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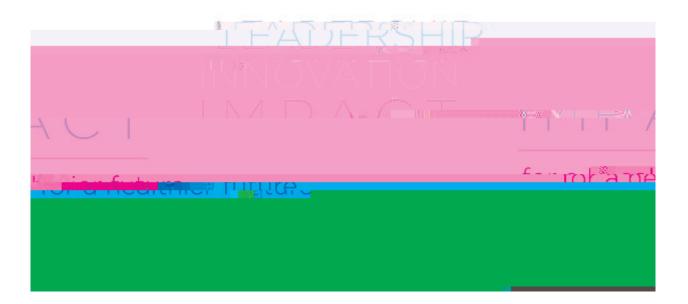
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"Knowing is not enough; we must apply. Willing is not enough; we must do." —GOETHE





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The

ACTION COLLABORATIVE ON COUNTERING THE U.S. OPIOID EPIDEMIC HEALTH PROFESSIONAL EDUCATION AND TRAINING WORKGROUP

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ACRONYMSAND ABBREVIATIONS

NAM	National Academy of Medicine
NCCPA	National Commission on Certi ication of Physician Assistants
NIH	National Institutes of Health
NQF	National Quality Forum
ORC	Opioid Regulatory Collaborative
OUD	opioid use disorder
PA	physician assistant

CHAPTER 1 EXECUTIVE SUMMARY

The United States is in the midst of an urgent and complex opioid crisis. To address how education and training can more effectively respond to this crisis, we must have a better understanding of problems in practice—or professional practice gaps—for health professionals and teams in practice. A coordinated response requires identifying and addressing professional practice gaps (PPGs) related to pain management, opioid use disorder (OUD), and other substance use disorder (SUD) care, as well as integrating evidence-based best practices into health professional education and training curricula across the continuum from undergraduate training into post-graduate continuing education (ACCME, n.d.-c). In this publication, a PPG is the difference between health care processes or outcomes observed in practice, and those potentially achievable on the basis of current professional knowledge. As part of the National Academy of Medicine's (NAM's) Action Collaborative on Countering the U.S. Opioid Epidemic, the Health Professional Education and Training Workgroup, led by Kathy Chappell, Eric Holmboe, and Steve Singer, created this Special Publication to serve as a resource to assist multidisciplinary stakeholders in developing a more coordinated and comprehensive health education system that supports interprofessional practice and improves patient- and family-centered care. This Special Publication presents two major information gathering efforts to assess and better understand the current health professional education environment: the irst is a comprehensive literature review, and the second is a survey of the regulatory landscape.

The literature review identi ied persisting PPGs across ive health professions that are part of the pain management and SUD workforce: medicine, nursing, physician assistant, dentistry, and pharmagy, ntering the medical doctor [MD], or doctor of osteopathic medicine [DO]), 40% focused on the primary care/ outpatient care setting, and 66% concentrated on chronic pain management. Data sources used to identify or describe PPGs were predominantly descriptive and self-reported (63%) and the most common PPGs

groups of clinicians, the presence of harmful negative attitudes or biases held by health care professionals toward patients or the interprofessional team, and reports of insufficient time or resources and health system constraints exacerbating PPGs. Validation surveys were also conducted with clinicians and health systems (n=44) to con irm the indings of the literature review and to identify any potential areas that were not captured in the published, peer-reviewed literature.

The survey of the regulatory landscape included responses from a total of 62 unique organizations (national, state, or other) responsible for requirements, standards, or policies. Responses were sorted by policy type, organizational focus, and requirement focus areas. Across the pain management and SUD

CHAPTER 2 INTRODUCTION

ADDRESSING THE EPIDEMIC WITHIN A PANDEMIC

Between 1999 and 2019, nearly 500,000 individuals living in the U.S. died from an overdose involving an opioid (CDC, 2021b). The devastation of this crisis persists, as the number of individuals living in the U.S. who died from a drug overdose reached an all-time-high of 100,000 recorded in the 12 month period ending in April 2021—surpassing the 2019 igures by more than 21,000 deaths (NCHS, 2021). Of these deaths, nearly 75 percent involved an opioid (Ahmad et al., 2021). Among the most signi icant barriers to combating the overdose epidemic in the United States is ensuring patients have access to affordable and evidence-based substance use disorder treatment. Of the 21.6 million people aged 12 or older with an SUD, only 12.2 percent received treatment in an appropriate facility in 2019 (SAMHSA, 2020).

The global spread of SARS-CoV-2 and the resulting coronavirus (COVID-19) pandemic have exacerbated the overdose epidemic. Based on provisional data from the Centers for Disease Control and Prevention (CDC), reported drug overdose deaths in the U.S. increased by 29.4 percent in 2020—the largest single-year increase since 1999 (Ahmad et al., 2021). Already disproportionately burdened by the worst effects of the COVID-19 pandemic, including the rising rates of morbidity and mortality, food insecurity, and unemployment, these overdose-related deaths have largely been shouldered by the economically disadvantaged as well as Black, Indigenous, and people of color (BIPOC), further widening existing health disparities (CBPP, 2021; CDC, 2020a; Haley and Saitz, 2020; Khatri et al., 2021; Patel et al., 2021).

Over a year since death7(ac-)e death7(aa)0(t)88.43 ose deaths in th11.7(xica)14.7(y)0se accesgg theat atmle.7

a perfect storm—a "crashing of crises"—for those already reeling from the existing opioid crisis (Alexander et8(o4.6(eedt1.7(xir t.7(-1.4167 TD1).1(-)]TJD -15PT(ord cms 31).1(-)Khatriord cP)18.7(xropioid cn Drug Control Policy, 2004). Beyond individual competence, care teams struggle to implement evidencebased approaches that require interprofessional care coordination. System-based challenges, such as the use of data and technology systems and barriers in payment and reimbursement, compound the complex web of factors that must be addressed (Englander et al., 2017; Mackey et al., 2019; Makris et al., 2014). As research efforts, such as the National Institutes of Health (NIH)-funded *Acute to Chronic Pain Signatures*, continue to elucidate new approaches for managing pain and SUDs, the need for education to inform and re-shape health professional practice and care delivery is ongoing (NIH Of ice of The Workgroup asked:

CHAPTER 3 LITERATURE REVIEW (STUDY 1)

OBJECTIVES AND METHODS

Search Design and Strategy

First, the Workgroup and National Academies' Research Center (the Research Center) developed a search term matrix that was used for the literature review. The Research Center then searched electronic databases (Embase, MEDLINE, PubMed, and Scopus) to identify peer-reviewed articles. In addition, a search of the internet was conducted to identify reports in the grey literature (government, consensus, and white papers) that could contribute to the overall understanding of PPGs. The search was limited to articles (peer-reviewed or government reports) that were published in English in the United States between 2009 and 2019. Search terms re lected the ive identi ied professions—medicine (MD and DO), nursing (RN and APRN), physician assistant, dentistry (DDS and DMD), and pharmacy (pharmacists and pharmacy technicians)—as well as relevant treatment and conditions, health care professional competencies, collaboration with patients and families, and patient outcomes (see *Appendix A*).

Of the 822 articles initially identi ied using the above criteria, perspective and editorial articles (213) and articles not available in full text (62) were excluded from the sample, as the Workgroup decided to focus analysis on research articles and articles that described quality improvement projects. The remaining 547 articles underwent abstract screening, of which only US-based research studies that focused on professional practice gaps among practicing clinicians were included, or 310 of the 547 original articles. The decision to review US-based research studies was made because the Action Collaborative is focused on the opioid crisis In the United States.

Coding and Analysis

Members of the Workgroup then developed inclusion criteria, including a working de inition of what constitutes a professional practice gap, to select articles from the initial search for analysis (see coding

inclusion criteria matrix in *Appendix C*). The working de inition of a PPG was based on the cited Accreditation Council for Continuing Medical Education (ACOME) de inition, which states that PPGs are the difference between health care processes or outcomes observed in practice and those potentially achievable on the basis of current professional knowledge. The Workgroup conducted a reliability study to evaluate interrater reliability among coders for inclusion in the review. Seven members of the Workgroup, whose professional backgrounds re lected all of the professions included in the search terminology, independently reviewed 10 randomly selected articles. Determining whether the article described a PPG was the area of greatest variation among coders and was addressed through group discussion and consensus for rationale among the team members. For example, an article that described differences in how physicians and nurse practitioners prescribed opioids was classi ied by four of six reviewers as meeting inclusion criteria for describing a PPG (difference in practices between two professions), while two reviewers were unsure. By reviewing and reinforcing the de inition of a PPG, Workgroup members were able to resolve discrepancies.

An independent research team with expertise in coding and analysis was subcontracted to complete the article coding, using the matrix developed by the Workgroup. The research team was led by a doctorally prepared, tenured university professor with extensive expertise in this type of analysis.

Results

Quantitative

A total of 310 articles (310/547; 57%) met the inclusion criteria for this review. The predominant reason articles were excluded was that they failed to describe a professional practice gap (n = 86; 36%). *Table 1* summarizes research article composition. The research articles re lected research or quality

improvement studies and were classi ied as quantitative, qualitative, or mixed methods.

 TABLE 1
 Literature Review Research Article Composition

Type of Research Article	Count	Percentage
Quantitative	197	63.50%
Qualitative	61	19.70%
Mixed methods	52	16.80%
Total	310	100.00%

Table 2 describes health care professionals by type represented in the literature review. Physicians were the most common health care profession, followed by nurses, pharmacists, physician assistants, and dentists.

Professions by Type	Count	Percent
Physician Total (unspeci ied, MD and DO)	257	82.9%
Nursing Total	67	21.6%
Nursing (APRN)	41	13.2%
Nursing (unspeci ied)	24	7.7%
Nursing (RN)	12	3.9%
Pharmacy (pharmacist)	41	13.2%
Physician assistant	28	9.0%
Dentistry (DDS and DMD)	15	4.8%
Pharmacy (pharmacist technician)	1	0.3%
Other professions, such as behavioral health, educators, and residents		8.1%
Specialty of one of the above		43.2%
Profession not speci ied	13	4.2%

TABLE 2 | Health Care Professionals by Type Represented in the Literature Review

Overall, areas of specialty were indicated by 43% of respondents (see *Table 3*). The majority of articles re lected practice of physicians only, but 20% of articles included analysis of two professions. A small number of articles included more than two professions.

TABLE 3 Specialties Represented in Literature Review

Specialties	Count	Percent of Total Respondents
Specialty Total	134	43.2%
Primary care	28	9.0%
Internal medicine	22	7.1%
Family medicine	22	7.1%
Pain management	25	8.1%
Surgery	21	6.8%
Emergency medicine	17	5.5%
Psychiatry	15	4.8%
Addiction medicine	9	2.9%
Community or clinical pharmacy	12	3.9%
Pediatrics	7	2.3%
Orthopedics	7	2.3%
Other	22	7.1%
Profession not speci ied	13	4.2%

As seen in *Table 4*, the articles in this review described practices in a variety of care settings, including primary care/ outpatient, acute care/ inpatient, clinic/ outpatient-unspeci ied, community/ outpatient, clinic/ inpatient, and other. The most common care setting was primary care/ outpatient.

Practice Environments	Count	Percent
Primary care/ outpatient	124	40.00%
Acute care/inpatient	84	27.10%
Not described practice environment	61	19.70%
Clinic/ outpatient	59	19.00%
Community/ outpatient	54	17.40%
Clinic/inpatient	48	15.50%
Other practice environment	39	12.60%

 TABLE 4
 Practice Environments Represented in Literature Review

Table 5 describes the domains of practice included in the literature review. Chronic pain management was the most common domain of practice. Additional domains of practice included acute pain management, substance use disorders, and other practice domains.

 TABLE 5
 Domains of Practice in Literature Review

Domains of Practice	Count	Percent
Chronic pain management	205	66.10%
Acute pain management	110	35.50%
Substance use disorders	71	22.90%
Other practice domain	16	5.20%

Table 6 summarizes the types of data sources included in the literature review. Data sources used to identify or describe PPGs were predominantly descriptive self-reports. Other data sources included

As seen in *Table 7*, the predominant patient population referred to in the articles reviewed was adult. Other patient populations included "across the lifespan" and pediatric.

 TABLE 7
 Patient Populations Referred to in Literature Review Articles

Patient Populations	Count	Percent
Adult	231	74.50%
Patient population not described	43	13.90%
Across the lifespan	23	7.40%
Pediatric	17	5.50%

Table 8 summarizes PPGs by type or stage in the care process. The articles in this review most commonly relected PPGs associated with prescribing or tapering opioids. Additional types or stages included monitoring, screening/ assessment, non-pharmacological treatment, identi ication/ diagnosis, prescribing non-opioids, referral, and other. Categories were not mutually exclusive; therefore, one article could include multiple types or stages in the care processes.

TABLE 8 | PPGs by Type or Stage in the Care Process Included in the Literature Review

Type or Stage in Care Process	Count	Percent
Treatment: Prescribing/tapering	287	92.60%
Monitoring	30	9.70%
Other type or stage in care process	28	9.00%
Screening/assessment	25	8.10%
Treatment: Non-pharmacological	23	7.40%
Identi ication/ diagnosis	13	4.20%
Treatment: Prescribing non-opioids	10	3.20%
Referral	8	2.60%

The majority of articles cited gaps in clinical knowledge attitudes and biases, and/ or the use of (failure to use/lack of available) evidence-informed tools and resources as the root causes for the identi ied PPGs (see *Table 9*). Communication with patients/ families, constraints in the practice setting, and/ or communication with other members of the health care team were also cited as PPGs. Categories were not mutually exclusive; therefore, one article could include multiple types of PPGs. Coders also captured qualitative data into two additional categories that re lected (1) health care professionals and patients/ families; and (2) the environment where care is delivered.

A summary of the qualitative data is presented below.

Qualitative

Health Care Professionals Theme 2: Guidelines

Guidelines were another area of PPGs that relected a lack of competence in the clinical setting. Articles cited unawareness of an evidence-based guideline or lack of application of guidelines by health care professionals as key gaps (Goesling et al., 2018; Ma i et al., 2015; McCalmont et al., 2018; McCann et al., 2018; Mehta et al., 2010; Morse et al., 2011; Starrels et al., 2011). Speci ically, articles described health care professionals who reported a willingness to perform opioid harm reduction interventions, but did not provide these services to their patients (Samuels et al., 2016); who reported that they had implemented evidence-based guidelines, but rates of drug screening and specialty referral remained low (Chen et al., 2016); and those who chose to use a clinical impression or personal preference for prescribing opioids despite the available evidence-based guideline (Irvine et al., 2014; Park et al., 2019).

Health Care Professionals Theme 3: Lack of Evidence, Tools, or Resources

Health care professionals reported a lack of high-quality evidence for prescribing opioids or co-prescribing sedatives and opioids, and tools that were not user-friendly (Franklin et al., 2013; Gaither et al., 2016; Huang and Kuelbs, 2018; Kircher et al., 2014; Kraus et al., 2015; Larochelle et al., 2015; Leverence et al., 2011; Linnaus et al., 2019; Morse et al., 2011). Health care professionals also reported not knowing risk mitigation strategies for prescribing opioids, including how to screen patients for SUDs, how to provide patient education, and types of prescription drug diversion programs that were available as resources (McCarthy et al., 2016; Reid et al., 2010).

