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"1,000 conversations I'd rather have than that one:" a qualitative study of prescriber experiences with opioids and the impact of a prescription drug monitoring program

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Abstract

Background: Prescription Drug Monitoring Programs (PDMPs) have shown impacts on a number of opioid-related outcomes but their role in clinician emotional experience of opioid prescribing has not been studied. Objectives: This study explores the impact of PDMPs on clinician attitudes toward and comfort with opioid prescribing, their satisfaction with patient interactions involving discussion of opioid prescriptions, and their recognition of opioid use disorder (OUD) and ability to refer patients to treatment. Methods: Researchers conducted semi-structured interviews with 5 physicians and 2 nurse practitioners from a variety of specialties and practice environments. Results: Many participants reported negative emotions surrounding opioid-related patient encounters, with decreased anxiety related to PDMP availability. These effects were less pronounced with clinicians who had greater opioid prescribing experience (either longer careers or higher-volume pain practices). Many participants felt uncomfortable around opioid prescribing. Data from the PDMP often changed prescribing practices, sometimes leading to greater comfort writing a prescription that might have felt riskier without PDMP data. Clinicians easily recognized patient behaviors, symptoms, and prescription requests suggesting that opioid-related adverse events were accumulating, but did not usually apply a label of OUD to these situations. PDMP findings occasionally contributed to a diagnosis and treatment referral for OUD. Conclusions: PDMP data is part of a nuanced

approach to prescribing opioids. The objectivity of the data may be helpful in mitigating clinician negative emotions that are common around opioid therapy.

Keywords

Prescription drug monitoring programs, opioid-related disorders, attitude of health personnel

Introduction

The opioid epidemic is a well-recognized public health crisis, with rising rates of overdose death from heroin and fentanyl and continued mortality related to prescription opioids.[1] Prescription opioids have been linked to increasing use of non-prescription opioids, and there is growing recognition of prescription opioids as a high-risk medication requiring a careful evaluation of risks and benefits as well as close monitoring.[2,3] The increasing population of patients with addiction is one that the non-specialty workforce feels unprepared to care for, and finds less professionally satisfying than those with other chronic diseases.[4–6] Patient encounters related chronic pain and negotiations regarding pain treatment are areas where clinicians describe emotional challenges such as discomfort, guilt, and frustration.[7–9]

Prescription drug monitoring programs (PDMPs) are state databases of controlled substance dispensing intended for use by prescribing clinicians, dispensing pharmacists, and others to track a patient's prescriptions across prescribers, pharmacies, and payers. By viewing a patient's PDMP record, clinicians can see prior controlled substance prescriptions including medication name and dose, number of pills dispensed, prescriber, form of payment, and other data. PDMPs have been widely implemented and often mandated,[10] and although some reports suggest they may decrease mortality from overdose,[11,12] there is other data showing no impact on mortality.[13,14]. A recent study showed that one-click EHR-integrated access significantly increased PDMP queries

without much change in prescribing behavior.[15] Some research on PDMPs has shown a reduction in opioid volume prescribed (especially Schedule II),[16–19] but other studies have shown no effect.[20,21] The literature describes variable impacts on prescribing and dispensing as well as opioid-related harms.[19,22] Methodology of these studies has varied, with the specific intervention including PDMP availability, PDMP mandate, and actual PDMP use

However, PDMPs have a number of other potential benefits, and have been shown in surveys to improve physician comfort with prescribing opioids.[23] Qualitative research has shown that PDMP data impacts decision making for primary care physicians and pharmacists,[24] that data interpretation and care coordination are challenging,[25] and that clinicians are broadly accepting of the existence of PDMPs.[26] Though unproven, the use of PDMPs has been hypothesized to decrease polypharmacy and "doctor shopping."[10] Mandating PDMP use has been shown to decrease risky concurrent opioid prescriptions and opioid/benzodiazepine co-prescription.[27] There are also legal and regulatory goals of these systems, as well as public health surveillance opportunities.[28,29] Although prescribing opioids and handling requests for opioid prescription is well-described as a challenging emotional and social experience for clinicians,[8,9,30] there is currently no literature exploring the role of PDMPs on the emotional experience of clinicians when prescribing or discussing opioids. We aim to explore the impact of PDMPs on the attitudes of a variety of clinicians toward and comfort with opioid prescribing, their satisfaction with patient discussions about opioid prescriptions, and their recognition of opioid use disorder (OUD) and ability to refer patients to treatment.

