Descriptive statistics (frequencies, percentages) were used to summarize the data. All analyses were conducted using SAS statistical software version 7.1.

Results

Table 1 shows a total of 6949 visits, with appointments distributed evenly between 2014 and 2018. In most appointments, patients were younger than 12 months old, perhaps because well-child visits are recommended more frequently in the early months of life.

Table 1. Patient Demographics by Visit

Characteristic	No. (%) of Visits
Appointment year	
2014	1359 (19.6%)
2015	1327 (19.1%)
2016	1446 (20.8%)
2017	1407 (20.2%)
2018	1410 (20.3%)
Age (months)	
0-11	2983 (47.2)
12-23	1691 (27.6)
24-35	591 (9.4)
36-47	552 (8.7)
48-71	499 (7.9)
Race	
Unreported/refused to report	4104 (60.5)
African American	2473 (35.6)
White	197 (2.8)
Other (PI, AI, AN, other race)	71 (1.0)
Ethnicity	
Hispanic	2605 (37.5)
Non-Hispanic	2217 (32.0)
Unknown	2127 (30.6)
Sex	
Male	3485 (50.0)
Female	3464 (49.9)
Insurance	
Massachusetts Health	5151 (74.1)
Private	1687 (24.3)
No insurance	111 (1.6)

Abbreviations: PI, Pacific Islander; AI, American Indian; AN, Alaska Native.

Between 2014 and 2018, pediatric teams performed 2581 dental assessments and 3301 fluoride varnish applications. Table 2 shows a substantial increase in the number of well-child visits during which oral health services were provided between 2014 (the pre-pilot period) and 2015 to 2016 (the pilot period). The proportion of visits during which pediatricians performed oral health assessments increased from 0% in 2014 to 18.8% in 2015 and to 49.4% in 2016. Moreover, the proportion of visits during which pediatricians performed assessments increased to 57.5% between 2016—the last year of the pilot—and 2017 and remained relatively constant at 57.3% between 2017 and 2018. Findings from the analysis show similar gains in the proportion of appointments during which fluoride varnish was applied. While fluoride varnish was applied in 25% of well-child visits prior to the pilot (2014), it was applied in 49.7% and 50.2% of appointments during 2015 and 2016, respectively. Post-pilot, fluoride varnish was

applied in 55.2% of appointments during 2017 and in 56.7% of appointments during 2018.

Table 2. Fluoride Applications and Oral Health Assessments by Year of Well-Child Visit

Group	Well-Child Visits				
All children	2014 (n = 1359)	2015 (n = 1327)	2016 (n = 1456)	2017 (n = 1407)	2018 (n = 1410)
Fluoride application, %	25.0	49.7	50.2	55.2	56.7
Oral health assessment, %	00.0	18.8	49.4	57.5	57.3
Children > 11 mo.	2014 (n = 614)	2015 (n = 649)	2016 (n = 662)	2017 (n = 711)	2018 (n = 697)
Fluoride application, %	46.3	86.4	94.6	94.1	96.0
Oral health assessment, %	00.0	31.7	87.8	95.8	95.8

Oral health assessments and fluoride applications are recommended after 12 months of age or after first tooth eruption. When children younger than 11 months are excluded from the analysis, the proportion of appointments during which pediatricians applied fluoride increased from 46.3% (pre-pilot) to 96.0% (2 years after the pilot). The number of appointments during which pediatricians conducted oral health assessments for children older than 11 months also increased. Although no oral health assessments were reported before the pilot, oral health assessments occurred in 31.7% of appointments in 2015, in 87.8% of appointments in 2016, and in 95.8% of appointments occurring within 2 years of the pilot's completion.

Persistent Barriers

Since implementing the pilot, the CHC has integrated its medical and dental records, enabling consultation between medical and dental teams; hired a pediatric dentist; and required oral health training for current and new clinicians.[16] Yet barriers to medical-dental integration persist, including lack of insurance reimbursement for oral health services not provided by dentists, lack of oral health training for physicians, and lack of record sharing.[17,18] Patients who seek care at CHCs often have minoritized racial and ethnic identities, have low incomes, and experience inequitably high risk for oral and general health problems that must be addressed during time-limited clinical encounters.[17,18] Despite these barriers, this pilot points a way forward for medical-dental integration to better respond to pediatric health inequity.

Conclusions

Oral health has been defined as an integral component of general health,[19] and the impact of oral health conditions on systemic health has been widely documented. Oral health problems lead to avoidable deficits in nutrition, speech development, and self-esteem, as well as to elevated dental treatment costs.[18,19,20,21,22] As mentioned earlier, the incidence of dental caries is significantly higher among those from underrepresented ethnic backgrounds and those living in poverty compared to their White counterparts or those living above the federal poverty level.[2] Since patients from these populations often seek care at CHCs and other safety net institutions, they are an ideal venue to implement the Oral Health Delivery Framework.[22,23] This study demonstrated that in the presence of institutional commitment and with necessary support, such as that offered by HRSA and Qualis, successful programs for medical-

dental integration can be implemented and maintained over time, ultimately contributing to the reduction of oral health disparities among underserved populations.

Incorporating a medical-dental integration program in routine pediatric care requires an initial investment of time and training. In Massachusetts, preventive oral health training is provided free of charge by the Department of Public Health. The Smiles for Life[24] online training platform is also free of charge. It takes approximately 2 minutes of pediatricians' time to do an oral health assessment and apply fluoride varnish and costs $1.00 for supplies.[25] Even if preventive oral health care for children were more costly or time consuming, ethics and equity demand changes in practice and policy, as well as follow-up research on integrated medical-dental care for children.

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Ana Zea, DDS, DrPH is a clinical assistant professor of health policy and health services research and general dentistry and the director of community-based education at the Henry M. Goldman School of Dental Medicine at Boston University in Massachusetts. Dr Zea received her DDS degree from Pontifical Xaverian University and her DrPH degree from Boston University School of Public Health.

Michelle Henshaw, DDS, MPH is a professor of health policy and health services research at the Henry M. Goldman School of Dental Medicine at Boston University in Massachusetts, where she is also associate dean of global and population health. In addition, she is the co-director of Boston University's Center for Research to Evaluate and Eliminate Dental Disparities. Dr Henshaw received her DDS from the University of California, San Francisco, and her MPH from Boston University School of Public Health.

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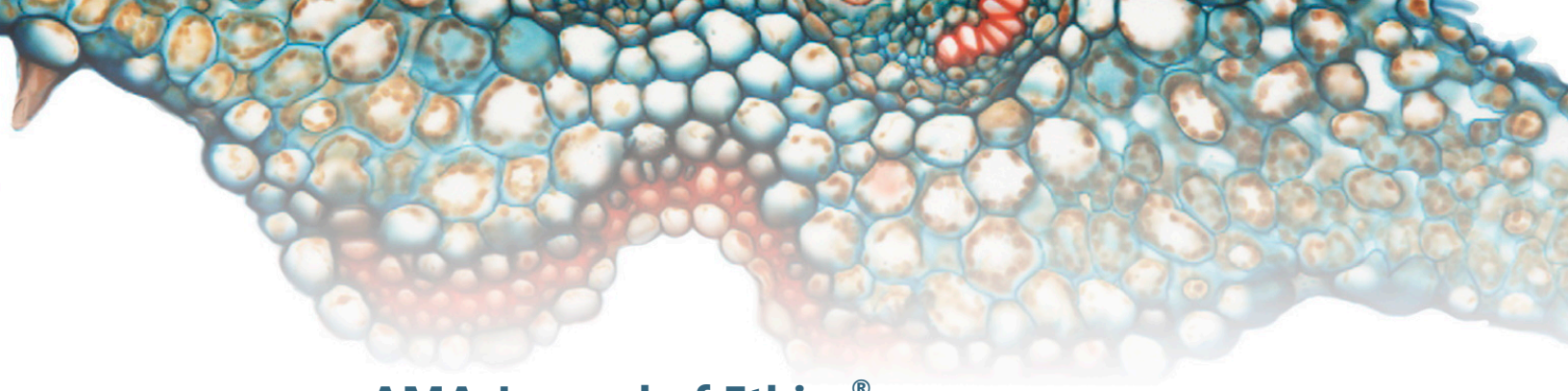

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ORIGINAL RESEARCH: PEER-REVIEWED ARTICLE

Using GIS to Analyze Inequality in Access to Dental Care in the District of Columbia

Jennita Davis, Meirong Liu, PhD, Dennis Kao, PhD, Xinbin Gu, MD, PhD, and Gail Cherry-Peppers, DDS, MS

Abstract

Background: Access to dental care in mixed-race and predominantly African American wards in the District of Columbia (DC) was investigated in relation to community development.

Methods: This study used high-resolution geographic information system (GIS) tools to map all general dentistry and periodontal practice locations in DC wards. The spatial analysis contextualized each ward's land use and demographic data obtained from DC government reports.

Findings: The analysis revealed inter-ward inequity in dental care access, which was measured by proximity to and number of dental clinics in each DC ward. Residents in affluent wards had access to many dental practices and superior amenities. Residents in wards poorly served by public transportation and with few resources had few, if any, dental clinics.

Conclusions: Dental practices are inequitably distributed across DC wards. DC policy should prioritize community development—specifically, resource allocation and community outreach—to promote health equity and improve access to and quality of dental care among residents of color.

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Background

The 2000 Surgeon General report on oral health underscored that "there are profound and consequential disparities in oral health" that primarily affect persons who are poor and have racially and ethnically minoritized identities.[1] Sources of inequity include social determinants (eg, lack of financial resources, transportation, understanding of oral

health's roles in overall health). Persons with low incomes have compromised access to insurance coverage for dental services, and Medicaid offers limited dental coverage.[1,2] Dental care access inequity differs between and within states, exacerbated by shortages of dental professionals in identified areas.[3,4]

Regional distributions of dental services have been evaluated using models based on a geographic information system (GIS) to determine the number of new dental practices needed to allow accessibility to a dentist within a certain number of miles.[5] GIS has not, however, been used to study relationships between oral health care access and community development. Accordingly, this research contextualized each DC ward's land use and demographic data, obtained from District of Colombia (DC) government reports, with spatial analysis enabled by GIS mapping of dental practice locations.

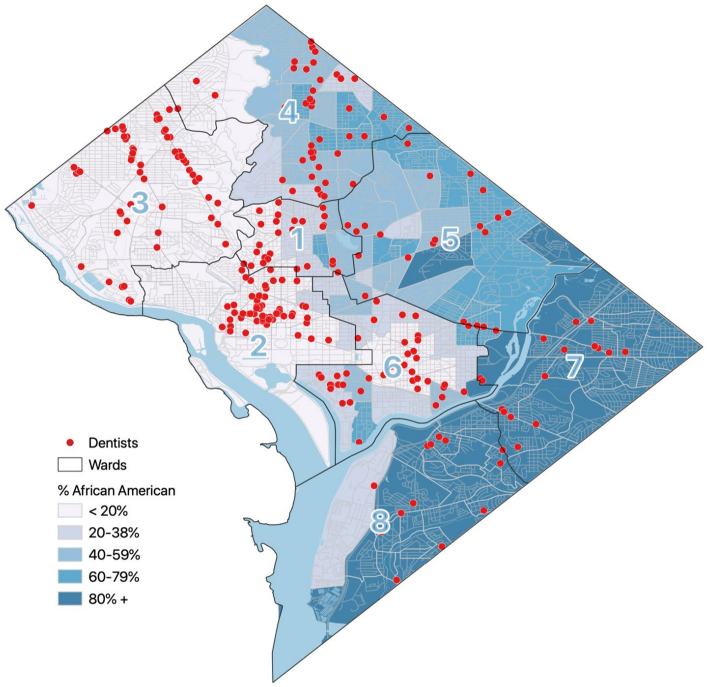
Methods

DC covers 68.34 miles of land[6] and includes numerous historically African American communities. As defined by the DC Office of Planning, a ward is a district "established for administrative or political purposes" and represented by an elected council member.[7] For each DC ward, we collected and summarized dental practice, land use, income, and employment status data. General dentistry and periodontal practice locations were collected online, entered into a database, and coded by specialty, street address, and zip code. Other data were obtained from DC government and census reports. We used the Quantum Geographic Information System to overlay the DC general and periodontal dental practice locations on a map of census tracts integrating population data to create a dental practice map and then overlaid ward boundaries on the map.

Results

Residents of DC's Ward 4 have the most access to dental care, and residents of Ward 8 have the least. Residents of Wards 1, 5, and 7 also have compromised access to dental services. (See Figure.)

Figure. Ward Map of Locations of DC General Dentistry and Periodontal Practices With Census Tract Population Data[a]



[a] Census tract-level demographic data from the 2018 American Community Survey were joined with US Census Bureau Tiger/Line shapefiles. Dental practice locations were obtained from a web-based dental directory database.[8]

Ward 4 is affluent, with a 2021 median income of $94 163 compared to the DC citywide median income of $91 414.[9] It has low crime rates, abundant community organizations, neighborhood amenities (eg, retail), well-integrated Metrorail service, relatively high-performing public schools with strong parental support, and substantial unmet need for new affordable housing units.[10] In 2021, about 31% of Ward 4 residents identified as White, a percentage slightly below the DC citywide average of 42%.[9] When the wards were overlaid on the map of dental practice locations, it is apparent that there are numerous dental practices distributed throughout the ward. Taken together, the demographic data and map of dental practice locations suggest a relation between Ward 4's community development and its residents' access to oral health services.

Ward 8 communities are inhabited by residents with lower incomes and are less publicly resourced and economically developed. Although Ward 8 has been racially integrated since 1877,[11] it is now about 92% African American.[12] In 2021, the median household income in Ward 8 of $39 473 was the lowest in DC and less than half DC's median income.[12] An influx of new residents to Ward 8 in the 1950s created economic and social disruption that continued into the 1990s. In 2000, 1 in 6 housing units in Ward 8 were vacant and 1 in 3 residents of Ward 8 lived in poverty.[11] The unemployment rate of 18% in Ward 8 is about 2.5 times higher than the average of 7.3% for the DC area.[12] When Ward 8 was overlaid on the map of dental practice locations, it's clear that there is a lack of dental practices.

