A Qualitative Assessment of Kansas Tracking and Reporting of Controlled Substances (K-TRACS)

Amy E. Curry, M.D.[1,2], Trisha V. Melhado, MPH[1], Amy K. Chesser, Ph.D.[4], Alisa Schmidt, M.D.[3], Anne Burke, M.S.[5], Robert Emerson, Pharm.D.[6], Rick Kellerman, M.D.[1]
University of Kansas School of Medicine-Wichita
[1]Department of Family and Community Medicine
[2]Family Medicine Residency at Via Christi
[3]Family Medicine Residency at Smoky Hill
[4]Wichita State University, Wichita, KS
[5]Utah Department of Health, Salt Lake City, UT
[6]University of Kansas School of Pharmacy-Wichita

Abstract

Introduction. This study assessed the Kansas Tracking and Reporting of Controlled Substances system (K-TRACS), the online controlled prescription medication monitoring website in Kansas. The specific aims were to determine if and when pharmacists and physicians in Kansas were using K-TRACS and to identify any perceived benefits or barriers to using K-TRACS.
Methods. A non-randomized, convenience sample of Kansas pharmacists and family physicians were interviewed face to face using a guided semi-structured questionnaire. NVivo 10 (QSR International Pty Ltd.) was used to analyze data.
Results. Ten physicians and sixteen pharmacists were interviewed. All pharmacists and 70% of physicians were using K-TRACS. Usage was prompted by encounters with new patients or unease with the patient interaction. The perceived benefits included increased communication with the patient and all providers, increased provider comfort with treating chronic pain, and altered prescriber habits. Barriers to the use of K-TRACS were identified as login, password, and operating system problems.
Conclusions. Among study participants, K-TRACS is used regularly, is perceived to be a benefit to providers, patients and communities, and has become a useful new tool in the treatment of chronic pain. K-TRACS is perceived to facilitate increased communication between providers and with patients.
KS J Med 2015;8(4):143-150.

Introduction

Prescription drug monitoring programs (PDMPs) have been identified as an important tool for licensed healthcare providers, state governments, and licensing boards in monitoring controlled prescription medication use and misuse.[1] PDMPs were first utilized in 1939 when California launched a program using carbon copies of prescriptions and the US postal system to relay information about filled prescriptions. As of July 2014, forty-nine states and one territory have enacted laws to establish PDMPs, and forty-eight states have operational online systems. PDMPs have decreased diversion of controlled substances[1,2] and doctor shopping for controlled prescription medications,[3,4,5] to alter prescriber habits,[4,6] enhanced communication between patients and physicians,[7] and slowed the increase in rates of opioid treatment admissions.[8]

The Kansas Tracking and Reporting of Controlled Substances (K-TRACS) system is the PDMP for the state of Kansas. It was written into law in 2008 and is an

independent (i.e., not integrated into any one electronic medical record system) online, web-based, proactive data bank under the oversight of the Kansas State Board of Pharmacy.[9] It contains data on all controlled prescription medications dispensed in or mailed into the state of Kansas from July 2010 to the present and can be accessed by registered licensed healthcare providers. Moreover, at the time of our study, data from thirteen other states' PDMPs can be accessed through K-TRACS, albeit not from states adjoining Kansas.

Prescription data include the name and address of the patient, names of the prescriber and dispenser, medication name, quantity dispensed, dosage, and date dispensed.[9] In the state of Kansas, individuals or businesses that dispense medications are mandated by law to report all controlled prescription medications dispensed; however, healthcare providers who prescribe controlled prescription medications are legally not obligated to access the system.[9] Even though dispensers are required to report to KTRACS on a daily basis, the system, at the time our data was collected, was only updated weekly. Data on all scheduled II-IV controlled prescription medications, as well as information on three additional medications deemed "drugs of concern," are collected.[9] These "drugs of concern" include promethazine with codeine, any compound, mixture or preparation that includes prescription ephedrine or pseudoephedrine, and medications containing the combination of butalbital, caffeine, and acetaminophen.[9]

Since PDMPs are governed by state law, each state's PDMP is unique and varied in its implementation, rules, and participation. Evidence-based "best practices" for their design, implementation, and use have not been determined and are likely to differ by location.[1,10] Various states have reported the impact their unique PDMP has had on their health care system,[11,12] but the impact of K-TRACS in the state of Kansas since its implementation in July 2010 has not been studied. The goal of this project was to perform a qualitative assessment of the impact of K-TRACS by interviewing practicing pharmacists and physicians and identify any perceived benefits of the system in the areas of patient and community safety, practice impact, and chronic pain management, as well as any barriers to use or operating system problems.

