Understanding institutional physician chronic opioid prescription practices for the improved implementation of newly developed EMR tools

By

Sonal Gagrani

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ABSTRACT

Understanding institutional physician chronic opioid prescription practices for the

improved implementation of newly developed EMR tools

Sonal Gagrani

The University of Texas Southwestern Medical Center, 2021

Supervising Professor: Enas Kandil, M.D, MSc

Background: Chronic non-cancer pain (CNCP) affects a significant portion of the United States population each year and is often treated with chronic opioids. There has been a rise in prescription opioids over the past 20 years, accompanied by a rise in overdose deaths as well. In order to improve patient safety related to opioid prescribing, several state and national policies including the 2016 "CDC Guidelines for Prescribing Opioids for Chronic Pain" have been developed recently to guide CNCP management. These recommendations include the use of pain management agreements, urine drug screening, prescription monitoring programs (PMP) and risk and pain assessments among others.

Local Problem: In Texas, several recent policies have made CNCP practices mandatory, requiring support in order to enforce them. At the University of Texas Southwestern Medical Center (UTSW), there is no current reliable measure of CNCP policy adherence.

Preliminary chart review by students at our institution showed low adherence overall, which may be secondary to poor documentation.

Methods: A set of surveys were developed to subjectively measure physician barriers to policy adherence, attitudes toward the policy components and current opioid prescribing practices. This survey was administered via electronic communication before and after the intervention to any physician at our academic medical center prescribing chronic opioids to at least one patient. Implementation science outcomes of appropriateness, adoption and acceptability were targeted by these surveys in order to inform implementation strategies for the intervention.

Interventions: A multi-faceted intervention including an electronic medical record (EMR) navigator tool, chronic opioids registry and physician education was developed by the institutional opioid task force to improve accessibility, documentation and understanding of opioid prescribing guideline recommendations.

Results: Physicians who had used the EMR navigator tool reported overall greater use of several guideline-concordant treatment components compared to those who had not used it (p < .05). Physicians who received opioid prescribing training were more aware and familiar with the policy (p < .0001). Those who were more familiar with the policy were more likely to use pain management agreements, urine drug screens and pain assessments. No specific barriers to policy adherence stood out as a remediable concern. Only a small percentage of respondents reported co-prescribing naloxone for high-risk CNCP individuals.

Conclusion: An EMR navigator tool to improve accessibility of treatment components is

effective in improving policy adherence at an academic medical center. Physician education is also effective in improving awareness and familiarity with the policy. Future steps include the study of patient-centered outcomes surrounding the intervention. There is also room for the support of other CNCP guidelines including co-prescription of naloxone for high-risk individuals and decreasing chronic opioid prescription strengths at our institution.

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CHAPTER 1 Introduction

Problem Description

In order to improve patient safety related to opioid prescribing, several state and national policies have been developed recently to guide chronic pain management.[1,2] In Texas, several recent policies have made chronic pain practices mandatory, requiring support in order to enforce them. At the University of Texas Southwestern Medical Center (UTSW), there is no current reliable measure of chronic pain policy adherence. Preliminary chart review by students at our institution shows low adherence overall (unpublished data).

Available Knowledge

Chronic non-cancer pain (CNCP) is one of the most common ailments impacting our country every year, affecting more than 20% of Americans in 2016.[3] It is often treated with chronic opioids despite the controversial evidence regarding their effectiveness.[4-6] The use of chronic opioids has risen significantly in the past several decades, and overdose deaths involving prescription opioids specifically were 5 times higher in 2017 compared to 1999.[7] Opioids are currently the main cause of drug overdose deaths in the United States, taking more than 42,000 lives in 2016. More than 40% of these overall deaths were due to prescription opioids and 1,376 occurred in Texas alone.[7]

There are several national and state policies in place to improve upon opioid prescribing practices. In 2016, the CDC released "Guidelines for Prescribing Opioids for Chronic Pain."[1] Additionally in 2016, the Texas Medical Board (TMB) released a more

stringent state policy on CNCP treatment. These policies contain specific treatment components including checking the state prescription monitoring program (PMP) periodically, ordering urine drug screens (UDS), maintaining pain management agreements, evaluating and discussing risks and benefits of pharmacologic treatment, documentation of medical history, physical examination and treatment plan, trials of non-pharmacologic treatment prior to chronic opioid use, an informed consent process, and appropriate consultation and referral for high-risk individuals.[2] The TMB policy closely mirror recommendations given in the CDC guidelines. The CDC guidelines also include recommendations to avoid co-prescribing opioids and benzodiazepines, offering a standing naloxone co-prescription to patients at high risk for overdose, and minimizing opioid doses to less than 50 Morphine Equivalent Daily Dose (MEDD). Another Texas state policy that was instituted beginning in March 1, 2020 includes House Bill 3284 which mandates physicians check the state PMP prior to prescribing opioids, benzodiazepines, barbiturates, and carisoprodol.[8]

With all of these new policies in place for more careful monitoring of chronic opioid prescribing, many recent interventions have been developed to improve opioid treatment policy adherence.[9-13] A 2016 study described a combination of nurse care management, a patient registry, electronic tools and provider education to improve physician adherence and decrease opioid misuse.[14] This study showed significant increases in physician use of the treatment components in their institution.[15] Other studies have used self-assessment tools and process improvement in clinic workflow as mechanisms of change.

