NATIONAL ACADEMY OF MEDICINE

Educating Together, Improving Together

Harmonizing Interprofessional Approaches to Address the Opioid Epidemic

KATHY CHAPPELL, ERIC HOLMBOE, LAUREN POULIN, STEVE SINGER, ELIZABETH FINKELMAN, AND AISHA SALMAN, *EDITORS*

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

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ACRONYMS AND ABBREVIATIONS

ABMS	American Board of Medical Specialties
ACCME	Accreditation Council for Continuing Medical Education
APRN	advance practice registered nurse
BIPOC	Black, Indigenous, and people of color
BTP	breakthrough pain
CDC	U.S. Centers for Disease Control and Prevention
CE	continuing education
CLO	Chief Learning Officer
CME	continuing medical education
CMS	Centers for Medicare & Medicaid Services
COVID-19	coronavirus disease 2019
CPD	continuing professional development
DC	District of Columbia
DDS	doctor of dental surgery
DMD	doctor of medicine in dentistry
DO	doctor of osteopathic medicine
DSCSA	Drug Supply Chain Security Act
EHR	electronic health records
FDA	Food and Drug Administration
FHIR	Fast Healthcare Interoperability Resources
FSMB	Federation of State Medical Boards
HHS	U.S. Department of Health and Human Services
IPCE	interprofessional continuing education
MAT	medication-assisted treatment
MD	medical doctor
MOUD	medication for opioid use disorder

NAM	National Academy of Medicine
NCCPA	National Commission on Certification of Physician Assistants
NIH	National Institutes of Health
NQF	National Quality Forum
ORC	Opioid Regulatory Collaborative
OUD	opioid use disorder
PA	physician assistant
PDMP	prescription drug monitoring program
PPGs	professional practice gaps
Project ECHO	Project Extension for Community Healthcare Outcomes
REMS	risk evaluation and mitigation strategies
RN	registered nurse
SAMHSA	Substance Abuse and Mental Health Services Administration
SBIRT	screening, brief-intervention and referral to treatment
SUD(s)	substance use disorder(s)

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 first is a comprehensive literature review, and the second is a survey of the regulatory landscape.

The literature review identified persisting PPGs across five health professions that are part of the pain management and SUD workforce: medicine, nursing, physician assistant, dentistry, and pharmacy. Of the 310 articles included in the literature review, 83% discussed physician practice (unspecified, 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 involved opioid prescribing or tapering (93%). Major causes for PPGs were gaps in clinical knowledge (40%), attitudes and biases (30%), or failure to use/lack of available evidence-informed tools and resources (26%). Key themes include unexplained differences in prescribing practices between

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 confirm the findings 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 domain, the majority of organizations did not have requirements; only 47% and 31% of organizations reported having requirements or standards for health care professionals that address acute or chronic pain management or SUD respectively. Visual breakdowns of respondents for both pain management and SUD surveys are available in the relevant chapters. The survey data are indicative of fragmentation across the regulatory environment, as the surveyed organizations focus on different aspects of regulation without substantial coordination. There is a need for regulatory entities to work together to develop requirements and standards that support the complex and variable needs of health care professionals and the diverse patient populations they serve.

The results of the literature review and requirements survey underscore the need to collaboratively develop a harmonized interprofessional, person- and family-centered approach for the continuum of health professions education to more effectively address the opioid crisis. The Health Professional Education and Training Workgroup identified five key action-oriented priorities to support the goal identified above. Key priorities include the following:

1. Establish minimum core competencies in pain management and SUDs for all health care professionals, and support evaluating and tracking of health care professionals' competence;
2. Align accreditors' expectations for interprofessional collaboration in education for pain management and SUDs;
3. Foster interprofessional collaboration among licensing and certifying bodies to optimize regulatory approaches and outcomes;
4. Unleash the capacity for continuing education to meet health professional learners where they are; and
5. Collaborate to harmonize practice improvement initiatives.

This work brings into focus the opportunity to meet the complex challenges of the opioid crisis by optimizing the environment for health professionals' continuous learning and improvement. This education imperative requires greater interprofessional collaboration between regulators, certifying bodies, accreditors and health professions educators. Addressing the "epidemic within the pandemic" is the focus of this publication, but the authors recognize that key themes—system-wide engagement, learning leadership, harmonization and alignment, recognizing complex and individualized needs—can and should be applied to other complex and intractable health imperatives.

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 figures by more than 21,000 deaths (NCHS, 2021). Of these deaths, nearly 75 percent involved an opioid (Ahmad et al., 2021). Among the most significant 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 the onset of the COVID-19 pandemic, the U.S. health care system continues to grapple with fundamental challenges in training and educating its health care workforce amid a pandemic, ensuring health care providers can practice safely and with appropriate personal protective equipment, that care can be delivered both in-person and virtually, that health care professional students have access to clinical training sites, and that organizations can manage enormous financial strain. The impact of COVID-19 has exacerbated health care inequity for at-risk populations and has created

a perfect storm—a "crashing of crises"—for those already reeling from the existing opioid crisis (Alexander et al., 2020; Becker and Fiellin, 2020; Khatri and Perrone, 2020). National and local efforts to "flatten the curve" and reduce mortality for COVID-19 simultaneously and dramatically interrupted the care delivery system for those impacted by the opioid crisis.

While addressing a global pandemic is critical, health care providers and educators also cannot lose sight of the urgency of the opioid crisis and the adverse impacts of the COVID-19 pandemic, which will exacerbate drug overdose, death by suicide, and substance use-related morbidity and mortality in significant ways for, potentially, years to come (Volkow, 2020).

The Role of Health Care Professionals

For more than 20 years, the etiology of the opioid crisis has included the intersection of industry misconduct (Hoffman and Benner, 2021), harmful regulatory missteps (Bonnie et al., 2019), discriminatory and stigmatizing drug policies (Jordan, Mathis, and Isom, 2020), and health care and public health lapses that continue to this day (Jones et al., 2018). Sparked by overprescribing in its first decade and accelerated by illicit opioids, the crisis has raged on with immeasurable costs.

Addressing health professional practice has been at the center of the U.S. response to the opioid crisis, though largely through a regulatory approach and with a much smaller effort toward establishing specific competencies for health care professionals and incorporating relevant education across the continuum of health professions education. Concerted efforts to reduce opioid prescribing by clinicians have yielded steady declines—including a 20 percent reduction from 2012 to 2015 in annual prescribing rates for opioid prescriptions of <30 days' supply—but may have unintended consequences in that patients experiencing addiction who have been denied opioids may seek illicit sources with dire consequences (Guy et al., 2017).

Even though synthetic opioids (i.e., fentanyl) are currently contributing more than any single drug to mortality, overdose deaths that include prescription opioids—among other drugs—continue at staggering levels and accounted for more than 100,000 overdose deaths recorded in the 12 month period ending in April 2021, the greatest yearly toll of any year (CDC, 2021c). The majority of overdose deaths that involved prescription opioids also included non-opioids (cocaine, methamphetamine, and benzodiazepines). A significant contributor to opioid misuse is individuals who obtain opioids from friends and family, which creates a more complicated environment that extends beyond simply addressing responsible prescribing (Gladden et al., 2019). Far from a post-opioid phase of the crisis, psychostimulants and benzodiazepines are filling the gap left by concomitant decreases in prescription opioids, indicating that polypharmacy is emerging in the complex environment of substance use as a growing cause of mortality (CDC, 2020b; Gladden et al., 2019; Tori, Larochelle, and Naimi, 2020).

Safer opioid prescribing is important but not sufficient to curtail the crisis. The enormity of challenges faced by the health care workforce cannot be overstated. Most clinicians are receiving insufficient or inadequate training to manage pain and substance use for their patients (IOM, 2011; Office of National

Drug Control Policy, 2004). Beyond individual competence, care teams struggle to implement evidence-based 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 Office of Strategic Coordination - The Common Fund, n.d.). When considering the unique needs of individual health care professionals and teams—specific to practice setting—the difficulty of evolving practices, in competition with numerous other practice-based priorities, is apparent. To achieve and sustain the efforts to address the substance abuse epidemic in the midst of COVID-19 leaves health care professionals with the impossible imperative of "we must do better with less."

THE NATIONAL ACADEMY OF MEDICINE'S ACTION COLLABORATIVE ON COUNTERING THE U.S. OPIOID EPIDEMIC

The National Academy of Medicine's Action Collaborative on Countering the U.S. Opioid Epidemic (the Collaborative) is a public-private partnership committed to sharing knowledge, aligning ongoing initiatives, and addressing complex challenges that require a collective response from public and private actors. It is comprised of over 60 member organizations from health care systems, federal agencies, state and local governments, community organizations, patient organizations, provider groups, payors, industry, academia, nonprofits, and persons with lived experience.

The Collaborative endeavors to identify unmet needs and develop and disseminate evidence-based, multi-sector solutions designed to reduce rates of opioid misuse and improve outcomes for individuals, families, and communities affected by the crisis. The Education and Training Workgroup of the Collaborative includes members across academia, federal agencies, health education and accreditation organizations, health professional associations, health systems, nonprofit institutions, the private sector, as well as practicing clinicians and persons with lived experience. The interprofessional Workgroup is helping its members to recognize the biases and limitations of professional silos, and by doing so, creating opportunities for creative problem-solving.

GOALS FOR THIS PUBLICATION

The Education and Training Workgroup has considered the complex ecosystem of current efforts to address the opioid crisis across health professions. All stakeholders, including people with lived experience, educators, regulators, certifying agencies, and accreditors, are actively engaged in this work. The organizing principle for this work became optimization and harmonization by providing support and guidance to this community.

The Workgroup asked:

- How do we determine if the solutions being developed are accurately matched to problems in practice?
- Where are additional resources and efforts warranted, and where are they contributing to inefficiency?
- How can we improve the acuity and impact of supportive efforts while eliminating unproductive variation and redundancy?

The Workgroup determined that it must begin with understanding the current environment for health care professionals in practice through an educational lens with the following objectives:

- Identify and highlight professional practice gaps for health care professionals that currently exist in relation to acute and chronic pain management and SUDs; and
- Analyze current accreditation, certification, and regulatory requirements for health professions education that foster competency in acute and chronic pain management and SUDs.

Professional practice gaps were identified as critical to understanding the current environment as they reflect the difference between health care processes or outcomes observed in practice, and those potentially achievable on the basis of current professional knowledge. Identifying a PPG does not presuppose the reason why it exists, but rather identifies a gap that requires further analysis or research to better understand. Education providers use PPGs as the basis for conducting needs assessments to identify possible contributors to those gaps, and to design and evaluate education to close the gaps.

Analysis of current accreditation, certification, and regulatory requirements were identified as critical to understanding the current environment as they set standards for professions across the continuum, from undergraduate to postgraduate and, ultimately, clinical practice. Examining what requirements and policies do and do not exist can help regulatory organizations identify areas for improvement of standards and programs to promote more effective education and practice in pain management and SUD care. Regulators can also use the results of the analysis to not only identify intra-organizational gaps and needs, but also identify opportunities for harmonization across professions and organizations.

By describing these insights from the environment of educational requirements and current practice gaps, the Workgroup was able to identify strategies to help health professions educators and stakeholders optimize their ongoing responses to the opioid crisis and model collaborative methods that can be used to address education and training needs for other complex public health imperatives.

To address these objectives, the Workgroup conducted a literature review to identify PPGs across five health professions: medicine (allopathic (MD) and osteopathic (DO)), nursing (registered nurse (RN) and advanced practice registered nurse (APRN)), physician assistant, dentistry (doctor of dental surgery (DDS) and doctor of medicine in dentistry (DMD)), and pharmacy (pharmacists and pharmacy techni-

cians). Field experts then validated these gaps. Concurrently, the group also disseminated an educational requirements survey to accreditation, certification, and licensure organizations to collate current regulatory policies or requirements for acute and chronic pain management and SUD care training.

It is important to note that the five professions selected for this analysis were not meant to imply that there are not very well-qualified experts from other health professions caring for patients with pain and SUDs. These professions were chosen because they represent a large number of prescribers or health care professionals in the current workforce.

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 reflected the five identified 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 identified 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 definition 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 definition of a PPG was based on the cited Accreditation Council for Continuing Medical Education (ACCME) definition, 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 reflected 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 classified 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 definition 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 reflected research or quality improvement studies and were classified 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.

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

Professions by Type	Count	Percent
Physician Total (unspecified, MD and DO)	257	82.9%
Nursing Total	67	21.6%
Nursing (APRN)	41	13.2%
Nursing (unspecified)	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	25	8.1%
Specialty of one of the above	134	43.2%
Profession not specified	13	4.2%

Overall, areas of specialty were indicated by 43% of respondents (see *Table 3*). The majority of articles reflected 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 specified	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-unspecified , community/outpatient , clinic/inpatient , and other. The most common care setting was primary care/outpatient.

TABLE 4 | Practice Environments Represented in Literature Review

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 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 medical record and other. Categories were not mutually exclusive; therefore, one article could include multiple types of data sources.

TABLE 6 | Data Sources Used to Identify or Describe PPGs in the Literature

Data Sources	Count	Percent
Descriptive, self-report	195	62.90%
Medical record	121	39.00%
Other data source used to identify gap	36	11.60%
Data source not described	7	2.30%

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 reflected PPGs associated with prescribing or tapering opioids. Additional types or stages included monitoring, screening/assessment, non-pharmacological treatment, identification/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%
Identification/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 identified 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 reflected (1) health care professionals and patients/families; and (2) the environment where care is delivered.

TABLE 9 | Professional Practice Gap by Category in Literature Review

PPG Gap Categories	Count	Percent
Clinical knowledge; not aware of what the best practice(s) is/are	124	40.30%
Attitudes and biases	93	30.20%
Use of evidence-informed tools and resources	79	25.60%
Other gaps	79	25.60%
Communication with patients/families	40	13.00%
Constraints in practice setting	37	12.00%
Communication with other members of the care team	19	6.20%

A summary of the qualitative data is presented below.

Qualitative

Qualitative data captured from the articles in this review contribute to a deeper understanding of PPGs among the five represented health professions. The Workgroup co-leads extrapolated qualitative data from the articles reviewed and entered those data into the coding matrix under two major categories: (1) PPGs related to health care professionals and patients/families, and (2) PPGs related to the environment where care is delivered. The Workgroup co-leads then, by consensus, grouped the data based on the description of the PPG and organized the data thematically in order to facilitate a logical presentation for the reader. The qualitative data are presented in the two major categories below, and each category contains several themes (see *Table 10*).

