



PROGRAM DESIGN AND EVALUATION SERVICES
MULTNOMAH COUNTY HEALTH DEPARTMENT AND
OREGON HEALTH AUTHORITY

Early Assessment of the Prescription Drug Monitoring Program: A Survey of Providers

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Executive Summary

The Prescription Drug Monitoring Program was set up to collect information from pharmacies about certain controlled substances being dispensed in Oregon. The system became operational in September 2011 when providers started using the system to assess controlled substance use by their patients. Program Design and Evaluation Services (PDES) developed and implemented a statewide provider survey to assess early use of the system. The purpose of this report is to present findings from that survey.

Surveys were sent to 1,100 providers chosen randomly from board lists of licensed medical doctors, physician assistants, nurse practitioners, doctors of osteopathy, dentists and pharmacists. The response rate was 62%, and the final sample size was 675.

Overall there was very positive feedback about the program. The large majority of respondents agreed that the program would likely improve management of patient prescriptions (92%), engender interest for most providers to use the system (92%), increase communication between providers (80%), and have an impact (86%). About three quarters of registered users (77%) reported that benefits exceed the drawbacks, and most found it “very useful” in monitoring prescriptions (65%) and controlling doctor shopping (64%).

About half (54%) were moderate or active users, and using the system had generated the following activities for the majority of providers in the past 30 days: spoken with a patient about controlled substance use (78%), confirmed patient not misusing prescriptions (68%), confirmed patient was doctor shopping (59%) and/or reduced or eliminated prescriptions for a patient (59%). There was also evidence that system use had led to more communication between providers and other clinicians and staff within their practice (64%), other providers who write prescriptions (67%), other pharmacists (63%) and patients (79%).

About one in five reported some difficulty registering to use the system (20%) or accessing patient information (18%). When asked about barriers keeping them from using the system more frequently, the most important barriers were not enough time (40% indicated this was a large or medium barrier), lack of access for support staff (31%), or the system not being easy to use (17%). When asked what would improve the program, the largest theme among written comments was the desire to allow support staff to have access to the program. Other themes included the desire to widen participation as much as possible, to improve technical aspects of logging in and accessing the system, to improve experiences with registering, and to allow for more up-to-date information.

In summary, providers have mostly good things to say about their early experience with the PDMP system. It will be important to find solutions for barriers related to registering and using the system, particularly a consideration to allow access by support staff. Other goals should be to improve technical aspects of system interface, and add resources for providers on the program website.

Background

In 2009, the Oregon Legislature passed Senate Bill 355 mandating the Oregon Health Authority to develop a Prescription Drug Monitoring Program (PDMP). The program became operational in September, 2011. The PDMP is an electronic Web-based data system that collects data on Schedules II, III and IV controlled substances being dispensed in the state by retail pharmacies. Health care providers and pharmacists may apply for accounts to access information from the program dataset for their patients. We refer to those providers with active PDMP accounts as “registered users.”

In order to gather early information on the use and acceptance of the PDMP system by Oregon providers, the Injury and Violence Prevention section of the Oregon Public Health Division contracted work with Program Design and Evaluation Services (PDES) to develop and implement a statewide provider survey. This survey was implemented May through June, 2012. The primary purpose of this report is to present findings from that survey.

Methods

The survey instrument was developed by staff from PDES and Injury and Violence Prevention. We reviewed an earlier survey implemented in Maine¹, and also received feedback from several stakeholders, including local medical providers, the Oregon Pharmacy Board, partnering researchers from Oregon Health Sciences University and Accumentra Health, and the PDMP Advisory Commission. The survey was designed to collect feedback about the following:

- Methods for and experience with patient notification
- Feedback about program start up and ongoing administration
- Perceived utility of the data system as a tool in patient care
- Impact on
 - prescription behavior and approaches to pain management
 - communication with other providers
 - screening for potential misuse
- Perceived resource gaps
- Barriers for using the system more frequently
- Suggestions for improvement

The modified survey instrument along with survey frequencies can be found in Appendix 1.

