Although more than two million Americans have an OUD and tens of millions more suffer from chronic pain, SUD and pain management education and training are often underemphasized in health professional program curricula (SAMHSA, 2021a; Dahlhamer et al., 2018; Fishman et al., 2013). Of the 2021 National Family Medicine Graduate Survey respondents, a mere 24 percent felt prepared to provide buprenorphine treatment to patients with OUD (ABFM, 2021). These data suggest that, despite recent legislative and regulatory action to expand prescribing access to buprenorphine treatment for OUD, more support is needed to improve providers’ willingness to prescribe this evidence-based treatment (Milgram, 2023). Moreover, in a national survey of 240 internal medicine residency programs, less than 12 percent required clinical training in safe opioid prescribing and OUD treatment (Windish et al., 2022).

Inadequate education and training is contributing to persisting practice gaps in pain management and the treatment of OUD and other SUDs across professions and clinical settings (NASEM, 2019a). Addressing the root causes of these practice gaps, unwanted variation across training and practice settings, and systemwide infrastructure needs is necessary to comprehensively improve health professional education and training (Schieber et al. 2019; IOM, 2011). In addition, the COVID-19 pandemic disproportionately harmed Black and Hispanic populations by exacerbating preexisting disparities in the treatment of pain and SUDs, further underscoring the urgent need to address gaps in training and practice (SAMHSA, n.d.). More than ever, health professional educators and trainers need to prioritize health equity by assessing attitudes and biases across the health workforce to address critical gaps in care and better meet the needs of patients with pain and/or SUD.

Current research in the health professional education and training fields suggests that both pre- and post-licensure clinical training programs continue to inadequately address core pain management and SUD competencies (NASEM, 2019b). Barriers to curricula improvement include inconsistent competencies, lack of tools that reliably measure pain, and clinician dissatisfaction with current trainings (NASEM, 2019a). Support for clinician education that emphasizes collaborative, interprofessional, and person-centered care could help address these barriers and known professional practice gaps (PPGs) (NASEM, 2019b). More work is required to implement sustainable education programs into community care settings, evaluate interventions to reduce clinician-based stigma toward patients with SUD, identify unexplored individual and team-based pain management PPGs, and establish evidence-based guidelines for clinician education (Chappell et al., 2021; Haffajee et al., 2018; NSTC, 2018; Gatchel et al., 2014). Understanding and addressing PPGs can improve the efficacy of health education.
Further research centered on PPGs should drive needed changes in academic curricula and assessment and facilitate alignment across health profession training requirements. Critical needs include using and improving evidence-based education interventions to address clinician-based factors such as attitudes and biases; improved understanding of what strategies and interventions are effective in producing change in health professionals’ clinical practice; developing trainings that reflect individual profession scopes of practice; determining appropriate profession-specific competencies for pain management and SUD treatment, including those for telehealth; and investing in an evidence-informed infrastructure (Chappell et al., 2021; HHS, 2019; Hilty et al., 2018; Powell et al., 2015). Research across these areas can facilitate a harmonized, interprofessional health education system.

Priority: Support Ongoing Identification of Professional Practice Gaps

- Explore opportunities to leverage setting-specific care data to support the identification of individual- and team-based practice gaps related to pain management and SUD treatment (CSAT, 2006). Data from performance measures, claims information, and electronic health records (EHRs) can provide valuable insights into practice environments and identify areas for improvement.
- Develop and refine standards for studying and publishing on root causes and methodological best practices related to professional practice gaps in pain and SUD management to promote more effective and evidence-based approaches to care (Chappell et al., 2021).
- Conduct pilot studies to enhance taxonomies in medical research publications, thereby facilitating improved sharing and dissemination of information about professional practice gaps (Chappell et al., 2021).
- Identify professional practice gaps in a variety of local contexts to better understand and address the specific education needs of health professionals across diverse practice settings, including rural, urban, large hospital systems, private practices, and other health care environments (Chappell et al., 2021).
- Conduct research on poorly understood practice variations and determine strategies for effective dissemination and implementation of best practices (Schieber et al., 2019). Potential areas of focus should include differences in prescribing practices between groups (e.g., physicians vs. advance practice clinicians), for different types of pain (e.g., acute vs. chronic), for patients with different demographic characteristics (race and socio-economic standing), and for different geographic areas.
Facilitate the rapid and continuous evolution of health professional education curricula that is reflective of current pain management and SUD treatment practices, including informing profession- and setting-specific competencies (NSTC, 2018).

Explore integration of telehealth competencies into clinician education to better address the needs of all patients, especially those who are historically marginalized and/or geographically isolated (Hilty et al., 2018).

Priority: Foster Educational Research and Scholarship that Advances the Creation, Evaluation, and Dissemination of Effective Educational Tools and Interventions

Foster scholarship and research among educators and educational stakeholders to evaluate the effectiveness of educational practices, tools, and resources and promote dissemination of evidence-informed best practices through publications and learning communities-of-practice (HHS, 2019).

Develop and evaluate educational interventions that address professional practice gaps and assessment approaches that facilitate learning and improvement (Chappell et al., 2021). Potential areas of focus should include implementation and reinforcement of best practice guidelines, as well as critical topic-specific content, such as effective educational interventions for reducing stigma against people with SUD and against medications for OUD (MOUD).

Investigate effective dissemination strategies of evidence-informed tools by clinicians to reinforce best practices, such as the Action Collaborative’s 3Cs Core Competency Framework and Chronic Pain Journey Map, SAMHSA’s Prevention Core Competencies, and the CDC’s Addiction Medicine Checklist (NAM, n.d.; Holmboe et al., 2022; SAMHSA, 2021b; CDC/NCIPC, 2022; Lafrenière et al., 2013).

