Promoting Consistent Use of Prescription Drug Monitoring Programs (PDMP) in Outpatient Pharmacies: Removing Administrative Barriers and Increasing Awareness of Rx Drug Abuse

Article Synopsis:

Prescription drug monitoring programs (PDMP) may be effective tools to reduce drug diversion and improve clinical decision-making for pharmacists, but can only be effective if utilized. This cross-sectional study examined the relationship between outpatient pharmacists' use of Indiana's PDMP (INSPECT) and perceived barriers. Pharmacists were significantly more likely to use INSPECT if they reported no barriers. Pharmacists extremely concerned with prescription drug abuse were 18 times more likely to use INSPECT more consistently compared to those not at all concerned. Innovative strategies to reduce administrative barriers to INSPECT must include efforts to improve awareness about PDMPs and prescription drug abuse.

ABSTRACT

BACKGROUND: Prescription drug monitoring programs (PDMPs) are proving to be valuable resources in fighting the prescription drug abuse epidemic through improved access to patient drug histories. Ninety-four percent of Indiana pharmacists have heard of Indiana's PDMP (INSPECT), only 71% of them reported using the program in 2012.

OBJECTIVE: To identify barriers to PDMP use in outpatient pharmacies and determine the impact these barriers have on utilization.

METHODS: A cross-sectional study examined pharmacists' knowledge and use of INSPECT. Bivariate analyses on utilization and perceived barriers were conducted using cross-tabulations and X^2. Multiple logistic regression examined the relationship between pharmacists' level of concern with prescription drug abuse and reported utilization.

RESULTS: Pharmacists were significantly less likely to use INSPECT if they reported at least one barrier and 3 times more likely to use INSPECT if they reported no barrier. Pharmacists were 10 times more likely to use INSPECT and 18 times more likely to use it more consistently if they were extremely concerned about prescription drug abuse in their community as compared to those not at all concerned.

CONCLUSION: Strategies to improve utilization of PDMPs should look for innovative ways to limit barriers and build outpatient pharmacists' awareness of prescription drug abuse and misuse within their community.

INTRODUCTION

In the 1990s, health care quality improvement initiatives focused on raising awareness for the problem of inadequately treated pain.[1] After the adoption of new standards for the management of pain, the United States saw an increase in prescribing of opioid analgesics. Between 1997 and 2007, the distribution of opioid drugs increased by over 7 times.[2] Overdoses from prescription opioid pain relievers (OPR) quadrupled between 1999 and 2010.[3] OPR overdoses remains a serious public health problem with 5.6 deaths per 100,000 individuals in 2012. [3] A national approach to addressing prescription drug overdoses attempts to "balance the desire to minimize abuse with the need to ensure legitimate access to these medications".[4] One section of this plan calls for the establishment of prescription drug monitoring programs (PDMPs) in all 50 states. A PDMP is a statewide electronic database that collects detailed data on controlled substance prescriptions (CSPs) in a state.[5, 6] PDMPs have proven to be invaluable tools in fighting the prescription drug abuse epidemic by reducing drug diversion of controlled substances and improving clinical decision-making through increased access to detailed patient drug histories.[7]

Pharmacists have an important role in the effort to address prescription drug abuse and are the "last line of defense". A recent study suggested that more consistent use of PDMPs by pharmacists resulted in a higher number of refusals to dispense CSPs as a result of greater access to patient information.[8] "Limited access to information affects [outpatient] pharmacists in fundamental ways, most specifically having incomplete prescription information which can leave the pharmacist unable to fill the prescription".[9] Pharmacists' utilization of PDMPs may lead to a decrease in the morbidity and mortality associated with prescription drug abuse.[10] Utilization of PDMPs in pharmacy practice may be beneficial to reducing the impact of prescription drug

abuse on the community, but a good portion of pharmacists do not utilize these programs. An evaluation of the Indiana Scheduled Prescription Electronic Collection and Tracking Program (INSPECT), Indiana's PDMP, showed that among the 94% of pharmacists who had heard of INSPECT only 72% of them reported actually using the program.[11] PDMPs may prove to be effective tools to increasing access to patient information and supporting clinical decisions regarding the dispensation of CSPs, but they can only be effective if they are used.

The primary objective of this study was to identify common barriers to INSPECT use reported by outpatient pharmacists and subsequently examine how these barriers influence PDMP utilization. The study also looked at a provider's level of concern with Rx drug abuse in the community to assess how awareness of Rx abuse and misuse translates to INSPECT utilization.

