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Minnesota Board of Pharmacy

Report to the Legislature: Impact of the Minnesota Prescription Monitoring Program on Doctor Shopping

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This report was prepared as required by 2014 Minn. Laws Chap. 291 Art. 2 Sec. 4.

Cost of Report
MN Stats. §3.197 states that a "report to the legislature must contain, at the beginning of the report, the cost of preparing the reporting, including any costs incurred by another agency or another level of government". The estimated cost of preparing this report was $9,575.

Introduction

Prescription drug monitoring programs (PDMP/PMPs) have become prevalent in today's healthcare environment. Forty-nine of the fifty states have enacted legislation allowing for the creation and operation of a PMP. Evidence published by the PDMP Center of Excellence at Brandeis University suggests that PMPs are effective in reducing controlled substance misuse and diversion, supporting safe prescribing and dispensing, and addressing the prescription drug abuse epidemic. The Prescription Drug Abuse Prevention Plan, which expands on the Obama Administration's National Drug Control Strategy, calls for action in education, monitoring, proper disposal, and enforcement, in an effort to reduce prescription drug abuse.[1] The "monitoring" component includes increased utilization and enhancement of PMPs, in part, to detect and reduce "doctor shoppers" and diversion. The goals of the Minnesota PMP are to promote public health and welfare by detecting diversion, abuse, and misuse of controlled substances, to reduce prescription drug overdoses, and to promote safe prescribing and dispensing, all in an effort to improve patient care.

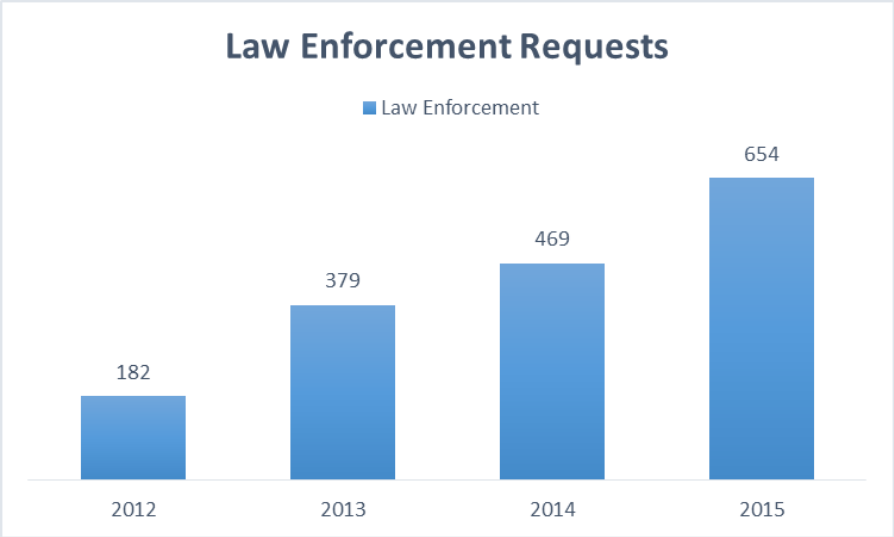
For the purposes of this document, doctor shopping behavior is defined as the practice of obtaining controlled substance prescriptions from multiple prescribers and pharmacies without informing the providers of other care that has been received or making an effort to coordinate care.

The intent of this report is to provide an update to the Legislature regarding the impact the Minnesota PMP has had on doctor shopping. While there is no one true measure to signify doctor shopping, this report provides an overview of various aspects which may have contributed to the impact the Minnesota PMP has had on doctor shopping. Items assessed include law enforcement requests, survey results in which active users of the system responded to questions regarding doctor shopping and utilization of the PMP, and the notification process, referred to as Controlled Substance Insight Alerts (CSIAs), in which the PMP provides prescribers and pharmacies with information if their patient exhibits high-risk patient behavior, such as doctor shopping behavior.

[1] Office of National Drug Control Policy. (n.d.). Prescription drug abuse. Retrieved from https://www.whitehouse.gov/ondcp/prescription-drug-abuse

Law Enforcement Requests

According to the Prescription Drug Monitoring Program Training and Technical Assistance Center (PDMP TTAC), 47 of the 49 states with PMPs, as well as two territories with PMPs, permit law enforcement to receive PMP data.[2] Minnesota Statutes § 152.126 permits federal, state, and local law enforcement authorities to request PMP information pursuant to a valid search warrant. Since the inception of the program, the number of law enforcement requests has grown. In 2015, the Board of Pharmacy was served with 654 search warrants, a 39% increase from the year prior. While the reasons for search warrants are not disclosed to the Board, the growing number of requests from law enforcement officials indicate the increasing role that the PMP has played in identifying prescription drug abuse, misuse, and diversion in the State of Minnesota.



PMP User Survey Results

Discipline of Survey Participants

The PMP administered a survey to active PMP database users in July 2015 and July 2016. With each year, one survey was tailored towards pharmacists with active PMP accounts and the other was tailored towards prescribers with active PMP accounts. The 2016 survey asked users additional questions regarding doctor shopping to get a better understanding of the impact the PMP has had on the behavior in the State of Minnesota, from the perspective of healthcare providers. The table below provides an overview of the discipline and number of providers who responded to the surveys in 2015 and 2016. Of note, individuals who responded to the 2015

survey may have also responded to the 2016 survey, if they had active PMP accounts and chose to participate in both years.

Discipline	2015	2016
Advanced Practice Registered Nurse (APRN)	274	315
Doctor of Dental Surgery and Doctor of Dental Medicine (DDS/DMD)	131	250
Doctor of Osteopathy or Doctor of Osteopathy Resident (DO or DO-Res)	66	74
Doctor of Podiatry (DPM)	7	6
Medical Doctor or Medical Doctor Resident (MD or MD-Res)	1,060	1,146
Doctor of Optometry (OD)	0	0
Pharmacist	911	910
Physician Assistant (PA)	242	245
Total	2,691	2,946

Perceived Impact of MN PMP

Prescribers and pharmacists were asked a series of questions regarding the impact the PMP has had on their prescribing or dispensing habits. Survey logic was built in, to include prescribers and pharmacists who had actually viewed or used information from a MN PMP report. In 2015, 1,772 prescribers and 822 pharmacists indicated they had in fact viewed or used information from a MN PMP report, and in 2016, 1,829 prescribers and 834 pharmacists indicated the same, thereby allowing them to answer the series of questions to follow:

