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## Patient-centered quality measurement for opioid use disorder: development of a taxonomy to address gaps in research and practice

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- ATK developed the study concept, led the literature review, and drafted the initial manuscript. JDB and SGC assisted in the literature search and review. Each coauthor provided critical feedback relating to the review framing, methods, analysis, and discussion; and contributed to the writing, editing, and/or revising of all sections of the manuscript. All authors approved the final version of the manuscript for submission.

## Abstract

**Background:** Evidence-based treatment is provided infrequently and inconsistently to patients with opioid use disorder (OUD). Treatment guidelines call for high-quality, patient-centered care that meets individual preferences and needs, but it is unclear whether current quality measures address individualized aspects of care and whether measures of patient-centered OUD care are supported by evidence.

**Methods:** We conducted an environmental scan of OUD care quality to (1) evaluate patient-centeredness in current OUD quality measures endorsed by national agencies and in national OUD treatment guidelines; and (2) review literature evidence for patient-centered care in OUD diagnosis and management, including gaps in current guidelines, performance data, and quality measures. We then synthesized these findings to develop a new quality measurement taxonomy that incorporates patient-centered aspects of care and identifies priority areas for future research and quality measure development.

**Results:** Across 31 endorsed OUD quality measures, only two measures of patient experience incorporated patient preferences and needs, while national guidelines emphasized providing patient-centered care. Among 689 articles reviewed, evidence varied for practices of patient-centered care. Many practices were supported by guidelines and substantial evidence, while others lacked evidence despite guideline support. Our synthesis of findings resulted in EQuITable Care, a taxonomy comprised of six classifications: (1) patient Experience and engagement, (2) Quality of life; (3) Identification of patient risks; (4) Interventions to mitigate patient risks; (5) Treatment; and (6) Care coordination and navigation.

**Conclusions:** Current quality measurement for OUD lacks patient-centeredness. EQuITable Care for OUD provides a roadmap to develop measures of patient-centered care for OUD.

## Keywords

Patient-centered Care; Quality Measurement; Opioid Use Disorder; Medication Treatment for Opioid Use Disorder; Directly Observed Care; Contextualized Care

## INTRODUCTION

The U.S. opioid crisis continues unabated, claiming more than 75,000 lives in 2021 alone.<sup>1</sup> Despite decades of federal investment and policy reform to address the crisis by expanding treatment availability for opioid use disorder (OUD),<sup>2, 3</sup> treatment continues to be provided infrequently and inconsistently to patients with OUD.<sup>4, 5</sup> More than half of patients who currently meet criteria for OUD lack a formal diagnosis,<sup>4</sup> less than half of individuals diagnosed with OUD receive evidence-based treatment,<sup>4, 6</sup> and up to half who begin treatment are no longer engaged in care at one year.<sup>7, 8</sup> Opioid-related overdose deaths are still rising,<sup>1</sup> and societal costs attributed to OUD now exceed \$1 trillion annually.<sup>9</sup>

Promoting evidence-based screening and treatment for OUD therefore remains critically important among national organizations, including the American Society of Addiction Medicine (ASAM),<sup>10</sup> the Substance Use and Mental Health Services Administration (SAMHSA),<sup>11, 12</sup> the Agency for Healthcare Research and Quality (AHRQ),<sup>13</sup> and the

Department of Veterans Affairs/Department of Defense (VA/DoD).<sup>14</sup> More recently, these organizations have also identified *patient-centered care*—care that is respectful of and responsive to individuals’ specific health needs and desired health outcomes and ensures patient values drive all health care decisions<sup>15, 16</sup>—as essential to providing effective treatment. There is increasing recognition that not all patient needs and preferences are the same and that optimal care must be individualized at the patient level.

Understanding how well patient-centered care is delivered and where gaps lie could allow health systems to more strategically develop policies, practices, and programs that foster engagement and improve outcomes among patients with OUD. Measuring performance within the healthcare setting is the basis of the Donabedian model of quality, which relies on upstream healthcare structures and processes to improve downstream outcomes.<sup>17</sup> Theoretically, any aspect of quality measurement—whether structure, process, or outcome—may be tailored to patient needs and preferences. However, there is concern that such tailoring may be absent in the design of current OUD quality measures<sup>18, 19</sup> and that gaps in research evidence may underly progress toward patient-centered quality measurement for OUD.<sup>20</sup>

To address this concern and repeated calls for greater emphasis in patient-centered care, we sought to (1) examine whether current OUD quality measures address patient-centered aspects of care recommended in national guidelines, (2) determine whether evidence gaps for patient-centered OUD care exist in the literature, (3) summarize patient-centered aspects of OUD care identified in the literature and develop a new quality measure taxonomy to conceptualize patient-centered OUD care, and (4) provide a roadmap for developing future measures of quality. In developing this taxonomy, we sought to identify which types of quality measures (structure, process, outcome) and data sources may be used to assess patient-centered care for OUD.

## METHODS

Environmental scans are a well-established type of literature review used to identify, assess, or inform guidelines, tools for patient care, aspects of practice or policy development or change, the development of planning or evaluation frameworks, and future research.<sup>21</sup> We conducted an environmental scan of OUD care quality to (1) identify quality measures for OUD care endorsed by national agencies; (2) review patient-centered concepts in OUD care quality in the literature, summarize their clinical performance, and appraise evidence for their use; and (3) compare currently endorsed guidelines and quality measures to evidence for patient-centered practices in delivering OUD care. Finally, we synthesized our findings by developing a taxonomy for patient-centered quality measurement. Comprehensive details of the methodological approach are available in Appendix A.