METHODS

Study Design

This cross-sectional study examined information on providers' practice characteristics, behaviors, and key information about their knowledge and use of INSPECT. The *2012 IPLA Knowledge and Use Survey* was conducted by the Indiana University Purdue University – Indianapolis (IUPUI) Center for Health Policy (CHP) as part of an initiative to evaluate Indiana's PDMP. Detailed methodology for the evaluation is described in an previous report.[11] The evaluation surveyed 10,606 pharmacists in the State of Indiana who held a valid license to dispense controlled substances in 2012. With 1,582 pharmacists responding, the survey returned a 15% response rate. Basic demographics of the study sample were compared to Indiana's 2012 Pharmacist Workforce Data[12] in a previous study[8] to ensure the sample was representative of

Indiana's total pharmacist population. The sample exhibited similar characteristics to Indiana's 2012 Pharmacist workforce in regards to age, years practicing, and gender.[8]

Study Population

The study population included 1,000 outpatient pharmacists who completed the *2012 IPLA Knowledge and Use Survey*. Pharmacists were considered to be working in an outpatient setting if they reported their primary practice setting as a community health center, diagnostic testing facility, outpatient clinic, outpatient surgery center, pharmacy (outpatient), retail medicine clinic, or an urgent care facility. Otherwise, the pharmacist was excluded from the study.

Study Outcomes

The study consisted of 2 primary outcome measures. The first outcome measure, Used INSPECT, is a binary variable (Yes=1, No=0) indicating whether or not the pharmacist reported using INSPECT within the last 12 months. The second outcome measure, "Often Check INSPECT, is a 3 level categorical variable (Never=1, Periodically=2, At Every Visit=3) that indicates the pharmacist's reported frequency of INSPECT use.

Data Analyses

Statistical analyses were performed using SAS Statistical Software 9.4©. Descriptive statistics were performed to describe the study sample. Cross-tabulations and X^2 statistics were used to identify differences in INSPECT use by gender, age, training period, and reported barriers. Relative risks were calculated to look at reported barriers as predictors of INSPECT use.

Multiple logistic regression was used to study 2 outcome variables, Used INSPECT and Often Check INSPECT. Variables that were contextually relevant or statistically significant in the bivariate analyses were added to the initial multiple logistic regression models to control for

factors that may influence the relationship between the primary outcome measures and the dependent variable. Degree type was not available in these data and so the variable training period was created to control for the time in which the provider was trained in relation to the adoption of the PharmD as the sole entry level degree for the pharmacy profession.[8] Stepwise elimination was used to fit the model and to exclude any variables that had no statistical or conceptual significance in the multivariate model.[13] The study outcome measures were assessed with determination of odds ratio (OR) estimates and 95% Wald confidence intervals (CIs).

RESULTS

Barriers to INSPECT Utilization

Basic demographic information describing the sample population is provided in Table 1. Although 97% of outpatient pharmacists had heard of INSPECT prior to receiving the survey, only 81% of them reported using it. Furthermore, only 3% of outpatient pharmacists reported using INSPECT at every visit compared to periodically (88%) or never (9%) using INSPECT. All respondents who had heard of INSPECT were asked to report perceived barriers to using the PDMP. The frequency of reported barriers to INSPECT and there association to INSPECT use (relative risk) is included in Table 2. If a pharmacists reported no barrier, they were 3 times more likely to also report using INSPECT; however, they were significantly less likely to use INSPECT if they reported at least one barrier (RR=.80). Surprisingly, pharmacists who reported being afraid of legal ramifications were the least likely to report using INSPECT (RR=.44).

The study also aimed to examine how barriers effect the frequency of INSPECT use. Figure 1 illustrates the variation in the frequency of INSPECT use based on respondents perceived barriers. Not surprisingly, when no barriers were reported there was a larger percentage (14%) of pharmacists utilizing INSPECT at every visit as compared to when at least

one barrier was reported (7%). No pharmacists who reported being afraid of legal ramifications utilized INSPECT at every visit.

Pharmacists Level of Concern

Multiple logistic regressions examined the relationship between INSPECT use and the provider's level of concern with prescription drug abuse in the community. These results (Table 3) demonstrated that outpatient pharmacists who reported being extremely concerned with prescription drug abuse in the community were approximately 10 times more likely to use INSPECT as compared to those who reported being not at all concerned (OR = 9.96, 95% CI, 1.724 – 57.536). Not only were those pharmacists extremely concerned with prescription drug abuse in the community more likely to report using INSPECT, but they were 18 times more likely to use INSPECT more frequently than those who were not at all concerned (OR = 17.89, 95% CI, 1.457 – 219.69).