Category 1: Professional practice gaps related to health care professionals and patients/families

Health Care Professionals Theme 1: Education and Training

PPGs attributed to the education and training of health care professionals can be further categorized into gaps related to competency, perceived lack of evidence, and lack of access to existing evidence. Gaps related to the competency of health care professionals included descriptions such as: lack confidence and/or training to prescribe opioids and/or to use a multi-modal approach to control pain (Andrilla, Coulthard, and Patterson, 2018; Carey et al., 2018; Choo et al., 2016; Jamison et al., 2016; Jamison et al., 2014; Keller et al., 2012; Lum et al., 2011; Phelan et al., 2009; Regunath et al., 2016; Samuels et al., 2016); problems converting between different opioids (McCalmont et al., 2018); inconsistent medical education related to addiction assessment and ability to identify drug diversion (McCauley et al., 2019); and lack of experience in prescribing opioids (Barry et al., 2010; Khalid et al., 2015; Samuels et al., 2016).

Health Care Professionals Theme 2: Guidelines

Guidelines were another area of PPGs that reflected 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; Mafi et al., 2015; McCalmont et al., 2018; McCann et al., 2018; Mehta et al., 2010; Morse et al., 2011; Starrels et al., 2011). Specifically, 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 office 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. Specifically, there were differences in prescribing practices between patients who had acute versus chronic pain (Larochelle et al., 2015), and between patients who had unclassified pain versus a known pain source (e.g., fibromyalgia 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).

Patients and Families Theme 1: Patient Demographics

There were significant differences in prescribing practices that reflected patient demographic variables, including age (Grasso et al., 2017; Monitto et al., 2017; Okunseri et al., 2015; Reid et al., 2010; Shah, Hayes, and Martin, 2017); gender (Chen et al., 2011; Grasso et al., 2016; Manchikanti et al., 2013; Monitto et al., 2017; Murphy, Phillips, and Rafie, 2016; Oliva et al., 2015; Ringwalt et al., 2014; Romanelli et al., 2017; Shah, Hayes, and Martin, 2017); race (Chen et al., 2011; Grasso et al., 2016; Moskowitz et al., 2011; Okunseri et al., 2015; Rasu and Knell, 2018; Ringwalt et al., 2014; Ringwalt et al., 2015; Romanelli et al., 2017); socioeconomic status (Platts-Mills et al., 2012; Ray et al., 2017); geographic location (area of United States; rural vs non-rural) (McDonald, Carlson, and Izrael, 2012; Rasu and Knell, 2018; Shah, Hayes, and Martin, 2017); and payor type (private insurance, public insurance or no insurance) (Okunseri et al., 2015; Rasu and Knell, 2018; Romanelli et al., 2017; Shah, Hayes, and Martin, 2017). There were also differences in prescribing practices between patient populations (e.g. geriatric versus orthopedic; surgery versus medical) and between civilian and active duty military patients (Ganem et al., 2015; Mehta et al., 2010). There were differences in prescribing practices for patients with past medical histories that included chronic pain and/or SUDs as compared to patients who did not have similar past medical histories, and between patients who had comorbidities of mental illness as compared to those who did not (Grasso et al., 2016; Grasso et al., 2017; Nugent et al., 2017; Rasu and Knell, 2018).

Patients and Families Theme 2: Patient-Reported Differences

Patient-reported differences in how their pain was treated were also prevalent in the literature. Patients reported gaps that included undertreatment of their pain (McCauley et al., 2014) and using the emergency department for pain management (McCauley et al., 2014). Patients reported not being provided treatment options for substance dependence (McCauley et al., 2014); general lack of access to therapy services for pain and SUDs (Nugent et al., 2017; Penney et al., 2017); and lack of a structured process for tapering dosages (Penney et al., 2017). Patients reported that physicians spent insufficient time educating them on pain management (McCauley et al., 2014); presenting them with alternative pain management options (Phelan et al., 2009); or discussing the risks of opioid dependence (Phelan et al., 2009). Patients also reported not being included in decision-making processes around their own pain management (Penm et al., 2019).

Category 2: Professional practice gaps related to the environment where care is delivered

Care Environment Theme 1: Challenges for Prescribers due to Organizational Policies

Articles also described challenges in relation to patient or organizational goals. For example, a hospital may implement a strict policy on prescribing opioids. An overly strict policy might conflict with the needs or goals of the prescribing health care provider, depending on the population of patients cared for by the provider. Finally, providers may have concerns that their income and employment would be impacted by low patient satisfaction scores if they did not prescribe opioids requested by patients or if patients' pain was not well controlled (Henry et al., 2018; Penm et al., 2019).

Care Environment Theme 2: Burdens on Health Care Professionals

Insufficient time and resources in the practice setting were commonly cited as contributing to PPGs. Authors described providers struggling with competing tasks (Barry et al., 2010; Behar et al., 2017; Bergman et al., 2013; Harle et al., 2015; Hawkins et al., 2017; Huhn and Dunn, 2017; Kohlbeck et al., 2018; Kraus et al., 2015; McCann et al., 2018); high administrative burden (Kahler et al., 2017; Shugarman et al., 2010); excessive cognitive load (Burgess et al., 2014); and institutional pressure to reduce hospital re-admissions and discharges (Calcaterra et al., 2016) as negatively impacting their ability to manage patients with SUDs or OUDs. Providers also cited fear of litigation, in particular fear of the medico-legal consequences related to opioid diversion and fraud as significant concerns (Andraka-Christou and Capone, 2018; Calcaterra et al., 2016).

System-related constraints that contributed to PPGs were also common. These constraints can be categorized into five overarching areas: insurance coverage, mandatory continuing education, lack of referral resources, lack of institutional guidelines, and issues with data interoperability.

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 specific 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 (Slevin 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 certification 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).

Care Environment Theme 7: Data Interoperability

Data interoperability, or lack of, was identified as a health care system constraint that contributed to PPGs. Articles cited the large volume of clinical notes that were not accessed by providers due to time constraints and questioning the efficacy of electronic health record order sets as challenges related to data use (Kahler et al., 2017; Luk et al., 2016). In addition, lack of integration between prescription drug monitoring programs and the electronic health record, especially across state lines, was identified as being particularly problematic (Perrone, DeRoos, and Nelson, 2012).

Additionally, patient-related constraints in the practice setting was another source that contributed to PPGs.

Care Environment Theme 8: Patients

Constraints in the practice setting that were patient-related included logistics issues (e.g., patient cannot make the medical appointment), and lack of opportunity for a provider-patient relationship in some settings (e.g., the emergency department) (Chambers et al., 2016; McCauley et al., 2014; Nugent et al., 2017).

Table 10 provides a summary of the PPG categories and corresponding themes identified above.

TABLE 10 | Summary of PPG Themes by Category

PPG Category	Themes
PPGs related to health professionals and patients/families	• Education and training • Guidelines • Lack of evidence, tools, or resources • Attitudes and biases • Lack of interprofessional collaboration, interest, and trust • Differences in prescribing practices • Patient demographics • Patient-reported differences
PPGs related to the environment of care delivery	• Challenges due to organizational policies • Burdens on health care professionals • Insurance coverage • Mandatory continuing education • Lack of referral resources • Lack of institutional guidelines • Data interoperability • Patients

Validation Results

Validation surveys were also conducted for three weeks, from mid-September to early October 2020. The objective was to confirm the findings of the literature review and to identify any potential areas that were not captured in the published, peer-reviewed literature. The target audiences included practicing clinicians and organizations with national data on clinical practices and outcomes.

The surveys were distributed through the Collaborative's email lists, using a convenience sampling method. A total of 44 respondents completed the surveys, of which 24 were clinicians and 20 were individuals responding on behalf of their organizations. The surveys included statements about clinical practice that pulled from the quantitative and qualitative data from the literature review. Both clinicians and organizations indicated how reflective the statements were of their experience and findings, respectively. The clinician survey, in particular, asked respondents to indicate if the statements were reflective of their own practice and/or the practices of their colleagues. In addition, the clinician survey included an opportunity to enter professional practice gaps that were missing from the literature review. Respondents from the clinician survey reported PPGs across the following categories: systems (86.00%), treatments and resources (54.00%), attitudes and biases (49.00%), practice variation of undetermined origin (48.40%), and those pertaining to health care professionals (41.60%). These results varied across each category when individual clinicians described statements reflective of their peers. Respondents from the organization survey reported PPGs across the following categories: systems (88.20%), practice variation of undetermined origin (83.50%), health care professionals (70.30%), attitudes and biases (62.90%), and treatment and resources (62.60%). Notably, results from the clinician and organization surveys both described systems as the greatest contributor to PPGs. Additionally, results from the organization survey were higher values across each category of PPGs when compared to the results from the clinician survey.

Given the discrepancy in responses between statements that were reflective of individual clinician practice compared to the practices of colleagues and organizational findings, the survey data may be indicative of response bias. In addition, the small number of respondents and the non-random sampling method are significant limitations of the validation survey results. While the number of respondents to the validation survey was very low, the data are included for transparency and for the opportunity for researchers to consider replicating in the future.

Concurrently with the literature review and validation survey, the Workgroup conducted an analysis of health care professional requirements related to opioid use and SUD across accrediting, certifying, licensing, and regulatory bodies of the five identified health professions. Chapter 4 describes the process and outcomes used to collect, analyze, and aggregate those results.

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 certification) 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 specific 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, specifically targeted the Collaborative's regulatory member organizations in accreditation, certification, and licensure. The identities of survey respondents were anonymized.

A two-stage process was used to create the survey sample. First, members of the Collaborative were asked to complete the survey on behalf of their organization as a convenience sample. Second, members of the Collaborative were asked, using a partial snowball technique, to recommend other related organizations to complete the survey. Briefly, a snowball sampling technique allows one participant to recommend another participant sequentially to help ensure a broader pool (Patton, 1990). Snowball sampling is particularly suited to assessing the landscape of a current state of affairs. A single individual completed the survey on behalf of their organization. The specific health professions sampled included: 1) nursing (including advanced practice nurses); 2) medicine (allopathic and osteopathic physicians); 3) dentistry (including professionals with DDS and DMD degrees, dental assistants, and hygienists; 4) pharmacy (including pharmacists and pharmacy technicians); and 5) physician assistants. If a regulatory organization was responsible for other professions, the organization could list these professions.

Policy Review

In addition to answering the survey questions, survey respondents could provide their policies, standards, or requirements for health care professionals (students, residents, fellows, or practicing health care professionals), learners, and trainees in two domains—acute and chronic pain management and SUDs. This was performed to complement the survey and provide more detail and examples around specific policies that provided additional context to the quantitative survey results. Twenty-two of the respondents provided their policies on treating acute and chronic pain, and 19 provided their policies on treating patients with SUDs. This information provided some additional insights into the nature of the activities and policies of the responding organizations (see *Appendix D*).

Eligibility Criteria

Inclusion in the analysis required that the policy be from a regulatory agency, state licensing board, or accreditor, and be a patient- or provider-related outcome. Policy was defined as a legislative or administrative action, such as a law or regulation that directly targeted opioid use. For example, naloxone access laws are a legislative action in that they intend to affect naloxone access by increasing who has access to prescribe, dispense, and possess naloxone. Prescription drug monitoring programs (PDMPs) are also included because they are often established through a formal governmental or regulatory action.

This analysis is restricted to the policies provided by the survey respondents and does not consider any organizational laws, state policies, or federal laws that were not provided by participants. Human resource policies, insurance policies, editorial pieces, and peer-reviewed studies were excluded from this review.

Data Extraction

Walt and Gilson's policy triangle framework was the basis for this analysis as policy themes were characterized into content, context, actors, and process (Walt and Gilson, 1994). This framework was originally proposed in 1994 and was designed to help the health policy field 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 contextual factors that influenced the policy. This framework can be used retrospectively, which allows researchers to understand the full context of the policy-making process.

To synthesize the findings, 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. Similarly, 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 Identified 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 treatment 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 treatment options for OUDs, non-opioid pain treatment options, supporting medications for opioid use disorder (MOUD) treatment, strategies to decrease opioid prescribing, dosage adjustment strategies, and using more conservative prescribing practices (SAMHSA and Office of the US Surgeon General, 2016; Hah, 2018).
Continuing medical education requirements	State continuing medical education requirements for pain management or controlled 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 influence 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.

Table 12 provides an overview of the types of responding organizations. Respondents could choose more than one category.

NOTE: Please see *Appendix E* for more information on each type of organization.

The "Other" category includes four membership organizations, three testing organizations, and one local governmental organization. Most of the accrediting and certifying bodies worked predominantly at the national level while all licensing bodies were state level.

TABLE 12 | Respondents by Type of Organization

Category	National	State	Other	Total
Accrediting Bodies	18	1	0	19
Certifying Bodies	12	2	0	14
Licensing Bodies	0	23	0	23
Regulatory Bodies	1	21	2	24
Other	6	1	1	8

TABLE 13 | Health Care Professional Type by Jurisdiction

Health Professional Role	National	State	Total
Registered nurse	6	20	26
Advanced practice registered nurse	10	20	30
Allopathic physician	8	2	10
Osteopathic physician	8	2	10
Pharmacist	4	3	7
Pharmacist technician	3	2	5
Physician assistant	5	2	7
Dentist (DDS degree)	4	9	13
Dentist (DMD degree)	4	9	13
Dental hygienist	3	10	13
Dental assistant	1	5	6

Health Professions

Table 13 provides a breakdown of the health professions included by national or state-level jurisdiction.

National organizations were well represented in the survey. For example, all the accreditors involved in physician education responded to the survey. The data from state-level organizations are a subset of all health professions licensing bodies in the United States. Of note is the large proportion of non-physician organizations, representative of the overall U.S. health care system. *Table 13* also stands in contrast to the literature review on practice gaps where the bulk of the studies focused on physicians, highlighting the need to broaden the focus of future studies of clinical practice in pain management and substance use disorder.

Organizational Focus

The focus of the responding organizations spanned the spectrum from the individual practitioner to institutional entity (e.g., university or professional school, health care delivery institution, continuing education provider). Despite the sampling strategy, the survey did capture relevant categories of organizational focus among regulators. *Table 14* provides the breakdown of the organizational focuses among respondents. Respondents could choose more than one focus area.

TABLE 14 | Organizational Focuses

Focus	Number of organizations (%)
Individual provider	45 (73%)
Program (e.g., undergraduate, graduate, post-graduate)	32 (52%)
Organization (e.g., university, school, health system)	12 (19%)
Educational activity	16 (26%)

Requirements

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

1. 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?
2. Does your organization currently have requirements for health care professionals (students, residents, or practicing health care professionals) that address SUDs?

Table 15 provides the overall proportion of organizations with requirements in these two domains who responded to the survey.

TABLE 15 | Requirements by Focus Area

Focus Area	Yes	No or Unsure
Acute and chronic pain management	29 (47%)	33 (53%)
Substance use disorder	19 (31%)	43 (69%)
Organization (e.g., university, school, health system)	12 (19%)	
Educational activity	16 (26%)	

In both domains, the majority of organizations surveyed did not have requirements. The requirements vary depending on the role of the organization in the overall heterogeneous system that includes licensing, certification, and accreditation, and whether the organization is a private entity versus a public regulatory agency. The requirements ranged from including specific questions on examinations, educational activity requirements (e.g., CME credits), and standards around the teaching of the domains and mandating specific amounts of continuing education in both of the domains. Specifically, when requirements existed, certifiers were likely to include questions on examinations, accreditors to specify mandates around the need for curriculum in the domain, and licensing entities to mandate some form of continuing education.