We targeted the following groups of providers to receive the surveys: pharmacists, medical doctors (selected specialties), dentists, physician’s assistants, osteopathic doctors, and nurse practitioners. We developed a mailing list based on publicly available datasets housed within respective boards (for pharmacy, medicine, and nursing). PDMP staff were able to stratify these provider lists by whether they had registered to use the system or not, and we then pulled a

¹ Susan Payne, professor at Muskie School of Public Service, University of Southern Maine, shared a report from May 2010 entitled “User’s Experience with the Maine Prescription Monitoring Program.”

simple random sample from each group in order to create a final mailing list of 1100 providers. The final list included the following numbers for each provider type:

<u>Provider Type</u>	<u>Registered user</u>	<u>Not registered</u>
Pharmacists	150	150
Medical Doctors ²	200	200
Doctors of Osteopathy	50	50
Nurse Practitioners	50	50
Physicians Assistants	50	50
Dentists	50	50

We mailed surveys to the health care providers in Oregon beginning late May, 2012. The first mailing included the survey, cover letter with informed consent, \$2 cash incentive, and addressed envelope for mail-back. We mailed one follow-up packet to non-responders.

The primary purpose of this report is to present descriptive statistical findings from the survey. We used SPSS 19 software for data entry, compilation, and analysis.

Results

Response Rate

After accounting for respondents deemed ineligible, the response rate was 62% for the total group (57% for those not registered, and 68% for those registered). This is a very good response rate for this type of survey and combined with the random sample design suggests that the results should well represent the target population. The table below gives the total final sample size by whether registered and by provider type, with response rate in parentheses. Medical doctors were less likely to respond compared to pharmacists and other providers.

<u>Provider Type</u>	<u>Registered user N (response rate)</u>	<u>Not registered N (response rate)</u>	
Pharmacists	102 (68%)	89 (59%)	
Medical Doctors	118 (60%)	101 (53%)	
Other providers ³	149 (75%)	116 (59%)	
Total	369 (68%)	306 (57%)	675 (62%)

² For a list of included and excluded specialties, see Appendix 2. We also limited the sample to MDs with an active license.

³ Doctors of Osteopathy, Nurse Practitioners, Physicians Assistants, Dentists

Sample Description

The total sample size was 675. The table presented in the previous section displays the sample size for different provider types, differentiated by whether they were registered users or not. Registered users made up 58% of the sample with the balance made up of non-registered providers. In terms of provider types, pharmacists made up 28% of the sample, medical doctors made up 33%, and other providers made up 39%.

Slightly more than half were male (54%), and the sample was relatively even by age group (29% were under 40, 27% were 40-49, 24% were 50-59, and 20% were 60 or older). Nearly six out of ten respondents reported working within a small private practice:

- small private office (five or fewer practitioners): 58%
- large private office: 26%
- emergency room: 11%
- safety net clinic: 6%
- hospital-based clinic: 7%
- some other practice setting: 18%

Survey Findings (see Appendix 1 for complete survey frequencies)

1. Overall there was very positive feedback about the program.

Respondents had positive opinions about the promise of the program, as measured by level of agreement with the following statements. Percentages indicate how frequently respondents answered “strongly agree” or “agree” that the program would:

- likely improve management of patient prescriptions for controlled substances (92%)
- engender interest for most providers and pharmacists for registering as users (92%)
- likely increase communication between providers (80%)
- likely have impact (86%)

Registered users were slightly more positive in their agreement of these items, partly explained by a higher likelihood of non-registered users answering “don’t know,” a response category that was included in the analysis.

As for the current program, 77% of registered users indicated that the benefits exceed the drawbacks. Regarding usefulness of the system, about two in three indicated that the program had been “very useful” in helping to monitor patients’ controlled substances prescriptions (65%) and in helping to control “doctor shopping” (64%), while nearly half (49%) indicated “very useful” for helping providers consult with each other about possible patient prescription abuse.

