

**ORIGINAL RESEARCH**

A look at the burden of opioid management in primary care

This pilot study identified practice variables that can increase the time and resources needed to manage opioids. The authors suggest possible corrective steps.

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ABSTRACT

Purpose ► Pain management with opioids in primary care is challenging. The objective of this study was to identify the number of opioid-related tasks in our clinics and determine whether opioid-related tasks occur more often in a residency setting.

Methods ► This was a retrospective observational review of an electronic health record (EHR) system to evaluate tasks related to the use of opioids and other controlled substances. Tasks are created in the EHR when patients call the clinic; the task-box system is a means of communication within the EHR. The study setting was 2 university-based family medicine clinics. Clinic 1 has faculty and resident providers in an urban area. Clinic 2 has only faculty providers in a suburban area. We reviewed all tasks recorded in November 2010.

Results ► A total of 3193 patients were seen at the clinics. In addition, 1028 call-related tasks were created, 220 of which (21.4%) were opioid-related. More than half of the tasks were about chronic (ongoing) patient issues. More than one-third of the tasks required follow-up phone calls. Multiple logistic regression analysis showed more opioid-related tasks in the residency setting (Clinic 1) compared with the nonresidency setting (Clinic 2), (23.1% vs 16.7%; $P < .001$). However, multiple logistic regression analysis did not show any correlations between opioid-related

tasks and who addressed the tasks or the day tasks were created.

Conclusions ► Primary care physicians prescribe significant amounts of opioids. Due to the nature of opioid use and abuse, a well-planned protocol customized to the practice or institution is required to streamline this process and decrease the number of unnecessary phone calls and follow-ups.

Pain management with opioids in primary care is challenging,^{1,2} and many physicians find it unsatisfying and burdensome.³ More than 60 million patient visits for chronic pain occur annually in the United States, consuming large amounts of time and resources.⁴ Contributing to the challenge is the need to ensure patient safety and satisfaction, as well as staff satisfaction with pain management.⁵⁻⁸ Opioid-related death is a major cause of iatrogenic mortality in the United States.^{9,10} From 1999 to 2006, fatal opioid-involved intoxications more than tripled from 4000 to 13,800.⁷

At issue for many providers, as well as patients and staff, is dissatisfaction with current systems in place for managing chronic non-cancer pain with opioids.^{2,3,8,11} In developing this study, we decided to focus on the systems aspect of care with 2 primary outcome measures in mind. Specifically, we sought to identify the tasks related to managing opioids and other controlled substances

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 Nearly a quarter
 of clinic tasks
 were opioid
 related.

in 2 primary care clinics in a university-based family medicine program and to determine what proportion of all routine tasks in these 2 clinics could be attributed to opioid-related issues. With our secondary outcome measures, we sought to compare the number of opioid-related tasks in the residency setting with those in a nonresidency setting, and to identify factors that might be associated with an increase in the number of opioid-related tasks.

METHODS

Setting and design

We conducted a retrospective observational pilot study reviewing our electronic health record (EHR) system (Allscripts TouchWorks) at 2 of our outpatient family medicine clinics at the University of Colorado. When patients call the clinics, or when patient-care-related concerns need to be addressed, an electronic task message is created and sent to the appropriate task box for staff or provider response. The task box system is how staff and providers communicate within the EHR. Each provider has a personal task box, and there are other task boxes in the system (eg, triage, medication refill) for urgent and non-urgent patient care issues.

For example, when a patient calls to request a refill, a medical assistant (MA), care team assistant (CTA), or nurse will create a task for the medication refill box. If the task is urgent, it is marked with a red asterisk and a triage provider will address the task that same day. Non-urgent triage tasks will be addressed by the patient's primary care provider within 2 to 3 days. Depending on the issue at hand, the task may or may not require phone calls to the patient, pharmacy, or insurance company.

Clinic 1, in urban Denver, has 13 physicians (many of them part-time clinical faculty), one nurse practitioner (NP), one physician assistant (PA), and 18 family medicine residents. Clinic 2, in a suburb of Denver, has 5 physicians (only one is part-time) and one nurse practitioner. Clinic 1 is divided into 3 pods, and each has the same number of attending physicians, residents, and MAs, and either a PA or NP.

We reviewed, one by one, all tasks created from November 1 to 30, 2010. One of the study's investigators categorized each task according to the following descriptors: who created the task, who addressed the task, what day of the week the task was created, urgency of the task, whether the task required a follow-up phone call, and whether the task was related to opioid/controlled-substance issues. The task was categorized as *acute* if the issue was related to a condition that had been present for fewer than 3 weeks. *Chronic* tasks were created for conditions present for ≥ 3 weeks. At the time the study was completed, our EHR had no portal through which we could communicate with patients.

