Optimizing the Use of State Prescription Drug Monitoring Programs for Public Safety

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State prescription drug monitoring programs (PMPs), which collect and distribute data on prescription controlled substances dispensed in a state, are tools to curb prescription drug abuse. The programs help identify prescription misuse and abuse, detect diversion of controlled substances, and facilitate access to medication for treatment. Health care professionals, such as the advanced practice registered nurse, may incorporate PMP data into the clinical setting as a tool for educated decision making and monitoring. State officials seek to transform PMPs into more effective health care information delivery tools by implementing five key operational practices: real-time dispenser reporting to PMPs, interstate sharing of PMP data, expanded access to PMP data by health care professionals, integration of PMP data into electronic health systems, and distribution of proactive alerts to health care professionals. As policy makers strive to optimize PMP use, they must also ensure stable, long-term funding for the programs, support the use of evidence-based treatment alternatives, and provide adequate addiction treatment resources. This article describes the history of PMPs, efforts to improve PMP use for clinical decision making, and necessary future steps to optimize the role of PMPs in state prescription drug abuse prevention strategies.

Each day, 46 people die from an overdose of prescription analgesics in the United States (Centers for Disease Control and Prevention, 2014). For every prescription opioid overdose death in 2011, there were 12 treatment admissions for opioids, 25 emergency department (ED) visits for opioids, 105 people who abused or were dependent on opioids, and 659 nonmedical opioid users (Frieden, 2015). In 2013, four times as many deaths occurred as in 1999 (Dowell & Aleshire, 2015).

As mounting statistics signaled a worsening problem, federal and state leaders searched for a public tool capable of addressing multiple aspects of the problem. Their attention focused on state prescription drug monitoring programs (PMPs).

PMPs: Definition and History

A PMP is a statewide electronic database administered by a state agency that collects data on designated prescription controlled substances dispensed in or into the state. Excluded from collection is dispensing information from federally assisted substance abuse programs, which are prohibited by federal confidentiality rules from reporting to PMPs. These programs include opioid treatment programs dispensing methadone and physicians authorized to dispense buprenorphine for addiction treatment. Also, some PMPs gather information on noncontrolled substances that state officials consider to have a high abuse potential.

The state agency delegates to an employee with knowledge of prescription controlled substances the responsibility to oversee the PMP's daily operations. This employee, referred to as the PMP administrator, distributes a report on a patient’s receipt of prescribed controlled substances to those authorized by state law to access and use the information. Authorized users typically include prescribers such as advanced practice registered nurses (APRNs), dispensers of controlled substances, health professional licensing or regulatory representatives, and law enforcement or prosecutorial officials.

Awareness of PMPs has increased over the past decade; however, these programs are more than 75 years old. New York established the first PMP in 1918. California maintains the oldest continuously operated program, which began in 1939.

Early PMPs monitored Schedule II controlled substances such as oxycodone and helped detect and deter diversion of them. Departments of public safety and other law enforcement agencies housed the databases. Dispensers transmitted data to the state’s centralized repository through the use of triplicate and duplicate prescription forms. A patient’s health care provider kept one copy of the prescription form, and the patient delivered the remaining copies to the pharmacist, who sent specified information to the PMP.

In the 1990s, Oklahoma created the first PMP to electronically collect and distribute prescription data. Today, 49 states, the District of Columbia (D.C.), and Guam have statutes to establish electronic PMPs. The programs in all 49 states and Guam are operational, and D.C.’s PMP will soon be fully functioning.

As prescription drug abuse escalated in the 2000s, state leaders identified new public health goals for PMPs. Health-
related agencies began to oversee administration of the programs. Thirty-nine states and D.C. locate their PMP in a department of health, single state authority, or board of pharmacy.

Today, the state databases have five common public health and safety uses:

- Support access to controlled substances for legitimate medical needs
- Facilitate detection and deterrence of diversion by criminal justice and health care professionals
- Identify persons who may be abusing or addicted to prescription drugs for intervention and referral to addiction treatment
- Inform public health initiatives by outlining drug trends
- Educate the public about prescription drug abuse, addiction, and diversion.

**Significant Research on PMP Use**

Research has shown that PMPs impact prescribing behavior, often resulting in more informed decisions. For example, after health care professionals review PMP data, they sometimes change the amounts and types of drugs they originally planned to prescribe. In Ohio, 62% of ED patients participating in a study received no opioids or fewer than initially planned after the ED physicians checked the patients’ PMP prescription history. Equally important, 39% of the patients received more pain medication than first proposed (Baehren et al., 2010). A Massachusetts study of emergency providers found a similar effect on prescribing behavior. The researchers identified certain patient behavior as drug-seeking. Such behavior was defined as having greater than or equal to four opioid prescriptions by greater than or equal to four providers in the 12 months before ED evaluation. After checking the patients’ PMP data, physicians prescribed more drugs than initially intended for 6.5% of their patients and no drugs for 3% of their patients (Weiner et al., 2013). These two studies demonstrate that change is not synonymous with a reduction in drugs prescribed. Use of the PMP data leads to more informed and thus more appropriate prescribing. A more informed practitioner may prescribe more medication than previously suggested because the PMP provides confidence that the patient is not drug-seeking.