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-affiliated 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 definitive conclusions, a reasonable hypothesis emanating from these findings 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).

The Comprehensive Addiction and Recovery Act of 2016 (Pub L No. 114-198), while not explicitly mentioned by the participants in the survey, addresses professional standards for health care professionals in pain management, the use of electronic databases, and continuing education for medical professionals around pain and chronic pain management.

Table 16 provides an overview of the number of health professions organizations and specific stage of training or practice that have requirements in place for treating acute and chronic pain.

Substance Use Disorder (SUD)

Organizations with requirements for treating SUDs appeared to use common program requirements (e.g., accreditation), rules on prescribing practices, and general guidelines for recognizing and working with people who have SUD. Of those who do have standards around SUD, five organizations target students, four target residents and fellows, seven target practicing health care professionals

regarding continuous professional development and/or education, three target credentialing of practicing providers, and finally, 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 Office of Professional Licensure and Certification 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 difficulties with: depression, anxiety or other mental health issues alcohol, drugs, or other substances of abuse professional burnout or work-related conflict stress related to a bad outcome or malpractice claim marital or family life matters. "

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

TABLE 16 | Organizations' Number of Requirements for Treating Acute and Chronic Pain by Type of Health Professional and Stage of Training

Type of Health Professional	Training Level and Practice				
	Student	Resident	Fellow	Expectations of Practicing Health Care Professionals	
				Participation in CME/CPD	Required for Licensure
Allopathic physician	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

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 final review because it was a policy specifically for providers who possess a SUD. A complete table of policies is included in *Appendix E.*

Table 18 provides a sum of each area of policy provided by survey participants. Policies could touch on multiple areas of SUDS, chronic pain management, and education for providers.

The following sections provide an overall summary of the evidence evaluating each area of policy. As is detailed later in this report, these policies have different outcomes and vary greatly from organization to organization. All the policies provided shared at least one characteristic with another policy in this review and there were significant overlaps in policies that address patient behavior and health. Many of these policies provided are meant to be used in combination with other policies. Professional society guidelines, while generally not legally enforceable, do educate their members on state statutes by working with state medical boards. All the policies provided by those who completed the survey referenced other policies from both the federal and state level. Due to the nature of this analysis, those referenced policies were not included.

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

TABLE 18 | Focus and Type of Policy by Organization Category

Focus of Law	Accrediting	Certifying	Licensing	Regulatory	Number of Policies
Naloxone access laws	1	1	0	1	3
Policies affecting opioid addiction treatment	1	0	3	1	5
Doctor shopping laws	5	0	3	1	9
PDMPs	0	0	8	2	10
Substance use disorders	5	3	2	10	20
Chronic pain management	3	1	8	9	21
Opioid prescribing guidelines	1	0	12	9	22
Drug supply management policies	3	2	14	10	29
Policies addressing patient behavior	12	4	14	6	36
Continuing medical education requirements	11	4	13	10	38
Policies addressing patient health	12	4	14	11	41

Policies Addressing Patient Behavior

Several health care regulatory organizations have implemented risk reduction initiatives aimed at addressing patient behavior. The policies identified by survey respondents on patient behavior varied depending on whether the policies addressed drug use, misuse, dependence, initiation, or health care use. Policies also varied between use of prescription drugs as directed and prescription drug misuse or abuse. Four state licensing entities have statutes that specifically outline how to provide treatment for patients who have OUD related to prescription drugs.

Every state licensing board and regulatory agency that replied to the survey asks providers to consult PDMPs to help determine and monitor patient behavior before prescribing opioid analgesics. All states also have requirements for counseling patients on opioid use before writing a prescription. The State of Louisiana is the only state that responded to the survey that asks clinicians working in emergency departments to consult with PDMPs before prescribing opioid analgesics to admitted patients. All the accrediting bodies who responded to the survey have guidelines around provider education when treating patients with a history of SUD (e.g., opioids and alcohol). The Board of Dental Examiners of Alabama and Commission of Dental Accreditation had further requirements for providers who are actively treating patients who have SUDs or family histories of addiction.

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 operated organizations, such as accreditors. In the current literature, state policy seems to focus on addressing proper prescription of opioids while national accreditors have written policies that address more general patient concerns. For example, while a state's regulatory authority may have a particular interest in reducing addiction and mortality caused by overdose or prescription opioid use, a national accreditor may have an interest in developing policies around reducing addiction and mortality caused by both prescription and illicit opioid use.

Regardless of the organization, there are four similarities in policies that are worth noting:

1. the facilitation and development of community health programs;
2. the encouragement of providers to use combination drugs (e.g., prescribing buprenorphine and naloxone to decrease possible misuse of opioids) for the management of OUD, increasing Medicaid recipient access to non-opioid treatment, reducing negative side effects of prescriptions (including those related to inappropriate opioid/benzodiazepine prescribing), and reducing disparities in utilization;
3. the use of referral programs; and
4. the use of alternative pain management methods for acute and chronic pain management.

Continuing Medical Education Requirements

All but three organizations that responded to the survey had guidelines for provider training in pain management and/or controlled substance prescribing as a condition of obtaining or renewing their medical license or to specialize in pain management. However, CME requirements differ between organizations and their areas of jurisdiction. Accrediting bodies only provided content guidelines for CME. These same accrediting bodies either created their own best practices before the release of the CDC guidelines for opioid prescriptions in 2016, or subsequently responded to the release of the guidelines by incorporating foundational components addressing key decisions encountered during clinical pain management (Dowell, Haegerich, and Chou, 2016).

All state-level licensing bodies have CME 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 CME/CE on topics such as pain management, controlled substance prescribing, or SUDs. However, these requirements represent a small fraction of the total required CME. For example, the Alaska State Board of Nursing has a minimum requirement of 30 hours of continuing education (CE) with only 2 hours in opioids, pain management, and OUD. The state of Florida has a two-hour mandatory training requirement (e.g., online educational module, other continuous professional development) for authorized prescribers in Florida, including physicians (MD and DO), dentists, podiatrists, and optometrists. Physician assistants and APRNs are excluded from this requirement due to the fact they must take a 3-hour mandatory course on safe and effective prescribing of opioids to maintain licensure.

Similar CME requirements apply to providers who are licensed to prescribe or dispense controlled substances, including providers working in Michigan, Utah, and Vermont. There are variations in these requirements as well. For example, Vermont requires Drug Enforcement Administration registered physicians who prescribe controlled substances receive 2 hours of CME training every 2 years on prescribing controlled substances and 1 hour of CME on hospice pain management or palliative care. The Florida and Texas State Boards of Nursing require providers who practice in pain management clinics or with certain populations to obtain CE in pain management or controlled substance prescribing. Finally, all the state licensing and certifying bodies who responded to the survey impose CME requirements based on a provider's licensure type, practice setting, or patient characteristics. Two states (Florida and Oklahoma) have requirements specific to osteopathic physicians. *Appendix C* provides the CME requirements by state for physicians and *Appendix D* provides the requirements for nursing.

Doctor Shopping Laws

Anti-doctor shopping policies among those who responded to the survey were extremely limited in scope and scale. Only two organizations provided policies that mention doctor shopping laws of the nine respondents who mentioned the existence of doctor shopping policies. All mentioned legal provisions that include licensing penalties or criminal sanctions for the following: patients seeking opioids from multiple providers, patients having their prescriptions filled at more than one pharmacy, patient collusion, and non-reporting by patients regarding their doctor shopping. All nine policies included information regarding the use of PDMPs to track patients receiving prescriptions from five or more providers.

Drug Supply Management Policies

All 29 policies provided by those who completed the survey on drug supply management were state statutes that were supported through the Drug Supply Chain Security Act (DSCSA) and Medicaid state

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 fluctuates 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

All three policies submitted from licensing boards around overdose education and naloxone distribution were geared toward primary care providers and pharmacists and all were passed in 2018 or 2019. The naloxone laws submitted include the elimination of legal and financial barriers for patient access to naloxone (i.e., creating wider insurance coverage), Good Samaritan laws, and educational programs for providers to learn about naloxone distribution and overdose treatment. All three policies allowed for the distribution of naloxone by a pharmacist over the counter to a patient without a prescription and all three policies were operating in states that permit over-the-counter sales of syringes.

Opioid Prescribing Guidelines

There was significant variation in the policies evaluated around opioid prescribing guidelines. All policies submitted included treatment guidelines for acute pain management, management of pain in the context of terminal illness or at the end of life, and the management of chronic pain not due to a malignancy. State and professional organizations have issued clinical guidelines for the use of opioids (initiating, monitoring, and dosing) in each of these categories. The issuance of these guidelines is accompanied by patient education, community outreach, and CME to foster implementation.

PDMPs

Seven state licensing boards had requirements for the use of PDMPs. Because states regulate the practice of medicine and the licensure of physicians within their borders, each state had different requirements for practitioners. These programs are all administered by law enforcement agencies in conjunction with the state licensing boards. Prescribers, including nursing assistants, residents, and nurse practitioners all have access to PDMP data for their patients. All seven states are permitted to share their PDMP data with other state PDMPs and with authorized users in other states. All state licensing boards

had weekly reporting requirements for licensed prescribers. Alaska, Delaware, Florida, and Utah have state statutes mandating mental health and substance use professionals to submit patient information to a PDMP database. Only one state—Oklahoma—had real-time PDMP reporting as of April 2017.

Policies Affecting Opioid Addiction Treatment

Due to the limited number and variation in the policies evaluated, systematic evaluation of the similarities and differences in policies around opioid addiction treatment is not possible. All five policies submitted by those who completed the survey referenced the CDC Guidelines for Prescribing Opioids for Chronic Pain, but they seemed to have different interpretations of those guidelines. Delaware, Florida, and Louisiana all had policies and procedures that outlined guidelines for OUD. The State of Alaska referenced the use of Project ECHO (Extension for Community Healthcare Outcomes) to increase provider training and build treatment capacity for SUDs in rural areas and for patients who do not have direct access to traditional treatment programs. The program connects health care providers in rural areas with specialists at a central hub via teleconferencing technology to provide support in patients' care management (UAACHD, n.d.).

CHAPTER 5
DISCUSSION

COLLECTIVE INSIGHTS FROM THE LITERATURE REVIEW

To advance education and training approaches to address the opioid crisis, the Workgroup reviewed 10 years of published, peer-reviewed literature categorizing the nature and magnitude of PPGs and the results of a survey of more than 60 organizations that comprise the regulatory, certifying, and accreditation oversight of the continuum of education and practice for the medicine, nursing, physician assistant, dentistry, and pharmacy professions. The literature review of PPGs elucidated both a quantitative and qualitative understanding of barriers that separate current practices from optimal practices, summarized in *Table 19*. Addressing these specific gaps can help to improve practice and patient, family, and system outcomes.

Health Care Providers

Health care providers as described in the literature review are struggling. They are managing multiple and competing priorities, complicated by high patient volumes and acuity. Many lack access to user-friendly tools and resources at the point of care and struggle to identify and/or implement evidence-based guidelines to support patient-care decisions. They lack sufficient numbers of interprofessional team members to effectively manage patients with OUD and SUDs. They need access to data that can be easily shared and accessed across multiple platforms. They need consistent policies that are uniformly implemented and reinforced. They also need to feel safe when managing patients, and not fear that their jobs are threatened when managing patients' pain. Health care providers also need to develop effective communication strategies with other members of the health care team, and with patients and their families.

TABLE 19 | Professional Practice Gaps Identified from Peer-Reviewed Literature

Individuals	Teams	Institution or Practice Setting
• Challenges related to screening and assessment • Challenges related to identification/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 practices 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 • Difficulty monitoring across practices • 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 patients • Patient-reported undertreatment of pain, insufficient 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 • Lack of team trust of pain patients • Lack of effective communication strategies for health care teams	• Conflicting organizational goals and provider/patient goals • Concern about impact of negative assessments (surveys) from patients of organization • Insufficient resources (time, guidelines, etc.) • Administrative burden in providing non-opioid care and tracking • Presence of insurance and/or reimbursement 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 Electronic Health Records (EHR), PDMP • Lack of access to appropriate care or referral for pain management and SUD at institution, particularly for rural care • Lack of institutional guidelines or standardized practices for opioid prescribing

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).

Treatment and Resources

The literature review found that health care providers struggle more often with treating patients with chronic pain compared to patients with acute pain. They were also more comfortable treating pain with a known origin, such as a broken bone, compared to pain from a difficult-to-identify source. Pain was more often treated in the outpatient setting than the inpatient setting. Health care providers expressed a need for education, tools, and resources to support efficacious prescribing practices, particularly in the areas of tapering doses, converting different types of opioids (e.g., from short-acting to long-acting and vice versa, converting from opioids of different potency), and efficacious use of non-opioid strategies concurrently with or in lieu of opioids.

Practice Variation of Undetermined Origin

Differences in prescribing practices between groups were prevalent in the literature. There were differences in prescribing practices among members of different professions (physician, APRN, PA); between different specialties within a profession (primary care physician versus pain specialist physician); and between levels of experience within a profession (early career versus late career). These differences may reflect experience levels with specific types of pain treatment modalities or how health care professionals are trained and socialized within a profession. There was significant practice variation that reflected patient demographic variables (age, gender, race, socioeconomic status, geographic location, and insurance type) that were not attributed to a specific cause. While some practice varia-

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 identified a number of issues at the system level that negatively impacted the ability of health care providers to effectively treat patients' pain. Insurance reimbursement issues were cited as one significant barrier, including lack of insurance and insurance coverage that did not cover recommended services. Health care providers also identified 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 reflected 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, certification, and licensing addressing 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 certification 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.