Methods

Pharmacists and family physicians practicing in various communities across Kansas including rural and metropolitan areas were identified for participation in the study. Inclusion criteria for recruitment were: (1) being licensed and actively practicing in Kansas and (2) consenting to participate in a face to face recorded interview in their community setting. Pharmacists and family physicians from the same community or geographic area were selected to be interviewed. Practice settings included independent and chain retail pharmacies as well as solo, group, and residency family medicine practices. Study participants were interviewed face to face using a guided semi-structured questionnaire. Implied consent was obtained through the interviewee's verbal responses to the questionnaire. Interviews were performed from December 2012 through March 2013 and conducted primarily by the primary investigator and two family medicine resident physicians. Each interview was conducted in the participant's practice community and averaged 45 minutes in length. All interviews were audiotaped, transcribed, and analyzed.

Three reviewers independently analyzed the transcripts for thematic codes related to the benefits and barriers of K-TRACS according to qualitative research analysis

standards.[13] Discrepancies in codes were discussed among the group to reach consensus. Inter-rater reliability surpassed 90%. General demographic data in addition to the frequency and type of technology (laptop/computer, mobile device or email) used to access health information were collected for all participants. Questions regarding K-TRACS' utilization and the benefits of and barriers to using K-TRACS were asked of all participants. Multiple thematic codes were identified, defined, and applied to all transcripts by the three reviewers. Study approval was obtained through the University's Institutional Review Board.

Results

Participant characteristics. Ten physicians and sixteen pharmacists in sixteen different communities were interviewed (Figure 1). Sixty percent of the physician respondents and 69% of the pharmacist respondents were male, 90% of the physician respondents and all of the pharmacist respondents were non-Hispanic white (Table 1). All of the physician respondents were under the age of 61 years with the majority (60%) of those interviewed between the ages of 31-40 years. There was greater variation in the pharmacist respondents' age with 31% in the 51-60 year old age group, and 25% in both the 31-40 and 41-50 age groups. When asked what technology was used regularly to access general healthcare information, all responders reported using the internet accessed from a laptop or PC. All of the physician respondents and 63% of the pharmacist respondents used the internet via a cell phone. Ninety percent of the physician respondents noted accessing information from email as well as mobile device applications, while only 69% of the pharmacist respondents accessed information via email and 81% through a mobile device application.

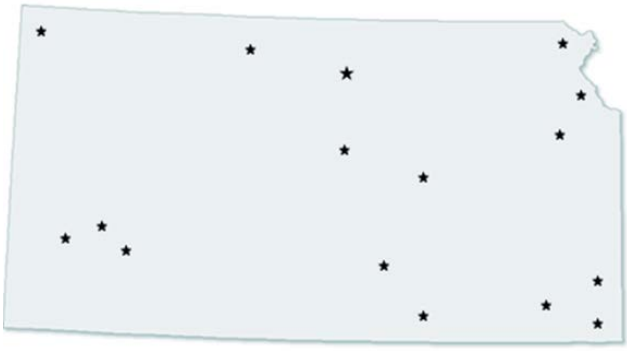

Figure 1. Location of K-TRACS interviews across Kansas.*

* Physicians and phramacists and cities are not identified on the map to protect confidentiality since several respondents come from rural areas where they easily can be identified.

Table 1. Participant characteristics (N=26).

	Physician N=10 N (%)	Pharmacist N=16 N (%)
Gender		
Male	6 (60)	11 (69)
Female	4 (40)	5 (31)
Age (years)		
21-30	1 (10)	2 (13)
31-40	6 (60)	4 (25)
41-50	1 (10)	4 (25)
51-60	2 (20)	5 (31)
61-70	0 (0)	1 (6)
Race/ethnicity		
Non-Hispanic White	9 (90)	16 (100)
Hispanic	1 (10)	0 (0)
Technology used to access health information		
Email	9 (90)	11 (69)
Internet from laptop or PC	10 (100)	16 (100)
Internet via cell phone	10 (100)	10 (63)
Mobile device applications	9 (90)	13 (81)

Utilization of K-TRACS

All of the pharmacist respondents and 70% of the physician respondents reported using K-TRACS for one to three years, which demonstrated use from the time K-TRACS was implemented in 2010. Use ranged from occasional to frequent and included both personal and staff accession of K-TRACS information. Pharmacist respondents reported accessing K-TRACS more frequently than physician respondents, who tended to delegate the task to a designated agent. K-TRACS use occurred in a variety of settings including pharmacies, clinics, emergency departments, hospitals and hospices. One physician respondent reported that "K-TRACS has been a godsend to our program" adding that the nurses were "on there [K-TRACS] pulling reports up all the time."

