

## Research Brief

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# Could Dentists Relieve Physician Shortages, Manage Chronic Disease?

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## Key Messages

- *U.S. adults face access barriers to primary care due to high rates of chronic disease and an insufficient number of physicians. Dentists could fill the primary care void by offering chronic disease diagnosis and monitoring in their dental offices.*
- *Expert stakeholders in the dental, medical, and public health fields in Massachusetts opined that dentists trained in systemic care could serve patients who do not have access to physicians and relieve the overburdened primary care industry while lowering health care costs.*
- *Reforms needed to expand the primary care scope of dentistry include changes to dental school curriculum, increased interprofessional collaboration between physicians and dentists, and implementation of governmental supervision.*

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## Introduction

Approximately one-half of U.S. adults have at least one of 10 common chronic conditions such as hypertension (33.5 percent of U.S. adults over age 20),<sup>1</sup> history of cancer diagnosis (9.4 percent of U.S. adults over age 18),<sup>2</sup> heart disease (11.5 percent of U.S. adults over age 18),<sup>3</sup> and diabetes (12.6 percent diagnosed and undiagnosed for U.S. adults over age 20).<sup>4</sup> About one-quarter of U.S. adults have two or more chronic conditions.<sup>5</sup> In a 2016 survey, 88.1 percent of Americans reported that they have a “usual place to go for medical care.”<sup>6</sup> However, high levels of chronic disease overwhelm physicians, and preventive care is inaccessible for certain communities. This is partially due to an inadequate supply of physicians. The American Association of Medical Colleges estimated that by 2025, America will face a shortage of 14,900 to 35,600 primary care physicians (PCPs).<sup>7</sup> Inefficiency in the health care system<sup>8</sup> also leads to accessibility challenges.

## Research Brief

Health organizations assert that treatment of chronic conditions requires increasing collaboration between health care professions.<sup>9</sup> Approximately 9 percent of Americans see a dentist, but not a physician, annually.<sup>10</sup> The prevalence of chronic medical conditions among U.S. adults and shortages of PCPs create an opportunity for dentists to fill the void in primary care.

In 1926, William J. Gies declared dentistry the oral specialty of medicine.<sup>11</sup> Dentists and dental hygienists assert that screening for medical conditions is clinically relevant to the practice of dentistry.<sup>12,13</sup> Dental practices are more equipped to provide monitoring and prevention of non-communicable systemic disease than in the past.<sup>14-16</sup> Similar to cardiologists, OB/GYNs, and other physicians, dentists could provide screening, diagnosis, treatment, and follow-up services for the most common chronic ailments, benefiting the health care system economically.<sup>7,9,17</sup> Previous research estimates that the health care system would save \$5.1 to \$65.3 million, including labor costs, if dentists screened patients over age 40 for diabetes, hypertension, and hypercholesterolemia.

The concept of a primary care scope in dentistry is under investigation in other countries, including India,<sup>18</sup> Germany,<sup>19</sup> and Sweden.<sup>20</sup> These studies gauged the perspectives of physicians and dentists on the potential for more interprofessional collaboration that would allow dentists to assume primary care responsibilities. However, the results of these studies are specific to the patient needs, educational systems, and medical practice models of their respective countries and may not be applicable to the U.S. health care system.

In this research brief, we analyze key insights obtained from interviews of 28 industry and government stakeholders from Massachusetts. These insights help gauge the financial, legal, educational, social, and attitudinal factors that would affect the increased

primary care scope of dentistry in Massachusetts and elsewhere in the United States. We then discuss what further research and actions undertaken by policymakers are needed to expand the scope of dentistry.

## Results

Subjects' interview answers were analyzed by theme and by group: systemic health providers, oral health providers, and public health and health care administration providers. See Table 1 for descriptions of subjects' organization type, position, training, clientele, and gender.

### *Links Between Oral and Systemic Health*

Every oral health provider subject mentioned links between oral health and at least one systemic health condition, explaining how improved oral health relates inversely to the cost of health care. Several oral health subjects cited a specific study that argues, "periodontal disease is directly related cost-wise to diabetes, cardiovascular disease, stroke, pregnancy, rehospitalizations..."<sup>21</sup>

A previous study found that German dentists expected physicians to be familiar with how oral health affects systemic health. Our findings indicate that systemic health providers in Massachusetts are aware of this connection. Interestingly, these subjects mentioned different relationships than oral health providers, particularly those between oral infection or abscess and general health. According to an epidemiologist, "just due to the nature of the inflammatory process in the body, [poor oral health] could affect multiple systems at the same time."