TABLE 20 | Summary of Requirements and Policies of Regulatory Agencies, Certifying Boards, and Accrediting Organizations

Type or Stage in Care Process	System	
	Private	Public
Identification / diagnosis	• Low priority given to pain control education for providers • Educational requirements focus on treating pain rather than preventing it • Guidelines are not always based in best practice • Insufficient training requirements and resources for learners • Lack of standardization in professional organizations • Minimal pain education in education requirements and guidance on appropriate pain treatment approaches for practitioners	• Practice restrictions for non-clinicians • Limited number of evidence informed policies • Guidelines can be insufficient to establish a standard of care • Unsatisfactory policies to address pain management • Policies can include stigmatizing language • Lack of "expert" input • Inadequate understanding of clinical practice and practitioner training
Treatment: Prescribing / tapering opioids	• Differences in prescribing policies across regulatory agencies • Insufficient policies to address standardized opioid prescription practices • Educational policies do not include mitigation strategies for prescribing • Lack of institutional guidelines or resources • Internal barriers such as opioid training • Restrictive prescription privileges	• Prescribing policies are often "one size fits all" • Drug manufacturers are increasingly required to develop educational materials and initiatives to train practitioners (Becker and Fiellin, 2012) • Requirements related to buprenorphine waivers • Absence of planning at state level to address adequate prescribers • Overly restrictive policies • Policies contribute to institutional and personal biases

TABLE 20 | Summary of Requirements and Policies of Regulatory Agencies, Certifying Boards, and Accrediting Organizations (continued)

Type or Stage in Care Process	System	
	Private	**Public**
Treatment: Prescribing non-opioid medications	• Lack of educational policy regarding the clinical indication and effective use of non-opioid medications • One-size-fits-all approach • Variability in policies • Failure to recognize options outside of area of regulation	• Practice restrictions, such as regulations that permit nurses to administer injections only intramuscularly • Guidelines shown to have actively harmed patients • Prior authorization serves as a barrier • Policies are often 'fail first'
Treatment: Prescribing non-pharmacological treatment	• Guidelines do not lead to adequate training of providers performing interventional procedures • Restricted pre-clinical and clinical educational opportunities • Policies favor urban health care settings	• Conflicts in policy • Policy is specifically targeted toward opioid usage • Inadequate financial support • Available treatments are not equally promoted • Policies support clinical treatment
Monitoring opioid use	• Difficulty implementing PDMPs into prescriber education and workflow • 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-specific 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 suggestions not explicit law
Referral for care of SUDs	• Small number of specialty groups • Lack of standardization of referral procedures • Insufficient resources available • Strategies are underdeveloped for making outpatient referrals	• Insurance constraints • Inadequate number of specialized providers • Lack of referral programs and resources • Low reimbursement rates • Policies are focused on restricting provider referral

TABLE 20 | Summary of Requirements and Policies of Regulatory Agencies, Certifying Boards, and Accrediting Organizations (continued)

Type or Stage in Care Process	System	
	Private	Public
Other	• Inconsistent medical education requirements to addiction assessment and ability to identify SUDs • Inadequate education for providers regarding safe medication and disposal methods • Policies are viewed as the standard of patient care • CE differs between organizations • Regulatory focus is on a particular stage of education and profession	• Federal and state provided education programs and resources are underutilized or limited • Policy is not always informed by clinical evidence or data • Funding is limited for education and training • Policy can be slow to enact • Cumbersome regulatory requirements • Competing policies • Government supply chain restrictions • Conflicting policy goals • Provider education is not focus of most policies

LIMITATIONS

Limitations to this review include evaluating PPGs solely based on the published, peer-reviewed literature, which could reflect publication biases; studies that relied solely on self-reported data; and data that may reflect response biases, such as a tendency to attribute blame to a system issue rather than to oneself. A further limitation may stem from the retrospective nature of the literature review, amplifying more abundant dated perspectives over more recent studies.

The predominance of studies focused on physicians and nurses in this literature review highlights the limitations of this study to gain greater insight to other professions'—and interprofessional—practice gaps. Focusing only on five identified professions (medicine, nursing, physician assistant, pharmacy, and dentistry), excludes the practice perspectives of several key types of professionals (e.g., psychologists, social workers, and peer coaches) actively engaged in current approaches to addressing pain management and SUDs.

The educational requirements survey and policy review results used a combination of convenience (e.g., those organizations participating in the collaborative) and snowball (e.g. other organizations recommended by the initial participants in the survey) sampling techniques and may not be fully reflec-

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 and snowball sampling. The validation survey should be repeated and expanded to incorporate a larger sample size to improve the representativeness and validity across the survey results.

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 individual, team, and system gaps between current and optimal care for pain management and SUDs. Our study of education-related regulatory requirements also reveals a complex and fragmented environment of governmental and professional self-regulation. Our analyses may add perspective, but these are not novel insights. Particularly as we emerge from a global pandemic, the Quadruple Aim—the right care at the right time at the right cost, supportive of the well-being of the health care workforce—remains elusive for the opioid crisis. This statement does not diminish those widespread and substantial efforts that are successfully addressing aspects of the crisis, including: legislative funding for behavioral health, telemedicine for medications for opioid use disorder (MOUD), eliminating the X-waiver requirements, and ongoing advocacy about coverage/payment for non-opioid management of chronic pain. Rather, the question before health care providers and educators is how the insights of this publication can be used to identify specific, global, and comprehensive strategies that build upon the efforts of others and provide helpful guidance to the community of regulators, educators, and those with lived experience who seek to close the gaps in care that elude us.

The PPGs described throughout this Special Publication highlight underlying educational needs across the spectrum of practice and are situational to setting, clinical practice, and patient population. Although these gaps have been well-articulated in numerous publications (Blevins, Rawat, and Stein, 2018; Muzyk et al., 2019), this publication endeavors to prioritize cross-cutting areas of concern for individuals and interprofessional teams that include addressing bias/attitudes toward treating pain and addiction (i.e., stigma); effective communication, motivational interviewing, and shared decision making with patients and families; and a critical need to address interprofessional collaborative practice for pain management and early detection and treatment of substance misuse and dependency.

Requirements of governmental (licensing) and professional self-regulatory bodies are generally consistent with identified PPGs as found in the literature review described earlier in this Special Publi-

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 define 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 reflective 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 specific requirements regarding training for and competency in pain management and SUDs. This finding is, in part, due to the heterogeneity in the scope and targeting of those requirements to individual professionals (e.g., specialty certifying boards), requirements for undergraduate and graduate training programs, or institutional and practice-based expectations (e.g., post-graduate continuing education accreditors). Irrespective of these differences, educational systems and their stakeholders are exerting significant effort and resources to both prepare students and trainees, and support professionals in practice to respond to the opioid crisis (Brady, McCauley, and Back, 2016). Despite these efforts, the combined complexity of each facet of this "system"—practice, regulation, education—makes optimization a challenging task.

From this analysis, we have identified **five key priorities** as actionable steps to make substantive and lasting progress to address the opioid crisis. Harmonization is a common theme through these priorities: seeking to navigate substantial complexity by identifying unwarranted (or unproductive) variation, finding opportunities to innovate around shared goals, and working methodically to reduce redundancy and burden. A summary of the key priorities and actionable strategies to catalyze change are summarized in *Table 21.*

Each key priority addresses opportunities for leadership for many stakeholders that can affect change; they underscore that solutions will be found through interprofessional collaboration that includes patients with lived experience perspectives. The key priorities are not ranked in order of importance or urgency, for they are overlapping and supportive individually and collectively. Embracing both complexity and humility, they place continuous learning at the individual, team, institution, and system levels at the center of the way forward. The authors of this manuscript believe these key priorities may also provide opportunities to marshal analogous strategies and actions in a broader context to address other complex public health challenges.

KEY PRIORITIES

1. Establish Minimum Core Competencies in Pain Management and Substance Use Disorders for all Health Care Professionals, and Support Tracking of Health Care Professionals' Competence

Interprofessional, cross-continuum core competencies for pain management and SUDs must be developed. To embrace the complexity of the PPGs described in the literature, competencies should

be defined. *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 flexibility reflective of scope-of-practice and setting-specific needs. It is the hope of the Education and Training Workgroup that this action will also reveal critical PPGs across the health education continuum for faculty to address. Minimum competencies are a first step in re-calibrating the U.S. health care workforce toward adaptive interprofessional practice, better preparing practitioners for future complex public health crises, and may, as well, provide insight to those characteristics to seek holistically in future pre-professional admissions.

Continuing education accreditors, regulators, and educational leaders across the continuum should collaborate to enable national tracking of currently practicing health care professionals' achievement of competencies for pain management and SUDs appropriate to profession, scope of practice, and setting. Evolving toward regulatory frameworks that value accountable interprofessional teams and can track competencies will facilitate approaches to assemble effective functional interprofessional teams with greater sensitivity to setting and patient population.

The current timeline between the identification of PPGs and their dissemination in the published literature is long. Educators need a more nimble and immediate system for identifying and sharing gaps that enables them to quickly deploy relevant educational programs to meet community needs.

The authors of this manuscript suggest that national continuing education accreditors maintain a community discussion website where educational providers can convene and share issues they are seeing in their communities. In particular, this would foster connections with community organizations and agencies that can identify more timely population- and setting-specific priority gaps and have them addressed with appropriate curricula and interventions across the continuum.

To advance the work of educators, journal editors should collaborate with educational leaders across the health professions education continuum to foster greater research and scholarship for identifying and disseminating PPGs. Acknowledging the limitations of the search strategies for this literature review (detailed below), the authors of this manuscript are concerned at the paucity of published information regarding practice gaps of other health care professionals beyond medicine and nursing. Accessibility of needs and gaps data could be improved by modifying medical subject headings and taxonomies to make it easier for educators and other stakeholders to more readily explore practice gaps for pain management and SUDs. Furthermore, a framework for evaluating and tracking implementation of competencies is needed. These approaches, taken together, should center on identifying gaps in, and prioritizing care for, those populations and settings most endangered by the opioid crisis and the COVID-19 pandemic (Blanco, 2020; Indian Health Service, n.d.).

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 influenced 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' participation in accredited CE across health professions (e.g., FDA REMS and CME for American Board of Medical Specialties (ABMS) Continuing Certification) (ACCME, n.d.-a; ACCME, n.d.-b; FDA, 2018). The education requirements survey detailed in this publication found some organizations have incorporated standards and guidelines around pain management and SUDs. The accreditation community can play an important role by building on these early efforts to strengthen and sustain interprofessional collaboration.

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-Regulator Collaborative, which was originally led by and composed of representatives from the Federation of State Medical Boards (FSMB), along with the National Association of Boards of Pharmacy, and the National Council of State Boards of Nursing. The Tri-Regulator Collaborative was created in 2011 to promote an interprofessional approach to patient care and regulation between the three organizations.

Building on the model of the Tri-Regulator Collaborative, in November 2020, the National Academy of Medicine and FSMB co-hosted the first summit of the nation's state and territorial licensing boards for medicine, nursing, pharmacy, and dentistry, and expanded the reach to allied professions that represent the state and territorial boards of psychology, physical therapy, occupational therapy, and social work. Many of these licensing boards have taken innovative steps over the last several years through statutes and guidelines for prescribers to address the opioid crisis. Participants detailed their learnings from ongoing initiatives during the summit, including successes and lessons learned, opportunities for improvement, and areas for alignment across organizational efforts. The summit underscored the need for continued collaboration, leading the boards of medicine, nursing, pharmacy, and dentistry to formally join forces and establish the Opioid Regulatory Collaborative (ORC) in 2021. The ORC shares resources and strategies to reduce opioid use disorder and aims to enhance regulatory alignment across professions, to focus ongoing initiatives and ultimately curb the addiction crisis. These types of models provide a structure for catalyzing interprofessional collaboration and harmonization efforts.

Overall, there is a need to establish requirements where there are none and harmonize existing state licensing policies. This will address fragmentation and encourage the development and/or adoption of regulation and requirements that are supportive of clinician needs and patient safety. Licensing bodies should seek to address unwarranted variation across the following policy categories, where possible:

- Policies addressing patient behavior
- Policies addressing patient health
- Continuing medical education requirements
- Pain management clinics
- Opioid prescribing guidelines
- Doctor shopping laws
- PDMPs and tracking controlled substances

- 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) *Merit-based Incentive Payment System*—or MIPS—requirements, Substance Abuse and Mental Health Services Administration (SAMHSA) *Medication-Assisted Treatment (MAT) Waiver Training*, FDA *REMS Requirements*) to optimize health professional engagement in clinical improvement while reducing the burden of redundant or overlapping expectations. Example: an internist's completion of a quality improvement project to reduce opioid prescribing in her practice can be recognized to simultaneously meet expectations for her state licensing requirement for opioid REMS CME, MIPS *Improvement Activity* participation, and medical specialty board continuing certification.
- Promoting data interoperability between PDMPs
- Standardizing across boards for education, penalties, and violations
- Establishing standards for expected office-based policies and practices

Certifying bodies across the professions should advance interprofessional practice in pain management and SUDs by supporting programmatic activities in assessment, and where appropriate, curricula. Additionally, appropriate quality measures should be used and/or adapted to reinforce practice standards for interprofessional teams in pain management and SUD care. These standards and assessments should be appropriately targeted for the professional roles overseen by the certification entity, but it is also critical that collaborative dialogue occurs intra- and interprofessionally.

It is time to catalyze a healthy dialogue around scope of practice issues to better address OUD and SUDs. While most certification organizations focus on a particular stage and profession of the educational continuum, there is an opportunity for different professional certifying organizations to collaborate and advance the opportunity to develop appropriately skilled health care professionals in pain management and SUDs. Additionally, as a part of the priority to safeguard the public, their oversight should include providing educational remediation that supports education and training for health care professionals across professions.

BOX 1 | A Call for Learning Leadership

Greater investment and regulatory harmonization will advance the impact of accredited CE. However, learning leadership in health care organizations and health systems is required to promote and sustain transformational change for the opioid crisis. To meet the complexity of training needs, health care leaders must reframe workforce development in terms of an organizational culture of continuous learning and improvement. To facilitate this evolution, the role of an institutional or system-based **Chief Learning Officer (CLO)** needs to adapt.

In 2013, the Institute of Medicine (now the National Academy of Medicine) introduced the imperative for the creation of a learning health system (Smith et al., 2013).The data explored in this manuscript point to a series of team- and system-based gaps, listed below, that impair organizational management of SUDs and pain management; the underlying causes for many of these gaps are addressed as core tenets of a learning health system.

- Mobilizing computable biomedical knowledge (Richesson et al., 2020);
- Data interoperability, such as Fast Healthcare Interoperability Resources (FHIR) framework (Health Level Seven International, 2019);
- Evidence-based clinical decision support; and
- Cycles of continuous improvement at macro-, meso-, and micro-levels of systems of care.

Resourcing learning—literally, creating time and space for employees to engage in team-based improvement—is an essential part of building a learning health system. Its absence is apparent in the data explored in this manuscript. Professional silos do not allow for the interprofessional teaming that is necessary to address the complex and adaptive needs of patients and their families. Without a leader-led learning culture, psychological safety and stigma are impediments not only for patients, but also for health care professionals who struggle to navigate clinical decision making for which they are inadequately trained or supported.

The facilitating conditions for a learning health system have been well-described (Whicher, 2017). Learning leaders should recognize the opportunity to integrate accredited CE into a broader system-based workforce perspective that draws upon teaming and implementation science while removing silos between clinicians and non-clinician health professionals. To advance this goal, the authors of this manuscript believe the following priorities are urgently needed.

- Health care C-Suite executives, CE leaders, improvement professionals, and health care data informaticians should collaborate to develop a business case for learning health system transformation that includes interprofessional CE as an integral part of a learning culture.
- Faculty development across health professions should foster interprofessional collaboration, expertise in improvement science, and intra-/inter-organizational learning.
- Communities-of-practice for health care learning leaders and stakeholders must be developed and sustained to promote real-time exchange and collaborative learning.
- Quality metrics should be tied to continuous learning and improvement.
- Public and private entities should provide funding to foster innovation and translation/dissemination of effective learning leadership approaches.

