RESEARCH AGENDA

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

This research agenda, developed on behalf of the Action 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, US 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, US Department of Veterans Affairs; and Steve Singer, PhD, Accreditation Council for Continuing Medical Education.

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.
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Acute pain: Pain that is often sharp, sudden, and caused by something specific. It usually does not last longer than six months and goes away when there is no longer an underlying cause for the pain.

Analgesic: An agent producing diminished sensation to pain without loss of consciousness.

BIPOC: An acronym that stands for Black, Indigenous, and People of Color.

Buprenorphine: A semisynthetic narcotic analgesic that is administered in the form of its hydrochloride, C29H41NO4·HCl, to control moderate to severe pain and treat opioid use disorder.

Chronic pain: Pain that is ongoing and usually lasts longer than six months. This type of pain can continue even after the injury or illness that caused it has healed or gone away.

Clinical Decision Support (CDS): A variety of tools that provide clinicians, staff, patients, or other individuals with knowledge and person-specific information, intelligently filtered or presented at appropriate times, to enhance health and health care, especially decision-making in the clinical workflow.

Medication for opioid use disorder (MOUD): The use of one of three medications (buprenorphine, naltrexone, or methadone), often in combination with psychosocial and/or behavioral therapy, to treat opioid use disorder.

Methadone: A synthetic narcotic drug, C21H27NO, used especially in the form of its hydrochloride for the relief of pain and as a substitute narcotic in the treatment of opioid use disorder.

Naltrexone: A synthetic opiate antagonist, C20H23NO4, administered in the form of its hydrochloride and used to treat opioid use disorder.
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<td><strong>06</strong></td>
<td><strong>opioid use disorder (OUD)</strong> A problematic pattern of opioid use leading to problems or distress, with at least 2 of 11 criteria as outlined by the Diagnostic and Statistical Manual of Mental Disorders occurring within a 12-month period.</td>
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<td><strong>precision medicine</strong> A form of medicine that uses information about a person's own genes or proteins to prevent, diagnose, or treat disease.</td>
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<td><strong>prescription drug monitoring program (PDMP)</strong> An electronic database that tracks controlled substance prescriptions in a state. PDMPs can provide health authorities with timely information about prescribing and patient behaviors that contribute to the opioid epidemic and facilitate a nimble and targeted response.</td>
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<td><strong>professional practice gap (PPG)</strong> The difference between health care processes or outcomes observed in practice, and those potentially achievable on the basis of current professional knowledge.</td>
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<td><strong>screening, brief intervention, and referral to treatment (SBIRT)</strong> An evidence-based approach to delivering early intervention treatment services for persons with substance use disorders, and those at risk of developing a substance use disorder.</td>
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<td><strong>stigma</strong> Stereotypes or negative views attributed to a person or groups of people when their characteristics or behaviors are viewed as different from or inferior to societal norms.</td>
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<td><strong>substance use disorder (SUD)</strong> Occurs when the recurrent use of alcohol and/or drugs causes clinically significant impairment, including health problems, disability, and failure to meet major responsibilities at work, school, or home.</td>
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<td><strong>taper</strong> To diminish gradually.</td>
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<td><strong>telehealth</strong> Health care provided remotely to a patient in a separate location using digital communication technologies, including video conferencing, audio-only phone visits, remote monitoring devices, mobile applications, and various online platforms.</td>
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The opioid crisis has caused severe devastation and loss in the United States over the last two decades, claiming more than 500,000 lives between 1999 and 2020 (CDC, 2022a). In response, the National Academy of Medicine established the Action Collaborative on Countering the U.S. Opioid Epidemic (the Action Collaborative) in 2018, initially bringing together more than 60 interdisciplinary stakeholders from across the public, private, and non-profit sectors to create and disseminate actionable cross-sectoral solutions (NASEM, 2018). Since 2018, the Action Collaborative has leveraged the diverse perspectives, expertise, and resources of its members to accelerate and inform the national response to the opioid epidemic.

In 2021, the Action Collaborative developed a comprehensive research agenda that identified pressing research, data, and metrics needs from across its Phase I–II (Phase I: 2018–2020; Phase II: 2021–2022) priority focus areas, including health professional education and training; pain management guidelines and evidence standards; and prevention, treatment, and recovery services (NAM, 2021). Since its release, the agenda has helped to guide and inform the activities of the Action Collaborative and its member organizations, emphasizing the need to address health disparities and the COVID-19 pandemic’s impact on pain management and opioid use disorder (OUD) care, particularly among Black, Indigenous, and People of Color (BIPOC) communities.

Tragically, the opioid crisis has continued to worsen and evolve amid the COVID-19 pandemic, resulting in an alarming increase in drug overdose fatalities and a deepening of racial and ethnic disparities (Ahmad et al., 2023; CDC, 2022b). Moreover, the nation’s overdose epidemic has continued to expand beyond prescription opioids, encompassing a broad range of substances.
The emergence of potent synthetic opioids such as fentanyl, as well as the resurgence of methamphetamine and cocaine use have made it increasingly challenging to address the catastrophic consequences of substance misuse and addiction (NIDA, 2023). These challenges underscore the need to revisit the current evidence base and identify new, evidence-informed strategies to tackle the multifaceted issues of this crisis. To this end, the Action Collaborative has updated its research agenda to reflect the evolving opioid and polysubstance use crisis with the latest research, data, and insights from its members. The updated agenda builds on the previous version and introduces new research priorities that have emerged from the Action Collaborative’s efforts since 2021.

The first iteration of the research agenda was developed by the Action Collaborative’s Phase II (2021–2022) Research, Data, and Metrics Needs (RDM) working group, in partnership with the Action Collaborative’s other three working groups. Building upon national recommendations and the existing state of the science, the working groups identified critical evidence gaps, research questions, and data and metrics needs that, if unaddressed, will hinder the comprehensive response to the opioid crisis that is required to resolve it. Many of these gaps apply to substance use disorders more broadly; however, where relevant, the working groups have specified gaps that pertain specifically to OUD. The Research, Data, and Metrics Needs working group then validated these research needs and collated them into a comprehensive research agenda, published in April 2021 (NAM, 2021).

To update the agenda, the Action Collaborative conducted a survey of its membership and reviewed its Phase II work products to identify new research, data, and metrics needs.
These needs and gaps were then added to the three priority areas outlined in the original research agenda, and a fourth priority area focusing on telehealth for SUD and chronic pain management was added to reflect the COVID-19 pandemic’s significant impact on health care delivery. The co-leads of each working group then verified the identified gaps to ensure their accuracy and relevance.

This publication, the resulting updated research agenda, should serve as a guide for public, private, and non-profit research institutions and funders in addressing the critical research, data, and metrics needs of the current opioid crisis. It highlights the ongoing devastating impacts of this persistent public health challenge and underscores the urgent need for evidence-informed action. By leveraging this agenda, significant progress can be made to expand the evidence base to more efficiently combat the evolving opioid crisis and overdose epidemic, while also providing improved support to individuals and communities impacted by its devastating effects.
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.

**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 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 at 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).
Effective pain management should continue to be a part of the effort to curb the opioid crisis. Advances in evidence-based multimodal and multidisciplinary treatment options for patients with pain and/or SUD can reduce unnecessary opioid exposure and improve patient quality of life (NSTC, 2018). A lack of aligned, evidence-based, subpopulation-specific pain management guidelines has likely contributed to suboptimal pain care and undesirable patient outcomes (NASEM, 2019a). Thus, a critical component of addressing the opioid epidemic will be increased support for the development and judicious implementation of multimodal and population- and setting-specific pain management guidelines. In addition, inconsistent pain management prescribing practices contribute to present challenges in the prevention, management, and treatment of pain, as well as exacerbate disparities across patient groups (HHS, 2019). The COVID-19 pandemic further exacerbated the existing disparities in access to traditional pain care for BIPOC, underscoring the urgent need to enhance prevention strategies and adopt multimodal care models that are responsive to the unique needs of diverse patient populations (SAMHSA, n.d.).

Current approaches to pain treatment and care fall short of the required evidence-based, population-, and setting-specific standards. Moving forward, concerted research efforts must be directed toward developing new standards of care that are grounded in science and health equity.