Pharmacists on average reported mostly positive experiences with the system so far, although there was some indication of dissatisfaction with program startup:

- 22% disagreed that program start up went smoothly
- 25% disagreed that they had all the information they needed at the beginning

2. Patient notification by pharmacies

Very few pharmacists (6%) reported hearing complaints about the notification process from patients.

While most pharmacists reported some combination of methods for notifying patients about the new system (primarily with wall posters and printed information handed out with all prescriptions) results also indicate that about three in ten pharmacies may not have provided adequate patient notification, with reports of no notification (8%) or wall poster notification only (21%).

3. Most common uses of PDMP

Of registered users, over half (54%) considered themselves to be “moderate” or “active and regular” users.

- The most common use of the system was to assess controlled substance use for patients who might be over using (71% of pharmacists and 86% of providers).
- The second most common use was to assess controlled substance use of new patients (59% of pharmacists and 72% of providers).

System use had generated the following actions by roughly half or more of the providers in the past 30 days:

- spoken with a patient about controlled substance use (78%)
- confirmed patient not misusing prescriptions (68%)
- confirmed patient was doctor shopping (59%)
- reduced or eliminated prescriptions for a patient (59%)
- contacted other providers or pharmacies (49%)

While most providers reported the system was easy to use, there was a minority who indicated that it was either “somewhat difficult” or “very difficult” registering to use the system (20%) and accessing patient information (18%).

4. Evidence for increased communication

About two out of three pharmacists and providers also indicated that they communicate more as a result of using the system, reporting “yes, definitely” or “yes, somewhat” that they now communicate more with:

- Clinicians and staff inside my practice (64%)
- Providers who write prescriptions (67%)
- Pharmacists (63%)
- Patients (79%)

The top three reported topics about which they communicated more were doctor shopping (61%), pain management (55%), and substance abuse treatment (35%).

5. Suggestions for what would be useful for the PDMP website

The following potential resources would be considered “very useful” or “somewhat useful” as additions to the PDMP website by at least 80% of registered users:

- Making referrals for substance abuse treatment
- Recommendations for seeing patients with substance abuse problems
- Guidelines around pain management
- Interacting with patients using PDMP data
- Advice for seeing patients dually diagnosed with mental health and substance abuse issues

6. Barriers and Suggestions for Improvement

The most important barriers to more frequent use of the system, as documented by those indicating from a suggested list of issues which were a “large” or “medium” barrier, included:

- Not enough time (40%)
- Lack of access for support staff (31%)
- System not being easy to use (17%)

About half of the respondents left comments about “one thing that would improve the program.” Important themes included:

- Allow for support staff to have access to the program (#1 theme)
- Encourage wider participation
- Make login and overall interface easier to use and more responsive (faster)
- Improve technical issues related to registering
- Allow for information to be more up-to-date

Discussion

Limitations

This report presents findings from a mailed survey of Oregon providers. There are potential limitations in our attempts to summarize information for the target group of all providers in Oregon: a) Survey data is self-reported which may mean that some of the information is inaccurate due to poor memory or the desire to present oneself in the best light, or other such biases; b) We assume that our findings represent the target group, and even though the response rate was good, there is still the chance that those who did not answer the survey would have consistently different views than those who did answer the survey. Another limitation is that about a quarter of respondents we identified as non-registered instead reported having a PDMP account, and future surveys should consider methods to confirm whether providers are registered users, or prepare to re-send the correct survey to those who were misidentified or signed up during the interim of the survey process.

Conclusions and Next Steps

The survey results presented in this report suggest that Oregon providers have primarily good things to say about the new PDMP system. Particularly among those registered to use the system, there appear to be positive opinions that the system holds promise and is currently functioning in a way that helps them to manage controlled substances for their patients. The system is being used most frequently to assess and manage controlled substance use for those who may be overusing or for new patients. Providers also attribute higher levels of communication with providers and patients to system use, so there are indications that the program will help to improve coordination of care between a patient's multiple providers.