Prescriber Perception of PMP Utilization (2015/2016 Prescriber Response)*

Since initiating utilization of the MN PMP:					
		Increased	**Decreased**	**No Change**	**No Opinion**
My confidence in prescribing controlled substances has:	2015 (1,635 responses)	79%	1%	19%	1%
	2016 (1,800 responses)	78%	1%	20%	1%
My confidence in discontinuing or modifying a patient's controlled substance regimen has:	2015 (1,632 responses)	83%	<1%	14%	2%
	2016 (1,798 responses)	82%	<1%	16%	2%
My concern that I may write prescriptions for controlled substances that may harm my patient or contribute to their abuse, misuse, or diversion habits has:	2015 (1,634 responses)	28%	50%	21%	1%
	2016 (1,798 responses)	28%	45%	25%	1%
My awareness of the extent to which any of my patients abuse, misuse, or divert controlled substances has:	2015 (1,634 responses)	90%	1%	9%	1%
	2016 (1,801 responses)	88%	1%	10%	1%

*The survey tool which was utilized gathered responses in percentages rounded to the hundredths place. For purposes of this analysis, the results have been rounded to whole numbers and may not equate to an exact 100%, due to rounding.

Pharmacist Perception of PMP Utilization (2015/2016 Pharmacist Response)*

Since initiating utilization of the MN PMP:					
		Increased	Decreased	No Change	No Opinion
My confidence in dispensing controlled substances has:	2015 (800 responses)	76%	1%	18%	6%
	2016 (808 responses)	76%	1%	17%	7%
My confidence in requesting a modification or discontinuation of a controlled substance prescription has:	2015 (799 responses)	74%	<1%	20%	6%
	2016 (807 responses)	74%	<1%	19%	6%
My concern that I may dispense prescriptions for controlled substances that may harm my patient or contribute to their abuse, misuse, or diversion habits has:	2015 (798 responses)	23%	48%	24%	5%
	2016 (806 responses)	25%	46%	21%	8%
My awareness of the extent to which any of my patients abuse, misuse, or divert controlled substances has:	2015 (803 responses)	83%	1%	13%	3%
	2016 (808 responses)	80%	1%	14%	5%

*The survey tool which was utilized gathered responses in percentages rounded to the hundredths place. For purposes of this analysis, the results have been rounded to whole numbers and may not equate to an exact 100%, due to rounding.

Those same prescribers and pharmacists that had actually viewed or used information from a PMP report, were asked if the extent in which they prescribe or dispense opioids or controlled substances had changed since utilizing the MN PMP. Responses are captured in Figure 1 and 2 below. One can surmise that the changes noted in prescribing and dispensing habits after utilizing the MN PMP may be attributed to an increased level of awareness of patient activity, which was unknown prior to utilization.

Figure 1. Prescriber Perception in Prescribing Habits

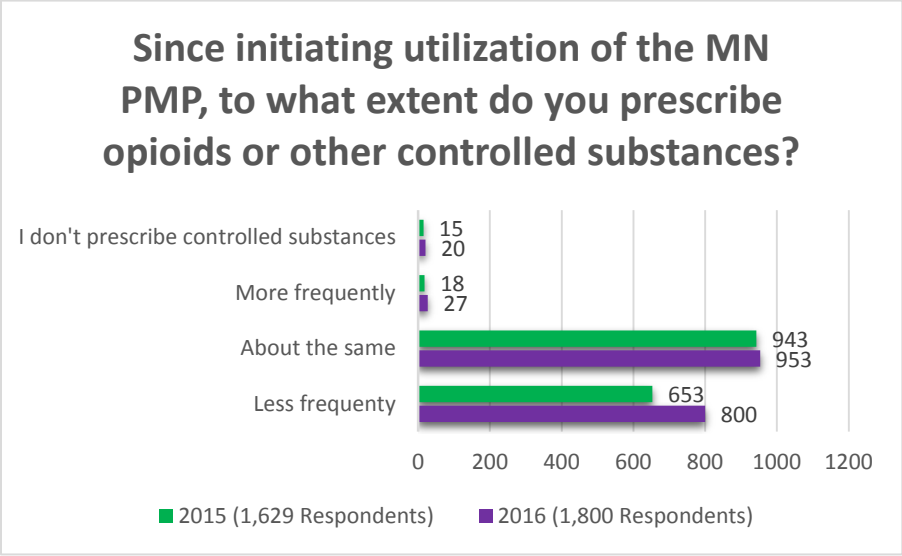
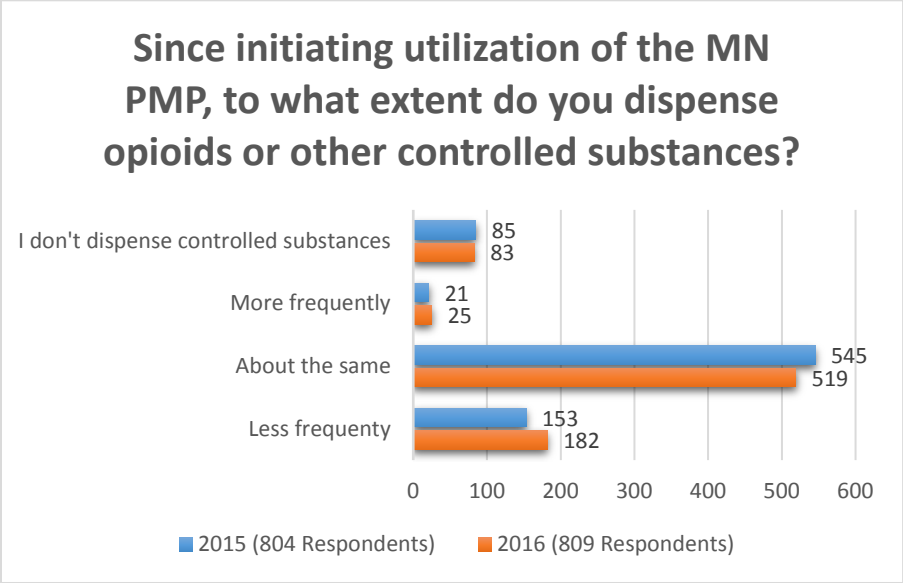


Figure 2. Pharmacist Perception in Dispensing Habits



Doctor-Shopping Specific Questions

In 2016, prescribers and pharmacists were asked if they had ever utilized the MN PMP and subsequently identified an individual that was doctor shopping to obtain controlled substances. For the purposes of the survey, doctor shopping was defined as the practice of obtaining controlled substance prescriptions from multiple prescribers and pharmacies without informing the providers of each other in an effort to coordinate care. 1,392 prescribers and 541 pharmacists indicated that they had utilized the MN PMP and subsequently identified an individual with doctor shopping behavior. These prescribers and pharmacists were then asked how they proceeded upon identifying such behavior. Responders were able to select more than one option or were permitted to type a response, if a different course of action was taken other than the listed options. The following table provides the options and selections of prescribers and pharmacists, where applicable. If an option was specific to prescribers than the response box lists "n/a" for pharmacists, and likewise, for pharmacist specific questions.

