

### Addressing the Opioid Epidemic: U.S. Medical School Curricular Approaches

In the past decade, deaths in the United States due to opioids have increased dramatically. In 2015, drug overdose deaths exceeded 52,000, the majority of which involved an opioid (63%).<sup>1</sup> In the same year, about 97.5 million people aged 12 or older were users of prescription pain relievers, nearly one-third of the U.S. population.<sup>2</sup> While many Americans require access to such medication for clinical reasons, public health experts have raised concerns about the use of opioids because of their addictive properties, potential for nonmedical use, and increased risk of leading to heroin use.<sup>3</sup>

Many opportunities exist for intervention to reduce deaths and prescription drug misuse. One area of focus has been on the training and ongoing professional development of physicians, particularly with respect to education on pain assessment and treatment and instruction in prevention and management of substance use disorders (SUDs).<sup>4</sup> As part of a multifaceted strategy, strengthening medical graduates' understanding of pain and SUDs holds the potential to minimize inappropriate prescribing of opioids and to better manage and prevent SUDs, but no comprehensive, detailed national data exist on how and what medical students are being taught and assessed in these areas.

To address that information gap, this *Analysis in Brief (AIB)* examines the results of a recent national telephone survey of curriculum deans from LCME-accredited U.S. medical schools to assess their current or anticipated plans in addressing the opioid epidemic. This survey is part of a larger AAMC effort to understand the current state and needs of medical schools in regard to the opioid epidemic.<sup>5</sup> These results will help

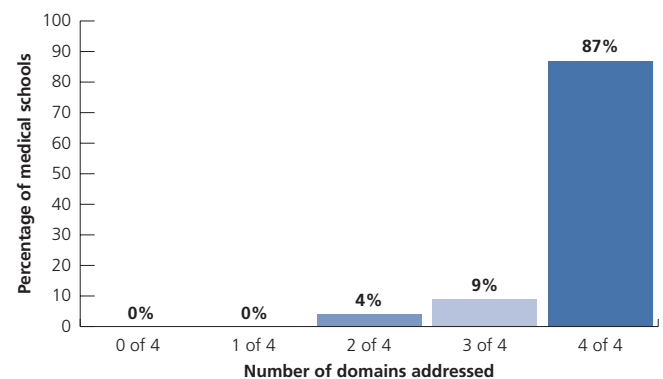
inform educators as they actively enhance medical school curricula to respond to this public health crisis.

#### Methods

Data come from a structured telephone survey fielded by an AAMC research team. Survey interviews took place between July and September 2017. Medical school curriculum deans (or their designees) at all LCME-accredited U.S. medical schools (N = 147 at the time the survey was fielded) were asked to participate and given scheduling options via an email invitation. One week before the scheduled interview, the interviewee received a list of questions to facilitate the discussion. The institutional review board at the AAMC deemed the project exempt in June 2017.

Survey items were developed from two sets of competencies: the Commonwealth of Massachusetts' *Medical Education Core Competencies for the Prevention and Management of Prescription Drug Misuse*<sup>6</sup> and an interprofessional consensus summit's,<sup>7</sup> as cited in the U.S. Department of Health and Human Services' *National Pain Strategy*.<sup>8</sup> An expert in survey design was consulted and reviewed the protocol for item quality and clarity. A pilot survey was conducted in July 2017 with one institution, and subsequent revisions for item clarity were made to the protocol. The final protocol consisted of 21 survey questions covering the following pain domains:

**Figure 1. Percentage of U.S. medical schools reporting number of pain and substance use disorder domains addressed in their curricula.**



Note: N = 102.

the nature of pain (D-I); pain assessment and measurement, including assessment of risk for SUD (D-II); management of pain, including SUD treatment and opioid overdose (D-III); and the context of pain and SUD (D-IV). These four domains include 31 competencies, and interviewees were asked to indicate whether each of the domains and related competencies were addressed through teaching and/or assessment in the required curriculum. The interviews were conducted by two AAMC staff members, and all responses were captured electronically. Descriptive statistics were used to analyze the majority of survey items (89%), and qualitative analysis was used to assess the responses to the open-ended questions. Two coders independently classified the responses into common areas using an inductive approach.

