



Published in final edited form as:

Res Social Adm Pharm. 2020 September ; 16(9): 1306–1308. doi:10.1016/j.sapharm.2019.03.012.

Perception of Prescription Drug Monitoring Program Effectiveness in Primary Care: Evidence from Three States

Amie J. Goodin, PhD, MPP^{1,2}, Joshua D. Brown, PharmD, PhD^{1,2}, Chris Delcher, PhD, MS^{3,4}, Patricia R. Freeman, PhD, RPh⁴, Jeffery Talbert, PhD⁴, Stephen G. Henry, MD, MSc⁵, Dikea Roussos-Ross, MD⁶

¹University of Florida, College of Pharmacy, Department of Pharmaceutical Outcomes and Policy, Gainesville, FL

²Center for Drug Evaluation & Safety, University of Florida, Gainesville, FL

³University of Florida, College of Medicine, Department of Health Outcomes and Biomedical Informatics, Gainesville, FL

⁴University of Kentucky, College of Pharmacy, Department of Pharmacy Practice and Science, Lexington, KY

⁵University of California Davis School of Medicine, Department of Internal Medicine, Sacramento, CA

⁶University of Florida, College of Medicine, Department of Obstetrics and Gynecology, Gainesville, FL

Abstract

Background: Prescription drug monitoring programs (PDMPs) are primary prevention tools to reduce substance use disorders (SUD) and sequelae. Evidence regarding perceptions of PDMPs from different primary care providers, which may impact PDMP utilization for women, is unavailable.

Objective: To examine perceived PDMP effectiveness among obstetrician-gynecologists (OB/GYNs) compared to primary care physicians (PCPs).

Methods: Independent surveys of PDMP users in Florida, Kentucky, and California were evaluated based on a Likert-type item to assess perception of PDMP effectiveness in reducing prescription drug abuse and diversion. Response distributions of OB/GYNs versus PCPs were compared using chi-square tests.

Results: In Florida, there were 41 OB/GYN and 511 PCP respondents; Kentucky, 46 OB/GYNs and 265 PCPs; and California, 41 OB/GYNs and 162 PCPs. In each state OB/GYNs viewed PDMPs as less effective, positive, or useful compared to PCPs ($p < 0.01$, all states): Florida: 64.1%

Corresponding Author Address: Joshua D. Brown, PharmD, PhD, 1225 Center Dr., College of Pharmacy, University of Florida, Gainesville, FL 32610, Telephone: (352) 294-8593, joshua.brown@ufl.edu.

Declarations of Interest: None.

OB/GYN vs. 83.7% PCP “agree positive impact”; Kentucky: 45.0% OB/GYN vs. 68.5% PCP “effective”. California: 73.2% OB/GYN vs. 86.4% PCP “useful”.

Conclusions: These results suggest OB/GYNs view their state’s PDMP as less effective than do PCPs, which may present barriers to PDMP utilization and decrease opportunities for SUD interventions. Engagement of all healthcare team members is needed to inform future strategies and policies to increase PDMP effectiveness.

Keywords

Prescription Drug Monitoring Programs; Opioid analgesics; Neonatal Abstinence Syndrome; Controlled Substance Use in Pregnancy

Introduction

The opioid crisis in the United States is associated with a host of negative health outcomes. The recent increases in infants diagnosed with Neonatal abstinence syndrome (NAS),¹ which is a constellation of symptoms in neonates resulting from substance withdrawal,² is a negative health outcome that has garnered particular attention. In one study, 63% of NAS cases were associated with a healthcare provider’s prescription,³ which suggests that there are opportunities for provider intervention when problematic opioid and other substance use behaviors are identified in pregnant patients. In August 2017, the American College of Obstetricians and Gynecologists released a committee opinion, which recommended that obstetricians-gynecologists (OB/GYNs) and “...other health care providers should ensure that opioids are appropriately indicated...and review the Prescription Drug Monitoring Program [PDMP] to determine whether patients have received prior opioid prescriptions.”⁴

PDMPs are recommended for use as a primary NAS prevention strategy,⁵ in addition to the more general guidelines set forth by the Centers for Disease Control and Prevention to use PDMPs as a primary prevention tool for prescription drug abuse and diversion.⁶

Nearly all primary care providers, including obstetricians and gynecologists (OB/GYNs), have access to state PDMPs to monitor controlled substance (CS) prescriptions for pregnant women in their care. Yet, little is known about CS prescribing for pregnant women⁷ and there are no studies to date regarding providers’ perceptions of PDMPs as an effective prevention tool as applicable to this population. Reports of prescription opioid use in general during pregnancy have yielded mixed findings, with one 2015 study reporting that about 6% of women used opioid analgesics during pregnancy,⁸ while a study of Medicaid claims reported that as many as 28% of pregnant patients received at least opioid prescription during pregnancy between 2009-2011.⁹ More recent trends in this population are not yet available.