A multidisciplinary task force at UTSW has developed a multi-step intervention to improve physician adherence to the above policies. This intervention includes an electronic medical record (EMR) navigator tool along with physician education and a newly developed chronic pain registry. In an effort to support implementation of these interventions, we conducted a survey of physicians to assess barriers to adherence to these guidelines as well as their current attitudes, beliefs, and practices regarding the policy recommendations. Studies have previously been done to identify physician barriers to policy adherence, including factors such as lack of knowledge, lack of time, impedance to workflow, etc.[16,17] Additionally, several similar surveys have been conducted in the past to assess opioid prescribing practices and attitudes and the impact of educational interventions on prescribing behaviors.[18-25] Many of these studies suggested opioid prescribing education and the need for better decision-making tools as paths to improving opioid treatment standards, which is the goal for our intervention.

Rationale

While the CDC guidelines are simply recommendations for CNCP prescribing, the TMB policy solidifies these recommendations into law. Improving adherence would make physicians more aware of their patients' opioid history and potentially prevent over-prescription, particularly to high-risk individuals. This contributes to improved patient safety in chronic pain treatment and potentially fewer overdose deaths. As the TMB policy is mandated by the law, there are significant legal impacts for physicians that may occur from nonadherence including loss of licensure.

In the study of our intervention, we completed a thorough literature review on barriers to policy adherence and drew from implementation science models to shape our survey questions. The multi-faceted intervention was directed toward several of these barriers including lack of accessibility and time, lack of knowledge/familiarity, etc. Given that we were addressing some of the most common barriers presented in the literature, the intervention was expected to work. Specifically, it was expected to work at UTSW, a large academic medical center with an EMR and significant population receiving chronic opiates. Additionally, the survey was thought to be a valuable resource in understanding the ways in which implementation of the intervention could be supported given the focus on various implementation outcomes including appropriateness, adoption and acceptability.

Specific Aims

Our overarching aim was to improve care for CNCP patients at UTSW by increasing physician adherence to Texas Medical Board CNCP treatment requirements to 100%. The specific aim for this project was to understand the current physician attitudes, practices and barriers to adherence to the TMB chronic pain policy to guide implementation of the UTSW opioid task force's newly developed EMR chronic pain navigator tools and related interventions.

CHAPTER 2 Methods

Context

Our study was conducted at UTSW, a large academic medical center, and the intervention involves integrating pain management tools into an EMR. While our main focus was on improving adherence to the TMB chronic pain policy, the policy draws primarily from the CDC national guidelines.[1] Thus, the EMR navigator tools and survey measures we used are likely to be useful on a national level, though perhaps limited to areas with advanced EMR systems. It should be noted that these guidelines exclude cancer and palliative care patients as the benefit of chronic opioids for these patients outweigh the risks given their end-of-life decision making.

Intervention(s)

An opioid task force at UTSW has worked to create a navigator tool for the institutional EMR that could make the treatment components more accessible and provide best practice alerts (BPAs) that aligned with the current guidelines. This task force is comprised of physicians, nurses, technologists, lawyers and quality officers for a multidisciplinary approach to improve policy adherence. The tool provides accessibility to several chronic pain treatment components that are summarized in **Figure 1.** Additionally, the task force developed a chronic opioid registry in the EMR that included all patients who received at least three months of chronic opioids for easier indexing and tracking of CNCP patients. The registry includes information such as whether or not a pain management agreement is documented, the last prescription date, the drug category, date of last UDS, and the

last prescribing provider. Provider education regarding chronic pain management guidelines and use of the new EMR navigator tool was then presented at various clinic departmental meetings and became required online training across the institution. The state PMP was integrated into the EMR for ease of access. BPAs were developed for overdue urine drug screens, PMP checks, etc.

Study of the Intervention

A survey was developed using REDCap to assess physician barriers to policy adherence, current use and value of policy components, and other chronic opioid prescribing practices.[26] It addresses several implementation science outcomes including appropriateness, adoption and acceptability.[27] This survey was reviewed for content validity by an anesthesiologist on the opioid task force. Pre-intervention data were collected in July 2018 while post-intervention data were collected February 2020. The survey was sent via electronic communication to all physicians treating at least 1 CNCP patient at UTSW with chronic opioids (85 physicians pre-intervention, 362 post-intervention). This list was generated by collecting the names of ordering providers from the chronic pain registry that was recently developed for the institutional EMR. Any physician respondents from oncology and palliative care clinics as well as hospitalists were excluded from the analysis per the CDC guideline exclusions (8 physicians pre-intervention, 26 physicians post-intervention).[1] The pre-intervention survey contained 29 questions whereas the post-intervention survey contained 46 questions as it was revised to be more thorough. In both pre- and post- settings, one initial email followed by a

subsequent reminder email 1-2 weeks after were sent.

Measures

The first part of the survey assessed physician characteristics including their years practicing medicine in Texas and overall, clinic, number of CNCP patients treated, and whether or not they have previously received chronic pain management education at UTSW or elsewhere.