#### Results

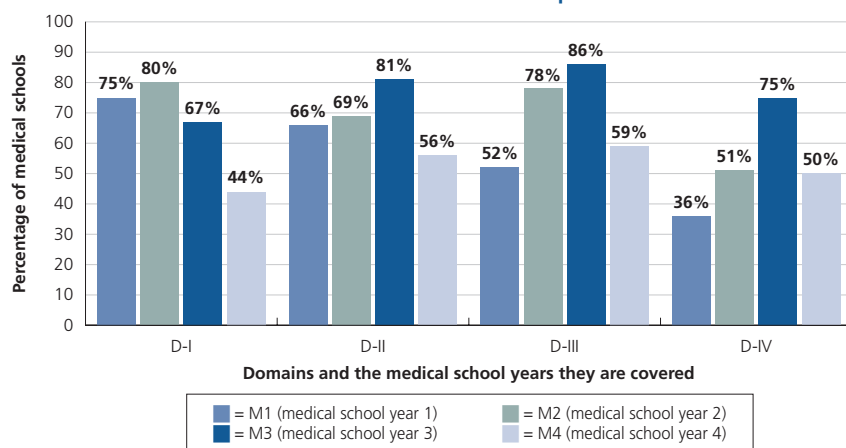
The response rate for completion of the full interview survey was 69% (N = 102). Of the responding interviewees, 87% report that all four domains of pain are addressed in their institutions' curricula, and 100% of the respondents report

addressing at least two of the four domains in their institutions' curricula (Figure 1). The vast majority of interviewees also report that all 31 individual pain competencies in the four domains are taught within the required curriculum ( $M = 0.78$ ,  $SD = 0.10$ ) across the four years of medical school (M1–M4), as shown in Figure 2. A slight majority report that all competencies are assessed ( $M = 0.55$ ,  $SD = 0.12$ ). The specific types of methods used by respondents to teach and assess these competencies are listed in Table 1. Lecture, clinical experiences, and case-based learning are the three most reported methods for teaching the four domains. A written test, such as a multiple choice test, is the most frequently reported method for assessment.

### Challenges

Ninety-seven percent of respondents ( $N = 98$ ) shared one or more challenges faced when teaching about and/or assessing students' knowledge of prescription drug misuse. Three prominent challenge areas emerged: faculty and resident development, time, and assessment. Most frequently, respondents reported a need for greater faculty and resident expertise to teach and model safe prescribing practices. One respondent commented that there is a "lack of faculty expertise in current practices," and another stated, "The major challenge is faculty development. The people that are assessing their students may not always have content expertise to effectively assess students." Another frequently noted challenge was the lack of time within the curriculum to add new content. Comments in reference to this challenge were recorded as well: "The biggest challenge is curricular time. Would love to be able to see some type of integrated curricular system for opioid content." "Overly crowded curriculum, demands of patient care, not enough time for teaching." Another common challenge reported by respondents concerned the assessment of students' skills in this area. For example, one respondent noted, "The assessments tend to be driven by content and disease processes or physical exam maneuvers that certain departments are owners, expert in. No one considers themselves owners of teaching or assessing pain"; another stated, "Assessment piece is

**Figure 2. Percentage of U.S. medical schools reporting when pain and substance use disorder domains are addressed in their opioid education.**



Note:  $N = 102$ ; D-I = the nature of pain; D-II = pain assessment and measurement, including assessment of risk for SUD; D-III = management of pain, including SUD treatment and opioid overdose; D-IV = the context of pain and SUD.

challenging. Content is taught better than it is assessed. Development of tools like more simulation cases would be helpful."