DISCUSSION

Pharmacists play a crucial role in the national efforts to reduce the abuse and misuse of CSPs. Pharmacists have the responsibility to investigate the validity of CSPs if there is any reason to question the authenticity of the prescription. However, many times outpatient pharmacists find themselves devoid of the proper clinical resources or information to resolve concerns that may arise while filling a CSP. PDMPs may provide key information to pharmacists allowing them to make informed clinical decisions reducing the risk of drug diversion. This study illustrated that there are barriers to using INSPECT which results in outpatient pharmacists failing to utilize the program as frequently as may be desired. When pharmacists reported no barrier they were significantly more likely to use INSPECT. Conversely, if there was at least one reported barrier the provider was significantly less likely to use INSPECT. Interestingly,

10% of outpatient pharmacists reported that they were afraid of the perceived legal ramifications that may accompany use of the program. Although this is not necessarily an administrative barrier, it may indicate that health professionals should look to raise awareness and provide comprehensive training for INSPECT users. These findings suggest that health professionals must look for innovative ways to ameliorate the impact key barriers including reimbursement, time, registration, and legal ramifications may have on utilization of INSPECT in order to fully leverage the potential of Indiana's PDMP. These results are also in line with conclusions from another study which examined PDMP utilization for primary care physicians.[14]

These findings suggest that health professionals should look to remove barriers to INSPECT use and also to build awareness within the pharmacy community about prescription drug abuse in order to promote more consistent use of the PDMP. Outpatient pharmacists were 10 times more likely to report using INSPECT if they were extremely concerned with prescription drug abuse as compared to those who were not concerned at all. Also, outpatient pharmacists were 18 times more likely to use INSPECT more often if they were extremely concerned as compared to those who were not concerned at all. Therefore, it is possible that building awareness about prescription drug abuse within the pharmacy community may significantly increase the number of pharmacists not only using the PDMP, but using it more frequently.

Study Limitations

This study was conducted within one state, Indiana. The generalizability of these findings to other states may be a limitation. Furthermore, the response rate for the survey was low and may be a limitation to the study. A previous study compared Indiana's 2012 pharmacist workforce to the survey sample and confirmed the survey sample comparable to Indiana's

pharmacist workforce. Another limitation to this study was response bias as the outcome measures were self-reported. It is likely that response bias may result in an overestimate of pharmacists use of INSPECT as well as reported frequency of use. The survey was administered anonymously to limit response bias. In light of these limitations, the study findings should still be considered due to their important implications and consistency with previous literature.

CONCLUSION

This study concludes that strategies to improve outpatient pharmacists' utilization of PDMPs should look for innovative ways to limit administrative barriers and also build outpatient pharmacists' awareness of prescription drug abuse and misuse within their community.

Acknowledgements

This research was supported, in part, by an evaluation contract to the second author from the Indiana Professional Licensing Agency (IPLA) made possible by a grant from the U.S. Department of Justice, Office of Justice Programs and the Harold Rogers Prescription Drug Monitoring Program (IPLA Contract No. 062166-00002B). The authors would like to acknowledge the collaborative effort between the IPLA, the Indiana State Prescription Drug Abuse Prevention Task Force Education Committee, and the Indiana University Purdue University – Indianapolis, (IUPUI) Center for Health Policy (CHP) which led to the development of the *IPLA Knowledge and Use Survey* used in this study. The content is solely the responsibility of the authors and does not necessarily represent the official views of the Indiana Board of Pharmacy or the aforementioned collaborators.

REFERENCES

1. Quality improvement guidelines for the treatment of acute pain and cancer pain. American Pain Society Quality of Care Committee. *JAMA.* 1995;274:1874-1880.

2. Centers for Disease Control Prevention. CDC grand rounds: prescription drug overdoses - a U.S. epidemic. *MMWR. Morbidity and mortality weekly report.* 2012;61:10-13.

3. Rudd RA, Paulozzi LJ, Bauer MJ, et al. Increases in Heroin Overdose Deaths—28 States, 2010 to 2012. *MMWR: Morbidity and mortality weekly report.* 2014;63:849-854.

4. Centers for Disease C, Prevention. CDC grand rounds: prescription drug overdoses - a U.S. epidemic. *MMWR. Morbidity and mortality weekly report.* 2012;61:10-13.

5. NAMSDL. The role of a prescription drug monitoring program in reducing prescription drug diversion, misuse, and abuse: National Alliance for Model State Drug Laws; 2014.

6. Blumenschein K, Fink J, Freeman PR, et al. Review of Prescription Drug Monitoring Programs in the United States: Institute for Pharmaceutical Outcomes and Policy; 2010:1-28.