All of the following questions were measured on a Likert scale. A series of questions assessed physician barriers to adherence to the chronic pain policy. The barriers we assessed were drawn from previous studies as well as team discussion and mapped out in a fishbone diagram (**Figure 2)**.[16,17] This would provide us more focus to direct implementation efforts. These barriers included value of chronic opioid treatment, policy awareness, policy familiarity, importance to patient care, expected legal impact, impact on workflow, and policy value. Barriers to adherence were also assessed with a free-response section in the pre-intervention survey and grouped by theme. Based on those responses in the pilot survey, the post-intervention survey also included impact on physician-patient relationship, lack of accessibility, lack of time, and questionable benefit to patient as measured barriers.

The next set of questions refers to the individual components of the CNCP guidelines. The specific components we studied were pain management agreements, urine drug screens, PDMP use, risk assessment tools, and pain assessment tools. In the pre-intervention survey, physicians were asked to rate 1) how much value they

placed in each component, 2) how often they currently used it, and 3) how willing they would be to improve their use if the components were made more accessible. In the post-intervention survey, the first two parts of this (value and use) were repeated and an additional section was added regarding how useful the EMR navigator tool was in improving their use of each component if they had used it.

The post-intervention survey contained an additional set of questions assessing various other CNCP guideline recommendations.[1,2] They suggest other recommendations including using alternative therapies before pharmacologic therapy (e.g. physical therapy, exercise, etc.), co-prescribing naloxone with chronic opioids for high-risk individuals, avoiding opioid and benzodiazepine co-prescribing, use caution prescribing over 50 MEDD, and avoiding prescribing over 90 MEDD.

Analysis

Physicians demographics and survey responses by rating are reported with a calculated mean and standard deviation or percentage and count based on the variable type. In the discussion of descriptive statistics, responses were grouped by the top two ratings on each type of response scale (Very and Extremely; Often and Very Often) and compared to all the lower ratings (Not At All, Slightly, and Moderately; Never, Rarely, and Sometimes) combined. Associations between two categorical variables on the Likert scale were determined using Fisher's exact test. Differences in mean response ratings of survey measures between binary variables (e.g. yes or no) were determined using a two-tailed Student's t-test. Mean ratings of survey measures based on number

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of CNCP patients respondents had were assessed with ANOVA. All statistical analysis and data management was performed using Microsoft Excel (Version 16.34).

Ethical considerations

Patient information from the chart review was stored on an encrypted flash drive and handled based on UTSW standards of patient privacy. Physician survey responses were anonymous with no identifying information.

CHAPTER 3 Results

The pre-intervention survey response rate was 45.9% while the post-intervention rate was 24.3%. A summary of survey respondent physician characteristics is summarized in **Table 1**. Responses from oncologists and hospitalists were removed from analysis as they are excluded from national and state guidelines. There are no associations between the respondents' number of years practicing medicine and any of their opioid prescribing attitudes or practices. Sixty-six percent of physician respondents had received opioid prescribing education through UTSW or another institution. Twenty-nine percent had used the EMR navigator tool. About 85% of individuals were aware of the CNCP policy before and after the intervention. Respondents with greater than 20 CNCP patients reported significantly higher value of chronic opioids in treating CNCP (p = .0096).

Attitudes and Barriers to Adherence

A summary of responses to attitudes regarding the policy and barrier to adherence questions is shown in **Table 2**. About 60% of individuals felt that following the policy was important to patient care, and around 60% were more inclined to adhere to the policy now that it was required by law. Open-ended responses in the pilot survey found that lack of time, poor ease of accessibility, and questionable benefit to patients were reported most often as barriers (**Table 3)**. Additionally, the most common suggestions for improvement were educational efforts and standardized practices across the institution. However, in the post-intervention survey, 65% of individuals did not feel that lack of time was a barrier to policy adherence and 79.1% did not have a concern about poor ease of accessibility.

Seventy-nine percent did not think it would have a negative impact on their patient-doctor relationship. Only 29.5% of individuals felt they were able to assess the benefit of opioid prescribing with decision support. There were no significant differences in barriers to adherence pre- and post-intervention. Individuals who used the EMR navigator tool did not report improved ease of accessibility (p = .1235).

Treatment Component Use

Our initial survey found that 64.5% of respondents reported using the Texas PDMP often or very often (**Figure 3)**. Pain management agreements were used often or very often by 38.7% of respondents and by 32% for the UDS. Risk assessment tools were used by 12.9% of respondents and pain assessment tools by 9.7%. The value placed in these components closely mirrored their current use overall. Physicians relative willingness to improve upon the practices if they were made more accessible also mirrored their current use (pain management agreements, 58%, UDS, 58%, PDMP, 83%, risk assessment, 45%, pain assessment, 39%. Post-intervention reported overall value and use of each component was not significantly different than pre-intervention. Individuals who were aware of the policy had greater use of pain management agreements (p = .0082), PDMP (p = .0030), risk assessment (p = .0254), and pain assessment (p = .0198). Individuals who were more familiar with the policy had greater use of the pain management agreements (p = .0002), UDS (p = .0108), and pain assessments (p = .0164).