Several government agencies and clinician associations have issued clinical pain management guidelines. The 2022 U.S. Centers for Disease Control and Prevention (CDC) Clinical Practice Guideline for Prescribing Opioids for Pain offers guidance to clinicians who treat adults with acute and chronic non-cancer pain (Dowell et al., 2022). Additionally, the U.S. Department of Health and Human Services (HHS) released a pain management report in 2019 that emphasizes the importance of interdisciplinary, person-centered care and the use of multimodal approaches, including pharmaceutical, behavioral, restorative, and complementary therapies in the treatment of pain and OUD (HHS, 2019). While these pain management guidelines are increasingly recognizing the need for individualized care and are tailoring their recommendations to diverse patient populations (NSTC, 2018), gaps in the evidence base persist. Current pain management research priorities include the development of safer opioids and non-opioid analgesics, nonpharmacologic therapy, comprehensive evaluation of pain management care models, and integration of precision medicine into pain management across the spectrum of care (HHS, 2019). Therefore, these current recommendations and guidelines must continue to be updated and improved as the evidence base is strengthened.
Despite the multiple publicly available clinical guidelines and research initiatives, many questions remain unanswered regarding pain management and its intersection with OUD care. Therefore, research on best practices for pain management, including practices for interdisciplinary coordination and strategies to overcome barriers to care, is needed to improve the state of pain care. Once established, support for the implementation and dissemination of evidence-based approaches for multimodal care and appropriate payment models for the provision of this care will be critical. Highlighting and advancing opportunities to strengthen integral aspects of pain management and the translation of pain guidelines into practice can contribute to sustainable improvements across the pain care continuum and ultimately help curb the opioid epidemic.

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RESEARCH, DATA, AND METRICS NEEDS

Priority: Better Understand Access, Quality, and Equity Barriers in Pain Management and its intersection with OUD Care

- Evaluate the impact of opioid prescribing guidelines, laws, and regulations on access and quality of care for individuals with pain and/or OUD, including examining unintended consequences such as barriers to accessing care, increased stigma, and the use of multimodal treatments (Dowell et al., 2022).
- Identify and characterize the influence of systemic racism, implicit bias, and other health care disparities on acute and chronic pain management, including their impact on treatment outcomes and patient experiences (HHS, 2019).
- Evaluate the effectiveness of clinician and health system strategies to promote equitable access to high-quality pain management, with a particular focus on identifying and addressing disparities related to race, ethnicity, age, gender, disability, and socioeconomic status (Dowell et al., 2022). Potential areas of focus should include clinician biases, patient trust, access to specialty care, and person-centered approaches to pain management.
- Investigate current payment barriers and incentives to improve access to and delivery of evidence-based pain management and SUD care across different payer systems, including Medicare, Medicaid, and commercial payers (NSTC, 2018). This investigation should include the role of alternative payment models (e.g., bundled and value-based payments) in incentivizing effective, high-quality pain and SUD care for patients.
- Identify barriers and facilitators to implementing evidence-based opioid prescribing and pain management strategies in special populations (e.g., racial/ethnic groups, older adults, rural communities), including understanding the unique needs and preferences of these populations and tailoring strategies accordingly (Dowell et al., 2022).
• Produce evidence-based clinician and patient education that is accessible, culturally competent, and tailored to address knowledge gaps and reduce stigma related to pain and/or opioid use. This approach should also evaluate the effectiveness of these education interventions on improving pain management outcomes (Dowell et al., 2022).

• Explore the impact of stigma on the decision-making processes of patients with pain and SUD in seeking treatment and develop and evaluate interventions to reduce stigma associated with these treatments (Dowell et al., 2022).

• Assess the impact of practice-level strategies and care coordination approaches on reducing opioid-related harm, improving patient outcomes, and promoting equitable access to high-quality pain management (Dowell et al., 2022).

• Investigate co-prescribing of central nervous system depressants, including which medications increase the chance of opioid overdose (FDA, 2016).

• Determine the long-term effects of opioid use on the development of co-occurring conditions beyond kidney and liver disease, including the impact on mental health, cardiovascular disease, and overall mortality rates (Shipton et al., 2018). This examination should consider how these effects may differ depending on patient demographics and pre-existing health conditions.

• Evaluate the efficacy of screening tools for assessing the risk of opioid misuse and developing OUD, including the use of innovative approaches such as machine learning and predictive analytics in such assessments (Dowell et al., 2022). Potential areas of focus should include establishing the reliability, validity, and utility of existing screening tools; identifying gaps that need to be addressed in the development of new tools; evaluating the impact of using these tools in clinical practice; and evaluating the effectiveness of interventions that are triggered by positive screening results.

• Develop and validate more objective, reliable, and sensitive diagnostic tools to measure and assess pain to improve the diagnosis and treatment of pain (e.g., biomarkers, imaging technologies, and other physiological measures) (Dowell et al., 2022).

• Improve understanding of the effectiveness of multidisciplinary and multimodal models of pain treatment for patients on high-dosage opioids, such as the use of non-pharmacological approaches and telehealth (Dowell et al., 2022).

• Collect data on the comparative effectiveness and risks of partial agonist opioids (e.g., buprenorphine) versus full agonist opioids, and evaluate the impact of these medications on long-term pain outcomes and the risk of developing OUD (Dowell et al., 2022).

• Assess treatment outcomes for specific pain conditions and how the benefits and risks of appropriate therapies vary among subpopulations (Dowell et al., 2022).
Investigate the factors that contribute to the transition from acute to chronic pain, including the role of psychosocial and lifestyle factors, and develop and evaluate effective diagnostic, preventive, and therapeutic approaches for managing chronic pain (Dowell et al., 2022). Potential areas of focus should include the use of interdisciplinary pain management teams, developing and implementing pain education programs for patients and health care providers, and investigating the potential of non-pharmacological approaches for managing chronic pain (e.g., mindfulness-based therapies, acupuncture, and physical therapy).

Better understand and quantify the benefits and risks of opioid tapering, including best practice models for specific patient populations with co-existing conditions (HHS, 2019).

Establish models for opioid tapering considering individual patient factors such as current opioid dose, preexisting SUD and/or behavioral health issues, and the impact on patient outcomes, including pain reduction, function, and quality of life (Rich et al., 2020).

Assess the efficacy of interdisciplinary teams in opioid tapering, including the composition of the team, the most appropriate roles for different health care professionals, and the involvement of family members and loved ones as part of the caregiving team (Rich et al., 2020).

Evaluate the essential components of shared decision-making and tapering agreements, including the identification of best practices for patient education, communication, and follow-up (Mackey et al., 2019).

Develop evidence-based guidelines and protocols for follow-up and monitoring of patients during opioid tapering, including the frequency and mode of communication between patients and health care providers to ensure optimal patient outcomes and safety (Rich et al., 2020). A potential area of focus should include the use of digital health technologies (e.g., mobile apps, remote monitoring devices) to facilitate communication and monitoring during opioid tapering.

Investigate the effectiveness and risks of preoperative opioid tapering in reducing postoperative opioid use and improving pain management and recovery outcomes in surgical patients (Larach et al., 2022). Potential areas of focus should include the optimal timing, duration, and methods for opioid tapering before surgery, as well as the impact of preoperative tapering on patient satisfaction and quality of life after surgery.
**Priority: Evaluate Opioid, Non-Opioid Pharmacological, and Non-Pharmacological Therapies for Management of Acute and Chronic Pain**

- **Investigate the impact of non-pharmacological pain management interventions** (e.g., physical therapy, acupuncture, cognitive behavioral therapy, mindfulness-based interventions) on controlling pain in diverse patient populations, including those with chronic pain, acute pain, and those undergoing surgical procedures (Gatchel et al., 2014).
- **Investigate and compare the efficacy of different non-pharmacologic pain management interventions for specific acute and chronic pain conditions** and explore the optimal selection and delivery of these interventions based on patient characteristics and preferences (HHS, 2019).
- **Identify successful models of multimodal pain management for acute, transitional, and chronic pain that could be scaled outside of integrated delivery systems** (Gatchel et al., 2014).
- **Collect and analyze data on pain and opioid use trajectories after common surgeries**, including interventions in the postoperative period to prevent chronic pain and opioid use (HHS, 2019).
- **Collect and analyze data on access to non-opioid modalities for surgical pain management across diverse patient populations to identify potential disparities and inform strategies for improving equitable access** (Dowell et al., 2022). Potential areas of focus should include factors such as geographic location, race/ethnicity, socio-economic status, insurance status, and other demographic factors that may impact access to non-opioid modalities for pain management.
- **Evaluate the long-term comparative effectiveness and safety of pharmacologic and nonpharmacologic therapies for managing chronic pain**, considering individual differences such as comorbidities and medication histories (Dowell et al., 2022).
- **Better understand the impact of pain management therapies on non-pain outcomes**, such as quality of life, mental health, and functional status (Dowell et al., 2022).
Improving the availability, accessibility, and quality of prevention, treatment, and recovery services for patients with OUD is integral to combating the opioid crisis. Access to these services has been consistently inadequate, which continues to perpetuate the opioid crisis and cause preventable patient morbidity and mortality (Schieber et al., 2019). To strengthen prevention, treatment, and recovery care, the curation and dissemination of best practices and integrated approaches, with guidance for how to implement, scale, and sustain these approaches, is needed. Such efforts should apply a health equity approach, particularly as the COVID-19 pandemic has further exacerbated challenges in accessing high-quality care and has disproportionately impacted BIPOC (SAMHSA, n.d.). Data collection relevant to diverse populations suffering from OUD and SUD must be prioritized to better understand and respond to the needs of these patients.