Health Care Professionals Theme 4: Attitudes or Biases

A number of articles described negative attitudes or biases held by health care professionals toward patients. Findings indicated health care professionals may exhibit negative attitudes and biases toward patients who have chronic pain and depression, who have illicit benzodiazepine use, who use Medicaid insurance to pay for an of ice visit, and who have an opioid-using spouse. (Hirsh et al., 2014; Knudsen et al., 2018).

Health care professionals also expressed concern about prescribing opioids due to the potential for addiction and side effects (Leong et al., 2010; Lum et al., 2011); fear of causing harm to the patient (Jamison et al., 2016; Leong et al., 2010; Linnaus et al., 2019; Lum et al., 2011; Macerollo et al., 2014; Schuman-Olivier et al., 2013); concern of opioid misuse by family members or caregivers (Spitz et al., 2011); and acknowledging patients' concerns with the stigma of medications for OUD (i.e., methadone) (Shah and Diwan, 2010). Some health care professionals reported that the patient or family was reluctant to try an opioid to control pain (Spitz et al., 2011).

Health Care Professionals Theme 5: Lack of Interprofessional Collaboration, Interest, and Trust

Health care professionals reported a lack of interprofessional collaboration in the care of patients with SUDs or chronic pain (Mehta et al., 2010). There was also a reported lack of interest from some health care professionals for prescribing opioids (Barry et al., 2010). Finally, lack of trust was a theme

in some articles with health care professionals describing challenges in trusting the patient's description of pain and the subjectivity of pain scales, sometimes manifested as the health care professional not documenting the pain score in the medical record (Brown et al., 2015; Calcaterra et al., 2016; Mehta et al., 2010; Regunath et al., 2016).

Health Care Professionals Theme 6: Differences in Prescribing Practices

Differences in prescribing practices between groups was also a common theme in the literature reviewed. Different practices can be categorized into two general areas: provider type and type of pain. In the literature review, differences in prescribing practices were found between physicians and APRNs (Franklin et al., 2013; McCalmont et al., 2018; Muench et al., 2019); physicians and physician assistants (Ganem et al., 2015); primary care physicians and pain specialists (McCarberg et al., 2013); resident physicians and attending physicians (Khalid et al., 2015); and junior and senior resident physicians (Linnaus et al., 2019). The root cause of the differences in prescribing patterns was not well understood.

There were differences noted in prescribing practices for patients who had different types of pain. Speci ically, there were differences in prescribing practices between patients who had acute versus chronic pain (Larochelle et al., 2015), and between patients who had unclassi ied pain versus a known pain source (e.g., ibromyalgia vs. broken bone) (Romanelli et al., 2017). There were also differences between patients who experienced breakthrough pain (BTP). For example, patients reported lower BTP in the community setting as compared to the pain clinic setting, and patients reported more episodes of BTP for non-cancer pain as compared to cancer-related pain (Portenoy et al., 2010).

Care Environment Theme 3: Insurance Coverage

Descriptions of constraints related to health insurance coverage included whether the patient was covered by an insurance policy or not, and if covered, what speci ic treatment was covered under the policy. Articles cited low reimbursement rates and limited or no insurance coverage for mental health services and addiction counselors as constraints (Andraka-Christou and Capone, 2018; Barry et al., 2010; Behar et al., 2017; Cheng et al., 2019; Huhn and Dunn, 2017).

Care Environment Theme 4: Mandatory Continuing Education

Regulatory restrictions were cited as a constraint that contributed to PPGs. Descriptions of these types of constraints included concern that physicians would not be willing to comply with the mandatory continuing education requirements for prescribers of extended-release and long-acting opioid medication under the Food and Drug Administration's (FDA's) Risk Mitigation and Evaluation Strategies (REMS) requirements, which would decrease the number of physicians eligible to prescribe opioids controlled by REMS requirements (Sevin and Ashburn, 2011). Another constraint cited was requirements related to buprenorphine waivers (Rosenblatt et al., 2015; Stein et al., 2015). However, the U.S. Department of Health and Human Services (HHS) loosened buprenorphine waiver requirements in April 2021, allowing eligible medical professionals to treat up to 30 patients with buprenorphine without completing the federal certi ication process (HHS, 2021). Articles also described lack of planning at the state level to address adequate numbers of providers who could prescribe controlled substances to meet population health needs as a constraint in the practice setting (Sera et al., 2017).

Care Environment Theme 5: Lack of Referral Resources

Lack of available referral resources across multiple health care settings was cited as contributing to PPGs. Articles described insufficient numbers of mental health services practitioners, addiction counselors, and pain management specialists as constraining health care practitioners ability to care for patients with OUD or other SUDs (Andrews et al., 2013; Andrilla, Coulthard, and Patterson, 2018; Barry et al., 2010; Leverence et al., 2011; Morse et al., 2011; Wiznia et al., 2017). Articles also recognized that lack of available referral resources were particularly challenging for rural providers of care (McCalmont et al., 2018; McCann et al., 2018).

Care Environment Theme 6: Lack of Institutional Guidelines

Lack of institutional guidelines or resources were described by a number of articles as contributing to PPGs. They described lack of standardization in opioid prescribing within organizations (Huang and Kuelbs, 2018; Raneses et al., 2019; Regunath et al., 2016; Ringwalt et al., 2014; Schwartz et al., 2018); how lack of institutional standardization manifested in practice variations, such as more liberal opioid prescribing practices in the emergency department as compared to other departments in the institution; prescribing practices that were medical or surgical specialty dependent; and institutions that had a "prescribing culture" (Gernant, Bastien, and Lai, 2015; Gugelmann et al., 2013; Irvine et al., 2014; Myers et al., 2017; Raneses et al., 2019).

CHAPTER 4 EDUCATIONAL REQUIREMENTS SURVEY (STUDY 2)

BACKGROUND

Regulatory agencies and organizations, whether legislative (e.g., state licensing boards) or involved in professional self-regulation (e.g., accreditation and certi ication) can play a supportive and facilitating role in addressing PPGs in OUD/ SUDs and pain management practices. There is currently a myriad of regulatory agencies across the multiple health professions. Additionally, a lack of or discordant regulatory standards and practices may also serve as barriers to addressing the opioid crisis. The purpose of this evaluation was to gain an initial understanding of the regulatory landscape with regards to educational requirements and standards using a web-based survey approach. The goal of this survey was not to be comprehensive, but rather to develop an initial taxonomy of themes and practices among a heterogeneous group of regulators to guide subsequent work and initiatives of the collaborative. The high-level results provide the reader an overview of the multifaceted and fragmented health professions regulatory systems and the complexities that ensue from the design of the current systems. This overview, when integrated with the literature review, can begin to link the PPGs with speci ic components and activities of the regulatory systems.

OBJECTIVES AND METHODS

Survey Design and Strategy

Members of the Health Professional Education and Training Workgroup developed an online survey primarily to obtain a high-level scan of regulatory policies and requirements for a) acute and chronic pain management and b) substance use disorder (see *Appendix C*). There is a lack of consistent distinction between OUD and SUDs across requirements, standards, and policies. Thus, in order to comprehensively capture data, the survey questions focused on SUDs. The survey, conducted between August

2019 and February 2020, speci ically targeted the Collaborative's regulatory member organizations in

Data Extraction

Walt and GIson's policy triangle framework was the basis for this analysis as policy themes were characterized into content, context, actors, and process (Walt and GIson, 1994). This framework was originally proposed in 1994 and was designed to help the health policy ield extend its focus beyond just the content of policy to include the actors, context, and processes of the policy. The framework places the actor at the center of the triadic and interdependent relationship between content, process and context. This framework enables the analysis of the content of the policy; the actors involved in the decision making; the process by which the policy was started, articulated, and communicated; and the context and the full context of the policy.

To synthesize the indings, each extraction sheet (i.e., structured abstraction tool) was read and coded using analysis techniques from primary qualitative studies. The extraction summaries were loaded into the software program NVivo in the form of individual documents. Each document was then read on a line-by-line basis, and a code was assigned to chunks of text in line with primary qualitative data analysis methods. Following the coding of the documents, the data within each code were reviewed for consistency by a researcher.

DATA ANALYSIS AND SYNTHESIS

The initial stages of survey analysis (conducted by Lauren Poulin and Eric Holmboe, both working on behalf of the Collaborative) encompassed a thematic analysis of the survey data involving an iterative, interwoven process of data acquaintance, data reduction, data presentation, and summarizing. Miles and Huberman's approach was chosen for guiding the initial stages of analysis because their analytic techniques are recommended for putting collected data in case studies in order before detailed analysis (Miles and Huberman, 1994; Yin, 2014). In essence, each policy was treated as a case study. Through each round of review and subsequent coding, differences and similarities in policies were tracked and concepts were linked into main themes. Key themes were reviewed as they developed and additional searches through the text were conducted using related keywords to see if the context changed by the regulatory agency. For example, as continuing medical education (CME) requirements were analyzed, the use of CME with professional development (competency-based medical education, continuing nursing education, continuing professional development, etc.) and role titles (e.g., provider, educator, professional, facilitator, provider, coordinator, physician) were traced. Smilarly, the concepts "organization," "system," and "environment" were searched back to see how they were used over time, for example, in the context of policies for trainees versus licensed providers.

After reading through the policies, the following themes emerged from the supplemental literature review on policies and requirements within the regulatory organizations and agencies (see *Table 11*):

TABLE 11 | Policy Themes Identi ied in the Literature Review

Policy	Requirement
Drug supply management policies	Drug supply management policies outline steps to build, electronic systems to identify and trace certain prescription drugs as they are distributed in the United States. These policies include supply chain laws, regulations on drug processing, dispensing, and the public and private regulation of opioids (Dowell, Haegerich, and Chou, 2016).
Policies addressing patient behavior	These policies include provider education and resources on treating patients with a history of opioid or alcohol use, using other resources to guide patient treat- ment decisions, guidelines for addressing stigma, patient family and caregiver education, transitions of care, safeguarding against diversion, collaborating with communities, using data to inform policies and interventions, and advocacy and policy (AAFP, 2012).
Policies addressing patient health	These policies and guidelines directly address patient health. They include treat- ment options for OUDs, non-opioid pain treatment options, supporting medica- tions for opioid use disorder (MOUD) treatment, strategies to decrease opioid prescribing, dosage adjustment strategies, and using more conservative prescrib- ing practices (SAMHSA and Of ice of the US Surgeon General, 2016; Hah, 2018).
Continuing medical education requirements	State continuing medical education requirements for pain management or con- trolled substances mandate that health care professionals (e.g., doctors, nurses, dentists, etc.) receive training in opioid prescribing, addiction, or related topics (Davis and Carr, 2016).
Pain management clinics	Pain management clinic policies regulate facilities that primarily manage and treat chronic pain by imposing operational, personnel, inspection, and other requirements on clinics (Andraka-Christou et al., 2018).
Opioid prescribing guidelines	Opioid prescribing guidelines provide recommendations to providers on opioid prescribing practices. Guidelines vary but typically include opioid selection, dosage, duration, titration, and discontinuation; screening tools; written treatment agreements; and urine drug testing (Dowell, Haegerich, and Chou, 2016).
Doctor shopping laws	Doctor shopping refers to a patient obtaining controlled substances from multiple health care prescribers without the providers' knowledge of the other prescriptions (Sansone and Sansone, 2012).
PDMPs	A prescription drug monitoring program (PDMP) is an electronic database that tracks controlled-substance prescriptions dispensed in a state. PDMPs can be used as a clinical tool to help identify patients who may be at risk for adverse consequences associated with high-risk prescription opioid receipt (CDC, 2021a).
Naloxone access	Naloxone is an opioid antagonist designed to reverse opioid overdose rapidly. Naloxone access laws are designed to increase access to naloxone among those in a position to administer the medication in the event of an overdose (Davis and Carr, 2015).
Opioid addiction treatment	This category includes policies that in luence access to treatments for opioid addiction, such as MOUD and residential treatment guidelines (Livingston et al., 2021; Stewart et al., 2019).

- drug supply management policies,
- policies addressing patient behaviors (e.g., use of multiple providers),
- policies addressing patient health (e.g., treating patients with a prior history of opioid use, treatment visits),
- continuing medical education requirements,
- rules related to pain management clinics,
- opioid prescribing guidelines,
- doctor shopping laws,
- PDMPs,
- naloxone access laws, and
- policies affecting opioid addiction treatment.

States with an authorizing statute but no active PDMP were coded as not having a PDMP.

RESULTS

Respondents

A total of 66 individuals responded on behalf of their organizations. For four organizations, two individuals responded concomitantly, leaving a total of 62 unique organizations responding to the survey. Duplicates for these four surveys were deleted for the quantitative analysis after ensuring the responses were concordant; however, comments from both respondents were retained for qualitative review.

Requirements

The two main questions from the survey focused on pain management and SUD, and read as follows:

Acute and Chronic Pain Management

Even though 53 percent of organizations questioned self-reported that they did not have standards to address acute and chronic pain management, all 50 states have standards (laws, policies, regulations, and/ or guidelines) for medical professionals around controlled substances. (Davis; Federation of State Medical Boards Pain Management Policies Board-by-Board Overview) Twenty nine respondents that noted they do not have standards to address acute and chronic pain management are state-af iliated licensing or certifying boards across nursing, pharmacy, and allied dental health. While these organizations may not have any standards directly set in place that does not mean they do not have to adhere to the policies of the states. Twenty-three states and the District of Columbia (DC) have requirements, either in policy, regulations, or board guidelines for medical practitioners to obtain a certain number of continuing education hours in one or more of the following areas: prescribing controlled substances, pain management, and identifying SUDs. Twenty-seven states do not have these policies in place and leave it up to the state health professions licensing board while some other states mandate the training by statute. Again, organizations that do not have policies in place for the medical populations that they govern does not mean that there are no policies in force. Of note, the survey was distributed in 2019 while the state policy analysis was performed in 2020. It is possible some changes had occurred at the state level after the respondents completed the survey or that the respondents were simply unaware of their state policies. While we cannot make de initive conclusions, a reasonable hypothesis emanating from these indings may be the need for better education within regulatory organizations regarding their evolving policies.

State laws regulating pain management clinics may impose supervision or oversight requirements over providers. A July 2019 article from JAMA pointed out that at least six states with high opioid use rates also have substantial work restrictions that restrict NPs from prescribing medications to treat OUDs (Spetz et al., 2019).

regarding continuous professional development and/or education, three target credentialing of practicing providers, and inally, seven involve licensure.

Many accreditation organizations do not have these requirements because they refer to state guidelines.

There also appeared to be some confusion as to whether the survey was asking about substance use for professionals or substance use for patients. For example, the New Hampshire Of ice of Professional Licensure and Certi ication responded to the following in the open response area: "The New Hampshire Health Professionals Program is a program available to all NH licensed physicians, physician assistants, dentists, pharmacists, and veterinarians who are experiencing dif iculties with: depression, anxiety or other mental health issues alcohol, drugs, or other substances of abuse professional burnout or work-related con lict stress related to a bad outcome or malpractice claim marital or family life matters. "

Other organizations, such as the National Commission on Certi ication of Physician Assistants (NCCPA) and the Florida Board of Nursing, made similar comments.