Intervention Efficacy

Individuals who received training were significantly more aware (p = .0017) (**Figure**

4A), and more familiar with the policy (p = .0321). Physicians who had used the EMR navigator tool reported significantly more overall use of pain management agreements (p = .0015) and the PDMP (p = .0335) (**Figure 4B**). No significant difference was found in the use of UDS, risk or pain assessment tools between these two groups. No significant difference was found in the overall use of any treatment components between respondents who had or had not received opioid prescribing training at UTSW or another institution.

Other Chronic Pain Guidelines

Distribution of responses for other chronic pain guidelines we studied are summarized in **Table 4**. The majority of respondents, 79%, report using alternative therapies before pharmacologic therapy. Thirteen percent of respondents often or very often co-prescribe naloxone along with chronic opioids for high-risk individuals. Ninety-seven percent of respondents do not often co-prescribe benzodiazepines with opioids. Sixteen percent prescribe over 50 MEDD, and 12.9% prescribe over 90 MEDD.

CHAPTER 4 Discussion

The intervention was successful in improving several treatment components outlined in CNCP policy. We determined that respondents who had opioid education were more familiar with the policy, and increased familiarity was associated with increased use of several of the components. The survey was able to explore and understand barriers to adherence and physician attitudes surrounding the policy. We also identified other CNCP practices that may benefit from additional quality support. This project is unique from other similar surveys in that we focused on individual components of the policy rather than only the policy as a whole. This provides the opportunity to focus implementation efforts in a more directed approach.

Regarding the provider attitudes and barriers to adherence, it was surprising that no barriers stood out compared to the others in the post-intervention analysis, especially the ones that were identified in free responses initially. Regardless, opportunities exist to leverage the perceived importance to patient care and legal impact of the policy in implementation. Similarly, previous studies on barriers to adherence have suggested a patient-centered framework in interventions.[16] Several surveys in the literature have described lack of time and ease of access as significant barriers providers face in prescribing, although our study supported this only qualitatively with free responses.[18,20] It was surprising that these were not highly rated as barriers in the post-intervention survey, however we cannot assess if this was secondary to the intervention since the questions were not included in the pilot survey. It should be noted that surgeons were included in the analysis with the thought that they may have patients with post-surgical

complications that require chronic opioids. However, this may have had an impact on results of barriers as well as treatment component use as surgeons primarily prescribe pain medication acutely.

Compared to the preliminary chart review that showed low adherence to policy recommendations, our current findings suggested higher use of the treatment components than previously thought, especially related to PDMP review. Likely the discordance between the preliminary review and our survey results is due to inconsistent documentation of these treatment components previously. The EMR tool, smartphrases and chronic opioid registry now provide a more accessible, standardized format to document and review them. The associations described between provider education, awareness/familiarity with policy and use of treatment components are consistent with a similarly organized Oregon survey in 2018, suggesting education is a valuable intervention for improving guideline adherence.[19] There has been an association seen between increased awareness of guidelines and provider confidence in caring for CNCP patients.[19,24] However, given the multitude of recent changes in CNCP policy and institutional interventions, causation between these variables cannot yet be established. The lower use of the SOAPP, ORT, COMM and pain assessments is likely due to the amount of time it takes to complete the assessment forms and that they are not mandated by law, but simply an objective way to fulfill the requirement of risk and pain assessment. A previous study described a similar finding as ours where despite a willingness to improve use of assessment tools, there was no increase in use after an educational intervention.[18] While the ability to determine cost/benefit of prescribing opioids without

decision-making support does not seem to be of significant concern to most physicians, previous studies at our institution have found that physicians prescribe more opioids as they get further into their workday.[28] A little more than 70% of respondents felt they needed decision support to determine the cost and benefit of prescribing, suggesting they would benefit from the objective tools we provided.

Only 13% of respondents reported co-prescribing naloxone to CNCP patients at higher risk for opioid overdose or opioid use disorder. The CDC guidelines suggest naloxone co-prescription for individuals with a history of overdose or substance use disorder, higher opioid dosages above 50 MEDD or concurrent benzodiazepine use.[1] This has been seen to decrease overall opioid deaths in several large studies.[29,30] This is an area of improvement that our institution may explore, but is counterbalanced by the rising price of naloxone.[31]

Such closer monitoring and tighter regulation on opioid prescribing has had an effect of decreasing chronic opioid prescribing and increasing illicit opioid sales as patients search for other means to manage their pain.[32-34] As states increase the degree of enforcement of opioid prescribing policies to support patient safety, this will need to be balanced with fewer prescriptions, more illicit sales and potentially decreased patient satisfaction with their pain control.

Limitations

Our study has certain limitations, including low survey response rates and lack of validation for the surveys. However, our questions drew primarily from the literature in which several similar surveys on opioid prescribing practices have been previously used.

The reason for our low response rates and consequently small sample size is likely due to both the lack of interest that physicians with very few opioid-treated CNCP patients have in the study as well as physician survey fatigue at a busy academic medical center. Regardless, our response rates were comparable to those in similar surveys in the literature.