An important finding is that many providers express the desire that system access be granted for their clinical assistants. This was a major theme from responses about barriers and what would improve the system. It may also be inferred by the number one expressed barrier keeping providers from using the system more: not having enough time. Whatever can be done to facilitate the integration of system use within the normal routines and workflow of a busy clinic should be included as next steps to improve the program for providers.

Another finding is that about one in five providers experience some sort of technical difficulty using the system, so it will be important to continue identifying and reaching out to them to offer any help needed to register and use the system. It may also be important to continue gathering information about what technical upgrades or improvements could be made to facilitate use of the system. Although the survey was not designed to gather detailed information about use, it appears that almost half of registered users could be considered low-level users. It may be important to explore why some registered users end up not being as active, and to consider methods to support and facilitate their more frequent use of the system.

Providers also expressed an interest in additional website resources, which would be a good match for the role of the state program. A centralized web-based resource could supply up-to-date and quality links to information about pain management guidelines and resources for helping patients with substance abuse problems.

The PDMP system shows early promise for improving the management of controlled substances in Oregon. Steps are warranted not only to continue and enhance the program, but also to continue assessing provider experiences as they use it to improve patient care.

APPENDIX 1: Survey Questions and Raw Frequencies

A. Results for TOTAL GROUP (N=675)

1. Have you heard about the Prescription Drug Monitoring Program, also known as PDMP?
(missing=22)

89.9% yes

10.4% no [*please read summary below*]



PDMP Summary:

This monitoring program became law and started up in September, 2011. Pharmacies submit prescription data to the PDMP system for all Schedules II, III and IV controlled substances dispensed to Oregon residents. The protected health information (patient name, drug prescribed, provider) is collected and stored securely. Oregon healthcare providers and pharmacists may register for a free account to access information online from the PDMP system for their patients. The program was started to help inform prescription practice.

% This does sound familiar

% I still don't know what this is

- 36 of the 90 missing or “no” above said it sounds familiar so 92.0% of sample indicated familiarity with system.
- For registered only, 97.8% have familiarity with system.
- For non-registered only, 85.0% have familiarity with system.

2. Considering this program summary, and from your own knowledge of the program and its goals, please indicate how much you agree or disagree with the following statements.

For each statement, please choose one answer	Strongly Disagree	Disagree	Agree	Strongly agree	Don't know
a. This program is likely to improve management of patient prescriptions for controlled substances.	1.5%	2.1%	33.3%	59.0%	4.1%
b. Over time, I think most providers and pharmacists will be interested in registering to access and use this data system.	1.5%	2.9%	39.1%	53.1%	3.5%
c. This program will likely increase communication between providers.	1.8%	6.3%	37.5%	42.9%	11.5%
d. This prescription monitoring program will not have much impact.	41.3%	44.6%	5.1%	2.7%	6.2%

For q2a-d, registered indicate slightly more positive opinions, with fewer “don't know”.

3. In general (not just for you or your practice) – so far, how have the benefits of the PDMP compared to the drawbacks?

- 63.7% benefits exceed the drawbacks
- 7.6% benefits and drawbacks are about equal
- 3.7% drawbacks exceed the benefits
- 24.9% I have no idea

“I have no idea” option much more likely to be indicated by non-registered.

4. In general (not just for you or your practice), how useful has the PDMP been so far?

How useful is the PDMP...	Very useful	Somewhat useful	Not useful	Don't know
a ...in helping clinicians and pharmacies to monitor patients' controlled substance prescriptions?	51.9%	25.7%	3.4%	19.0%
b ...in helping to control “doctor shopping” by patients seeking to access or abuse controlled substances?	53.0%	23.0%	3.8%	20.3%
c ...in helping providers consult with each other about possible prescription abuse by patients?	39.4%	31.0%	5.3%	24.3%

Questions 2-4, for REGISTERED RESPONDENTS ONLY (n=369)

2. Considering this program summary, and from your own knowledge of the program and its goals, please indicate how much you agree or disagree with the following statements.