### Identify Endorsed Measures of OUD Care Quality

During January-February 2021, we searched publicly available databases of the National Quality Forum (NQF), the Healthcare Effectiveness Data and Information Set (HEDIS), and the Centers for Medicare and Medicaid Services (CMS).<sup>22–24</sup> Additionally, we searched the VA Electronic Technical Manual.<sup>25</sup> In each database, we reviewed quality measures

specific to OUD that are endorsed by their respective agency for their importance, scientific acceptability, relevance, feasibility, and use by healthcare payers.<sup>26, 27</sup> We further reviewed each measure to determine (a) whether it describes clinical structures, processes, or outcomes (as defined in the Donabedian model of quality);<sup>17</sup> and (b) the type of data it requires.

### **Develop Literature Search Strategy**

Our literature search followed a narrative overview design<sup>28</sup> that adhered to a 12-step Equator Network guideline<sup>29, 30</sup> To ensure inclusive search results, we developed a structured search strategy using 12 separate PubMed search queries, with each based on a domain of OUD care identified in current OUD care guidelines:<sup>10–14</sup> patient-centered quality of care; screening and risk assessment; non-opioid pain management; quality of patient education; care coordination; care plans; shared decision-making stigma; therapeutic alliance; active listening; contextualized care; and quality of life. Each query included other general terms such as “opioid use disorder,” “quality of care,” “patient-centered care,” and “quality measurement.”

We included empirical research, reviews, conceptual models, and expert opinion published from January 1, 1990, to February 28, 2021, that discussed care quality meeting our “patient-centered” definition. Articles were excluded if they (a) were not published in English; (b) represented only a study protocol or discussed an organizational ideology or philosophy; (c) focused on inpatient, hospice, prison, or residential/rehabilitation care (e.g., skilled nursing facilities); (d) focused on medical education; or (e) included only children and/or adolescents. Two co-authors independently reviewed each article for inclusion, and discrepancies were discussed until consensus was reached.

Because we anticipated few published studies of patient-centered OUD care, we supplemented structured search queries with an unstructured search that included PubMed, Google Scholar, Google, and websites of national organizations (e.g., AHRQ). This latter search included the same 12 domains used in the structured search but was not limited to OUD-specific studies. Selection prioritized studies addressing evidence gaps, having high impact, or both. We otherwise applied the same inclusion/exclusion criteria used in the structured review.

### **Compare Literature to Current Guidelines**

Once we completed the initial search and screening, we reviewed each included article to assess (a) applicability of article findings to multiple dimensions of patient-centered care (e.g., did any articles for risk assessment also apply to care coordination?); (b) study methods; and (c) specific population(s) studied. Next, we compared quality measures identified to clinical practice guidelines from ASAM,<sup>10</sup> SAMHSA,<sup>11, 12</sup> AHRQ,<sup>13</sup> and VA/DoD.<sup>14</sup> Finally, we appraised evidence for each measure as an indicator of OUD care quality. For all quality measures identified—existing or potential—we determined whether each describes a clinical structure, process, or outcome, as well as the type of data each requires. All decisions were reviewed independently by two co-authors and discrepancies

discussed until consensus was reached. An overview of the review strategy and analysis is shown in Figure 1.

## RESULTS

### Current Quality Measures of OUD Care

We identified 31 endorsed quality measures for OUD across NQF (10), HEDIS (6), CMS (9), and VA (6). Of these, only patient experience—reported through one NQF measure and one VA/DoD measure—considered patient preferences and needs. Other measures were similar among agencies and fell into four additional classifications (Table 1): identification of patient risks, interventions to mitigate patient risks, treatment, and care coordination and navigation. Most measures focused on safety and provision of treatment without emphasis on patient-centered dimensions of care. Except for patient experience, which is self-reported, all other endorsed quality measures describe clinical processes reported in administrative data (e.g., medical claims). A comprehensive list of quality measures by agency is available in Appendix A.

### Potential Quality Measures of Patient-centered OUD Care

We identified 1,083 articles, 689 of which were included for review (Figure 1). From our analysis, taxonomy classifications emerged that were similar to currently endorsed measures, with two additions: emphasis of engagement as part of patient experience, and “quality of life” as a separate classification: (1) patient Experience and engagement, (2) Quality of life; (3) Identification of patient risks; (4) Interventions to mitigate patient risks; (5) Treatment; and (6) Care coordination and navigation. Together, these classifications comprise “EQuITable Care for OUD,” a new taxonomy of patient-centered quality measurement for OUD. A summary of the taxonomy, literature evidence, and potential types of quality measures and data sources for each identified measure are presented in Table 2.

**Patient Experience and Engagement**—Patient *experience* refers to a range of interactions that patients have with the healthcare system or providers.<sup>31</sup> By contrast, patient *engagement* is both process and behavior and is shaped by the relationship between the patient and provider and the environment in which healthcare delivery takes place.<sup>32</sup> Both patient experience and patient engagement occur throughout the care delivery process and are often associated with improved healthcare outcomes.<sup>33–36</sup> We describe four areas of focus identified in our review: therapeutic alliance and shared decision-making; listening, validation, and communication; stigma; and care context. Additionally, we show in our subsequent classification sections that because these areas are foundational to patient-centered care, their principles are influential in patient-centered quality measurement for other OUD measure classifications we identified.