Additionally, an unforeseen circumstance we faced is that the respondents in our post-intervention survey included those with chronic opioid-treated cancer pain patients along with the CNCP patients due to ongoing changes in the registry inclusion criteria between 2018 and 2020. Although we did our best to remove the variation in analysis by excluding any survey responses from individuals who worked at the oncology clinic, this significantly decreased our response rate as well. Additionally, while these barriers and attitudes on policy are very physician-dependent, we had a good representation of respondents from different clinics which minimizes clinic to clinic variation.

Lastly from an analysis standpoint, because several questions were added or altered between the first and second survey, they were not fit to be directly compared to each other. While some information could be compared, the first survey was treated as a pilot study and the second as a more thorough evaluation of current physician attitudes and practices. The second survey was used more heavily to inform implementation strategies.

Conclusions

In this study we provide strategies to improve patient safety related to chronic opioid prescribing via implementation of CNCP local and national guidelines. Our multi-

part intervention was effective in improving some components of policy adherence and was effective in increasing awareness and familiarity with the policies. This project is easily generalizable to other academic medical centers or institutions in the United States with advanced EMR systems. Certainly opioid prescribing education may also be valuable in a broader context. This type of simple survey is easy to incorporate into other contexts with slight adjustments for different state or institutional policies. Integration into the EMR and online staff trainings makes these interventions easily sustainable and adaptable.

Future steps from this study include continued implementation science methodology to improve use of the EMR navigator tool in increasing guideline adherence. A chart review surrounding the intervention for the discussed policy components is currently being conducted and will provide an objective measure of adherence. Additionally, further quality projects at our institution may focus on improving naloxone co-prescribing for high risk patients and reducing chronic opioid prescriptions below 90 MEDD. Standardized institutional policies or institution-wide education may be effective in supporting implementation efforts.

We would also like to study patient-centered outcomes surrounding this intervention. In a study on the Canadian guidelines for opioid use in chronic pain, a group identified effects of opioids on quality of life, risk of addiction prior to beginning chronic opioid therapy, mortality rates, among others as clinically relevant outcomes to evaluate practice-based guidelines.[35] Patient satisfaction scores may be another way to evaluate for balancing measures related to the intervention and policies.

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Table 1: Summary of survey respondent characteristics pre- and post- intervention with cancer and palliative care respondents removed, SD = standard deviation

	Pre-intervention, % (No.)	Post-intervention, % (No.)
Years practicing medicine in Texas, mean (SD)	14.58 (12.12)	14.31 (10.97)
Years practicing medicine overall, mean (SD)	-	17.23 (11.83)
Number of CNCP patients treated annually with chronic opioids		
Less than 5	6.5 (2/31)	32.2 (20/62)
5-20	61.3 (19/31)	32.2 (20/62)
Greater than 20	32.3 (10/31)	35.5 (22/62)
Practicing clinic type		
Internal Medicine	51.6 (16/31)	32.3 (20/62)
Physical Medicine and Rehabilitation	12.9 (4/31)	9.7 (6/62)
Spine Clinic	9.7 (3/31)	9.7 (6/62)
Family Medicine	9.7 (3/31)	6.5 (4/62)
Emergency Medicine	-	8 (5/62)
Surgery	-	12.9 (8/62)
Multi-specialty	-	3.2 (2/62)
Neurology	-	4.8 (3/62)
Obstetrics	-	1.6 (1/62)
Otolaryngology	-	1.6 (1/62)
Unspecified	16.1 (5/31)	9.7 (6/62)
Received opioid prescribing training in past 2 years?		
Yes (if yes, where?)	-	66.1 (41/62)
UTSW	-	53.7 (22/41)
Non-UTSW	-	46.3 (19/41)
No	-	33.9 (21/62)
Used EMR navigator tool?		
Yes	-	29 (18/62)
No	-	71 (44/62)
Aware of CNCP policy?		
Yes	87.1 (27/31)	83.9 (52/62)
No	12.9 (4/31)	16.1 (10/62)

Table 2: Summary of barriers to policy adherence survey responses in post-intervention survey. Mean rating measured on a scale from 1-5 where 1 = Not at all, 2 = Slightly, 3 = Moderately, 4 = Very, 5 = Extremely

	Post-intervention survey, mean rating (SD)
Familiar enough with policy to implement it	3.27 (1.10)
Expect legal impact on practice	3.53 (1.16)
Important to patient care	3.67 (1.03)
Policy requirements are valuable	3.18 (1.03)
Policy adherence will have negative impact on workflow	3.18 (1.29)
More inclined to adhere because policy is required, not suggested	3.61 (1.15)
Lack of time prevents adherence	2.73 (1.49)
Adherence will have negative impact on patient-doctor relationship	2.33 (1.31)
Poor ease of accessibility prevents adherence	2.31 (1.36)
Policy requirements are of questionable benefit to patients	2.66 (1.20)
Able to determine cost/benefit of opioid prescribing without decision-making support	2.89 (1.16)