Data on median income and population density for all the wards are displayed in the Table.

Table. Ward Statistics

Ward	Median Income	Square Miles	Population
Ward 1	$110 339[13]	2.5[14]	91 673[13]
Ward 2	$112 244[15]	6.4[16]	92 809[15]
Ward 3	$143 339[17]	10.4[18]	84 979[19]
Ward 4	$94 163[9]	8.9[20]	87 150[9]
Ward 5	$91 189[21]	10.2[22]	90 380[21]
Ward 6	$113 922[23]	5.7[24]	103 197[23]
Ward 7	$42 201[25]	8.4[26]	80 669[25]
Ward 8	$39 473[12]	8.7[27]	80 517[12]

Discussion

Residents of DC wards with high percentages of persons with minoritized racial and ethnic identities and low median incomes have more limited access to oral health services than residents of more affluent DC wards. They have less access to well-integrated public transportation and must travel farther to access dental care in DC than residents of wards that have more community development and investment. These findings align with data from similar studies of other regions of the United States. For example, a GIS study in Ohio also revealed lack of access to dental care among residents in historically rural and low-income areas.[5]

Conclusion

Inequitable distribution of dental practices across DC reveals inequity in dental care access. Some residents endure more obstacles to accessing dental services than others. Identifying neighborhoods with limited access should be a public policy priority to encourage reform and innovation (eg, student loan repayment options and other incentives for oral health clinicians to practice in culturally and economically diverse communities) and would help develop public health outreach programs that promote equitable access to quality oral health services.

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Jennita Davis is a student in the Rollins School of Public Health at Emory University in Atlanta, Georgia. She is a recent graduate of Howard University's Interdisciplinary Studies Program with a concentration in bioethics. Her research interests include bioethics, health disparities, and reproductive rights.

Meirong Liu, PhD is an associate professor at the Howard University School of Social Work in Washington, DC. She has led evaluations of several federally funded programs that established multi-institutional, comprehensive, long-term partnerships to address oral health disparities and improve oral health disparity research in underserved populations. Her research focuses on program development, program evaluation, and the policies and programs that provide access to public benefits for vulnerable populations.

Dennis Kao, PhD is an associate professor at the Carleton University School of Social Work in Ottawa, Ontario, Canada. His research focuses on health equity, aging-friendly communities, geographic information systems, data visualization, and digital storytelling.

Xinbin Gu, MD, PhD is a professor and the associate dean of research at the Howard University College of Dentistry in Washington, DC. She is the principal investigator of the Howard University/Johns Hopkins University Summer Research Experience Program in Oral Health Disparity for Underrepresented Racial and Ethnic Students, which provides innovative training to students from underrepresented communities to conduct health disparity research and practice.

Gail Cherry-Peppers, DDS, MS is an associate professor and the director of community dentistry at the Howard University College of Dentistry in Washington, DC. Her research focuses on oral health disparities and their associations with chronic diseases.

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POLICY FORUM: PEER-REVIEWED ARTICLE

Health Equity Needs Teeth

Eleanor Fleming, PhD, DDS, MPH, Julie Frantsve-Hawley, PhD, and Myechia Minter-Jordan, MD, MBA

Abstract

People who are poor or members of communities of color face inequitable oral disease burden. Continued separation of dental and oral health from general medical care exacerbates inequity and forces members of underserved communities to seek nontraumatic dental emergency care in hospital emergency departments. This trend is unnecessarily costly and results in antibiotic prescriptions and pain management that are neither restorative nor responsive to patients' primary complaints. Value-based approaches to health care need to unify mouth care with general medical care, motivate medical-dental interprofessional practice, promote oral disease prevention, and support restorative dental care. Value-based approaches to health care must also innovate fiscal structures (eg, payment models, data sharing) to improve health outcomes for everyone.

Weekend Mouth Pain

Imagine it's Saturday evening at 6 pm, and you find yourself in pain—a pain not from a hurt foot or shoulder, but a throbbing, radiating pain in your mouth that feels as if your head and ears are on fire. You cannot sleep or eat. Previously, the pain was dull and only bothered you when you ate something sweet or cold. But now, at 6 pm on a Saturday, you find yourself in extreme pain and unable to function. While you are employed, your minimum wage job does not provide dental insurance and you live in a state that does not provide comprehensive, adult dental benefits through Medicaid. Consider also that when you saw your physician 3 months ago for your check-up to renew your blood pressure prescription, you mentioned the tooth bothering you. It is likely that your physician did not examine your mouth or refer you to a dentist for care. You thought the tooth could wait! To make things worse, because of your lack of dental coverage and your inability to pay for the out-of-pocket expense of dental care in a private practice office, you do not have a dental home to call for an emergency appointment. The last time you saw a dentist was at a charity dental event in the local college's gymnasium several years ago. In the United States, where should you go and what should you do?

Fragmented, Biased Oral Health Care

Perpetuating the separation of medicine and dentistry affects how costs of services are paid, how clinicians are trained, and where their practices are located.[1,2,3,4] Yet the mouth has essential roles in overall health.[4,5] Our quality of living—the ability to eat and speak—depends upon the health of our teeth, gums, and mouth.[5] Research shows that health system fragmentation contributes to poor health outcomes, engenders patient and clinician dissatisfaction, results in biased treatment planning, perpetuates racism and inequity, and supports an ineffective reimbursement system.[2,6,7,8,9,10,11]

Members of poor and marginalized groups bear an inequitable oral disease burden.[10,12] Across age groups and dental conditions, non-Hispanic Black, Hispanic, and American Indian and Alaska Native individuals have worse clinical outcomes and self-reported perceptions of their oral health, as well as lower adoption of evidence-based preventative services, than non-Hispanic White individuals.[13,14,15,16,17,18] Similarly, individuals living below 200% of the federal poverty level have more untreated dental caries and fewer permanent teeth than those living above that threshold.[13,19] The underlying causes of inequity are rooted in structural racism.[20] Antiracist practices and a focus on social and political determinants of health have been proposed as ways to support health equity.[21,22,23] However, changes in practice and focus alone only scratch the surface of deep-seated inequity; lasting change could come from reimagining health care delivery streams, integrating medical and dental services, and implementing a reimbursement system that emphasizes value and patient-centered outcomes. Moreover, changes in payment structures might incentivize interprofessional practice and equity across the health sector.

Financially Unbalanced

Having medical but not dental insurance is a reality for many Americans.[3] While the Affordable Care Act has lowered the percentage of the US population that lacks health insurance, especially among people with low income and people of color,[24] many insurance gaps—especially for adults—have not closed. In 2015, 1 in 3 US adults had no form of dental benefits coverage.[25] In 2017, 9.5% of US adults were unable to access dental care due to cost as compared to 7.4% of US adults who were unable to access medical care due to cost.[26] Improved access to dental coverage results in better health care utilization. For adults with lower incomes living in states that expanded Medicaid to include adult dental benefits, the number of people who reported having a dental visit in the past year increased 7.2 percentage points.[27]

Although the Affordable Care Act increased access to dental care for some adults through Medicaid expansion, hospital emergency departments (EDs) are still the only access point for dental care for many adults. In 2012, there were more than 2 million ED dental visits that incurred $1.6 billion in expenses, with an average cost of $749 per visit.[28] National average costs for fillings on permanent teeth and extractions to erupted teeth are less than one-fifth the cost of the average ED dental visit.[28,29] In an ED, common treatments for nontraumatic dental problems are nonsteroidal anti-inflammatory drugs, opioids, or antibiotics.[30] None of these treatments addresses an underlying dental problem, and each incurs unnecessary costs.[31]

Interprofessional Practice

Integrated medical-dental care has proved successful, most notably for diabetes and hypertension prevention and management, tobacco cessation, prenatal care, and care of people living with HIV.[32,33,34,35,36,37] Interprofessional practice supports whole-person

care, allowing medical, dental, and other health-focused practitioners (eg, nutritionists and therapists) to optimize care planning collaboratively. When oral health was part of well-child-visits, non-Hispanic Black, Hispanic, and American Indian and Alaska Native children received earlier dental interventions and better preventive services.[38,39] Integrating oral health care with periodontal disease treatment and prevention also supports health of patients with diabetes.[11,40,41]

To facilitate interprofessional practice, health service delivery must express equity and value and be financed to support workforce diversity. With a focus on prevention rather than disease management, value-based payment models can support medical-dental integration by streamlining operations and supporting clinicians practicing at the top of their licenses (ie, the highest level of skill that a clinician is licensed to practice).[42,43,44] Medical-dental integration requires regulation and reimbursement structures that establish shared language, forge agreement on measurable outcomes, and incentivize technology use (eg, electronic health record information exchange and interoperability) that reinforces value and seamless interprofessional operations, especially referrals. Technology should also enable data collection that would facilitate assessment of services' impact and return on investment and support population health management.[35]

Value-Based Care Is Integrated

Value-based care is a comprehensive term that refers to care that seeks to improve health outcomes efficiently via transformations in care delivery, data and analytics, and financing. Value-based oral health care seeks to prevent dental diseases and improve oral health outcomes with a focus on the quality of care as opposed to the quantity of restorative procedures.[45,46] Equitable health care can only occur in an integrated system of value-based care that supports transformations in prevention, treatment, payment models, and data and analytics to deliver patient-centered care and improve population outcomes.[47,48] Public and private insurance programs can be restructured to bundle payments, incentivize prevention and health promotion, and create flexible payment options for health services delivered outside of the clinic via telehealth and home-based care. Payment transformation that occurs through alternative models that incentivize prevention and optimal health lends itself to improved health systems outcomes, especially if the health system works to focus not on disease interventions but on the upstream, localized, and systemic causes of disease.[49]

A key example of value-based oral health care is the Medicaid services provided by the largest dental accountable care organization (ACO) in Oregon. Delivering services to approximately 284 000 members of the state's Medicaid program, this ACO offers a unique approach to oral health care by incentivizing prevention over surgery, community-based care, and population health management.[50] This value-based approach resulted in improved outcomes compared to national Medicaid samples: in 2015, 20% of children enrolled were assessed for caries risk compared to 0.1% of children in a national Medicaid sample; 85% of services provided to children were preventive or diagnostic compared to 77% of services in a national Medicaid sample; the need for restorative and surgical services for children enrolled dropped from 21% in 2011 to 15% in 2016 while the national Medicaid sample experienced no reduction over the same period; 17% less on average was spent to treat children and 21% less on average to treat adults than spent by Medicaid to treat children and adults in a national sample.[50]

Additional examples of value-based care include integration of oral health care with practices such as pediatric primary care and dental homes for pregnant women.[50,51] Continued evaluation and appropriate change management will be necessary to overcome foundational bias and discrimination, both interpersonal and institutional.[52,53] Moreover, health policy based on social justice can reduce inequity, address social determinants of health, and prevent some emergencies.[54]

While these changes to create a more equitable model of health care delivery may occur within the systems of payers, work is also needed to ensure that this new, integrated system functions as a social justice practice.[54] Addressing racial inequities and discrimination within health care has been described as a "wicked" problem because this problem is complex, has multiple stakeholders, and is tough to solve.[20,44] We contend that separating oral health care from medicine is another contributor to that wicked problem.[34] The current dental care system is not designed to address social disparities, rarely considers determinants of health, and does not address the inequities it causes.[19,20,21] Therefore, an integrated system of medicine and oral health care must bring attention to disparities and build policy, practice, and research solutions to support equity.

Improving population health must be grounded in a shared value of social justice.[54] There must be parity in the payment models for private and public insurance. Additionally, value-based reimbursement programs can address the social risk factors of a community by incentivizing providers and plans to improve health outcomes of those with social risk factors and thereby contribute to creating a more equitable and efficient system of health.[55] With fair and adequate reimbursement, the integrated health team of medical, dental, and other clinicians can democratize the patient experience and focus on improved health outcomes for all patients. Ultimately, interprofessional, value-based care encourages the wellness and health of communities in addition to the treatment and care of the individual by focusing on population-based outcomes.

Motivating Equity

Although advertisers suggest that white teeth and a perfect smile are the standards of a healthy mouth, oral health actually entails a functional dentition; the ability to open one's mouth, chew, and speak; gums that do not bleed; and a mouth free from both pain and disease. Far too often, patients face excruciating pain with no dental coverage, cannot afford to pay out of pocket, and have no clue where to access treatment. For non-Hispanic Black, Hispanic, and American Indian and Alaska Native people, this is not simply an access issue: it is a matter of social injustice. Clinicians, payers, communities, policymakers, employers, and other decision makers must collectively decide to promote justice. We recommend adoption of value-based models that incorporate interprofessional practice and reimbursement mechanisms that are integrated with value-based care. Stakeholders must unite and advance research to transform health care. After all, who knows when it will be 6 pm on Saturday and you will be the one in pain.... Where will your help come from?

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Eleanor Fleming, PhD, DDS, MPH is the director of the Center for Educational Development and Support at Meharry Medical College, and an associate professor in the Department of Dental Public Health at the Meharry Medical College School of Dentistry in Nashville, Tennessee.

Julie Frantsve-Hawley, PhD is the director of analytics and evaluation at the Care Quest Institute for Oral Health in Boston, Massachusetts.

Myechia Minter-Jordan, MD, MBA is the president and chief executive officer of the Care Quest Institute for Oral Health in Boston, Massachusetts.

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Time for Dental Care to Be Considered Essential in US Health Care Policy

Marko Vujicic, PhD and Chelsea Fosse, DMD, MPH

Abstract

Training, service delivery, and financing are done separately in dentistry and general health care, which has influenced reimbursement structures, access to services, and outcomes. This article considers how medical and dental separation exacerbates health inequity and canvasses data demonstrating that oral health and dental services are the least affordable health services. This article also proposes how dental and general medical care coverage can be meaningfully integrated through better health policy to motivate health equity.