Several scenarios prompted respondents to access a patient's K-TRACS record including a new or unknown patient, a new or unknown prescriber or multiple prescribers, an unusual quantity or dosage of a controlled prescription medication or one not usually prescribed in the area, and repeated requests for early refills. Additionally, pharmacist respondents mentioned that patients requesting to pay for the medication with cash, particularly one that had pharmacy insurance coverage, prompted them to check K-TRACS. Respondents commented that a patient's behavior, (e.g., "antsy" or "impatient"), or their own feelings of discomfort about the patient, (e.g., "something just doesn't feel right here"), at the time of the service might prompt a K-TRACS inquiry. Respondents indicated a report might be requested if the provider was perceived to be over-prescribing, over-dispensing, or practicing outside the standards of chronic pain management care for the community.

Benefits

Study respondents identified many perceived benefits of K-TRACS which are identified in Table 2. Overall, K-TRACS was perceived to have been a benefit to community safety by 77% of responders with a perceived decrease in the amount of doctor and pharmacy shopping by patients. One responder noted, "I think that it has stopped a lot of this multi-pharmacy, multiple doctor, poly-pharmacy, poly-doctor…it's very easy to see what they've been doing. And it does make a difference."

Improved patient safety was perceived by 81% of responders as a benefit of K-TRACS. "You know, if we see that something's not adding up then we'll go to K-TRACS or call the physician's office." Responders reported that K-TRACS helped them to set what was perceived to be healthy and safer boundaries with patients on chronic controlled prescription medications and boundaries within the practice setting.

Respondents reported instances when K-TRACS facilitated an increase in communication between the patient and the provider and between the prescriber and the pharmacist. As one pharmacist respondent said, "We run a K-TRACS and the prescriber that prescribed this particular prescription didn't realize that there had already been one or two other prescribers. So we call them and tell them, they're like, 'thanks for calling'." This increase in communication offered an opportunity to improve patient safety and education as well as alter some prescriber's habits. In one community, the pharmacist respondent "had some concerns because he thought there was some over-prescribing. And, he voiced some concerns about that. I think the K-TRACS allowed him to document that. You know, 'this is what you are doing'. And so it was very helpful…he [the physician] was thanking me for [my partner] doing that to help him."

Respondents reported that K-TRACS provided a surprising increase in their comfort level in treating patients needing

chronic pain management and an improvement in their confidence that they were delivering quality care to these patients. As one pharmacist respondent said, "It helps me feel more confident when I'm filling a prescription that I'm taking care of the patient the way that they should be…it makes me feel a little more confident in my practice. That we're actually doing the right thing for people."

Table 2: Benefits and barriers of K-TRACS as identified by physician and pharmacist respondents.

Benefits	**Barriers**
Supports community safety: Prevents doctor shopping	Technology: Password, login, and system problems
Increases patient safety: Prevents medication abuse and poly-pharmacy	Time management: Report running is time consuming
Promotes communication among physicians, pharmacists, patients and helps to establish prescribing boundaries	Workflow: interrupts clinic/ pharmacy workflow to use K-TRACS
Increases comfort level in chronic pain management and confidence in quality of care	Cost: Revenue loss from using K-TRACS

Barriers

Several themes emerged in the barriers identified by K-TRACS users. These included technological issues, time management, workflow disruption, and costs, all of which ultimately impact patient care. These themes are detailed in Table 2. Overall, 96% of responders cited technological barriers including forgotten passwords, trouble logging on to the system, and trouble re-setting passwords. Lack of time to run a report was noted by 46% of the responders, (e.g., "the truth is we don't have that kind of manpower or time, and reimbursements aren't right to allow that to happen"), and an interruption to workflow was a problem for 29%. Revenues lost from the time spent utilizing K-TRACS was noted by 38% of responders.