Current work on OUD prevention primarily focuses on reducing opioid supply and demand. Initiatives include developing health system-wide best practices for opioid prescribing, integration of alternative methods for pain management into standards of care, and efforts to reduce adolescent exposure to opioids (NSTC, 2018). Although there is strong evidence that medications such as methadone, buprenorphine, and extended-release naltrexone should be the central component in the treatment of OUD, many patients are unable to access these therapies and other evidence-based care (NASEM, 2019a). Thus, recent research has investigated strategies to overcome OUD and other related SUD treatment barriers, including institutional policies, interpersonal stigma, and financial constraints, and to develop best practices for treatment to achieve remission and maintain long-term recovery (ASAM, 2020; Madras et al., 2020). Yet, there is still a need for continued research and investment to strengthen and expand the evidence base for SUD prevention and treatment strategies.

Harm reduction and recovery support services also play important roles in the continuum of care for SUD. There is strong evidence demonstrating how harm reduction services such as needle exchanges and naloxone rescue can minimize the negative consequences of substance use and promote the importance of recovery support services in establishing and maintaining long-term recovery. In addition to the existing evidence base, opportunities exist to develop innovative harm reduction and recovery support services in response to the evolving nature of the opioid epidemic. Additionally, these services can be strengthened through increased care coordination and integration with health care delivery, sustainable funding and programs, and stigma reduction efforts (Haffajee et al., 2018). Despite progress,
further research is still needed to assess remaining gaps in accessing quality care as well as identifying critical changes to practice and policy that can address barriers in transitions between levels of care (Waller et al., 2021). Implementation of identified best practices and dissemination of lessons learned can help improve treatment outcomes and quality of life for diverse patient populations.

**RESEARCH, DATA, AND METRICS NEEDS**

**Priority: Collect and Assess Data on Demographics, Social Determinants of Health, Special Populations, and Outcomes**

- Collect granular data on opioid-related deaths to better understand the relationships between opioid overdose and contributing factors (e.g., SUDs, pain treatment, recreational use of all substances, and other demographic and health factors) (HHS, 2019).
- Investigate the impact of socioeconomic factors (e.g., income level, education, and access to health care) on the prevalence of SUD and outcomes related to overdose rescue, including the use of overdose-reversal medications and long-term treatment and recovery success (NSTC, 2018).
- Capture data on the experiences of high-risk populations with SUDs, including BIPOC, rural, tribal, incarcerated, homeless, and pregnant people to gather insights on barriers to obtaining treatment (HHS, 2019). Potential areas of focus should include persisting issues related to accessing treatment and recovery services; disparities and mortality numbers; and social determinants of health (SDOH) such as housing, food, and transportation access (Cantor and Thorpe, 2018).
- Explore effective intervention strategies targeting SDOH that contribute to the development and perpetuation of SUDs and pain-related health disparities, including poverty, housing instability, food insecurity, and limited access to health care services (Thornton et al., 2016).
- Evaluate the impact of health system-based interventions that address SDOH on the prevention and treatment of SUDs and pain management outcomes, including identifying effective approaches to recognizing patients with SDOH needs and tailoring interventions appropriately, as well as evaluating the effectiveness of multidisciplinary care teams in addressing SDOH-related challenges (Gurewich et al., 2020).
- Investigate the impact of payment policies that incentivize health systems and providers to address the impact of SDOH on patient outcomes, as well as the effectiveness of SDOH interventions that are supported by these policies (Crook et al., 2021).
Evaluate the effectiveness of peer-based prevention, treatment, and recovery strategies for adolescents with OUD/SUD, including those involved in the juvenile justice system (Blanco et al., 2020; HHS, 2019; Gatchel et al., 2014). A potential area of focus should include the impact of strategies that involve patient peers and family members on rates of successful recovery and quality of life.

Evaluate the effectiveness and impact of anti-stigma interventions on reducing stigma against people with SUD and/or who are prescribed MOUD and identify strategies to scale and sustain these interventions across different health care settings (Salman et al., 2022).

Develop a standardized framework and methodology for studying the stigma of SUD, including its impact on individuals, families, communities, criminal-legal and child welfare workers, medical personnel, and policy makers. Evaluate interventions aimed at reducing stigma, with a focus on their effectiveness within health care systems (Crook et al., 2021).

Evaluate the impact of structural racism and discrimination on SUD prevention, treatment, and recovery, including understanding how these pressures affect access to care, treatment outcomes, and health disparities (ASAM, 2020).

Establish comprehensive data systems to monitor and take steps to prevent a rise in dangerous recreational drug use, SUD, and overdoses, including the collection and analysis of data on prescribing practices of controlled substances, overdose deaths and emerging drugs of abuse, substance use treatment utilization, and other relevant indicators (Fishbein and Sloboda, 2023). These data systems should be designed to identify at-risk populations and geographic areas and inform targeted prevention and intervention strategies.

**Priority: Better Understand Key Challenges in Care Transitions of Patients with OUD**

Evaluate adherence to and use of care plans when patients with OUD are moving between care settings, including a comprehensive mapping of OUD journeys, with a focus on understanding the barriers to effective care handoffs and the role of family engagement in supporting care transitions (Madras et al., 2020).

Identify, implement, and evaluate strategies to increase patient engagement and motivation to receive and stay committed to OUD treatment, including interventions that improve patient-provider communication, address SDOH, and leverage peer support (Madras et al., 2020).

Gather data to monitor patient journeys, including assessing patient engagement and follow-up throughout the treatment process, evaluating interventions to increase treatment effectiveness, and identifying factors that contribute to treatment failure, particularly among subpopulations at increased risk for OUD and overdose (Madras et al., 2020).
• Identify obstacles that stop hospitals from facilitating streamlined entry into treatment after rescue and best practices to do so, including methods used to successfully move patients into treatment, reasons for failing to move patients into treatment, and data stratified by subpopulations (e.g., age, race, ethnicity) (NSTC, 2018).
• Investigate effective strategies for engaging and supporting individuals who have experienced a non-fatal overdose, including MOUD initiation, transition to recovery programs, and addressing barriers to continued care (Bagley et al., 2019).
• Reexamine and refine best practices for transitioning and treating patients with OUD after incarceration, including evaluating the effectiveness of MOUD, behavioral therapy, and peer support programs in reducing relapse and recidivism rates (Santo et al., 2021).
• Investigate effective strategies for improving care coordination and outcomes for pregnant people and families affected by OUD and other related SUDs, including integration of child welfare and health organizations and postpartum care (Martin et al., 2022).
• Study the impact of standardized care delivery levels and compliance requirements on improving outcomes for patients with OUD and other related SUDs (Waller et al., 2021).

