

Massachusetts Dental Schools Respond to the Prescription Opioid Crisis: A Statewide Collaboration

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Abstract: The prescription opioid crisis has involved all sectors of U.S. society, affecting every community, socioeconomic group, and age group. While federal and state agencies are actively working to deal with the epidemic, medical and dental providers have been tasked to increase their awareness of the issues and consider ways to safely prescribe opioids and, at the same time, effectively treat their patients’ pain. The Commonwealth of Massachusetts, under the leadership of Governor Charles D. Baker and his administration, challenged the state’s four medical schools and three dental schools to improve their curricula to prepare the next generation of clinicians to deal with this crisis in an evidence-based, effective, and sympathetic way. This Perspectives article outlines the national prescription opioid crisis, details its effects in Massachusetts, and describes the interdisciplinary collaboration among the Commonwealth, the three dental schools, the Massachusetts Dental Society, and a concerned student group. The article also describes the efforts each dental school is undertaking as well as an assessment of the challenges and limitations in implementing the initiative. The authors hope that the Massachusetts model will be a useful resource for dental schools in other states.

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The prescription opioid epidemic that has swept the nation has prompted concerted efforts to educate health care providers about the risks and benefits of controlled substances with misuse potential as well as alternative treatments. Prevention models that emphasize adequate pain management while underscoring the importance of assessing risk for prescription opioid misuse are essential. Medical and dental groups have given the most attention

to educational efforts through continuing education programs and professional publications. Although both groups have some history of addressing substance misuse and effective pain management at the predoctoral and postdoctoral levels, there remains a lack of consistency and consensus at both the national and state levels on how to best train these future prescribers.

This article outlines the national prescription opioid crisis, details its effects in Massachusetts, and describes the interdisciplinary collaboration among the Commonwealth of Massachusetts, the three dental schools, the Massachusetts Dental Society, and a concerned student group. The article also describes the efforts each dental school is undertaking as well as an assessment of the challenges and limitations in implementing the initiative.

The Massachusetts Initiative and National Support

To assess and improve this training in the Commonwealth of Massachusetts, the administration of Massachusetts Governor Charles D. Baker embarked on an ambitious agenda to involve the health professions schools in an interprofessional collaboration to improve their curricula for all trainees on the health care team. Governor Baker suggested that we need to provide enhanced training that balances pain assessment and adequate management with substance misuse risk assessment.¹ In December 2015, in a first-in-the-nation public-private, cross-institutional collaboration among the Commonwealth of Massachusetts, the Massachusetts Medical Society, and the four Massachusetts medical schools, a plan was put forward to improve the training of physicians on this topic, and formal recommendations were published.^{1,2}

In response to those recommendations, the three Massachusetts dental schools recognized that there is also a need to update training for future dentists in this critical area. They adopted core competencies with a focus specifically relevant for training in dentistry, focused on a) the unique role dentists play in the management of pain, b) the particularly important role that dentistry can play with respect to patient risk assessment, and c) the interprofessional relationships that dentists can foster.

In part, the importance of the problem in dentistry relates to the specific issue of opioid prescribing, in which the risks of abuse and diversion are linked to the development of substance use disorders and a significant increase in related overdose deaths across the U.S. In Massachusetts alone, there were close to 2,000 opioid-related deaths in 2016, almost twice the number five years previously.³ While motor vehicle-related deaths have steadily declined, unintentional opioid-related deaths have sharply increased, especially in the past few years.⁴ In addition,

there is the medical burden of unintentional opioid-related overdoses including over 2,000 hospital stays and more than 4,500 emergency department visits.⁵ Unexpected secondary effects of opioid misuse are increasingly recognized in at-risk populations. For example, there has been a sixfold increase in admission rates for Neonatal Abstinence Syndrome over the last six years.⁶ As dentists typically see women in their child-bearing years more frequently than do many physicians, their role in rudimentary screening for opioid misuse may be particularly meaningful.

Funding support for educational efforts also appears to be increasingly available at federal and local levels. The Obama White House announced its response to the crisis in February 2016 by proposing \$1.1 billion in new funding to address the prescription opioid abuse and heroin use epidemic for the FY 2017 budget.⁷ While much of the funding was directed toward treatment, attention was also paid to interprofessional efforts by health care groups to facilitate better outcomes.

