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# Physician continuing education to reduce opioid misuse, abuse, and overdose: Many opportunities, few requirements

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## ABSTRACT

**Background:** The opioid overdose epidemic in the United States is driven in large part by inappropriate opioid prescribing. Although most American physicians receive little or no training during medical school regarding evidence-based prescribing, substance use disorders, and pain management, some states require continuing medical education (CME) on these topics. We report the results of a systematic legal analysis of such requirements, together with recommendations for improved physician training.

**Methods:** To determine the presence and characteristics of CME requirements in the United States, we systematically collected, reviewed, and coded all laws that require such education as a condition of obtaining or renewing a license to practice medicine. Laws or regulations that mandate one-time or ongoing training in topics designed to reduce overdose risk were further characterized using an iterative protocol.

**Results:** Only five states require all or nearly all physicians to obtain CME on topics such as pain management and controlled substance prescribing, and fewer than half require any physicians to obtain such training.

**Conclusions:** While not a replacement for improved education in medical school and post-graduate clinical training, evidence-based CME can help improve provider knowledge and practice. Requiring physicians to obtain CME that accurately presents evidence regarding opioid prescribing and related topics may help reduce opioid-related morbidity and mortality. States and the federal government should also strongly consider requiring such training in medical school and residency.

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## 1. Introduction

The United States is in the grips of an opioid overdose epidemic (Rudd et al., 2015). While the root causes of the dramatic increase in opioid-related morbidity and mortality that has occurred over the past two decades are complex and varied, prescribing practices are a key factor (Beauchamp et al., 2014; Bohnert et al., 2011). Sales of prescription opioid analgesics increased by more than 300% between 1999 and 2011, accompanied by a corresponding rise in the rate of opioid-related fatalities (Centers for Disease Control and Prevention, 2013). According to the CDC, enough prescription painkillers were prescribed in 2010 to medicate every American adult 24 h a day for an entire month (Centers for Disease Control and Prevention, 2011).

## 1.1. Causes and consequences of inappropriate opioid prescribing

Although some of these opioid analgesics are dispensed via “pill mills” or obtained through other illicit channels, most are issued by legitimate providers in their normal course of practice. Unfortunately, many of these prescriptions will do little to help the patient, and some will cause harm. Approximately half of all opioid prescriptions are written for indications and durations for which evidence of effectiveness is weak or nonexistent, such as long-term treatment of osteoarthritis and lower back pain (Chaparro et al., 2014; da Costa et al., 2014). Indeed, in 2010, nearly 20 percent of office-based physician visits where non-cancer pain was either a primary symptom or diagnosis resulted in a prescription for opioid painkillers (Daubresse et al., 2013). In the same year, 31% of all emergency department visits – even those that were not pain-related – resulted in at least one opioid being prescribed (Mazer-Amirshahi et al., 2014). In many cases, the potential adverse effects of these prescriptions outweigh any potential benefits (Baldwin, 2015; Chou et al., 2015; Katz et al., 2015).

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Chronic opioid use can have severe negative consequences (Cheatle, 2015; Kaplovitch et al., 2015). A recent literature review revealed that, on average, between 21 and 29 percent of chronic opioid patients misuse their medications, and between 8 and 12 percent show signs of addiction (Vowles et al., 2015). Nearly 19,000 Americans died in 2014 of opioid analgesic-related overdoses – more than 52 every day (Centers for Disease Control and Prevention, 2015b). The dramatic rise in prescription drug abuse, misuse, and overdose has corresponded with an explosion in heroin overdoses, which more than tripled between 2010 and 2014 (Rudd et al., 2015). Opioid analgesic misuse is the strongest predictor of transition to heroin, which is both cheaper and in some cases more readily available than prescription painkillers (Cicero et al., 2015, 2014; Dasgupta et al., 2014; Hedegaard et al., 2015; Jones et al., 2015; Kuehn, 2013).

It is not entirely clear why the prescription of opioids for conditions for which they are not indicated continues despite the now well-documented potential harms of such therapy. It is likely that at least some of these prescriptions result from physician-directed marketing produced by some pharmaceutical manufacturers (Kolodny et al., 2015). For example, Purdue Pharma, the maker of OxyContin, engaged in a years-long marketing campaign that encouraged physicians to prescribe opioid analgesics for non-cancer pain and systematically downplayed potential negative effects. This campaign included thousands of episodes of provider education, and was partially responsible for the adoption by many professional associations of pain treatment guidelines that encourage the aggressive identification and treatment of pain with opioid analgesics, often in ways that defied existing evidence of safety and efficacy (Van Zee, 2009).