Priority: Evaluate Policies and Initiatives that May Facilitate Greater Access to Prevention, Treatment, and Recovery Care

• Better understand how specific federal-level policies and other relevant policies can improve implementation of, or remove barriers to, effective SUD and pain management care (NSTC, 2018). Potential areas of focus should include the suspension rather than termination of Medicaid eligibility when incarcerated, promotion of interprofessional continuing education through policy incentives and investments, and reimbursement for telehealth or non-pharmacological pain treatment.
• Examine the impact of federal and state-level policies and regulations on the provision of evidence-based treatment for OUD and other related SUDs, specifically MOUD, with a focus on medically unnecessary requirements, payment policies, care team composition, and supervision requirements (Pessar et al., 2021; Saloner and Maclean, 2020).
• Investigate the potential for DEA waivers, SAMHSA standards, and CMS payment models to promote preemptive approaches to addressing OUD and other related SUDs, and reducing the risk of overdose, including exploration of the impact of these approaches on early intervention, timely access to treatment, and harm reduction strategies (NASEM, 2022).
• Investigate and develop effective monitoring and enforcement mechanisms for laws and regulations related to mental health and SUDs, including but not limited to parity laws, Medicaid expansion, and federal and state regulations related to SUD treatment facilities (Waller et al., 2021).
- Evaluate the effectiveness and feasibility of innovative approaches to methadone initiation, such as office-based methadone, to improve access to MOUD (NASEM, 2022).
- Collect comprehensive and long-term data on the effects of increased take-home dosing of methadone, including its impact on treatment adherence, retention, overdose rates, and overall health outcomes of patients receiving this treatment approach (NASEM, 2022).
- Collect and analyze data on the effectiveness of innovative harm reduction approaches, such as supervised consumption and overdose prevention sites, in reducing overdose deaths and improving access to health care and social services for people using illicit drugs (Harocopos et al., 2022).
- Evaluate the effectiveness of different diversion prevention strategies for opioids and other controlled substances, including at-home disposal, drug take-back programs, and prescription drug monitoring programs (PDMPs) (Fan et al., 2019; Puaco-Polanco et al., 2020).
- Evaluate the effectiveness of SUD anti-stigma campaigns among various groups, including health care providers, patients and families, the justice and family welfare system, and the public, and assess the impact of anti-stigma interventions on patient outcomes and access to evidence-based treatment (Haffajee et al., 2018).

**Priority: Improve Standardization, Data Collection, and Evaluation Practices**

- Develop and validate reliable and standardized process and outcomes metrics for evaluating the quality of SUD care across diverse settings and populations, including the incorporation of patient partnership and person-centered, recovery-oriented measures (Waller et al., 2021).
- Develop and implement standardized methods for external evaluation of clinical care for SUD treatment to ensure that all patients receive high-quality, evidence-based care regardless of where they seek treatment (Waller et al., 2021).
- Develop effective strategies and mechanisms for the timely dissemination of research findings to policy makers and stakeholders and evaluate the impact of this dissemination on shaping policy related to SUD prevention, treatment, and recovery (Blanco et al., 2022a).
- Develop innovative methods for collecting and integrating data from non-traditional sources to inform opioid and SUD research, including health care provider systems and health plan claims data. Potential areas of focus should include identifying and addressing data quality issues, ensuring data privacy and security, and establishing partnerships with stakeholders outside the traditional health care system to enable access to and use of these data sources (Blanco et al., 2022b).
- Determine the impact of clinical decision support (CDS) tools on opioid screening and prescribing (Spithoff et al., 2020).
Develop and evaluate strategies to increase the adoption and use of prescription drug monitoring programs (PDMPs), including efforts to streamline access and integrate PDMP data into electronic health records. Evaluate the impact of increased PDMP usage on opioid prescribing practices, patient outcomes, and health care utilization (Larach et al., 2022).

Monitor and evaluate the impact of FDA-approved over-the-counter naloxone on opioid overdose deaths, including factors that may influence its utilization and accessibility, such as cost, stigma, and education (FDA, 2023).

Collect data to assess the capacity and effectiveness of SUD treatment systems at the local level to better target policy and investment needs (Waller et al., 2021). Potential areas of focus should include evaluating existing treatment facilities, workforce availability and training, access to evidence-based treatment, patient outcomes, and other factors that contribute to the overall effectiveness of the SUD treatment system.

**Priority: Identify Barriers and Best Practices Relevant to Treatment and MOUD**

- Evaluate the compliance of federally funded treatment programs with evidence-based best practices and the provision of MOUD, including assessing factors that contribute to variation in program effectiveness and identifying opportunities to improve outcomes for patients with OUD (Madras et al., 2020).
- Evaluate innovative models of treatment delivery that address SDOH and racial and geographic disparities in access to care and assess their effectiveness in improving health outcomes for underserved populations (Madras et al., 2020). Potential areas of focus should include mobile clinics, telehealth, peer-led interventions, and community-based care models.
- Evaluate the effectiveness of various treatment modalities in managing OUD in the context of polysubstance use, including fentanyl, xylazine, and other prescribed and illicit substances (Britch and Walsh, 2022).
- Investigate the reasons for the gap between evidence-based practice and clinical implementation of MOUD, including barriers to optimal prescribing practices and strategies to promote evidence-based prescribing in clinical settings (Volkow, 2018). Potential areas of focus should include stigma and aversion to change by legacy treatment providers, evaluating the role of pharmacies in supporting access to MOUD, and examining programs that might expedite access to MOUD.
- Investigate the systemic and structural barriers faced by opioid treatment programs (OTPs) in providing comprehensive and person-centered care that addresses the medical, counseling, vocational, educational, and other needs of individuals with OUD (Madras et al., 2020).
• Compare the ease of increasing MOUD access under different payment structures, including value-based payment arrangements (Polsky et al., 2021).
• Evaluate the impact of the removal of the X-waiver requirement for clinicians seeking to prescribe buprenorphine for OUD treatment under the MATE Act of 2021, including examining changes in the number of providers prescribing buprenorphine, patient outcomes, quality of care provided, and the reasons for lack of adoption of prescribing by providers (SAMHSA, 2023).
• Develop standardized and modernized data collection methods to improve understanding of methadone treatment, including access and quality of care for methadone patients (NASEM, 2022).
• Investigate the effectiveness of integrative therapies, including traditional, complementary, and alternative treatments in reducing opioid use in SUD treatment and identify best practices for integrating these therapies into multimodal care (NSTC, 2018).
• Develop and test effective interventions to address misinformation and stigma related to SUD care among health care providers, patients and families, criminal-legal and child welfare systems, and the public, including interprofessional education and training, story-sharing and narrative change efforts, peer-led programs, community forums, public awareness campaigns, as well as social media and other communication strategies (McGinty et al., 2018).
The COVID-19 pandemic has highlighted the importance of telehealth and hybrid care models in health care delivery. These models offer many advantages, including improved access to care, increased efficiency, and personalized care experiences for patients. For patients with chronic pain and SUD, including OUD, telehealth and hybrid care models have shown significant potential in bridging treatment gaps, enhancing accessibility, increasing patient engagement and retention, and improving health outcomes (Jones et al., 2022; Aronowitz et al., 2021; Martin et al., 2021; Sugarman et al., 2021; Emerick et al., 2020; Uscher-Pines et al., 2020). Federal agencies and national health care organizations recognize the benefits of telehealth and emphasize the importance of expanding telehealth services for the treatment of chronic pain and SUD (ASAM, 2022; CMS, 2022; NIH, 2022; SAMHSA, 2021c).

However, while telehealth has gained significant support, the evidence base for its effectiveness for treating SUD and chronic pain is still limited, and more research is needed to understand its impact on patient outcomes and health care delivery (Duff et al., 2023a; Duff et al., 2023b; Duff et al., 2022). Building a strong evidence base for telehealth services is critical for developing appropriate regulatory and payment policies. By using the best available evidence, policy makers, regulators, and payers can make informed decisions that benefit patients and health care providers. In addition, developing evidence-based clinical practice guidelines is crucial to guide the adoption and sustainability of telehealth services. Such guidelines can offer clear recommendations on how to use telehealth services effectively, thereby improving patient outcomes and increasing acceptance of the use of telehealth more broadly.