Operating system problems were described as barriers among those using K-TRACS. Responders identified several problems within the K-TRACS computer program. Frequently reported issues included an inconsistent reporting of compounded controlled prescription medications by the system, an inability to correct data within K-TRACS after submission and lack of real-time data since the website is updated only weekly. These programming issues have led to inaccurate K-TRACS reports and have impacted patient care negatively in some situations. Additionally, none of the data from states that border Kansas can be viewed even though data from thirteen other states' PDMPs can be viewed on K-TRACS. This was reported as a problem, as was the inability to integrate K-TRACS into some practice settings' EMRs. Multiple doctors with the same name, lack of a practice identifier, and confusing report displays (e.g., "when you print it, it prints it in a really jumbled way") were described by study participants as program problems.

Discussion

Among the study respondents, K-TRACS is used in many clinical situations even though it is not required to be used by physicians. All of the pharmacist respondents and over two-thirds of the

physician respondents reported the use of K-TRACS directly or by staff in their practice. Although use does not occur with every patient encounter involving controlled prescription medications, respondents are using it to bring objective data to subjective, often emotionally charged patient care situations. Additionally, they are using it to familiarize themselves with a new patient, provider, or prescription.

K-TRACS is perceived to be performing in ways reported of other PDMPs, specifically in decreasing the amount of doctor shopping[3-5] and positively altering prescriber habits by promoting the appropriate prescribing and dispensing of controlled prescription medications.[4, 6] Respondents perceived improvement in community safety which might translate into a decrease in diversion of controlled prescription medications, another reported attribute of a PDMP.[1,2]

Overall, respondents reported several benefits and barriers to the use of K-TRACS. Among the benefits of using K-TRACS, respondents pointed to increased patient safety and a decrease in pharmacy and doctor shopping, which has been shown to be a risk factor for drug-related overdose death.[5,14] Additionally, increased communication was a key finding. Physicians reported that using K-TRACS facilitated communication with their patients.[15] Moreover, pharmacists reported better communication with patients as well as with prescribers, which is a novel finding for a PDMP. Such communication has been shown to improve patient outcomes and ensure quality of care for patients with chronic disease, which could help pharmacists and physicians improve their delivery of chronic pain management.[15,16] Among our respondents, the objective data of the K-TRACS report seemed to help physicians and pharmacists more readily discuss any concerns they might have had with both the patient as well as with each other. These discussions have validated prescription decisions, identified the need for abuse and addiction treatment, and in some instances, decreased prescription abuse and overprescribing. These discussions additionally could help to implement the Institute of Medicine's report on "Preventing Medications Errors" action agenda to support the consumer-provider partnership, considered a key step in improving the safety of the medication-use process.[17] The report suggests that the "most powerful strategy for improving safety may be motivating providers and organizations to support the full engagement of patients and surrogates in improving the safety of medication use".

Primary care providers often lack confidence or feel frustration in treating patients with chronic pain.[18,19] Our study respondents reported that K-TRACS helped them feel more confident and comfortable in chronic pain treatment. This is a novel finding of any PDMP to date. With K-TRACS, physicians can work in tandem with pharmacists to manage complex pain patients. Such collaboration can alleviate some of the perceived burden of chronic pain management. In a state where specialists in pain management are, as one respondent suggested, "rare as a unicorn," this benefit has the potential to decrease the number of family physicians who no longer provide chronic pain management and to improve access to care for Kansas patients who suffer with chronic pain.

The most frequently cited barrier centered on accessing K-TRACS in terms of forgotten passwords and frustrations of logging into the system. Several important problems in the system were identified by the interviewees and emerged as significant barriers to patient care. Improved reporting of compounded controlled prescription medications, availability of real-time data,

the ability to correct previously reported information and greater access to other states' PDMP data, could provide additional benefits from the system.

Limitations. This study provides qualitative data from the personal experiences of a small number of selected pharmacists and family physicians with a single state's PDMP. It may not be reflective of the experiences of all pharmacists or physicians in Kansas with K-TRACS and may not translate to other states' PDMPs. Further studies involving quantitative methods across larger study groups are needed to determine if these findings are representative of the majority of Kansas physicians and pharmacists and compare that to other states' PDMPs.

Conclusion

K-TRACS is being utilized by pharmacists and family physicians. K-TRACS has been a benefit to respondents' practices, patients, and communities, despite several operating system barriers. It has become an important new tool in their treatment of chronic pain and has facilitated an increase in communication between the physician, pharmacist, and patient. These are benefits yet to be reported of a PDMP. Efforts to decrease program barriers, increase usage, and ensure sustainability and funding of the system could extend the scope of these identified benefits to more providers across the state.