Divided

Dental care services have a long history of being financed and delivered separately from medical care services.[1,2] In the mid-1800s, dental schools and associations were established independently of medical schools and associations.[1] Several important US health care reform milestones have reinforced this separation—most recently, the Affordable Care Act (ACA) of 2010. Under the ACA, dental care for adults was not included as an essential health benefit, and, while dental care for children was included and lowered total financial outlays,[3,4] the increase in stand-alone dental plans between 2014 and 2016 reinforced the separation of dental and medical insurance.[4] In this article, we summarize the implications of financing and delivering dental care separately from medical care, focusing on trends in outcomes and in affordability and utilization of dental care services and highlighting disparities by income, age, and race. We also pose some key questions for policymakers seeking to address these issues.

Oral Health Inequity

Improvements in the oral health of the US population vary by age, income, and racial or ethnic group. Among children, disparities by race and income are narrowing for many oral health indicators. For example, children from low-income families and Black and Hispanic adults are more likely to have untreated tooth decay,[5,6] but children and adolescents from low-income families and Black and Hispanic children ages 6 and older have seen the biggest improvements in recent years.[7] Among seniors, untreated cavities are far more common in Black and Hispanic populations.[7] Another important outcome, retention of natural teeth, highlights the disparities that exist among older adults. While older Americans in general are retaining more teeth than in the past, the improvements

have mainly occurred among high-income seniors.[8] In other words, income inequity is widening when it comes to retaining your natural teeth. Oral health improvements occur for many reasons, including better access to dental services. Recent data show that working-age adults and seniors are more likely to face financial barriers to obtaining needed dental care than children.[9,10] Dental care utilization trends have been driven in large part by trends in dental insurance coverage. In 2015, 10% to 12% of US children were uninsured for dental care services compared to 28% of working-age adults and 62% of seniors.[11,12] The share of US children with some form of dental insurance has increased significantly in the past 2 decades, from 73% in 1996 to 88% in 2015,[11] with the most significant gains in dental insurance coverage being among children from low-income families.[9] Among working-age adults and seniors during the same period, dental insurance coverage rates increased modestly, from 67% to 72% for the former and from 35% to 38% for the latter.[11]

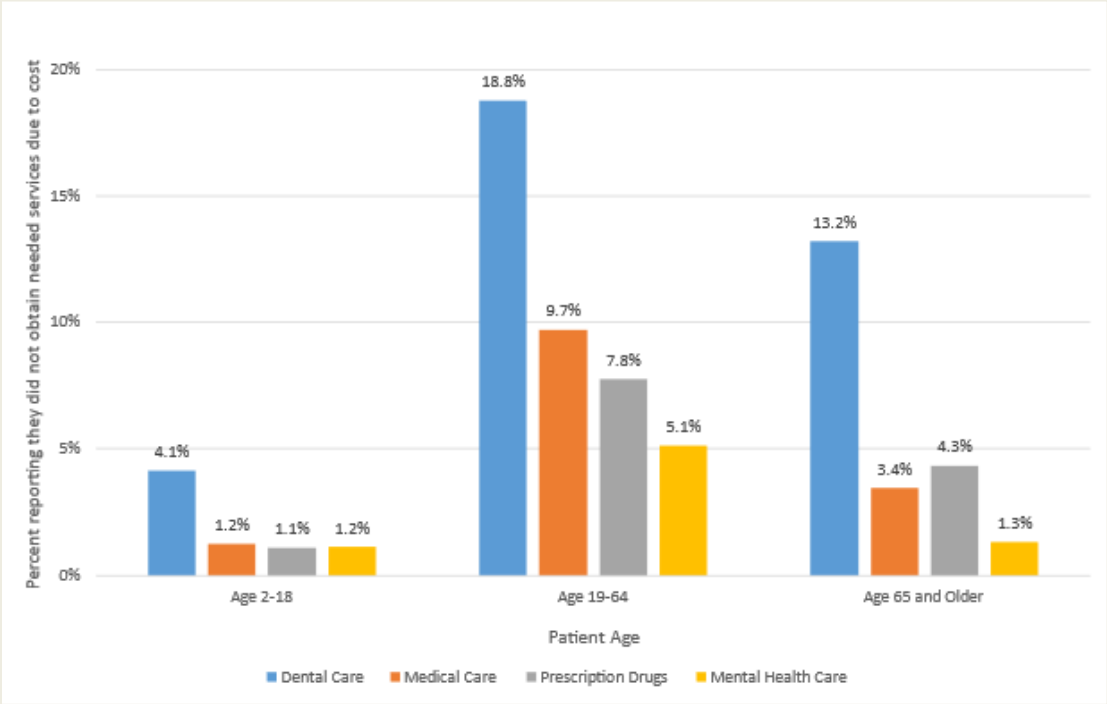
Public Policy

For children from low-income families enrolled in Medicaid, dental insurance coverage is guaranteed by the Early and Periodic Screening, Diagnostic and Treatment (EPSDT) benefit. This mandatory benefit requires that the Medicaid program and the Children's Health Insurance Program (CHIP) provide comprehensive, medically necessary dental services to all children under age 21.[13] Roughly 43% of general practice dentists participate in Medicaid or CHIP for child dental services.[14] While dentist participation in Medicaid is much lower than physician participation,[15] the available evidence suggests that financial issues[10] or lack of prioritization of dental care[10] are key barriers to dental care for children as well.

Dental insurance for adults at all income levels, on the other hand, is not guaranteed. Adult dental benefits under state Medicaid programs are optional, and there is significant state-to-state variation in terms of what dental services are covered. According to the most recent analysis, 3 states provide no adult dental benefits, 10 states provide emergency-only benefits, 16 states provide limited benefits, and 20 states cover a more comprehensive mix of dental services.[16] Medicare, the medical insurance program for adults ages 65 and older, does not cover routine dental services. However, roughly 94% of Medicare Advantage (Part C) enrollees in individual plans had some dental services included as a part of their benefits package in 2021.[17]

Between 2000 and 2015, dental benefits utilization and insurance coverage of dental services for children increased,[18,19] reducing oral health inequity among children from families with low-income and among Black and Hispanic children.[7] But inequity has not decreased for working-age adults and seniors. Why does age alone dictate whether society deems oral health essential? Different policy approaches to dental insurance for children, working-age adults, and seniors affect affordability. For all age groups, data suggest that financial barriers to dental care are more significant than for any other health service,[20] yet children face dramatically lower financial barriers to dental care than working-age adults and seniors (see Figure).[20]

Figure. Financial Barriers to Dental Care and Other Types of Health Care Services in 2019[a]



Even when dental coverage is offered, it is almost always as a stand-alone dental plan (SADP) and not embedded as part of a medical plan. Among the privately insured prior to the passage of the ACA, 99% of those with dental insurance obtained that coverage through SADPs.[22] (As of 2017, the take-up rate of SADPs in federally facilitated marketplaces was only 16% for adults and 17% for children.[23]) Moreover, Medicaid dental programs are administered separately from medical programs, with different provider network arrangements, different patient record systems, and different care coordination challenges for clinicians.[23,24] Thus, affordability challenges for working-age adults and seniors aside, dental care delivery is not effectively linked with medical care delivery in the true sense of a health care "system."

System fragmentation undermines medical-dental care coordination. Physicians' referrals to dentists are compromised by separate insurance systems and lack of service delivery integration.[24,25] Moreover, accountable care organizations tend not to offer dental services due to coverage gaps in their patient base and practical challenges posed by differences in information technology platforms used by medical and dental clinicians.[26]

What Now?

In our view, the income, age, and race inequity in oral health outcomes, dental care use, and affordability stem from major dental insurance coverage gaps for vulnerable populations and lack of medical-dental integration that would facilitate interprofessional referrals and care. Current dental care financing and delivery streams leave vulnerable groups behind.[27] We urge policymakers and stakeholders to consider 2 key policy questions.

Should dental care be considered an essential health care service for people of all ages within public and private insurance programs? Medicaid's EPSDT benefit has proven effective in improving oral health outcomes and reducing inequity among children.[9] This policy approach can be used to design and implement similar mandatory dental benefits for adults. In January 2021, Congress introduced the Medicare Dental Benefit Act of 2021,[28] which calls for inclusion of oral health benefits in Medicare Part B for the two-thirds of Medicare beneficiaries who currently have no dental coverage.[29] Expanding dental coverage to adults and seniors would likely reduce costs for those with chronic health conditions (eg, diabetes),[30] improve oral health and well-being, and promote economic productivity among working-age adults.[31]

What is needed to improve care coordination between medical and dental practitioners? There are 27 million people who visit a dentist but not a physician and 108 million who visit a physician but not a dentist in any given year.[25] There are undoubtedly medical and dental conditions going undetected in these respective populations that, if addressed, would improve overall health and potentially reduce long-term health care costs.

Current dental service delivery streams do not enable effective care coordination between dental practitioners and other clinicians.[32] Foundational changes in education and training programs are needed to facilitate interprofessional patient care. Diagnostic data is not collected routinely in dental insurance data. Dental insurers must recognize the importance of coding procedures and diagnoses to track outcomes and contribute to evidence-based practice. Integrated health information technology and enhanced understanding of the day-to-day care offered by medical colleagues would facilitate referral processes and increase access to care.

Act Now

Former US Surgeon General David Satcher said more than 20 years ago that "you cannot be healthy without oral health."[33] Certainly, we have made progress in improving oral health for children since then, especially for vulnerable children. But for working-age adults and seniors, disparities in oral health outcomes and in access to dental care have widened by income and race. Treating dental care as essential in US health policy—for all ages, not just children—is the only way to address these challenges.

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Marko Vujicic, PhD is chief economist and vice president of the Health Policy Institute of the American Dental Association in Chicago, Illinois, which collects and analyzes data on practice consolidation trends, oral health outcomes, the dental workforce, dental education, and dental benefits. Formerly, he was an economist with the World Bank and the World Health Organization.

Chelsea Fosse, DMD, MPH is a senior health policy analyst with the Health Policy Institute of the American Dental Association in Chicago, Illinois. She earned an DMD degree from Rutgers School of Dental Medicine and an MPH degree from the Mailman School of Public Health at Columbia University. Her research centers on policy issues related to Medicaid, Medicare, public health, the Affordable Care Act, and other public policy issues.

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POLICY FORUM: PEER-REVIEWED ARTICLE

What Primary Care Innovation Teaches Us About Oral Health Integration

Ann Claire Greiner, MCP and Anita Duhl Glicken, MSW

Abstract

Integrating primary and oral health care is critical to improving population health and addressing health inequity exacerbated by the COVID-19 pandemic. Leaders of the patient-centered medical home (PCMH) movement focused on building consensus for the PCMH model among diverse stakeholders in order to enhance infrastructure investment, care innovation, and payment reforms that support access and equity. This article offers 5 lessons from the PCMH movement to inform primary and oral health care integration.

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Patient-Centered Medical Homes

Consumers want primary care that is accessible, comprehensive, coordinated, and responsive to overall health and well-being and that integrates oral and behavioral services.[1] However, despite the fact that comprehensive primary care improves population health and reduces inequity,[2,3,4] this care is hard for patients to find because of siloed payment, insurance, and delivery streams. The COVID-19 pandemic has further weakened primary care and exacerbated inequity.[5,6] Yet primary care innovators who have built momentum over the last decade might still help increase access to comprehensive care by creating patient-centered medical homes (PCMHs)[7] that can connect silos. PCMHs offer advanced primary care models that do the following:

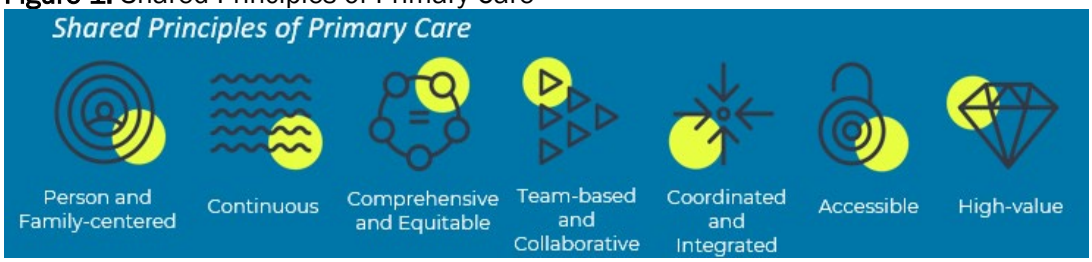
- Strengthen partnerships between primary care clinicians and patients
- Deliver comprehensive services through team-based, proactive approaches
- Leverage technology to track, target, and evaluate interventions

PCMHs have been widely adopted by commercial health plans, states, and federally qualified health centers (FQHCs). As of 2010, 44 states and the District of Columbia had passed 330 laws to support and incentivize medical homes.[8] White and Twiddy reported in 2017 that 45% of family physicians practice in a PCMH,[9] and the American Medical Association showed that 32% of physicians in 2018 participated in a medical home.[10,11]

Shortages and Need

The 2007 Joint Principles of the PCMH, which guided the development of this advanced primary care model, were updated in the 2017 Shared Principles of Primary Care[12,13] (see Figure 1), now embraced by over 350 organizations.[14]

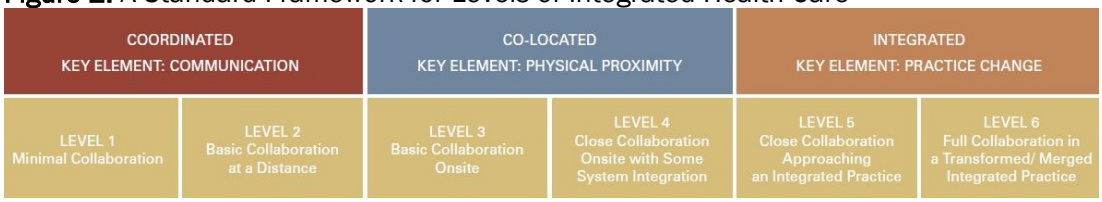
Figure 1. Shared Principles of Primary Care[a]



[a] Adapted from Epperly T, Bechtel C, Sweeney R, et al.[12]

Each principle is germane to primary and oral health care integration. The principle of comprehensive and equitable care deserves particular attention here, since it encourages disease prevention and intervention strategies' inclusion of general medical, mental health, and oral health services, as well as social determinants of health, which are often overlooked and undervalued in siloed service delivery streams. In 2013, the Substance Abuse and Mental Health Services Administration-Health Resources and Services Administration Center for Integrated Health Solutions created a framework of 6 levels of integrated health care (see Figure 2).[15,16]

Figure 2. A Standard Framework for Levels of Integrated Health Care[a]



[a] Reproduced from Heath B, Wise Romero P, and Reynolds K.[16]

Models of care based on this framework included co-located dental hygienists or full-service dental clinics but didn't offer system-wide integration of whole-person care. Most ambulatory visits in the United States are to primary care clinicians,[17] which is no wonder, since 61 million people live in dental health professional shortage areas (HPSA) and 124 million live in mental HPSAs.[18]

The following data suggest that primary care equipped to meet patients' needs holistically must offer a range of services (eg, screening, education, interventions, appropriate referrals) in general medicine, mental health, and oral health.