To expand the evidence base for telehealth services, collaboration across health care providers, payers, policy makers, and researchers is essential. It will requires the development of standardized measures for evaluating the effectiveness of the baseline brick-and-mortar health care services and telehealth services, as well as large-scale, well-designed studies to evaluate the impact of these services on a range of patient populations and clinical settings. To optimize the effectiveness of telehealth modalities, it is important to determine which ones are best suited for different patient populations, clinical conditions, and care settings, and to assess their long-term impact on patient outcomes and quality of care. To ensure coordinated and comprehensive care for all patients, it is essential to address financial, geographic, and language barriers that may hinder access. Addressing these barriers will enable the appropriate and effective use of telehealth and hybrid care models in clinical practice, thereby providing all patients with the care they require, regardless of their location or socioeconomic status. By breaking down these barriers, the evidence base for telehealth will expand and ultimately improve health care outcomes for all.
RESEARCH, DATA, AND METRICS NEEDS

Priority: Identify and Evaluate Optimal Telehealth Modalities and Standards for SUD and Chronic Pain

- Evaluate the quality, cost-effectiveness, accessibility, and patient satisfaction associated with different telehealth modalities for SUD and chronic pain care, including synchronous and asynchronous communication, remote monitoring, and mobile health applications (Duff et al., 2023b).
- Evaluate the effectiveness of telehealth in the delivery of non-pharmacological interventions, such as psychotherapies and physical therapies, as well as supportive interventions (Corso et al., 2022).
- Explore the potential for telehealth interventions to improve the coordination of care among multiple providers involved in the treatment of SUD and chronic pain, including primary care physicians, addiction specialists, pain management specialists, and mental health providers (Duff et al., 2023a).
- Develop and validate standardized criteria to guide the selection of virtual versus in-person modalities for SUD and chronic pain care, considering factors such as patient needs, clinical context, and available resources (Waller et al., 2021).
- Investigate the effectiveness of hybrid care models that integrate virtual and in-person modalities in SUD and chronic pain care (Duff et al., 2023b).
- Conduct comprehensive cost-effectiveness analyses to assess the potential benefits and costs of telehealth and hybrid care interventions for managing SUDs and chronic pain, including the costs associated with technology and staff training and the potential savings from reduced hospitalizations, emergency department visits, and other health care utilization (Duff et al., 2023a; Snoswell et al., 2020).

Priority: Assess and Address Disparities in Access to Telehealth-Enabled Pain and SUD Care

- Conduct comprehensive analyses of the factors that contribute to disparities in access to telehealth-delivered pain and SUD care, including SDOH and systemic barriers like the digital divide, to develop targeted solutions for underserved populations such as older adults, racial and ethnic minorities, low-income individuals, rural/frontier and tribal communities, people with disabilities, and other specific groups (Duff et al., 2023a).
Evaluate the effectiveness of telehealth and hybrid care models in increasing access to quality pain and SUD care, improving treatment adherence, and enhancing patient satisfaction (Duff et al., 2023a).

Evaluate the impact of telehealth on health equity and disparities in SUD and chronic pain care by examining the differential effects of telehealth interventions across various sociodemographic groups, including age, race, ethnicity, socioeconomic status, and geographic location (Duff et al., 2023b).

Explore how telehealth interventions can be tailored to address the unique needs and preferences of different patient populations, including individuals with limited English proficiency, low health literacy, and disabilities (Duff et al., 2023a; Duff et al., 2023b; SAHMSA, 2021b).

Explore the impact of policy changes (e.g., changes in reimbursement, licensure, or regulation) on access to telehealth-enabled pain and SUD care for underserved populations and identify strategies to promote equity in telehealth access (Duff et al., 2023a; Oesterle et al., 2020).

Develop evidence-based quality benchmarks and metrics for brick-and-mortar, telehealth, and hybrid care for the management of chronic pain and SUD by conducting research to identify key performance indicators, best practices, and desired outcomes that reflect high-quality care across all modes of care delivery (Duff et al., 2023b; SAMHSA, 2021c).

Identify optimal methods for collecting, analyzing, and reporting quality metrics to facilitate comparisons between different care modalities and inform quality improvement initiatives in the management of telehealth-enabled and hybrid chronic pain and SUD care (SAMHSA, 2021c). Potential areas of focus should include the use of patient-reported outcomes, clinical measures, and administrative data.

Establish standardized and validated outcome measures for brick-and-mortar and telehealth interventions in SUD and chronic pain care to facilitate the comparison of results and improve understanding of the effectiveness of telehealth interventions (SAMHSA, 2021c; Oesterle et al., 2020).

Establish guidelines for the consistent use of standardized, validated, and reliable outcome measures in research for SUD and chronic pain care to promote methodological rigor and enable more robust meta-analyses and systematic reviews (SAMHSA, 2021c; Oesterle et al., 2020).
Develop and validate patient-reported outcome measures (PROMs) that accurately capture the unique experiences and perspectives of individuals with SUD and chronic pain receiving telehealth-enabled care, including the impact of telehealth on their quality of life, functioning, and satisfaction with care (Young et al., 2022). Potential areas of focus should include evaluating the reliability and validity of existing PROMs for telehealth-enabled care, developing new PROMs that capture specific outcomes of interest, and exploring the use of digital health technologies to facilitate the collection and analysis of PROM data.

Explore the optimal frequency and timing of outcome assessments in telehealth-enabled SUD and chronic pain care by leveraging digital health technologies and patient-generated health data to collect real-time data and provide feedback to inform treatment decisions, monitor progress, and adapt treatment plans as needed (Glaser et al., 2022; Tiase et al., 2020).

Expand research beyond the efficacy of telehealth-enabled care to encompass considerations related to implementation and evaluation, including strategies for promoting provider and patient adoption, development of necessary technological infrastructure, and methods for ongoing quality improvement of telehealth-enabled SUD and chronic pain care (SAMHSA, 2021c).

Identify the key drivers and barriers to the adoption of telehealth interventions in different health care settings, including provider and patient attitudes, organizational culture, technological infrastructure, regulatory burdens, and reimbursement policies (Duff et al., 2023b).

Develop and evaluate implementation strategies and best practices for telehealth adoption in diverse settings, including considerations for workforce training, patient engagement, and quality improvement (Appleton et al., 2023).

Develop and evaluate effective strategies for training and supporting health care providers in the delivery of telehealth-enabled SUD and chronic pain care, including the identification of provider competency needs and preferences; development of best practices for telehealth care delivery; and assessment of the impact of training on provider confidence, engagement, and patient outcomes (Tauben et al., 2020).

Develop and evaluate models for integrating telehealth into existing health care systems and workflows for SUD and chronic pain care, with a focus on identifying and addressing barriers and facilitators to successful implementation (Duff et al., 2023b).
• Explore the potential benefits and limitations of integrating telehealth into collaborative care models, such as those for managing comorbid mental health issues and SUDs, and evaluate the impact of telehealth on communication, coordination, and patient outcomes within multidisciplinary care teams (Davidson et al., 2020). Potential areas of focus should include issues related to workflow, team dynamics, and the use of decision support tools and data exchange platforms to facilitate collaborative care.

• Develop and evaluate user-friendly interfaces and strategies that integrate data across virtual and in-person care provision to promote collaboration, enhance patient experience, and improve the integration of care across settings (Duff et al., 2023b).

• Investigate the impact of telehealth on clinical decision-making and treatment outcomes in SUD and chronic pain care, with a focus on identifying the most effective ways to integrate decision support tools and algorithms into telehealth-enabled care (Kuziemsky et al., 2019). Potential areas of focus should include evaluating the impact of these tools on patient outcomes and satisfaction, as well as provider satisfaction and adherence to treatment guidelines.

• Investigate the potential of community-based organizations, social workers, care coordinators, and peer support networks to augment the delivery of telehealth-enabled SUD and chronic pain care, including their role in addressing SDOH and reducing barriers to care (Duff et al. 2023a).
CONCLUSION

The ever-evolving nature of the U.S. opioid epidemic and broader polysubstance use crisis necessitates a dynamic and adaptive response to effectively combat its devastating effects on individuals, families, and communities. Addressing this crisis demands a comprehensive approach that integrates prevention, treatment, education, policy, and community engagement. This updated research agenda signifies a crucial step toward realizing these objectives. The agenda identifies critical evidence gaps, research questions, and data and metrics needs, providing a roadmap for future research efforts. However, it is not enough to simply identify gaps—concrete steps must be taken to translate research into actionable solutions that can positively impact communities across the country.

To achieve real-world impact, research findings must be clearly communicated and implemented, following the core principles of knowledge translation models and implementation science (Sudsawad, 2007). This means collaborating and engaging with policy makers, health care providers, community organizations, health professions educators, communities and individuals with lived experience, and other key stakeholders across all stages of the research lifecycle, ensuring that the outcomes are relevant, actionable, and meaningful. It also involves tailoring communications to resonate with diverse target audiences and research end-users, and leveraging platforms for education, training, and continuous improvement. The goal is not only to accelerate the uptake and application of empirical evidence into practice for improved health care outcomes, but also to channel insights form real-world application back to the research community, fostering a cycle of continuous learning and refinement of evidence-based practices.
Further, continuing coordination between the public and private sectors is essential to achieve a long-term and sustainable resolution to the current opioid crisis and all future drug crises. Reaching this resolution requires addressing the underlying causes of the overdose epidemic, including the social and structural factors driving health disparities and engaging health systems and public agencies that can implement solutions (Blanco et al., 2022b). Now is the time to rise to the challenge and act decisively, leveraging research and collaboration to build a healthier, safer future for all.
APPENDIX: FULL LIST OF RESEARCH NEEDS

Health Professional Education and Training

- 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 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).