**Therapeutic alliance and shared decision-making.:** We identified evidence for misalignment between provider care objectives/incentives and what patients actually want in their care.<sup>37, 38</sup> A systematic review of shared decision-making for SUD care found patients prefer to be involved in their treatment decisions, preferences vary (e.g., inpatient vs. outpatient treatment setting), and matching preferences to treatment decisions may

reduce substance use.<sup>39</sup> However, evidence shows shared decision-making is rarely utilized in the provision of SUD care. Patients often feel left out of decisions, with just 38% of primary care patients with OUD report positive experiences making medication decisions with their providers.<sup>40–42</sup> Promoting therapeutic alliance through shared decision-making may be especially beneficial when evidence for a particular decision is unclear or the stakes are high.

**Listening, validation, and communication.** A prevailing concern reported by patients with OUD is a need for more active listening, validation, and communication from their healthcare providers. In one national study, nearly 25% of primary care patients with histories of OUD reported negative experiences with provider communication.<sup>40</sup> Whether patients feel their providers listen when discussing treatment options for OUD affects the patient-provider relationship and perceived satisfaction.<sup>43</sup> Conversely, providers who engage in reflective listening are likely to increase their therapeutic commitment to their patients.<sup>44</sup> Scales to evaluate quality of listening, validation, and communication have been developed for verbal and non-verbal communication using patient self-report and direct assessment techniques.<sup>45–47</sup> However, current OUD quality measures do not track or aim to improve these practices.

**Stigma.** The problem of stigma in OUD care is rooted in misconceptions and inaccurate descriptions about the disease and those it affects, such as the assertion that OUD is a moral weakness or willful choice. We found stigma in OUD care is problematic for several reasons. First, stigma of OUD is exacerbated by stigma of other commonly co-occurring conditions, such as illicit drug use, homelessness, severe mental illness, and involvement in the criminal justice system—whether these are present or not.<sup>48–52</sup>

Second, stigma impacts quality of life for patients with OUD through a complex yet powerful cascade that begins with external community-level and provider-level stigma directed toward individuals with OUD and ends with high levels of psychological distress resulting from internal self-stigma.<sup>53–56</sup> Self-stigma then leads to hesitancy in seeking social support from peers and family and deters care seeking. There is some evidence that respect and dignity during a clinical encounter may reverse this cascade.<sup>57</sup>

Third, stigma toward individuals with OUD drives inequities in care for co-occurring conditions. OUD-related disparities are well documented for conditions such as infective endocarditis, hepatitis C, chronic pain, and pregnancy. Because stigma perceptions are often under-reported due to social desirability bias, the full impact of stigma on co-occurring conditions is not known.

At least three scales to measure stigma been developed that are specific to OUD,<sup>58–60</sup> but these have not been incorporated into regular clinical practice, and none are part of current quality measures for OUD. Additionally, measures non-specific to OUD, such as the World Health Organization (WHO) Survey on Health and Health System Responsiveness, include evaluation of non-clinical dimensions of care that may impact the extent of stigmatization patients feel in the clinical setting,<sup>61–63</sup> These dimensions, including patient-perceived

privacy, attention to concerns, and respect, may complement those found in OUD-specific measures.

**Care context.** The importance of adapting care to structural and psychosocial contexts of patients with OUD is frequently reported in the literature. Broadly, care delivery is influenced by three related contexts: (1) clinical context (legal, political, and healthcare environment); (2) provider context; and (3) patient context. Research has primarily focused on patient context, including both OUD self-stigma and other life circumstances that interfere with medication treatment for OUD (MOUD) and/or lead to non-medical buprenorphine use, and patient capacity to succeed in the context of medical or functional limitations.

Weiner, Binns-Calvey, and colleagues have validated a framework to describe domains of patient context that relate to patient circumstances (e.g., workplace environment) and characteristics or states (e.g., cultural perspectives).<sup>64</sup> They also demonstrated that clinical performance in recognizing and addressing contextual factors can be measured qualitatively and quantitatively through directly observed care (e.g., unannounced standardized patients) and that provider performance feedback improves care delivery over time.<sup>65–68</sup> Current quality measures for OUD have not incorporated care context.

**Quality of Life**—Quality of life as a classification of OUD care quality measurement is imperative because it both predicts treatment retention and is a clinical endpoint itself.<sup>69–72</sup> While quality of life measurement for OUD remains underdeveloped and is rarely incorporated into practice, it has nevertheless garnered attention over the last decade as part of healthcare-wide trends toward value-based payment. OUD’s immense societal cost is predominantly attributable to decreased quality of life.<sup>9</sup> We found evidence that OUD impacts all domains of quality of life, including physical health, psychological health, social relationships, and environment, which translates into decreased employment, increased disability, and decreased overall social functioning—all of which represent poor patient outcomes and significant burdens on society.<sup>73–78</sup> We also found that guideline emphasis on quality of life varies: AHRQ’s guideline does not address quality of life, while SAMHSA’s guidelines are centered on quality-of-life principles.<sup>11, 13</sup>

MOUD’s effect on quality of life is mixed. Most studies show MOUD is cost-effective and improves quality of life, but improvements frequently wane over time and variable therapeutic effects and side effects are common. For partial or full agonist treatments, side effects, including daytime drowsiness and disrupted sleep, may offset therapeutic benefits, and underlying demographic, socioeconomic, and psychological factors may predict quality of life more than receipt of MOUD.<sup>79–81</sup> Guidelines acknowledge that MOUD’s benefits may not justify risks in all cases and that “pharmacologic treatment may not be appropriate for all patients along the entire opioid use disorder spectrum.”<sup>10</sup> Alternative treatments to improve quality of life for patients with OUD are also supported by evidence. Participation in inpatient and outpatient rehabilitation programs<sup>82</sup> and targeted symptom management, such as craving,<sup>83</sup> visual and auditory reaction times,<sup>84</sup> and restless legs<sup>85</sup> have all shown positive effects. In such cases, a patient-centered approach that involves shared decision-

making is warranted; however, no current quality measures related to OUD treatment consider discussions or decisions relating to quality of life.