	Training Level and Practice				
Type of Health Professional	Student Resident		Fellow	Expectations of Practicing Health Care Professionals	
		Resident		Participation in CME/CPD	Required for Licensure
Allopathicphysician	1	4	4	3	2
Osteopathic physician	1	4	3	3	3
Registered nurse	1	1		5	10
APRN	2	1	1	6	10
Pharmacist				2	2
Pharmacist technician				2	2
Physician assistant				2	2
Dentist (DDS)	2	2	1	4	6
Dentist (DMD)	2	2	1	4	6
Dental hygienist	2	2	1	4	6
Dental assistant	1	1		2	3

 TABLE 16
 Organizations' Number of Requirements for Treating Acute and Chronic Pain by Type of

 Health Professional and Stage of Training

Policy Review

Table 17 depicts the total policies that were submitted by the organizations that participated in this survey—21 were policies addressing chronic pain management and 20 were policies addressing SUDs. Only one policy document was not considered in the inal review because it was a policy speci ically for -p=

TABLE 17 Count of Policies by Category

Characteristic	Number of Policies
Total policies	41
Chronic pain management	21
Substance use disorders	20
Policies addressing patient behavior	36
Policies addressing patient health	41
Continuing medical education requirements	38
Doctor shopping laws	9
Drug supply management policies	29
Naloxone access laws	3
Opioid prescribing guidelines	22
PDMPs	10
Policies affecting opioid addiction treatment	5

Five of the policies submitted and reviewed were written to address patient health outcomes, such as health care professionals providing non-opioid options during their consultations, transition of care guidelines, or guidelines for talking to patient families or caregivers about opioid use. Other behavioral policies include Good Samaritan Overdose Prevention statutes, data use policies for providers, and guidelines for community health clinics. Good Samaritan drug overdose laws "provide immunity from arrest, charge, or prosecution for drug possession or paraphernalia when individuals who are experiencing or witnessing an overdose summon emergency services."

Policies Addressing Patient Health

The policies addressing patient health delineate governmental administrations and privately oper-

All state-level licensing bodies have OME requirements for pain management or controlled substances that mandate providers receive postgraduate training in opioid prescribing, addiction, and/ or related topics. Only the state of Vermont, the state of Florida, and the Alaska State Board of Nursing had requirements for all their prescribers, regardless of training, to obtain periodic OME/ CE on topics such as pain management, controlled substance prescribing, or SUDs. However, these requirements represent a

laws and policies. These policies include regulatory actions (e.g., medication plan protocols) and state statutes that affect private and/ or public regulation of opioids. State law luctuates around rates of prescribing opioids and states have different laws around the prescribing of pharmaceuticals. The policies provided in this survey mostly covered patient safety, drug compounding, drug supply chain security, and laws governing drug transactions in pharmacies.

All of the policies provided by survey respondents had components that limit opioid prescriptions by restricting the quantity and/or dosage or by imposing prior authorization requirements. Ten state licensing boards directly require prescribers to use a PDMP program before prescribing opioids to patients. For example, Michigan's DSCSA state statute asks prescribers and pharmacists to consult a PDMP before prescribing or dispensing opioids to patients.

Naloxone Access Laws

Individuals	Teams	Institution or Practice Setting
 Challenges related to screening and assessment Challenges related to identi ica- tion/diagnosis Challenges related to prescribing/ tapering opioids Lack of knowledge, experience, or strategies for prescribing non- opioids Lack of knowledge, experience, or strategies for prescribing non- pharmacological approaches (e.g., physical therapy, counseling, etc.) Differences in prescribing prac- tices by patient age, gender, race, socioeconomic status, geographic location, patient population, co- morbidities, payor type Difference in prescribing practices by provider type and type of pain Inability to navigate or effectively use practice resources Dif iculty monitoring across prac- tices Availability of referral for pain management and SUD care Negative attitudes toward patients and families Fear of causing harm or added stigma for patients and families Lack of effective communication strategies for providers and pa- tients Patient-reported undertreatment of pain, insuf icient time with health care provider, lack of shared decision making Fear of litigation related to opioid diversion and fraud 	 Negative attitudes toward and by interprofessional teams Lack of interprofessional collaboration Lack of interest in prescribing opioids among members of team trust of pain patients Lack of team trust of pain patients Lack of effective communication strategies for health care teams 	 Con licting organizational goals and provider/ patient goals Concern about impact of negative assessments (surveys) from patients of organization Insuf icient resources (time, guidelines, etc.) Administrative burden in providing non-opioid care and tracking Presence of insurance and/ or reimbur sement barriers (e.g., mental health services, addiction counselors) Regulatory restrictions, including mandatory continuing education, such as in risk evaluation and mitigation strategies (REMS) and buprenorphine waiver training Data interoperability for

Attitudes and Biases

The review of the literature revealed a number of concerns related to attitudes and biases that appear to negatively impact patient outcomes or the patient experience. Articles reported that gaps in practice were associated with patients who had comorbid conditions that included chronic pain, SUD, addiction, mental illness, and depression. In addition, health care providers were concerned about the social stigma associated with prescribing methadone and the fear of causing harm to patients and/ or their families by prescribing opioids. Lack of trust was a theme in some articles, which was related particularly to the subjectivity of pain and pain scales.

It is important to note that reviewed articles did not report race in relation to attitudes or biases held by health care providers, nor was there evidence that health care providers self-identify their own attitudes or biases in relation to race. Yet, there is abundant evidence that there are reported differences in treatment of patients as it relates to race (Santoro and Santoro, 2018; Singhal, Tien, and Hsia, 2016). This is a critical area of research and investigation, as it is well known and supported by the literature that self-reported pain from BIPOC patients is often taken less seriously than the self-reported pain of White patients (Meghani, Byun, and Gallagher, 2012).

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tion may be reasonable—for example, treating a 25-year-old with a broken bone versus an 80-year old with a broken bone would likely require different strategies—differences in prescribing for race or socioeconomic status raise concerns. Overall, although SUDs were included as a domain of practice, the literature on related PPGs was limited when compared to pain management. In addition, data regarding practice variation, or lack thereof, in dentistry was limited in this review of the literature and should be further investigated.

System Issues

The literature review identi ied a number of issues at the system level that negatively impacted the ability of health care providers to effectively treat patients' pain. Insurance reimbur sement issues were cited as one signi icant barrier, including lack of insurance and insurance coverage that did not cover recommended services. Health care providers also identi ied that inadequate numbers of health care professionals in critical areas, such as mental health, addiction or specialty pain management, resulted in failure to meet patients' needs and/ or inability to receive these critical services.

Health care providers described practice variations within organizations and across professions that re lected a lack of standardization in treating patients' pain and cited this as a contributing factor to gaps in care. Finally, system-level issues included social determinants of health and their negative impact on patients' ability to access treatment. Discriminatory policies impact social, political, and economic systems and perpetuate issues such as a lack of transportation to medical appointments or limited money to buy medications, ultimately hindering a patient's ability to access or pay for needed services.

VARIATION IN REGULATORY REQUIREMENTS TO ADDRESS PAIN MANAGEMENT AND SUBSTANCE USE DISORDER

The data from the brief survey of regulatory agencies and organizations provided some insights, summarized in *Table 20* into the current state of policies and standards. The majority of respondents to the regulatory survey reported not having any standards in place for both pain management and SUDs (see *Table 15*). While a separate review of state licensing policies found all states have some policies regarding the treatment of pain, there was substantial variability in policy and professional requirements. There is also substantial variability across regulatory organizations involved in accreditation, certi ication, and licensing both acute and chronic pain management and SUDs.

Of note, licensing in the U.S. is a legislative regulatory activity mostly under control of the states. This differs from the professional self-regulatory activities of accreditation and certi ication entities where standards and policies are mostly under control of the profession and remain the same across state lines. Additionally, there are myriad challenges in obtaining timely and accurate data about regulatory activities. This results in layers of fragmentation that can impede development and adoption of new policies and practices.

Acknowledging and addressing this fragmentation in the educational systems across the continuum could help to advance policy change in pain management and SUDs, but requires each entity's willingness to recognize this challenge, especially across professions.

Type or Stage in	System		
Type or Stage in Care Process	Private	Public	
Identi ication / diagnosis			

Type or Stage	System		
in Care Process	Private	Public	
Treatment: Prescribing non- opioid medications	 Lack of educational policy re- garding the clinical indication and effective use of non-opioid medications One-size- its-all approach Variability in policies Failure to recognize options outside of area of regulation 	 Practice restrictions, such as regulations that permit nurses to administer injec- tions only intramuscularly Guidelines shown to have actively harmed patients Prior authorization serves as a barrier Policies are often 'fail irst' 	
Treatment: Prescribing non- pharmacological treatment	 Guidelines do not lead to ad- equate training of providers performing interventional pro- cedures Restricted pre-clinical and clini- cal educational opportunities Policies favor urban health care settings 	 Con licts in policy Policy is speci ically targeted toward opioid usage Inadequate inancial support Available treatments are not equally promoted Policies support clinical treatment 	
Monitoring opi- oid use	 Dif iculty implementing PDMPs into prescriber education and work low Absence of standardized training policies Most training comes from state licensing organizations Data collection systems differ Availability of databases to learners 	 PDMP use varies greatly across the United States Variability in states' health information technologies and PDMP designs Prescribers and dispensers are subject to state-speci ic reporting requirements Limited interoperability between state PDMP and Electronic Health Records (EHR) platforms Providers may not have access to PDMPS depending on state access requirements Many monitoring policies are sugges- tions not explicit law 	
Referral for care of SUDs	 Small number of specialty groups Lack of standardization of refer- ral procedures Insuf icient resources available Strategies are underdeveloped for making outpatient referrals 	 Insurance constraints Inadequate number of specialized providers Lack of referral programs and resources 	

Type or Stage	System		
Type or Stage in Care Process	Private	Public	
Other			

tive of the overall landscape of regulatory requirements and policies. Only information submitted by respondents was included in this analysis.

Additionally, the validation survey for PPGs was conducted through a combination of convenience

CHAPTER 6 KEY PRIORITIES

Health care professionals, health professions educators, and policymakers share a common, elusive challenge—effecting change amidst the complexity of the opioid continuing crisis. The authors of this manuscript have observed this complexity in the highly variable educational needs that underlie indi-

cation, but understandably cannot address the varied and complex needs of individual patients and families, their clinicians, and teams. Even when aligned, these requirements cannot consistently provide sufficient depth or resolution to de ine competencies tied to patient acuity for individual health care professionals—let alone interprofessional teams—across practice settings.

The continuum of health professions education in the U.S. is a patchwork relective of the historically siloed development of each profession and between specialties. The survey detailed earlier found that less than half of the responding professional accrediting, and certifying organizations have speci ic requirements regarding training for and competency in pain management and SUDs. This inding is, in part, due to the heterogeneity in the scope and targeting of those requirements to individual profesbe de ined. *Minimum* core competencies should address skills necessary for effective interprofessional collaboration and continuous learning and improvement. These would potentially include screening, brief-intervention and referral to treatment (SBIRT); teaming; shared decision making; and addressing stigma and communication. The competencies should describe the knowledge, skills, behaviors/ performance, and attitudinal expectations across health professions and be disseminated to educational systems and their stakeholders for collaborative implementation using best educational methods. This priority area is not intended to detract from existing or emerging evidence-based, interprofessional competencies for pain management and SUDs (Bratberg, 2018; Fishman et al., 2013). Rather, a set of *minimum* core competencies is intended to ensure lexibility re

2. Align Accreditors' Expectations for Interprofessional Collaboration in Education for Pain Management and Substance Use Disorders

To resolve unwarranted variation, accreditors should collectively and collaboratively work across health professions and the educational continuum to examine current standards, policies, curricula, and guidelines for pain management and SUDs. To create a more supportive learning environment for practicing health care professionals, there is a need to convene national health professional accreditors in continuing education to ensure that:

- interprofessional curricula are developed in alignment with competency expectations;
- practical and effective education module(s) are developed for required learning, testing, and implementation in daily practice;
- expectations are shared with educators across the health professions;
- educational activities and resources are available and listed in a central repository for health care
 professionals, indexed by competency/ gaps;
- a data monitoring system is developed for tracking engagement and completions and is maintained among relevant stakeholders;
- educational activities are inspected/ audited to ensure compliance with accreditation requirements on a periodic basis; and
- educational activities and resources are evidence-based/informed and are not in luenced or biased by industry.

Accrediting organizations can leverage existing collaborations, such as the Interprofessional Education Collaborative (www.ipecollaborative.org) for undergraduate education, and the National Collaborative for Improving the Clinical Learning Environment (www.ncicle.org) and Joint Accreditation for Interprofessional Continuing Education (www.jointaccreditation.org) for post-graduate continuing education. Data system approaches can build upon the existing collaboration between health professions continuing education accreditors supporting data collection for health care professionals' partic-Đ

3. Foster Interprofessional Collaboration among Licensing and Certifying Bodies to Optimize Regulatory Approaches and Outcomes

Interprofessional care is essential in helping to manage both pain management and SUDs in patients. Licensing and certifying bodies should ensure that they recognize activities that meet the shared curricular, competency, and interprofessional expectations. They should harmonize the regulatory environment for their stakeholders by recognizing interprofessional continuing education (JAICE, 2017).

State licensing authorities for health care professionals involved in pain management and SUDs should convene a national task force to study existing variations in state-level regulations and seek opportunities to harmonize policies. An example effort was the creation and evolution of the Tri-Regu-

- Naloxone access
- Opioid addiction treatment

Through collaboration, the authors of this manuscript encourage licensing bodies to pursue opportunities to evolve or reframe regulatory accountability for individual professions and interprofessional teams. Opportunities for harmonization may include:

 Harmonizing statutory requirements (e.g., Centers for Medicare & Medicaid Services (CMS) Meritbased Incentive Payment System—or MIPS—requirements, Substance Abuse and Mental Health Services Administration (SAMHSA) Medication-Assisted Treatment (MAT) Waiver Training, FDA REMS Requirements

4. Unleash the Capacity for Continuing Education to Meet Health Professions Learners Where They Are Through Investment and Leadership

The survey of educational requirements on which this manuscript is partially based demonstrates that regulatory bodies uniformly see participation in accredited continuing education (i.e., CE, CME) as the predominant educational delivery method for health care professionals learning to improve approaches to pain management and SUDs. Continuing education accreditors for the health professions—such as the Accreditation Council for Continuing Medical Education, the Accreditation Council for Pharmacy Education, the American Nurses Credentialing Center, the American Academy of Physician Assistants, the American Dental Association's Continuing Education Recognition Program, and the Joint

To effectively change educational outcomes, public and private entities should pursue strategies to increase support of accredited CE providers. These approaches can include:

- Encouraging health system leaders to provide inancial support and staff resources to fully leverage interprofessional CE as an organizational asset for workforce learning and change management to close gaps in addiction and pain management care (see *Box 1*);
- Funding of professional development opportunities for CE providers and their educational teams (e.g., leaders, administrators, faculty) to measurably improve capacity to meet local health care professional workforce needs;
- Provide grant funds to foster innovative approaches for CE related to interprofessional collaboration, identifying PPGs, enhancing pedagogical/instructional methods, improved assessment and outcome measurement;
- Funding to spur research and scholarship to study and disseminate evidence-informed indings of effective educational practices that achieve key outcomes related to SUDs and pain management;
- Funding and collaboration to engage patients, families, and the public as planners and teachers in accredited CE for SUDs and pain management;
- Connecting interprofessional competencies to nationally recognized quality metrics;
- Funding for community-based interprofessional (and multi-sector) collaboratives that bring together health care and non-health care stakeholders (e.g., law enforcement, criminal justice, community-based faith organizations, social services) around continuous learning to improve coordination of prevention, screening, care, and long-term recovery for those with SUDs; and
- Incorporating accredited CE as a tactic to address federally funded practice improvement initiatives (see *Key Priority #5* below).

and training for behavioral health and primary care clinicians (Addiction Technology Transfer Center Network, n.d.). A number of these programs have grown substantially with support from the 2018 Substance Use Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities Act (H.R.6, 2017-2018).