The provider education materials created and widely distributed by Purdue included numerous false and illegal claims. In 2006, three Purdue executives, as well as the company itself, pled guilty in federal court to a number of criminal charges related to the marketing of OxyContin and paid nearly \$635 million in fines (Meier, 2007). In August 2015, Purdue reached a settlement with the New York Attorney General regarding improper marketing of OxyContin, and in December 2015, the company agreed to a \$24 million settlement with the state of Kentucky over claims that the company improperly marketed OxyContin as non-addictive (Kentucky Office of the Attorney General, 2015; New York State Office of the Attorney General, 2015). Although these results are notable because of their similarity and severity, Purdue was not the only bad actor. In 2008, Cephalon paid \$425 million in criminal and civil fines to settle claims that it had improperly marketed three drugs, including Actiq, a powerful opioid (United States Food and Drug Administration, 2008). The Oregon Attorney General recently reached a \$1.1 million settlement with Insys Therapeutics, maker of the oral fentanyl spray Subsys, to settle claims that the company targeted unqualified doctors to prescribe the potent medication and marketed it for off-label use (Oregon Department of Justice, 2015). Insys faces additional investigations in Arizona, Illinois, and Massachusetts, as well as from federal officials (Insys Therapeutics, 2015). In 2016, the New York Attorney General fined Endo Pharmaceuticals \$200,000 after finding that the company improperly marketed Opana ER, a powerful opioid, and instructed its sales representatives to “diminish and distort” risks associated with the medication (Attorney General Eric T. Schneiderman, 2016). The city of Chicago, several counties in California, and numerous private plaintiffs have recently sued a variety of opioid manufacturers, alleging inappropriate marketing and related claims (Girion, 2015).

Many providers may be receptive to such marketing because their baseline knowledge of pain management and addiction treatment is low. Most medical schools devote an extremely small amount of time to evidence-based opioid therapy, pain management, and substance use disorder (SUD) treatment, in what

has been described as a “failure of the medical profession at every level. . . to confront the nation’s number one disease” (The National Center on Substance Abuse at Columbia University, 2000). According to the Director of the National Institute on Drug Abuse, veterinarians receive substantially more training in pain treatment than medical doctors (Muchmore, 2016). In a recent nationwide survey of 104 American medical schools, only four reported having a required pain course, and only 16 percent offered a designated pain elective. The mean number of instructional hours spent on pain was 11, with some students receiving only a single hour of instruction during their entire medical school career (Mezei and Murinson, 2011). There are no full-term pain residency programs, and fellowships in pain medicine are available only to specialists such as anesthesiologists and neurologists (Johns Hopkins Bloomberg School of Public Health, 2015).

Unsurprisingly, physicians consistently report that their medical education did not adequately prepare them to address chronic pain or SUD and that they lack knowledge and competence in these areas. In a recent survey of medical residents, nearly three in five rated their medical school preparation in assessing chronic non-cancer pain as “fair” or “poor” (Yanni et al., 2010). Another study of residents at Massachusetts General Hospital reported that only 13 percent felt “very prepared” to treat addiction, and 62 percent felt “unprepared” to treat it. More than half rated the quality of instruction they received in addiction as “fair” or “poor” (Wakeman et al., 2013). Among practicing primary care physicians, nearly 46 percent reported that their medical education and training was unsatisfactory in preparing them to address opioid dependence, and 40 percent reported that it was unsatisfactory in preparing them to address chronic pain (Keller et al., 2012). Another study focusing on community health clinics found that more than four in five attending physicians rated their medical school education regarding chronic pain as insufficient (Upshur et al., 2006).

These training deficits directly contribute to physicians’ lack of knowledge and their inability to consistently provide evidence-based treatment (Miller et al., 2001). Many primary care providers hold incorrect beliefs about basic facts regarding opioid painkillers, such as that abuse-deterrent formulations are less addictive than the regular versions of those medications and that patients are likely to see improvements in pain and quality of life when prescribed opioids for chronic pain (Hooten and Bruce, 2011; Hwang et al., 2015). Moreover, fewer than 20 percent of primary care physicians in one national survey reported being “very prepared” to identify alcohol or drug dependence (The National Center on Substance Abuse at Columbia University, 2000). A nationwide study of HIV care providers revealed that they seldom follow recommended guidelines for opioid prescribing and have limited confidence in their ability to recognize opioid abuse (Lum et al., 2011). Similar findings are widespread in the literature (Polydorou et al., 2008).

Despite at least three decades of well-documented shortcomings of medical education in these areas interspersed with periodic calls for its improvement, medical schools largely continue to fail to adequately prepare physicians to prevent, diagnose, and properly treat chronic pain and substance use disorders (Doorenbos et al., 2013; Institute of Medicine (U.S.) and Committee on Advancing Pain Research Care and Education, 2011; Miller et al., 2001; O’Connor et al., 2011; Pokorny et al., 1978; Tauben and Loeser, 2013). In an attempt to fill this gap, several states and the federal government have recently taken steps to ensure that physicians in their jurisdictions receive at least some instruction in these important topics after they have entered practice.

While the federal Drug Enforcement Administration (DEA) grants providers the authority to prescribe controlled substances, the ability for each provider to practice medicine, and therefore to prescribe any medication, is granted by each state. State licensing

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