**Identification of Patient Risks**—Screening and risk assessment for OUD is prevalent in the literature and widely supported by current guidelines. From a perspective of patient-centered care, we identified multiple patient-level characteristics that increase risk for OUD incidence, morbidity, and mortality, including age, sex, genetics, socioeconomic factors (e.g., homelessness), social factors (e.g., loneliness), chronic pain, polysubstance use, and medical and psychiatric comorbidities (Appendix A Table A3). For example, chronic musculoskeletal pain and post-traumatic stress disorder (PTSD) each increase OUD risk but convey additional risk when both are present.<sup>86, 87</sup> Patient-level characteristics are included in some health system metrics (e.g., VA Stratification Tool for Opioid Risk Mitigation), which then prompt case review when patients with high-risk are identified.<sup>88, 89</sup> How these characteristics are otherwise incorporated into clinical decision-making is not well established.

Substantial evidence exists for clinical risk tools that identify risks and may improve outcomes. Numerous risk assessments (n>35), disease severity scales (n>20), opioid treatment and data policies, automatable algorithms for electronic data, prescription monitoring programs, and clinical decision supports have been developed and validated as tools to identify individuals at risk for OUD and employ individualized risk mitigation strategies based on patient characteristics (Appendix A Table A4). Current guidelines call for comprehensive, individualized risk assessment;<sup>10, 11, 13, 14</sup> among current measures for risk assessment, only CMS endorses assessment for individual-level risk.<sup>23</sup>

**Interventions to Mitigate Patient Risks**—Mitigating risks of opioid use is essential to effective OUD care. Overdose risk increases with higher morphine milligram equivalent (MME) doses or concurrent use of other central nervous system depressants,<sup>90</sup> and OUD risk following prescription opioid use is well documented. Current measures define care quality by the absence of concurrent depressants such as benzodiazepines and daily MME limits but do not distinguish between individuals with long-term opioid therapy (LTOT) and OUD. Current guidelines, however, call for an individualized approach for OUD: opioid dosing guided by patient symptoms (e.g., withdrawal, pain) over MMEs, and patient-provider consensus on benefits vs. risks for concurrent benzodiazepine use. Guidelines also suggest several risk mitigation strategies described in the literature that should incorporate patient needs and preferences, including patient education, chronic pain management, opioid tapering, and urine toxicology testing.

**Patient education.** Patient education about risks of overdose, diversion, and functional impairment for LTOT or MOUD is foundational for risk mitigation. Education should optimally be tailored to individuals' level of health literacy, cognitive ability, caregiver support, access to resources (e.g., technology), and preferences.

Opioid patient education and its impact on OUD prevention and management are not well studied, especially with respect to OUD outcomes; however, unmet patient needs in this area are well documented, such as setting expectations about chronic pain management.<sup>91</sup>



We found that patient education may overcome barriers in providing naloxone, such as stigma, to reduce overdose mortality. For example, VA's Opioid Education and Naloxone Distribution program has increased prescription naloxone fills.<sup>92–94</sup> No current quality measures for OUD assess whether patient education is provided or tailored to patient needs and preferences.

**Chronic pain.:** Overlap between LTOT for chronic pain and OUD remains high, with 8–20% of LTOT patients meeting criteria for OUD.<sup>95, 96</sup> While guidelines provide recommendations for opioid, non-opioid, and non-pharmacologic treatments, including acute pain with MOUD, the literature emphasizes that treatment should be individualized to patient preferences, risks, and benefits. Empiric data show non-opioid treatments are offered infrequently, and opioids are sometimes withheld without justification.<sup>97</sup> No current quality measures for OUD and chronic pain management consider individual context in making treatment decisions.

**Opioid tapering.:** For patients receiving MOUD, forced rapid tapers increase mortality risk. Current guidelines provide no time limit on treatment; tapering requires discussion of risks, benefits, and shared decision-making.<sup>98</sup> For individuals with OUD *not* receiving MOUD, guidance on tapering is less clear but may follow evidence from studies of LTOT and high-risk opioid use. “Cutting off” supplies of chronically prescribed opioids may precipitate harm, including severe withdrawal, psychological distress, illicit substance use, uncontrolled pain, and suicide.<sup>99</sup> In contrast, patient-centered opioid tapering strategies, where patients and providers work together, have demonstrated promising success.<sup>100</sup> However, current OUD quality measures do not assess whether discussions or shared decision-making regarding tapering risks and benefits occur between OUD providers and their patients.

**Urine toxicology testing.:** Urine toxicology testing (UTT) is widely accepted for screening and surveillance of LTOT and MOUD and is particularly helpful in facilitating care continuity, ensuring treatment adherence, guiding therapeutic adjustments, and facilitating abstinence from non-prescription drug use while receiving MOUD (contingency management).<sup>101, 102</sup> However, we found little evidence that UTT improves outcomes. For many patients, UTT reinforces stigma and may result in psychosocial harms.<sup>103</sup> Accordingly, guidelines are vague, stating UTT frequency “should be determined by a number of factors,” including patient stability, treatment type, and treatment setting.<sup>10</sup> NQF endorses a single quality measure to assess UTT annually in LTOT, but no current measures assess whether patient-provider discussions occur to determine UTT frequency and follow-up for OUD.