Methods

Setting and Participants

We approached 12 clinicians (physicians and advanced practice providers) from a range of specialties and experience levels. Seven agreed to be interviewed: two were primary care physicians, one was a chronic pain physician, one a palliative care nurse practitioner (NP), one an oncologist, one a surgical subspecialty NP, and one was an internal medicine resident. The others did not respond to the interview request, or agreed to be interviewed but did not respond to requests to schedule. Participants averaged 5 years in practice, with a range of 1-16 years. Participant characteristics are shown in table 1. All participants interviewed were familiar with the PDMP and its use, and queried it regularly as required by state law. All were affiliated with the same large urban academic health system in a city with a high prevalence of OUD.

Table 1. Description of Participants

Number of participants	7
Gender	
Male	5
Female	2
Profession	
Attending physician	4
Resident physician	1
Nurse practitioner	2
Specialty	
Internal medicine	3
Chronic pain	1
Palliative care	1
Surgical subspecialty	1
Oncology	1
Practice location	
Inpatient	1
Outpatient	3
Both	3
Years in practice (current role)	
0-2 years	2
2-5 years	3
5-10 years	1
10-15 years	0
15-20 years	1

Data Collection

Interviews were conducted by one author (JZ). The interview guide (see appendix 1) contained questions about their attitude and emotions toward opioid prescribing, their trust in patients who request or receive opioid prescriptions, and any changes noted as a result of PDMP availability; it also elicited descriptions of encounters involving opioid prescriptions, prescription requests, and PDMP queries. We asked about their understanding of opioid use disorder, and the role of the PDMP in their diagnosis or suspicion of this condition. Audio recordings of each interview were transcribed verbatim by an independent third party.

According to XXXXX XXXXXX XXXXXX institutional policy, this study was exempt from Institutional Review Board review because it did not meet the federal definitions of human subjects research. Participants gave verbal consent and received no compensation for their time.

Data Analysis

Thematic codes were initially developed a priori based on literature review and interview guide, with the creation of additional codes after two investigators (JZ, AW) read all transcripts. Code definitions were developed and refined during the coding process to improve intercoder reliability (see appendix 2). Two authors (JZ, AW) independently coded all seven deidentified transcripts using qualitative research software (NVivo version 12). Discrepancies in coding were resolved by consensus. Quotes representing major themes were selected by the study team and appear in table 2.

Intercoder reliability was calculated using the κ coefficient, with a mean κ of 1 recognized as perfect agreement between coders, a mean κ of 0.81-0.99 recognized as near perfect agreement, mean κ of 0.61-0.80 recognized as substantial agreement, and a

mean κ of 0.41-0.60 recognized as moderate agreement.[31] The mean κ was 0.9508 which corresponded with 98.3% agreement.

Results

Impact of the PDMP on presciber attitudes toward and comfort with opioid prescribing

Most participants responded in the affirmative when asked if they feel differently about opioids compared to other treatments they prescribe, citing lower efficacy and higher risks compared to other chronic treatments. Two prescribers with high chronic pain-volume practices both responded "yes and no" to this question and described opioids as a "necessary tool" for their patients; one noted that all medications have risks and benefits that need be carefully considered, and another pointed out that his patient population has exhausted other treatments (implying that opioids are a "last resort" treatment). Several participants (internal medicine physicians and surgical specialty NP) described themselves as more nervous or less comfortable when prescribing opioids.

All participants reported routinely querying PDMP prior to new opioid prescription, and most reported obtaining some similar information in other ways before PDMP availability. When asked if this outside data ever changes the plan, one participant replied, "it almost always changes my plan." Multiple prescribers, multiple short opioid courses, or any discrepancy between patient report and PDMP results made participants less likely to prescribe. However, one pain-experienced clinician noted that a concerning pattern of PDMP findings can often appear when other clinicians are hesitant to prescribe opioids even if they are an appropriate treatment, and that corroborating with the patient interview can build trust in this scenario. The primary care doctors noted that PDMP evidence of a chronic opioid prescription increases their likelihood of continuing this prescription on the first visit when a patient transfers care

to them. One expressed ambivalence about having this information available; he was glad to have the needed data to safely prescribe to some patients on the first visit, but he lamented losing the excuse of lack of documentation to prevent him from continuing legitimate but potentially inappropriate prescriptions for other patients. Previously in his practice, conversations about appropriateness occurred after a delay to obtain documentation, at which point he knew the patient slightly better, and the initial visit avoided this conflict. Sometimes his initial unwillingness to prescribe without records led to the patient not returning.