Shortly before this development, the American Dental Education Association (ADEA) formally addressed the issue with a letter to President Obama about the initiative to combat heroin and prescription opioid abuse.⁸ The letter emphasized that academic dentistry is concerned and committed to seek solutions to address the problem. Concurrent with this development, the American Dental Association (ADA) collaborated with 40 provider organizations to address awareness among its members and support provider training.⁹

2016 Working Group Report

On February 11, 2016, the Governor's Working Group on Dental Education on Prescription Drug Misuse presented its report to Governor Baker. The group discussed its program with Governor Baker, Secretary of State for Health and Human Services Marylou Sudders, and Commissioner of the Department of Public Health Monica Bharel. A press conference was held at the State House, and the report was released to the media.³

The report put forward a plan to improve the training of dental students in three realms. First is the primary prevention domain, which involves preventing prescription drug misuse and screening, evaluation, and prevention (evaluating patient's pain, risk of substance misuse, and pharmacological and non-pharmacological treatment, as well as developing appropriate communication skills). Second is

the secondary prevention domain, which involves treating patients at risk for substance use disorders and engaging patients in safe, informed, and patient-centered treatment planning. This domain specifies that the dental provider should demonstrate the ability to appropriately refer patients; practice evidence-based and patient-centered pain management treatment plans for patients with acute and chronic pain; provide special attention to safe prescribing and recognizing patients displaying signs of aberrant prescription use behaviors; and demonstrate skills in patient-centered counseling and behavior change in the context of a patient encounter. The third realm is tertiary prevention, which involves managing substance use disorders as a chronic disease; eliminating stigma; and advancing interdisciplinary and interprofessional collaborative efforts to reduce substance issues, which include the ability to recognize the role of currently available screening instruments for at-risk patients, work toward eliminating the stigma associated with substance misuse, and develop models of interprofessional education.

Faculty members of the three Massachusetts dental schools, all of whom are actively involved in pain management and curriculum development, produced this report collaboratively. Input and support were provided by the Massachusetts Department of Public Health for the Baker Administration and by the Massachusetts Dental Society. Each dental school has agreed to incorporate the core competencies into its curriculum based on each school's unique philosophy and interpretation of the accreditation standards of the Commission on Dental Accreditation.¹⁰ Details on the strategies for implementation are left to the discretion of the schools. We acknowledge that the report fails to recommend specific benchmarks for effective training and timelines for implementation; however, each school will be asked to provide this information. Furthermore, specific recommendations for interprofessional staffing are absent from the document: specifically, there is no discussion about the role of full-time dental faculty members in specialties such as psychology or psychiatry.

Ongoing Efforts of the Partners

Each of the stakeholders in the Governor's Working Group on Dental Education on Prescription Drug Misuse has made a start in meeting its goals. Efforts undertaken by each are described as follows.

Massachusetts Dental Society

The Massachusetts Dental Society (MDS) has consistently offered continuing education (CE) programs at its annual Yankee Dental Congress, the third largest dental conference in the U.S., representing all six New England state dental societies. In addition, the MDS offers CE lectures on pain management throughout the year through its Yankee Institute, and constituent dental societies also offer programs at their local meetings.

The *Journal of the Massachusetts Dental Society* dedicated its fall 2015 issue to the subject, with a special report on "Dentistry and Prescribing." The issue featured articles on the Prescription Monitoring Program and its use in Massachusetts, risk management concerns surrounding prescribing practices, and pharmacologic management of dental pain. The issue also included an editorial on the importance of safe prescribing practices and a review of the *ADA Practical Guide to Substance Use Disorders and Safe Prescribing*. In addition, the MDS recently produced a cardboard display supporting efforts to prevent the abuse and misuse of prescription medications. The display features tips for keeping medications safe in the home. Dentists are encouraged to place the display, which includes a tear-off tip sheet, in a prominent place in their waiting areas for patients to see and take. Finally, a two-hour CE webinar is available free to MDS members, which meets the criteria for eligibility for licensure with the Massachusetts Board of Registration in Dentistry.

Boston University

The Boston University Henry M. Goldman School of Dental Medicine (BUSDM) is currently incorporating substance use/misuse instruction into its curriculum using the SBIRT model (Screening, Brief Intervention, and Referral to Treatment). This initiative is in collaboration with the Boston University School of Medicine through the BESST student training program (Boston University Evidence-Based Student SBIRT Training), which is funded by a recently awarded Substance Abuse and Mental Health Services Administration grant.