**Treatment for Opioid Use Disorder—**OUD treatment as a measure classification is now widely supported across health systems.<sup>104</sup> Because compelling evidence shows MOUD reduces morbidity and mortality, provision of MOUD is central to all major OUD treatment guidelines and is included as a measure of quality for each endorsing agency. However, most patients with OUD do not receive MOUD or discontinue treatment prematurely.<sup>4, 7, 8</sup>

Guidelines state that choice of treatment for MOUD should be based on patient needs and preferences, and evidence shows that buprenorphine, methadone, and injectable naltrexone

are all acceptable first-line treatments. Each is provided differently (e.g., methadone daily dispensing at treatment centers vs. prescribing of buprenorphine at office-based practices) and each has a distinct side effect profile, with substantial implications for treatment success. However, despite these implications, current measures address treatment provision but do not assess provider performance in discussing available treatment options with their patients. Further, current measures do not account for differences in administration of MOUD or settings of MOUD care.

There is also evidence that retention in care improves when patient-centered approaches are applied. Reducing stigma, negative experiences, gaps in healthcare literacy, and barriers to navigating treatment may all improve treatment retention.<sup>105, 106</sup> Lower daily dosing is associated with decreased overall retention, suggesting that some patients may require higher doses than others.<sup>107</sup> Guidelines suggest dosing should be individualized according to patient symptoms (e.g., withdrawal), but no current measures incorporate provider assessment of OUD symptoms.

Psychosocial interventions, when added to MOUD, are strongly supported in guidelines; however, current evidence for their use is mixed.<sup>108, 109</sup> Recent studies suggest benefit may be conditional upon individual patient preferences and needs. For example, one clinical trial showed that personalization of psychosocial interventions, such as contingency management to reinforce abstinence while receiving MOUD, is both efficacious and cost-effective in OUD treatment.<sup>20, 109</sup> Other individualized interventions such as addressing craving/attentional bias, improving treatment experience, developing culturally appropriate models of care, optimizing social functioning, and developing individualized treatment plans show promise in clinical trials, but few studies have established their effectiveness in clinical practice.<sup>110–113</sup>

**Care Coordination and Navigation**—Care coordination and navigation are especially important because OUD’s underlying complexity requires interdisciplinary expertise and facilitated access to resources that are unevenly distributed across the OUD patient population. Early care coordination models employed a single “care coordinator” to connect patients to needed resources. However, interdisciplinary team-based models and healthcare system-based models have since emerged.<sup>114, 115</sup>

The literature points to primary care and the patient-centered medical home as a framework for developing patient-centered models of OUD care coordination, likely due to its increasing role in the OUD treatment landscape<sup>104, 116</sup> (see Appendix A Table A5). Most of more than 50 proposed models in the literature use the medical home to coordinate primary care and specialty services according to patient preferences and context, including approach to buprenorphine initiation, opioid titration and tapering, chronic pain management, perioperative care, care transitions, management of co-occurring illnesses that impact OUD risk, and facilitation of care through referrals.<sup>99, 117–124</sup> For example, referrals that include “warm handoffs” for OUD may benefit patients at high risk for adverse outcomes.<sup>117, 118, 125</sup> Guidelines emphasize coordinating all aspects of OUD care; however, current measures assess coordination between acute care and ambulatory care environments but not between primary and specialty care or between members of a patient’s care team.

Formal, written care plans (e.g., “treatment plans,” “agreements,” or “contracts”) to coordinate care between providers and patients with OUD are supported by guidelines, and evidence shows they may improve patient-provider interactions, especially among patients with chronic pain and other complex needs.<sup>126–128</sup> The literature also identifies barriers to effective care plan use, such as lack of timely introduction and infrequent adherence to best practices. Moreover, contracts with non-evidence-based practices required for continuation of treatment, such as weekly UTT or mandatory therapy, can lead to dismissal from clinical practice. No quality measures to assess care plan documentation, timing, or adherence to best practices have been implemented into care.

## DISCUSSION

Quality measurement holds great promise to increase access to evidence-based, individualized OUD treatment by ensuring that providers and health systems are accountable to the highest standards of care. Traditionally, OUD quality measures have focused on improving standardized workflows for elements of care such as risk assessment and care transitions. Development of the EQuITable Care for OUD taxonomy adds to existing quality measurement frameworks by incorporating quality measures that are responsive to individual preferences, needs, and context. These additions represent a key step forward by promoting tenets of patient-centered care that are central to current OUD treatment guidelines and best practices but missing from current OUD quality measures.

Our review highlights several barriers to implementing patient-centered quality measures that may be addressed through the EQuITable Care for OUD taxonomy. First, patient-centered care, by its nature, can be difficult to assess. To date, most patient-centered quality measures have relied on patient experience surveys.<sup>129</sup> While patient experience is a key element of patient-centered care, it provides a limited picture of patient-provider interactions and overall care quality. This inherent measurement challenge is subject to selective reporting, recall bias, and delays in assessment and feedback. Administrative data avoids recall bias but is also subject to selective reporting<sup>130, 131</sup> and even greater time delays.<sup>132</sup> Table 2 shows how additional data sources may be leveraged to assess a broad range of patient-centered quality measures more holistically, promptly, and reliably. For example, directly observed care (e.g., audio or video recordings of patient-provider interactions) may be utilized to assess aspects of patient-centered care quality that are not accurately measured by patient surveys alone. Prior research shows directly observed care for quality measurement minimizes time delays in reporting.<sup>133</sup>

Second, patient-centered care is a longitudinal process that occurs before, during, and after clinical encounters. Reliance on a single metric at one point in time may result in an inaccurate or incomplete assessment of care that leads to negative unintended consequences, such as inappropriate clinical care, decreased provider focus on patient concerns, and compromise of patient education and autonomy.<sup>134, 135</sup> The EQuITable Care for OUD taxonomy delineates a set of six quality measure classifications and identifies multiple types of measures and data sources (Table 2) for each potential measure that comprise a holistic and dynamic assessment of OUD care. For example, inclusion multiple measures at a single point in time, such as a structural measure using administrative data for interdisciplinary

team composition and a process measure using directly observed care to assess patient experience and engagement, could leverage the strengths and overcome the limitations of each when used separately. Likewise, adding measures of patient engagement and quality of life, such as contextualization of care or depression or social functioning scales, can track provider and patient progress over time.

