Although approximately two million Americans have an OUD [24] and tens of millions more suffer from chronic pain [1], OUD and pain management education and training is often underemphasized in health professional program curricula [3]. Of the 2016 National Family Medicine Graduate Survey respondents, a mere ten percent felt prepared to provide buprenorphine treatment to patients with OUD [28] and, in 2017, only 28.6 percent of family medicine residency programs reported requiring addiction medicine training in their curricula [27]. Such inadequate education and training is contributing to persisting practice gaps in pain management and the treatment of OUD and other substance use disorders (SUDs) across professions and clinical settings [18]. Addressing the root causes of these practice gaps, unwanted variation across training and practice settings [22], and system-wide infrastructure needs [10], is necessary to comprehensively improve the health professional education and training continuum. In addition, the COVID-19 pandemic has disproportionately harmed Black and Hispanic populations through exacerbation of pre-existing disparities in the treatment of pain and SUDs [25], further underscoring the urgent need to address gaps in training and practice. 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 OUD.

Current research in the health professional education and training field suggests that both pre- and post-licensure clinical training programs continue to inadequately address core pain management and OUD competencies [17]. Barriers to curricula improvement include inconsistent competencies, lack of tools that reliably measure pain, and clinician dissatisfaction with current trainings [9]. Support for clinician education that emphasizes collaborative, interprofessional, and patient-centered care could help address these barriers and known professional practice gaps (PPGs) [17]. Despite this promising approach, more work is required to implement sustainable education programs into community care settings [4], evaluate interventions to reduce clinician-based stigma towards patients with OUD [5], identify unexplored individual and team based pain management PPGs, and establish evidence-based guidelines for clinician education [19]. Understanding and addressing PPGs
can improve the efficacy of health education. Further research centered on these gaps 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 [19]; developing training efforts that reflect individual profession scopes of practice; determining appropriate profession-specific competencies for pain management and SUD treatment [29], including those for telehealth [7]; and investing in an evidence-informed infrastructure [29]. Research across these areas can facilitate a harmonized, interprofessional health education system.

RESEARCH, DATA, AND METRICS NEEDS

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 and SUD. Data from performance measures and claims information can provide valuable insights into practice environments [23]
- Develop standards to study and publish root causes and methodological best practices related to PPGs
- Conduct research on practice variation that is not well understood and determine strategies for effective dissemination and implementation of best practices
  - Potential focus areas: differences in prescribing practices between groups (e.g. physicians vs. nurses), for different types of pain (e.g. acute vs. chronic), for patients with different demographic characteristics (race and socio-economic standing (SES)), and for different geographic areas [22]
- Facilitate the rapid and continuous evolution of health professional education curricula that is reflective of current pain management and SUD practices, including informing profession- and setting-specific competencies [19]
- Explore integration of telemedicine competencies into clinician education to help them meet the needs of all patients [7], especially those who are disadvantaged, marginalized, and/or geographically isolated
**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 [29]
- Develop and evaluate educational interventions that address PPGs and assessment approaches that facilitate learning and improvement [19]
  - Potential focus areas: implementation and reinforcement of best practice guidelines, as well as critical topic-specific content, such as effective educational interventions for reducing stigma against people who use drugs and against medications for opioid use disorder
- Investigate the dissemination and uptake of evidence-informed tools by clinicians to reinforce best practices
- Evaluate interprofessional studies on telemedicine education, administration, and use to determine lessons learned and promising implementation practices to better meet the needs of diverse patients [7]

**Priority: Improve Educational Infrastructure and Data Sharing**

- Implement data sharing to facilitate harmonization of requirements around competencies throughout and across educational/certifying/licensing systems [6]
- Collate data on the delivery and impact of education related to pain management and SUD for undergraduate, graduate/trainee, and health professional practice [17]
- Determine effective models for collaboration between setting-specific health profession educators and other institutional/system change-management stakeholders that have successfully fostered a learning culture (e.g. learning health system stakeholders, implementation science, talent development/workforce learning, quality improvement, and practice improvement)
The National Academy of Medicine’s Action Collaborative on Countering the U.S. Opioid Epidemic is a public-private partnership composed of more than 60 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. The Action Collaborative’s work focuses on four key areas: health professional education and training; pain management guidelines and evidence standards; prevention, treatment, and recovery services; and research, data, and metrics needs. Learn more about the Action Collaborative at: nam.edu/Opioid_Collaborative.

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Please note this in 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

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