- 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 medications for OUD (MOUD).

Investigate effective dissemination strategies of evidence-informed tools 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).

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).
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).

Pain Management Guidelines and Evidence Standards

Evaluate the impact of opioid prescribing guidelines, laws, and regulations on access and quality of care for individuals with pain and/or OUD, including examining unintended consequences such as barriers to accessing care, increased stigma, and the use of multimodal treatments (Dowell et al., 2022).

Identify and characterize the influence of systemic racism, implicit bias, and other health care disparities on acute and chronic pain management, including their impact on treatment outcomes and patient experiences (HHS, 2019).

Evaluate the effectiveness of clinician and health system strategies to promote equitable access to high-quality pain management, with a particular focus on identifying and addressing disparities related to race, ethnicity, age, gender, disability, and socioeconomic status (Dowell et al., 2022). Potential areas of focus should include clinician biases, patient trust, access to specialty care, and person-centered approaches to pain management.

Investigate current payment barriers and incentives to improve access to and delivery of evidence-based pain management and SUD care across different payer systems, including Medicare, Medicaid, and commercial payers (NSTC, 2018). This investigation should include the role of alternative payment models (e.g., bundled and value-based payments) in incentivizing effective, high-quality pain and SUD care for patients.
• Identify barriers and facilitators to implementing evidence-based opioid prescribing and pain management strategies in special populations (e.g., racial/ethnic groups, older adults, rural communities), including understanding the unique needs and preferences of these populations and tailoring strategies accordingly (Dowell et al., 2022).

• Produce evidence-based clinician and patient education that is accessible, culturally competent, and tailored to address knowledge gaps and reduce stigma related to pain and/or opioid use. This approach should also evaluate the effectiveness of these education interventions on improving pain management outcomes (Dowell et al., 2022).

• Explore the impact of stigma on the decision-making processes of patients with pain and SUD in seeking treatment and develop and evaluate interventions to reduce stigma associated with these treatments (Dowell et al., 2022).

• Assess the impact of practice-level strategies and care coordination approaches on reducing opioid-related harm, improving patient outcomes, and promoting equitable access to high-quality pain management (Dowell et al., 2022).

• Investigate co-prescribing of central nervous system depressants, including which medications increase the chance of opioid overdose (FDA, 2016).

• Determine the long-term effects of opioid use on the development of co-occurring conditions beyond kidney and liver disease, including the impact on mental health, cardiovascular disease, and overall mortality rates (Shipton et al., 2018). This examination should consider how these effects may differ depending on patient demographics and pre-existing health conditions.

• Evaluate the efficacy of screening tools for assessing the risk of opioid misuse and developing OUD, including the use of innovative approaches such as machine learning and predictive analytics in such assessments (Dowell et al., 2022). Potential areas of focus should include establishing the reliability, validity, and utility of existing screening tools; identifying gaps that need to be addressed in the development of new tools; evaluating the impact of using these tools in clinical practice; and evaluating the effectiveness of interventions that are triggered by positive screening results.

• Develop and validate objective, reliable, and sensitive diagnostic tools to measure and assess pain to improve the diagnosis and treatment of pain (e.g., biomarkers, imaging technologies, and other physiological measures) (Dowell et al., 2022).

• Improve understanding of the effectiveness of multidisciplinary and multimodal models of pain treatment for patients on high-dosage opioids, such as the use of non-pharmacological approaches and telehealth (Dowell et al., 2022).

• Collect data on the comparative effectiveness and risks of partial agonist opioids (e.g., buprenorphine) versus full agonist opioids, and evaluate the impact of these medications on long-term pain outcomes and the risk of developing OUD (Dowell et al., 2022).

• Assess treatment outcomes for specific pain conditions and how the benefits and risks of appropriate therapies vary among subpopulations (Dowell et al., 2022).
• Investigate the factors that contribute to the transition from acute to chronic pain, including the role of psychosocial and lifestyle factors, and develop and evaluate effective diagnostic, preventive, and therapeutic approaches for managing chronic pain (Dowell et al., 2022). Potential areas of focus should include the use of interdisciplinary pain management teams, developing and implementing pain education programs for patients and health care providers, and investigating the potential of non-pharmacological approaches for managing chronic pain (e.g., mindfulness-based therapies, acupuncture, and physical therapy).

• Better understand and quantify the benefits and risks of opioid tapering, including best practice models for specific patient populations with co-existing conditions (HHS, 2019).

• Establish models for opioid tapering considering individual patient factors such as current opioid dose, preexisting SUD and/or behavioral health issues, and impact on patient outcomes, including pain reduction, function, and quality of life (Rich et al., 2020).

• Assess the efficacy of interdisciplinary teams in opioid tapering, including the composition of the team, the most appropriate roles for different health care professionals, and the involvement of family members and loved ones as part of the caregiving team (Rich et al., 2020).

• Evaluate the essential components of shared decision-making and tapering agreements, including the identification of best practices for patient education, communication, and follow-up (Mackey et al., 2019).

• Develop evidence-based guidelines and protocols for follow-up and monitoring of patients during opioid tapering, including the frequency and mode of communication between patients and health care providers to ensure optimal patient outcomes and safety (Rich et al., 2020). A potential area of focus should include the use of digital health technologies (e.g., mobile apps, remote monitoring devices) to facilitate communication and monitoring during opioid tapering.

• Investigate the effectiveness and risks of preoperative opioid tapering in reducing postoperative opioid use and improving pain management and recovery outcomes in surgical patients (Larach et al., 2022). Potential areas of focus should include the optimal timing, duration, and methods for opioid tapering before surgery, as well as the impact of preoperative tapering on patient satisfaction and quality of life after surgery.

• Investigate the impact of non-pharmacological pain management interventions (e.g., physical therapy, acupuncture, cognitive behavioral therapy, mindfulness-based interventions) on controlling pain in diverse patient populations, including those with chronic pain, acute pain, and those undergoing surgical procedures (Gatchel et al., 2014).

• Investigate and compare the efficacy of different non-pharmacologic pain management interventions for specific acute and chronic pain conditions and explore the optimal selection and delivery of these interventions based on patient characteristics and preferences (HHS, 2019).
Identify successful models of multimodal pain management for acute, transitional, and chronic pain that could be scaled outside of integrated delivery systems (Gatchel et al., 2014).

Collect and analyze data on pain and opioid use trajectories after common surgeries, including interventions in the postoperative period to prevent chronic pain and opioid use (HHS, 2019).

Collect and analyze data on access to non-opioid modalities for surgical pain management across diverse patient populations to identify potential disparities and inform strategies for improving equitable access (Dowell et al., 2022). Potential areas of focus should include factors such as geographic location, race/ethnicity, socioeconomic status, insurance status, and other demographic factors that may impact access to non-opioid modalities for pain management.

Evaluate the long-term comparative effectiveness and safety of pharmacologic and nonpharmacologic therapies for managing chronic pain, considering individual differences such as comorbidities and medication histories (Dowell et al., 2022).

Better understand the impact of pain management therapies on non-pain outcomes, such as quality of life, mental health, and functional status (Dowell et al., 2022).

Prevention, Treatment, and Recovery

Collect granular data on opioid-related deaths to better understand the relationships between opioid overdose and contributing factors (e.g., SUDs, pain treatment, recreational use of all substances, and other demographic and health factors) (HHS, 2019).

Investigate the impact of socioeconomic factors (e.g., income level, education, and access to health care) on the prevalence of SUD and outcomes related to overdose rescue, including the use of overdose-reversal medications and long-term treatment and recovery success (NSTC, 2018).

Capture data on the experiences of high-risk populations with SUDs, including BIPOC, rural, tribal, incarcerated, homeless, and pregnant people to gather insights on barriers to obtaining treatment (HHS, 2019). Potential areas of focus should include persisting issues related to accessing treatment and recovery services; disparities and mortality numbers; and social determinants of health (SDOH) such as housing, food, and transportation access (Cantor and Thorpe, 2018).

Explore effective intervention strategies targeting SDOH that contribute to the development and perpetuation of SUDs and pain-related health disparities, including poverty, housing instability, food insecurity, and limited access to health care services (Thornton et al., 2016).
Evaluate the impact of health system-based interventions that address SDOH on the prevention and treatment of SUDs and pain management outcomes, including identifying effective approaches to recognizing patients with SDOH needs and tailoring interventions appropriately, as well as evaluating the effectiveness of multidisciplinary care teams in addressing SDOH-related challenges (Gurewich et al., 2020).