Third, high-quality evidence is lacking for many current OUD quality measures and practice guidelines.<sup>136</sup> A central objective of our review was to identify whether evidence for patient-centered care exists in the literature and where gaps may be present. We found that for measures of patient-centered OUD care, evidence varied widely, from substantial (high) to insufficient (low) levels. Our taxonomy identifies specific areas where additional evidence is needed so that future research may address these gaps. For example, providing high-quality patient education for OUD is a broadly accepted priority (e.g., AHRQ recommends six areas for patient education related solely to harm reduction—transmission, symptoms and treatment of infectious diseases; overdose prevention and intervention; sexual health to reduce sexually transmitted diseases and unplanned pregnancies; phlebotomy skills to avoid accessing arteries; safe disposal of syringes; wound care to prevent infection), but there is little evidence to guide best practices. Research addressing this gap could establish evidence-based tools for patient education that could be incorporated into future quality improvement interventions.

Fourth, the OUD treatment landscape is widely heterogeneous, with variations in care delivery models, provider training backgrounds, clinical disciplines, and geographic factors such as access to treatment resources and specialty services.<sup>137</sup> Thus, quality measures must be adaptable to diverse local settings while promoting a universal evidence-based standard of care. Measures of patient-centered care identified in our review are unique in that they have potential to both individualize care at the patient level and standardize care across healthcare systems and healthcare settings by providing a principle-based framework that fosters evidence-based care and discourages harmful practices. For example, assessment of shared decision-making through validated scales and direct observation can be applied and compared in different settings, which promotes standardization of shared decision-making in principle but allows for individual adaptation to specific contexts and heterogeneous environments.

The importance of incorporating patient-centered care into quality measurement for OUD is gaining recognition at national levels. In response to recent federal legislation in the Substance Use-Disorder Prevention That Promotes Opioid Recovery and Treatment for Patients and Communities (SUPPORT) Act,<sup>138</sup> the NQF convened a technical expert panel to issue guidance that measures of OUD care quality consider the context of specific patient groups, including pregnant women, detained persons, and racial minorities.<sup>18, 137</sup> NQF's conclusion was that needs are not uniform across the OUD patient population and that quality measurement should account for patient heterogeneity. EQuitable Care for OUD is responsive to NQF's call for improving quality measurement at the patient level.

## Limitations

We note limitations in our review. We searched only one publication database through a structured query and may have excluded relevant findings. However, by limiting the database scope of our search, we were able to simultaneously assess 12 domains of patient-centered care for comparison. We also searched on current terminology (i.e., “opioid use disorder”), which may have excluded older articles of potential relevance. Our intent was to focus our review on our current understanding of the disease, which is best represented by articles using current terminology. We further accounted for this limitation by including an unstructured review to identify articles of significant importance not identified within the structured query. Finally, we acknowledge that while we established consensus in our findings among multiple reviewers, reviewer bias is possible.

## CONCLUSION

Leveraging quality measurement tools is a powerful means of improving OUD care on both individual and population levels. This review identifies opportunities to address existing gaps in research and practice between current quality measurement and patient-centered quality measurement for OUD. Development of the EQUiTable Care for OUD taxonomy provides a roadmap to ensure that quality measures incorporate tenets of patient-centered care and promote treatment that is aligned with current guidelines and responsive to individual needs.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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## Disclosure Statement