One participant described a request for opioids from a patient whom the clinician perceived as high risk for problem use or diversion of opioids. Using PDMP data, the clinician determined that the patient had no prior opioid prescriptions and had not been prescribed opioids after a recent surgery. The clinician chose to prescribe opioids and felt comfortable doing so in light of the PDMP data; he reports that the patient's social history (no income source) and strong family history of addiction might have prevented him from offering this prescription in the absence of that data. No problems resulted from that prescription as far as the participant is aware. In contrast, this participant did not obtain PDMP or other data prior to a new opioid prescription in a patient whose social history suggested low risk for problem use or diversion.

Impact of the PDMP on satisfaction with patient interactions involving discussion of opioid prescriptions

When asked to describe emotions related to opioid prescribing, or handling requests for opioids, most participants reported a variety of negative emotions including discomfort, anxiety, nervousness, and dread (each of these terms was used by at least two participants). The reasons for these negative emotions ranged from fear of causing harm and an awareness of opioid risks; to the anger expressed by patients during these

encounters; to the large amounts of time needed to devote to these conversations. Two participants noted the subjectivity of assessing patient opioid risk as a source of anxiety, with both undertreatment of pain or underestimation of opioid risk both potential bad outcomes. One participant mentioned fear of being "played a fool" and used as a source of opioids to be used recreationally. Several participants noted that tension and negative emotions arose from the discrepancy between patient and clinician beliefs about the appropriateness of opioids, one noting that "it's uncomfortable to deny a patient something that they want or think they need and puts me in … almost an adversarial role."

Though they were asked about their own emotions, the majority of participants described patient anger at some point in their interviews. Those most highly experienced with opioid prescribing were the only participants not to describe purely negative emotions around opioid prescriptions or inappropriate requests. A frequent prescriber described conversations around inappropriate opioid requests as a "challenge" but did not report any discomfort; he described tapering inappropriate opioids and discharging a patient from his practice as a simple, straightforward process. Another participant reported experiencing some anxiety about the quality of the palliative team's risk assessment, as this is an inherently subjective process; but she described having difficult conversations well as the most gratifying part of her job. The experienced (16 years in practice) internist expressed some discomfort but generally an attitude more similar to those with pain-related specialties, and the newer-to-practice (5 years in practice) internist expressed nervousness and discomfort but less than those with less continuity in their patient population (the medicine resident, the surgical NP), suggesting a role for both continuity and volume of opioid prescriptions in mitigating this distress.

Participants described less awkwardness and less anxiety during conversations about opioids with PDMP data available. Several participants felt the availability of the objective data from the PDMP helped them trust their patients more. The medicine resident had a highly favorable opinion and described it as a "game changer." Several participants noted that PDMP data can make opioid request conversation easier by clearly demonstrating the clinician's reasoning for declining to prescribe requested opioids. For example, one primary care doctor faced a request to continue an exceptionally high-dose opioid regimen from a retired physician, and was able to demonstrate to patient using the PDMP that this prescription had been legitimate but was now too far out of date to be considered "continuation." Interestingly, although no participants listed concern about their license or controlled prescription privileges at any point when discussing their general opinion of opioids or appropriate indications, two participants used this reasoning when discussing their prescription decisions with their patients. Another participant explained that when the PDMP showed aberrant behavior, this prompted a thorough discussion with her patient with a clear focus on minimizing harm rather than "catch[ing] them in the act of doing something bad."

Impact of the PDMP on recognition of opioid use disorder (OUD) and referral to treatment

Many participants described situations where a previous opioid prescription was no longer appropriate. The primary care doctors and the pain specialist all routinely discussed tapering opioids when doses had become inappropriately high or in cases of risky use. However, the primary care doctors described continuous negotiation when their patients disagreed with this plan, whereas the pain specialist described a simple process of taper and discharge from his practice if the patient disagreed with his plan. Participants did not generally apply a label of "OUD" to these situations, and the pain

physician in particular described situations where he was able to intervene early as patients developed risky opioid behavior, allowing many patients to safely continue their prescription.

When asked about findings concerning for OUD, participants listed a number of findings: resistance to tapering high doses or in the face of adverse effects, requesting early refills, reporting to the office in opioid withdrawal, or reporting unlikely pain management instructions from prior doctors. One participant described specific opioid problem use screens in place in her practice. The hospital-based clinicians described rare but memorable situations of exceptional behavior leading to OUD suspicion. The chronic pain and palliative specialists described frequent addiction referrals for their patients; other participants described missed opportunities for referrals, or uncomfortable conversations when attempting to address the issue.