ANALYSIS

We conducted statistical analyses with the IBM SPSS, version 22.0 (SPSS, Inc, Chicago, Illinois). We used descriptive statistics to examine the frequency and percentage for all variables. We used a chi-squared (χ^2) test to assess the differences between the 2 clinics, and used a binary multiple logistic regression model to determine possible factors related to opioid-related tasks. *P* values $<.05$ were considered statistically significant. The Colorado Multiple Institutional Review Board approved this study.

RESULTS

Clinics 1 and 2, respectively, saw 2007 and 1186 patients during the study period (TABLE 1). The additional 1028 tasks generated by phone calls were almost equally distributed among the 3 pods of Clinic 1 (290, 202, and 260) and Clinic 2 (276). For data analysis, we compared Clinic 1 with Clinic 2 and also compared the 3 pods of Clinic 1 individually with Clinic 2. Both approaches produced similar results.

Most tasks (54% for Clinic 1 and 99% for Clinic 2) were created by MAs and CTAs. At Clinic 1, tasks were also created by residents (17%), PA/NPs (8%), attending physicians (7%), and others/clinical nurses (14%). Tasks at Clinic 1 were addressed by attending physicians (49%), residents (25%), PA/NPs (25%), and others (1%). At Clinic 2, tasks were

TABLE 1

Characteristics of tasks created during the study period

	Clinic 1	Clinic 2	Total	Significant differences between 2 clinics: χ^2 (P value)
Number of patients seen by providers	2007	1186	3193	N/A
Number of call-related tasks created	752	276	1028	N/A
Number of tasks ÷ patients seen	37.5%	23.3%	32.2%	N/A
Number of tasks created by MA or CTA	409 (54.4%)	274 (99.3%)	683 (66.4%)	183 (.000)*
Number of tasks created during the weekdays	398 (52.9%)	122 (44.2%)	520 (50.6%)	6 (.013)*
Number of tasks related to chronic issues	296 (39.4%)	264 (95.7%)	560 (54.5%)	258 (.000)*
Number of tasks addressed by attending physicians	365 (48.5%)	208 (75.4%)	573 (55.7%)	100 (.000)*
Number of opioid-related tasks	174 (23.1%)	46 (16.7%)	220 (21.4%)	5 (.025)*
Number of follow-up phone calls	368 (48.9%)	7 (2.5%)	375 (36.5%)	188 (.000)*

CTA, care team assistant; MA, medical assistant; N/A, not applicable.

*Statistically significant.

addressed by attending physicians (75%) and PA/NPs (25%). Approximately half of the tasks (51%) in both clinics were created during weekdays, compared with the day after weekends/holidays (28%), the day before weekends/holidays (17%), and during weekends/holidays (4%). Chronic patient issues, acute patient issues, and other issues accounted for 54%, 29%, and 17% of tasks, respectively. Follow-up phone calls to patients, pharmacies, or others occurred in 37% of tasks. Two hundred twenty tasks (21%) in the clinics combined were related to opioids and controlled substances.

Multiple logistic regression analysis of data from both clinics (TABLE 2) showed more opioid-related tasks in Clinic 1 compared with Clinic 2 ($P < .001$), and that these tasks were more often related to chronic issues than to acute issues ($P < .001$). Tasks created by MAs, CTAs, clinical nurses, and others were more likely to be opioid-related compared with the tasks created by attending physicians, residents, NPs, or a PA (25% vs 15%; $P < .05$). Compared with non-opioid-related tasks, opioid-related tasks required more follow-up phone calls ($P < .001$). Follow-up phone calls to pharmacies occurred more often with opioid-related tasks than with non-opioid tasks (11% vs 5%), while follow-up phone calls to patients occurred more often for non-opioid related tasks than opi-

oid-related tasks (28% vs 18%). No correlations with task creation were found for who addressed the opioid-related task or the day the task was created.

DISCUSSION

This study demonstrated that our process of handling patient issues related to opioids accounts for a large proportion of all tasks. Dealing with tasks is time consuming, not only for attending physicians and residents but also for clinic nurses and staff. Almost a quarter of clinic tasks were opioid related. As has been shown in previous studies,⁵⁻⁸ chronic pain management with opioids is an unsatisfying task for staff and care providers at our clinics. We also found that tasks created by non-providers were more likely to be opioid-related than were tasks created by providers. This is most likely due to the fact that non-providers cannot write prescriptions and they have to ask providers for further reviews.