Collectively, these statutory programs use a range of approaches from addressing opioid overprescribing through monitoring of prescription claims data to consulting to practices seeking to become accredited and certi ied Opioid Treatment Programs (OMS, n.d.; SAMHSA, n.d.). These initiatives include statutory requirements that limit broader partnership and lexibility in implementation of education and training. To the degree that the disruption of COVID-19 has created avenues for innovation, the authors of this manuscript encourage regulatory agencies, such as CMS and SAMHSA, to explore collaboration with health professions education accreditors to expand reach and impact for statutory initiatives (Sinsky and Linzer, 2020). There is a need to convene federal agencies together with CE accreditors to identify opportunities for harmonization and elaboration of practice improvement through approaches such as the following.

- Mainstreaming MOUD training with interprofessional continuing education (IPCE), allowing any accredited CE provider to deliver MOUD training that meets appropriately de ined competencies.
- Ensuring that participation in practice improvement initiatives is synonymous with accredited CE (and awards CE/IPCE credit) to harmonize and simplify engagement by various health care professionals across states, specialties, and disciplines.
- Providing funding, as well as a conducive environment, for the development of competency-based educational modules on pain management and SUDs for all relevant professions in health care, criminal justice, and regulatory bodies.

TABLE 21 | Taking Action on the Key Priorities - Who Can Affect Change and How?

Key Priority	Who	How		
1. Establish Minimum Core	National Academy of Medicine Action Collaborative Members	Develop, disseminate, and implement a core set of competencies for pain management and SUD care across all health professions to address practice gaps		
Competencies for all Health Care Professionals in Pain Management and Substance Use	Regulatory bodies, CE accreditors	Enable national tracking of health professionals' achievement of competencies for pain management and SUDs appropriate to profession, scope of practice, and setting		
Disorders, and Support Tracking of Health Care Professionals' Competence	CE accreditors	Foster collaboration among CE providers to address population- and setting-speci ic practice gaps and share effective educational practices, such as through the development of a community discussion website		
Competence	Health sciences journal editors	Streamline editorial processes in health care journals to facilitate and accelerate identi ication and dissemination of priority practice gaps		
2. Align Accreditors' Expectations for Interprofessional Collaboration in Education for Pain Management and Substance Use Disorder	Health professions education accreditors, Certifying bodies	Harmonize educational standards, requirements, policies, and curricula for SUD and pain management		
	CE accreditors	List high-quality, independent CE in a central repository for health professionals, indexed by competency/gaps		
	CE accreditors, regulatory bodies	Develop a data monitoring system, maintained among relevant stakeholders, for tracking engagement and completions		
3. Foster Interprofessional Collaboration Among Licensing and Certifying Bodies to Optimize Regulatory Approaches and Outcomes	FSMB, Regulatory bodies	Recognize completion of education that meets core competencies, including interprofessional CE		
	State/territorylicensing boards	Harmonize policies and requirements across states		
	Certifying bodies	Advance assessment and curricula, and quality measures for teams, as opportunities for intra- and interprofessional collaboration		

4. Unleash the Capacity for Continuing Education to Meet Health Professions	Federal and state funding agencies, C-Suite Leaders	Invest in the professional development of CE staff (i.e., educators, administrators) and ensure time/ resources for health professionals to engage in continuous learning
	Regulatory and certifying bodies	Evolve mandatory CE requirements to recognize education that addresses local PPGs with lexible and innovative methods
Learners Where They Are Through Investment and	C-Suite leaders, Health care governance	Evolve learning leadership in support of learning health systems
Leadership	Public and private funding agencies, CE accreditors	Fund innovation, research, and dissemination of educational practices that are effective in closing PPGs and improving outcomes
5. Collaborate to Harmonize Practice Improvement Initiatives	Federal agencies (e.g., SAMHSA, CMS, CDC, Of ice of Nation Drug Control Policy), Council of Medical Specialty Societies, Quality leaders (e.g., National Quality Forum (NQF), Joint Commission), CE accreditors, Accredited CE providers	Integrate Œ and institutional continuous learning and improvement more effectively with statutory practice improvement initiatives

APPENDIX A SEARCH STRATEGY

SEARCH PLAN

Databases

The authors of this manuscript relied on the following resources for peer-reviewed articles:

- Embase
- MEDLINE
- PubMed
- Scopus

The authors of this manuscript relied on internet searches to identify government reports (i.e., consensus reports and white papers.)

Database Results - Inclusion/Exclusion Pre-Selection Criteria

Inclusion Criteria	Exclusion Criteria
Publication Year: 2009-2019	Publication Year: before 2009
Language: English	Not available in English
Peer-reviewed articles: Yes Grey literature: Government reports (i.e. consen- sus reports; white papers)	Publications not indicated in the inclusion criteria
Geographic region: U.S.	Not U.S.

SEARCH TERMS

Objective

Identify and highlight existing professional practice gaps for health care professionals that currently exist in relation to acute and chronic pain management and substance use disorders.

Preliminary Terms

A. Terms provided by staff	B. Terms suggested by RC Staff		
A1. Identi ied health professions	MeSH Terms	Other Terms	
medicine	physicians medicine	doctors	
physician assistant pas	physician assistants		
nursing nurse registered nurse advanced practice nursing nurse practitioner aprns advanced practitioner aprn	nurses nursing advanced practice nursing		
Dentistry dental care dental hygienist dental assistant	dentists dentistry dental assistants dental hygienists dental care		
pharmacy	pharmacists pharmacy		

A2. Treatment			
pain management	B2.1	pain manage- ment palliative medi- cine analgesics palliative care	pain medicine
	B2.2	analgesics, opi- oid	opioid analgesics

A3. Condition			
	B3.1	substance-related disorders opioid-related disorders	narcotic abuse narcotic addiction narcotic dependence opiate abuse opiate addiction opiate dependence opioid abuse opioid addiction opioid dependence
acute pain	B3.2	acutepain	
chronic pain	B3.3	chronic pain	

A4. Competencies			
Professional education Education gaps	B4.1	delivery of health care culturally competent care delivery of health care, integrated practice patterns, dentists' practice patterns, nurses' practice patterns, physicians' professional practice gaps quality assurance, health care quality of health care clinical competence standard of care	attitude clinical competence practice patterns prescribing behavior process assessment professional practice gaps safe prescribing
acute pain	B4.2	competency-based education education, professional	education gaps competency educa- tion professional educa- tion

A5. Collaboration with patients and fan	nilies	
Partnerships with patients Partnerships with families Patient engagement Family engagement	professional-patient relations dentist-patient relations nurse-patient relations physician-patient relations	collaboration with families collaboration with patients family engagement partnerships with families partnerships with patients patient engagement

A6. Patient outcomes		
procedure outcome	treatment outcome	clinical effectiveness clinical ef icacy patient-relevant out- come patient outcomes procedure outcome rehabilitation out- come treatment effective- ness treatment ef icacy

EndNote Groups

EndNote Group	Target	Query	Strategy
Group 1	Competencies	#1	identi ied health professions AND (acute pain OR chronic pain OR pain management) AND (opioid- related disorders
		#2	identi ied health professions AND (acute pain OR chronic pain OR pain management) AND (opioid analgesics)
		#3	Competencies
		#4	(#1 OR #2) AND #3
Group 2	Patient Outcomes	#1	identi ied health professions AND (acute pain OR chronic pain OR pain management) AND (opioid- related disorders
		#2	identi ied health professions AND (acute pain OR chronic pain OR pain management) AND (opioid analgesics)
		#3	collaboration
		#4	(#1 OR #2) AND #3
Group 3	Collaboration	#1	identi ied health professions AND (acute pain OR chronic pain OR pain management) AND (opioid- related disorders
		#2	identi ied health professions AND (acute pain OR chronic pain OR pain management) AND (opioid analgesics)
		#3	collaboration
		#4	(#1 OR #2) AND #3
Group 4	Competency-based education	#1	identi ied health professions AND (acute pain OR chronic pain OR pain management) AND (opioid- related disorders
		#2	identi ied health professions AND (acute pain OR chronic pain OR pain management) AND (opioid analgesics)
		#3	competency-based education
		#4	(#1 OR #2) AND #3

APPENDIX B SEARCH STRATEGY

EMBASE DATABASE SEARCH

Group 1: Competencies

Database: Embase Classic+Embase 1947 to 2019 June 04 Date of Search: 06/ 05/ 2019 Filters: (english and yr="2009 -Current" and (article or article in press)) Results before deduplication (Physicians): 88 Results before deduplication (Physician Assistants): 3 Results before deduplication (Nurses): 26 Results before deduplication (APRNs): 10 Results before deduplication (Pharmacists): 24 Results before deduplication (Dentists): 11

No.	Query
1	exp *analgesic agent/ or exp *analgesia/ or exp*palliative therapy/ or ("palliative medicine" or analge- sics or "pain management" or "palliative care" or "palliative medicine" or "pain medicine").kw.
2	, *, *, /, *, *, *, *, *, /, * ("*, , , *, *, ", *, *, *, "))) / .
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7	

8	$\mathcal{P}_{\mathcal{F}} \stackrel{*}{\to} \chi \mathfrak{e}_{\mathcal{F}} \mathcal{P}_{\mathcal{F}} \stackrel{*}{\to} \chi \mathfrak{e}_{\mathcal{H}} / \mathfrak{f}_{\mathcal{F}} \mathfrak{e}_{\mathcal{F}} \mathcal{P}_{\mathcal{F}} \mathfrak{e}_{\mathcal{F}} \mathfrak{e} \mathfrak{e}_{\mathcal{F}} \mathfrak{e}_{\mathcal{F}} \mathfrak{e}_{\mathcal{F}} \mathfrak$
9	$ \begin{array}{c} \mathcal{P}_{-} = \left\{ 1_{\mathbf{x}}, 1_{\mathbf{x}}, 2_{\mathbf{x}}, 2_{x$
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MEDLINE DATABASE SEARCH

Group 1: Competencies

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and

Daily 1946 to June 04, 2019

Date of Search: 06/06/2019

Filters: (yr="2009 - Current" and english and journal article)

Results before deduplication (Physicians): 88

Results before deduplication (Physician Assistants): 1

Results before deduplication (Nurses): 28

Results before deduplication (APRNs): 9

Results before deduplication (Pharmacists): 9

Results before deduplication (Dentists): 9

No.	Query	
1	exp *analgesics/ or exp *pain management/ or exp*palliative care/ or exp*palliative medicine/ or ("palliative medicine" or analgesics or "pain management" or "palliative care" or "pain medicine").kw.	
2	, *, , , , , , , , , , , , , , , , , ,	
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13	3, 12
14	4, 12
15	13,• 14
16	5, 15
17	6°, 16
1	$[1]_{1}, 17. (e^{-1}200 - (e^{-1}), e^{-1}) (e^{-1}), e^{-1}) (e^{-1}) (e$
1	7, 16
20	$\sum_{ij=1}^{n} 1 \cdot (e^{-i200} - e^{i20}) \cdot (e^{-i20} - e^{i20} - e^{i20}) \cdot (e^{-i20} - e^{i20}) \cdot (e^{-i20$
21	P₁ 16
22	$\sum_{ij=1}^{n} 21 \cdot \left(e^{-i200} - e^{i20} \cdot i^{*} \right) \cdot \left(e^{-i200} - e^{i20} \cdot i^{*} \right) \cdot \left(e^{-i200} \cdot i^{*} \right) \cdot \left(e$
23	r, 16
24	$\sum_{i=1}^{n} 23. \left(e^{-1} 200 - e^{-1} e^{-1} \right) = \frac{1}{2} \left(e^{-1} e$
25	10, 16
26	$\sum_{i=1}^{n} 25. \left(e^{-1} 200 - e^{-1} e^{-1} \right) = \frac{1}{2} \left(e^{-1} e$
27	11, 16
2	$\sum_{i=1}^{n} 27 \cdot \left(\left(\left(\left(200 - \frac{1}{2}\right)^{2} \right) + \left(\left(\left(\left(200 - \frac{1}{2}\right)^{2} \right)^{2} \right) + \left(\left(\left(\left(\left(200 - \frac{1}{2}\right)^{2} \right)^{2} \right) + \left(\left(\left(\left(\left(200 - \frac{1}{2}\right)^{2} \right)^{2} \right) + \left(\left(\left(\left(\left(\left(200 - \frac{1}{2}\right)^{2} \right)^{2} \right) + \left(\left(\left(\left(\left(\left(200 - \frac{1}{2}\right)^{2} \right)^{2} \right) + \left($

PUBMED DATABASE SEARCH

Group 1: Competencies

Database: PubMed Date of Search: 06/05/2019 Filters: ("last 10 years"[PDat] AND English[lang])

Results before deduplication: 73

(((("physicians"[mh:noexp] OR "medicine"[mh:noexp] OR "physician"[ot] OR "doctor"[ot]) AND ("analgesics"[mh:noexp] OR "pain management"[mh:noexp] OR "palliative care"[mh:noexp] OR "palliativemedicine"[mh:noexp]OR"analgesics"[ot]OR"painmanagement"[ot]OR"palliativecare"[ot]OR"palliative medicine"[ot] OR "pain medicine"[ot] OR "acute pain"[mh:noexp] OR "chronic pain"[mh:noexp] OR "acute pain"[ot] OR "chronic pain"[ot])) AND ("opioid-related disorders"[mh:noexp] OR "narcotic abuse"[ot] OR "narcotic addiction"[ot] OR "narcotic dependence"[ot] OR "opiate abuse"[ot] OR "opiate addiction"[ot] OR "opiate dependence"[ot] OR "opioid abuse"[ot] OR "opioid addiction"[ot] OR "opioid dependence"[ot])) OR ((("physicians"[mh:noexp] OR "medicine"[mh:noexp] OR "physician"[ot] OR "doctor"[ot]) AND ("analgesics"[mh:noexp] OR "pain management"[mh:noexp] OR "palliative care"[mh:noexp] OR "palliative medicine"[mh:noexp] OR "analgesics"[ot] OR "pain management"[ot] OR "palliative care" [ot] OR "palliative medicine" [ot] OR "pain medicine" [ot] OR "acute pain" [mh:noexp] OR "chronic pain"[mh:noexp] OR "acute pain"[ot] OR "chronic pain"[ot])) AND ("analgesics, opioid"[mh:noexp] OR "opioid analgesics"[ot]))) AND ("clinical competence"[mh:exp] OR "culturally competent care"[mh:exp] OR "delivery of health care, integrated"[mh:exp] OR "delivery of health care"[mh:exp] OR "practice patterns, dentists'"[mh:exp] OR "practice patterns, nurses'"[mh:exp] OR "practice patterns, physicians'"[mh:exp] OR "professional practice gaps"[mh:exp] OR "quality assurance, health care"[mh:exp] OR "quality of health care"[mh:exp] OR "standard of care"[mh:exp] OR "attitude"[ot] OR "competence"[ot] OR "competencies"[ot] OR "competency"[ot] OR "clinical competence"[ot] OR "practice patterns"[ot] OR "prescribing behavior"[ot] OR "process assessment"[ot] OR "professional practice gaps" [ot] OR "safe prescribing" [ot])