Early fills or multiple different opioid prescriptions can sometimes be detected on the PDMP, leading to suspicion of OUD. One participant described a situation where other factors led to a suspicion of OUD, and in retrospect there were concerning findings on the patient's PDMP record that had not been recognized. Another participant described uncovering a history of OUD in a patient who initially denied this using a PDMP query that revealed periods of being prescribed Suboxone, a medication for OUD. Two participants described instances of suspected SUD in a patient's family member (in one case also a patient) on the basis of the patient's condition, urine drug screen, and PDMP data; in these cases the patient was thought to be diverting the controlled substance to their family member. In one of these cases, the affected patient was successfully referred to addiction treatment.

Table 2: Themes and Representative Quotations

Theme	Findings	Representative quotes
Impact of PDMP on attitudes toward and comfort with opioid prescribing	Increased comfort due to objective information	…the PDMP gives me more comfort because then I have a way of really accessing that they're really not going somewhere else.
	Information from PDMP was always useful, but previously harder to obtain	I think it's helped [anxiety with prescribing opioids]. I think the more information you have when you're really unsure the better. I remember before the PDMP just having to call pharmacies and having to rely on the patients to tell me what pharmacies. You were really relying on half information.
Impact of PDMP on satisfaction with patient interactions involving discussion of opioid prescriptions	Less pain-experienced practitioners had negative emotions around prescribing	It used to make me really nervous, it's gotten a little better, but still there's probably about 1,000 other conversations I'd rather have than that one, which is saying a lot, including a goals of care discussion I'd rather be present for than having an argument about opioids
	Pain-experienced prescribers reported this less	If you can come to people with mutual respect and establish the relationship where they know that you're just trying to help them and be supportive then it can be super gratifying.
	Conversations about inappropriate requests can be uncomfortable	Often patients will say but this dose helps me I've been on it for many years and it's often an uncomfortable discussion negotiating with a patient what my belief verses what they think they need. And there are other times when patients will want an opioid for something I don't think is necessary and often I'll have an uncomfortable discussion about why I'm not willing to give it to them.
	PDMP data can confirm inappropriateness of prescription and assist with patient communication	…the PDMP I think makes this conversation… a lot easier. It's, "Look, here's documented proof that you're doing something that is clearly not a good practice. I can't participate in that. My license won't allow me to." It actually makes it much, much easier to say no, I

		think…It's just very easy for me to say, "You're getting this prescribed with somebody else. I can't in good conscience do that. Please go back to them for these requests."
	Discussing unexpected PDMP results can be challenging	It did sort of turn into a little bit of an argument because he was saying, “Well, I never got that.” “Well, I don’t have proof that you never got it, so it’s a little difficult.” … it was definitely a little bit of a confrontation.
	Having objective data contributes to clinician trust in the patient	Being able to immediately verify a dose makes a huge difference in how much I trust people’s – like if they tell you, “Oh, I take this much,” and then you can immediately see like, “Oh, they do take this much and have been getting it filled for years.” I mean just it makes you feel a lot better about trusting their history, the pain issues.
	Discussing PDMP results with the patient can increase the patient’s trust in the clinician	I’ve had a lot of situations where a patient has been sent to us because people are saying that, oh, they have all these short scripts, they’re doc shopping, this and that, and then you sit down and talk to the patient and you line it up with the record, and it’s really clear that other people had been really fearful of prescribing for them. It was easily understood why they had gotten into that situation, and the PDMP perfectly matched with their history and was able to help establish trust.
	…or decrease it	…there’s other people that immediately sort of get a little defensive. You can tell they don’t trust you as much anymore and you don’t trust them as much anymore either.
Impact of the PDMP on recognition of opioid use disorder (OUD) and	OUD can be difficult to detect in short-term relationships	I think that I’m routinely surprised, not even in the hospital, just people that you see that have addiction problems. So, I don’t feel like I’m great on picking up on it.

referral to treatment	PDMP data can contribute to a suspicion of OUD	A recent admission we have had five different prescribers of opiates. I feel like that alone kind of raises your suspicion about OUD.
	PDMP data for one individual has contributed to suspicion of SUD in another	They saw me once and their significant other saw me, as well, and actually before the PDMP but then post-PDMP, I saw that the patient that I still take care of was getting Xanax and oxycodone prescribed every single month despite the fact that she tells me that she was not taking these medicines and her husband is the one filling them under her name.
	Referral to treatment occurred frequently in high-volume chronic opioid practices	I can't remember specifically but we've definitely had a number of situations but I think we've either said you have to - refer them to addiction counseling they've either gone or they haven't. The ones that haven't gone then we have to stop prescribing opioids.