In this study, the larger urban practice with residents had proportionately more opioid-related tasks than the smaller suburban practice. Despite their different locations, these 2 clinics have relatively similar patient populations with relatively similar insurance coverage (TABLE 3). One reason for the difference noted in opioid-related tasks could be the composition of the pro-

TABLE 2

Multiple logistic regression analysis of tasks related to opioids/controlled substances

Effect	Likelihood ratio tests			
	Wald χ^2	df	Significance (P value)	Adjusted OR (95% CI)
Task urgency (chronic vs acute issues)	51.8	1	<.001*	6.22 (3.78-10.22)
Who created the task (non-provider vs provider)	6.5	1	<.05*	2.19 (1.20-4.00)
Who addressed the task	3.8	4	.499	N/A
Day of the week task created (weekdays vs the day before or after weekends)	1.0	1	.311	1.20 (0.84-1.73)
Phone call follow-up required (Yes vs No)	20.4	1	<.001*	3.13 (1.97-4.98)
Location (Clinic 1 vs Clinic 2)	53.9	1	<.001*	6.47 (3.93-10.66)

CI, confidence interval; df, degree of freedom; N/A, not applicable; OR, odds ratio.

*Statistically significant.

vider pools (ie, part-time vs full-time) at each clinic. About half of the providers at Clinic 1 were residents; no residents served at Clinic 2. The variable and part-time nature of a resident's clinic schedule could have led to discrepancies in opioid management, possibly leading in turn to an increase in phone calls and tasks. However, this finding could also be due to patients' preferences for seeing less experienced providers for opioid management issues.^{12,13}

Khalid et al found that, compared with attending physicians, residents had more patients on chronic opioids who displayed concerning behaviors, including early refills and refills from multiple providers.¹³ The higher number of part-time providers at Clinic 1 in our study may have also caused insufficient continuity of care at that site. Nevertheless, this model of practice is used in many academic primary care institutions.⁴ Another possible reason for the difference could be a lack of resident training on current guidelines for managing opiates for chronic pain.^{3,13,14} Again, this was a pilot study and we drew no solid conclusion about the reasons for differences between these 2 clinics.

It is obvious, however, that we spend a significant amount of time and resources dealing with chronic pain management. Our

institution created an opioid/controlled-substance patient registry about 3 years ago. The data for 2014 showed that 22.8% and 18% of patients seen at least once at Clinic 1 and Clinic 2, respectively, were prescribed opioids/controlled substances (TABLE 3).

Possible solutions to reduce tasks related to opioid management. For both small and large practices, one way to reduce the number of tasks related to opioid management and, therefore, the time allocated to completing those tasks, would be to have a clear protocol to follow.^{3,4,8,11,14,15} The protocol may include the creation of an opioid/controlled-substance registry and the development and implementation of clinical decision support programs.

We also recommend the dissemination of tools for clinical management at the point of care. These can include a controlled-substance risk assessment tool for aberrant behaviors, a controlled-substance informed consent form, a functional and quality-of-life assessment, electronic clinical-note templates in the EHR, urine drug screening, and routine use of existing state pharmacy prescription drug monitoring programs. Also essential would be the provision of routine educational programs for clinicians regarding chronic pain management based on

TABLE 3
Patient population characteristics (2014 data)

	Clinic 1	Clinic 2
Number of patients assigned to clinic	24,269	11,805
Total number of patient visits	39,080	18,012
Total number of patients seen (multiple visits of a patient counts as one)	10,094	4711
Total number of opioids/controlled substances prescriptions	4397	1331
Total number of patients who were prescribed at least one opioid/controlled substance	2301	847
Percentage of patients assigned to a clinic who were prescribed at least one opioid/controlled substance	9.5%	7.2%
Percentage of patients seen in clinic at least once who were prescribed at least one opioid/controlled substance	22.8%	18%
Patient age (years)		
0-18	14.1%	17.3%
19-44	52.1%	42%
45-64	25.2%	29.8%
65-84	8%	10.4%
85 and older	0.6%	0.5%
Female sex	59.5%	56.2%
Patient insurance		
Managed care	48.6%	59.2%
Medicaid/Medicare	45.9%	24.5%
Tricare	2.8%	13.1%
Self-pay	1.5%	2.2%
Others	1.2%	1%

existing evidence and guidelines. (See “Opioids for chronic pain: The CDC’s 12 recommendations,” on page 906) It has been demonstrated that an EHR opioid dashboard or an EHR-based protocol improved adherence to guidelines for prescribing opiates.¹⁶

■ This study has several limitations.

First, this was a small pilot study completed over a short period of time, although we believe the findings are likely representative of the prescribing practices in the 2 clinics we evaluated. Second, it was a retrospective study, which was appropriate for evaluating our questions. Third, we were unable to account for other factors that could potentially confound the results, including, but not limited to, the amount of time allocated to each task, and the total number of patients at

each clinic who were on opioids for management of chronic pain during the study period. However, due to our recent addition of an opioid/controlled-substance patient registry, we were able to add information for the year 2014 (TABLE 3). Multi-center large scale studies are required to evaluate this further. **JFP**

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