Previous studies in individual states have examined, in a general sense, either PDMP usage behaviors or perceptions of effectiveness across different professions and specialties. Florida physicians, for example, report an overall sense that the PDMP is a “useful tool” and will decrease doctor shopping,¹⁰ while prescribers in Massachusetts report that receiving unsolicited PDMP data about their patients is “useful”.¹¹ There is substantial variation in

prescribing patterns for opioids across prescriber specialty¹² and there may be similar variation in usage of PDMPs and perception of PDMP effectiveness across specialty and profession. Therefore, the purpose of this study is to examine the perceived PDMP effectiveness among OB/GYNs compared to primary care physicians (PCPs).

Methods

Briefly, data were collected from each state survey and retrospectively analyzed. In Florida, survey invitations and a cover letter explaining the study were sent via email by PDMP personnel to all registered PDMP account holders with valid email addresses (n=36,116 users invited; n=5,766 responses; response rate=16.6% of users). The research team then sent the same invitations and cover letter to a sample of 9,988 healthcare practitioners who were not registered with the PDMP in Florida (n=772 responses; response rate=7.7% of non-users). In California, survey invitations were sent via a letter from the licensing board to a quasi-random sample consisting of approximately 1/24th of allopathic physicians and 1/12th of osteopathic physicians in California with active licenses. The California invitation letter included a link to an electronic survey, which required respondents to enter their license number for verification of eligibility. In Kentucky, all registered users of the PDMP were sent an email with survey invitation link and cover letter explaining the study (n=17,440 prescribers).

The study design is a cross-sectional analysis of survey data pooled from three states. Perceived PDMP effectiveness was examined from surveys of registered PDMP users in Florida (data collected in 2016), California (2016), and Kentucky (2014). Detailed methodology as well as the full-text instruments for each of these surveys are available elsewhere.¹³

Each of the instruments used Likert-type question items to gauge respondent agreement with statements regarding PDMP effectiveness at reducing “drug abuse.” Responses from select physician specialties, OB/GYN and PCPs, were extracted from each of the surveys. Respondents self-identified their professions (physicians, nurse practitioners, physician assistants, pharmacists) as well as specialties in each survey. For the purposes of this analysis, PCPs were defined as physicians indicating practice settings of “general practice”, “family practice”, or “family medicine”. Pearson chi square testing was conducted between response frequency distribution of PCPs and OB/GYNs, with *a priori* significance set at the 0.05 level.

Results

In Florida, there were 41 OB/GYN and 511 PCP respondents; Kentucky, 46 OB/GYN and 265 PCP respondents; and California, 41 OB/GYN and 162 PCP respondents (Table). Detailed state-specific responses and responder demographics are available in the Supplemental Material. Fewer Florida OB/GYNs agreed that “...the PDMP reduces prescription drug abuse” (64.1% vs. PCP 83.7%; p<0.01). Similar disparity between OB/GYNs and PCPs were observed in Kentucky and California data, which suggests that OB/GYNs as a specialty group are skeptical of PDMP effectiveness as compared with their PCP

counterparts. In Kentucky, 30.0% of OB/GYNs expressed disagreement with the statement that "...the PDMP was an effective tool to reduce prescription drug abuse" as compared to 19.4% of Kentucky PCPs ($p=0.01$). Among California respondents, 19.5% of OB/GYNs as compared with 3.7% of PCPs expressed disagreement that PDMPs are useful for "...identifying drug abusers" ($p<0.01$).

Discussion

Previous surveys have indicated that healthcare provider awareness of state PDMPs is suboptimal,^{14, 15} particularly among states that do not mandate prescriber and pharmacist registration and/or use.¹⁶ This study, however, provides evidence that PDMPs may not be perceived as effective even among those prescribers who are actively registered with their state PDMP, particularly so among the OB/GYN specialty. This finding is concerning in relation to NAS prevention because OB/GYNs assume the role of primary care providers for the majority of pregnant women,¹⁷ regardless of whether their patients receive prescriptions for controlled substances or engage in nonmedical use of opioids, making these providers a critical intervention point for both guideline-compliant opioid therapies as well as for NAS prevention. Additionally, a previous study has reported that clinician perception of PDMP "usefulness" was the most important determinant regarding prescriber and pharmacist intention to use the PDMP,¹⁸ providing further evidence that PDMP promotion and educational interventions for clinicians may be more effective if tailored towards program usability while highlighting relevant concerns for each specialty.