- Dental caries is considered the most prevalent infectious disease on earth,[19] and half of US adults aged 30 and older have periodontitis.[20] Oral disease is associated with worse outcomes across multiple health conditions and organ systems, and chronic inflammation associated with periodontal disease is associated with diminished glycemic control among people with diabetes[21] and increased risk of preterm birth.[22]
- Seventy percent of primary care visits are for psychosocial concerns,[23] and patients with physical or mental disability have higher rates of substance use

disorder and serious mental illness.[24] Patients with mental illness die 13 to 30 years earlier than members of the general population from treatable conditions.[25] Conversely, people with physical illness or injury have higher rates of undetected mental illness.[26,27]

- Up to 2.1 million emergency department visits each year are for nonurgent, preventable dental conditions[28]; 108 million people annually see a physician but not a dentist, and 27 million people annually see a dentist but not a physician.[29]

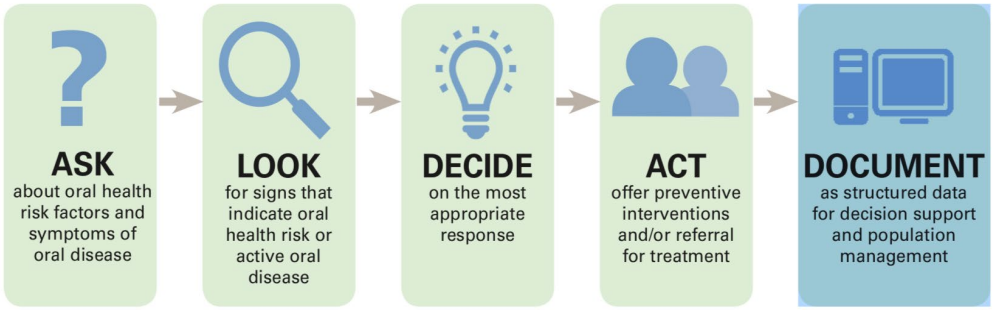
Five Lessons

General medical, mental health, and oral health care integration can be guided by 5 lessons from the adoption of PCMHs.

Lesson 1: compile evidence. Evidence offers exemplars of implementation successes and failures, which can enable articulation of shared values that spur engagement, motivate communication and consensus, and forge innovation in education, policy, advocacy, and research. In mental health, for example, the IMPACT study, published in 2002, provided evidence that late-life depression intervention in primary care settings reduced depressive symptoms relative to usual care,[30] which led the National Council for Community Behavioral Healthcare to define mental health roles for PCMHs in 2009.[31] In 2010, the Milbank Memorial Fund published *Evolving Models of Behavioral Health Integration in Primary Care*,[32] which described how to nationally scale mental health integration to improve depression intervention outcomes,[33,34] increase adherence,[35] and support quality of life.[36]

A nascent evidence base for oral health integration is being formed from insurance claims data on positive outcomes for at-risk patients who received combined medical and dental care.[37,38,39] Since 2009, the National Interprofessional Initiative on Oral Health (NIIOH) has convened diverse stakeholders to create a framework for integrating oral health care into primary care. NIIOH also participated in the US Health Resources and Services Administration's consensus process that defined core clinical oral health competencies for primary care clinicians.[40] NIIOH continues to support Smiles for Life,[41] a free online primary care oral health curriculum, and the Oral Health Delivery Framework,[42,43] which offers sample workflows for stepwise, incremental integration of oral health into primary care (see Figure 3). The Primary Care Collaborative (PCC) also convened diverse leaders to report on oral health care and primary care integration with a view to compiling and disseminating exemplar oral health integration models.[44]

Figure 3. Oral Health Delivery Framework[a]



[a] Reproduced from Hummel J, Phillips KE, Holt B, Hayes C.[43] Reprinted by permission of Jeffrey Hummel.

Lesson 2: collaborate. Care delivery innovations affect a range of stakeholders (eg, payers, policymakers, clinicians) with competing interests. Inclusive co-creation of a shared vision of the future state of health care generates buy-in, and buy-in makes for easier implementation. The PCC's team-based advocacy efforts, for example, have generated widespread adoption of PCMHs by federal and state agencies and insurers.[45] Together with the National Alliance of Healthcare Purchaser Coalitions and the Pacific Business Group on Health, the PCC released 7 new attributes of advanced primary care models that align shared principles, including mental health integration.[46] Similar collaborative effort could be replicated for oral health integration.

Lesson 3: reform both service delivery and payment streams. Although PCMHs have demonstrated some improvements in cost and quality, many experts believe that the model is underpowered because payment structures do not support team-based care.[47] Primary care is still largely fee-for-service and makes up only 5% to 7% of total US health care spending,[48,49,50] so organizations' investment in primary care is low. More than 60% of primary care practices' revenue must come from prospective payments in order to substantially reform care delivery without fiscal loss.[51] Reliance on fee-for-service hampers practices' capacity to offer comprehensive services via cross-disciplinary teams.[52] To help practices with financial obstacles to integration, the AIMS Center for Advancing Integrated Mental Health Solutions[53] offers resources (eg, bundled payment models, collaborative care codes) for managing fiscal demands of mental health integration. Texas, for example, began contracting with Medicaid to integrate services and reduce fragmented care.[54] Reformers need examples of financially successful integration models to co-locate oral health and primary care in FQHCs and bundle benefits in some Taft-Hartley plans.[55]

Lesson 4: motivate equity. Initially, the value proposition of PCMH focused more on cost than quality, but both are key to promoting equity, particularly as we emerge from the COVID-19 pandemic. Before the pandemic, one-third of US adults lacked dental insurance,[56] and Americans with low incomes or without health insurance were less likely to have visited a dentist within a year.[57,58] Before the pandemic, Black and Brown communities had lower rates of annual dental visits and higher rates of tooth decay and tooth loss.[59,60,61] The COVID-19 pandemic has likely worsened these outcomes, as many lost employer-sponsored insurance that included some coverage of dental services.[62,63,64]

Lesson 5: invest in metrics infrastructure. As with organizational transitions to PCMHs, infrastructure investments are prerequisites for integration. Most primary care electronic health record (EHR) systems lack oral health fields, which impedes interoperability, data and analytics collection, care coordination, and key performance indicator tracking and reporting needed to ensure value-based care and payment. Public and private insurers can help incentivize organizational investment in EHR architecture that enables innovation and integration. Of 1100 metrics endorsed by the National Quality Forum's Quality Positioning System, we identified 122 primary care metrics and 9 oral health metrics.[65] A standardized and reliable measure of caries, for example, is essential to meaningful integration of oral health into primary care.

Next Steps

Equitable care of patients and communities requires integrating mental health and oral health into primary care. We envision comprehensive, patient-centered service delivery

streams that prioritize prevention, value, and national scalability of standard-of-care exemplars that we all want and deserve.

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Ann Claire Greiner, MCP is the president and chief executive officer of the Primary Care Collaborative, which defines and implements advocacy, research, and education agendas to promote comprehensive, team-based, and patient-centered primary care. She previously served as vice president of public affairs for the National Quality Forum and as deputy director at the National Academies of Medicine and in leadership roles within the National Committee for Quality Assurance and the American Board of Internal Medicine. She earned a master's degree in urban planning from the Massachusetts Institute of Technology.

Anita Duhl Glicken, MSW is the executive director of the National Interprofessional Initiative on Oral Health as well as a professor and associate dean emerita at the University of Colorado Anschutz Medical Center in Aurora. She also serves as the chair of the Health Resources and Services Administration Advisory Committee on Training in Primary Care Medicine and Dentistry. A clinical social worker by training, her publications focus on innovative, transformative, collaborative education and service delivery models that motivate health equity.

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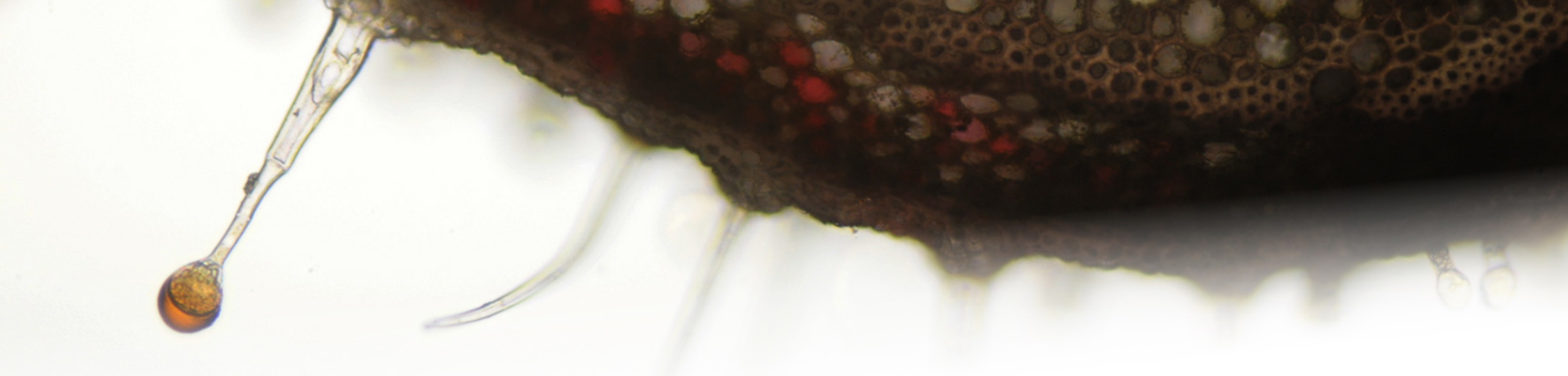

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HISTORY OF MEDICINE: PEER-REVIEWED ARTICLE

Eight Ways to Mitigate US Rural Health Inequity

Jo Henderson-Frost, MD, MPH and Mark Deutchman, MD

Abstract

Rural residents in the United States are less likely to have dental insurance and more likely to face environmental and geographic barriers to oral health and dental care. This article discusses oral health inequity, evidence of oral health's influence on overall health, and why the primary care workforce is well positioned to provide prevention, screening, and referrals for oral health and dental care. Six strategies by which oral health and dental care are integrated into primary care delivery streams can help mitigate rural health inequity.

Oral Health, Overall Health

Poor oral health has significant consequences for overall health and quality of life. Poor dental coverage and poor oral health care access have led to a high prevalence of preventable dental diseases that affect health and quality of life for millions of Americans. For example, periodontitis affects 46% of US adults and dental caries affect 92%.[1] In the last several decades, the effect of oral health on overall health and quality of life has been increasingly recognized. The 2000 US Surgeon General's Report described the linkage between periodontal disease and metabolic syndrome, adverse pregnancy outcomes, coronary artery disease, stroke, and bacterial pneumonia.[2] Since then, several studies have demonstrated the negative impact of dental disease on quality of life.[3,4]

Despite the recognition of the importance of oral health for population health, there are 2 unsolved challenges to the delivery of oral health care: cost of care and access to care. In this paper, we review these challenges and highlight a proposed solution to integrate oral health care into primary care.

Dental Coverage Gaps

In the United States, there are large disparities in oral health, particularly for children, by socioeconomic status and race/ethnicity.[5] Oral health disparities are exacerbated in rural populations. Compared to urban populations, rural populations are older, lower income, less likely to have dental insurance, and more likely to rely on Medicaid and Medicare.[6] Medicaid and Medicare offer limited dental coverage: for children, states are now—after the passage of the Patient Protection and Affordable Care Act (ACA) of 2010—required to include dental care in their Medicaid and Children's Health Insurance programs (CHIP).[1] Adult Medicaid oral health benefits are highly variable from state to

state,[7] and only 19 states offer extensive coverage.[8] Medicare covers only very limited dental services under Part A.[9]

Fewer Dentists, Less Access

Coverage alone is likely not sufficient to increase access to care, as only an estimated 43% of dentists accept Medicaid or CHIP.[10] The dental care safety net was saturated prior to the passage of the ACA and now has millions more potential patients.[11] An estimated 50 million people reside in dental health professional shortage areas.[11] Most dentists are located in urban areas; only 14% of dentists practice in rural areas, where 20% of the US population resides.[12] Of those 14%, the majority practice in large rural areas compared to small or isolated areas.[12] Although the supply of dentists increased nationally by about 9.7% between 2008 and 2015, with both urban and rural locations sharing in the per-capita gain, between 2015 and 2018, the per-capita gain has been entirely in urban locations (B. Munson, Health Policy Institute, oral communication, July 2019). Private practice dentists are more likely to locate in larger communities and communities with higher-income levels.[13]

People residing in rural areas have trouble accessing dental care due to long travel distances, as dental care is often located prohibitively far for routine preventive care. And avoidance of preventive health care leads to worse dental outcomes. In comparison to urban adults, rural adults have fewer dental visits, less frequent cleanings, and more extractions of permanent teeth.[13] Rural residents whose water supplies are not fluoridated lack the benefit that fluoridated water systems afford urban residents. Moreover, rural residents use more tobacco products—both smoked and smokeless—than urban residents do,[14] and use of tobacco products increases risk of periodontal disease and oral cancer.[15] The lack of preventive care and delayed disease care leads to advanced disease, tooth loss, and secondary complications.[2,13]

For rural patients, the value of integrating oral health care into primary care is particularly great because primary care clinicians—particularly, family medicine physicians—are widely distributed across the United States, including rural areas.[16] Primary care is designed to offer preventive care, early diagnosis of disease, and prompt referral when subspecialty care is indicated. Primary care clinicians are therefore well positioned to screen for dental disease and to work with dentists to co-manage diseases with known oral-systemic disease connections (eg, diabetes and periodontitis). However, oral health training exceeding 4 hours is not common in primary care professional training.[17] Integration relies on bolstering successful initiatives to train the primary care workforce.