BUSDM is reviewing and evaluating its instruction regarding the three domains in the dental education core competencies. Presently, the primary prevention domain (preventing prescription drug misuse) is being covered in several didactic courses along with online video presentations. Students' competence is evaluated using examinations and

prescription-writing exercises. The prescription monitoring program is presented in lecture form, and the principles are reinforced during the third- and fourth-year oral surgery rotation and in all clinical activities involving prescription writing. Medical consults are routinely written by the students throughout the patient treatment areas with input from the faculty. The consult is then reviewed by both student and faculty member, and proper modifications to the patient's treatment are provided. Clinical competencies related to risk assessment for substance misuse, patient pain evaluation, and prescription writing are addressed in the third- and fourth-year oral surgery rotations. Possible updates include modification of the electronic record to include an opioid risk screening tool and the use of a role-play competency.

The secondary prevention domain (treating patients at risk for substance use disorders) is being covered in several didactic courses, the oral surgery rotation/seminar, and online videos and is assessed in examinations and prescription-writing exercises. Clinical competencies in prescription-writing and administration of local anesthesia are assessed. Possible additions would be to add role-play exercises to help students recognize patients displaying signs of aberrant prescription use behaviors and learn how to provide patient-centered counseling and proper referral.

The tertiary prevention domain (managing substance use disorders as a chronic disease) is covered in several didactic courses and online videos. Proficiency is evaluated in the course examinations, with the possible addition of role-play exercises. Interprofessional education will be expanded through collaboration with the medical school.

Although changes to the curriculum have been in place for a short period of time, ongoing evaluation of the courses and materials will continue with areas of improvement identified. Generally, the use of simulation and role-play could add to the students' overall experience and improve the evaluation process.

Harvard School of Dental Medicine

The Harvard School of Dental Medicine (HSDM) is the lead institution in the Boston-based Centers of Excellence in Pain Education, established under the National Institutes of Health (NIH) Pain Consortium. With the support of a five-year contract from the NIH's National Institute of Drug Addiction (NIDA), educators are collaborating to teach appropriate controlled substance prescribing via both intraprofessional (dental) and interprofessional (medical,

dental, nursing, pharmacy, and psychology) group educational techniques.¹¹ This training is based on the premise that maximizing interprofessional communication and cooperation will result in the most appropriate use of controlled medications and improved management of chronic pain patients. Also, HSDM and Harvard Medical School are introducing a new combined curriculum that includes flipped classrooms, problem-based learning, traditional lectures, and hands-on experiences to provide students with the foundational building blocks required to study medicine.

Two of the new courses are relevant to this topic. The longitudinal Practice of Medicine course gives students the opportunity to learn clinical medicine with a multifaceted approach focused on interview and communication skills, physical exam, clinical reasoning and diagnostic skills, ambulatory care, interprofessional education, and professional development and reflection. During their time at the hospital sites, students work with preceptors who help them learn these skills to include substance abuse screening and intervention. During the first year of the combined curriculum, the HSDM Teaching Practice is designated as a site for rotations that will give students experience working with physicians, dentists, and nurse practitioners to evaluate patients and screen for substance abuse, understand pain management, and provide prescription monitoring including accessing and utilizing the prescription monitoring program (PMP) data.

The second course, Essentials of the Profession, will bring together the social and population science relevant to the practice of medicine. In this course, students will study how access to care and provider-prescribing habits affect the substance abuse problem. These formative courses prepare students for summative assessments of their pain management competence by means of individual case presentations in the third- and fourth-year classes during which students complete medical risk assessment (identifying and describing any medication the patient may be taking to include its intended and unintended effects and drug interactions), prescription writing (prescribing an analgesic or antibiotic medication adjunctive to dental care, acknowledging the indications, contraindications, mechanism of action, pharmacodynamic and pharmacokinetic effects, adverse reactions, and drug interactions), and an administration of local anesthesia. Summative testing of students' pain control skills in the use of controlled medications and the management of patients at risk for substance misuse also occurs

during the three objective structured clinical examinations (OSCEs) that HSDM students take during their last two years of training. For implementation of the cross-institutional core competencies, students undergoing these assessments will be expected to know how to screen for substance abuse risk, understand the implications of the medications they are prescribing for patients at risk for substance abuse, and recognize and refer for appropriate treatment for substance abuse. Competence is measured by students' ability to apply these principles by individually answering questions about a case presented to them during a one-on-one encounter with their evaluator.