For each statement, please choose one answer	Strongly Disagree	Disagree	Agree	Strongly agree	Don't know
a. This program is likely to improve management of patient prescriptions for controlled substances.	1.1%	1.4%	28.4%	67.5%	1.6%
b. Over time, I think most providers and pharmacists will be interested in registering to access and use this data system.	1.1%	2.2%	33.9%	61.5%	1.4%
c. This program will likely increase communication between providers.	1.1%	5.2%	36.4%	51.0%	6.3%
d. This prescription monitoring program will not have much impact.	50.7%	40.8%	3.3%	3.0%	2.2%

3. In general (not just for you or your practice) – so far, how have the benefits of the PDMP compared to the drawbacks?

- 77.2% benefits exceed the drawbacks
- 6.2% benefits and drawbacks are about equal
- 3.9% drawbacks exceed the benefits
- 12.6% I have no idea

4. In general (not just for you or your practice), how useful has the PDMP been so far?

How useful is the PDMP...	Very useful	Somewhat useful	Not useful	Don't know
a ...in helping clinicians and pharmacies to monitor patients' controlled substance prescriptions?	65.3%	23.4%	1.9%	9.4%
b ...in helping to control "doctor shopping" by patients seeking to access or abuse controlled substances?	64.3%	20.9%	3.0%	11.8%
c ...in helping providers consult with each other about possible prescription abuse by patients?	48.6%	31.2%	4.7%	15.5%

B. Results for PHARMACISTS ONLY (N=191)

5. Which of the following methods have you used to notify patients about the PDMP? (check all that apply)

- 8.1% we have not been notifying patients
- 65.4 % posters on the wall of the pharmacy*
- 50.3% printed PDMP information handed out with appropriate prescriptions
- 9.7% printed PDMP information handed out with ALL prescriptions
- 22.2% verbal notification to patients with appropriate prescriptions
- 1.1% verbal notification to all patients
- 8.1% something else [14 comments]

*of the 121 who indicated 'posters', 41 of these only checked this option, meaning 29.3% of total group either indicated "not notifying patients" or "posters only"

6. Have you heard about or received any complaints about the patient notification process from patients?

94.0% no

6.0% yes

% about how many separate complaints? (n=9: 5 said “2”, 3 said “3” 5 said “1”)

6a. What has been the primary complaint? (11 comments)

7. Have you heard complaints from anyone other than patients about the patient notification process?

92.3% no

3.8% yes, from pharmacy staff

3.8% yes, from health care providers

0.0% yes, from someone else

(please specify whom): (4 comments)

8. Please think about your pharmacy’s experience participating in the Prescription Drug Monitoring Program. Consider the statements below and indicate how much you agree or disagree with each.

For each statement, please choose one answer	Strongly Disagree	Disagree	Agree	Strongly agree	Don’t know
a. Program start up went very smoothly.	4.4%	17.7%	53.0%	11.6%	13.3%
b. We had all the information we needed when the program got up and running.	2.8%	22.7%	54.1%	11.6%	8.8%
c. I wish technical support could be more helpful.	5.0%	29.1%	17.9%	3.9%	44.1%
d. Overall, this has been a negative experience for our pharmacy.	27.2%	55.0%	3.3%	2.8%	11.7%
e. Our current experience uploading data is going very well.	3.4%	4.5%	48.0%	14.0%	30.2%

C. Results for REGISTERED PHARMACISTS AND PROVIDERS (N=369)

9. You have received this version of our survey because our records show that you have registered online as a user, to request and access information on patients. Is this correct?

- 1.9% not correct, I have not registered for an account
- 3.6% not sure
- 94.5% correct

9a. For how long have you had an account?

- 10.0% 2 months or less
- 86.5% more than 2 months
- 3.5% not sure

10. How would you characterize your use of the PDMP system?

- 15.3% I have never used it
- 30.6% very minimal user
- 25.6% moderate user
- 28.4% active and regular user

	Very easy	Somewhat easy	Somewhat difficult	Very Difficult
11. How easy was it to register as a user?	39.4%	40.4%	18.0%	2.2%
12. How easy has it been to access patient information?	43.5%	38.6%	13.4%	4.6%

13. In the last 30 days, about how many separate patients have you accessed the PDMP to monitor or check on prescription medication?