New Training Initiatives

In the last 20 years, several successful initiatives have filled the oral health knowledge gap in medical education by training health care personnel to provide oral hygiene and dietary counseling and to screen for oral disease. Smiles for Life: A National Oral Health Curriculum is a free, open-access resource that has been available since 2005.[18] The curriculum covers oral health across the life span and offers educational credit for both medical and dental professionals. It is the most widely used curriculum for primary care oral health training in the United States and is endorsed by 20 professional organizations.[19]

Another initiative, the Medical Oral Expanded (MORE) Care Program, trains rural primary care clinicians in oral health preventive services and provides technical assistance to

integrate the work of medical teams and their oral health counterparts.[20] Oral hygiene counseling, dietary advice, and fluoride varnish application fit well into the well-child primary care conducted by rural family physicians, physician assistants, and nurse practitioners, if the additional time is built into their schedules or other clinical staff are trained to help. Mechanisms already exist to reimburse primary care clinicians for their time: in all 50 states and the District of Columbia, Medicaid pays medical professionals for child oral health services, including fluoride varnish application.[21]

Five More Equity Strategies

Several strategic actions can help reduce rural oral health disparities and assist in integrating oral health into primary care.

Implement teledentistry. As rural areas acquire increased bandwidth, telemedicine and teledentistry can provide virtual expertise and save patients the time and expense of travel. Teledentistry allows dentists to supervise dental hygienists as they treat caries in underserved children, where permitted by state law.[22] The COVID-19 pandemic has accelerated the adoption of both telemedicine and teledentistry,[23,24] setting the stage for its continued use and expansion.

Expand access to dental insurance. If integration of oral health care into primary care is to be successful, dental coverage will need to be expanded. Universal dental insurance and expansion of oral health care benefits under Medicare and Medicaid have both been proposed but not passed.[25,26] In addition to legislative solutions, grants could be used to offer free or sliding-scale services in areas with rural oral health disparities. Coverage, payment, and delivery innovations, such as accountable care organizations (ACOs) and Patient-Centered Medical Homes, have historically not included dental care.[1] Policies that include oral health in ACOs should be explored. Incentivizing dentists to accept Medicaid may also be necessary.

Offer oral health services in school-based health centers. The approximately 2000 school-based health centers in the United States serve an important role in public health and disease prevention.[27,28] Some school-based health centers have started to offer preventive dental services to children and may be uniquely positioned to provide these services for lower-income and rural children.[29] School-based programs in rural areas also increase the exposure of dental professional students to rural areas, which may be an important recruitment tool.[29] Services could be offered at the discretion of the school district, and national funding could be allocated explicitly for dental programs.[27]

Create new categories of dental practitioners. Dental therapists, mid-level practitioners similar to physician assistants, are now licensed in 12 states.[30] They are also licensed in the tribal lands of Alaska, Idaho, Montana, Oregon, and Washington, and 8 other states are pursuing dental therapy licensure.[31] The original goal in developing this new category of oral health practitioner was to fill the unmet needs of rural and underserved children.[32,33] Dental therapists, if willing to locate in rural areas, could help meet the needs of the rural elderly with limited transportation and in extended care facilities.[34] Some states allow independent practice of dental hygienists.[35]

Encourage dentists to locate in rural areas. Shifting the distribution of dentists from urban areas to rural communities is a longer-term solution to improving rural access to oral health care. Recruiting more rural dentists may require a combination of changes in dental school admission preferences and curricula, mentorship, and incentives.[12,36]

Dental schools could employ a strategy that some medical schools have successfully implemented to create "rural tracks" to attract, admit, and mentor students who are interested in rural practice and to create residency programs targeted to the skills required for rural practice.[37,38,39] Another option might be to incentivize young dentists and dental professionals to move to rural areas through, for example, increased funding for the National Health Service Corps with dedicated dental positions. This strategy aims to increase the number of dentists and other dental health professionals who have access to loan repayment and requires a commitment of several years of providing care to Medicaid patients.

Conclusion

The primary care workforce is well positioned to provide preventive oral care, dental screening, and referral to oral health care specialists and, by extension, to dental care specialists. Integration of oral health services into primary care will require interprofessional practice, dedicated medical curricula, expanded dental licensing, recruitment of dentists, improved access to dental insurance, and teledentistry. With these strategies, primary care has great potential to reduce rural oral health disparities.

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Jo Henderson-Frost, MD, MPH is a recent graduate of the Rural Health Leadership Fellowship at Massachusetts General Hospital in Boston. She is now a primary care physician at the White River Junction VA Medical Center, where she works in rural clinics in northern New Hampshire and Vermont.

Mark Deutchman, MD is a professor of family medicine, the director of the rural health track in the University of Colorado School of Medicine, and an associate dean for rural health at the University of Colorado in Aurora.

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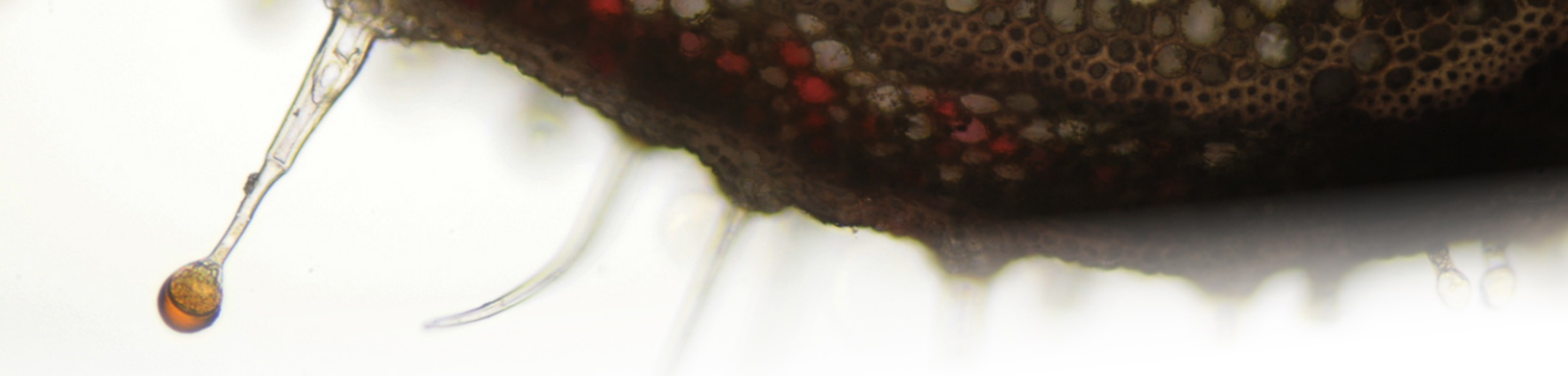

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HISTORY OF MEDICINE: PEER-REVIEWED ARTICLE

Is Oral Health Essential?

Elizabeth McGough and Lisa Simon, MD, DMD

Abstract

Since 1840, when the first dental school in the United States was founded, educational and policy outcomes have reinforced the separation of dentistry from medicine. Originating in serial historical divides, this separation has produced grave health inequity. The COVID-19 pandemic illuminates differences in medical and dental care delivery streams and also suggests how to design a unified health care system that transcends historical precedent.

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Introduction

Medicine and dentistry have increasingly diverged as education, insurance, and delivery systems have driven these professions further apart. In consequence, stark oral health inequities persist in the United States. Although there have been increased calls for integration of medicine and dentistry to prevent needless suffering from oral disease,[1,2] true progress has been limited. In this paper, we describe the historical origins of the separation of dentistry from medicine as well as the potential for the COVID-19 pandemic to be a catalyst for change.

A Long Divide

The separation of medicine and dentistry occurred relatively recently in the history of Western medicine. From the Middle Ages through the 18th century, dental work in Europe and later in North America was completed by barber surgeons who managed dental care alongside minor surgical procedures and other personal hygiene needs, such as shaving, and by tooth-drawers who wielded their extractors on street corners or at the public baths.[3]

Ironically, the definitive separation of dentistry and medicine originated in a call for improved provision of oral health care. As more technically challenging procedures developed, the need for more formalized training became apparent, and dental societies (and later schools) developed in Europe and the United States. Shortly after amalgam fillings were first introduced by British dental surgeons Edward Crawcour and his

nephew Moses Crawcour in the 1830s,[4] tension arose between dentists who used gold fillings and the new proponents of simpler, easier amalgam fillings in what has become known as "the amalgam wars."[5] The dueling factions spurred the professionalization of dentistry, as dentists sought to defend their schools of thought and legitimize their techniques through research, public lectures, and journal articles.[6] Practitioners who considered themselves to be conscientious and competent in their techniques sought to protect the public from untrained quacks preforming dental procedures.[7] It was in this landscape that the Baltimore College of Dental Surgery, the first dental school in the United States, was established in 1840 by the physician Horace Hayden.[8] The nation's first university-affiliated dental school (at Harvard) was similarly founded upon recommendation of members of the Faculty of Medicine, with the first dean being Nathan Cooley Keep, who both invented porcelain false teeth and was the first person in the Unites States to use ether anesthesia for childbirth.[9]

With dentistry's development of separate educational institutions and degrees as part of professional self-regulation, the 2 fields began to evolve in parallel.[10] After the American Medical Association (AMA) introduced a code of ethics in 1847,[11] the National Delegated Association (predecessor to the American Dental Association) published its own code of ethics in 1866. The dental code of ethics specifically commented on the relationship between physicians and dentists, stating that "dental surgery is a specialty in medical science.... The dentist is professionally limited to diseases of the dental organs and the mouth ... [W]hile he [the dentist] recognizes the superiority of the physician in regard to diseases of the general system, the latter is under equal obligations to respect his higher attainments in his specialty."[12] Interestingly, the AMA's 1847 code of ethics makes no mention of dentistry, dentists, or the relationship between the increasingly separate professions.[11]

The separation of the 2 fields, which was further reinforced by different state medical and dental licensure requirements, was finalized by the separate development of medical and dental insurance. The traditional structure of medical insurance, developed in the 1920s, was intended to cover catastrophic and unpredictable expenses, while dental "insurance," developed in the 1940s, was generally a discount plan with decreasing coverage for increasingly expensive procedures.[13] The exclusion of dental coverage from Medicare in 1965, which exclusion was supported by the ADA,[13,14] as well as limits on the extent of dental coverage within Medicaid, further allowed dental care financing to develop independently of regulatory and health policy innovations that have resulted in the modern US medical insurance system.

An Essential Justification

Vast oral health inequities among Americans disadvantaged by the additional barriers to care imposed by the dental care system have persisted.[2] The very fact that advocates for increasing access to oral health care use maxims such as "putting the mouth back in the body"[15] highlights the illogicality of this historical and structural separation, a divide further underscored by the response of the medical and dental systems to the COVID-19 pandemic.

In March 2020, dental delivery in the United States ground to a halt, with 95% of dentists providing emergency or no dental care,[16] a move supported by the ADA and the Centers for Disease Control and Prevention (CDC).[17] Closures persisted for months, with dentists encouraged to provide only emergency dental care, mirroring similar drops in

utilization for ambulatory procedural specialties such as ophthalmology and dermatology.[18]

By the summer of 2020, many dentists reported rebounds in patient volume, with adaptations for increased infection control and personal protective equipment (PPE) needs. Contravening the CDC's guidance for dental practitioners, in August 2020, interim guidance was released by the World Health Organization advising that "routine, non-urgent oral health care—which usually includes oral health check-ups, dental cleanings and preventive care—be delayed until there has been sufficient reduction in COVID-19 transmission."[19] In response, the ADA released its own statement in August 2020, declaring oral health to be an important part of overall health[19] and proclaiming that "dentistry is essential health care."[17] As the pandemic played out, the risk of exposure in the dental setting was carefully tracked, with the ADA announcing to the White House in June 2021 that "there does not appear to be a grave danger of being exposed to COVID-19 in dental settings, particularly as the pandemic is decelerating."[20]

The financial impact of COVID-19-related dental practice closures and reduced patient volume has had implications for both medicine and dentistry; however, dentists are much more likely to operate as small business owners rather than in larger health systems that are more adaptable to financial upheaval. In March and April 2020, more than 90% of dental practices were closed entirely or seeing emergency patients only.[21] This marked decrease in volume led nearly a third of private dental practices to raise fees and close to a fifth of practices to take measures such as borrowing money and reducing service hours.[22] Private practice dentists' economic straits undoubtedly played a part in the release of the ADA's 2020 statement on the importance of dental care.[16] The necessity of accessing oral health care, however, extends beyond the pandemic and suggests an imperative to eliminate the barriers to oral health care created by historical precedent.

Resuming Care

For some dentists, whether to resume dental care during a pandemic was one of many decisions at an intersection of conflicting social, moral, public health, and economic interests. While some would argue that conservation of PPE and decreasing opportunities for viral transmission by reducing routine care are part of a dentist's moral obligation as a health care professional,[23] the importance of preventive and routine care to an individual's health has remained unchanged.

