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### HISTORY OF MEDICINE: PEER-REVIEWED ARTICLE

#### Is Oral Health Essential?

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##### 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,<sup>1,2</sup> 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.<sup>3</sup>

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 Crawford in the 1830s,<sup>4</sup> 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.”<sup>5</sup> 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.<sup>6</sup> Practitioners who considered themselves to be conscientious and competent in their techniques sought to protect the public from untrained quacks performing dental procedures.<sup>7</sup> 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.<sup>8</sup> 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 United States to use ether anesthesia for childbirth.<sup>9</sup>

With dentistry’s development of separate educational institutions and degrees as part of professional self-regulation, the 2 fields began to evolve in parallel.<sup>10</sup> After the American Medical Association (AMA) introduced a code of ethics in 1847,<sup>11</sup> the National Delegates 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.”<sup>12</sup> Interestingly, the AMA’s 1847 code of ethics makes no mention of dentistry, dentists, or the relationship between the increasingly separate professions.<sup>11</sup>

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.<sup>13</sup> The **exclusion of dental coverage** from Medicare in 1965, which exclusion was supported by the ADA,<sup>13,14</sup> 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.<sup>2</sup> The very fact that advocates for increasing access to oral health care use maxims such as “putting the mouth back in the body”<sup>15</sup> 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,<sup>16</sup> a move supported by the ADA and the Centers for Disease Control and Prevention (CDC).<sup>17</sup> 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.<sup>18</sup>

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."<sup>19</sup> In response, the ADA released its own statement in August 2020, declaring oral health to be an important part of overall health<sup>19</sup> and proclaiming that "dentistry is essential health care."<sup>17</sup> 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."<sup>20</sup>

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.<sup>21</sup> 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.<sup>22</sup> Private practice dentists' economic straits undoubtedly played a part in the release of the ADA's 2020 statement on the importance of dental care.<sup>16</sup> 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,<sup>23</sup> 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.<sup>24</sup> 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.<sup>25</sup> However, Black and Hispanic adults reported higher rates of delaying emergency medical procedures and urgent care relative to White and Asian American adults.<sup>25</sup> 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.<sup>26</sup> 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.<sup>27</sup>

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.<sup>28</sup> Although the [Affordable Care Act](#) of 2010 mandates dental coverage for children,<sup>29</sup> 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.<sup>30</sup> Despite a preponderance of evidence supporting links between oral and systemic health,<sup>31</sup> 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.<sup>32</sup> 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,<sup>33</sup> with older adults being the most vulnerable, as fewer than one-third of those over age 65 had dental insurance in 2017.<sup>34</sup> 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.<sup>35</sup>

Financial trauma caused by COVID-19 will further decrease access to dental care.<sup>36</sup> While most private practice dentists reported that they were operating with “business as usual” or open with lower patient volumes in January 2021,<sup>23</sup> states facing burgeoning Medicaid enrollment could cut services, such as adult dental care, a pattern that occurred in the 2007 recession.<sup>37</sup> Due to their own financial pressures,<sup>16</sup> 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.”<sup>38</sup>

### **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.<sup>39,40,41</sup> At the time, some dentists balked at the use of masks and gloves, which they felt would impede the patient-dentist relationship,<sup>42</sup> 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.<sup>43</sup> 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.<sup>44</sup> In March 2020, the ADA released interim guidance for virtual visits, including billable codes for synchronous and asynchronous encounters.<sup>45</sup> By mid-April 2020, 25% of dental offices reported using telecommunications services “to conduct remote problem-focused evaluations,”<sup>21</sup> 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<sup>46</sup> 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,<sup>47</sup> 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.”<sup>48</sup> Some states were quick to give dentists approval to administer COVID-19 vaccinations.<sup>49,50</sup> 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,<sup>51</sup> 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.<sup>52</sup> 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<sup>17</sup> 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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