Date of Search: 06/05/2019

Results before deduplication: 7

(((("physician assistants"[mh:noexp] OR "physician assistants"[ot]) AND ("analgesics"[mh:noexp] OR "pain management"[mh:noexp] OR "palliative care"[mh:noexp] OR "palliative medicine"[mh:noexp] OR "analgesics"[ot] OR "pain management"[ot] OR "palliative care"[ot] OR "palliative medicine"[ot] OR "pain medicine"[ot] OR "pain medicine"[ot] OR "acute pain"[mh:noexp] OR "chronic pain"[mh:noexp] OR "acute pain"[ot] OR "chronic pain"[mh:noexp] OR "narcotic abuse"[ot] OR "narcotic

addiction"[ot] OR "narcotic dependence"[ot] OR "opiate abuse"[ot] OR "opiate addiction"[ot] OR "opiate dependence"[ot] OR "opioid abuse"[ot] OR "opioid addiction"[ot] OR "opioid dependence"[ot])) OR ((("physician assistants"[mh:noexp] OR "physician assistants"[ot]) AND ("analgesics"[mh:noexp] OR "pain management"[mh:noexp] OR "palliative care"[mh:noexp] OR "palliative medicine"[mh:noexp] OR "analgesics"[ot] OR "pain management"[ot] OR "palliative care"[ot] OR "palliative medicine"[ot] OR "pain medicine"[ot] OR "acute pain"[mh:noexp] OR "chronic pain"[mh:noexp] OR "acute pain"[ot] OR "chronic pain"[ot])) AND ("analgesics, opioid"[mh:noexp] OR "opioid analgesics"[ot]))) AND ("clinical competence"[mh:exp] OR "culturally competent care"[mh:exp] OR "delivery of health care, integrated"[mh:exp] OR "delivery of health care"[mh:exp] OR "practice patterns, dentists""[mh:exp] OR "practice patterns, nurses'"[mh:exp] OR "practice patterns, physicians'"[mh:exp] OR "professional practice gaps"[mh:exp] OR "quality assurance, health care"[mh:exp] OR "quality of health care"[mh:exp] OR "standard of care"[mh:exp] OR "attitude"[ot] OR "competence"[ot] OR "competencies"[ot] OR "competency"[ot] OR "clinical competence"[ot] OR "practice patterns"[ot] OR "competencies"[ot] OR "competency"[ot] OR "clinical competence"[ot] OR "practice patterns"[ot] OR "competencies"[ot] OR "competency"[ot] OR "clinical competence"[ot] OR "practice patterns"[ot] OR "competencies"[ot] OR "competency"[ot] OR "clinical competence"[ot] OR "practice patterns"[ot] OR "prescribing behavior"[ot] OR "process assessment"[ot] OR "professional practice gaps"[ot] OR "safe prescribing"[ot]))

Date of Search: 06/05/2019

Results before deduplication: 16

(((("nurses"[mh:noexp] OR "nursing"[mh:noexp] OR "registered nurse"[ot]) AND ("analgesics"[mh:noexp] OR "pain management"[mh:noexp] OR "palliative care"[mh:noexp] OR "palliativemedicine"[mh:noexp]OR"analgesics"[ot]OR"painmanagement"[ot]OR"palliativecare"[ot]OR"palliative medicine"[ot] OR "pain medicine"[ot] OR "acute pain"[mh:noexp] OR "chronic pain"[mh:noexp] OR "acute pain"[ot] OR "chronic pain"[ot])) AND ("opioid-related disorders"[mh:noexp] OR "narcotic abuse"[ot] OR "narcotic addiction"[ot] OR "narcotic dependence"[ot] OR "opiate abuse"[ot] OR "opiate addiction"[ot] OR "opiate dependence"[ot] OR "opioid abuse"[ot] OR "opioid addiction"[ot] OR "opioid dependence"[ot])) OR ((("nurses"[mh:noexp] OR "nursing"[mh:noexp] OR "registered nurse"[ot]) AND ("analgesics"[mh:noexp] OR "pain management"[mh:noexp] OR "palliative care"[mh:noexp] OR "palliative medicine" [mh:noexp] OR "analgesics" [ot] OR "pain management" [ot] OR "palliative care"[ot] OR "palliative medicine"[ot] OR "pain medicine"[ot] OR "acute pain"[mh:noexp] OR "chronic pain"[mh:noexp] OR "acute pain"[ot] OR "chronic pain"[ot])) AND ("analgesics, opioid"[mh:noexp] OR "opioid analgesics"[ot]))) AND ("clinical competence"[mh:exp] OR "culturally competent care"[mh:exp] OR "delivery of health care, integrated"[mh:exp] OR "delivery of health care"[mh:exp] OR "practice patterns, dentists'"[mh:exp] OR "practice patterns, nurses'"[mh:exp] OR "practice patterns, physicians'"[mh:exp] OR "professional practice gaps"[mh:exp] OR "quality assurance, health care"[mh:exp] OR "guality of health care"[mh:exp] OR "standard of care"[mh:exp] OR "attitude"[ot] OR "competence"[ot] OR "competencies"[ot] OR "competency"[ot] OR "clinical competence"[ot] OR "practice patterns"[ot] OR "prescribing behavior"[ot] OR "process assessment"[ot] OR "professional practice gaps"[ot] OR "safe prescribing"[ot])

Date of Search: 06/05/2019

Results before deduplication: 3

(((("advanced practice nursing"[mh:noexp] OR "advanced practice nursing"[ot] OR "nurse practitioner"[ot]OR"advancedpracticeregisterednurse"[ot]OR"aprn"[ot])AND("analgesics"[mh:noexp] OR "pain management" [mh:noexp] OR "palliative care" [mh:noexp] OR "palliative medicine" [mh:noexp] OR "analgesics" [ot] OR "pain management" [ot] OR "palliative care" [ot] OR "palliative medicine" [ot] OR "pain medicine"[ot] OR "acute pain"[mh:noexp] OR "chronic pain"[mh:noexp] OR "acute pain"[ot] OR "chronic pain"[ot])) AND ("opioid-related disorders"[mh:noexp] OR "narcotic abuse"[ot] OR "narcotic addiction"[ot] OR "narcotic dependence"[ot] OR "opiate abuse"[ot] OR "opiate addiction"[ot] OR "opiate dependence"[ot]OR"opioidabuse"[ot]OR"opioidaddiction"[ot]OR"opioiddependence"[ot]))OR(((("advanced practice nursing"[mh:noexp] OR "advanced practice nursing"[ot] OR "nurse practitioner"[ot] OR "advanced practice registered nurse"[ot] OR "aprn"[ot]) AND ("analgesics"[mh:noexp] OR "pain management"[mh:noexp] OR "palliative care"[mh:noexp] OR "palliative medicine"[mh:noexp] OR "analgesics"[ot] OR "pain management"[ot] OR "palliative care"[ot] OR "palliative medicine"[ot] OR "pain medicine"[ot] OR "acute pain"[mh:noexp] OR "chronic pain"[mh:noexp] OR "acute pain"[ot] OR "chronic pain"[ot])) AND ("analgesics, opioid"[mh:noexp] OR "opioid analgesics"[ot]))) AND ("clinical competence"[mh:exp] OR "culturally competent care"[mh:exp] OR "delivery of health care, integrated"[mh:exp] OR "delivery of health care"[mh:exp] OR "practice patterns, dentists'"[mh:exp]

ic pain"[mh:noexp] OR "acute pain"[ot] OR "chronic pain"[ot])) AND ("analgesics, opioid"[mh:noexp] OR "opioid analgesics"[ot]))) AND ("clinical competence"[mh:exp] OR "culturally competent care"[mh:exp] OR "delivery of health care, integrated"[mh:exp] OR "delivery of health care"[mh:exp] OR "delivery of health care, integrated"[mh:exp] OR "delivery of health care"[mh:exp] OR "practice patterns, nurses'"[mh:exp] OR "practice patterns, nurses']

SCOPUS DATABASE SEARCH

Group 1: Competencies

Date of Search: 06/06/2019 Filters: (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English")) AND (PUBYEAR AFT 2008)

Results before deduplication: 381

((((KEY("analgesics" OR "analgesia" OR "palliative therapy" OR "pain management" OR "palliative care" OR "palliative medicine" OR "pain medicine")) AND (KEY ("acute pain" OR "chronic pain"))) AND (KEY ("opioid analgesics" OR "narcotic analgesic agent" OR "opiate"))) OR (((KEY ("analgesics" OR "analgesia" OR "palliative therapy" OR "pain management" OR "palliative care" OR "palliative medicine" OR "pain medicine")) AND (KEY("acute pain" OR "chronic pain"))) AND (KEY ("opiate addiction" OR "opioid-related disorders" OR "narcotic abuse" OR "narcotic addiction" OR "narcotic dependence" OR "opiate abuse" OR "opiate addiction" OR "opiate dependence" OR "opioid abuse" OR "opioid addiction" OR "opioid dependence")))) AND (KEY("clinical competence" OR "culturally competent care" OR "delivery of health care, integrated" OR "delivery of health care" OR "practice patterns, dentists'" OR "practice patterns, nurses'" OR "practice patterns, physicians'" OR "professional practice gaps" OR "guality assurance, health care" OR "guality of health care" OR "standard of care" OR "attitude" OR "competence" OR "competencies" OR "competency" OR "clinical competence" OR "practice patterns" OR "prescribing behavior" OR "process assessment" OR "professional practice gaps" OR "safe prescribing" OR "cultural competence" OR "nursing competence" OR "professional competence" OR "professional practice" OR "medical practice" OR "health personnel attitude" OR "dental assistant attitude" OR "nurse attitude" OR "pharmacist attitude" OR "physician assistant attitude" OR "physician attitude" OR "prescription" OR "health care delivery" OR "practice gap"))) AND (KEY ("physicians" OR "medicine" OR "physician" OR "doctor")) AND (LIMIT-TO(DOCTYPE, "ar")) AND (LIMIT-TO(LANGUAGE, "English")) AND (PUBYEAR AFT 2008)

Results before deduplication: 11

(((((KEY("analgesics" OR "analgesia" OR "palliative therapy" OR "pain management" OR "palliative care" OR "palliative medicine" OR "pain medicine")) AND (KEY("acute pain" OR "chronic pain"))) AND (KEY("opioid analgesics" OR "narcotic analgesic agent" OR "opiate"))) OR (((KEY("analgesics" OR "analgesia" OR "palliative therapy" OR "pain management" OR "palliative care" OR "palliative medicine" OR "pain medicine")) AND (KEY("acute pain" OR "chronic pain")))) AND (KEY("opiate addiction" OR "opioid-related disorders" OR "narcotic abuse" OR "narcotic addiction" OR "narcotic dependence" OR "opiate abuse" OR "opiate addiction" OR "opiate dependence" OR "opioid abuse" OR "opioid addiction" OR "opioid dependence")))) AND (KEY("clinical competence" OR "culturally competent care" OR "delivery of health care, integrated" OR "delivery of health care" OR "practice patterns, dentists'" OR "practice patterns, nurses'" OR "practice patterns, physicians'" OR "professional practice gaps" OR "quality assurance, health care" OR "quality of health care" OR "standard of care" OR "attitude" OR "competence" OR "competencies" OR "competency" OR "clinical competence" OR "practice patterns" OR "professional practice gaps" OR "safe prescribing" OR "cultural competence" OR "nursing competence" OR "professional competence" OR "professional practice" OR "professional practice" OR "professional practice" OR "nursing competence" OR "professional competence" OR "professional practice" OR "health personnel attitude" OR "dental assistant attitude" OR "nurse attitude" OR "pharmacist attitude" OR "practice gaps")) AND (KEY ("physician assistants" OR "physician assistant")) AND (LIMIT-TO(LANGUAOn2ice)

per UBsist6(YE)72 TAR AFT 2008)8.1(Aur)OVINGTs, ("3R "Dn2iRY ORese)2s4.6fo(p)29.3(")0duple"p: 478.1 per UBsist6(YE)72 TAR AFT 2008)8.1(Aur)OVINGTs, ("3R "Dn2iRY ORese)2s4.6fo(p)29.3(")0duple"p: 158.1

care" OR "palliative medicine" OR "pain medicine")) AND (KEY ("acute pain" OR "chronic pain")) AND (KEY ("opiate addiction" OR "opioid-related disorders" OR "narcotic abuse" OR "narcotic addiction" OR "narcotic dependence" OR "opiate abuse" OR "opiate addiction" OR "opiate dependence" OR "opioid abuse" OR "opioid addiction" OR "opioid dependence")))) AND (KEY ("clinical competence" OR "culturally competent care" OR "delivery of health care, integrated" OR "delivery of health care" OR "practice patterns, dentists'" OR "practice patterns, nurses'" OR "practice patterns, physicians'" OR "professional practice gaps" OR "quality assurance, health care" OR "quality of health care" OR "standard of care" OR "attitude" OR "competence" OR "competencies" OR "competency" erns,7-.0cribing beha OR "viorpatterns,7-oc.036(of.03mcarenc1792()-t)8.8(erns,)8.8(encies(erns,)]TJT*-.034

phyphy

Results before deduplication: 3

((((KEY("analgesics" OR "analgesia" OR "palliative therapy" OR "pain management" OR "palliative care" OR "palliative medicine" OR "pain medicine")) AND (KEY ("acute pain" OR "chronic pain"))) AND (KEY ("opioid analgesics" OR "narcotic analgesic agent" OR "opiate"))) OR (((KEY ("analgesics" OR "analgesia" OR "palliative therapy" OR "pain management" OR "palliative care" OR "palliative medicine" OR "pain medicine")) AND (KEY ("acute pain" OR "chronic pain"))) AND (KEY ("opiate addiction" OR "opioid-related disorders" OR "narcotic abuse" OR "narcotic addiction" OR "narcotic dependence" OR "opiate abuse" OR "opiate addiction" OR "opiate dependence" OR "opioid abuse" OR "opioid addiction" OR "opioid dependence")))) AND (KEY("clinical competence" OR "culturally competent care" OR "delivery of health care, integrated" OR "delivery of health care" OR "practice patterns, dentists'" OR "practice patterns, nurses'" OR "practice patterns, physicians'" OR "professional practice gaps" OR "quality assurance, health care" OR "quality of health care" OR "standard of care" OR "attitude" OR "competence" OR "competencies" OR "competency" OR "clinical competence" OR "practice patterns" OR "prescribing behavior" OR "process assessment" OR "professional practice gaps" OR "safe prescribing" OR "cultural competence" OR "nursing competence" OR "professional competence" OR "professional practice" OR "medical practice" OR "health personnel attitude" OR "dental assistant attitude" OR "nurse attitude" OR "pharmacist attitude" OR "physician assistant attitude" OR "physician attitude" OR "prescription" OR "health care delivery" OR "practice gap"))) AND (KEY ("dentists" OR "dentistry" OR "dental hygienists" OR "dental care" OR "dental assistants" OR "dentist" OR "dental hygienist" OR "dental care" OR "dental assistant" OR "dental hygienist")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English")) AND (PUBYEAR AFT 2008)

APPENDIX C CODING MATRIX FOR ARTICLES ON PRACTICE GAPS

BASIC IDENTIFYING INFORMATION

At the start of the coding survey, volunteers will enter their name in the **"reviewer name"** ield, and will then enter the **unique number assigned to the article** they are coding in the ield provided (this is in lieu of entering the author names, article title, journal name, etc.).