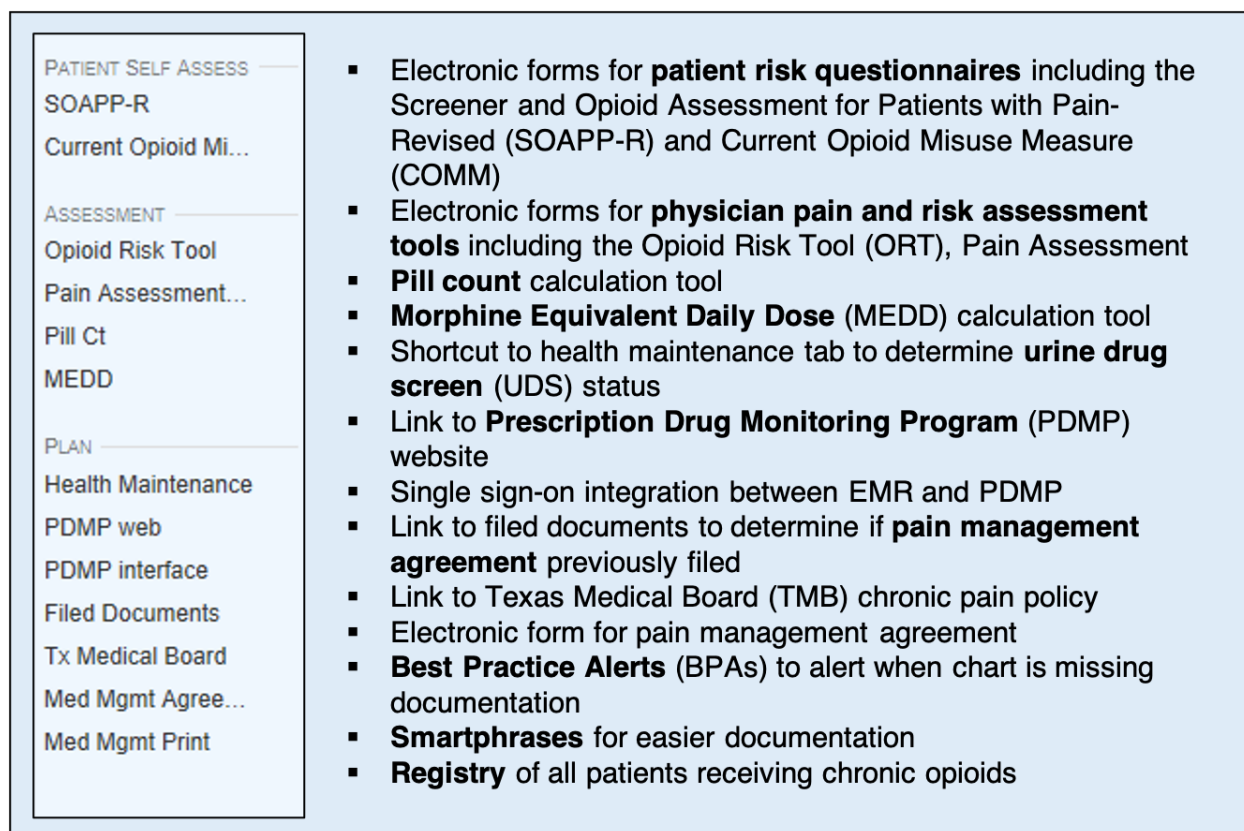**Table 3:** Free-responses to proposed barriers to policy adherence and improvement suggestions in pilot survey.

Barriers to Adherence	Count	Suggestions for Improvement	Count
Lack of time	12	**Education**	7
Checking PMP is time consuming	2	Education on weaning patients off	1
Overall time consuming	6	Education on use of risk assessment tools	1
Time constraints restrict use of risk assessment tools	1	System-wide in service taught by Pain Management	1
Time consuming, not reimbursable	1	Make PMP results available in EMR or printed out	1
Complex patients, one of many problems that need to be addressed in short visit	1	Training for nursing/MA/admin to complete requirements	2
Busy practice	1	**Standardize practice across institution**	3
Questionable benefit to patients	7	Campus-wide policies	1
Assessment tools often not clinically useful	1	**Risk assessment tools pre-completed by patients/MA**	1
Urine toxicity screen not clinically useful in cancer patients	1	**Risk and pain assessment flow sheets in EMR**	1
Patients with no significant abuse potential	3	**More comprehensive pain management programs to eventually wean patients off pain medication**	1
Not easily accessible	4	**Pharmacy review of medication combinations**	1
Assess pain control via patient history	2	**Prescribe Narcan for high-risk patients**	1
No reminders	1	**Monitoring for compliance**	1
Not supported by data	1		

Table 4: Distribution of other chronic pain policy recommendations, % (No.) Measured on a scale from 1-5 where 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very Often. MEDD = Morphine Equivalent Daily Dose

	1	2	3	4	5
Use alternative therapies before pharmacologic therapy	6.5 (4)	1.6 (1)	12.9 (8)	16.1 (10)	62.9 (39)
Co-prescribe naloxone	58.1 (36)	21 (13)	8.1 (5)	8.1 (5)	4.8 (3)
Co-prescribe benzodiazepines	38.7 (24)	40.3 (25)	17.7 (11)	1.6 (1)	1.6 (1)
Prescribe over 50 MEDD	37.1 (23)	33.9 (21)	12.9 (8)	8.1 (5)	8.1 (5)
Prescribe over 90 MEDD	50 (31)	29 (18)	8.1 (5)	4.8. (3)	8.1 (5)

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Figure 1: Summary of EMR chronic pain navigator tool functions and other EMR-integrated tools.