How did you proceed upon identifying an individual with doctor shopping behavior? (2016)		
	Prescriber (1,379 responses)	**Pharmacist (529 responses)**
Discussed the PMP report with the individual	83%	38%
Screened the individual for substance use disorder (For pharmacists: Made a recommendation to the prescriber to screen the individual for…)	29%	24%
Did not prescribe a controlled substance medication	87%	n/a
Did not dispense a controlled substance medication	n/a	71%
Ceased prescribing controlled substance medication(s), if previously had been doing so	47%	n/a
Ceased dispensing controlled substance medication(s), if previously had been doing so	n/a	27%
Contacted the prescriber of the controlled substance prescription to determine if it should be filled or cancelled	n/a	85%
Contacted prescriber(s) listed on the PMP report	27%	61%
Contacted a pharmacy listed on the PMP report	21%	48%
Referred the individual to a prescriber who specializes in addiction or to a substance abuse treatment or facility	26%	n/a
Provided the individual with resources to assist with substance misuse or abuse (i.e. contact information for a substance abuse facility or for a prescriber who specializes in addiction)	n/a	5%
Prescribed a medication for opioid dependence or tolerance (For pharmacists: Made a recommendation to the prescriber that a prescription for opioid addiction or dependence be written)	4%	5%
Required a Pain Management Agreement (pain contract) (For pharmacists: Made a recommendation to the prescriber that a Pain Management Agreement be utilized)	14%	18%
Tapered the individual down or off of controlled substance medication(s) (For pharmacists: Recommended or assisted the prescriber with a taper down…)	23%	16%
Updated patient profile alerting other providers in my facility to query the PMP (For pharmacists: Updated…alerting others in my pharmacy/healthcare system…)	30%	47%
Updated patient profile alerting other providers in my facility of possible drug seeking behavior (For pharmacists: Updated…alerting others in my pharmacy/healthcare system…)	43%	45%
Notified the involved prescriber(s) and/or pharmacies if fraudulent activity identified	13%	33%
Notified law enforcement if fraudulent activity identified (in accordance with the law and my employer's policy)	4%	11%

Some additional courses of action were provided and include, "transitioned patient for their other opioids to Suboxone®," "notified enforcement officer within our organization," "notified case manager," "notified my colleague who would be seeing the patient at the next visit," "notified patient's social worker, providers involved, pharmacies involved, and placed patient on a restricted plan," "notified the hospitalist caring for the patient," and "notified the care team, who in turn referred the patient for pain management referral/contract."

Professional Opinions

In the 2015 and 2016 surveys, prescribers and pharmacists were asked questions regarding their professional opinions of the PMP in regards to monitoring patients, facilitating communication, and reducing doctor shopping and prescription drug misuse in the State of Minnesota. In both years, the majority of responding prescribers and pharmacists indicated that they believe the Minnesota PMP has been useful or very useful in assisting prescribers and pharmacists in monitoring patient's controlled substance prescriptions as well as facilitating more open communication between health care providers regarding possible cases of prescription drug misuse, abuse, and diversion. Responses are captured in the two tables below.

In your professional opinion, how useful is the MN PMP in:*					
		Very useful	**Useful**	**Not useful**	**I do not know**
Assisting prescribers and pharmacists in monitoring patient's controlled substance prescriptions	2015 Prescribers (1,612 responses)	88%	12%	<1%	1%
	2016 Prescribers (1,924 responses)	78%	17%	1%	4%
	2015 Pharmacists (786 responses)	77%	21%	1%	1%
	2016 Pharmacists (831 responses)	74%	20%	1%	4%
Facilitating more open communication between health care providers regarding possible cases of prescription drug misuse, abuse, and diversion	2015 Prescribers (1,611 responses)	75%	21%	2%	2%
	2016 Prescribers (1,917 responses)	65%	26%	3%	6%
	2015 Pharmacist (786 responses)	68%	29%	1%	2%
	2016 Pharmacists (827 responses)	65%	26%	3%	6%

*The survey tool which was utilized gathered responses in percentages rounded to the hundredths place. For purposes of this analysis, the results have been rounded to whole numbers and may not equate to an exact 100%, due to rounding.

Prescribers and pharmacists were also asked for their opinion regarding the impact the MN PMP has had on doctor shopping, prescription drug misuse, and overdoses in the State of Minnesota. The 2015 and 2016 responses are captured in the following table.

In your professional opinion, how effective has the MN PMP in:*						
		Very effective	**Somewhat effective**	**Somewhat ineffective**	**Not effective**	**No opinion**
Reducing doctor shopping behaviors in Minnesota	2015 Prescribers (1,712 responses)	41%	42%	2%	2%	12%
	2016 Prescribers (1,920 responses)	41%	38%	2%	1%	18%
	2015 Pharmacists (854 responses)	27%	54%	2%	2%	15%
	2016 Pharmacists (828 responses)	32%	48%	2%	2%	16%
Decreasing prescription drug abuse, misuse, and diversion in Minnesota	2015 Prescribers (1,706 responses)	34%	48%	2%	2%	14%
	2016 Prescribers (1,918 responses)	36%	42%	3%	2%	18%
	2015 Pharmacist (852 responses)	20%	58%	4%	3%	16%
	2016 Pharmacists (829 responses)	27%	51%	3%	3%	16%
Decreasing prescription drug overdoses and overdose deaths in Minnesota	2015 Prescribers (1,702 responses)	18%	31%	4%	4%	43%
	2016 Prescribers (1,911 responses)	22%	29%	4%	4%	40%
	2015 Pharmacist (852 responses)	10%	38%	4%	5%	43%
	2016 Pharmacists (824 responses)	15%	40%	6%	5%	34%

*The survey tool which was utilized gathered responses in percentages rounded to the hundredths place. For purposes of this analysis, the results have been rounded to whole numbers and may not equate to an exact 100%, due to rounding.