Investigate the impact of payment policies that incentivize health systems and providers to address the impact of SDOH on patient outcomes, as well as the effectiveness of SDOH interventions supported by these policies (Crook et al., 2021).

Evaluate the effectiveness of peer-based prevention, treatment, and recovery strategies for adolescents with SUD, including those involved in the juvenile justice system (Blanco et al., 2020; HHS, 2019; Gatchel et al., 2014). A potential area of focus should include the impact of strategies that involve patient peers and family members on rates of successful recovery and quality of life.

Evaluate the effectiveness and impact of anti-stigma interventions on reducing stigma against people with SUD and/or who are prescribed MOUD and identify strategies to scale and sustain these interventions across different health care settings (Salman et al., 2022).

Develop a standardized framework and methodology for studying the stigma of SUD, including its impact on individuals, families, communities, criminal-legal and child welfare workers, medical personnel, and policy makers. Evaluate interventions aimed at reducing stigma, with a focus on their effectiveness within health care systems (Crook et al., 2021).

Evaluate the impact of structural racism and discrimination on SUD prevention, treatment, and recovery, including understanding how these pressures affect access to care, treatment outcomes, and health disparities (ASAM, 2020).

Establish comprehensive data systems to monitor and take steps to prevent a rise in dangerous recreational drug use, SUD, and overdoses, including the collection and analysis of data on prescribing practices of controlled substances, overdose deaths and emerging drugs of abuse, substance use treatment utilization, and other relevant indicators (Fishbein and Sloboda, 2023). These data systems should be designed to identify at-risk populations and geographic areas and inform targeted prevention and intervention strategies.

Evaluate adherence to and use of care plans when patients with OUD are moving between care settings, including a comprehensive mapping of OUD journeys with a focus on understanding the barriers to effective care handoffs and the role of family engagement in supporting care transitions (Madras et al., 2020).

Identify, implement, and evaluate strategies to increase patient engagement and motivation to receive and stay committed to OUD treatment, including interventions that improve patient-provider communication, address SDOH, and leverage peer support (Madras et al., 2020).
**Gather data to monitor patient journeys**, including assessing patient engagement and follow-up throughout the treatment process, evaluating interventions to increase treatment effectiveness, and identifying factors that contribute to treatment failure, particularly among subpopulations at increased risk for OUD and overdose (Madras et al., 2020).

**Identify obstacles that stop hospitals from facilitating streamlined entry into treatment after rescue and best practices to do so**, including methods used to successfully move patients into treatment, reasons for failing to move patients into treatment, and data stratified by subpopulations (e.g., age, race, ethnicity) (NSTC, 2018).

**Investigate effective strategies for engaging and supporting individuals who have experienced a non-fatal overdose**, including MOUD initiation, transition to recovery programs, and addressing barriers to continued care (Bagley et al., 2019).

**Reexamine and refine best practices for transitioning and treating patients with OUD after incarceration**, including evaluating the effectiveness of MOUD, behavioral therapy, and peer support programs in reducing relapse and recidivism rates (Santo et al., 2021).

**Investigate effective strategies for improving care coordination and outcomes for pregnant people and families affected by OUD and other related SUDs**, including integration of child welfare and health organizations and postpartum care (Martin et al., 2022).

**Study the impact of standardized care delivery levels and compliance requirements on improving outcomes for patients with OUD and other related SUDs** (Waller et al., 2021).

**Better understand how specific federal-level and other relevant policies can improve implementation of, or remove barriers to, effective SUD and pain management care** (NSTC, 2018). Potential areas of focus should include the suspension rather than termination of Medicaid eligibility when incarcerated, promotion of interprofessional continuing education through policy incentives and investments, and reimbursement for telehealth or non-pharmacological pain treatment.

**Examine the impact of federal and state-level policies and regulations on the provision of evidence-based treatment for OUD and other related SUDs**, specifically MOUD, with a focus on medically unnecessary requirements, payment policies, care team composition, and supervision requirements (Pessar et al., 2021; Saloner and Maclean, 2020).

**Investigate the potential for DEA waivers, SAMHSA standards, and CMS payment models to promote preemptive approaches to addressing OUD and other related SUDs, and reducing the risk of overdose**, including exploration of the impact of these approaches on early intervention, timely access to treatment, and harm reduction strategies (NASEM, 2022).

**Investigate and develop effective monitoring and enforcement mechanisms for laws and regulations related to mental health and SUDs**, including but not limited to parity laws, Medicaid expansion, and federal and state regulations related to SUD treatment facilities (Waller et al., 2021).

**Evaluate the effectiveness and feasibility of innovative approaches to methadone initiation, such as office-based methadone, to improve access to MOUD** (NASEM, 2022).
• Collect comprehensive and long-term data on the effects of increased take-home dosing of methadone, including its impact on treatment adherence, retention, overdose rates, and overall health outcomes of patients receiving this treatment approach (NASEM, 2022).

• Collect and analyze data on the effectiveness of innovative harm reduction approaches, such as supervised consumption and overdose prevention sites, in reducing overdose deaths and improving access to health care and social services for people using illicit drugs (Harocopos et al., 2022).

• Evaluate the effectiveness of different diversion prevention strategies for opioids and other controlled substances, including at-home disposal, drug take-back programs, and prescription drug monitoring programs (PDMPs) (Fan et al., 2019; Puac-Polanco et al., 2020).

• Evaluate the effectiveness of SUD anti-stigma campaigns among various groups, including health care providers, patients and families, the justice and family welfare system, and the public, and assess the impact of anti-stigma interventions on patient outcomes and access to evidence-based treatment (Haffajee et al., 2018).

• Develop and validate reliable and standardized process and outcomes metrics for evaluating the quality of SUD care across diverse settings and populations, including the incorporation of patient partnership and person-centered, recovery-oriented measures. (Waller et al., 2021).

• Develop and implement standardized methods for external evaluation of clinical care for SUD treatment to ensure that all patients receive high-quality, evidence-based care regardless of where they seek treatment (Waller et al., 2021).

• Develop effective strategies and mechanisms for the timely dissemination of research findings to policy makers and stakeholders and evaluate the impact of this dissemination on shaping policy related to SUD prevention, treatment, and recovery (Blanco et al., 2022a).

• Develop innovative methods for collecting and integrating data from non-traditional sources to inform opioid and SUD research, including health care provider systems and health plan claims data. Potential areas of focus should include identifying and addressing data quality issues, ensuring data privacy and security, and establishing partnerships with stakeholders outside the traditional health care system to enable access to and use of these data sources (Blanco et al., 2022b).

• Determine the impact of clinical decision support tools on opioid screening and prescribing (Spithoff et al., 2020).

• Develop and evaluate strategies to increase the adoption and use of PDMPs, including efforts to streamline access and integrate PDMP data into electronic health records. Evaluate the impact of increased PDMP usage on opioid prescribing practices, patient outcomes, and health care utilization (Larach et al., 2022).

• Monitor and evaluate the impact of FDA-approved over-the-counter naloxone on opioid overdose deaths, including factors that may influence its utilization and accessibility, such as cost, stigma, and education (FDA, 2023).
• Collect data to assess the capacity and effectiveness of SUD treatment systems at the local level to better target policy and investment needs (Waller et al., 2021). Potential areas of focus should include evaluating existing treatment facilities, workforce availability and training, access to evidence-based treatment, patient outcomes, and other factors that contribute to the overall effectiveness of the SUD treatment system.

• Evaluate the compliance of federally funded treatment programs with evidence-based best practices and the provision of MOUD, including assessing factors that contribute to variation in program effectiveness and identifying opportunities to improve outcomes for patients with OUD (Madras et al., 2020).

• Evaluate innovative models of treatment delivery that address SDOH and racial and geographic disparities in access to care and assess their effectiveness in improving health outcomes for underserved populations (Madras et al., 2020). Potential areas of focus should include mobile clinics, telehealth, peer-led interventions, and community-based care models.

• Evaluate the effectiveness of various treatment modalities in managing OUD in the context of polysubstance use, including fentanyl, xylazine, and other prescribed and illicit substances (Britch and Walsh, 2022).