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 Accreditation for Interprofessional Continuing Education—oversee a large and diverse community of more than 4,000 health care organizations, or accredited CE providers, that deliver education predominantly as a service or benefit to their members or health professional staff. These providers—which include health systems and hospitals; medical education companies; medical schools, universities, and academic health centers; professional organizations and societies; and state and local health departments—routinely interface with physicians, nurses, physician assistants, pharmacists, and dentists across all 50 states. For this national network of education providers, those accredited organizations that operate in regional and/or local settings are uniquely positioned to address the specific practice-based needs of their health professional learners due to their proximity to the care setting and population. However, their capacity to assist in closing professional practice gaps is severely limited by a lack of resources and investment. Most professionals have very limited or no allowance and paid time for CE in this competency. Federal and/or state investment in this area in forms of grant or tax deduction is essential because the cost to society of not investing in CE is much higher than the necessary investment in this critical endeavor.

Importantly, mandatory continuing education requirements from regulatory bodies have the unintended consequence of reducing motivation and limiting effective practice change (NASEM, 2018). Mandates that limit educational flexibility and the local needs of communities are counterproductive. Instead, by adhering to accreditation requirements that are grounded in improvement science and adult learning best practices, CE providers can flexibly design the activities and the relevant assessment to individualize education that effectively creates and sustains behavior change (ACCME, 2021). To better address the complex and varied gaps in pain and substance use practice, regulators and certifying bodies should transition requirements away from knowledge acquisition and focus, instead, on setting expectations that health professions learners demonstrate changes in competence and performance as a result of their engagement with accredited CE. Accredited CE providers should be given the latitude and resources to apply innovative and creative approaches that facilitate application to practice setting, interprofessional learning and collaboration, and needed engagement of persons with lived experience in the development and delivery of CE activities.

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 financial 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 findings 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).

5. Collaborate to Harmonize Practice Improvement Initiatives

In response to the immense challenges to care delivery during COVID-19, federal agencies and regulators have moved quickly to adopt innovative approaches to help address patients' needs. Exemplars include the SAMHSA, the DEA, and HHS piloting eHealth and telehealth interventions for MOUD and SUD care (Samuels et al., 2020; Brandt, 2020).- State licensing authorities have also responded by reducing or temporarily waiving licensure requirements and facilitating telehealth approaches (FSMB, n.d.-a).

To address the opioid crisis, these regulatory bodies have implemented numerous practice improvement initiatives for health care professionals in a range of practice settings—from small offices to large, integrated health systems. Historically, the CMS has funded initiatives such as the Hospital Improvement and Innovation Network—a "learning collaborative" of CMS-contracted health care organizations working to reduce patient harm for several priority areas, including harm reduction related to opioid overprescribing. Contract Quality Improvement Networks and Quality Improvement Organizations receive funding from CMS to provide technical assistance through regional hubs. Similarly, SAMHSA supports a regional network of Addiction Technology Transfer Centers that provide education

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 over-prescribing through monitoring of prescription claims data to consulting to practices seeking to become accredited and certified Opioid Treatment Programs (CMS, n.d.; SAMHSA, n.d.). These initiatives include statutory requirements that limit broader partnership and flexibility 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 defined 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.
- Developing mechanisms to measure, monitor, and modify the processes and quality of educating the workforce and implementing changes in practice.

CONCLUSIONS

These collective strategies share a common goal: to meet the complex challenges of the treating pain and substance use by optimizing the environment for continuous learning and improvement. System-based engagement is required from all of the different stakeholders whose mission is to support health professional practice and the health of the public. The opioid crisis is our immediate focus for this work, but we recognize that the tenets of these approaches—interprofessional learning, harmonization and alignment, recognizing complex and individualized needs—can and should be applied to other complex and intractable health imperatives.

The authors are grateful for the opportunity to continue a truly interprofessional approach to tackle these issues across the education continuum. With due effort and support, these approaches will amplify effective practices while harmonizing and improving the environment for health care professionals to best serve the needs of their patients and communities.

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

Key Priority	Who	How
1. Establish Minimum Core Competencies for all Health Care Professionals in Pain Management and Substance Use Disorders, and Support Tracking of Health Care Professionals' Competence	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
	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
	CE accreditors	Foster collaboration among CE providers to address population- and setting-specific practice gaps and share effective educational practices, such as through the development of a community discussion website
	Health sciences journal editors	Streamline editorial processes in health care journals to facilitate and accelerate identification 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/territory licensing 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 Learners Where They Are Through Investment and Leadership	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 flexible and innovative methods
	C-Suite leaders, Health care governance	Evolve learning leadership in support of learning health systems
	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, Office 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 CE 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. consensus 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. Identified 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 management palliative medicine analgesics palliative care	pain medicine
	B2.2	analgesics, opioid	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	acute pain	
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 education professional education

A5. Collaboration with patients and families		
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 efficacy patient-relevant outcome patient outcomes procedure outcome rehabilitation outcome treatment effectiveness treatment efficacy

EndNote Groups

EndNote Group	Target	Query	Strategy
Group 1	Competencies	#1	identified health professions AND (acute pain OR chronic pain OR pain management) AND (opioid-related disorders
		#2	identified 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	identified health professions AND (acute pain OR chronic pain OR pain management) AND (opioid-related disorders
		#2	identified 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	identified health professions AND (acute pain OR chronic pain OR pain management) AND (opioid-related disorders
		#2	identified 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	identified health professions AND (acute pain OR chronic pain OR pain management) AND (opioid-related disorders
		#2	identified 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 analgesics or "pain management" or "palliative care" or "palliative medicine" or "pain medicine").kw.
2	exp *pain/ or exp *chronic pain/ or ("acute pain" or "chronic pain").kw.
3	exp *narcotic analgesic agent/ or exp *opiate/ or "opioid analgesics".kw.
4	exp *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").kw.
5	exp *competence/ or exp *clinical competence/ or exp *cultural competence/ or exp *nursing competence/ or exp *professional competence/ or exp *professional practice/ or exp *practice, medical/ or exp *health personnel attitude/ or exp *dental assistant attitude/ or exp *nurse attitude/ or exp *pharmacist attitude/ or exp *physician assistant attitude/ or exp *physician attitude/ or exp *prescription/ or exp *health care quality/ or exp *health care delivery/ or exp *practice gap/ 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").kw.
6	exp *physician/ or exp*medicine/ or (physician or doctor).kw.
7	exp *physician assistant/ or physician assistants.kw.

8	exp *nurse/ or exp *nursing/ or registered nurse.kw.
9	exp *advanced practice nursing/ or exp *nurse practitioner/ or ("advanced practice nursing" or "nurse practitioner" or "advanced practitioner nurse" or "advanced practice registered nurse" or "aprn").kw.
10	exp *pharmacist/ or exp *pharmacy/ or pharmacist.kw.
11	exp *dentist/ or exp *dentistry/ or exp *dental hygienist/ or exp *dental care/ or exp *dental assistant/ or ("dentist" or "dental hygienist" or "dental care" or "dental assistant" or "dental hygienist").kw.
12	1 or 2
13	3 and 12
14	4 and 12
15	13 or 14
16	5 and 15
17	6 and 16
18	limit 17 to (english and yr="2009 -Current" and (article or article in press))
19	7 and 16
20	limit 19 to (english and yr="2009 -Current" and (article or article in press))
21	8 and 16
22	limit 21 to (english and yr="2009 -Current" and (article or article in press))
23	9 and 16
24	limit 23 to (english and yr="2009 -Current" and (article or article in press))
25	10 and 16
26	limit 25 to (english and yr="2009 -Current" and (article or article in press))
27	11 and 16
28	limit 27 to (english and yr="2009 -Current" and (article or article in press))

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	exp *acute pain/ or exp *pain/ or exp *chronic pain/ or ("acute pain" or "chronic pain").kw.
3	exp *analgesics, opioid/ or "opioid analgesics".kw.
4	exp *opioid-related disorders/ 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").kw.
5	exp *clinical competence/ or exp *cultural competency/ or exp *professional competence/ or exp *professional practice/ or exp *practice patterns, physicians'/ or exp *practice patterns, nurses'/ or exp *practice patterns, dentists'/ or exp *attitude of health personnel/ or exp *drug prescriptions/ or exp *quality of health care/ or exp *delivery of health care/ or exp *professional practice gaps/ or ("competence" or "competencies" or "competency" or "clinical competence" or "medical practice" or "nursing competence" or "practice patterns" or "prescribing behavior" or "process assessment" or "professional practice gaps" or "safe prescribing").kw.
6	exp *physicians/ or exp*medicine/ or (physician or doctor).kw.
7	exp *physician assistants/ or physician assistants.kw.
8	exp *nurses/ or exp *nursing/ or registered nurse.kw.
9	exp *advanced practice nursing/ or exp *nurse practitioners/ or ("advanced practice nursing" or "nurse practitioner" or "advanced practitioner nurse" or "advanced practice registered nurse" or "aprn").kw.
10	exp *dentists/ or exp *dentistry/ or exp *dental hygienists/ or exp *dental care/ or exp *dental assistants/ or ("dentist" or "dental hygienist" or "dental care" or "dental assistant" or "dental hygienist").kw.

11	exp *dentists/ or exp *dentistry/ or exp *dental hygienists/ or exp *dental care/ or exp *dental assistants/ or ("dentist" or "dental hygienist" or "dental care" or "dental assistant" or "dental hygienist").kw.
12	1 or 2
13	3 and 12
14	4 and 12
15	13 or 14
16	5 and 15
17	6 and 16
18	limit 17 to (yr="2009 -Current" and english and journal article)
19	7 and 16
20	limit 19 to (yr="2009 -Current" and english and journal article)
21	8 and 16
22	limit 21 to (yr="2009 -Current" and english and journal article)
23	9 and 16
24	limit 23 to (yr="2009 -Current" and english and journal article)
25	10 and 16
26	limit 25 to (yr="2009 -Current" and english and journal article)
27	11 and 16
28	limit 27 to (yr="2009 -Current" and english and journal article)

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 "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 "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 "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 ((("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 "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 "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 "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 "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: 3

((((("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 ("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 ((("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] 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: 28

((((("pharmacists"[mh:noexp] OR "pharmacy"[mh:noexp] OR "pharmacist"[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 "opioid abuse"[ot] OR "opioid addiction"[ot] OR "opioid dependence"[ot])) OR ((("pharmacists"[mh:noexp] OR "pharmacy"[mh:noexp] OR "pharmacist"[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 "chron-

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 "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: 6

((((("dentists"[mh:noexp] OR "dentistry"[mh:noexp] OR "dental hygienists"[mh:noexp] OR "dental care"[mh:noexp] OR "dental assistants"[mh:noexp] OR "dentist"[ot] OR "dental hygienist"[ot] OR "dental care"[ot] OR "dental assistant"[ot] OR "dental hygienist"[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 "opioid abuse"[ot] OR "opioid addiction"[ot] OR "opioid dependence"[ot])) OR ((("dentists"[mh:noexp] OR "dentistry"[mh:noexp] OR "dental hygienists"[mh:noexp] OR "dental care"[mh:noexp] OR "dental assistants"[mh:noexp] OR "dentist"[ot] OR "dental hygienist"[ot] OR "dental care"[ot] OR "dental assistant"[ot] OR "dental hygienist"[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])

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 "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 ("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 "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 ("physician assistants" OR "physician assistant")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (PUBYEAR AFT 2008)

Results before deduplication: 47

(((((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 ("nurses" OR "nursing" OR "registered nurse")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (PUBYEAR AFT 2008)

Results before deduplication: 15

(((((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 ("advanced practice nursing" OR "advanced practice nursing" OR "nurse practitioner" OR "advanced practitioner nurse" OR "advanced practice registered nurse" OR "aprn")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (PUBYEAR AFT 2008)

Results before deduplication: 68

(((((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 ("pharmacists" OR "pharmacy" OR "pharmacist")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (PUBYEAR AFT 2008)

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"** field, and will then enter the **unique number assigned to the article** they are coding in the field 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 was published between 2009-2019?
- Article is research?
- Sample population is in US or US territories?
- Describes performance of practicing clinicians? ("practicing clinicians" includes residents/fellows but does NOT include undergraduate students)
- Describes professional practice gap(s)?
- Article is QI?

Item	Variable	Response Options	Comment
1	Type of research study	1. Quantitative 2. Qualitative 3. Mixed methods	
2	Study size	1. Numeric value	
3	Professions and specialties included in study (all that apply)	1. Physician (unspecified) 1. Specialty if applicable: 2. Medicine – MD 1. Specialty if applicable: 3. Medicine – DO 1. Specialty if applicable: 4. Nursing (unspecified) 1. Specialty if applicable: 5. Nursing – RN 1. Specialty if applicable: 6. Nursing – APRN 1. Specialty if applicable: 7. Pharmacy – Pharmacist 1. Specialty if applicable: 8. Pharmacy – Pharmacy Technician 1. Specialty if applicable: 9. Physician Assistant 1. Specialty if applicable: 10. Dentistry – DDS/DMD 1. Specialty if applicable: 11. Dentistry – Dental Hygienist 1. Specialty if applicable: 12. Dentistry – Dental Assistant 1. Specialty if applicable: 13. Other, such as behavioral health 1. Please describe:	
4	Practice environment (all that apply)	1. Acute care/inpatient 2. Primary care/outpatient 3. Community/outpatient 4. Clinic/inpatient 5. Clinic/outpatient 6. Other (free text) 7. Not described	
5	Content in article describes domain of practice… (all that apply)	1. Acute pain management 2. Chronic pain management 3. Substance use disorders 4. Other (free text)	

6	Data source used to identify gap (all that apply)	1. Descriptive, self-report 2. Medical record 3. Other (free text) 4. Not described	
7	Patient population (all that apply)	1. Adult 2. Pediatric 3. Across the life span 4. Not described	
8	Type or stage in care process	1. Screening/assessment 2. Identification/diagnosis 3. Treatment: Prescribing/Tapering Opioids 4. Treatment: Prescribing Non-Opioids 5. Treatment: Nonpharmacological 6. Monitoring 7. Referral 8. Other (free text)	
9	Describes gaps related to… (all that apply)	1. Clinical knowledge – weren't aware of what the best practice(s) is/are 2. Communication 1. With patients/families 3. Communication 1. With other members of the care team 4. Attitudes and biases 5. Use of evidence-informed tools and resources 6. Constraints in practice setting 1. Describe (free text) 7. Other (free text)	

Definitions (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 specific goal.

2. Identification/diagnosis

Identification: Defining 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**

   On-going measurement over a period of time

7. **Referral**

   Arrangement for services by another care provider or agency.

APPENDIX D
SURVEY

Goal: Analyze current accreditation, certification, 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.