Measure the uptake of evidence-informed tools and evaluate their impact on practice change (Flodgren et al., 2016).

Evaluate the impact of interprofessional education competency development on patient care (Chappell et al., 2021).

Evaluate interprofessional studies on telehealth education, administration, and use to determine lessons learned and promising implementation practices to better meet the needs of diverse patients (Hilty et al, 2018).
**Priority: Improve Educational Infrastructure and Data Sharing**

- Implement data sharing to facilitate harmonization of competency requirements across educational, certifying, and licensing systems, with the aim of promoting consistency and coherence in the training of health care providers on pain and SUD management (HRSA, 2020).
- Collate and analyze data on the delivery and impact of education related to pain management and SUD for undergraduate, graduate, trainee, and health professional practice (NASEM, 2019b).
- Determine effective models for collaboration between setting-specific health profession educators and other institutional/system change-management stakeholders to foster a learning culture and promote best practices in pain management and SUD care (Holmboe et al., 2022). This may include collaboration with stakeholders in implementation science, talent development/workforce learning, accredited continuing education, quality improvement, and practice improvement to identify successful models of collaboration that can be adapted to specific settings and contexts.
- Monitor and evaluate the effectiveness of core competency trainings and certifications on improving outcomes and quality of care for patients with pain and/or SUD (Chappell et al., 2021). Potential areas of focus should include assessing the engagement and completion rates of trainings and certifications, as well as tracking their impact on the delivery of care, and mapping the NAM’s 3Cs Core Competency Framework onto existing continuing education requirements (Holmboe et al., 2022).

**Priority: Harmonize Policies, Regulations, and Licensing Requirements**

- Assess state-level regulations and licensing requirements related to pain management and SUD care and identify opportunities to harmonize policies and develop evidence-based recommendations to improve regulatory frameworks and reduce barriers to effective pain management and SUD care (Chappell et al., 2021). Potential areas of focus should include variations in state licensing and credentialing requirements for different levels of care across the continuum of addiction treatment (Waller et al., 2021).
- Investigate the impact of licensing requirements on the ability of different care team members to provide and bill for services in pain management and SUD treatment (Isvan et al, 2019).
• Monitor the effectiveness and impact of harmonized, interprofessional regulatory approaches on addressing professional practice gaps and improving care outcomes (curbopioidmisuse.org, n.d.). Potential areas of focus should include developing and implementing multi-state initiatives to pilot education requirement harmonization, examining the impact of harmonized licensing and regulatory policies across professions and treatment programs involved in pain management and SUD care, identifying best practices and effective strategies for promoting collaboration and addressing barriers to harmonization, and assessing the impact of regulatory harmonization on fostering engagement with accredited continuing education, improving patient outcomes, and addressing disparities.

• Evaluate the impact of policy and payment reforms aimed at incentivizing and retaining talent in addiction medicine and behavioral health fields to address workforce shortages and improve diversity (Hoge et al., 2013).
ABOUT THE ACTION COLLABORATIVE

The National Academy of Medicine’s Action Collaborative on Countering the U.S. Opioid Epidemic (the Action Collaborative) is a public-private partnership composed of more than 70 organizations representing federal, state, and local governments; health systems; associations and provider groups; health education and accrediting institutions; pharmacies; payers; industry; nonprofits; and academia. The Action Collaborative is committed to developing, curating, and disseminating multi-sector solutions designed to reduce opioid misuse and improve outcomes for individuals, families, and communities affected by the opioid crisis. Learn more about the Action Collaborative at nam.edu/opioidcollaborative.

ACKNOWLEDGEMENTS

This research agenda, developed on behalf of the Collaborative, benefited greatly from the guidance of the Phase II (2021–2022) Research, Data, and Metrics Needs Working Group, whose members include Carlos Blanco, MD, PhD, National Institute on Drug Abuse; Kelly J. Clark, MD, MBA, Addiction Crisis Solutions; Rebecca Baker, PhD, National Institutes of Health; Richard Bonnie, LLB, University of Virginia; Kathy Chappell, PhD, RN, FNAP, FAAN, American Nurses Credentialing Center; Humayun “Hank” J. Chaudhry, DO, MS, MACP, Federation of State Medical Boards; Jianguo Cheng, MD, PhD, Cleveland Clinic; Lisa Hines, PharmD, Pharmacy Quality Alliance; Christopher M. Jones, PharmD, MPH, U.S. Centers for Disease Control and Prevention; Kevin Larsen, MD, FACP, Optum; Bertha K. Madras, PhD, McLean Hospital and Harvard Medical School; Edward Mariano, MD, MS, Stanford University; Ray Mitchell, MD, MBA, Liaison Committee on Medical Education; Robert “Chuck” Rich, Jr., MD, FAAFP, American Academy of Family Physicians; Friedhelm Sandbrink, MD, U.S. Department of Veterans Affairs; and Steve Singer, PhD, Accreditation Council for Continuing Medical Education.

Please note this is an excerpt from the full research agenda. The research agenda and complete list of references can be found here: www.nam.edu/opioid-collaborative-agenda

Disclaimer: The views expressed in this research agenda are those of the individual authoring experts and not necessarily of the individuals’ organizations, the National Academy of Medicine (NAM), or the National Academies of Sciences, Engineering, and Medicine (the National Academies). This research agenda is intended to help inform and stimulate discussion. It is not a report of the NAM or the National Academies.