• Investigate the reasons for the gap between evidence-based practice and clinical implementation of MOUD, including barriers to optimal prescribing practices and strategies to promote evidence-based prescribing in clinical settings (Volkow, 2018). Potential areas of focus should include stigma and aversion to change by legacy treatment providers, evaluating the role of pharmacies in supporting access to MOUD, and examining programs that might expedite access to MOUD.

• Investigate the systemic and structural barriers faced by opioid treatment programs in providing comprehensive and person-centered care that addresses the medical, counseling, vocational, educational, and other needs of individuals with OUD (Madras et al., 2020).

• Compare the ease of increasing MOUD access under different payment structures, including value-based payment arrangements (Polsky et al., 2021).

• Evaluate the impact of the removal of the X-waiver requirement for clinicians seeking to prescribe buprenorphine for OUD treatment under the MATE Act of 2021, including examining changes in the number of providers prescribing buprenorphine, patient outcomes, quality of care provided, and the reasons for lack of prescribing by providers (SAMHSA, 2023).

• Develop standardized and modernized data collection methods to improve understanding of methadone treatment, including access and quality of care for methadone patients (NASEM, 2022).

• Investigate the effectiveness of integrative therapies, including traditional, complementary, and alternative treatments in reducing opioid use in SUD treatment and identify best practices for integrating these therapies into multimodal care (NSTC, 2018).
Develop and test effective interventions to address misinformation and stigma related to SUD care among health care providers, patients and families, criminal-legal and child welfare systems, and the public, including interprofessional education and training, story-sharing and narrative change efforts, peer-led programs, community forums, public awareness campaigns, as well as social media and other communication strategies (McGinty et al., 2018).

Telehealth for SUD and Chronic Pain Management
- Evaluate the quality, cost-effectiveness, accessibility, and patient satisfaction associated with different telehealth modalities for SUD and chronic pain care, including synchronous and asynchronous communication, remote monitoring, and mobile health applications (Duff et al., 2023b).
- Evaluate the effectiveness of telehealth in the delivery of non-pharmacological interventions, such as psychotherapies and physical therapies, as well as supportive interventions (Corso et al., 2022).
- Explore the potential for telehealth interventions to improve the coordination of care among multiple providers involved in the treatment of SUD and chronic pain, including primary care physicians, addiction specialists, pain management specialists, and mental health providers (Duff et al., 2023a).
- Develop and validate standardized criteria to guide the selection of virtual versus in-person modalities for SUD and chronic pain care, considering factors such as patient needs, clinical context, and available resources (Waller et al., 2021).
- Investigate the effectiveness of hybrid care models that integrate virtual and in-person modalities in SUD and chronic pain care (Duff et al., 2023b).
- Conduct comprehensive cost-effectiveness analyses to assess the potential benefits and costs of telehealth and hybrid care interventions for managing SUDs and chronic pain, including the costs associated with technology and staff training and the potential savings from reduced hospitalizations, emergency department visits, and other health care utilization (Duff et al., 2023a; Snoswell et al., 2020).
- Conduct comprehensive analyses of the factors that contribute to disparities in access to telehealth-delivered pain and SUD care, including SDOH and systemic barriers like the digital divide, to develop targeted solutions for underserved populations such as older adults, racial and ethnic minorities, low-income individuals, rural/frontier and tribal communities, people with disabilities, and other specific groups (Duff et al., 2023a).
- Evaluate the effectiveness of telehealth and hybrid care models in increasing access to quality pain and SUD care, improving treatment adherence, and enhancing patient satisfaction (Duff et al., 2023a).
- Evaluate the impact of telehealth on health equity and disparities in SUD and chronic pain care by examining the differential effects of telehealth interventions across various sociodemographic groups, including age, race, ethnicity, socioeconomic status, and geographic location (Duff et al., 2023b).
- Explore how telehealth interventions can be tailored to address the unique needs and preferences of different patient populations, including individuals with limited English proficiency, low health literacy, and disabilities (Duff et al., 2023a; Duff et al., 2023b; SAMHSA, 2021b).

- Explore the impact of policy changes (e.g., changes in reimbursement, licensure, or regulation) on access to telehealth-enabled pain and SUD care for underserved populations and identify strategies to promote equity in telehealth access (Duff et al., 2023a; Oesterle et al., 2020).

- Develop evidence-based quality benchmarks and metrics for brick-and-mortar, telehealth, and hybrid care for the management of chronic pain and SUD by conducting research to identify key performance indicators, best practices, and desired outcomes that reflect high-quality care across all modes of care delivery (Duff et al., 2023b; SAMHSA, 2021c).

- Identify optimal methods for collecting, analyzing, and reporting quality metrics to facilitate comparisons between different care modalities and inform quality improvement initiatives in the management of telehealth-enabled and hybrid chronic pain and SUD care (SAMHSA, 2021c). Potential areas of focus should include the use of patient-reported outcomes, clinical measures, and administrative data.

- Establish standardized and validated outcome measures for brick-and-mortar and telehealth interventions in SUD and chronic pain care to facilitate the comparison of results and improve understanding of the effectiveness of telehealth interventions (SAMHSA, 2021c; Oesterle et al., 2020).

- Establish guidelines for the consistent use of standardized, validated, and reliable outcome measures in research for SUD and chronic pain care to promote methodological rigor and enable more robust meta-analyses and systematic reviews (SAMHSA, 2021c; Oesterle et al., 2020).

- Develop and validate patient-reported outcome measures (PROMs) that accurately capture the unique experiences and perspectives of individuals with SUD and chronic pain receiving telehealth-enabled care, including the impact of telehealth on their quality of life, functioning, and satisfaction with care (Young et al., 2022). Potential areas of focus should include evaluating the reliability and validity of existing PROMs for telehealth-enabled care, developing new PROMs that capture specific outcomes of interest, and exploring the use of digital health technologies to facilitate the collection and analysis of PROM data.

- Explore the optimal frequency and timing of outcome assessments in telehealth-enabled SUD and chronic pain care by leveraging digital health technologies and patient-generated health data to collect real-time data and provide feedback to inform treatment decisions, monitor progress, and adapt treatment plans as needed (Glaser et al., 2022; Tiase et al., 2020).
• Expand research beyond the efficacy of telehealth-enabled care to encompass considerations related to implementation and evaluation, including strategies for promoting provider and patient adoption, development of necessary technological infrastructure, and methods for ongoing quality improvement of telehealth-enabled SUD and chronic pain care (SAMHSA, 2021c).

• Identify the key drivers and barriers to the adoption of telehealth interventions in different health care settings, including provider and patient attitudes, organizational culture, technological infrastructure, regulatory burdens, and reimbursement policies (Duff et al., 2023b).

• Develop and evaluate implementation strategies and best practices for telehealth adoption in diverse settings, including considerations for workforce training, patient engagement, and quality improvement (Appleton et al., 2023).

• Develop and evaluate effective strategies for training and supporting health care providers in the delivery of telehealth-enabled SUD and chronic pain care, including the identification of provider competency needs and preferences; development of best practices for telehealth care delivery; and assessment of the impact of training on provider confidence, engagement, and patient outcomes (Tauben et al., 2020).

• Develop and evaluate models for integrating telehealth into existing health care systems and workflows for SUD and chronic pain care, with a focus on identifying and addressing barriers and facilitators to successful implementation (Duff et al., 2023b).

• Explore the potential benefits and limitations of integrating telehealth into collaborative care models, such as those for managing comorbid mental health issues and SUDs, and evaluate the impact of telehealth on communication, coordination, and patient outcomes within multidisciplinary care teams (Davidson et al., 2020). Potential areas of focus should include issues related to workflow, team dynamics, and the use of decision support tools and data exchange platforms to facilitate collaborative care.

• Develop and evaluate user-friendly interfaces and strategies that integrate data across virtual and in-person care to promote collaboration, enhance patient experience, and improve the integration of care across settings (Duff et al., 2023b).

• Investigate the impact of telehealth on clinical decision-making and treatment outcomes in SUD and chronic pain care, with a focus on identifying the most effective ways to integrate decision support tools and algorithms into telehealth-enabled care (Kuziemsky et al., 2019). Potential areas of focus should include evaluating the impact of these tools on patient outcomes and satisfaction, as well as provider satisfaction and adherence to treatment guidelines.

• Investigate the potential of community-based organizations, social workers, care coordinators, and peer support networks to augment the delivery of telehealth-enabled SUD and chronic pain care, including their role in addressing SDOH and reducing barriers to care (Duff et al. 2023a).


REFERENCES


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