Discussion

These interviews demonstrated nervousness and discomfort around opioid prescribing. Many of the themes elicited echo the findings of Matthias et al in their exploration of primary care providers' experiences treating chronic pain.[9] Clinicians were concerned about the level of risk with this treatment, both related to opioid adverse effects like overdose and addiction, and undertreatment of pain through excessive caution. Other studies have documented clinician concern for opioid risk as well as concern about patient pain, especially when access to alternative pain treatments is limited.[30,32,33] These concerns have been demonstrated to drive greater PDMP use.[34] One survey described a correlation between concern for opioid risk and greater prescribing confidence,[35] while another noted that awareness of CDC prescribing guidelines for chronic opioid therapy was not associated with reluctance to prescribe.[30] Participants in

this study described some benefit of having objective PDMP data as an opportunity for risk assessment and mitigation. Interestingly, one participant described using PDMP data as an objective marker in favor of opioid prescription, when the patient's social history had led him to perceive high risk; he prescribed opioids to the patient, who then never requested another prescription. Disparities in pain treatment by race and other factors have been well documented, especially when clinicians face high cognitive demands; since implicit more than explicit bias is felt to drive these disparities, the subjective nature of assessing opioid appropriateness likely perpetuates these disparities.[36–40] This suggests a role for PDMPs to assist in a more objective assessment of risk, especially as the multiple available risk assessment tools have only moderate performance.[41] It also argues in favor of encouraging universal PDMP query, as choice to query can vary based on patient factors.[42]

In addition to concern about opioid prescription in general, participants reported a variety of negative emotions related to patient encounters where opioids are discussed. Many participants described clinician-patient tension during these encounters, which is consistent with prior literature describing pain treatment negotiation encounters as emotionally burdensome for clinicians and characterized by power struggle.[8,9] In one study, over 25% of prescribers agreed with the statement "I feel manipulated by patients to whom I prescribe opioids."[30] Those less experienced with opioid prescribing described more distress from this. However, an early-career primary care physician evinced less distress, especially as he built trust with his patients over time; this suggests a role for both prescription volume and patient continuity in mitigating this distress. One survey shows a greater perception of PDMP usefulness among emergency medicine providers (very low continuity) compared to other specialties, and another shows high rates of PDMP use among this specialty.[43,44] Of course, personal factors of

clinicians leading to career selection may be as causal as career experiences when explaining these differences.

PDMP data, in combination with other findings, sometimes led to a diagnosis or suspicion of OUD. However, participants did not describe PDMP data alone as leading to new diagnoses of OUD. Physicians in surveys have perceived PDMP data as "useful … for identifying patients who misuse or abuse controlled substances."[45] Suspicion did not always result in a formal addiction referral. Though the availability of data that could lead to an OUD diagnosis suggests a greater likelihood of diagnosing patients, referral for treatment was only common in practices that saw a large volume of patients primarily for pain, and was uncommon among hospital-based clinicians without longitudinal patient relationships. This is consistent with prior work describing multiple barriers to treatment referral.[46] In fact, many addiction treatment referrals originate from the criminal justice system and other locations outside the healthcare system; there are serious doubts about the effectiveness of legally-mandated treatment.[47,48] A limited analysis showed no increase in buprenorphine prescriptions after several states instituted PDMP mandates.[18] Regarding high-risk opioid behavior not rising to the level of an OUD diagnosis (such as obtaining opioids from multiple prescribers), it is hard to determine from these interviews if the PDMP has a deterrent effect, as one participant hypothesized. In a survey of obstetrician-gynecologists, up to one quarter reported making prescription changes as a result of PDMP data, but fewer reported referral for treatment.[49] PDMP data availability may reduce the likelihood of inappropriate opioids being prescribed to a high-risk patient in an acute encounter, but may not increase the chances of that individual being referred for addiction treatment.

Addiction specialists in a position of leadership, or who educate non-specialty clinicians, should be aware of these features of PDMPs and guide non-specialty

clinicians in their potential utility. To help mitigate addiction stigma and discomfort around the use of opioids, the utility of objective data in opioid risk assessment should be emphasized. The potential role of PDMPs in identifying OUD and initiating treatment referral should be discussed, as this may be a frequent missed opportunity. Policymakers with influence over the design of PDMPs should be aware of the multiple uses of this information by clinicians.

The limitations of this study include the small sample size and the unknown representativeness of the sample. It is unknown whether each participant is representative of their practice type. The population skewed male and newer-to-practice, and consisted of clinicians in a single health system. Surgical specialties are underrepresented. Given other differences in patient population and practice patterns, it is most likely that this sample is not nationally representative.

Conclusions

Data obtained from the PDMP is part of a nuanced approach to prescribing opioids. The objectivity of the data may be helpful in mitigating clinician negative emotions that are common around opioid therapy. This effect is especially pronounced in clinicians with a lower volume of patients with chronic opioid therapy, or with less patient continuity.

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