All public health provider subjects also affirmed the connection.

Overall, oral health, systemic health, and public health experts were harmonious in the view that maintaining oral health is necessary to improve general health and manage chronic disease.

#### *Expanded Scope of Dentistry and Primary Medical Care Access*

According to our oral health provider subjects, dentists would increase primary care access for underserved populations if they offered chronic disease monitoring in their practices. In particular, for patients who see a dentist but not a physician, chronic disease could be diagnosed and treated when it would have otherwise gone undetected. According to a subject who is a dental practice owner and educator, “We have lots of patients [in the dental school clinic] that don’t realize that they are out-of-control diabetics. They don’t realize that their hypertension is not controlled.”

Oral health provider subjects mentioned that they are able to screen high-risk patients for prediabetes and type 2 diabetes using simple chairside screening techniques, which is a new intervention in dental practices.<sup>22</sup>

Dental providers clarified that improved primary care access would depend on dentists providing systemic care for patients who otherwise do not have access to a physician due to distance or lack of capacity in medical practices.

Systemic health providers agreed that expanded scope dental practices would increase access to primary care, though some also emphasized that it would only benefit areas with physician shortages. Conversely, some areas have low access to dentists and adequate access to physicians. One physician subject stated communities with access to both primary and dental care providers would still benefit from dentists having the flexibility to provide primary care when needed.

Systemic health providers were more likely than dental providers to express concern that patients who require full attention from a physician might assume that the limited services of a dental office are adequate and neglect primary care appointments, thus perpetuating access barriers to primary care. In one scenario described by a medical school dean, “A patient comes to their dentist who normally would get in a preventive care visit with their primary care doctor. The dentist then does these limited array of things, and then the patient says, ‘I just had all of this. I don’t need to see my primary care doc this year.’” However, opinions by systemic health providers varied based on hypothetical patient and service type. According to a medical school professor and researcher for a patient support organization, “for the preventive services, it’s time that the physician might not have. So, it’s a win-win.”

Aside from neglected services, systemic health providers also warned that an expanded scope of dentistry could lead to duplication of care, which burdens the health care system economically.

Risks of duplication of care or patient forgoing of care aside, systemic health and public health providers expressed enthusiasm that dentists would reduce the burden on physicians by offering screening and prevention when patients are present for routine oral health care.

Access to systemic health care is inconsistent around the U.S. and around the world. Massachusetts is not the only region considering expanding the scope of dentistry to improve patient access to preventive health care. In the case of India, “dentists are in an ideal position to assume an expanded role in providing limited preventive primary care. Dentists are already *de facto* oral physicians...”<sup>18</sup>

### *Expanded scope of Dentistry and Primary Medical Care Practice*

Interview subjects from all groups argued that if dentists cared for patients who only require screening or routine follow-up for chronic conditions, physicians would be able to concentrate on more challenging cases. This was referred to as physicians working at the top of their license. According to a dental school professor, dentists are uniquely positioned to manage chronic disease because dentists recommend more frequent dental follow-up appointments for chronically ill patients, often every three to four months.

Systemic health provider subjects theorized that dental practices could act as an entry point to primary care for patients who do not see physicians. According to a subject who is a physician and medical school professor, “[The expansion of the scope of dental practice is] allowing primary care to have more tools out in the community to again monitor that disease, pick it up earlier, and refer it in.”

Additionally, over half of the systemic health stakeholders speculated that dentists would reinforce health information patients receive from physicians and their auxiliaries, increasing the likelihood for improved health outcomes. According to a family practitioner, advice from dentists “definitely would be one added expert opinion.” According to a public health administrator subject, dentists echoing advice given by PCPs “repeats the message and hopefully makes people think about it a little more.”

However, some systemic health subjects, unlike oral health providers, reiterated the argument that dentistry cannot wholly substitute physician care and that dentists should only handle patients whose chronic conditions are stable and well-managed as opposed to acute cases.

Overall, subjects anticipated that dentists would benefit the practice of primary care medicine by providing physicians with prescreened patients, ameliorating the overwhelming demand in systemic care practices. However, systemic health providers were more specific in what types of patients and conditions dentists should be responsible for, arguing that dentists should support rather than overtake the role of primary care physicians.