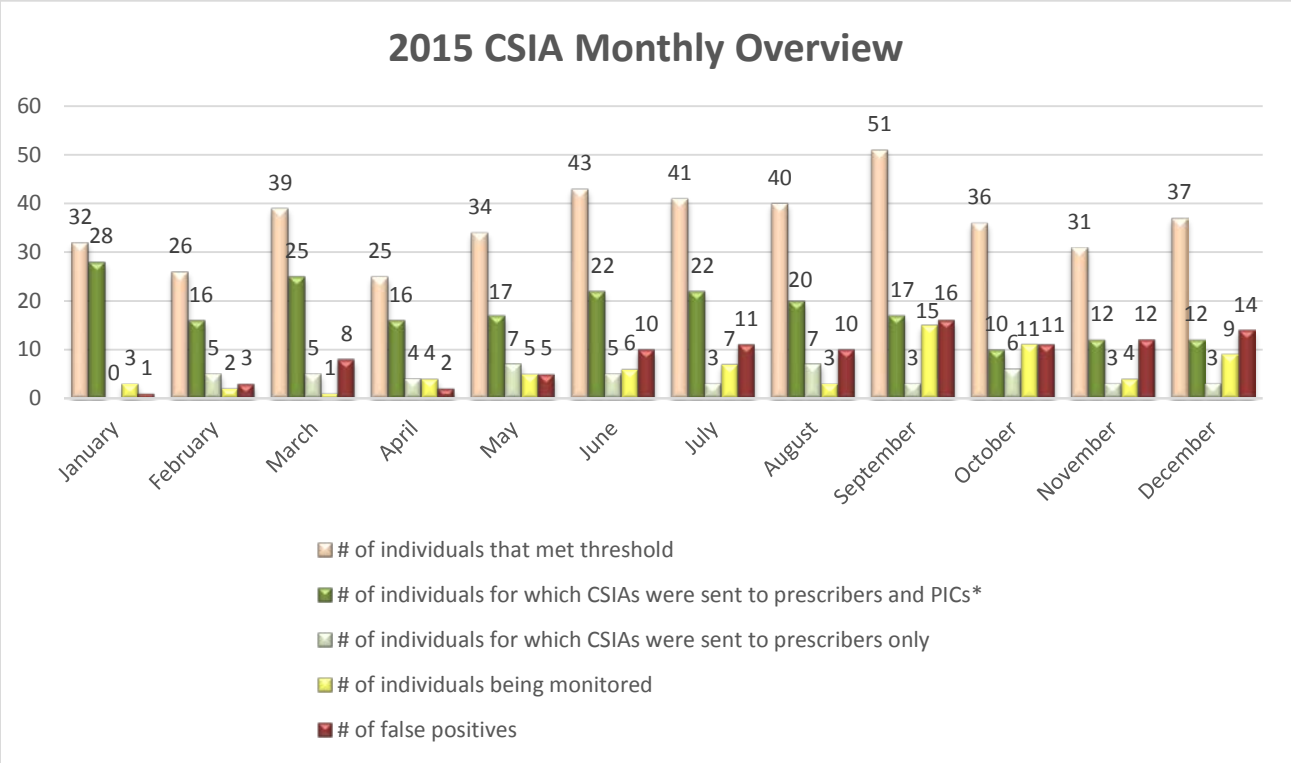
Controlled Substance Insight Alerts

In 2014, legislation passed that allows Minnesota PMP staff to provide notification (unsolicited reports) to prescribers and pharmacists regarding their patients, if predetermined thresholds have been met indicating high-risk patient behavior. Minnesota PMP staff studied how other state PMPs were conducting unsolicited reporting, considered various thresholds after applying them against Minnesota data, and sought advice from the PMP Advisory Task Force and approval from the Minnesota Board of Pharmacy. Unsolicited reporting in the State of Minnesota was implemented in January 2015. The agreed upon threshold is in a format to identify patients that have obtained controlled substance prescriptions from multiple prescribers and pharmacies in a given timeframe. The unsolicited report that is sent to prescribers and pharmacies is referred to as a "Controlled Substance Insight Alert (CSIA)".

Each month a report is generated which identifies the individuals that met or exceeded the predetermined threshold. Clinical judgment is then applied to each individual's prescription data prior to providing prescribers and pharmacists with CSIAs, in an effort to remove those individuals identified as "false positives". An individual's data report may be considered a false positive if they met the threshold, but upon analysis of their prescription records, it was determined at a minimum, their prescribers were

providers of oncology, hospice or palliative care, or all prescribers provide care through the same healthcare system. The method by which CSIAs are provided to prescribers depends on whether or not the prescriber has an account to access the Minnesota PMP database. Prescribers who have PMP accounts receive an email notification which encourages them to sign into the PMP database where the patient report will be awaiting their review. Prescribers without a PMP account are mailed a letter. All CSIAs sent to pharmacies are done so via the US Postal Service because there is no way to determine which pharmacist dispensed the controlled substance at the particular pharmacy. The following information regarding CSIAs is provided in an effort to show the impact the PMP has had on doctor shopping in the State of Minnesota.

Figure 3. Monthly Overview of CSIA Threshold (2015)**



***PICs = pharmacist-in-charge**

****Note:** The monthly overview data cannot be added together to yield the total number of unique individuals for which CSIAs were sent, because some individuals met the threshold more than one time, meaning they would be counted each month they met the threshold. Additionally, if an individual is being monitored and appears to have high-risk behavior in a subsequent month, he/she is tallied in the initial month in which the threshold was met as well as in the month in which the high-risk behavior occurred (and then CSIAs were sent).