Definitions:

- *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.
- *Certification* refers to the process by which a non-governmental agency or association certifies that an individual licensed to practice a profession has met certain predetermined standards specified 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 certification.
- *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 certification.
- *Licensing* refers to the formal recognition by a regulatory agency or body that a person has passed all the qualifications 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 specific health care profession. Such programs may also lead to eligibility for licensure and certification.
- *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 Action Collaborative on Countering the U.S. Opioid Epidemic, 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 findings 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 clarification 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/certification/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/certifies/licenses/regulates and note any specialties that may apply in the given space (check all that apply).

6. Medicine

- MD
- DO

7. Nursing

- Registered Nurse (RN)
- Advanced Practice Registered Nurse

8. Pharmacy

- Pharmacist
- Pharmacist Technician

9. Physician Assistant

- Physician Assistant

10. Dentistry

- DDS
- DMD
- Dental Hygienist
- Dental Assistant

11. Other, such as behavioral health. Please describe.

12. Which element(s) of the education continuum do your organization's expectations or requirements primarily influence or impact (check all that apply)?

- Undergraduate (student)
- Graduate (student)
- Post-graduate (residency/fellowship)
- Practice (practicing health care professionals) – CPD/CE

- 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 Examiners of Alabama	http://www.dentalboard.org/wp-content/uploads/2018/07/Rule-2.23_FINAL.pdf and http://www.alabamaadministrativecode.state.al.us/docs/den/index.html
Utah Division of Professional Licensing	https://le.utah.gov/xcode/Title58/Chapter37/58-37-S6.5.html?v=C58-37-S6.5_2018050820180508
North Dakota Board of Dental Examiners	https://www.nddentalboard.org/laws-and-rules/index.asp#register Go to: "Prescribers Please Read - New Laws for using the Prescription Drug Monitoring Program."
American Osteopathic Association	https://osteopathic.org/graduate-medical-educators/postdoctoral-training-standards/
Accreditation Council for Graduate Medical Education	https://www.acgme.org/What-We-Do/Accreditation/Common-Program-Requirements and https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/CPRResidency2019.pdf
Commission on Dental Accreditation	CODA's Accreditation Standards for each discipline are found at https://www.ada.org/en/coda/current-accreditation-standards
National Board of Osteopathic Medical Examiners	https://www.nbome.org/docs/Flipbooks/FOMCD/index.html#p=1 https://www.nbome.org/exams-assessments/comlex-usa/master-blueprint/

American Board of Medical Specialties	The links point to the specialty and subspecialty sites, from where additional links provide more detail regarding requirements and examination content (most relevant is the content covered in the certifying examinations, which will be similar in continuing certification exams - more specificity regarding educational program requirements will be found in the analogous ACGME program requirements and standards): 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/certification/hospice-palliative-medicine.pdf https://www.theabpm.org/become-certified/subspecialties/addiction-medicine/ https://www.abpn.com/become-certified/taking-a-subspecialty-exam/addiction-psychiatry/
National Board of Certification and Recertification for Nurse Anesthetists	For initial certification, you would need to request this information from the Council on Accreditation of Nurse Anesthesia Educational Programs (COA). For sub-specialty certification see: https://www.nbcrna.com/exams/nspm
Florida Board of Nursing	https://floridasnursing.gov/renewals/advanced-practice-registered-nurse/ http://www.floridahealth.gov/programs-and-services/non-opioid-pain-management/_documents/alternatives-facts-8.5x11-eng.pdf
Vermont Office of Professional Regulation/Board of Nursing	Please click on "Notice of Required Continuing Education Regarding Controlled Substances." at this link: https://www.sec.state.vt.us/professional-regulation/list-of-professions/nursing/advanced-practice-aprns.aspx
State of Michigan, Department of Licensing and Regulatory Affairs, Bureau of Professional Licensing	Pain CE: http://www.legislature.mi.gov/(S(ieaasfejb4r3xcs1hmz4on1d))/mileg.aspx?page=getObject&objectName=mcl-333-16204 Opioid Training for licensure and renewal- Pharmacy Controlled Substances Rule 338.3135 https://dtmb.state.mi.us/ARS_Public/AdminCode/AdminCode
Wyoming State Board of Nursing	https://drive.google.com/file/d/1teMJT8lAtlnbV6bItaGBKi28ElKGTEO3/view https://drive.google.com/file/d/1_mmsC2fOSt9WdIEParcVLfCycBZKaJ_e/view

Massachusetts Board of Registration in Dentistry	www.mass.gov/dph/dentalboard (website for the MA Board of Registration in Dentistry)
Alaska State Board of Nursing	https://www.commerce.alaska.gov/web/cbpl/ProfessionalLicensing/BoardofNursing/NursingStatutesandRegulations.aspx
Oklahoma Board of Nursing	59 O.S. Section 567.4a(3)(b) which can be accessed at http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=95854
Texas Board of Nursing	https://www.bon.texas.gov/rr_current/222-8.asp 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 Collegiate Nursing Organization	https://www.aacnnursing.org/Portals/42/CCNE/PDF/CCNE-Entry-to-Practice-Residency-Standards-2015.pdf 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 on Certification of Physician Assistants	https://www.nccpa.net/Code-of-conduct

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.

Alabama	**2 hours every 2 years** Alabama Controlled Substance Certificate holders must complete 2 Category 1 hours every 2 years in the area of controlled substance prescribing practices, recognizing signs of the abuse or misuse of controlled substances, or controlled substance prescribing for chronic pain.	Ala. Admin. Code r. 540+x+14.02
Alabama (Physician Assistant, PA)	**4 hours every 2 years** Licensees who hold a Qualified Alabama Controlled Substances Certificate are required 4 hours of *AMA PRA Category 1 Credit™* in advanced pharmacology and prescribing trends relating to controlled substances every two years.	Ala. Admin. Code r. 540+x+14.02
Alaska	**2 hours every 2 years** Each licensee who holds a Drug Enforcement Administration (DEA) number, must take at least 2 hours (American Medical Association [AMA] Category 1 or American Osteopathic Association [AOA] Category 1 or 2) in pain management and opioid use and addiction.	Alaska Admin. Code tit. 12, § 40.200.
Alaska (PA)	**2 hours every 2 years** Holders of a valid federal DEA registration number are required 2 hours in pain management and opioid misuse and abuse.	Alaska Statute § 8-36-070(a)
Arizona (Medicine/ Osteoapthy, MD/ DO)	**3 hours every 2 years** Health care professionals with a valid DEA registration number must complete 3 hours of opioid-related substance use disorder or addiction-related CME each renewal cycle.	Ariz. Admin. Code R4-22-207

Arizona (PA)	**3 hours every cycle** Effective April 26, 2018, licensees who are authorized to prescribe Schedule II controlled substances and hold a valid DEA number or a licensee who is authorized to dispense controlled substances shall complete a minimum of 3 hours of CE related to opioids, substance abuse/use disorder, or addiction every renewal.	Ariz. Rev .Stat. 32-3248.02
Arkansas (PA)	**1 hours every year; plus one-time requirements** Beginning with 2019 renewals, all licensees are required to complete 1 hour on the prescribing of opioids and benzodiazepines. PAs authorized to prescribe Schedule II medications must complete a one-time requirement of 5 hours in the area of pain management. All licensed prescribers must complete a one-time requirement of 3 hours in prescribing education, including Board Regulations and Laws, record keeping, and maintaining safe, professional boundaries within the first 2 years of licensure.	Ark. Code R. 060.00.001 Reg. No. 17
California (MD/DO)	**12 hours or units, one-time** Physicians (except pathologists and radiologists) must take 12 units on pain-management and the appropriate care and treatment of the terminally ill. OR, physicians may complete 12 credit hours in the subjects of treatment and management of opiate-dependent patients, including 8 hours of training in buprenorphine treatment or other similar medicinal treatment for opioid use disorders. General internists and family physicians who have over 25% of the patient population at least 65 years of age are required to complete at least 20 percent of their mandatory CME in geriatric medicine.	Cal. Code Reg. tit. 16, §1336 Cal. Bus. & Prof. Code § Sec. 2190.5 Cal. Bus. & Prof. Code § Sec. 2190.6 Cal. Bus. & Prof. Code § Sec. 2190.3
California (PA)	**6 hours, one-time** Licensees authorized to prescribe controlled substances have a one-time requirement of 6 hours of controlled substance education that includes 3 hours specific to Schedule II substances. Effective January 1, 2019, controlled substance education must include the risks of addiction associated with the use of Schedule II controlled substances.	16 Cal. Admin. Code §1635

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 Guidelines 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-l0(b)
Connecticut (PA)	**1 hour every 2 years** Maintain certification through the National Commission on Certification of Physician Assistants and complete 1 hour of prescribing controlled substances and pain management every two years.	Conn. Gen. Stat. § 20-l0(b)
Delaware (MD/DO/PA)	**2 hours, every 2 years** Practitioners with prescriptive authority are required to complete 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 first year of registration.	24 Del. Admin. Code Uniform Controlled Substances Act Regulations 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. Official Code § 3--1205.10
Florida (MD/DO)	**2 hours every 2 years** Each person registered with the DEA and authorized to prescribe 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 (PA)	**10 hours every 2 years** PAs registered with the DEA and authorized to prescribe controlled 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 medications.	Fla. Stat. Ann. 456.0301
Georgia	**3 hours** Each licensee with a DEA registration and who prescribes controlled substances must complete 3 hours of Category 1 CME on responsible opioid prescribing.	Ga. Comp. R. & Regs. r. 360-15-.01
Georgia (PA)	**3 hours every 2 years** Licensees who are authorized to issue prescription drugs are required a minimum of 3 hours in practice specific pharmaceuticals (according to prescription order privileges of the supervising physician) every renewal cycle.	Ga. Comp. R. & Regs. r. 360-15-.01
Illinois	**3 hours every 3 years** Beginning in 2020, physicians must complete 3 CME hours on safe opioid prescribing practices. CME taken by physicians as a requirement for licensure in another state, or for purposes of board certification application or renewal, count toward this new requirement.	720 Ill. Controlled Substances Act 570/315.5
Illinois (PA)	**3 hours every 2 years** Licensees who prescribe controlled substances must complete 3 hours of safe opioid prescribing practices every two years. Licensees with Schedule II controlled substances prescriptive authority are required 10 hours of pharmacology every two years.	720 Ill. Controlled Substances Act 570/315.5
Indiana	**2 hours every 2 years** Physicians must complete 2 hours of CME on the topic of opioid prescribing and opioid abuse.	Ind. Code 35-48-3-3.5
Indiana (PA)	**2 hours every 2 years** Effective July 1, 2019, all practitioners registered to dispense controlled substances must have completed 2 hours of continuing education during the previous two years addressing the topics of opioid prescribing and opioid abuse.	Ind. Code 35-48-3-3.5
Iowa	**2 hours, every 5 years** Physicians must complete 2 hours of Category 1 training for chronic pain management.	Iowa Admin. Code r. 653-11.4(1)

Iowa (PA)	**2 hours, every 2 years** Licensees who have prescribed opioids during the previous licensing period are required to complete 2 hours regarding the Centers for Disease Control and Prevention's (CDC's) Guideline for Prescribing Opioids for Chronic Pain every two years.	Iowa Admin. Code r. 653-11.4(272C)
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.	201 Ky. Admin. Regs. 9:310
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 practices of controlled substances, and appropriate treatment 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.	La. Admin. Code tit. 46, pt. XLV, § 435
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 Office 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: effective pain management, the risks of abuse and addiction associated with opioid medications, the identification of patients at risk for substance abuse, counseling patients about the side effects, addictive nature and proper storage and disposal of prescription medications, appropriate prescription quantities with an increased risk of abuse, and opioid antagonists and overdose prevention treatments.	Mass. General Law, Chapter 94C, Section 18
Michigan (MD/DO)	**3 hours every 3 years** Physicians must complete 3 hours of Category 1 CME in the area of pain and symptom management	Mich. Board of Registration in Medicine, Policy 2019-06, "Risk Management CME Credits and Physician Burnout;" Mich. Admin. Code R. 338.2371-.2382
Michigan (PA)	**One-time training** Beginning September 1, 2019, a PA seeking a controlled substance license, or who is licensed to prescribe or dispense controlled substances, must complete a one-time training in opioids and controlled substance awareness prior to being issued a controlled substance license.	Mich. Admin. Code R. 338.2371-.2382

Minnesota (MD/DO/PA)	**2 hours** All health care licensees who have authority to prescribe controlled substances must obtain 2 hours of continuing education credits between Jan. 1, 2020 and Dec. 31, 2022 that include content on best practices in prescribing opioids and controlled substances and non-pharmacological and implantable device alternatives for treatment of pain and ongoing pain.	Minn. Stat. § 214.12
Mississippi	**5 hours** Those with active DEA certificates must complete 5 Category 1 hours on the subject of prescribing medications with an emphasis on controlled substances.	Miss. Code Rules 50 013 001
Mississippi (PA)	**10 hours every 2 years** PAs authorized to prescribe controlled substances must show proof of completing 10 hours related to the prescribing of medications with an emphasis on controlled substances each renewal.	Miss. Code Rules 50 013 001
Nebraska	**3 hours every 2 years** Physicians who prescribe controlled substances must complete at least 3 hours of CME every 2 years regarding prescribing opioids. One half hour of these 3 hours must cover Prescription Drug Monitoring Programs (PDMPs).	Neb. Admin. R. & Regs. Tit. 172, Ch. 88, § 016
Nebraska (PA)	**3 hours every 2 years** Beginning with renewals on or after October 1, 2018, licensees who prescribe controlled substances must complete at least 3 hours on prescribing opiates, which may include, but is not limited to, education regarding prescribing and administering opiates, the risks and indicators regarding development of addiction to opiates, and emergency opiate situations. One half-hour of the 3 hours must cover the PDMP described in sections 71-2454 to 71-2456 of the Nebraska Revised Statutes.	Neb. Admin. R. & Regs. Tit. 172, Ch. 88, § 016
Nevada (MD)	**4 hours every 2 years** Physicians must complete 2 Category 1 hours in medical ethics, pain management, or addiction care, 2 Category 1 hours in misuse and abuse of controlled substances, prescribing opioids, or addiction.	Nev. Rev. Stat. 630.253; Nev. Admin. Code ch. 630, s. 153, 154, 155
Nevada (DO)	**2 hours every odd year renewal** Osteopathic physicians must complete 2 hours in ethics, pain management, or addiction care.	Nev. Rev. Stat. 630.253; Nev. Admin. Code ch. 630, s. 153, 154, 155