The advanced graduate education programs at HSDM share a core curriculum that includes a Clinical Pharmacology course. Integral to the course is the evaluation of patients, screening for substance abuse, pain management, and prescription monitoring including the use of PMP data. Summative assessment of graduate students' competence in pain management is supervised by their program director and completed during mock oral boards at the end of training.

Tufts University

As part of the newly developed four-year curriculum on controlled substance risk at Tufts University School of Dental Medicine (TUSDM), students are introduced to a series of didactic and interactive case-based workshops focusing on an evidence-based approach to assessing, managing, and triaging patients at risk for substance use disorders. The curriculum content is being developed with initial attention to past prescribing and risk measurements at the school. Preliminary data showed that more than 40,000 prescriptions were written for analgesics between 2010 and 2016, with 84% being written for opioids. This and other practice data provided a baseline for comparing clinical behavior with practice patterns after the curriculum is fully implemented.

Training workshops for students are facilitated by TUSDM faculty members with backgrounds in dentistry, pain psychology, and psychiatry. The focus is on specific skill acquisition in the area of screening and managing complex cases in which there is a risk of substance use disorder, as well as the clinical skills needed to effectively manage patients with pain and medical and mental health comorbidities. The curriculum promotes critical thinking and evidence-based dental practice, while reinforcing compassion for individuals suffering from pain, substance use disorders, and the common mental health comorbidities that accompany them. Strategies for rational prescribing of controlled substances are introduced,

including use of the PMP, contact with other health care providers, use of a checklist of best practice context, and administering and reviewing the NIDA Quick Screen and other resources that can impact decision making.¹² A series of three increasingly complex cases is introduced as the student begins to think through the application of screening and management best practices in clinical care settings.

The educational content is initially assessed by examination, with ongoing steps toward developing within-clinic competency-based assessments over the next two years. Based on expert consensus, a Controlled Substances Clinical Management Checklist was developed to help guide the student and faculty member in addressing critical components of the assessment and management (Table 1). This checklist covers the domains of comprehensive risk assessment, collection of pertinent data, disposition and follow-up, and ongoing collaboration and assessment. Plans are being developed for further validation of the checklist items.

Table 1. Controlled substances clinical management checklist used at Tufts University School of Dental Medicine

Checklist
<p>Comprehensive risk assessment</p> <ul style="list-style-type: none"> • Provide rationale to the patient for expanded questions/assessment • Assess pain • Assess current substance use • Assess medical and psychosocial risk factors • Assess dental risk factors • Analyze relevant physical exam and/or mental status exam findings
<p>Collection of pertinent data</p> <ul style="list-style-type: none"> • Check prescription monitoring program and interpret findings • Complete screening questionnaires (NIDA quick-screen, patient health questionnaire [PHQ-9]) • Communicate with other treating clinicians • Communicate with patient and family members/caregivers
<p>Treatment, rational prescribing, disposition, and follow-up</p> <ul style="list-style-type: none"> • Determine and document level of risk prior to prescribing • Formulate individualized treatment recommendations • Assess likelihood of adherence/follow-up • Make appropriate referrals: mental health, substance abuse, and/or pain care • Instruct patient regarding safe Rx storage/disposal • Assess need for continued monitoring and/or higher level of care
<p>Collaboration and ongoing reassessment</p> <ul style="list-style-type: none"> • Communicate and collaborate with other care providers • Perform periodic reassessment of pain, SUD risk, and mental health comorbidities

In addition to ongoing curriculum development related to controlled substance risk, TUSDM currently conducts weekly Interprofessional Facial Pain and Headache Rounds with participation by students, faculty, and regional experts in the areas of pain and addiction. In addition to integrating predoctoral and postdoctoral students in this training process, the program now brings in internationally recognized academic experts in the fields of pain and addiction via a weekly interactive web connection.