INCLUSION CRITERIA

Review the article's abstract and apply the following inclusion criteria. All inclusion criteria must be met for the article to be included in the literature review. If all inclusion criteria are met, please review the article in full and code according to the variables provided in the form. In cases where answers cannot be derived clearly from the abstract, refer to the full article.

Criteria for inclusion are:

• Article wf2 S39

Item	Variable	Response Options	Comment
1	Type of research study	 Quantitative Qualitative Mixed methods Numeric value 	
3	$\left(\begin{array}{c} 1 & 1 & 1 \\ 1 & 1 & 2 \\ 1 & 1 & 2 \\ 1 & 1 & 2 \\ 1 & 2 \\ 1 & 2 \\ 2 & $	 Physician (unspeci ied) Specialty if applicable: Medicine – MD 	
		DmensstrcyT*Dmenal Aessstant Otherchas beh(a)14.6vioryises	

6	$\begin{array}{c} \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ \end{array} \end{array}{c} \end{array}{c} \end{array}{c} \end{array}{c} \end{array}{c} \end{array}{c} \end{array}{c} \end{array}{$	1. Descriptive, self-report 2. Medical record 3. Other (free text) 4. Not described 1. Adult
	/· ₁ · ^e ·- ₁ - ₁ ··· ₁₁₁ (//. /()	 Pediatric Across the life span Not described
8	• _ , ^e , • , , ^e , , • , ^e , • , · , ^e .	 Screening/ assessment Identi ication/ diagnosis Treatment: Prescribing/ Tapering Opioids Treatment: Prescribing Non-Opioids Treatment: Nonpharmacological Monitoring Referral Other (free text)
9	(I I. I)	 1. Clinical knowledge – weren't aware of what the best practice(s) is/ are 2. Communication With patients/ families 3. Communication With other members of the care team Attitudes and biases Use of evidence-informed tools and resources Constraints in practice setting Describe (free text) Other (free text)

De initions (https://medical-dictionary.thefreedictionary.com/) (with validation from working group members)

1. Screening/assessment

Screening: Strategy used to look for as-yet-unrecognized conditions or risk markers in individuals without signs or symptoms

Assessment: Evaluation of a patient using selected skills of history-taking; physical examination, laboratory, imaging, and social evaluation, to achieve a speci ic goal.

2. Identi ication/diagnosis

Identi ication: De ining or ascertaining something. Diagnosis: Determining the nature of a cause of a disease.

3. Treatment: Prescribing/Tapering Opioids

Prescribing: Prescribing opioids for the treatment of acute or chronic pain, or substance use disorders

Tapering: Process of tapering opioids for patients with acute or chronic pain, or substance use disorders

4. Treatment: Prescribing Non-Opioids

Prescribing non-opioid medications for the treatment of acute or chronic pain, or substance use disorders

5. Treatment: Nonpharmacological

Prescribing nonpharmacological treatments for patients with acute or chronic pain, or substance use disorders (massage, acupuncture, counseling, biofeedback, exercise)

6. Monitoring

APPENDIX D SURVEY

Goal: Analyze current accreditation, certi ication, licensing, and regulatory requirements for health professions education that address acute and chronic pain management and substance use disorders. Compare and contrast across the education continuum and across the health professions.

De initions:

- Accreditation refers to the process by which a voluntary, non-governmental agency or organization appraises and grants accredited status to institutions and/or programs or services which meet predetermined structure, process, and outcome criteria.
- *Certi ication* refers to the process by which a non-governmental agency or association certi ies that an individual licensed to practice a profession has met certain predetermined standards specied by that profession for specialty practice.
- *Continuing professional development/continuing education (CPD/CE)* refers to the process of ongoing, lifelong learning to maintain competence, licensure, and/ or certi ication.
- *Graduate* refers to the period in the student role after receiving an undergraduate degree through conferral of a graduate degree, e.g., MSN, DNP, MPH, MSc, PhD, PharmD, JD, MD, DO, DDS, and DMD. Such programs may also lead to eligibility for licensure and certi ication.
- *Licensing* refers to the formal recognition by a regulatory agency or body that a person has passed all the quali ications to practice that profession in that state.
- *Post-graduate* refers to the period of time for post-graduate or residency/ fellowship training, depending on the speci ic health care profession. Such programs may also lead to eligibility for licensure and certi ication.
- *Regulation* refers to the process by which an entity ensures that individuals entering (or remaining in) the health workforce have obtained and maintained the core competencies, knowledge, and skills, required for safe practice within their profession that is substantially free of commercial bias.
- Undergraduate refers to the period of time in the student role between graduation from secondary education through conferral of an undergraduate degree, such as a baccalaureate degree.

Strategy: Disseminate surveys to collect data from accrediting, certifying, licensing, and regulatory bodies across the health professions.

The <u>Action Collaborative on Countering the U.S. Opioid Epidemic</u>, convened by the National Academy of Medicine, is evaluating requirements established by accrediting, certifying, licensing, and regulatory bodies for health care professionals that address acute and chronic pain management and substance use disorders. The Action Collaborative will use these data to compare and contrast requirements across

the education continuum and across different health professions. The indings from this survey will be used to inform the NAM Action Collaborative and will only be reported in aggregate.

The time to complete this survey is estimated at 15 - 20 minutes.

1. We may need to contact you for clari ication of responses.

If you agree, please provide the following:

Name: Email: Phone: Position Title:

- 2. What is the name of your organization?
- 3. Please indicate your organization type (select all that apply):
 - Accrediting Body
 - Certifying Body
 - Licensing Body
 - Regulatory Body
 - Other: Write-In:

4. What level of oversight does your organization have?

- National
- State
- Other:

5. What is the focus of your organization's accreditation/certi ication/licensure/regulation (select all that apply)?

- Individual person (clinician, practitioner, provider)
- Activity (educational activity or similar)
- Program (undergraduate, graduate, residency, or similar)
- Organization (university, CE provider, or similar)
- Other Write-In:

For questions 6-11, please select what profession your organization accredits/ certi ies/ licenses/ regu-

- Practice (practicing health care professionals) credentialing of clinical privileges
- Practice (practicing health care professionals) licensure

13. Does your organization currently have requirements/ standards for health care professionals (students, residents, fellows, or practicing health care professionals) that address acute and chronic pain management?

- Yes
- No
- Unsure

14. Does your organization currently have requirements for health care professionals (students, residents, or practicing health care professionals) that address substance use disorders?

- Yes
- No
- Unsure

15. Is there anything else you would like to share regarding this subject?

APPENDIX E ORGANIZATIONS PROVIDING LINKS TO REQUIREMENTS

Board of Dental	http://www.dentalboard.org/wp-content/uploads/2018/07/Rule-2.23_FINAL.pdf
Examiners of Alabama	
	and
	http://www.alabamaadministrativecode.state.al.us/docs/den/index.html
Utah Division of	https://le.utah.gov/xcode/Title58/Chapter37/58-37-S6.5.html?v=C58-
Professional Licensing	37-S6.5_2018050820180508
North Dakota Board	https://www.nddentalboard.org/laws-and-rules/index.asp#register
of Dental Examiners	
	Goto: "Prescribers Please Read - New Laws for using the Prescription Drug Monitor-
	ing Program."
American Osteopathic	https://osteopathic.org/graduate-medical-educators/postdoctoral-training-stan-
Association	dards/
Accreditation Council	https://www.acgme.org/What-We-Do/Accreditation/Common-Program-Require-
for Graduate Medical	ments
Education	
	and
	https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/CPRResiden-
	cy2019.pdf
Commission on Dental	CODA's Accreditation Standards for each discipline are found at https://www.ada.
Accreditation	org/en/coda/current-accreditation-standards
National Board of	https://www.nbome.org/docs/Flipbooks/FOMCD/index.html#p=1
Osteopathic Medical	
Examiners	https://www.nbome.org/exams-assessments/comlex-usa/master-blueprint/

	1	
American Board of	The links point to the specialty and subspecialty sites, from where additional links	
Medical Specialties	provide more detail regarding requirements and examination content (most rele-	
	vant is the content covered in the certifying examinations, which will be similar in	
	continuing certi ication exams - more speci icity regarding educational program re-	
	quirements will be found in the analogous ACGME program requirements and stan-	
	dards): https://www.abpmr.org/ http://www.theaba.org/PDFs/Pain-Medicine/	
	PM-Exam-Blueprint	
	https://www.abim.org/~/media/ABIM Public/Files/pdf/exam-blueprints/certii-	
	cation/hospice-palliative-medicine.pdf	
	https://www.theabpm.org/become-certiied/subspecialties/addiction-medicine/	
	https://www.abpn.com/become-certiied/taking-a-subspecialty-exam/addiction-psychiatry/	
National Board of	For initial certi ication, you would need to request this information from the Council	
Certi ication and	on Accreditation of Nurse Anesthesia Educational Programs (COA).	
Recerti ication for	on Accieditation of Nalise Alesthesia Educational Programs (COA).	
Nurse Anesthetists	For sub-specialty certi ication see: https://www.nbcrna.com/exams/nspm	
Florida Board of	https://loridasnursing.gov/renewals/advanced-practice-registered-nurse/	
Nursing		
	http://www.loridahealth.gov/programs-and-services/non-opioid-pain-manage-	
	ment/_documents/ alternatives-facts-8.5x11-eng.pdf	
Vermont Of ice	Please click on "Notice Bof Required Continuing Education RegNursinga Ennequestion	on see: h
of Professional		
Regulation/Board of	hdrpalliativnurogabpnDle.nbcre speci	
Nursing		

Massachusetts Board	www.mass.gov/dph/dentalboard (website for the MA Board of Registration
of Registration in	in Dentistry)
Dentistry	
Alaska State Board of	https://www.commerce.alaska.gov/web/cbpl/ProfessionalLicensing/Boardof-
Nursing	Nursing/NursingStatutesandRegulations.aspx
Oklahoma Board of	59 O.S. Section 567.4a(3)(b) which can be accessed at http://www.oscn.net/appli-
Nursing	cations/ oscn/ Deliver Document.asp?CiteID=95854
Texas Board of	https://www.bon.texas.gov/rr_current/222-8.asp
Nursing	
	https://www.bon.texas.gov/rr_current/228-1.asp
	https://texreg.sos.state.tx.us/public/readtac\$ext.TacPage?sl=R&app=9&p_dir=&p_
	rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=22&pt=11&ch=228&rl=2
	https://www.bon.texas.gov/practice_guidelines.asp#RG_Prescribe
Commission on	https://www.aacnnursing.org/Portals/42/CCNE/PDF/CCNE-Entry-to-Practice-
Collegiate Nursing	Residency-Standards-2015.pdf
Organization	
	https://www.aacnnursing.org/Portals/42/Publications/BaccEssentials08.pdf
	https://www.aacnnursing.org/Portals/42/Publications/MastersEssentials11.pdf
	https://www.aacnnursing.org/Portals/42/Publications/DNPEssentials.pdf
National Commission	https://www.nccpa.net/Code-of-conduct
on Certi ication of	
Physician Assistants	

APPENDIX F STATE CONTINUING MEDICAL EDUCATION (CME) REQUIREMENTS FOR PRESCRIBERS

This is a revised version of the State Requirements for Pain Management CME by the *New England Journal of Medicine* and the Board-by-Board Overview of Continuing Medical Education by the Federation of State Medical Boards last updated on July 1, 2020 (FSMB, 2021; NEJM Knowledge+, n.d.). Hawaii, Idaho, Kansas, Missouri, Montana, North Dakota, and South Dakota do not have specific CME requirements for prescribers and are not included in the following table. These documents are not intended to be a comprehensive statement of the law and are not to be relied on as authoritative.



Arizona (PA)	

Colorado (PA)	1 hour every 6 years Effective March 30, 2020, all physicians and physician assistants are required 2 hours of training to demonstrate competency in preventing substance abuse and/ or to demonstrate competency in treating patients with substance use disorders, every renewal. Training must cover or be related to the following topics: the best practices for opioid prescribing, according to the most recent version of the Division's Guide-lines for the Safe Prescribing and Dispensing of Opioids; the recognition of substance use disorders; the referral of patients with substance use disorders for treatment; and the use of the electronic prescription drug monitoring program created in Colo. Rev. Stat. 12-280-4	Colo. Rev. Stat. 12- 280-4
Connecticut	1 hour every 6 years Physicians must take 1 contact hour of training or education on the topic of risk management, including, but not limited to, prescribing controlled substances and pain management.	Conn. Gen. Stat. § 20- I0(b)
Connecticut (PA)	1 hour every 2 years Maintain certi ication through the National Commission on Certi ication of Physician Assistants and complete 1 hour of prescribing controlled substances and pain management ev- ery two years.	Conn. Gen. Stat. § 20- l0(b)
Delaware (MD/ DO/ PA)	2 hours, every 2 years Practitioners with prescriptive authority are required to com- plete 2 hours of continuing education in the area of controlled substance prescribing practices, treatment of chronic pain, or other topics relating to controlled substances, and 1 hour on Delaware Law pertaining to the prescribing and distribution of controlled substances within the irst year of registration.	24 Del. Admin. Code Uniform Controlled Substances Act Regu- lations 3.1.3.
Washington, DC	1 course every 2 years Physicians, PAs, and Nurses must complete 1 course in the subject of pharmacology.	D.C. Mun. Regs. tit.17, § 4614 D.C. Of icial Code § 31205.10
Florida (MD/ DO)	2 hours every 2 years Each person registered with the DEA and authorized to pre- scribe controlled substances must complete 2 hours of AMA Category 1 or AOA Category 1A on prescribing controlled substances.	Fla. Admin. Code. Ann. R. 64B15-13.001

Florida	10 hours every 2 years	Fla. Stat. Ann.
(PA)	PAs registered with the DEA and authorized to prescribe con-	456.0301
	trolled substances must complete 10 hours in the specialty	
	area of the supervising physician, 3 of which must be on the	
	safe and effective prescribing of controlled substance medi- cations.	
Caardia	3 hours	Co Comp D & Dogo r
Georgia	Each licensee with a DEA registration and who prescribes	Ga. Comp. R. & Regs. r. 360-1501
	controlled substances must complete 3 hours of Category 1	500-1501
	CME on responsible opioid prescribing.	
Georgia	3 hours every 2 years	Ga. Comp. R. & Regs. r.
(PA)	Licensees who are authorized to issue prescription drugs are	360-1501
	required a minimum of 3 hours in practice speci ic pharma-	
	ceuticals (according to prescription order privileges of the	
	supervising physician) every renewal cycle.	
Illinois	3 hours every 3 years	720 III. Controlled Sub-
	Beginning in 2020, physicians must complete 3 CME hours on	stances Act 570/ 315.5
	safe opioid prescribing practices. CME taken by physicians as	
	a requirement for licensure in another state, or for purposes	
	of board certi ication application or renewal, count toward this new requirement.	
Illinois	3 hours every 2 years	720 III. Controlled
(PA)	Licensees who prescribe controlled substances must com-	Substances Act
	plete 3 hours of safe opioid prescribing practices every two	570/315.5
	years. Licensees with Schedule II controlled substances pre-	
	scriptive authority are required 10 hours of pharmacology	
	every two years.	
Indiana	2 hours every 2 years	Ind. Code 35-48-3-3.5
	Physicians must complete 2 hours of CME on the topic of opi-	
	oid prescribing and opioid abuse.	
Indiana	2 hours every 2 years	Ind. Code 35-48-3-3.5
(PA)	Effective July 1, 2019, all practitioners registered to dispense	
	controlled substances must have completed 2 hours of con-	
	tinuing education during the previous two years addressing	
	the topics of opioid prescribing and opioid abuse.	
Iowa	2 hours, every 5 years Physicians must complete 2 hours of Category 1 training for	Iowa Admin. Code r.
	chronic pain management.	653-11.4(1)