7. PDMP Center of Excellence. Briefing on PDMP Effectiveness. Brandeis University: Bureau of Justice Assistance; 2014.

8. 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. *Research in Social and Administrative Pharmacy.* 2015.

9. Maxwell L, Odukoya OK, Stone JA, Chui MA. Using a conflict conceptual framework to describe challenges to coordinated patient care from the physicians' and pharmacists' perspective. *Research in social & administrative pharmacy : RSAP.* 2014;10:824-836.

10. Fleming MLPDa, Barner JCPDb, Brown CMPDb, Shepherd MDPDb, Strassels SPDb, Novak SMDPDb. Using the theory of planned behavior to examine pharmacists' intention to utilize a prescription drug monitoring program database. *Research In Social & Administrative Pharmacy*. 2014;10:285-296.

11. Kooreman H, Carnes N, Wright E. Key Findings and Recommendations from the 2013 IPLA INSPECT Knowledge and Use Survey. Center for Health Policy: Indiana University; 2014.

12. Maxey HL. Indiana Pharmacist 2012 Licensure Survey Data. In: Indiana University Health Workforce Studies, ed2015.

13. Menard S. *Applied Logistic Regression Analysis*. Thousand Oaks, CA: Sage; 2002.

14. Rutkow L, Turner L, Lucas E, Hwang C, Alexander GC. Most primary care physicians are aware of prescription drug monitoring programs, but many find the data difficult to access. *Health Aff (Millwood).* 2015;34:484-492.

TABLES & FIGURES

Table 1
Sample Demographics

	N (%)
Age (years)	Mean ± SD, 46.4 ± 13.6
Years Practicing	Mean ± SD, 20.5 ± 14.0
Gender	
Female	521 (54)
Male	445 (46)
Race/Ethnicity (n=1000)	
White/non-Hispanic	898 (93)
Asian American/ Pacific Islander	28 (3)
Black/non-Hispanic	17 (2)
American Indian/ Alaska Native	3 (0)
Hispanic/Latino	11 (1)
Training Period	
Cohort 1	272 (28)
Cohort 2	302 (31)
Cohort 3	393 (41)
Barriers to INSPECT	
Insufficient Time	532 (58)
Not Registered	129 (14)
Lack of Reimbursement	89 (10)
Other Barriers	96 (10)
Afraid of Legal Ramifications	26 (3)
No Barriers	288 (31)

220

Table 2
Sample Demographics and Bivariate Analysis

	Total Respondents	Used Inspect				
Outpatient Pharmacists		Yes	No	X^2	P	
Age Category				11.67	.0086	
<35	265 (29)	224 (25)	41 (5)			
36-45	198 (22)	170 (19)	28 (3)			
46-55	177 (19)	142 (16)	35 (4)			
56+	272 (30)	204 (22)	68 (8)			
Gender				.0232	.8790	
Female	521 (54)	400 (44)	96 (10)			
Male	445 (46)	342 (37)	80 (9)			
Training Period				10.211	.0061	
Cohort 1	272 (28)	223 (24)	42 (5)			
Cohort 2	302 (31)	244 (27)	44 (5)			
Cohort 3	393 (41)	272 (30)	89 (9)			
Barriers to INSPECT						Relative Risk (95% Confidence Interval)
No Barriers	532 (58)	268 (29)	20 (2)	38.86	<.0001	3.112* (2.0381, 4.751)
At Least One Barrier	638 (68)	492 (52)	146 (16)	18.23	<.0001	.7960* (.7290, .8692)
Not Registered	129 (14)	38 (4)	91 (10)	262.29	<.0001	.0970* (.069, .1363)
Afraid of Legal Ramifications	89 (10)	17 (2)	9 (1)	4.35	0.037	.4386* (.1989, .9673)
Lack of Reimbursement	96 (10)	71 (7)	18 (2)	.1226	.7262	.9160 (.5611, 1.495)
Insufficient Time	26 (3)	444 (48)	88 (10)	4.3914	.0361	1.172* (1.001, 1.3721)
Other Barriers	288 (31)	75 (8)	21 (2)	.6435	.4225	.8293 (.5263, 1.3068)