PATIENT SELF ASSESS
SOAPP-R
Current Opioid Mi...

ASSESSMENT
Opioid Risk Tool
Pain Assessment...
Pill Ct
MEDD

PLAN
Health Maintenance
PDMP web
PDMP interface
Filed Documents
Tx Medical Board
Med Mgmt Agree...
Med Mgmt Print

- Electronic forms for **patient risk questionnaires** including the Screener and Opioid Assessment for Patients with Pain-Revised (SOAPP-R) and Current Opioid Misuse Measure (COMM)
- Electronic forms for **physician pain and risk assessment tools** including the Opioid Risk Tool (ORT), Pain Assessment
- **Pill count** calculation tool
- **Morphine Equivalent Daily Dose** (MEDD) calculation tool
- Shortcut to health maintenance tab to determine **urine drug screen** (UDS) status
- Link to **Prescription Drug Monitoring Program** (PDMP) website
- Single sign-on integration between EMR and PDMP
- Link to filed documents to determine if **pain management agreement** previously filed
- Link to Texas Medical Board (TMB) chronic pain policy
- Electronic form for pain management agreement
- **Best Practice Alerts** (BPAs) to alert when chart is missing documentation
- **Smartphrases** for easier documentation
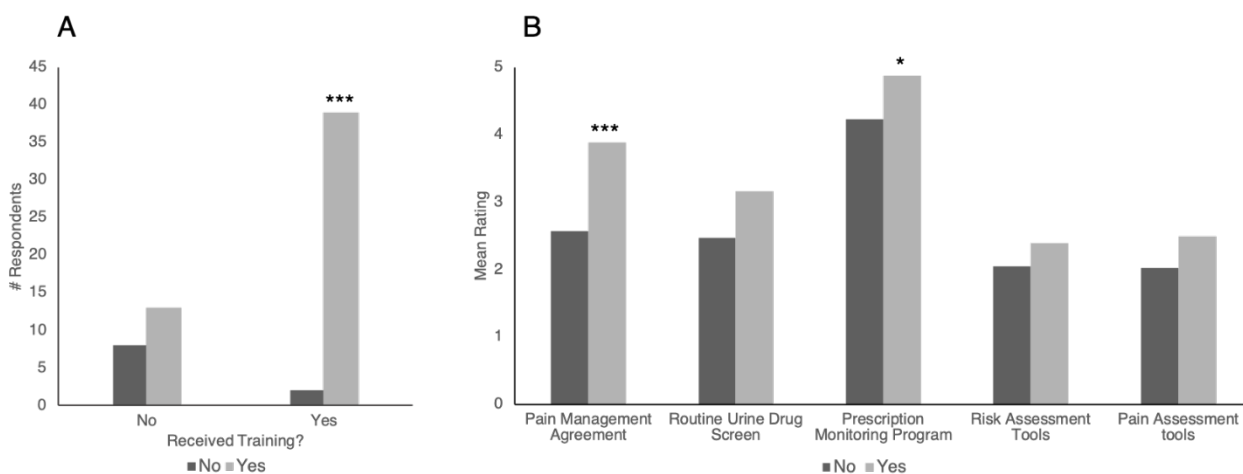- **Registry** of all patients receiving chronic opioids

Figure 2: Fishbone diagram developed to focus on possible barriers to adherence to opioid prescription policy
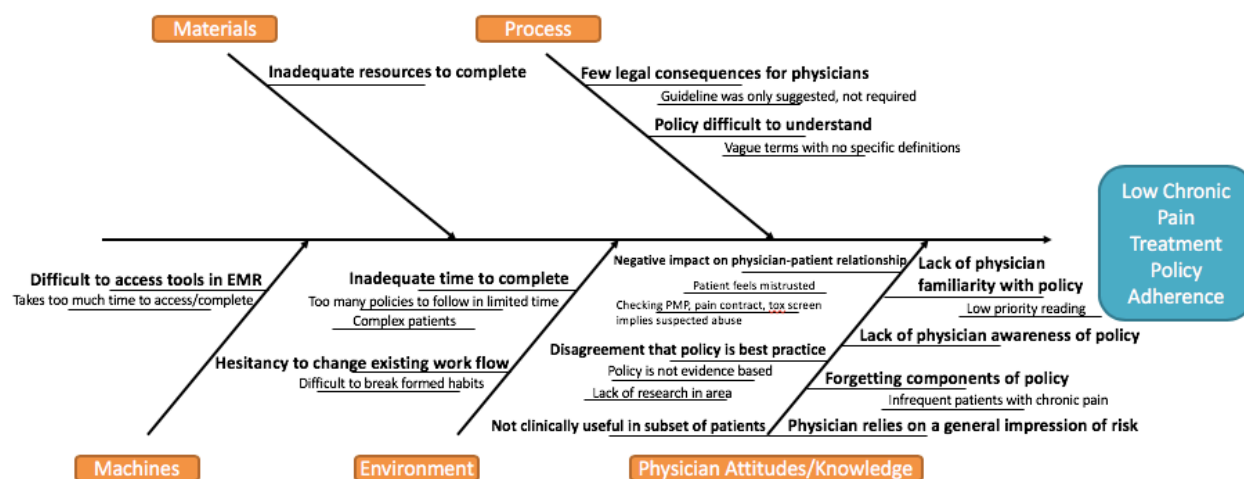
Figure 3: CNCP policy treatment component value placed, current use, and willingness to change practice if made more accessible.