In 2015, 214 unique individuals met the threshold suggestive of high-risk patient behavior, and had CSIAs sent to prescribers and/or pharmacists. Of them, 34 individuals met the threshold more than once during that year. Consequently, 84% of individuals did not meet the threshold again in 2015, once CSIAs were provided to the prescribers and/or pharmacists who had prescribed or dispensed controlled substances for them. For a handful of individuals, CSIAs were provided to prescribers only when it was unclear if their prescription records were suggestive of legitimate medical need or potential misuse. Erring on the side of caution, a CSIA was provided to prescribers only in these instances. On occasion, a determination was inconclusive, therefore the individual was monitored for 3 months. If their reported

prescriptions began to indicate high-risk patient behavior, then prescribers and/or pharmacies were notified. If the reported prescriptions stayed the same or activity lessened, CSIAs were not provided. For purposes of analysis, if an individual's report became indicative of high-risk behavior, this information is included based on the month in which the activity occurred. In Figure 3, these individuals are captured in the initial month in which the threshold was met (tan column) and as an individual being monitored (yellow column). The individual appears again in Figure 3 if activity became indicative of high risk behavior and the decision was made to send CSIAs (dark or light green column). For example, if an individual had an inconclusive prescription history in the month of January, they would be counted in January's analysis as having met the threshold and as an individual being monitored. If activity became indicative of high risk behavior in March and CSIAs were sent, then the individual is counted in the month of March as an individual for which CSIAs were sent to prescribers and/or pharmacists. This is true of all tables and graphs throughout the report unless otherwise noted. Figure 3 provides a monthly overview of the number of individuals that met the threshold and the ensuing action that occurred upon analysis.

For the 214 unique individuals, 1661 prescriber notifications and 1245 pharmacy notifications were generated. The number of unique prescribers and pharmacies, during a given month, who received a CSIA is given in Figures 4 and 5 below. However, these monthly numbers cannot be added together to yield the total number of unique prescribers and pharmacies.

Figure 4. CSIAs sent to Prescribers – Monthly (2015)

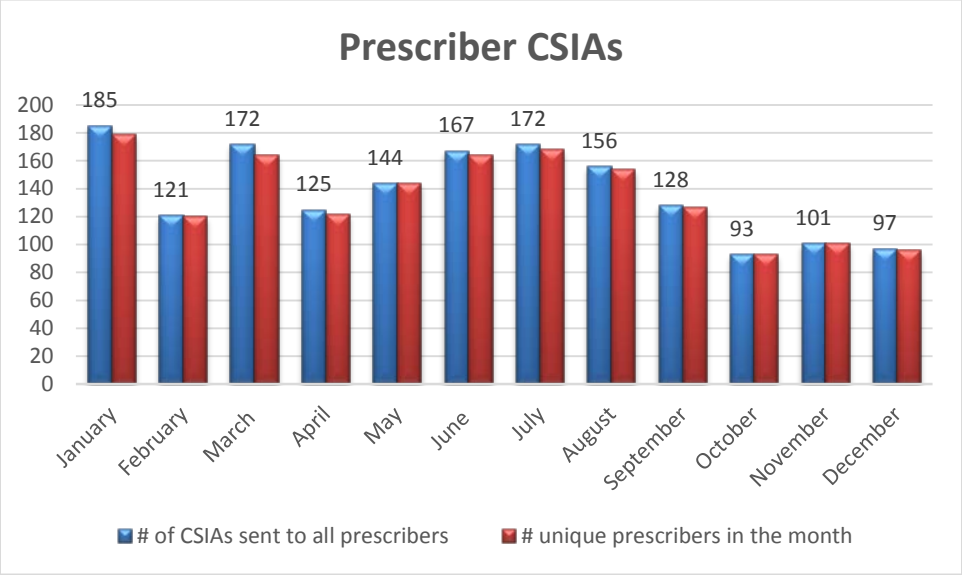
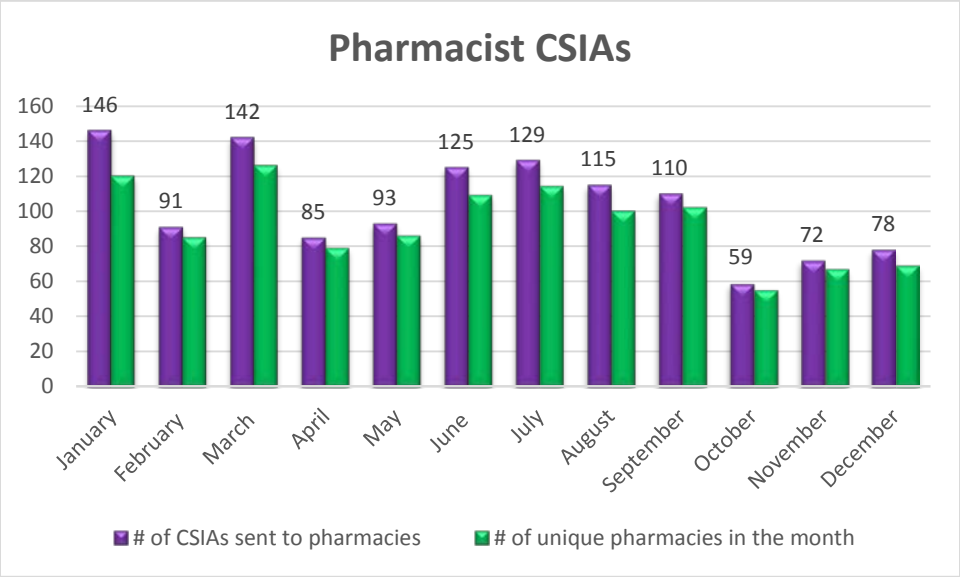


Figure 5. CSIAs sent to Pharmacies – Monthly (2015)



In 2015, CSIAs were sent to 1352 unique prescribers, with 39 of the prescribers having practice addresses located strictly outside of the state of Minnesota. Practice addresses and specialties were largely compiled by accessing health licensing boards' license verification sites, the prescriber's PMP access account profile, and/or the health care facility's provider list, all of which may be self-reported by the prescriber. Additionally, three prescribers received more than 1 CSIA, but had 2 practice addresses and DEA numbers, one located in the State of Minnesota and the other located outside of Minnesota. As of December 2015, there were roughly 35,795 prescribers licensed by the State of Minnesota who by virtue of their license are eligible to obtain a DEA registration to allow them to prescribe controlled substance medications. Of the licensed prescribers, 3.7% received a minimum of 1 CSIA in 2015, which includes the 3 prescribers who appear to be dually licensed.

The disciplines of prescribers for which CSIAs were sent include medical doctors (MD), advance practice registered nurses (APRN), dentists (DDS), doctors of osteopathic medicine (DO), doctors of podiatry (DPM), and physician assistants (PA). MDs were identified as the discipline to receive the most CSIAs in any given month. Specialties included family medicine, internal medicine, and emergency medicine.