When asked what effective strategies had been identified to address these challenges—as they relate to pain education, prevention of SUDs, and treatment—five themes emerged:

- sharing and making use of existing resources
- teaching interprofessionally and engaging community partners
- integrating content throughout the curriculum across the continuum in developmentally appropriate ways
- optimizing experiential methods such as case-based teaching and simulation
- building faculty capacity to teach and model evidence-based practices (e.g., SBIRT—screening, brief intervention, and referral to treatment)

In addition, 90% of the respondents reported one or more lessons about pain education for medical educators. Open-ended comments included the following: "Having a community partner has been a big plus." "Make sure each year builds upon the year before." "Comprehensive, coordinated approach and making sure that students understand early on the broad definition and many lenses through which patients experience pain." "Vertically integrated team aligned in learning ... threading [pain education]

through, introducing it early. Really patient centered. You have to be deliberate to make sure you are teaching this in a robust way." "This is going to require a significant partnership with GME [graduate medical education] to make this a seamless educational experience."

### Discussion

The findings reveal that medical schools are integrating the competencies considered relevant to addressing the opioid epidemic across the four years of medical school. Although the majority of schools reported addressing all pain domains, the schools also indicated that they place relatively less emphasis on clinical conditions and context (D-IV). This may indicate a need to promote education about pain and SUDs in relation to special populations, interprofessional care, and the role of social determinants of health in treatment planning for SUDs.

Respondents reported using a variety of didactic methods; however, active methods are used less often. Results suggest a need for more performance assessment methods and tools for teaching and measuring developmental progression in these competencies. Open-ended comments suggest opportunities to better prepare faculty and residents in responsible opioid prescribing. They also suggest a need for additional active learning opportunities that are developmentally appropriate and designed to better prepare students for their role as prescribers once they transition to GME.

Medical student education is an important, but insufficient, answer to the complex challenges of the opioid epidemic. Medical school leaders are integrating competencies in pain management and substance use and are seeking additional ways to enhance their curricula. However, to be maximally effective, such experiences must be integrated and reinforced throughout the continuum of medical education, including into residency training and continuing education for practicing physicians. Attention to faculty, resident, and preceptor practices is critical to an effective learning environment.

Medical schools are adapting their curricula to address the complexity of the opioid epidemic. Many promising practices have been developed by medical schools to directly and indirectly address the nature, assessment, and management of pain and the prevention, recognition, and treatment of SUDs. Increased collaboration in education and assessment among schools and across the medical education continuum and professional fields will further the progress of better health outcomes for the patients and communities medical schools and teaching hospitals serve.

**Table 1. Methods Used to Teach and Assess Competencies in Pain and Substance Use Disorder Domains, by Percentage of Reporting U.S. Medical Schools**

Method	D-I (%)	D-II (%)	D-III (%)	D-IV (%)
<b>Teaching</b>				
Case-based learning	50	52	55	45
Clinical experience, ambulatory	46	63	73	66
Clinical experience, inpatient	52	70	74	67
Discussion, large group (>12)	17	11	16	14
Discussion, small group (≤12)	49	50	52	36
Laboratory	69	5	3	3
Lecture	85	71	80	53
Peer teaching	5	<1	3	<1
Preceptorship	49	5	4	3
Problem-based learning (PBL)	13	9	10	9
Role play/dramatization	7	4	2	0
Self-directed learning/tutorial	11	7	7	5
Simulation	11	13	15	7
Standardized/simulated patient (SP)	30	39	30	20
Team-based learning (TBL)	16	10	16	6
Video/podcast	5	2	5	3
Virtual patient	<1	2	2	<1
Workshop	7	10	11	9
Other	12	14	13	10
<b>Assessment</b>				
Faculty or preceptor global ratings	11	15	18	16
Written test, multiple choice or essay	77	60	66	41
Simulation	5	7	5	5
Standardized or simulated patients	19	25	25	17
MiniCEX	2	3	3	2
Chart audits	2	2	2	2
Direct observation	25	39	40	38
Other	26	29	28	12

Note: N = 102; D-I = nature of pain; D-II = pain assessment and measurement, including assessment of risk for SUD; D-III = management of pain, including SUD treatment and opioid overdose; D-IV = context of pain and SUD.

**Notes**

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