Between late May and early June 2020, 46.7% of surveyed Americans reported delaying dental care or going to the dentist.[24] By comparison, an estimated 31.5% of Americans avoided routine medical care due to the COVID-19 pandemic over a similar period of time, with similar rates of avoidance across all races.[25] However, Black and Hispanic adults reported higher rates of delaying emergency medical procedures and urgent care relative to White and Asian American adults.[25] This racial disparity in access to medical care during the pandemic underscores preexisting inequities in access to both medical and dental care. In the United States, racial minorities (including Latinx, Asian, and Black Americans) are less likely to have a primary care clinician than non-Hispanic White Americans.[26] While nearly 50% of White adults reported having had a dental visit between 2017 and 2018, that number was closer to 28% for Black and Latinx adults.[27]

Low socioeconomic status represents another (in many instances, confounding) factor in accessing medical and dental care. Individuals report cost being more of a barrier to

dental care than any other type of health care.[28] Although the Affordable Care Act of 2010 mandates dental coverage for children,[29] State Medicaid programs are not required to include dental benefits for adults, and, in 2012, fewer than half of all Medicare beneficiaries had accessed dental care in the previous 12 months.[30] Despite a preponderance of evidence supporting links between oral and systemic health,[31] the only time Medicare covers dental services is in the case of extractions needed for a covered procedure (eg, jaw reconstruction after traumatic injury) or prior to radiation treatment for neoplastic disease involving the jaw.[32] Because state and federal insurance programs rarely include dental benefits for adults, the result is that one-third of all Americans lack any dental coverage,[33] with older adults being the most vulnerable, as fewer than one-third of those over age 65 had dental insurance in 2017.[34] Medical insurance tells a different story: in 2019, an estimated 9.4% of Americans were medically uninsured, with only 1% of those aged 65 and over lacking coverage.[35]

Financial trauma caused by COVID-19 will further decrease access to dental care.[36] While most private practice dentists reported that they were operating with "business as usual" or open with lower patient volumes in January 2021,[23] states facing burgeoning Medicaid enrollment could cut services, such as adult dental care, a pattern that occurred in the 2007 recession.[37] Due to their own financial pressures,[16] some dentists might disenroll from Medicaid. Such outcomes, which will disproportionately affect Americans with low incomes, must be avoided. Barriers to dental care suggest the need for macro-level changes in how dentists are perceived and educated, for, as Freed et al note, "low use is not the victim's fault but rather that of society."[38]

Changing Tides

The COVID-19 pandemic is not the first time that dentistry has been faced with a global health crisis. In the 1980s, the HIV/AIDS crisis eventually generated positive changes in dentistry, including improvements in health history screening, PPE, and a move towards general systemic health awareness within dentistry.[39,40,41] At the time, some dentists balked at the use of masks and gloves, which they felt would impede the patient-dentist relationship,[42] and were perturbed that government mandates suddenly governed their day-to-day practice. Parallels have also been drawn between the harmful stigmas associated with HIV/AIDs and COVID-19 in the dental setting.[43] The echo of HIV/AIDS further reveals the dispiriting reality that even a pandemic is not enough to reintegrate oral health care and medicine.

Yet innovations wrought by COVID-19 that increase access and integration have shown promise, even if change will still require advocacy and effort. The pandemic fueled a meteoric increase in telehealth, with 35.3% of all primary care visits occurring remotely in the second quarter of 2020, a 24-fold increase from 2018-2019.[44] In March 2020, the ADA released interim guidance for virtual visits, including billable codes for synchronous and asynchronous encounters.[45] By mid-April 2020, 25% of dental offices reported using telecommunications services "to conduct remote problem-focused evaluations,"[21] although this practice declined over the course of the pandemic. Nonetheless, telehealth could be one way to both increase access to care and increase collaboration between the medical and dental systems. For example, patients could receive dental consults remotely after being seen in the medical setting. In particular, teledentistry could benefit the 61 million Americans who live in designated dental health professional shortage areas[46] or those for whom the cost of dental care limits its accessibility.

Following their precedent-setting authorization to administer influenza vaccines during the 2009 H1N1 epidemic,[47] dentists were poised to play a role in the massive undertaking of COVID-19 vaccination, with the ADA House of Delegates passing a resolution stating that "dentists have the requisite knowledge and skills to administer critical vaccines that prevent life- or health-threatening conditions."[48] Some states were quick to give dentists approval to administer COVID-19 vaccinations.[49,50] While supply limitations of FDA-approved COVID-19 vaccinations initially made dental office-based administration challenging, dentists could play a role in alleviating the high demand for routine vaccinations in children and adults who were unable to receive them as a result of the pandemic,[51] or in delivering COVID-19 booster shots in the months and years ahead. As the vaccine rollout has continued, the ADA has called on dentists to serve as advocates for vaccination, including when patients express vaccine hesitancy.[52] Going forward, training and authorizing dental professionals to administer seasonal influenza vaccinations or vaccines for diseases related to oral health, such as the human papillomavirus vaccination, could increase vaccination uptake and streamline access[17] while further normalizing and reinforcing the dentist's role in maintaining overall health.

Perhaps most critically, the COVID-19 pandemic has revealed the unacceptable injustice interwoven into the fabric of the US health care system. Any efforts to promote equity should include advocacy for oral health, especially given the devastating oral health inequities that have been produced by the historical separation of dentistry and medicine. Although ensuring oral health coverage through Medicare and Medicaid is one key legislative priority, medical and dental clinicians must also think critically about their own practice and how oral health integration and interdisciplinary collaboration can be leveraged to achieve health justice.

Conclusion

From calling for more formalized training and licensure to codifying the relationship between physicians and dentists as one of mutual respect, dentists have largely been at the helm of directing and defending their field. Dental organizations advocated for dentistry's necessity during global crisis, and dental professionals, leaders, and educators are positioned to promote accessible, equitable care. This goal cannot be accomplished without support from medical colleagues who recognize patients' oral cavities as essential to their health and who respect dentists' roles in promoting and maintaining patients' overall health. The COVID-19 pandemic offers opportunities to rethink models of care, scope of practice, and what constitutes "essential" health care and dentistry's role in it. Progress toward these aims has been made, must continue, and should improve health care accessibility and quality and promote integrated care.

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Elizabeth McGough is a fourth-year dental student at the Harvard School of Dental Medicine in Boston, Massachusetts. Her research interests in the connection between oral and systemic health and dental pain are shaped by her background in anthropology.

Lisa Simon, MD, DMD is a resident physician at Brigham and Women's Hospital, a faculty affiliate at the Harvard Medical School Center for Primary Care, and a fellow in oral health and medicine integration at the Harvard School of Dental Medicine in Boston, Massachusetts. Her work centers on achieving health equity through medicine and oral health integration.

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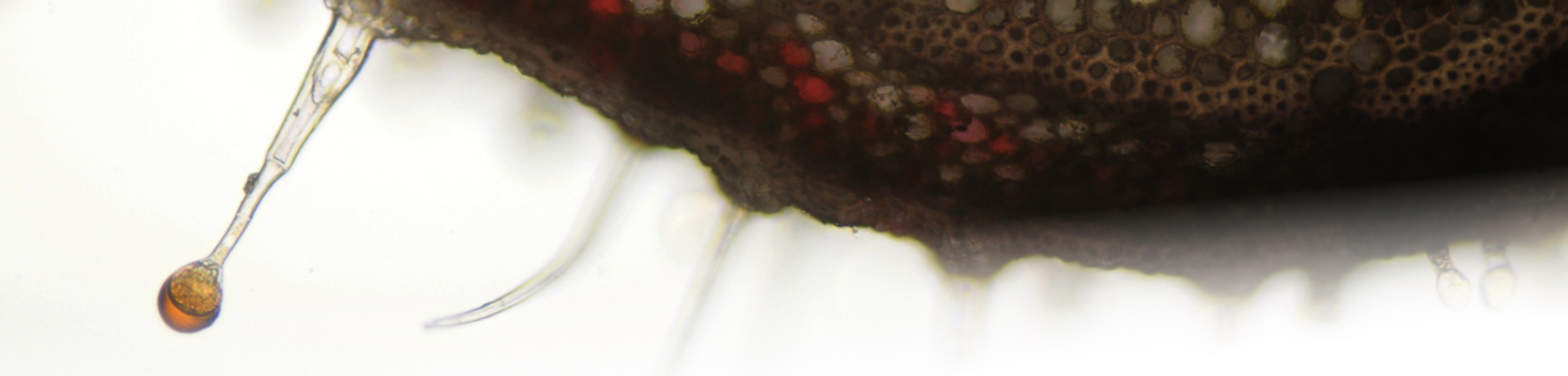

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HISTORY OF MEDICINE

Why Don't Medicare and Medicaid Cover Dental Health Services?

Jorie Braunold, MLIS

Abstract

Dental symptoms can cause severe health problems. Yet, while dental insurance is seen by many as a luxury, medical insurance is widely considered to be essential. Born in the legislative advent of Medicare, which covers no dental costs, and Medicaid, which covers few, the medical-dental divide has created and exacerbated health inequity between those who can afford dental care and those who cannot. This article offers a brief visual and narrative history of how this happened and why dentistry exists outside medicine rather than as a specialty within it.

History of the Medical-Dental Divide

Long before the legislative advent of Medicare and Medicaid in 1965,[1] medicine and dentistry in United States had become officially severed.[2] In 1840, the United States' first dental school opened, which its founders created after the University of Maryland School of Medicine rebuffed their proposals to integrate a standardized dentistry curriculum.[2] By the early 1900s, oral health was widely thought to have little or no bearing on general health; efforts to combine the fields were resisted even by dentists, who now viewed their trade as more craft than science[3]; and the medical-dental divide that persists today had become solidly entrenched.

Around 1900, Americans also began discussing "sickness insurance,"[4,5] which had caught on in Europe. (Ironically, modern health insurance was created by Germany's Otto von Bismarck to avert socialism.[6]) While the American Medical Association (AMA) and other organizations recognized the need for health insurance, physicians worried about government control over medicine. Some feared health system reorganization that would undermine their pricing autonomy,[6] workload autonomy,[5] and ability to curb clerical work.[7] Others were convinced that easing access to health insurance would transform the United States into a nation of malingerers.[8]

Persistent Division

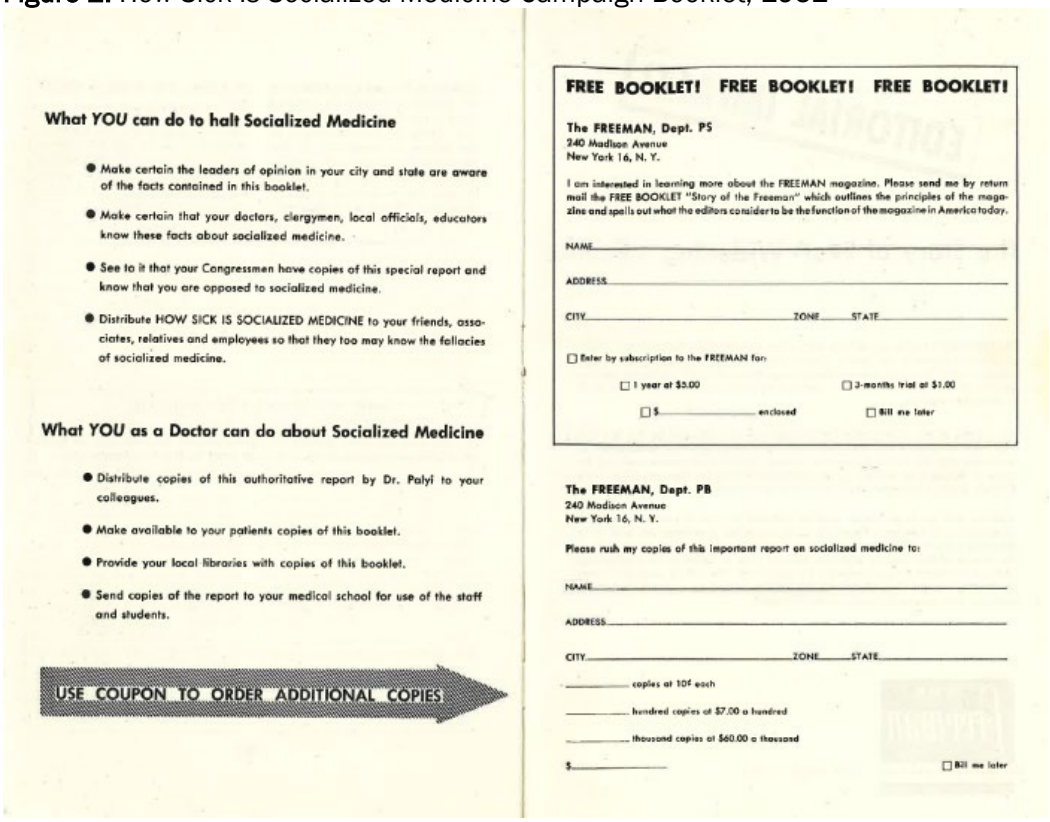
In the 1920s, the Carnegie Foundation hired William Gies, a biological chemist, to report on dental schools as Abraham Flexner had done for medical schools over 10 years earlier.[9] Gies insisted on the impossibility of separating oral health from overall health

and recommended its integration into medicine, but dentists were not convinced.[2] In the 1930s, in response to calls to care for Americans living in poverty, President Franklin D. Roosevelt created the Interdepartmental Committee to Coordinate Health and Welfare Activities, which covered "minimum essential needs" and included emergency dental care.[10] As general medical care costs rose and as dental care costs rose in response to shortages of dentists,[11] in 1948, President Harry S. Truman sought ways to provide US residents with adequate care, sometimes including dental care. Truman's efforts met fierce resistance from the AMA, which succumbed to the fear that even voluntary health insurance would lead to socialism, communism, and government takeover of medicine.[12] In the 1960s and 1970s, few had dental coverage, although 85% had some kind of medical insurance.[1]

Figure 1. Voluntary Way, circa 1950[a]

[a] A pamphlet created by the AMA that equated free market health care with American patriotism.