CSIAs were sent to 551 unique pharmacies in 2015 with 9 being sent to out of state pharmacies. The out of state pharmacies receiving a CSIA were located in North Dakota, Iowa, and Wisconsin. As of December 2015, there were 2138 pharmacies licensed by the Minnesota Board of Pharmacy. 25.8% of licensed pharmacies received a minimum of one CSIA at some point in 2015.

PMP Account Status

The status of prescriber PMP accounts was assessed before and three weeks after CSIAs were provided. In 2015, 64 prescribers signed up for a PMP account in the three week window after a CSIA was sent to them. Figure 6 provides a monthly overview of the status of prescriber PMP accounts who received a CSIA. When considering this table it is important to realize that out of state prescribers with a prescription monitoring program in their state, may not utilize Minnesota's PMP. Rather, if the state participates in interstate data sharing with Minnesota PMP authorized system users, the prescriber will utilize their respective state's PMP. If the state does not participate in interstate data sharing with MN, then it was previously appropriate for the out of state prescriber to apply for a Minnesota PMP account. Of note, prescribers and pharmacists in Minnesota's border states will request Minnesota data through their respective state's PMP. Therefore, it is appropriate that border state prescribers not sign up for a Minnesota PMP account upon receiving a CSIA. Figure 6 lists the status of all prescribers that received a CSIA, regardless of if they practice in the state of MN or outside of it. Additionally, Figure 6 applies to the status of Minnesota PMP accounts only. Therefore, if a prescriber has a North Dakota PMP account and utilized it to query his Minnesota patient, he will appear in Figure 5 as not having a Minnesota PMP account. Lastly, when viewing Figure 5, the number of monthly accounts is exclusive and cannot be added across the months.

Figure 5. Prescriber PMP Account Status (2015)

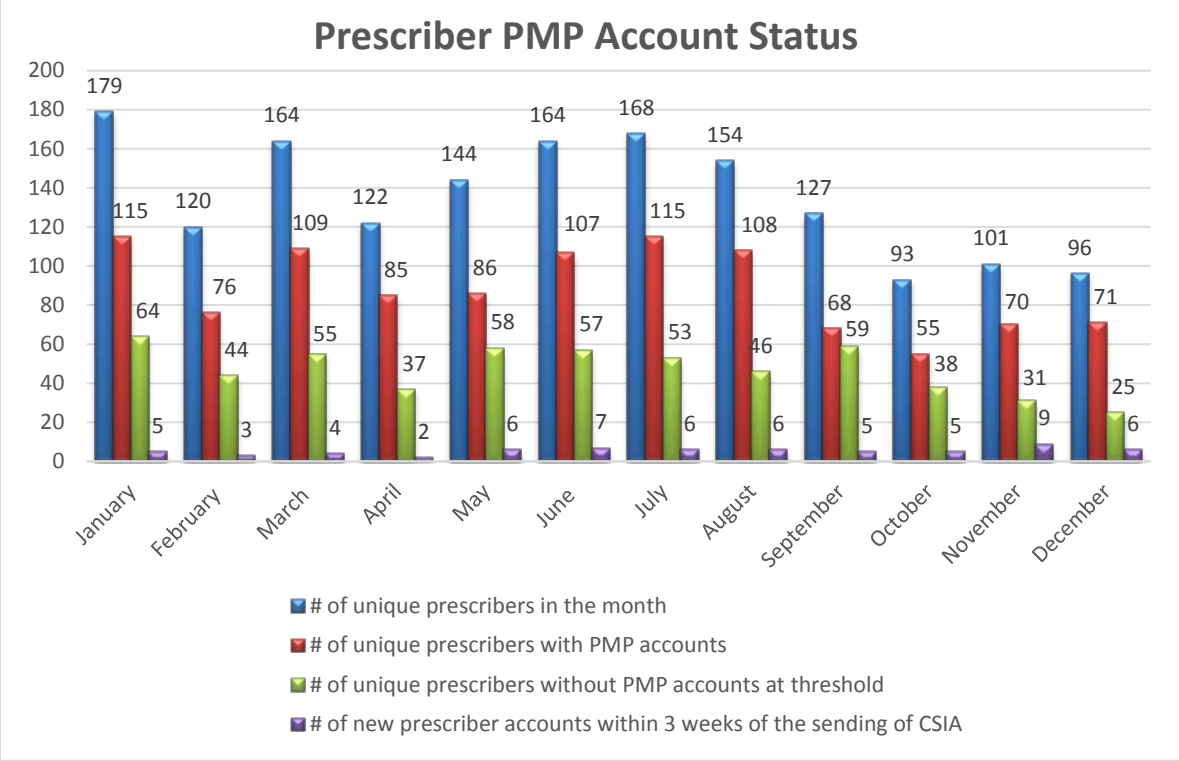


*Figure 5 includes all prescribers regardless of the state in which they practice. If the prescriber practices out of state it may not be appropriate for them to maintain a MN PMP account if the "home" state participates in interstate data sharing with MN.

The fact that some prescribers are registering for a PMP account after receiving a CSIA, may be evidence of prescribers taking such notifications seriously. One of the hopes in providing CSIAs to

prescribers and pharmacists is to increase utilization of the database in an effort to promote optimum patient care.

The PMP was unable to assess pharmacist accounts for the purposes of account status or creation as there is no way to identify which pharmacist dispensed the medication(s), or where the particular pharmacist works. As a result, CSIAs were (and continue to be) sent to pharmacists-in-charge.

Patient Trends

Trends of the individuals' controlled substance prescription history were analyzed 3 months after CSIAs were provided to prescribers and pharmacists-in-charge. Individuals that met the threshold more than one time were included in the analysis below based on the initial month in which high-risk behavior was observed, resulting in CSIAs being provided. To perform the analysis, patient trends were observed in month one (in which high-risk behavior was first noted) and then again in the month which occurred 3 months after CSIAs were provided. An overview of the findings are provided in the table below.