- SJW participates in consulting work that utilizes methods described in this manuscript.
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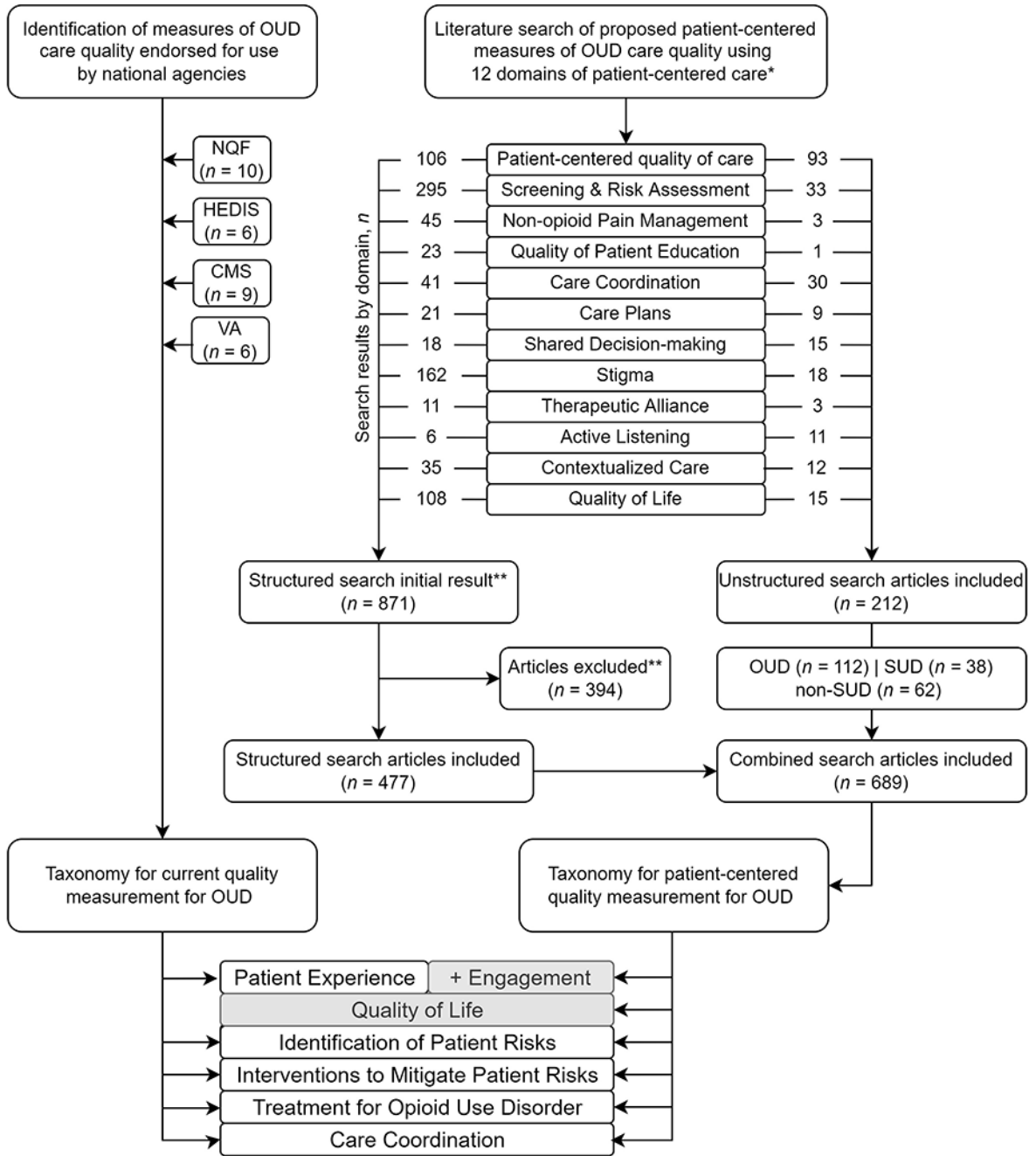
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**Figure 1.** Flow diagram for the development of the EQUiTable Care taxonomy for OUD. \*Domains are based on clinical practice guidelines from 1) The ASAM National Practice Guideline for the Treatment of Opioid Use Disorder: 2020 Focused Update (ASAM) <sup>10</sup>; 2) TIP 42: Substance Use Disorder Treatment for People With Co-Occurring Disorders (SAMHSA) <sup>11, 12</sup>; 3) Medication-Assisted Treatment for Opioid Use Disorder Playbook (AHRQ) <sup>13</sup>; and 4) VA/DoD Clinical Practice Guideline for the Management of Substance Use Disorders (VA/DoD) <sup>14</sup>.

\*\*This total includes 28 duplicate articles identified in separate search queries.

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**Table 1.**

Summary of quality measures currently used or endorsed for use in OUD care.\*

Classification	Taxonomy			Endorsing Agency				Data
	Measure	Description		NQF	HEDIS	CMS	VA**	Type/Source
<b>Patient Experience</b>	ECHO Survey, Veteran Satisfaction Survey	Survey or patient experience measures related to BH care		●			●	Self-report
<b>Identification of Patient Risks</b>	Discuss drug use with provider	Report of having discussed drug or alcohol use with provider in last 6 months					●	Self-report
	risk of opioid misuse	Misuse risk tool/screener or interview for opioid use > 6 wks					●	Process/Admin
	high-dose opioid use	Mean daily MME 90-120 for 15-90d/yr; (STORM)		●	●	●	●	
<b>Interventions to Mitigate Patient risks</b>	Rx from multiple providers	Population proportion w/ opioid Rx from multiple providers		●	●			Process/Admin
	annual monitoring	% individuals on long-term opioids w/ 1 urine drug test/yr		●			●	
	concurrent BZD	% individuals w/ Rx for opioids + BZD during yr		●			●	
	treatment initiation	Start treatment w/in 14d of diagnosis		●	●			
<b>Treatment</b>	prescription use	% OUD patients w/ filled Rx/ any med treatment during yr		●			●	Process/Admin
	treatment engagement	2 additional encounters/services w/in 34d of initiation		●	●			
	treatment retention	Continuous Rx 180d		●			●	
	after hospital discharge or residential treatment	Follow-up with a BH provider within 30d of discharge		●	●			
<b>Care Coordination and Navigation</b>	after medically managed withdrawal	% discharges for SUD followed by treatment service (any or w/in 7-14d)		●			●	Process/Admin
	after ED visit	% discharges for SUD withdrawal having follow-up w/in 7-14d		●			●	
		% ED visits for alcohol & drug use w/ follow-up w/in 7-30d		●			●	

ABBREVIATIONS: NQF = National Quality Forum; HEDIS = Health Effectiveness Data & Information Set; CMS = Centers for Medicare and Medicaid Services; VA = Department of Veterans Affairs; MME = morphine milligram equivalent; STORM = Stratification Tool for Opioid Risk Mitigation; BZD = benzodiazepine; BH = behavioral health; SUD = substance use disorder; ED = emergency department ECHO = Experience of Care & Health Outcomes

\* These measures reflect endorsements of national agencies as of February 2021.