Nevada (PA)	**2 hours every odd year renewal** PAs must complete 2 hours in ethics, pain management, and/or addiction care every renewal.	Nev. Rev. Stat. 630.253; Nev. Admin. Code ch. 630, s. 153, 154, 155
New Hampshire	**3 hours every 2 years** Physicians who hold a DEA license number must complete 3 hours of continuing education or pass an online examination, in the area of pain management and addiction disorder or a combination, as a condition for initial licensure and license renewal as part of their 2-year renewal cycle.	N.H. Rev. Stat. § 126-A:97
New Hampshire (PA)	**3 hours each year** Licensees who hold a DEA license number are required to complete 3 hours of continuing education or pass an online examination, in the area of pain management and addiction disorder or a combination, as a condition for initial licensure and license renewal.	N.H. Rev. Stat. § 126-A:97
New Jersey	**1 hour every 2 years** Physicians must complete 1 Category 1 credit hour in topics concerning prescription opioid drugs, including responsible prescribing practices, alternatives to opioids for managing and treating pain, and the risks and signs of opioid abuse, addiction, and diversion.	N.J. Stat. Ann. § 45:9-7.1; N.J. Admin. Code 13:35-6.15.
New Jersey (PA)	1 hour every 2 years Licensees authorized to prescribe controlled substances are required 1 hour in topics related to responsible opioid prescribing, alternatives to opioids for managing and treating pain, and the risks and signs of opioid abuse, addiction, and diversion.	N.J. Stat. Ann. § 45:9-7.1; N.J. Admin. Code 13:35-6.15
New Mexico (MD)	**5 hours every 3 years** New and current physician licensees who hold a federal DEA registration and a New Mexico controlled substances registration must complete 5 CME hours in the pharmacology of controlled substances, addiction and diversion, regulations for prescribing controlled substances, or pain management.	N.M. Code R. § 16.10.14.11
New Mexico (PA)	3 hours every 2 years Licensees who hold a federal DEA registration and a New Mexico controlled substances registration must complete 3 CME hours in the pharmacology of controlled substances, addiction and diversion, regulations for prescribing controlled substances, or pain management.	N.M. Code R. § 16.10.14.11

New Mexico (Osteopathic Physician Assistant, OPA)	6 hours every 3 years Licensees who hold a federal DEA registration and a license to prescribe opioids are required to complete 6 hours of non-cancer pain management education each triennial renewal cycle.	N.M. Code R. § 16. 17.4.11
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 management, palliative care, and addiction every three years.	N.Y. Pub Health Law §3309-A
North Carolina	**3 hours every 3 years** Physicians who prescribe controlled substances must complete at least 3 hours of Category 1 CME designed to address controlled substance prescribing practices and shall include instruction on controlled substance prescribing practices, recognizing signs of the abuse or misuse of controlled substances, and controlled substance prescribing for chronic pain management.	N.C. Admin. Code tit. 21, r. 32R.0101
North Carolina (PA)	**2 hours every 2 years** Licensees authorized to prescribe controlled substances are required 2 hours in controlled substances every renewal.	N.C. Admin. Code tit. 21, r. 32R.0101
Ohio	**20 hours every 2 years** Physician owner/operators of pain management clinics must complete 20 hours of Category 1 CME in pain medicine every 2 years, to include one or more courses addressing the potential for addiction.	Ohio Admin. Code § 4731-29-01
Ohio (PA)	**12 hours every 2 years** PAs authorized to prescribe must complete 12 hours in pharmacology pertaining to medicine/medications from an accredited institution recognized by the state medical board every two years.	Ohio Rev. Code § 4730.49
Oklahoma (MD)	**1 hour every 3 years** Licensees must complete at least 1 hour of education in pain management OR 1 hour of education in opioid use or addiction in each renewal cycle unless the licensee has demonstrated to the satisfaction of the Board that the licensee does not currently hold a valid federal DEA registration number.	Okla. Admin. Code § 435:10-1 5-1
Oklahoma (DO)	**1 hour, every 2 years** Osteopathic physicians must earn 1 hour on prescribing, dispensing, and administering controlled substances.	Okla. Admin. Code § 510:10-3-8

Oklahoma (PA)	**1 hour, every 2 years** PAs must earn 1 hour of Category 1 CME on the topic of substance abuse.	Okla. Admin. Code § 435:10-1 5-1
Oregon	**6 hours one time** Licensees must complete a 1-hour course on pain management 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 licensees holding Lapsed, Limited, Telemedicine, Teleradiology, or Telemonitoring licenses.	Ore. Admin. R § 847-008-0070
Oregon (PA)	**6 hours one time** There is a one-time requirement of 6 hours in pain management and/or treatment of the terminally ill and dying patients. An additional 1 hour must be specific to Oregon provided by the Pain Management Commission of the Department of Human Services.	Ore. Admin. R § 847-008-0075(1)
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 identification 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, identification of addiction, or prescribing practices.	Pa. Code tit. 49, § 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 management, the identification of addiction or the practices of prescribing or dispensing of opioids.	35 Pa. Stat. § 872.3
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 dependence; Tolerance; Substance use disorder; and Alternatives to opioids for pain management.	216-20-20 R.I. Code Regs. §4.4
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 (PA)	**4 hours every 2 years** 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 substance prescribing, including instruction in the Department's treatment guidelines on opioids, benzodiazepine, barbiturates, and carisoprodol and may include topics such as addiction, risk management tolls, and other topics approved by the Board. Providers of intractable pain treatment must have specialized CME in pain management.	Tenn. Comp. R. & Regs. 0880-02-.19; Tenn. Comp. R. & Regs. 0880-02-.14
Tennessee (DO)	**2 hours every 2 years** At least 2 credit hours must be a course(s) designated to address prescribing practices.	Tenn. Comp. R. & Regs. 1050-02-.12
Tennessee (PA)	**2 hours every 2 years** All licensees are required 2 hours of prescribing controlled substances which must include instruction in the Tenn. Chronic Pain Guidelines.	Tenn. Comp. R. & Regs. 0880-02-.19; Tenn. Comp. R. & Regs. 0880-02-.14
Texas	**2 hours every 2 years** Licensees must complete 2 AMA Category 1 or AOA Category 1A hours on medical ethics and/or professional responsibility, including, but not limited to, risk management, domestic abuse, or child abuse. Licensees practicing 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 authorized to prescribe or dispense opioids shall annually attend at least 1 hour covering best practices and topics related to pain management and treatment options.	Tex. Occupations Code § 157.0513(a)
Utah (MD/DO)	**3.5 hours** Controlled substance prescribers must complete at least 3.5 hours of continuing education in 1 or more controlled substance prescribing classes.	Utah Admin. Code r. 156-67-304

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.*	Utah Admin. Code r. 156-68-304
Vermont (MD)	**3 hours every 2 years** Licensees must earn 1 hour on hospice, palliative care, or pain management services. Additionally, each licensee 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.	12-5 Vt. Code R. § 200 26 Vt. Stat. Ann. § 1400 Vt. Rules of the Board of Medical Practice § 22.1.6
Vermont (PA)	**2 hours every 2 years** Beginning with 2018 renewals, all licensees who prescribe controlled substances must show evidence of 2 hours related to the safe and effective prescribing of controlled substances.	Vt. Rules of the Board of Medical Practice § 28.3.3
Virginia	**2 hours every 2 years** Licensees must earn 2 hours in pain management, proper prescribing of controlled substances and the diagnosis and management of addiction.	Va. Code § 54.1-2912.1
Virginia (PA)	**2 hours every 2 years** Effective July 1, 2017, prescribers are required 2 hours in topics related to pain management, responsible prescribing of covered/controlled substances, and diagnosis and management of addiction every renewal.	Va. Code § 54.1-2912.1
Washington (MD/DO/PA)	**1-hour, one-time requirement** Effective January 1, 2019, any physician licensed to prescribe opioids must complete a 1-hour CE requirement regarding best practices in the prescribing of opioids or the opioid prescribing rules of the Washington Administrative Code.	Wa. Admin. Code 246-919-875.

West Virginia (MD/DO/PA/OPA)	**3 hours, every 2 year renewal cycle** Physicians who have prescribed, administered, or dispensed 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 practice prescribing of controlled substances training during each reporting period.	W. Va. Code R. § 24-1-15; W. Va. Code, § 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 complete 3 hours of continuing education related to the responsible prescribing of controlled substance or treatment 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.).

State	CE Requirements for RNs	CE Requirements for LPNs	Special Requirements and Notes	State Governing Agency
Alabama	Twenty-four contact hours every 2 years for RNs. Twelve contact hours allowed through independent study.	Twenty-four contact hours every 2 years for LPNs. Twelve contact hours allowed through independent study.	Four contact hours of Alabama Board- provided CE related to Board functions, the Nurse Practice Act, regulations, professional conduct, and accountability is required for the first license renewal. RN licenses are valid from January 1 of each odd-numbered year and expires December 31 of each even-numbered year.	Alabama Board of Nursing
Alaska	RNs: Two of the following three are required for license renewal: 30 contact hours, OR 30 hours professional nursing activities, OR 320 hours nursing employment.	LPNs: Two of the following three are required for license renewal: 30 contact hours, OR 30 hours professional nursing activities, OR 320 hours nursing employment.		Alaska Board of Nursing Dept. of Commercial and Economical Development Division of Occupational Licensing

Arizona	CE not required.	CE not required.		Arizona State Board of Nursing
Arkansas	RNs: 15 contact hours every two years, or certification or recertification during the renewal period by a national certifying body, or completion of a recognized academic course in nursing or a related field.	LPNs: 15 contact hours every two years, or certification or recertification during the renewal period by a national certifying body, or completion of a recognized academic course in nursing or a related field.		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 renewal.	LPNs must complete 30 contact hours of CE every two years in order to renew their license with an active status		State of California Board of Registered Nursing
Colorado	CE not required.	CE not required.		Colorado Board of Nursing
Connecticut	CE not required.	CE not required.		Connecticut Board of Examiners 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 substance abuse.	Delaware Board of Nursing

District of Columbia	RNs are required 24 contact hours every two years, three of which must be in HIV/AIDS and are required to complete two hours of instruction in cultural competency focusing on patients who identify as LGBTQ.	LPNs must complete 18 hours of CE. Compliance Options: (1) Contact Hour Option: Provide Course Completion Certificates; (2) Academic Option: Provide transcript that indicates completion of an undergraduate or graduate course in nursing or relevant to the practice of nursing; (3) Teaching Option: Provide acceptance letter/email as evidence of having developed or taught a CE course or educational offering approved by the Board or a Board-approved accrediting body; (4) Author or Editor Option: Provide acceptance letter from publishers, as evidence that you are an authored or edited a book, chapter or published peer reviewed periodical.	Three contact hours on HIV/AIDS is required, beginning with the 2016 renewal.	District of Columbia Board of Nursing

Florida	All Florida-licensed RNs are now in a 24-month renewal cycle and must complete 24 hours of appropriate CE during each renewal period. One contact hour is required for each calendar month of the licensure cycle, including two hours on prevention of medical errors. HIV/AIDS is now a one-time, one-hour CE requirement to be completed prior to the first renewal. Domestic Violence CE is now a two-hour requirement every third renewal. There is a new two-hour CE course requirement for Recognizing Impairment in the Workplace that becomes effective August 1, 2017, then every other biennium thereafter. Registered Nursing Group 1 will be the first group required to have the new CE for the renewal period ending April 30, 2018.	All Florida-licensed LPNs are now in a 24-month renewal cycle and must complete 24 hours of appropriate CE during each renewal period. One contact hour is required for each calendar month of the licensure cycle, including two hours on prevention of medical errors. HIV/AIDS is now a one-time, one-hour CE requirement to be completed prior to the first renewal. Domestic Violence CE is now a two-hour requirement every third renewal. For example, if you renew your license on January 31, 2007, you are required to complete the Domestic Violence CE before the January 31, 2011 renewal.	Click here to view AAACEUs courses that were designed specifically for Florida.	Florida Board of Nursing
Georgia	Thirty hours every two years	Thirty hours every two years	See state website for additional renewal options	Georgia Board of Nursing
Hawaii	Beginning July 1, 2017, for every two-year renewal period, RNs must complete one of the following: 30 contact hours of CE, completion of a Board-approved refresher course, completion of a minimum of two semester credits of post-licensure academic education related to nursing practice from an accredited nursing program.	Beginning July 1, 2017, for every two-year renewal period, LPNs must complete one of the following: 30 contact hours of CE, completion of a Board-approved refresher course, completion of a minimum of two semester credits of post-licensure academic education related to nursing practice from an accredited nursing program.	For more options, see the Hawaii Board of Nursing Professional and Vocational Licensing	Hawaii Board of Nursing Professional and Vocational Licensing Division

Idaho	New Continuing Competency Requirements (effective with the 2019 renewal); in order to renew, a licensee shall complete or comply with at least two of any of the learning activities listed below within the two-year renewal period. a. Practice: i. Current nursing specialty certification as defined in Section 402; ii. 100 hours of practice or simulation practice b. Education, CE, E-learning, and In-service: i. 15 contact hours of continuing education; ii. Completion of a minimum 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 website	New Continuing Competency Requirements (effective with the 2018 renewal); in order to renew, a licensee shall complete or comply with at least two (2) of any of the learning activities listed in the RN requirements within the two (2) year renewal period.		Idaho Board of Nursing
Illinois	RNs are required to complete 20 contact hours every two years.	LPNs are required to complete 20 contact hours every two years.		Illinois Department of Professional Regulation
Indiana	CE not required.	CE not required.		Indiana State Board of Nursing Health Professions Bureau

Iowa	RNs and LPNs: For renewal of a three-year license, the requirement is 36 contact hours. For renewal of a license that has been issued for less than three years, the requirement is 24 contact hours. For reactivation from an inactive status, the requirement is 12 contact hours that are not more than 12 months old at the time the credit is submitted for reactivation. For renewal of a license that has been issued for less than three years, the requirement is 24 contact hours or 2.4 CE Units. It is also required that RNs and LPNs who regularly examine, attend, counsel, or treat dependent adults or children in Iowa complete training related to the identification and reporting of child/dependent adult abuse. The licensee is required to complete at least two hours of training every five years.	RNs and LPNs: For renewal of a three-year license, the requirement is 36 contact hours. For renewal of a license that has been issued for less than three years, the requirement is 24 contact hours. For reactivation from an inactive status, the requirement is 12 contact hours that are not more than 12 months old at the time the credit is submitted for reactivation. For renewal of a license that has been issued for less than three years, the requirement is 24 contact hours or 2.4 CE Units. It is also required that RNs and LPNs who regularly examine, attend, counsel, or treat dependent adults or children in Iowa complete training related to the identification and reporting of child/dependent adult abuse. The licensee is required to complete at least two hours of training every five years.	For renewal of a license that has been issued for less than three years, the requirement is 24 contact hours or 2.4 CEUs.	Iowa Board of Nursing
Kansas	RNs are required to complete 30 contact hours every two years. There is no maximum on the number of independent study hours that can be obtained.	LPNs are required to complete 30 contact hours every two years. There is no maximum on the number of independent study hours that can be obtained.		Kansas State Board of Nursing
Maine	CE not required.	CE not required.		Maine State Board of Nursing
Maryland	No CE required, but an approved refresher course is needed.	CE not required.		Maryland Board of Nursing