- 18.6% none
- 48.4% 1 - 5
- 26.4% 6 - 25
- 6.6% more than 25

14. In the past 30 days, for which of the following reasons have you used the PDMP system (check all that apply)

(PHARMACIST ONLY)(N=102)

- 58.6% to assess controlled substance use of new patients
- 71.3% to assess controlled substance use for patients who might be over-using
- 9.2% some other criteria (7 comments)

(PROVIDER ONLY)(N=267)

- 71.5% when prescribing a controlled substance for a new patient
- 49.0% when prescribing a new controlled substance for an existing patient
- 53.0% when a patient requests an early refill on a controlled substance
- 85.5% to assess controlled substance use for patients who might be over-using
- 17.5% some other reason (40 comments)

15. Some providers have reasons for not using the PDMP system more often. How much do each of the following barriers keep you from using the system more?

	Large barrier	Medium barrier	Small barrier	Not a barrier
a. Limitations with internet access at work	2.0%	6.2%	11.1%	80.8%
b. Not enough time	16.8%	23.2%	39.0%	21.0%
c. Lack of benefit for my office	0.3%	3.3%	11.8%	84.6%
d. Support staff not being allowed to access the system under my account	17.2%	13.6%	18.5%	50.6%
e. Lack of training on how to use the PDMP	2.9%	6.5%	22.5%	68.1%
f. The system is not easy to use	6.6%	10.5%	28.5%	54.4%

16. What else would you rate as a large or medium barrier keeping you from using the PDMP system more often? (104 comments)

17. In the past 30 days, which of the following actions have you taken as a result of using the PDMP system to monitor prescription medications for you patients? (check all that apply)

(PHARMACISTS ONLY)(N=102)

- 34.5% spoken with a patient about controlled substance use
- 56.3% contacted prescribers or other pharmacies
- 55.2% confirmed patient not misusing prescriptions
- 35.6% confirmed patient was doctor shopping
- 32.2% denied prescription for a patient
- 6.9% something else (6 comments)

(PROVIDERS ONLY)(N=267)

- 77.8% spoken with a patient about controlled substance use
- 48.5% contacted other providers or pharmacies
- 67.7% confirmed patient not misusing prescriptions
- 59.1% confirmed patient was doctor shopping
- 59.1% reduced or eliminated prescriptions for a patient
- 28.3% dismissed patient from practice
- 30.3% referred or recommended for substance abuse treatment
- 34.8% referred or recommended for pain management
- 15.7% referred or recommended for anxiety (or other psychiatric disorder) management
- 7.6% something else (16 comments)

18. As a result of using the PDMP system, do you communicate more with any of the following groups?

Do you communicate more with...	Yes, definitely	Yes, somewhat	No
a. Clinicians and staff inside my practice	36.3%	28.1%	35.6%
b. Providers who write prescriptions	25.6%	40.9%	33.6%
c. Pharmacists	22.6%	40.5%	36.8%
d. Patients	39.0%	40.0%	21.0%

19. About which of the following topics do you communicate more with any of these groups? (check all that apply)

15.5% I don't communicate more
 54.5% pain management
 17.7% drug interactions
 61.0% doctor shopping
 35.2% substance abuse treatment
 10.3% something else

20. How useful would any of the following categories be as additional resources on the PDMP website? (check all that apply)

	Very useful	Somewhat useful	Not useful
a. Guidelines around pain management	37.8%	45.1%	17.2%
b. Advice for dealing with mental health issues	26.3%	47.2%	26.5%
c. Recommendations for seeing patients with substance abuse problems	39.5%	44.7%	15.8%
d. Advice for seeing patients dually diagnosed with mental health and substance abuse issues	31.1%	48.7%	20.2%
<i>PROVIDERS ONLY</i>			
e. Making referrals for substance abuse treatment	51.2%	35.8%	12.6%
f. Interacting with patients using PDMP data	33.2%	47.8%	18.6%
e. Anything else (31 comments)			

D. Results for NON REGISTERED PHARMACISTS AND PROVIDERS (N=306)

21. You have received this version of our survey because our records show that you have not registered online as a user. Is this correct?