Figure 2. How Sick Is Socialized Medicine Campaign Booklet, 1952[a]



What *YOU* can do to halt Socialized Medicine

- Make certain the leaders of opinion in your city and state are aware of the facts contained in this booklet.
- Make certain that your doctors, clergymen, local officials, educators know these facts about socialized medicine.
- See to it that your Congressmen have copies of this special report and know that you are opposed to socialized medicine.
- Distribute HOW SICK IS SOCIALIZED MEDICINE to your friends, associates, relatives and employees so that they too may know the fallacies of socialized medicine.

What *YOU* as a Doctor can do about Socialized Medicine

- Distribute copies of this authoritative report by Dr. Palyi to your colleagues.
- Make available to your patients copies of this booklet.
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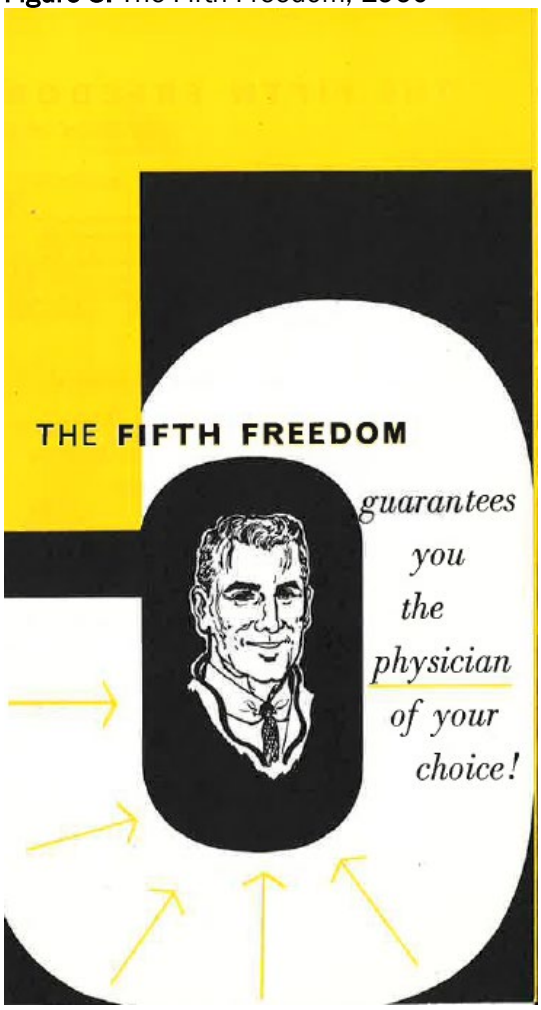
[a] The AMA's How Sick Is Socialized Medicine grassroots campaign encouraged physicians to speak with patients about the horrors of universal government health care.

Figure 3. The Fifth Freedom, 1960[a]

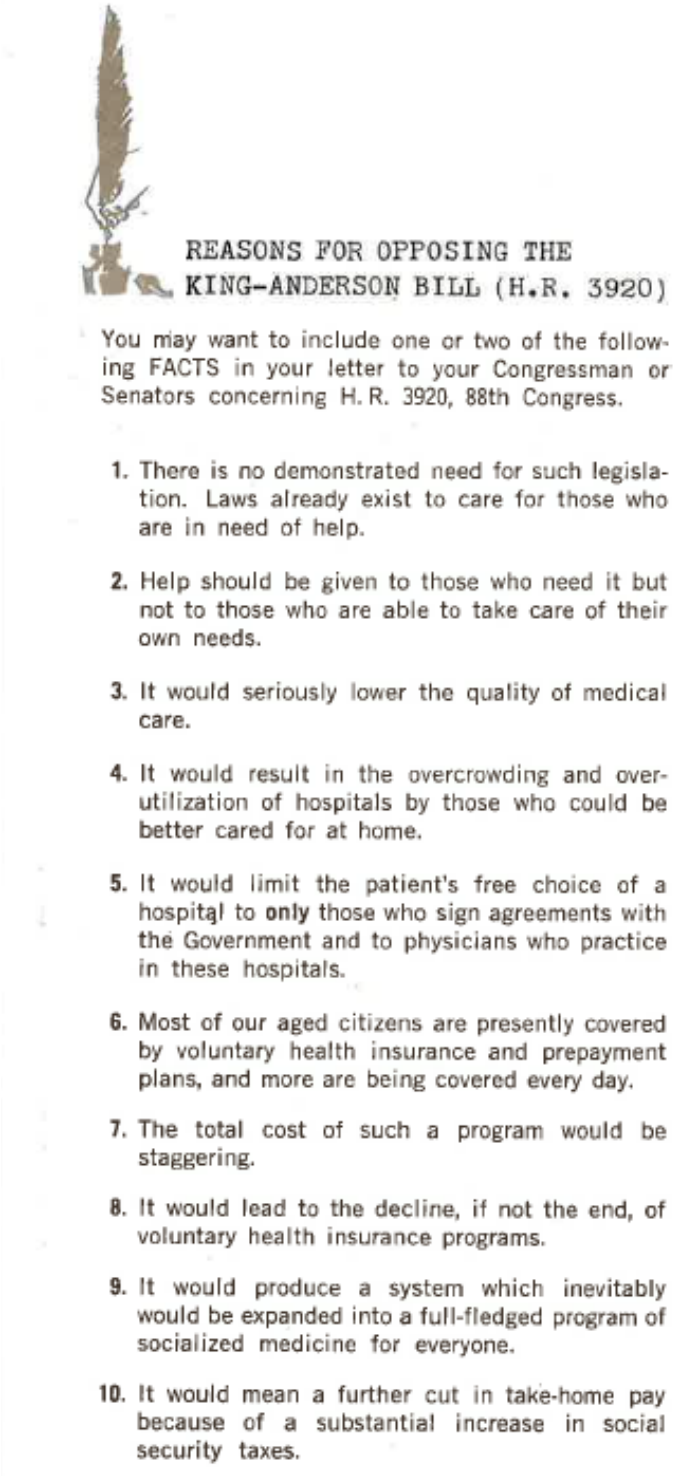


[a] This AMA poster targeting the general public appealed to an American desire for freedom of choice.

Figure 4. Ronald Reagan Record Cover, 1961[a]

[a] Hosted by the AMA Woman's Auxiliary (now the AMA Alliance), "Operation Coffee Cup" urged physicians' wives to invite friends for coffee and to hear Ronald Reagan early in his political career.

Figure 5. Reasons for Opposing the King-Anderson Bill (HR 3920), 1962[a]



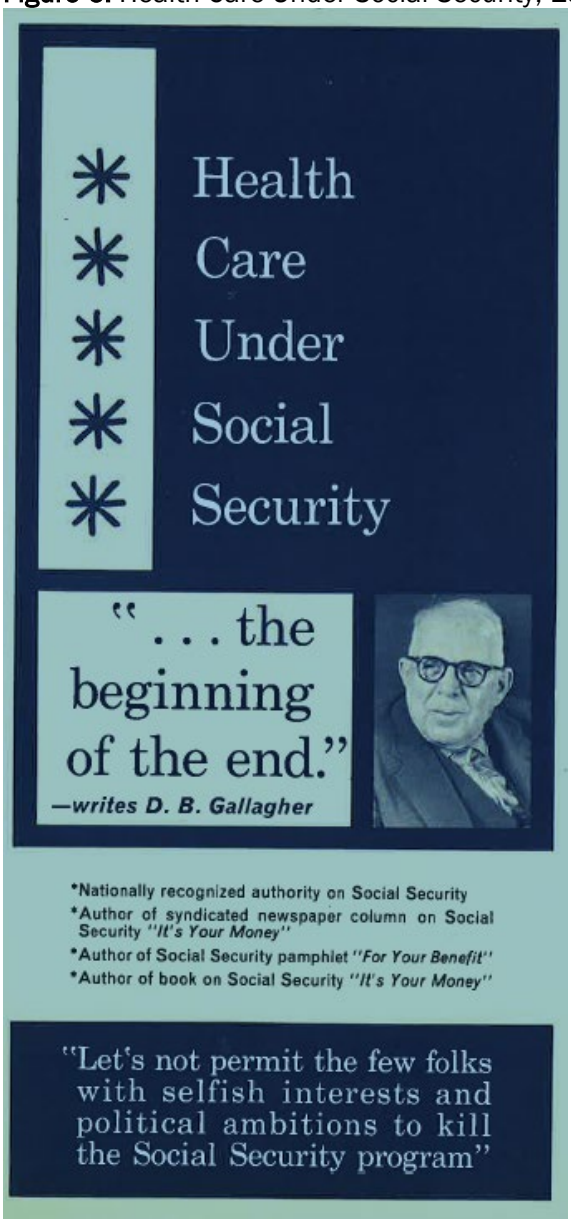
REASONS FOR OPPOSING THE
KING-ANDERSON BILL (H.R. 3920)

You may want to include one or two of the following FACTS in your letter to your Congressman or Senators concerning H. R. 3920, 88th Congress.

1. There is no demonstrated need for such legislation. Laws already exist to care for those who are in need of help.
2. Help should be given to those who need it but not to those who are able to take care of their own needs.
3. It would seriously lower the quality of medical care.
4. It would result in the overcrowding and over-utilization of hospitals by those who could be better cared for at home.
5. It would limit the patient's free choice of a hospital to **only** those who sign agreements with the Government and to physicians who practice in these hospitals.
6. Most of our aged citizens are presently covered by voluntary health insurance and prepayment plans, and more are being covered every day.
7. The total cost of such a program would be staggering.
8. It would lead to the decline, if not the end, of voluntary health insurance programs.
9. It would produce a system which inevitably would be expanded into a full-fledged program of socialized medicine for everyone.
10. It would mean a further cut in take-home pay because of a substantial increase in social security taxes.

[a] This circular from an AMA grassroots campaign encouraged physicians to oppose the King-Anderson bill, which proposed social security funding of hospital and nursing home care.

Figure 6. Health Care Under Social Security, 1963[a]



[a] This AMA pamphlet features D. B. Gallagher, who wrote frequently about social security in newspapers such as the *Washington Evening Star*.

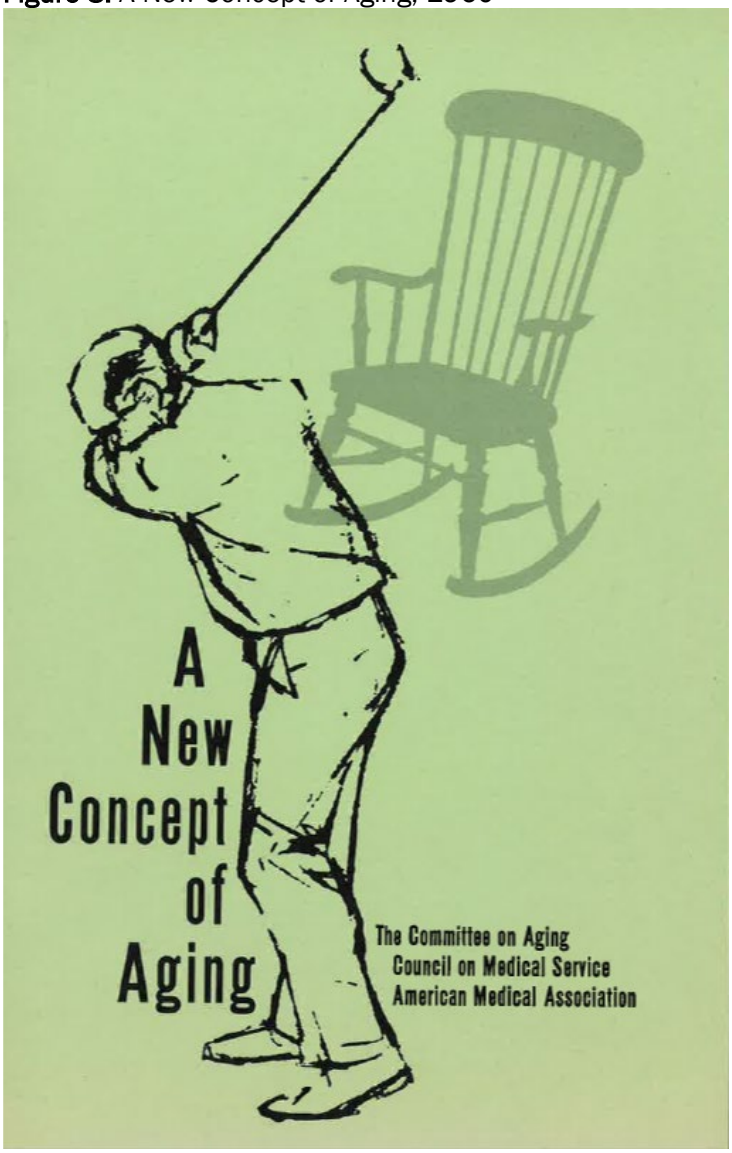
United, Yet Separate

By 1939, the AMA and the American Dental Association (ADA) had joined to testify against health insurance nationalization or expansion.[13] Both physicians and dentists emphasized their professional autonomy as solo private practitioners,[12] institutionalized their entrepreneurial successes, and focused on individual actions[14] to resist perceived threats of government interference in their work. Both the AMA and the ADA amplified broader public fears of communism to forestall legislative provision of health care coverage to all Americans until President John F. Kennedy focused on coverage specifically for American elders. Recognizing inadequacy in American elder care, the AMA, the ADA, and others created the Joint Council to Improve the Health Care of the Aged[15] to try to promote a plan that averted government roles.

Figure 7. Eldercare is Better than Medicare Bumper Sticker, circa 1960[a]

[a] This bumper sticker promotes a health care plan proposed by the Joint Council to Improve the Health Care of the Aged.

Figure 8. A New Concept of Aging, 1960[a]



[a] This poster from the AMA's Committee on Aging was part of an effort by the AMA, the ADA, and other organizations to provide nongovernmental funding for American elders' health care.