\*\* VA includes a single measure that incorporates concurrent benzodiazepine use and high-dose opioid use (STORM).



Table 2. EQUII Table Care taxonomy, guideline support, evidence, measure types, and data sources for patient-centered quality measurement for OUD.

Classification	Taxonomy		Guideline Support*					Evidence Level**	Measure Type(s)***	Direct Obs	Admin	Self-report
	Measure	Examples	ASAM	SAMHSA	AHRQ	VA						
Patient Experience and Engagement	Shared decision making	<i>Patient-provider discussions to choose setting for MOUD initiation or choice of treatment</i>	●	●	●	●	●	Process	●		●	
	Stigma, equitable treatment	<i>Use of stigmatizing language or gestures</i>		●	●	●	●	Outcome	●			
	Listening/validation of concerns	<i>Active-Empathic Listening score; VR-CoDES score for patient concerns</i>	●	●	●		●	Process	●		●	
Quality of Life	Contextualized care	<i>Identification of life circumstances relevant to care according to contextualized care domains</i>	●	●	●		●	Process Outcome	●			
	Social support	<i>Professional, community, and family resources assessed/addressed</i>		●	●	●	●	Structure Process	●	●	●	
	Social functioning	<i>Illness and treatment impacts assessed/addressed</i>	●	●	●	●	●	Outcome	●		●	
	Housing	<i>Housing stability/environment assessed/addressed</i>		●	●	●	●	Outcome	●		●	
Identification of Patient Risks	Criminal justice encounters	<i>New encounters associated with substance use</i>	●	●	●		●	Outcome		●	●	
	Health-related quality of life	<i>Perceived physical/ mental health</i>		●	●		●	Outcome			●	
	Comprehensive risk assessment	<i>Completion quality of risk assessments/screenings</i>	●	●	●	●	●	Process	●			
Interventions to Mitigate Patient Risks	Documentation/follow-up	<i>Degree of follow-up planning and documentation for positive screening</i>	●	●	●	●	●	Process	●		●	
	Pain management with OUD	<i>Appropriate therapies &amp; referrals offered/discussed</i>	●	●	●	●	●	Process	●		●	
	Safe prescribing, harm reduction, surveillance, & contingency management	<i>Patient-specific plans to promote treatment adherence, reduce diversion, prevent non-prescribed drug use and overdose</i>	●	●	●	●	●	Structure Process			●	

Classification	Taxonomy	Examples	Guideline Support*					Evidence Level**	Measure Type(s)***	Data Source		
			ASAM	SAMHSA	AHRQ	VA	Current Evidence Level**			Direct Obs	Admin	Self-report
Treatment	Quality of patient education	<i>Health literacy-adjusted opioid safety training (e.g., naloxone)</i>	●	●	●	●	●	Process	●			
	Illness severity assessment	<i>Correct diagnosis/severity, OUDSS</i>	●	●	●		Moderate	Process	●			
	Psychosocial interventions	<i>Appropriate psychosocial interventions offered/discussed/individualized</i>	●	●	●	●	Moderate	Process	●	●		
Care Coordination and Navigation	Appropriate MOUD inductions/transitions	<i>Perioperative opioid transitions discussed; home induction protocols offered</i>	●	●	●	●	Moderate	Process	●	●		
	BH-primary/specialty care integration	<i>Clinical composition; Coordination of services</i>	●	●	●		Moderate	Structure Process		●		
Care Coordination and Navigation	Complex medical care coordination	<i>Comorbid conditions (e.g., IVDU, endocarditis, opioid-associated osteoporosis)</i>	●	●	●	●	Moderate	Process Outcome	●	●	●	
	Care plan use	<i>Opioid safety and treatment plans</i>	●	●	●		Moderate	Process	●	●	●	

ABBREVIATIONS: ASAM=American Society of Addiction Medicine; SAMHSA=Substance Abuse and Mental Health Services Administration; AHRQ=Agency for Healthcare Research and Quality; VA=Department of Veterans Affairs; MOUD=medication treatment for OUD; VR-CoDES=Verona coding definitions of emotional sequences;<sup>41</sup> OUD=opioid use disorder; OUDSS=opioid use disorder severity scale;<sup>129</sup> BH=behavioral health; IVDU=intravenous drug use

\* Guidelines are based on 1) The ASAM National Practice Guideline for the Treatment of Opioid Use Disorder: 2020 Focused Update (ASAM);<sup>10</sup> 2) TIP 42: Substance Use Disorder Treatment for People With Co-Occurring Disorders (SAMHSA);<sup>11</sup> 3) Medication-Assisted Treatment for Opioid Use Disorder Playbook (AHRQ);<sup>13</sup> and 4) VA/DoD Clinical Practice Guideline for the Management of Substance Use Disorders (VA).<sup>14</sup>

\*\* Evidence level is defined using guidance from the Grading of Recommendations, Assessment, Development and Evaluations (GRADE) classification system for evidence, <sup>130</sup> as follows: **High:** 1 systematic review/meta-analysis with clear positive findings; **Moderate:** Some clinical trials, observational studies, qualitative studies, and/or surveys with clear positive findings; **Low:** mixed findings and/or no clinical trials or observational, qualitative, or secondary data studies. Levels of evidence were assessed with respect to patients with OUD and not generally. Levels also reflect what the evidence shows about the likely impact of assessing care using measures similar to those presented, *not* the strength of the association between a deficit in measure performance and adverse outcomes.

\*\*\* Measure types are based on the Donabedian model of quality measurement.<sup>17</sup>