73.5% correct
 26.5% not correct, I have registered for an account
 (pharmacists=22.6%; providers=28.3%-- this a limitation)

22. Why haven't you registered as a user? (choose all that apply)
(PHARMACISTS ONLY)

- 14.7% there is no internet access at work
- 17.3% I'm not aware that I could register as a user
- 29.3% I'm too busy
- 2.7% I don't think there would be any benefits
- 5.3% I'm not allowed to share the account with my support staff
- 55.3% some other reason (please specify) (44 comments)

(PROVIDERS ONLY)

- 1.5% there is no internet access at work
- 27.7% I'm not aware that I could register as a user
- 13.1% I'm too busy
- 4.4% I don't think there would be any benefits
- 1.5% I'm not allowed to share the account with my support staff
- 25.5% I rarely, if ever, prescribe controlled substances
- 44.2% some other reason (please specify) (63 comments)

Results for TOTAL GROUP

23. What one thing would improve this program, if anything?

- Registered Pharmacists: 58 (or 57%) made a comment
- Registered Providers: 127 (or 48%) made a comment
- Non-registered Pharmacists: 41 (or 46%) made a comment
- Non-registered Providers: 82 (or 38%) made a comment

24. What is your age?

- 5.0% under 30
- 23.9% 30-39
- 27.2% 40-49
- 24.2% 50-59
- 19.6% 60 or older

25. What is your gender?

- 54.2% male 45.8% female

26. What best characterizes your practice? (PROVIDERS ONLY)

- 26.1% large private office (6+ practitioners)
- 57.6% small private office (5 or fewer practitioners)
- 4.0% academic practice
- 10.8% emergency room
- 6.4% safety net clinic (e.g., FQHC)
- 7.2% hospital-based clinic
- 3.0% hospital: inpatient primarily
- 11.0% other

Appendix 2: MD specialties included and excluded from sample

Selection was made considering most likely specialties to be candidates for using the PDMP

MD Specialties included (n=~7700)

- Family, General, Internal Medicine: 4000
- Emergency Medicine: 724
- Obstetrics and Gynecology: 578
- Orthopedic Surgery: 474
- Psychiatry: 542
- Other selected specialties: 1310
 - acupuncture
 - addiction medicine
 - cardiovascular disease and cardiology
 - Child and Adolescent Psychiatry
 - Child Psychiatry
 - gastroenterology
 - geriatric medicine
 - gynecology
 - hospice and palliative care
 - occupational health
 - oncology
 - pain medicine
 - physical medicine and rehab
 - preventive medicine
 - psychosomatic medicine
 - public health and preventive medicine
 - pulmonary medicine
 - rheumatology
 - sleep medicine
 - sport medicine
 - therapeutic radiology
 - urology

MD Specialties excluded (n=~5000)

- Allergy, and Allergy and Immunology
- Anatomic Pathology and Clinical Pathology
- Anesthesiology
- All surgeries specialties
- Child Neurology
- Clinical Cardiac Electrophysiology
- Critical Care Medicine
- All pathology specialties
- Dermatology
- Diagnostic Radiology
- Endocrinology, Diabetes and Metabolism
- Hematology
- Infectious Diseases
- Maternal and Fetal Medicine
- Medical Genetics
- Medical Oncology
- Neonatal-Perinatal Medicine
- Nephrology
- Neurology
- Neuroradiology
- Nuclear Medicine
- Ophthalmology
- Otolaryngology, Rhinology
- All pediatric specialties
- Plastic Surgery
- Radiation Oncology
- Radiology
- Vascular and Interventional Radiology