PDMP reporting tools that include adaptations to meet the practice needs of OB/GYNs may be helpful- especially in the 8 states with voluntary PDMP use.¹⁹ As states and payers adopt increasingly restrictive opioid prescribing and dispensing policies, clearly articulated professional responsibilities and opportunities for improvements in inter-professional communication between healthcare providers will be a crucial pathway towards care coordination for patients who are at risk for substance use disorders or other sequelae of the opioid crisis, such as NAS.²⁰ Pharmacists play an important role on the healthcare team in positioning PDMP usage as effective primary prevention tools for substance use disorders and opioid sequelae. Recent studies of pharmacist integration of PDMPs into practice suggest that pharmacists who consistently use the PDMP are more likely to change their controlled substance dispensing behaviors,²¹ and those pharmacists and physicians who registered with the PDMP prior to mandated registration in California were more likely to consistently integrate the PDMP into their practices.²² There are limitations with this analysis, including small sample sizes from individual prescriber specialties as well as the asynchronous survey instruments that did not allow for pooling responses into single items across states. To address these limitations, the research team launched a follow-up study to survey OB/GYNs nationwide regarding PDMP usage and to gauge perceptions of PDMP effectiveness.

Conclusions

Women of childbearing age, and pregnant women especially, primarily receive care from OB/GYNs, who may be more skeptical of PDMP effectiveness than PCPs or other

providers. Therefore, pharmacists are well positioned to reinforce the use of PDMPs and serve as a gatekeeper in situations of problematic controlled substance use.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements:

The authors wish to thank and acknowledge the research teams from the University of Kentucky (SuZanne Troske), the University of Florida (Yanning Wang, Bruce A. Goldberger), and the California Department of Public Health (John Pugliese), for sharing survey data collected during their respective evaluations of each state's Prescription Drug Monitoring Program.

Role of Funding Source: This project was not funded directly, but secondary analysis was conducted using survey data acquired with permission from: the University of Kentucky Institute for Pharmaceutical Outcomes and Policy, House Bill 1 Impact Evaluation of Kentucky's Prescription Drug Monitoring Program (Harold Rogers Grant #: 2011-PM-BX-2007, awarded by Bureau of Justice Assistance); the University of Florida (Harold Rogers Grant #: 2013-PM-BX-0010, awarded by Bureau of Justice Assistance); The California Department of Justice (Harold Rogers Grant #2015-PM-BX-K001, awarded by Bureau of Justice Assistance), and the California Department of Public Health (Prevention for States grant #1U17CE002747, awarded by the CDC).

References

1. Brown JD, Doshi PA, Pauly NJ, Talbert JC. Rates of Neonatal Abstinence Syndrome Amid Efforts to Combat the Opioid Abuse Epidemic. *JAMA Pediatrics*. 2016;170:1110–1112. [PubMed: 27669331]
2. Kocherlakota P Neonatal abstinence syndrome. *Pediatrics*. 2014;134:e547–561. [PubMed: 25070299]
3. Warren MD, Miller AM, Traylor J, Bauer A, Patrick SW. Implementation of a statewide surveillance system for neonatal abstinence syndrome-Tennessee, 2013. *Morbidity and Mortality Weekly Report*. 2015;64:125–128. [PubMed: 25674995]
4. Opioid Use and Opioid Use Disorder in Pregnancy. Committee Opinion No. 711. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2017;130:e81–94. [PubMed: 28742676]
5. Ko JY, Wolicki S, Barfield WD, Patrick SW, Broussard CS. CDC Grand Rounds: Public Health Strategies to Prevent Neonatal Abstinence Syndrome. *Morbidity and Mortality Weekly Report*. 2017;66:242–245. [PubMed: 28278146]
6. Frieden TR, Houry D. Reducing the Risks of Relief--The CDC Opioid-Prescribing Guideline. *N Engl J Med* 2016;374:1501–1504. [PubMed: 26977701]
7. Bateman BT, Hernandez-Diaz S, Rathmell JP, et al. Patterns of opioid utilization in pregnancy in a large cohort of commercial insurance beneficiaries in the United States. *Anesthesiology*. 2014;120:1216–1224. [PubMed: 24525628]
8. Smith MV, Costello D, Yonkers KA. Clinical Correlates of Prescription Opioid Analgesic Use in Pregnancy. *Maternal and Child Health Journal*. 2015;19:548–556. [PubMed: 24951127]
9. Patrick SW, Dudley J, Martin PR, et al. Prescription opioid epidemic and infant outcomes. *Pediatrics*. 2015;135:842–850. [PubMed: 25869370]
10. Gershman JA, Gershman JA, Fass AD, Popovici I. Evaluation of Florida Physicians' Knowledge and Attitudes Toward Accessing the State Prescription Drug Monitoring Program as a Prescribing Tool. *Pain Medicine*. 2014;15:2013–2019. [PubMed: 24931295]
11. Thomas Cindy P, Kim M, Nikitin Ruslan V, Kreiner P, Clark Thomas W, Carrow Grant M. Prescriber response to unsolicited prescription drug monitoring program reports in Massachusetts. *Pharmacoepidemiology and Drug Safety*. 2014;23:950–957. [PubMed: 24920376]
12. Levy B, Paulozzi L, Mack KA, Jones CM. Trends in Opioid Analgesic--Prescribing Rates by Specialty, U.S., 2007–2012. *American Journal of Preventive Medicine*. 2015;49:409–413. [PubMed: 25896191]