Iowa	2 hours, every 2 years	Iowa Admin. Code r.
(PA)	Licensees who have prescribed opioids during the pre- vious licensing period are required to complete 2 hours regarding the Centers for Disease Control and Preven- tion's (CDCs) Guideline for Prescribing Opioids for Chronic Pain every two years.	` '
Kentucky	60 hours every 3 years 30 must be in Category 1; One-time domestic violence course for primary care physicians; A minimum of 2 hours must be acquired once every 10 years in HIV/ AIDS education; For each three (3) year continuing education cycle beginning on January 1, 2015, at least 4.5 hours of approved continuing education hours relating to the use of Kentucky All Schedule Prescription Electronic Reporting, pain management, addiction disorders, or a combination of two (2) or more of those subjects for licensees who are authorized to prescribe or dispense controlled substances within the Commonwealth.	
Louisiana	3 hours one-time only All licensees with a Controlled Dangerous Substance (CDS) license must complete a one-time, 3 our CME course on drug diversion training, best prescribing prac- tices of controlled substances, and appropriate treat- ment for addiction.	La. Admin. Code tit. 46, pt. XLV, § 435
Louisiana (PA)	3 hours one-time only Practitioners with a CDS license are required at least 3 hours of Board-approved continuing education on the best practices for the prescribing of CDS, drug diversion training, appropriate treatment for addiction, and the treatment of chronic pain.	
Maine (MD/ DO)	3 hours every 2 years All licensees must complete 3 hours of AMA category 1 CME on opioid prescribing every 2 years.	Maine Admin Law §1726
Maine (PA)	3 hours every 2 years Licensees with prescriptive authority are required 3 hours on the prescribing of opioid medication every renewal.	Maine Legislative Document 1660
Maryland	1 hours every 2 years Physicians must complete 1 Category 1 CME hour on opioid prescribing.	Code Of Md. Regs. 10.40.02.03(B)

Maryland (PA)	2 hours one-time only PAs applying for a new or renewal registration to dispense or prescribe controlled dangerous substances from the Of ice of Controlled Substances Administration must complete a one-time requirement of 2 hours on the prescribing or dispensing of controlled dangerous substances.	Code Of Md. Regs. 10.40.02.03(B)
Massachusetts	3 credit hours each cycle Licensees must complete 3 credits on opioids and pain management.	Mass. General Law, Chapter 94C, Section 18
Massachusetts (PA)	Every renewal cycle Licensees authorized to prescribe controlled substances must complete continuing education relative to: effec- tive pain management, the risks of abuse and addiction associated with opioid medications, the identi ication of patients at risk for substance abuse, counseling patients about the side effects, addictive nature and proper stor-	

Minmesotea (MD/DO/PA)	2 hours All health care licensees who have authority to prescribe controlled substances must obtain 2 hours of continu- ing education credits between Jan. 1, 2020 and Dec. 31, 2022 that include content on best practices in prescrib- ing opioids and controlled substances and non-pharma- cological and implantable device alternatives for treat- ment of pain and ongoing pain.	Minn. Stat. § 214.12	
Mississippi	5 hours Those with active DEA certi icates must complete 5 Cat- egory 1 hours on the subject of prescribing medications		

New Mexico (Osteopathic Phy- sician Assistant, OPA)	6 hours every 3 years Licensees who hold a federal DEA registration and a li- cense to prescribe opioids are required to complete 6 hours of non-cancer pain management education each triennial renewal cycle.	;	
New York (MD/ DO/ PA)	3 hours every 3 years Licensees authorized to prescribe controlled substances must complete at least 3 hours of training in pain man- agement, palliative care, and addiction every three years.	N.Y. Pub Health Law §3309-A	
North Carolina			
North Carolina (PA)	2 hours every 2 years Licensees authorized to prescribe controlled substances are required 2 hours in controlled substances every re- newal.	N.C. Admin. Code tit. 21, r. 32R.0101	

Oklahoma	1 hour, every 2 years	Okla. Admin. Code §	
(PA)	PAs must earn 1 hour of Category 1 CME on the topic of substance abuse.	435:10-1 5-1	
Oregon	6 hours one time Licensees must complete a 1-hour course on pain man- agement and a minimum of 6 CME credit hours in the subject of pain management and/ or the treatment of terminally ill and dying patients. Exceptions include li- censees holding Lapsed, Limited, Telemedicine, Telera- diology, or Telemonitoring licenses.		
Oregon (PA)	6 hours one time There is a one-time requirement of 6 hours in pain man- agement and/ or treatment of the terminally ill and dy- ing patients. An additional 1 hour must be specific to Or- egon provided by the Pain Management Commission of the Department of Human Services.		
Pennsylvania (MD/ DO)	4 hours, once, for initial licensure; 2 hours, every 2 years Within 12 months of initial licensure, licensees must take 2 hours of CME on pain management or identi ication of addiction, as well as 2 hours on practices of prescribing or dispensing opioids. Subsequent license renewals require 2 hours of CME on pain management, identi ication of addiction, or prescribing practices.	16.19	
Pennsylvania (PA/ OPA)	2 hours, every 2 years Licensees with prescriptive authority, as a condition of license renewal, are required 2 hours in pain manage- ment, the identi ication of addiction or the practices of prescribing or dispensing of opioids.		
Rhode Island (MD/ DO/ PA)	8 hours one-time Effective January 2, 2020, licensees who prescribe Schedule II opioids have a one-time requirement of 8 hours of Category I CME in any or all of the following topics: The appropriate prescribing of opioids for pain; Pharmacology; Adverse events; Potential for depen- dence; Tolerance; Substance use disorder; and Alterna- tives to opioids for pain management.	nt of 8 owing r pain; depen-	
South Carolina	2 hours every 2 years Licensees must complete at least 2 hours of Category 1 credits related to approved procedures for prescribing and monitoring schedules II-IV controlled substances.	S.C. Code § 40-47-40; S.C. Code Regs. 81-95	

South Carolina	outh Carolina 4 hours every 2 years		
(PA)	All licensees who are authorized to prescribe controlled substances are required 4 hours of controlled substance education every renewal.	S.C. Code § 40-47-965	
Tennessee (MD)	2 hours every 2 years Licensees must complete 2 hours on controlled sub- stance prescribing, including instruction in the Depart- ment's treatment guidelines on opioids, benzodiazepine, barbiturates, and carisoprodol and may include topics such as addiction, risk management tolls, and other top- ics approved by the Board. Providers of intractable pain treatment must have specialized CME in pain manage- ment.	Tenn. Comp. R. & Regs. 0880-0219; Tenn. Comp. R. & Regs. 0880-0214	
Tennessee (DO)	2 hours every 2 yearsTenn. ConAt least 2 credit hours must be a course(s) designated toRegs. 105address prescribing practices.Regs. 105		
Tennessee (PA)	2 hours every 2 years All licensees are required 2 hours of prescribing con- trolled substances which must include instruction in the Tenn. Chronic Pain Guidelines.	Tenn. Comp. R. & Regs. 0880-0219; Tenn. Comp. R. & Regs. 0880-0214	
Texas	2 hours every 2 years Licensees must complete 2 AMA Category 1 or AOA Cat- egory 1A hours on medical ethics and/or professional responsibility, including, but not limited to, risk manage- ment, domestic abuse, or child abuse. Licensees practic- ing in a pain management clinic must complete 10 hours of CME annually in the area of pain management.	Tex. Occupations Code §§ 156.051 through 156.057; Tex. Admin. Code tit. 22, § 166.2	
Texas (PA)	2 hours every 2 years Beginning with 2021 renewals and annually thereafter, licensees practicing direct patient care must complete 2 hours of Category 1 credit covering safe and effective pain management related to the prescription of opioids and controlled substances. Additionally, licensees au- thorized to prescribe or dispense opioids shall annually attend at least 1 hour covering best practices and topics related to pain management and treatment options.	d annually thereafter, t care must complete ring safe and effective rescription of opioids ionally, licensees au- opioids shall annually st practices and topics	
Utah (MD/ DO)	3.5 hours Controlled substance prescribers must complete at least 3.5 hours of continuing education in 1 or more con- trolled substance prescribing classes.		

Utah (PA)	4 hours every 2 years All controlled substance prescribers must complete 4 hours in controlled substance prescribing every renewal, .5 of which must be completed through an online tutorial and test, as described by the Board in section 58-37f-402.* The remaining 3.5 hours may be completed through an AMA PRA Category 1 Credit [™] course that meets Board requirements. *The online tutorial and test may only be offered by the Division of Occupational and Professional Licensing. Access the training here: https://dopl.utah.gov/csd/index.html.		
Vermont (MD)	3 hours every 2 years Licensees must earn 1 hour on hospice, palliative care, or pain management services. Additionally, each licens- ee who holds a DEA registration number must earn at least 2 CME hours on the safe and effective prescribing of controlled substances and pain management.	licens- 1400 earn at	
Vermont (PA)	2 hours every 2 years Beginning with 2018 renewals, all licensees who pre- scribe controlled substances must show evidence of 2 hours related to the safe and effective prescribing of controlled substances.	28.3.3	
Virginia	2 hours every 2 years Licensees must earn 2 hours in pain management, prop- er prescribing of controlled substances and the diagno- sis and management of addiction.		
Virginia (PA)	2 hours every 2 years Effective July 1, 2017, prescribers are required 2 hours in topics related to pain management, responsible pre- scribing of covered/ controlled substances, and diagno- sis and management of addiction every renewal.	sible pre- d diagno-	
Washington (MD/ DO/ PA)			

West Virginia (MD/ DO/ PA/ OPA)	3 hours, every 2 year renewal cycle Physicians who have prescribed, administered, or dis- pensed any controlled substance pursuant to a West Virginia license in the two-year license cycle preceding renewal, are required to complete 3-hours of Board- approved CME in drug diversion training and best prac- tice prescribing of controlled substances training during each reporting period.	§ 30-1-7a; W. Va. Code R. § 24-1-15.2.g.	
Wisconsin	2 hours every 2 years Licensees must complete 2 hours of Category 1 hours on the opioid prescribing guidelines issued by the Board.	Wis. Admin. Code MED § 13.02.	
Wyoming (MD/ DO/ PA)	3 hours every 2 years Licensees who have prescriptive authority must com- plete 3 hours of continuing education related to the re- sponsible prescribing of controlled substance or treat- ment of substance abuse disorders every 2 years.	Wy. Stat. § 33-21-129	

APPENDIX G STATE CONTINUING EDUCATION REQUIREMENTS FOR NURSING

This list comes from AAACEUs and is a list of all continuing education (CE) requirements for registered nurses (RNs) and licensed practical nurses (LPNs) by state (AAACEUs, n.d.).

Arizona	CE not required.	CE not required.		Arizona State Board of Nursing
Arkansas	RNs: 15 contact hours every two years, or certi ication or recerti- ication during the renewal peri- od by a national certifying body, or completion of a recognized academic course in nursing or a related ield.	LPNs: 15 contact hours every two years, or certi ication or re- certi ication during the renewal period by a national certifying body, or completion of a recog- nized academic course in nurs- ing or a related ield.		Arkansas State Board of Nursing
California	All RNs in the State of California who wish to maintain an active license are required to complete 30 hours of CE for license re- newal.	LPNs must complete 30 contact hours of CE every two years in order to renew their license with an active status		<u>State of</u> <u>California</u> <u>Board of</u> <u>Registered</u> <u>Nursing</u>
Colorado	CE not required.	CE not required.		<u>Colorado</u> <u>Board of</u> <u>Nursing</u>
Connecti- cut	Œ not required.	CE not required.		Connecti- cut Board of Exam- iners for Nursing Division of Health Systems Regulation
Delaware	RNs are required to complete 30 contact hours every two years.	LPNs are required to complete 24 contact hours every two years.	Three of the 30 hours must be in the area of sub- stance abuse.	Delaware Board of Nursing

		· · · ·	
District of	RNs are required 24 contact	LPNs must complete 18 hours	
Columbia	hours every two years, three of	of CE. Compliance Options: (1)	
	which must be in HIV/ AIDS and	Contact Hour Option: Provide	
	are required to complete two	Course Completion Certi icates;	
	hours of instruction in cultural	(2) Academic Option: Provide	
	competency focusing on patients	transcript that indicates com-	
	who identify as LGBTQ.	pletion of an undergraduate or	
		graduate course in nursing or	
		relevant to the practice of nurs-	
		ing; (3) Teaching Option: Pro-	
		vide acceptance letter/email as	
		evidence of having developed	
		or taught a CE course or edu-	
		cational offering approovide	

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Florida	All Florida-licensed RNs are now		
	in a 24-month renewal cycle		
	and must complete 24 hours of	cycle and must complete 24	
	appropriate CE during each re-		
	newal period. One contact hour		
	is required for each calendar		
	month of the licensure cycle, in-		
	cluding two hours on prevention		
	of medical errors. HIV/ AIDS is		
	now a one-time, one-hour Œ re-		
	quirement to be completed prior		
	to the irst renewal. Domestic		
	Violence CE is now a two-hour		
	requirement every third renew-		
	al. There is a new two-hour CE		
	course requirement for Recog-		
	nizing Impairment in the Work-		
	place that becomes effective Au-		
	gust 1, 2017, then every other		
	biennium thereafter. Registered		
	Nursing Group 1 will be the irst		
	group required to have the new		
	CE for the renewal period end-		
	ing April 30, 2018.		