Despite fierce AMA and ADA resistance to nationalizing some health insurance coverage, American elders forged a grassroots campaign promoting Kennedy's ideas about health care,[16] and, when Lyndon B. Johnson became president upon Kennedy's death, Medicare and Medicaid were enacted as part of the "War on Poverty." Although acknowledged in prior health care coverage acts as essential to overall health, dental services for adults are not included in Medicare and are optional under Medicaid.[17]

Divided Still

While some might argue that the ADA "succeeded" in averting federal roles in oral health care financing whereas the AMA "failed" and had to accept federal roles in general health care financing, we might do well to ask what constitutes an oral health crisis and how American health care responds to individuals experiencing them. Many Americans suffering dental trauma, especially those without insurance, seek care in emergency departments, which means that organizations offering general health care bear some costs of responding to oral injury or disease.[1] Oral diseases are more common and less fatal than general health crises, and seeking intervention is more easily delayed in some cases; these factors also influence how health services are financed.[1]

Other factors influencing the financing of health services derive from public health innovations and from improvements in employment benefits. Water fluoridation in the 1940s and 1950s, for example, improved oral disease prevention among Americans[18]; this public health benefit is perceived by some as mitigating need for some dental services and demand for dental insurance coverage. Moreover, because dental service coverage was included in employer-sponsored benefit packages later than general health service coverage, it is considered by some to be a "perk"[19] or cosmetic, and dental care is still regarded by many today as auxiliary to general health care.[2]

Today, although both the AMA and the ADA support improving seniors' access to dental care[20] and the importance of oral health and disease prevention is widely accepted among health professionals, inequity in health outcomes and in access to medical and dental care and insurance coverage persists.[19] A key difference in medicine's and dentistry's responses to inequity, however, seems to be yet another fruit of seeds sewn by 1960s health policy changes: medicine has had to reform over time in response to government authority, exercised via Medicare and Medicaid reimbursement structures, while dentistry has not.[14]

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Jorie Braunold, MLIS is the archivist for the American Medical Association in Chicago, Illinois. She has an MLIS in library and information sciences with a focus on archives from Dominican University.

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VIEWPOINT: PEER-REVIEWED ARTICLE

How Medical-Dental EHR Integration Can Improve Diabetes Care

Neel Shimpi, BDS, MM, PhD, Elizabeth Buchanan, PhD, and Amit Acharya, BDS, MS, PhD

Abstract

Since the mid-1990s, poor oral health has been neglected as a public health threat, despite its recognition as epidemic in scale by the US Department of Health and Human Services Office of the Surgeon General. Americans' poor oral health influences their overall health and, from a population standpoint, incurs dire economic and human costs. This article describes how health information transfer within the Marshfield Clinic Health System's integrated medical and dental practice can improve diabetes care. This article also considers ethics and equity implications of improving MDP electronic health record interoperability in this large, rural Wisconsin organization.

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Records and Equity

Chronic diseases are best managed by coordinating care, such that interventions are discussed within teams of cross-disciplinary clinicians and efficiently incorporated into service delivery, facilitating patients' understanding of their options, care, and recovery plans. However, separate medical-dental service delivery streams and reimbursement systems and limited interprofessional training continue to undermine effective chronic disease management strategies.[1,2,3] Oral health's importance to general health is not routinely discussed in primary care settings, which results in missed research and patient education opportunities, prevention implementation, and dental referrals.[4] Moreover, siloed medical and dental practice inequitably affects patients with chronic conditions, since separate storage and inadequate sharing of patients' health records can compromise quality of care, especially during routine medical or dental appointments or emergency department visits.

This article describes the need for improved electronic health record (EHR) interoperability and how health information transfer within the Marshfield Clinic Health System's integrated medical and dental practice can improve diabetes care.

Diabetes and Health Information Exchange

In 2000, the US Surgeon General recognized oral disease as a "silent epidemic"[5] that increases morbidity and the economic burden of disease.[6,7,8] Chronic oral diseases (eg, dental caries and periodontal disease) are linked to patients' development of chronic diseases, such as diabetes.[9,10] Total deaths in the United States due to diabetes is expected to increase by 38% between 2015 and 2030,[11] and several dental diseases are common complications of diabetes.[12] Periodontal disease interventions could lower annual costs for patients with type 2 diabetes, stroke, heart disease, and pregnancy and reduce inpatient admissions.[13] Despite these benefits, geriatric, pediatric, low-income, uninsured, underinsured, and chronically ill patients are particularly likely to have their oral health needs underestimated or missed altogether by clinicians.[14] One reason for these patients' unmet oral health needs is that operable health information exchange (HIE) between medical and dental clinicians about such patients is nonexistent or inferior.[15] The rest of this article is devoted to explaining why HIE is a patient-centered care practice that can improve patients' outcomes and reduce health care utilization for patients with diabetes.[16,17,18]

The Institute for Electrical and Electronics Engineering defines *interoperability* as "the ability of two or more systems or components to exchange information and to use the information that has been exchanged."[19] To help promote interoperability and holistic patient care, the Institute of Medicine developed a list of health information technology (HIT) recommendations to support effective, efficient flow of patients' health information across care settings.[20] EHR integration promotes health equity by improving HIT interoperability and enabling secure HIE.[21] Physical and virtual integration of organizations' EHR infrastructure can generally be implemented in 1 of 3 ways:

1. *Ad hoc implementation*: fully integrated medical-dental EHR architecture conforms to national standards.
2. *Broad implementation*: EHR architecture supports interoperability within proprietary clinical information systems (eg, EPIC's Wisdom module[22]).
3. *Universal implementation*: EHR architecture supports interoperability across different clinical information systems (eg, regional HIE platforms).

Some organizations, such as the Marshfield Clinic Health System (MCHS), Kaiser Permanente, HealthPartners, and federally qualified health centers (FQHCs), have adopted and implemented virtual and physical EHR integration where dental and medical practices are geographically close in order to promote care continuity for patients, including those with diabetes.[4]

Establishing Interoperability

The MCHS was founded in 1916 as Marshfield Clinic and is one of the largest comprehensive integrated health systems in the United States.[23,24] A multispecialty group and health professions learning environment, MCHS serves communities in health professional shortage areas[25] and patients living in central, western, and northern regions of Wisconsin and in Michigan's Upper Peninsula.[26] In the early 2000s, oral health services access for rural Medicare- and Medicaid-eligible patients was substantially limited. Family Health Center (FHC), an FQHC that has served low-income, underinsured, and uninsured patients since 1974, partnered with MCHS in 2002 to establish a dental safety net. Ten dental care sites now serve more than 50 000 unique patients annually,[24] regardless of income or insurance status, with a goal of mitigating health inequity (see Table).

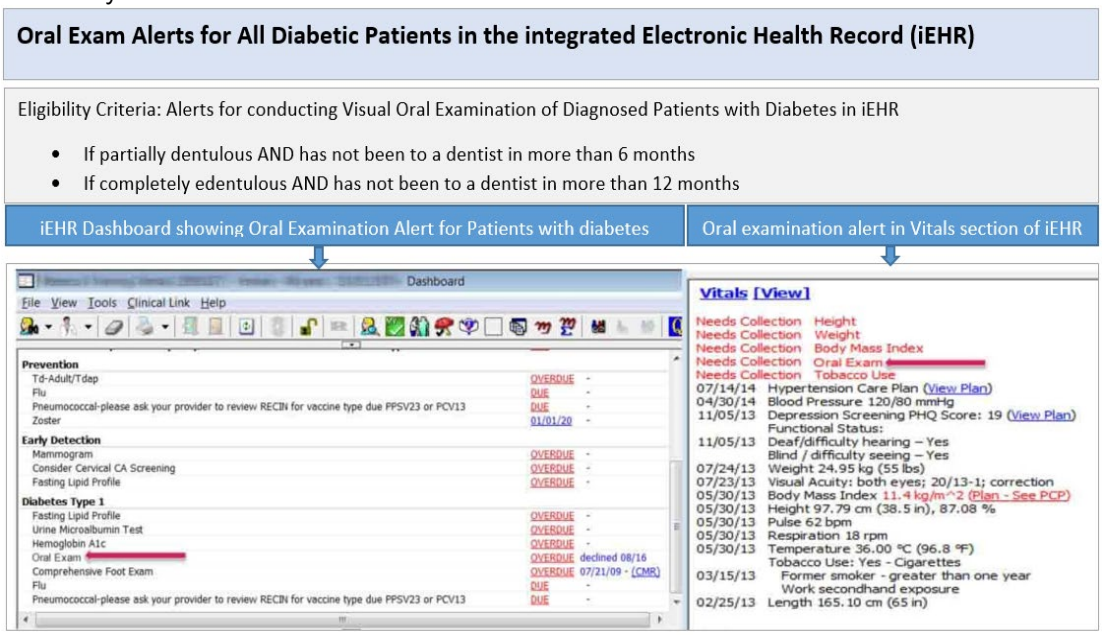
Table. Insurance Status of Patients at Marshfield Clinic Health System's 10 Dental Centers[a]

	Year		
Insurance Type	2017	2018	2019
Commercial, no. (%)	11 980 (20.04%)	12 559 (21.44%)	12 781 (22.60%)
Medicaid, no. (%)	37 716 (63.09%)	36 571 (62.11%)	34 769 (61.49%)
Self-pay, no. (%)	4869 (8.14%)	4728 (8.03%)	4634 (8.19%)
Sliding fee scale, no. (%)	5213 (8.72%)	5018 (8.52%)	4354 (7.70%)
Total	59 778	58 876	56 538

[a] Data from Marshfield Clinic Health System enterprise data warehouse.

Although MCHS services are supported by a customized medical-dental integrated EHR (iEHR),[23,24] barriers to medical-dental care integration for patients with diabetes remained and were further studied. Based on 2018-2019 aggregate EHR data, 8% of MCHS medical and dental patients (6363 of 71 811) were diagnosed with diabetes. Approximately 7% of patients diagnosed with diabetes (32 131 of 472 591) only visited MCHS medical, but not dental, centers. With these data in mind, investigators first sought to understand perceived practice gaps and barriers to medical-dental integration.[27,28] Surveys[2,3,29] and focus groups were conducted with MCHS/FHC medical and dental clinicians to assess their knowledge of, attitudes toward, and practice of integrated care.[2,3,29,30] Participants' responses informed development of educational tools for clinicians and patients, informed which metrics would be used to assess these tools' efficacy, and led to incorporating a clinical decision support alert tool (CDSAT) into practice to help diagnose patients with diabetes.

Figure. Screenshot of the Clinical Decision Support Alert Tool Used at Marshfield Clinic Health System



Eligibility criteria in the CDSAT of a patient's iEHR alert primary care clinicians to conduct visual oral examinations of patients with diabetes. Four years after the CDSAT was implemented in 2014 at 2 pilot MCHS medical sites, evaluation of the CDSAT revealed that it triggered a total of 7723 patients' EHRs to issue an alert. In response to alerts, primary care clinicians visually orally examined 4943 patients with diabetes (64%); among those patients, 170 were referred to dentists and 626 were advised to visit a dentist. Additionally, another study developed risk assessment tools using informatics techniques. Since informatics tools help predict diabetes risk among patients in dental settings,[31] the study team screened patients for risk of diabetes using machine-learning techniques that extracted medical-dental variables from the iEHR. Using this predictive tool in MCHS dental centers enabled patients at risk for developing diabetes to be identified by dentists, who then referred them to physicians.

Next Steps

Centers for Medicaid and Medicare Services data indicate that MCHS was the most successful participant in a 2011 Physician Group Practice demonstration project, as it earned 57% of the $107.6 million in gross savings realized over a 5-year period, most of which was distributed among the 10 participating MCHS institutions based on performance.[32] Outcomes of the demonstration project validated that integrating medical and dental care, supported by use of informatics and quality tracking, delivered high-quality care at reduced cost.[32] Subsequent research and quality improvement projects have also demonstrated improvements in health care outcomes, patient safety, and patient satisfaction.[26,27,28,33] While medical-dental HIE is the focus of this case study, integrated care, according to the World Health Organization, is about patients' experiences—specifically, about "the organization and management of health services so that people get the care they need, when they need it, in ways that are user-friendly, achieve the desired results and provide value for money."[34] Integrated service delivery facilitated by HIE also nourishes professional ethics and health equity.[35,36,37]

MCHS/FHC established medical-dental interoperability, via EHR integration, to identify diabetic and prediabetic patients in predominantly rural areas of Wisconsin and Michigan and to facilitate such patients' access to prevention and management interventions. Integrated care holds promise for alleviating health inequities, specifically for rural populations. President Joseph Biden has been pressured to appoint a rural health "czar,"[38] and medical-dental integration successes of the MCHS/FHC model could be replicated in other US regions and for other chronic disease states.

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Neel Shimpi, BDS, MM, PhD is an associate research scientist at the Marshfield Clinic Research Institute's Center for Oral and Systemic Health in Wisconsin. A trained dental surgeon with expertise in health care management and biomedical and health informatics, she has been advancing medical-dental integration for over 8 years. Her interests include medical-dental integration, dental informatics, and investigating oral and systemic health integration.

Elizabeth Buchanan, PhD is the director of the Office of Research Support Services and a senior research scientist at the Marshfield Clinic Research Institute in Wisconsin. She is a frequent speaker and consultant for institutional review boards and research ethics boards and is professionally active in the organization Public Responsibility in Medicine and Research. Her scholarship focuses on research ethics (especially the internet), compliance, and regulations.

Amit Acharya, BDS, MS, PhD is the chief research officer and system vice president of research at Advocate Aurora Health. He previously served as the executive director of Marshfield Clinic Research Institute and the chief dental informatics officer of Family Health Center of Marshfield. He was the founding director of the Institute for Oral and Systemic Health at the Marshfield Clinic Health System (MCHS) and helped integrate MCHS' electronic dental record with its propriety electronic medical record. His research interests lie in the design and architecture of electronic health records and data warehouses, artificial intelligence, machine learning, clinical decision supports and expert systems, information modeling, and the oral-systemic disease relationship.

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