Acknowledgements

The authors would like to acknowledge Dr. Rose Dulaney for her support and the study participants for their time and participation.

References

[1] Deyo RA, Irvine JM, Millet LM, et al. Measures such as interstate cooperation would improve the efficacy of programs to track controlled drug prescriptions. Health Affairs 2013; 32(3):603-613. PMID: 23406570.

[2] US General Accounting Office. Prescription drugs: state monitoring programs provide useful tool to reduce diversion. Available at: http://www.gao.gov/assets/240/234687.pdf . Accessed December 2, 2014.

[3] Worley J. Prescription drug monitoring programs, a response to doctor shopping: Purpose, effectiveness, and directions for future research. Issues Ment Health Nurs 2012; 33(5):319-328. PMID: 22545639.

[4] Feldman L, Skeel Williams K, Knox M, Coates J. Influencing controlled substance prescribing: Attending and resident physician use of a state prescription monitoring program. Pain Med 2012; 13(7):908-914. PMID: 22681237.

[5] Peirce GL, Smith MJ, Abate MA, Halverson J. Doctor and pharmacy shopping for controlled substances. Med Care 2012; 50(6):494-500. PMID: 22410408.

[6] Baehren DF, Marco CA, Droz DE, Sinha S, Callan EM, Akpunonu P. A statewide prescription monitoring program affects emergency department prescribing behaviors. Ann Emerg Med 2010; 56(1):19-23. PMID: 20045578.

[7] Smith RJ, Kilaru AS, Perrone J, et al. How, why, and for whom do emergency medicine providers use prescription drug monitoring programs. Pain Med 2015; 16(6):1122-1131. PMID: 25688454.

[8] Reifler LM, Droz D, Bailey JE, et al. Do Prescription Monitoring Programs Impact State Trends in Opioid Abuse/Misuse? Pain Med 2012; 13(3):434-442. PMID: 22299725.

[9] Kansas State Act 65-1681. Prescription monitoring program act. July 1, 2008.

Available at http://pharmacy.ks.gov/docs/default-source/KTRACS/k-tracs-statutes-and-regulations.pdf?sfvrsn=0. Accessed: July 24, 2015.
[10] Gugelmann H, Perrone J, Nelson L. Windmills and pill mills: Can PDMPs tilt the prescription drug epidemic? J Med Toxicol 2012; 8(4):378-386. PMID: 23180357.
[11] Gilson AM, Fishman SM, Wilsey BL, Casamalhuapa C, Baxi H. Time series analysis of California's prescription monitoring program: Impact on prescribing and multiple provider episodes. J Pain 2012;13(2):103-111. PMID: 22112420.
[12] Feldman L, Williams KS, Coates J, Knox M. Awareness and utilization of a prescription monitoring program among physicians. J Pain Palliat Care Pharmacother 2011; 25(4):313-317. PMID: 21936637.
[13] Denzin NK, Lincoln YS. The SAGE Handbook of Qualitative Research. Thousand Oaks: Sage Publications, 2011. ISBN: 0761927573.
[14] Paulozzi LJ, Kilbourne EM, Shah NG, et al. A history of being prescribed controlled substances and risk of drug overdose death. Pain Med 2012; 13(1):87-95. PMID: 22026451.
[15] Chua SS, Kok LC, Yusof FA, et al. Pharmaceutical care issues identified by pharmacists in patients with diabetes, hypertension or hyperlipidemia in primary care settings. BMC Health Serv Res 2012; 12:388. PMID: 23145922.
[16] Collier IA, Baker DM. Implementation of a pharmacist-supervised outpatient diabetes treatment clinic. Am J Health Syst Pharm 2014; 71(1):27-36. PMID: 24352179.
[17] Aspden P, Wolcott JA, Bootman JL, CronenwettLR. (Eds.) Preventing Medication Errors: Quality Chasm Series. Washington, DC: The National Academies Press, 2006.
[18] Vijayaraghavan M, Penko J, Guzman D, Miaskowski C, Kushel MB. Primary care providers' views on chronic pain management among high-risk patients in safety net settings. Pain Med 2012; 13(9):1141-1148. PMID: 22846057.
[19] Dobscha SK, Corson K, Fores JA, Tansill EC, Gerrity MS. Veterans Affairs primary care clinicians' attitudes toward chronic pain and correlates of opioid prescribing rates. Pain Med 2008; 9(5):564-571. PMID: 18777608.

Keywords: prescription drugs, controlled substances**,** drug monitoring, Kansas