Legend: Value Placed, Current Use, Willingness to Change

X-axis categories: Pain Management Agreements, Urine Drug Screen, Prescription Monitoring Program, Risk Assessment Tools, Pain Assessment Tools
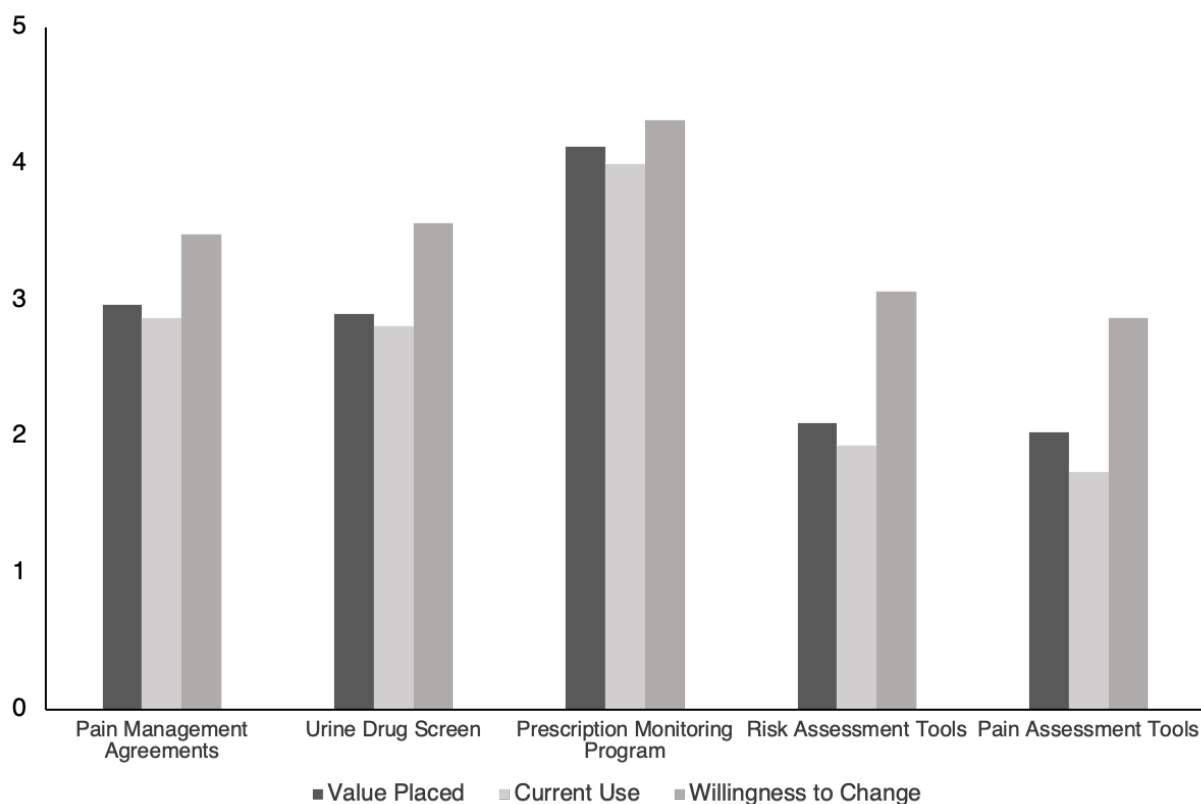
Figure 4: Intervention efficacy, A) Reported awareness of CNCP policy based on training exposure, B) Reported use of guideline treatment components with and without intervention use, *** $p<.0001$, * $p<.05$

A) X-axis: Received Training? (No, Yes); Y-axis: # Respondents; Legend: No, Yes; *** marker

B) X-axis: Pain Management Agreement, Routine Urine Drug Screen, Prescription Monitoring Program, Risk Assessment Tools, Pain Assessment tools; Y-axis: Mean Rating; Legend: No, Yes; *** and * markers

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VITAE

Sonal Gagrani (January 20, 1995 – present) is a 4th year medical student at the University of Texas Southwestern Medical Center who will be starting her neurology residency in July 2021. She was born in India, grew up in New Jersey, went to Duke University for undergrad where she studied Neuroscience and Mandarin Chinese, and then moved to Texas for medical school. Sonal's interest in quality improvement and patient safety began at the beginning of medical school and she has been able to present at several Institute for Healthcare Improvement (IHI) National Forums since then. She has also served as an IHI Open School Coach, working with individuals around the world to build their institution's IHI Open School chapters.

Permanent Address: 2300 Aldworth Drive

Cedar Park, TX 78613