TUSDM has also established an interprofessional working group to further incorporate contents of the recommended curriculum into the predoctoral and postdoctoral dental programs. Group members include TUSDM faculty participants from dentistry, oral and maxillofacial surgery, internal medicine, psychology, psychiatry, basic sciences, public health, and biostatistics. In addition to specific coursework, the group is proposing strategies to integrate the curriculum content directly into students' within-clinic training experience along with measurement of objective outcomes. TUSDM will expand on its current research and implementation of the Massachusetts Prescription Monitoring Program with guidance from the Massachusetts Department of Public Health. The school currently offers approximately 15 hours of postgraduate CE interprofessional training directed at substance use screening and pain management, with selected programs having 30% of students attend. The goal is to further increase student attendance at these CE programs.

Finally, student and faculty research in risk screening and pain management will be promoted with increased mentoring in this area by current Tufts faculty members and formal collaborative efforts with pain and addiction specialists outside of the school. For example, TUSDM currently has a formal contractual relationship with the Boston Pain Care Center, with the goal of promoting collaborative research, clinical training, and teaching.

Student Coalition on Addiction

The Student Coalition on Addiction (formerly called Medical Students for Long Island) is a group of students from all four of the medical schools in Massachusetts who came together to advocate for improved access to substance use treatment for the state's most vulnerable residents and for better education in addiction medicine. Representatives from this group attended a meeting with Commissioner Bharel and the deans of the medical and dental schools to provide students' perspectives on gaps in substance

use education. They emphasized the importance of educating students not only on preventing substance misuse through appropriate opioid prescribing, but also on treating addiction using evidence-based medication-assisted treatments, including buprenorphine and methadone. Dental students in particular may benefit from training in appropriate pain management for patients on medication-assisted therapies and how to collaborate with physicians to care for patients in recovery. The group also provided a series of suggestions for how the proposed medical education core competencies could be implemented.

Since meeting with the medical and dental deans, the Student Coalition on Addiction has reached out to dental students at the three Massachusetts dental schools, integrated these students into its ongoing advocacy, and changed its name to reflect its interprofessional membership. At Harvard, members of the Student Coalition on Addiction are working on providing rising third-year dental students with training in naloxone rescue to prevent opioid overdoses.

Conclusion and Next Steps

The report of the Working Group has provided a forum to discuss educational efforts not only at the predoctoral level but at the advanced training level and in the wider dental community. These efforts are already bearing fruit as best practices are shared among the institutions, and a webinar CE program funded by the MDS specific to dentistry has taken place. This webinar was a collaboration among the three dental schools and will be available at no cost to MDS members to help them meet the biannual CE requirements for licensure by the Massachusetts Board of Registration in Dentistry. As yet no other funds, grants, or tangible support is available, but this type of collaborative program would lend itself to the development of research projects to demonstrate the efficacy of this interdisciplinary approach. Partnering with industry and payers also may provide an opportunity for successful implementation of the curriculum.

The primary and secondary prevention measures fit well into the past, existing, and future educational programs of the three Massachusetts dental schools. Each school has defined individual competencies for its students, including how those pertaining to the primary and secondary measures can be achieved. The tertiary prevention domain (managing substance use disorders as a chronic disease) is a more difficult competency to meet at the

predoctoral dental student level. While formative training in this domain is appropriate, the appropriate competency for the tertiary domain would be for predoctoral students to recognize that a patient has a substance abuse disorder that requires treatment and to understand what options that patient has for treatment referral. The management of substance abuse disorders as a chronic disease is a competence that clearly requires postdoctoral-level medical and/or dental training to achieve.

Yet to be determined are what objective, measurable outcomes would demonstrate the successful achievement of these core competencies. A decrease in prescriptions for controlled substances by dentists, fewer opioid-related emergency room visits for dental and orofacial pain, or a greater number of persons referred to chronic pain programs for orofacial pain could be meaningful indices.

Ultimately, any curriculum should result in an enduring change in clinician behavior and patient outcomes. Dental educators have long used qualitative and quantitative measures to assess the skills, knowledge, and competencies of their trainees. Modern dental curricula necessitate objective, meaningful, and timely outcome measures. We anticipate that current assessment tools can be readily adapted to evaluate such parameters as knowledge, communication skills, and the ability to synthesize disparate types of information in the management of orofacial pain.

The prescription opioid crisis has involved us all through our families, friends, communities, and professional activities. The Commonwealth of Massachusetts and the three Massachusetts dental schools together with the broader Massachusetts dental community have come together in what we believe to be a distinctive collaboration that directly affects our population's health. By educating our dental students in these important issues, we can prepare the next generation of dentists to provide better and safer pain control for patients and help curb the scourge of prescription opioid misuse.

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