Idaho	New Continuing Competency	New Continuing Competency	Idaho
	Requirements (effective with	C . <i>F</i>	Board of
	the 2019 renewal); in order to		Nursing
	renew, a licensee shall complete		
	or comply with at least two of	or comply with at least two (2)	
	any of the learning activities		
	listed below within the two-year	listed in the RN requirements	
	renewal period. a. Practice: i.		
	Current nursing specialty certi i-	period.	
	cation as de ined in Section 402;		
	ii. 100 hours of practice or simu-		
	lation practice b. Education, CE,		
	E-learning, and In-service: i. 15		
	contact hours of continuing edu-		
	cation; ii. Completion of a mini-		
	mum of one (1) semester credit		
	hour of post-licensure academic		
	education; iii. Completion of		
	a Board-recognized refresher		
	course; See additional options		
	on Idaho Board of Nursing web-		
	site		
Illinois	RNs are required to complete 20	LPNs are required to complete	Illinois De-
	contact hours every two years.	20 contact hours every two	<u>partment</u>
		years.	of Profes-
			<u>sional</u>
			Regulation
Indiana	CE not required.	CE not required.	Indiana
			<u>State Board</u>
			<u>of Nurs-</u>
			ing Health
			Professions
			<u>Bureau</u>

Iowa	RNs and LPNs: For renewal of a	RNs and LPNs: For renewal of a	For renewal of a	lowa Board
	three-year license, the require-	three-year license, the require-	license that has	of Nursing
	ment is 36 contact hours. For re-	ment is 36 contact hours. For	been issued for	
	newal of a license that has been	renewal of a license that has	less than three	
	issued for less than three years,	been issued for less than three	years, the require-	
	the requirement is 24 contact	years, the requirement is 24	ment is 24 contact	
	hours. For reactivation from an	contact hours. For reactiva-	hours or 2.4 CEUs.	
	inactive status, the requirement	tion from an inactive status,		
	is 12 contact hours that are not	the requirement is 12 contact		
	more than 12 months old at the	hours that are not more than		
	time the credit is submitted for	12 months old at the time the		
	reactivation. For renewal of a	credit is submitted for reactiva-		
	license that has been issued for	tion. For renewal of a license		
	less than three years, the re-	that has been issued for less		
	quirement is 24 contact hours or	than three years, the require-		
	2.4 CE Units. It is also required	ment is 24 contact hours or 2.4		
	that RNs and LPNs who regu-	CE Units. It is also required that		
	larly examine, attend, counsel,	RNs and LPNs who regularly ex-		
	or treat dependent adults or	amine, attend, counsel, or treat		
	children in Iowa complete train-	dependent adults or children in		
	ing related to the identi ication	Iowa complete training related		
	and reporting of child/depen-	to the identi ication and report-		
	dent adult abuse. The licensee	ing of child/ dependent adult		
	is required to complete at least	abuse. The licensee is required		
	two hours of training every ive	to complete at least two hours		
	years.	of training every ive years.		
Kansas	RNs are required to complete 30	LPNs are required to complete		<u>Kansas</u>
	contact hours every two years.	30 contact hours every two		<u>State Board</u>
	There is no maximum on the	years. There is no maximum		<u>of Nursing</u>
	number of independent study	on the number of independent		
	hours that can be obtained.	study hours that can be ob-		
		tained.		
Maine	CE not required.	CE not required.		Maine State
				Board of
				Nursing
Maryland	No CE required, but an approved	CE not required.		Maryland
v	refresher course is needed.			Board of
				Nursing

Massa- chusetts	RNs are required to complete 15 contact hours every two years.	LPNs are required to complete 15 contact hours every two years.		Massachu- setts Board of Regis- tration in Nursing Division of Profes- sional Licensure
Kentucky	RNs must have proof of earn- ing 14 approved contact hours or one of the other competency options stated by the Kentucky Board of Nursing (see website link). Other required courses: Course- Pediatric Abusive Head Trauma, also known as "Shaken Baby Syndrome." 1.5 hours. This is a one-time CE requirement covering the recognition and prevention of pediatric abusive head trauma. Nurses licensed as of July 15, 2010 have until December 31, 2013 to complete the course. Nurses licensed after that date have three years from the date of licensure to complete the course. Course- HIV/ AIDs. All nurses are required to earn two contact hours of approved HIV/ AIDS CE within the appro- priate 10-year period.	LPNs must have proof of earn- ing 14 approved contact hours or one of the other competency options stated by the Kentucky Board of Nursing (see website link)	Click here to view our courses that were designed speci ically for Kentucky. Additional Re- quirements - see State Website	Kentucky Board of Nursing

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Michigan	All Michigan licensed nurses		Beginning with	<u>Michigan</u>
	must complete 25 hours of	requirements as RNs.	the 2017 renewal	Depart-
	Board- approved CE, with at		cycle, all licensees	ment of
	least one hour in pain and symp-		must complete a	<u>Commu-</u>
	tom management, within the		one-time train-	nity Health
	two years immediately preced-		ing in identifying	<u>Bureau</u>
	ing the expiration date of their		victims of human	<u>of Health</u>
	license.		traficking. This	Professions
			requirement must	<u>Michigan</u>
			be completed	Board of
			prior to the 2019	Nursing
			renewal cycle.	
			Require one hour	
			in pain and symp-	
			tom management	
Minne-	RNs must complete 24 contact	LPNs must complete 12 contact		<u>Minnesota</u>
sota	hours every two years.	hours every two years.		Board of
				Nursing
Missis-	CE not required.	CE not required.		Mississippi
sippi				Board of
				Nursing
Missouri	CE not required.	CE not required.		<u>Missouri</u>
				<u>State Board</u>
				of Nursing
Montana	CE not required.	CE not required.		<u>Montana</u>
				<u>State Board</u>
				<u>of Nursing</u>
Nevada	For relicensure, RNs and LPNs	For relicensure, RNs and LPNs	One-time manda-	<u>Nevada</u>
	must have completed 30 hours	must have completed 30 hours	tory Bio-Terror-	<u>State Board</u>
	of nursing-related continuing	of nursing-related continuing	ism course of four	of Nursing
1 1	advantion in the manufactor OA	education in the previous 24	hours	
	education in the previous 24		liouro	
	months and must have complet-	months and must have complet-		
	-		houro	

New York	RNs are required to complete	LPNs are required to complete	Two-hour child	<u>Division</u>
	three contact hours infection	three contact hours infection	abuse course,	of Profes-
	control every four years; two	control every four years; Pro-	three-hour infec-	<u>sional</u>
	contact hours child abuse (one-	gram must be from an approved	tious control for	Licensing
	time requirement for initial li-	provider.	health care pro-	<u>Services</u>
	cense); Programs must be from		fessionals	NY State
	an approved provider.			Education
				Depart-
				<u>ment Nurse</u>

North	RNs: For reinstatement or reli-	LPNs: For reinstatement or re-			
Carolina	censure, a plans for continued	licensure, a plans for continued			
	competence and completion of	competence and completion of			
	one of the following is required.	one of the following is required.			
	- National certi ication or re-cer-	- National certi ication or			
	ti ication by a national creden-	re-certi ication by a national			
	tialing body recognized by the	credentialing body recognized			
	Board	by the Board			
	- 30 contact hours of CE	- 30 contact hours of CE			
	- Completion of a Board ap-				
	proved refresher course	proved refresher course			
	- Completion of a minimum of				
	two semester hours of post-li-				
	censure academic education re-	licensure]TJT*0 Tw[(number of a	מנו) א.א (endees) je aca	ademiarticie,	paper, b
	lated to nursing practice				
	- 15 contact hours of CE and				
	completion of a nursing proj-				
	ect as principal investigator or co-investigator to include state-				
	ment of problem, project objec-				
	tives, methods, date of comple-				
	tion, and summary of indings				
	- 15 contact hours of CE and au-				
	thoring or co-authoring a nurs-				
	ing related article, paper, book,				
	or book chapter				
	- 15 contact hours of CE and				
	developing and conducting a				
	nursing continuing education				
	presentation or presentations				
	totaling a minimum of ive con-				
	tact hours, including program				
	brochure or course syllabi, ob-				
	jectives, date and location of				
	presentation, and approximate				
	number of attendees				
	- 15 contact hours of continued				
	education and 640 hours of ac-				
	tive practice within previous				
	two years				
	1	1			

North	For RN license renewal, the	For LPN license renewal, the	See additional	North Da-
Dakota	nurse must meet the continued	nurse must meet the contin-	competency cycle	kota Board
	competence requirements. In-	ued competence requirements.	options on state	of Nursing
	cluded in this requirement is the	Included in this requirement	website	
	completion of 12 contact hours	is the completion of 12 contact		
	of continuing education. All CE	hours of continuing education.		
	required for license renewal	All CE required for license re-		
	may be obtained online.	newal may be obtained online.		
Ohio	RN relicensure requirement: 24	LPN relicensure requirement:	Click here to view	<u>Ohio Board</u>
	contact hours every two years.	24 contact hours every two	AAACEUs courses	<u>of Nursing</u>
	At least one contact hour must	years. At least one contact hour	that were de-	
	be related to Chapters 4723,		signed speci ically	
	1-23 of the Ohio Nurse Practice	,	for Ohio.	
	Code and Rules.	Practice Code and Rules.		
			At least one con-	
			tact hour must be	
			related to Chap-	
			ters 4723, 1-23	
			of the Ohio Nurse	
			Practice Code;	
			First time renew-	
			als exempt from	
			Œ	
elact				

Oragon	DNo: One time requirement for	DNo: One time requirement		Oragon
Oregon	RNs: One-time requirement for	LPNs: One-time requirement	Only CE Require-	<u>Oregon</u>
	seven hours of pain manage-	for seven hours of pain man-	ment: Seven	State Board
	ment-related CE. One hour must	agement-related CE. One hour	hours of Pain	<u>of Nursing</u>
	be a course provided by the Ore-	must be a course provided by	Management	
	gon Pain Management Commis-	the Oregon Pain Management	CE. One of the	
	sion. The remaining six hours	Commission. The remaining	hours must be a	
	can be your choice of pain man-	six hours can be your choice of	one-hour course	
	agement topics. Once this re-	pain management topics. Once	provided by the	
	quirement is ful illed, there are	this requirement is ful illed,	Oregon Pain Man-	
	no additional CE requirements	there are no additional CE re-	agement Commis-	
	for renewal.	quirements for renewal.	sion.	
Pennsyl-	Thirty contact hours every two	Beginning in 2014, LPNs must	RNs renew either	<u>Pennsylva-</u>
vania	years for RNs. Beginning in 2014	complete two hours of ap-	April 30 or Octo-	<u>nia State</u>
	RNs must complete 2 hours of	proved child abuse and recogni-	ber 30, odd and	Board of
	approved child abuse and recog-	tion and report training every	even years	Nursing
	nition and report training every	renewal (Act 31). See state		
	renewal (Act 31). See state web-	website for additional informa-		
	site for additional information.	tion.		
Rhode	RNs are required to complete 10	LPNs are required to complete		Rhode Is-
Island	contact hours every two years.	10 contact hours every two		land Board
	Online courses are acceptable.	years. Online courses are ac-		of Nurse
		ceptable.		<u>Registra-</u>
				tion and
				Nursing
				Education
				<u>Of ice of</u>
				Health Pro-
				fessionals
				Regulation

South	Demonstration of competency	Demonstration of competency			
Carolina	for renewal of an active RN li-	for renewal of an active LPN li-			
	cense biennially requires docu-	cense biennially requires docu-			
	mented evidence of at least one	mented evidence of at least one			
	of the following requirements	of the following requirements			
	during the licensure period:	during the licensure period:			
	- Completion of thirty contact	- Completion of thirty contact			
	hours from a continuing educa-	hours from a continuing educa-			
	tion provider recognized by the	tion provider recognized by the			
	Board	Board			
	- Maintenance of certilication	- Maintenance of certi ication			
	or re-certi ication by a national	or re-certi ication by a national			
	certifying body recognized by the Board	certifying body recognized by the Board			
	- Completion of an academic	- Completion of an academic			
	program of study in nursing or	program of study in nursing or			
	a related ield recognized by the	a related ield recognized by the			
	Board	Board			
	- Veri ication of competency and	-i 🖉 (ý)0(6uhirty contar of Tw[(th	enumber of hours	r)17.1(actice	7)]TJT
	the number of hours practiced				
	as evidenced by employer cer-				
	ti ication on a form approved by				
	the Board				

Texas		

Virginia	To renew an active nursing li-		
Viiginia			
	cense, a licensee shall complete		
	at least one of the following		
	learning activities or courses:		
	1. Current specialty certi		

Washing-	RNs and LPNs are required to		
ton	keep documentation showing at		
	least 531 hours of active prac-		
	tice and 45 clock hours of CE		
	within a three-year cycle. The		
	irst cycle starts on your irst		
	birthday after initial licensure.		
	You must attest every three		
	years to relect you have met the		
	requirements for both practice		
	and continuing education. Do		
	not send documentation to the		
	Nursing Commission in support		
	of the attestations unless noti-		
	ied of an audit via your renewal		
	notice. The Nursing Care Quality		
	Assurance Commission adopted		
	rules in WA Code 246-840-200		
	through 260 for an independent		
	continuing competency program		
	effective January 2011 and re-		
	cently updated effective January		
	2016.		

West Vir-	Completion of the 12 contact	LPNs are required to complete	Dick here to view	West Vir-
ginia	hours of CE required for RN re-	24 contact hours of continuing	AAACEUs courses	<u>ginia State</u>
gillia	licensure may be accomplished	education and engage in 400	that were de-	Board of
	by: 1. Completing 12 contact	clock hours of LPN practice in	signed speci ically	Examiners
	hours of CE from an approved	each two-year reporting period.	for West Virginia.	for Regis-
	CE provider; or 2. Completing six			tered Pro-
	contact hours of CE from an ap-	years. There is also a one-time,	See state website	fessional
	proved Œ provider, which may	two-contact hour requirement	for additional	Nurses
	include two contact hours of self-	•		<u>INULSES</u>
		for end of life care including	requirements	
	study and one of the following	pain management.		
	completed during the reporting			
	period: A. National certilication			
	initially earned or in effect the			
	entire reporting period; B. Com-			
	pletion of a nursing research			
	project as principal investiga-			
	tor, co-investigator or project			
	director; C. Published a nurs-			
	ing related article in a national			
	nursing or health care journal;			
	D. Developed and presented a			
	professional nursing education			
	presentation; E. Participated as			
	a clinical preceptor for at least			
	one student or one new employ-			
	ee undergoing orientation and			
	have 120 hours of one-on-one			
	relationship as a clinical precep-			
	tor during the reporting period;			
	F. Evidence of satisfactory evalu-			
	ation of employment that covers			
	at least six months of the report-			
	ing period; or G. Completion of			
	an approved nursing refresher			
	or re-entry course.			
Wisconsin	CE not required.	Œ not required.		State of
				<u>Wisconsin</u>
				Depart-
				ment of
				Regulation
				and Licens-
				ing

Wyoming	Requirement for RN relicensure:	Requirement for LPN relicen-	See state website	<u>Wyoming</u>
	20 contact hours in the last two	sure: 20 contact hours in the	for additional	<u>State Board</u>
	years OR Combination of Nurs-	last two years OR Combination	renewal options	<u>of Nursing</u>
	ing practice and contact hours	of Nursing practice and con-		
	OR Minimum 1,600 hours in	tact hours OR Minimum 1,600		
	Nursing practice in the last ive	hours in Nursing practice in		
	years OR Minimum 500 hours	the last ive years OR Minimum		
	in Nursing practice in the last	500 hours in Nursing practice		
	two years OR Passing NOLEX li-	in the last two years OR Passing		
	censing exam within the last ive	NCLEX licensing exam within		
	years OR National certi ication	the last ive years OR National		
	in specialty area in last ive years	certi ication in specialty area		
	OR Completion of a refresher/	in last give years OR Comple-		
	orientation program in the last	tion of a refresher/orientation		
	iveyears	program in the last ive years		
Guam	30 hours every two years by	30 hours every two years by		<u>Guam</u>
	September 30th (odd numbered	September 30th (odd num-		Board of
	years)	bered years)		<u>Nurse Ex-</u>
				<u>aminers</u>

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