221

Figure 1: Outpatient Pharmacists' Reported Barriers & Frequency of Inspect Use

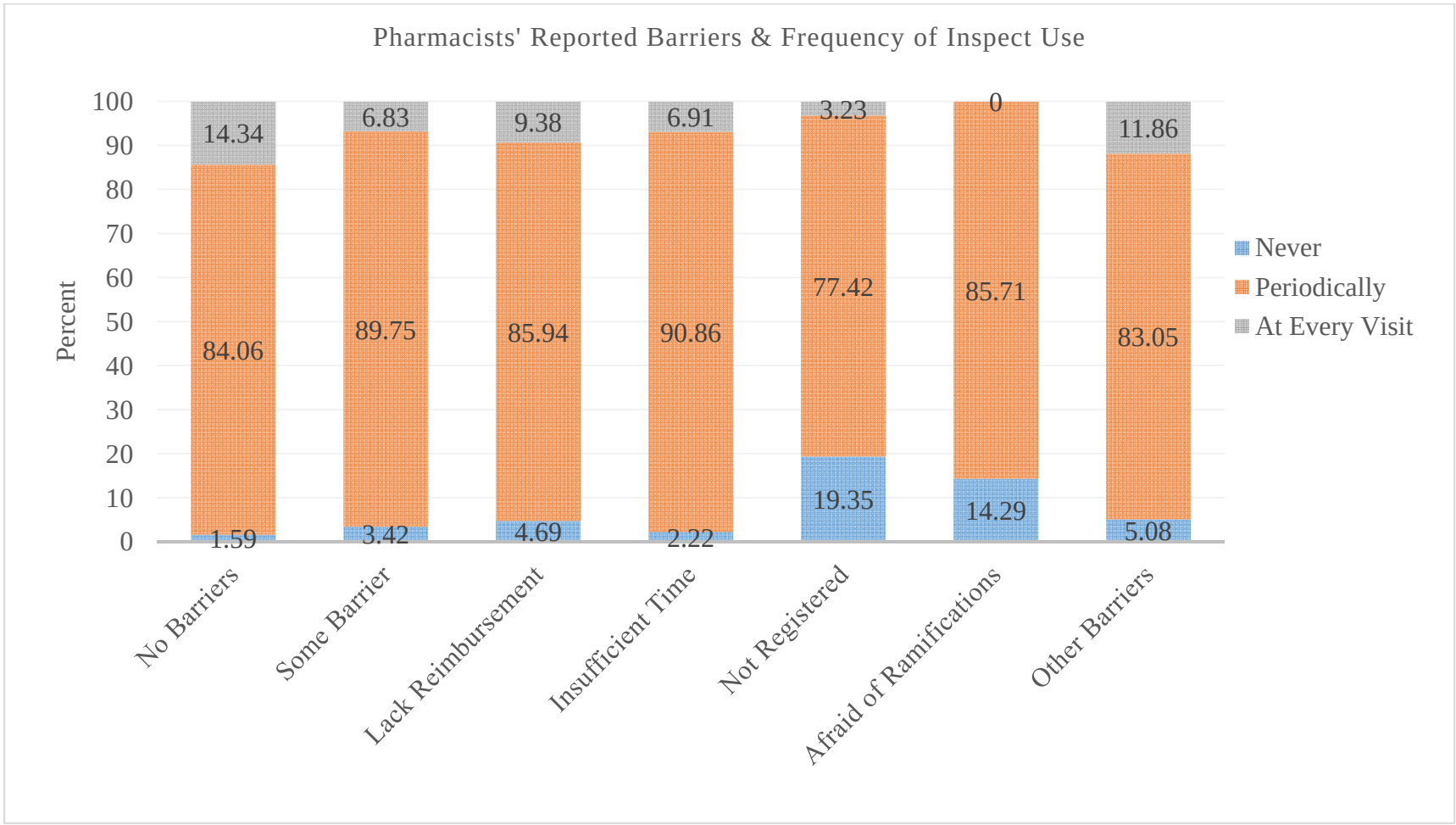

Table 3
Multivariate Logistic Regression

	Used INSPECT				Often Check INSPECT			
		95% CI				95% CI		
Variable	OR	Lower	Upper	P	OR	Lower	Upper	P
Male	0.88	.592	1.30	.509	1.095	.648	1.85	.734
Age (in years)	1.03	.999	1.06	.060	.963	.925	1.00	.072
Training Period								
Cohort 1	1.11	0.465	2.667	.230	.603	.166	2.20	.443
Cohort 2	.672	.351	1.29	.809	.852	.335	2.17	.736
Cohort 3	ref	ref	ref	ref	ref	ref	ref	ref
Rx Abuse in Community								
Extremely Concerned	ref	ref	ref	ref	ref	ref	ref	ref
Moderately Concerned	.743	.495	1.12	.153	.733	.425	1.26	.264
Slightly Concerned	1.17	.624	2.18	.629	.402	.146	1.10	.077
Not concerned at all	9.96	1.72	57.54	.010	17.89	1.457	219.69	.024

226