### *Increasing Interprofessional Collaboration between Dentists and Physicians*

As in many countries, physicians and dentists in the U.S. are educated in separate institutions, take different exams, and often work in separate organizations. In a qualitative study of dentists and physicians in Germany, dentists reported that physicians are difficult to contact and do not seem to appreciate the concerns dentists have.<sup>19</sup> In India, due to a desperate void in systemic care outside of urban areas, there is a push to integrate dental and medical practices to increase efficiency of disease prevention.<sup>18</sup>

To implement collaboration between medicine and dentistry, our oral health provider subjects recommended key reforms to dental education. The Committee on Dental Accreditation (CODA) must define the systemic care for which dentists would be responsible and require appropriate courses to be added or intensified such as physiology, anatomy, histology, and microbiology. Dental students would need to learn protocols for medical history taking, diagnosis, treatment, and outside referral. According to a dental educator subject, predoctoral education is the most effective way to promote interprofessional collaboration because “as a student you’re trained to think this way, you’re trained to talk to doctors, and doctors are trained to talk to their dentist and [formulate the] treatment plan together.”

There are programs in the U.S. that already provide additional training to dentists in these areas, primarily one or two-year hospital residencies. However, this kind of training will not be part of the usual dental school experience until required by CODA.

To improve interprofessional collaboration, our oral health subjects also suggested reforms to health care practice models, such as the use of a shared electronic health record (EHR), statewide health information exchange, and common continuing professional education for dentists and physicians, as some universities currently provide. According to a dental hygienist subject, even within clinics with co-located dentists and physicians, “it is obvious that many of them have never met. Inviting dentists and physicians to meetings together would be a good beginning.”

Though they agreed pre and post-doctoral education could be reformed to provide dental students and dentists with primary care training, systemic health providers advised dentists to limit their medical scope to a few key areas such as diabetes, hypertension, and vaccinations. Further treatment would go too far beyond the specialty of oral health. “History taking would need to expand beyond just oral health to looking at family histories and more or less about genetic diseases,” advised a physician assistant (PA) program director.

Systemic health subjects also agreed that changes to practice structure such as a common EHR are needed to enable dentists and physicians to work closer together. However, an important barrier to increased interprofessional collaboration not mentioned by oral health providers was “rent-seeking behavior,” meaning some physicians and other systemic medical professionals, including physician assistants and nurse practitioners, may demand that regulatory agencies limit competition from dentists<sup>23</sup> to protect their perceived monopoly on primary care medicine.

According to one systemic health subject, “Candidly speaking, it’s a turf issue.”

Arguably, interprofessional collaboration could also mean medicine expanding its scope to include some dental care. Due to commonality of untreated caries in children, an attempt was made in Massachusetts in 2008 to provide fluoride application in physician offices, reimbursed by Medicaid. However, a 2011 survey of Massachusetts PCPs found that few knew about the policy, few attended training, and few of those trained provided the service.<sup>24</sup> Furthermore, physicians reported significant barriers to both provision of fluoride varnish and referral of children to dental homes. Similar results were reported for a comparable program in South Carolina.<sup>25</sup> These results indicate the importance of proper training, resources, and government oversight in regards to increased interprofessional collaboration and implementing reforms in medical or dental practices.

#### *Patient Attitudes toward Dentists as Primary Care Providers*

There was some debate among oral health provider subjects on patients’ potential reaction toward dentists offering primary care services. Some subjects predicted that certain patients would refuse to share personal medical information with dentists while others believed that patients would be open-minded and appreciate the “one-stop convenience” offered by primary care-trained dentists.

One subject, a dental school professor, suggested that dentists could increase patient comfort by employing a nurse practitioner (NP) within their dental practice. Harvard School of Dental Medicine and Northeastern School of Nursing are collaborating on an intervention funded by the Health Resources & Services Administration that embeds NPs in student dental practices.<sup>26</sup>

A concern raised by oral health providers was the preference of some patients to see specialists whenever possible. These patients may not benefit from expanding the scope of dental practice. According to a dental director of a community health center, “there’s a ‘designer jean mentality.’ I think it’s about educating the consumer.”