Patient Trends in Number of Prescriptions Dispensed*			
	Reduction	Increase	No Change
# of individuals with observed trends:	205	6	3
Patient Trends in Total Quantity (Metric Units) Dispensed*			
	Reduction	Increase	No Change
# of individuals with observed trends:	189	24	1
Patient Trends in Number of Prescribers Writing Prescriptions*			
	Reduction	Increase	No Change
# of individuals with observed trends:	206	5	3
Patient Trends in Number of Pharmacies Dispensing Prescriptions*			
	Reduction	Increase	No Change
# of individuals with observed trends:	209	2	3
Patient Trends in Highest Occurring, Cumulative Morphine Equivalent Dose**			
	Reduction	Increase	No Change
# of individuals with observed trends:	190	21	3

*Trend analysis was performed by assessing prescription trends of the month which occurred 3 months after CSIAs were provided to prescribers and/or pharmacists. These trends were then compared to the initial month in which high-risk behavior was first noted.

**Morphine Equivalent Dose source does not include prescriptions for buprenorphine-containing products unless a transdermal formulation was identified.

Key Findings:

- Overall, 95.8% of individuals had a reduction in the number of prescriptions dispensed in the third month after CSIAs were provided. Of the individuals where a reduction was observed, there was an average of 71.1% fewer prescriptions reported as dispensed.
- 88.3% of individuals had a reduction in the total quantity (metric units) of controlled substances dispensed in the third month after CSIAs were provided. Of the individuals where a reduction was noted, there was an average of 64.9% fewer metric units dispensed. Metric units refer to the units dispensed in any given prescription and may include tablets, capsules, milliliters, grams, etc.
- 96.3% of individuals had a reduction in the number of prescribers writing controlled substance prescriptions after CSIAs were provided. Of the individuals where a reduction was noted, there was an average of 74.9% fewer prescribers writing controlled substance prescriptions that were reported as dispensed, in the third month following the issuance of CSIAs.
- 97.7% of individuals had a reduction in the number of pharmacies dispensing controlled substances after CSIAs were provided. Of the individuals where a reduction was noted, there was an average of 73.8% fewer pharmacies dispensing controlled substance prescriptions, in the third month after CSIAs were provided.
- 88.8% of individuals had a reduction in the highest occurring, cumulative morphine equivalent dose, in the third month after CSIAs were provided. The dose of an opioid may be converted to a morphine equivalent dose, which in turn, may be used as a point of reference for healthcare providers when assessing opioid utilization. The highest occurring, cumulative morphine equivalent dose was calculated by assessing each opioid's morphine equivalent dose, the duration of the prescription, and if there were overlapping medications, which could contribute to a larger, cumulative morphine equivalent dose. The highest occurring dose in month one, was then compared to the highest occurring dose in the third month assessed, after CSIAs were provided. Of note, this information is based on the dispensing history and accuracy of the data as reported by the pharmacy (i.e. day supply of the prescription). It is unknown if the patient actually consumed the opioid(s), in the manner in which they were reported as dispensed/prescribed in the PMP. Of the individuals where a reduction was observed, the highest occurrence of morphine equivalent dose was reduced by an average of 75.9% Of note, buprenorphine formulations were not included in this calculation unless a transdermal formulation was identified (due to its indication for pain).
- 19 individuals were prescribed buprenorphine (non-transdermal formulations) at some point during the analysis. Oral buprenorphine may be prescribed in the treatment of opioid dependence. In some instances, buprenorphine was identified in the initial analysis when the individual first exhibited high-risk behavior. In other instances, buprenorphine was identified in the months after CSIAs were sent to prescribers and pharmacies. Of note, Opioid Treatment Program (OTP) facilities are federally exempt from reporting their dispensing activity to prescription monitoring programs. Therefore, if an individual went to treatment and received buprenorphine for opioid dependence from an OTP, the Minnesota PMP is unable to account for this information.
- 61 individuals were identified with 1 prescriber writing controlled substances in the third month after CSIAs were provided. Of the 61 individuals, 46 of them were filling prescriptions from one pharmacy. The one prescriber and one pharmacy may or may not have received the original CSIA in this analysis. However, one prescriber and one pharmacy reported as prescribing and dispensing may be indicative of a pain contract.

Repeat Analysis

34 individuals met the threshold more than one time in 2015. Table 1 provides an overview of a sample of individuals who met the threshold more than one time. Table 1 also includes a brief summary of the 90 day trend analysis performed, based on the last month each individual met the threshold in 2015. Of note, one individual met the threshold 11 out of the 12 months in 2015 (Patient Letter A). Patient A's behavior is highly concerning because this individual sought prescriptions from new prescribers and pharmacies, nearly every month. This was the most egregious case of doctor shopping the PMP identified in 2015. However, short of notifying the prescribers and pharmacists of this individual's behavior, the PMP was unable to notify law enforcement due to constraints of Minnesota Statute.

Table 1. Overview of a sample of individuals who met the threshold more than one time

De-identified Patient Letter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Summary of the assessment performed of the one month timeframe, 3 months after the last time the individual met the threshold & CSIAs were sent*
A	X	X	X	X	X	X	X	X	X	X	X		4 RX, 4 new DRs, 4 new Phar
B	X	X											7 RX, 1 new DR, 1 new Phar
C	X		X					X		X			0 RX, 0 DR, 0 Phar
D									X		X		11 RX, 11 new DR, 7 Phar (6 new)

*RX = controlled substance prescription, DR = prescribers; Phar = pharmacies

Some additional interesting characteristics were noted in the assessment performed three months after the last CSIAs were sent. Eight individuals were no longer receiving controlled substances from any prescribers (i.e. Patient Letter C). Six individuals were receiving controlled substances from 1 prescriber and 1 pharmacy, which may be suggestive of a pain management agreement (i.e. Patient Letter B). One individual met the threshold again in 2015 (i.e. Patient Letter D). The rest of the individuals (not pictured) were somewhere in between.

Controlled Substance Insight Alerts (CSIA) Survey Results

In the 2015 and 2016 survey, prescribers and pharmacists were asked if being notified about patients with unusual or suspicious prescription activity (i.e. multiple prescribers, multiple pharmacies in a given period of time) would be helpful to their practice. In both years, a large majority or prescribers and pharmacists indicated yes. They were then asked if they believed such notification can help reduce doctor shopping behaviors in the State of Minnesota. Again, a very large majority indicated yes. Actual responses are displayed below.