Massachusetts	RNs are required to complete 15 contact hours every two years.	LPNs are required to complete 15 contact hours every two years.		Massachusetts Board of Registration in Nursing Division of Professional Licensure
Kentucky	RNs must have proof of earning 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 appropriate 10-year period.	LPNs must have proof of earning 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 specifically for Kentucky. Additional Requirements - see State Website	Kentucky Board of Nursing

Louisiana	RNs and LPNs: The annual continuing education requirement are based on employment: five contact hours (full-time nursing practice), 10 contact hours (part-time nursing practice), or 15 contact hours (not employed or worked less than 160 hours).	RNs and LPNs: The annual continuing education requirement are based on employment: five contact hours (full-time nursing practice), 10 contact hours (part-time nursing practice), or 15 contact hours (not employed or worked less than 160 hours).	For RNs with employer-verified nursing practice of 1,600 hours or more for the current year (10 full months at 40 hours per week), a minimum of five contact hours of nursing CEs are required each year to renew. For an RN whose employer- verified nursing practice for the year was 159 hours or less - or - the nurse who was either unemployed or self-employed for the current year, a minimum of 15 contact hours is required. For RNs whose employer-verified nursing practice was between 160 hours to 1,599 hours for the current calendar year, the RN will need a minimum of 10 contact hours to qualify for annual renewal.	Louisiana State Board of Nursing

Michigan	All Michigan licensed nurses must complete 25 hours of Board- approved CE, with at least one hour in pain and symptom management, within the two years immediately preceding the expiration date of their license.	All Michigan LPNs have same requirements as RNs.	Beginning with the 2017 renewal cycle, all licensees must complete a one-time training in identifying victims of human trafficking. This requirement must be completed prior to the 2019 renewal cycle. Require one hour in pain and symptom management	Michigan Department of Community Health Bureau of Health Professions Michigan Board of Nursing
Minnesota	RNs must complete 24 contact hours every two years.	LPNs must complete 12 contact hours every two years.		Minnesota Board of Nursing
Mississippi	CE not required.	CE not required.		Mississippi Board of Nursing
Missouri	CE not required.	CE not required.		Missouri State Board of Nursing
Montana	CE not required.	CE not required.		Montana State Board of Nursing
Nevada	For relicensure, RNs and LPNs must have completed 30 hours of nursing-related continuing education in the previous 24 months and must have completed the state-required bioterrorism course.	For relicensure, RNs and LPNs must have completed 30 hours of nursing-related continuing education in the previous 24 months and must have completed the state-required bioterrorism course.	One-time mandatory Bio-Terrorism course of four hours	Nevada State Board of Nursing

Nebraska	Renewal requirements for RNs and LPNs: Must be 20 contact hours within the last renewal period. Must be related to the practice of nursing. At least 10 of the 20 hours must be formally peer reviewed* and approved CE. Up to four hours may be cardiopulmonary resuscitation or basic life support courses. *Courses approved by another board of nursing are considered "Peer Reviewed." All AAACEUs courses are approved by the California Florida, and Delaware Boards of Nursing. See approvals and accreditations: https://www.aaaceus.com/certifications.asp	Renewal requirements for RNs and LPNs: Must be 20 contact hours within the last renewal period. Must be related to the practice of nursing. At least 10 of the 20 hours must be formally peer reviewed and approved continuing education. Up to 4 hours may be CPR or BLS courses	No more than 4 hours are CPR or BLS classes	Nebraska Department of Health and Human Services Regulation and Licensure Credentialing Division Nursing Support Section
New Hampshire	RNs and LPNs: 30 contact hours in two years immediately preceding license application, including workshops, conferences, lectures or other education offerings designed to enhance nursing knowledge, judgment, and skills. There is no limit to the number of contact hours that can be completed through independent study.	RNs and LPNs: 30 contact hours in two years immediately preceding license application, including workshops, conferences, lectures or other education offerings designed to enhance nursing knowledge, judgment, and skills. There is no limit to the number of contact hours that can be completed through independent study.		New Hampshire Board of Nursing
New Jersey	CE requirements for New Jersey: 30 contact hours every two years for RNs	CE requirements for New Jersey: 30 contact hours every two years for LPNs	Mandatory one-hour tissue organ donation course required	New Jersey Board of Nursing
New Mexico	RNs are required to complete 30 hours of approved CE within the 24 months immediately preceding expiration of license.	LPNs are required to complete 30 hours of approved CE within the 24 months immediately preceding expiration of license.		New Mexico Board of Nursing

New York	RNs are required to complete three contact hours infection control every four years; two contact hours child abuse (one-time requirement for initial license); Programs must be from an approved provider.	LPNs are required to complete three contact hours infection control every four years; Program must be from an approved provider.	Two-hour child abuse course, three-hour infectious control for health care professionals	Division of Professional Licensing Services NY State Education Department Nurse

North Carolina	RNs: For reinstatement or relicensure, a plans for continued competence and completion of one of the following is required. - National certification or re-certification by a national credentialing body recognized by the Board - 30 contact hours of CE - Completion of a Board approved refresher course - Completion of a minimum of two semester hours of post-licensure academic education related to nursing practice - 15 contact hours of CE and completion of a nursing project as principal investigator or co-investigator to include statement of problem, project objectives, methods, date of completion, and summary of findings - 15 contact hours of CE and authoring or co-authoring a nursing 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 five contact hours, including program brochure or course syllabi, objectives, date and location of presentation, and approximate number of attendees - 15 contact hours of continued education and 640 hours of active practice within previous two years	LPNs: For reinstatement or relicensure, a plans for continued competence and completion of one of the following is required. - National certification or re-certification by a national credentialing body recognized by the Board - 30 contact hours of CE - Completion of a Board approved refresher course - Completion of a minimum of two semester hours of post-licensure academic education related to nursing practice - 15 contact hours of CE and completion of a nursing project as principal investigator or co-investigator to include statement of problem, project objectives, methods, date of completion, and summary of findings - 15 contact hours of CE and authoring or co-authoring a nursing 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 five contact hours, including program brochure or course syllabi, objectives, date and location of presentation, and approximate number of attendees - 15 contact hours of continued education and 640 hours of active practice within previous two years		North Carolina Board of Nursing

North Dakota	For RN license renewal, the nurse must meet the continued competence requirements. Included in this requirement is the completion of 12 contact hours of continuing education. All CE required for license renewal may be obtained online.	For LPN license renewal, the nurse must meet the continued competence requirements. Included in this requirement is the completion of 12 contact hours of continuing education. All CE required for license renewal may be obtained online.	See additional competency cycle options on state website	North Dakota Board of Nursing
Ohio	RN relicensure requirement: 24 contact hours every two years. At least one contact hour must be related to Chapters 4723, 1-23 of the Ohio Nurse Practice Code and Rules.	LPN relicensure requirement: 24 contact hours every two years. At least one contact hour must be related to Chapters 4723, 1-23 of the Ohio Nurse Practice Code and Rules.	Click here to view AAACEUs courses that were designed specifically for Ohio. At least one contact hour must be related to Chapters 4723, 1-23 of the Ohio Nurse Practice Code; First time renewals exempt from CE	Ohio Board of Nursing
Oklahoma	Beginning 08/27/2015, RNs and LPNs must complete one of the following options within every two-year renewal period. 1) verify 520 hours of employment a year, or 2) complete 24 hours of CE, or 3) verify current certification in a nursing specialty area, or 4) complete a board approved refresher course, or 5) complete six academic semester credits hours of coursework at the current level of licensure or higher.	Same as RNs		Oklahoma Board of Nursing

Oregon	RNs: One-time requirement for seven hours of pain management-related CE. One hour must be a course provided by the Oregon Pain Management Commission. The remaining six hours can be your choice of pain management topics. Once this requirement is fulfilled, there are no additional CE requirements for renewal.	LPNs: One-time requirement for seven hours of pain management-related CE. One hour must be a course provided by the Oregon Pain Management Commission. The remaining six hours can be your choice of pain management topics. Once this requirement is fulfilled, there are no additional CE requirements for renewal.	Only CE Requirement: Seven hours of Pain Management CE. One of the hours must be a one-hour course provided by the Oregon Pain Management Commission.	Oregon State Board of Nursing
Pennsylvania	Thirty contact hours every two years for RNs. Beginning in 2014 RNs must complete 2 hours of approved child abuse and recognition and report training every renewal (Act 31). See state website for additional information.	Beginning in 2014, LPNs must complete two hours of approved child abuse and recognition and report training every renewal (Act 31). See state website for additional information.	RNs renew either April 30 or October 30, odd and even years	Pennsylvania State Board of Nursing
Rhode Island	RNs are required to complete 10 contact hours every two years. Online courses are acceptable.	LPNs are required to complete 10 contact hours every two years. Online courses are acceptable.		Rhode Island Board of Nurse Registration and Nursing Education Office of Health Professionals Regulation

South Carolina	Demonstration of competency for renewal of an active RN license biennially requires documented evidence of at least one of the following requirements during the licensure period: - Completion of thirty contact hours from a continuing education provider recognized by the Board - Maintenance of certification or re-certification by a national certifying body recognized by the Board - Completion of an academic program of study in nursing or a related field recognized by the Board - Verification of competency and the number of hours practiced as evidenced by employer certification on a form approved by the Board	Demonstration of competency for renewal of an active LPN license biennially requires documented evidence of at least one of the following requirements during the licensure period: - Completion of thirty contact hours from a continuing education provider recognized by the Board - Maintenance of certification or re-certification by a national certifying body recognized by the Board - Completion of an academic program of study in nursing or a related field recognized by the Board - Verification of competency and the number of hours practiced as evidenced by employer certification on a form approved by the Board	See state website for additional renewal options	The State Board of Nursing for South Carolina: South Carolina State Board of Nursing
South Dakota	CE not required.	CE not required.		South Dakota Board of Nursing
Tennessee	CE for relicensure is not mandatory. However, mandatory continuing competency is required. To maintain continued competence, the Board requires the nurse to have practiced in nursing in the last five years and additionally, the Board sets out standards of competence and requirements to maintain competence.	CE for relicensure is not mandatory. However, mandatory continuing competency is required. To maintain continued competence, the Board requires the nurse to have practiced in nursing in the last five years and additionally, the Board sets out standards of competence and requirements to maintain competence.	See state website for competency requirements	Tennessee State Board of Nursing

Texas	RNs are required to complete 20 contact hours every two years. There is also a targeted one-time, two-contact hour CE requirement for any RN practicing in an emergency room setting for Forensic Evidence Collection	LPNs are require to complete 20 contact hours every two years. There is also a targeted one-time, two-contact hour CE requirement for any LPN practicing in an emergency room setting for Forensic Evidence Collection	See state website for specific requirements	Texas Board of Nurse Examiners
Utah	Renewal of an RN license requires one of the following every two years: 30 contact hours, OR 200 practice hours and 15 contact hours, OR 400 practice hours.	Renewal of an LPN license requires one of the following every two years: 30 contact hours, OR 200 practice hours and 15 contact hours, OR 400 practice hours.	See state website for additional renewal options	Utah State Board of Nursing Division of Occupational and Professional Licensing
Vermont	CE not required.	CE not required.		Vermont Board of Nursing

Virginia	To renew an active nursing license, a licensee shall complete at least one of the following learning activities or courses: 1. Current specialty certification by a national certifying organization, as defined in 18VAC90-19-10; 2. Completion of a minimum of three credit hours of post-licensure academic education relevant to nursing practice, offered by a regionally accredited college or university; 3. A Board-approved refresher course in nursing; 4. Completion of nursing-related, evidence-based practice project or research study; 5. Completion of publication as the author or co-author during a renewal cycle; 6. Teaching or developing a nursing-related course resulting in no less than three semester hours of college credit, a 15-week course, or specialty certification; 7. Teaching or developing nursing-related continuing education courses for up to 30 contact hours; 8. Fifteen contact hours of workshops, seminars, conferences, or courses relevant to the practice of nursing and 640 hours of active practice as a nurse; or 9. Thirty contact hours of workshops, seminars, conferences, or courses relevant to the practice of nursing.	Same as RN	See state website for additional renewal options	Virginia Board of Nursing

Washington	RNs and LPNs are required to keep documentation showing at least 531 hours of active practice and 45 clock hours of CE within a three-year cycle. The first cycle starts on your first birthday after initial licensure. You must attest every three years to reflect 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 notified 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 recently updated effective January 2016.	RNs and LPNs are required to keep documentation showing at least 531 hours of active practice and 45 clock hours of CE within a three-year cycle. The first cycle starts on your first birthday after initial licensure. You must attest every three years to reflect 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 notified 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 recently updated effective January 2016.	License renewals will continue to be annual. The Nursing Commission sends a courtesy renewal notice to RNs and LPNs 90 days prior to license expiration. The renewal notice will indicate the continuing competency due date. Notice: You will see the attestation on your renewal notice when your renewal cycle ends. It is your responsibility to inform the Nursing Care Quality Assurance Commission of any change in address, email, and telephone number, whether renewing or not.	Washington State Nursing Care Quality Assurance Commission

West Virginia	Completion of the 12 contact hours of CE required for RN relicensure may be accomplished by: 1. Completing 12 contact hours of CE from an approved CE provider; or 2. Completing six contact hours of CE from an approved CE provider, which may include two contact hours of self-study and one of the following completed during the reporting period: A. National certification initially earned or in effect the entire reporting period; B. Completion of a nursing research project as principal investigator, co-investigator or project director; C. Published a nursing 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 employee undergoing orientation and have 120 hours of one-on-one relationship as a clinical preceptor during the reporting period; F. Evidence of satisfactory evaluation of employment that covers at least six months of the reporting period; or G. Completion of an approved nursing refresher or re-entry course.	LPNs are required to complete 24 contact hours of continuing education and engage in 400 clock hours of LPN practice in each two-year reporting period. Reporting occurs on the even years. There is also a one-time, two-contact hour requirement for end of life care including pain management.	Click here to view AAACEUs courses that were designed specifically for West Virginia. See state website for additional requirements	West Virginia State Board of Examiners for Registered Professional Nurses
Wisconsin	CE not required.	CE not required.		State of Wisconsin Department of Regulation and Licensing

Wyoming	Requirement for RN relicensure: 20 contact hours in the last two years OR Combination of Nursing practice and contact hours OR Minimum 1,600 hours in Nursing practice in the last five years OR Minimum 500 hours in Nursing practice in the last two years OR Passing NCLEX licensing exam within the last five years OR National certification in specialty area in last five years OR Completion of a refresher/orientation program in the last five years	Requirement for LPN relicensure: 20 contact hours in the last two years OR Combination of Nursing practice and contact hours OR Minimum 1,600 hours in Nursing practice in the last five years OR Minimum 500 hours in Nursing practice in the last two years OR Passing NCLEX licensing exam within the last five years OR National certification in specialty area in last give years OR Completion of a refresher/orientation program in the last five years	See state website for additional renewal options	Wyoming State Board of Nursing
Guam	30 hours every two years by September 30th (odd numbered years)	30 hours every two years by September 30th (odd numbered years)		Guam Board of Nurse Examiners

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