Systemic health providers, on the other hand, theorized that dentists may spend more time on prevention and in-person communication with patients than physicians do, thus elevating patient opinion of dentists. According to an assistant director of a municipal public health department, “people will be more than happy...to have dentists do that work since what they do already is very involved and very intimate to [patient] experience.” However, another study found that U.S. physicians already spend 20 minutes with patients during primary care appointments, second only to Swedish physicians at 22 minutes.<sup>27</sup>

Our subjects’ prevailing outlook that patients would react positively to the expanded role of dentists to include primary care agrees with earlier research that found, by an overwhelming margin, patients accept the concept of medical screening in dental practices.<sup>28</sup>

## Discussion

Our results demonstrate that among expert Massachusetts stakeholders, there are commonly recognized links between oral health and overall health, particularly in relation to chronic disease. However, our subjects differed in their concerns and expectations if dentistry took on primary care

responsibilities. While many stakeholders predicted access to and efficiency of primary care would improve for populations in need, they also pointed out obstacles such as duplication of care, the need for reforms in pre and post-doctoral education, and the lack of an integrated electronic health record. Moreover, attitudinal barriers among patients and providers alike may hinder dentists’ ability to serve as primary care providers.

Qualitative research like this study helps frame questions for further researcher. A deeper study could include surveys of groups of systemic and oral health providers outside of Massachusetts and of the public to gauge opinion of dentistry’s ability to include chronic health monitoring. This wealth of insights could assist the American Dental Education Association (ADEA) and CODA with promoting changes to dental education curriculum. We would also approach the Massachusetts Board of Registration in Dentistry and the Board of Registration in Medicine to discuss changes to regulation and oversight of oral health care providers.

The results of our pilot study demonstrate that there is an opportunity and interest for the expansion of the scope of dental practice in Massachusetts to include preventive systemic medicine. Our study brings light to issues of communication, education, and regulation, each of which deserves further study. The ultimate goal is to meet the quadruple aim of health care: enhancing patient experience, improving population health, reducing costs, and improving the work life of health care providers.<sup>29</sup>

**Table 1:** Massachusetts Stakeholder Subjects by Organization, Position, Gender, Training, and Clientele

Subject	Positions	Organizations	Training	Clientele/Constituencies	Gender
1	Professor; instructor; primary investigator	Medical school; dental school; oral health initiative	MD, MPH	Medical patients; medical and dental students; providers	M
2	Founder, principal; former editor	Consulting firm; consumer information magazine	BA, graduate training	Health care system leaders; hospital systems	F
3	Director of research; emeritus professor	Patient facing organization; medical schools	MD	Medical patients, students	M
4	Owner dentist	Private dental practice	DMD	Dental patients	M
5	Registered nurse	Academic medical center	PhD, MA, BSN	Medical patients (indirectly)	F
6	Assistant director	Municipal public health department	Degree in progress	State residents	M
7	Associate dentist; clinical instructor	Private practice; dental school	DMD	Dental patients, students	F
8	Assistant professor, academic affairs administrator	Dental school	DMD, MS	Dental students, patients	F
9	Owner dentist; officer	Private practice; dental society	DMD, GPR	Dental patients; dentists	F
10	Attending physician	Medical schools; regional hospital	MD	Medical patients, students	M
11	Pediatrician (retired)	Private pediatric practice	MD	Pediatric medical patients	M
12	Dean, clinical affairs; professor	Medical school	MD, MEE, BEE	No answer	M
13	Corporate director, dental services	Federally qualified health center	DMD, MPH in progress	Dental patients	M
14	Dental program administrator	Medical and dental insurer	DMD, GPR, MBA, Certified dental consultant	In-network dentists; insurance beneficiaries	M
15	Professor	Dental school	DMD, GPR, MBA	Dental students, faculty members, administrators	M
16	Associate professor; former state employee	Medical school (public health program)	DPH, MPH	Medical students	F
17	Co-owner, VP; group leader	Private dental practice; dental school	DMD	Dental patients	F
18	Dental director; member; officer; volunteer professor	Community medical center; BORID*; dental society; dental schools	DMD, MPH	Dental patients, students; private practitioners	F
19	Director; associate professor; member	Medical school; physician assistant (PA) program; PA state board	PA certificate, MBA	PA program students	M
20	Executive director	Regional patient facing organization	No degree	Medical patients	M
21	Oral health official; dental hygienist	State public health agency	BS, RDH	Dental patients	F
22	Family physician	Private practice	MD	Medical patients	M
23	Medical director	Independent community medical center	MD	Medical patients	F
24	Owner dentist; officer	Private practice; dental society	DMD, GPR, MPH	Dental patients	M
25	Oral surgeon; associate professor; consultant	Tertiary care medical center; dental school; health insurance company	DMD	Dental patients, students	F
26	Practice director	Corporate oral health center	MHA	Dental patients	F
27	Administrator, lecturer	Health policy organization	DMD, MPH, CCHP	Federally qualified health centers	M
28	Physician; highly placed official	State Department of Public Health	MD, MPH	Programs; insurers; health care providers	F