13. Prescription Drug Monitoring Program Training and Technical Assistance Center: California PDMP Physician Survey; Kentucky House Bill 1 Evaluation: Prescriber Survey; Florida PDMP User Survey Case Studies: Brandeis University, The Heller School for Social Policy and Management; 2017.
14. Ebbert JO, Philpot LM, Clements CM, et al. Attitudes, Beliefs, Practices, and Concerns Among Clinicians Prescribing Opioids in a Large Academic Institution. *Pain Med* 2018;19:1790–1798. [PubMed: 29177439]
15. Finnell JT, Twillman RK, Breslan SA, Schultz J, Miller L. The Role of Continuing Medical Education in Increasing Enrollment in Prescription Drug Monitoring Programs. *Clin Ther* 2017;39:1896–1902.e1892. [PubMed: 28865800]
16. Williams KS, Magalotti S, Schrouder K, et al. Prescription Drug Monitoring Programs: Relationships Among Program Awareness, Use, and State Mandates. *J Pain Palliat Care Pharmacother* 2018:1–5. [PubMed: 30383501]
17. Kozhimannil KB, Fontaine P. Care From Family Physicians Reported by Pregnant Women in the United States. *Annals of Family Medicine*. 2013;11:350–354. [PubMed: 23835821]
18. Pugliese JA, Wintemute GJ, Henry SG. Psychosocial Correlates of Clinicians' Prescription Drug Monitoring Program Utilization. *Am J Prev Med* 2018;54:e91–e98. [PubMed: 29559202]
19. Prescription Drug Monitoring Program Training and Technical Assistance Center. 2019.
20. Delcher C, Wang Y, Goodin A, Freeman PR, Reisfield GM. Rapid Expansion of the Opioid Ecosystem: National Implications for Prescriber-Pharmacist Communication. *Am J Prev Med* 2018;55:656–661. [PubMed: 30219211]
21. Norwood CW, Wright ER. Integration of prescription drug monitoring programs (PDMP) in pharmacy practice: Improving clinical decision-making and supporting a pharmacist's professional judgment. *Res Social Adm Pharm* 2016;12:257–266. [PubMed: 26143489]
22. Shev AB, Wintemute GJ, Cerda M, Crawford A, Stewart SL, Henry SG. Prescription Drug Monitoring Program: Registration and Use by Prescribers and Pharmacists Before and After Legal Mandatory Registration, California, 2010-2017. *Am J Public Health*. 2018;108:1669–1674. [PubMed: 30359105]

Table:

Obstetrician/Gynecologist and Primary Care Physician¹ Perceptions of Prescription Drug Monitoring Program Effectiveness in Florida (2016), California (2016), and Kentucky (2014)

	Obstetrician/Gynecologist	Primary Care Physician	P-value
	% Respondents	% Respondents	OB/GYN Responses vs. PCP Responses
Does [the Florida PDMP] have a positive impact on reducing prescription drug abuse?			
Strongly Disagree or Disagree	2.6%	7.1%	<0.01 *
Neither Agree or Disagree	33.3%	9.2%	
Strongly Agree or Agree	64.1%	83.7%	
Florida Sample Size	41	511	
To what extent is [the Kentucky PDMP] an effective tool to reduce drug abuse and diversion?			
Not Effective or Somewhat Ineffective	30.0%	19.4%	0.01 *
Neutral	25.0%	12.1%	
Very Effective or Somewhat Effective	45.0%	68.5%	
Kentucky Sample Size	46	265	
How useful is [the California PDMP] for identifying patients who misuse or abuse controlled prescription drugs?			
Not Useful	19.5%	3.7%	<0.01 *
A Little Useful	7.3%	9.9%	
Useful or Very Useful	73.2%	86.4%	
California Sample Size	41	162	

¹Primary Care Physicians were defined as respondents who selected “Family Medicine”, “General Practice”, or “Family Practice”, when describing their practice setting.

* Indicates statistical significance.