Would being notified about patients that have unusual or suspicious prescription activity (i.e. multiple prescribers, multiple pharmacies in a given period of time) be helpful to your practice?				
	Prescribers in 2015 (1,714 responses)	Prescribers in 2016 (1,922 responses)	Pharmacists in 2015 (855 responses)	Pharmacists in 2016 (829 responses)
YES	93%	93%	90%	91%
NO	7%	7%	10%	9%
Do you think such notifications can help to reduce doctor shopping behaviors in MN?				
	Prescribers in 2015 (1,704 responses)	Prescribers in 2016 (1,918 responses)	Pharmacists in 2015 (855 responses)	Pharmacists in 2016 (828 responses)
YES	94%	95%	94%	94%
NO	6%	5%	6%	6%

Prescribers and pharmacists were then asked if they had ever received a CSIA from the Minnesota PMP. In 2015, 216 prescribers and 124 pharmacists indicated they had received a CSIA. In 2016, 245 prescribers and 156 pharmacists indicated they had received a CSIA. In both years, prescribers and pharmacists were asked if they learned new information regarding their patient's prescription activity as a result of the CSIA, to which around 65% of prescribers and pharmacists indicated so, in each year. Items reported as learned include the number of overlapping prescriptions, the number of prescribers visited, the number of pharmacies visited, the volume of drug(s) prescribed over a short period of time, and the number of early refills the patient had obtained.

Prescribers and pharmacists that received CSIAs were then asked about the actions which occurred as a result of the CSIA. Table 2 and 3 outline responses from prescribers and pharmacists in both survey years. The question was posed in a manner so that multiple selections could be made, since more than one action may occur in response to a CSIA. The notation "n/a" is listed if the option was not provided in 2015.

Table 2. Prescriber actions after having received an unsolicited report

Ensuing Actions from the Prescriber's Perspective	Prescribers 2015 (211 responded)	Prescribers 2016 (233 responded)
Performed a query in the MN PMP regarding the individual	46%	47%
Identified a patient that was misusing, abusing, or diverting controlled substance prescriptions	55%	49%
Contacted a prescriber listed on the PMP report	12%	15%
Had a conversation with my patient about their PMP report in regards to misuse, abuse, or diversion of controlled substance prescriptions	33%	32%
Confirmed that my patient is not misusing controlled substance prescriptions	25%	23%
Contacted a pharmacy listed as a dispenser on the report	11%	15%
Tapered my patient down or off of a controlled substance medication	18%	14%
Required my patient to sign a Pain Management Agreement	9%	6%
Screened my patient for substance use disorder	n/a	9%
Referred my patient to a prescriber that specializes in addiction or to a substance abuse treatment or facility	n/a	10%
Began prescribing a medication for opioid addiction or dependence	n/a	2%
Partnered with a social worker or other entity to assist in providing my patient assistance or help	n/a	5%
Began using the MN PMP more frequently for my patients	26%	27%
Changed my prescribing routine for future patients	21%	15%
Identified an individual who was fraudulently obtaining controlled substance medications	n/a	12%
Notified the prescriber(s) and/or pharmacies involved after identifying an individual that was fraudulently obtaining controlled substance medications	n/a	9%
Notified law enforcement after identifying an individual that was fraudulently obtaining controlled substance medications (in accordance with the law and my employer's policy)	n/a	3%
Discontinued prescribing controlled substance medication(s) for my patient but continued to provide care for him/her	n/a	26%
None of the above	11%	15%

Table 3. Pharmacist actions after having received an unsolicited report

Ensuing Actions from the Pharmacist's Perspective	Pharmacists 2015 (119 responded)	Pharmacists 2016 (153 responded)
Performed a query in the MN PMP regarding the individual	68%	69%
Identified a patient that was misusing, abusing, or diverting controlled substance prescriptions	42%	46%
Contacted a prescriber listed on the PMP report	40%	35%
Had a conversation with my patient about their PMP report in regards to misuse, abuse, or diversion of controlled substance prescriptions	18%	16%
Confirmed that my patient is not misusing controlled substance prescriptions	20%	20%
Contacted a pharmacy listed as a dispenser on the report	23%	22%
Recommended or assisted the prescriber with a taper down or off of controlled substance medication(s)	6%	7%
Worked with the prescriber to require the patient to sign a Pain Management Agreement (pain contract)	5%	12%
Made a recommendation to the prescriber to screen the individual for substance use disorder	n/a	19%
Provided my patient with resources to assist with substance misuse or abuse (i.e. contact information for a substance abuse facility or for a prescriber who specializes in addiction)	n/a	3%
Made a recommendation to the prescriber that a prescription for opioid addiction or dependence be written	n/a	2%
Partnered with a social worker or other entity to assist in providing my patient assistance or help	n/a	1%
Began using the MN PMP more frequently for my patients	16%	23%
Changed my dispensing or verification routine for future patients	12%	19%
Identified an individual who was fraudulently obtaining controlled substance medications	n/a	12%
Notified the prescriber(s) and/or pharmacies involved after identifying an individual that was fraudulently obtaining controlled substance medications	n/a	10%
Notified law enforcement after identifying an individual that was fraudulently obtaining controlled substance medications (in accordance with the law and my employer's policy)	n/a	4%
Discontinued dispensing controlled substance medication(s) for the individual	n/a	22%
None of the above	11%	12%

Prescribers and pharmacists who received CSIAs were asked if, overall, the information provided by the CSIA was useful. In 2015, 91.1% of prescribers (213 total responses) and 96.6% of pharmacists (118 total responses) indicated the information provided by the CSIA was useful. In 2016, 95% of prescribers (239 total responses) and 97.4% of pharmacists (151 total responses) indicated the information provided by the CSIA was useful.

Conclusion

Given data concerning law enforcement requests for PMP records, the trends noted in unsolicited reporting, and the perceived effectiveness of the Minnesota PMP by active account holders, there is reason to believe that the Minnesota Prescription Monitoring Program is playing an important role in identifying and reducing doctor shopping. As more prescribers and pharmacists practicing in the State of Minnesota sign up for PMP accounts, as required by legislation passed during the 2016 Session, there is hope that account creation will promote increased utilization of the database. Additionally, Minnesota PMP staff, in conjunction with the Board of Pharmacy and the PMP Advisory Task Force, will continue to stay abreast of best practices for PMPs. We will look to other states, the Centers for Disease Control, the Prescription Drug Monitoring Program Training and Technical Assistance Center, and other relevant stakeholders, as we strive to ensure the Minnesota PMP is an effective and efficient tool which promotes optimum patient care.