**Notes:** \*BORID – Board of Registration in Dentistry.

## Data & Methods

### *Study Design and Sample*

The subjects of this study are a convenience sample. One or more authors knew the subjects, or a subject referred the authors to other subjects. We contacted most subjects through recruitment emails. The subjects hold or have held sensitive positions in industry and government. We do not specify subjects by name, affiliated organization, employer, or agency to protect their identities. In light of the aforementioned protections, the Tufts University Social, Behavioral, and Education Research Institutional Review Board (IRB) granted this project exempt status.

Most subjects live and work in Massachusetts. Table 1 details subjects' gender, organization type, position, training, work locations, and clientele. There was some overlap between categories; 14 subjects work in dentistry as dentists, dental hygienists, or dental practice managers. Eight subjects are physicians. Other subjects include an oral surgeon with both a medical and dental degree, a physician assistant (PA), and a nurse with a PhD in holistic health. Four subjects work in public health or are principals in patient facing organizations.

Some subjects belong to subgroups that cross professions. Five subjects hold or held positions in government agencies. One is a former chair of a state Board of Registration in Dentistry. A PA served as the chair of a state physician assistant board and was the director of a PA program at a medical school at the time of the interview. Two others are highly placed employees of the Massachusetts Department of Public Health. Another is an associate professor of public health and was a highly placed state employee specializing in health policy.

Among the dental group, 2 have government experience, 4 work for insurance companies, 6 teach at dental schools, 6 are in private practice, 6 are dental society officers, and 5 have public health training. Among the 8 physicians, 2 are or were associated with health centers, 4 teach or administer for medical and/or dental schools, 4 are in private practice, and 2 have public health training.

### *Questionnaire*

The lead author interviewed subjects individually and in person from July to September 2017 using an IRB-approved script. After reading the informed consent document, subjects indicated consent by allowing the use of a recording device. The interviewer used the approved questionnaire as a guide, skipping non-applicable questions and adding follow-up questions when appropriate.

The questionnaire consisted of eight sections. Section 1 included demographic information about the subjects. Section 2 gauged subjects' familiarity with systemic and oral health relationships. Section 3 covered potential effects on healthcare costs for patients and dentist income if dentists offered primary care.

In Section 4, subjects evaluated current dental training in systemic medical prevention and treatment and recommended improvements to provide dentists and dental students with requisite knowledge and experience. Section 5 asked subjects to qualify their acceptance of an expanded role for dentists with respect to systemic medicine and how it might affect access to and practice of primary medical care.

Section 6 focused on projected patient experience. All stakeholders have the experience of approaching



medicine and dentistry as patients, and 4 subjects represent patient facing organizations. In Section 7, we invited dentists to predict how their practice might be affected through incorporation of systemic medical testing, diagnosis and treatment. Throughout the interviews, subjects were encouraged to add comments about this project beyond the parameters of the questionnaire.

We organized the subjects' answers by question and identified common themes using key words. We searched the transcripts for each instance that a keyword was used and recorded the number of subjects using a particular keyword or concept. For example, in Section 2, we asked subjects to discuss the way systemic health and oral health are interrelated. We compiled and organized the subjects' answers by group: systemic health providers, oral health providers, and public health and health care administration providers. Note that several subjects

work in more than one area; we included providers in the category of their primary profession.

#### *Limitations*

We believe that this is the first qualitative study of oral health, systemic health, public health, and administrative professionals regarding the expansion of the scope of dentistry to include systemic medical prevention in Massachusetts. This type of research allows respondents and investigators the freedom to explore lines of thought without the rigidity of a printed survey.

It is likely that the results of this study are not applicable to other states or even to rural communities within Massachusetts. This study is limited in that it is a small pilot study and is not representative of the population of health professionals in Massachusetts. The subjects are a convenience sample.

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