PMP information can influence prescribing behavior even when the data result in no numerical difference in drugs prescribed. A Florida ED study concluded that the data did not alter the average number of controlled substances prescribed. However, the ED prescribers felt more confident prescribing controlled substances and believed the data did alter their prescribing of medication (McAllister et al., 2015).

PMP data can also confirm a health care professional’s suspicion of a patient’s prescription drug abuse or diversion. Interviews with 61 emergency medicine physicians revealed that they check the PMP when triggers from the history, physical examination, and clinical experience alert them to possible inappropriate patient activity (Smith et al., 2015). A Virginia study involving an outpatient psychiatry clinic concluded that it would be logical to use the PMP to confirm a suspicion of prescription drug misuse identified at the initial evaluation (Sowa et al., 2014). In an Oregon survey of health care providers, 95.5% of PMP users access the program for a patient if they suspect abuse, diversion, or addiction (Irvin et al., 2014).

Some studies suggest that states with PMPs have reduced the supply of prescription drugs and the rate of opioid misuse or abuse. A national survey of PMPs from 1999 to 2005 found that states with PMPs had a smaller increase in the supply of Schedule II opioids (Simeone & Holland, 2006). A survey of PMPs in 14 states from 1997 to 2003 revealed that these states had significant reductions in the rise of oxycodone shipments. Additionally, the 14 states had a smaller increase in prescription opioid treatment admissions than non-PMP states (Reisman, Shenoy, Atherly, & Flowers, 2009). Similarly, an analysis of poison control center data found that states with PMPs had a slower rate of increase in opioid abuse (Reifler et al., 2012).

Two key studies reported that PMPs did not reduce or have any discernible impact on state overdose mortality rates (Li et al., 2014; Paulozzi, Kilbourne, & Desai, 2011). However, the authors of the study examining PMPs and overdose mortality data from 1999 to 2008 cited numerous factors that may have contributed to the results. These factors included severely limited use of PMPs by practitioners, difficulties with interstate sharing of PMP data, and inadequate training of health care providers on prescribing controlled substances. Recent research suggests that PMPs’ effectiveness regarding mortality rates may increase if programs adopt a more comprehensive public health orientation, articulating their application and role in overdose prevention (Green et al., 2015).

**Recommended Practices for PMP Operations**

Many proposals seek to turn PMPs into better health care information delivery tools. The intended outcome is increased use of PMP data by health care professionals. To facilitate efficient and effective PMP operations, 15 organizations (see Table 1), agencies, and groups promulgated recommended practices. They made five recommendations deemed critical to the necessary transformation:

- Real-time reporting of prescription data to PMPs
- Interstate sharing of PMP data
- Expanded access to PMP data by health care professionals
- Integration of PMP data into electronic health systems
- Distribution of proactive alerts or reports.

**Real-Time Reporting of Prescription Data to PMPs**

More frequent submission of prescription information to the PMP means more current database information. Real-time reporting is promoted by numerous government officials and policy makers. For many years, Oklahoma was the only state with such a reporting standard. With certain exceptions, dispensers in the state...
submit prescription information to the PMP within 5 minutes of delivering the medication to the patient or the patient’s designee. This year, Utah’s PMP will begin requiring real-time or 24-hour batch submission of prescription data.

The trend for states is to implement a daily or 24-hour requirement. In addition to Utah and D.C., 21 states have legally adopted such a reporting frequency. Connecticut, Indiana, and Tennessee will move to daily data submission in 2016.

Interstate Data Sharing of PMP Data

Forty-six states and D.C. can legally share PMP data across state borders. Many states allow out-of-state health care professionals to query their databases directly. Some jurisdictions send their prescription information to other states’ PMPs for access by health care providers in those states.

States exchange PMP data through arrangements with one or two separate and distinct technological hubs: PMP Interconnect (PMPi) and RxCheck. The National Association of Boards of Pharmacy administers and funds PMPi, through which 30 states actively share information. The Bureau of Justice Assistance funds the IJIS Institute to administer RxCheck for state officials.

Expanded Access to PMP Data by Health Care Professionals

States rely primarily on two methods to expand PMP access by health care providers: They create new categories of individuals who can access and use PMP data, and they try to increase the number of prescribers and dispensers who do access and use PMP data.

New Authorized Users

Forty-one states and D.C. allow prescribers or dispensers to assign agents to check the PMP. These agents allow prescribers and dispensers to dedicate their time to substantive treatment issues. Referred to as delegates or designees, agents in some states must be licensed or certified health care professionals working in the practice of the prescribers or dispensers for whom they function as agents. (See Figure 1.) Other states allow prescribers or dispensers to assign the responsibility for obtaining patients’ PMP reports to employees who are not health care professionals. Regardless of their status, these agents often must be directly supervised by the prescribers or dispensers for whom they gather the prescription history. Additionally, the supervising health care professionals remain liable for the actions of their agents in obtaining the PMP data. Some states also place limits on the number of delegates or designees a prescriber or dispenser may have. In 2015, seven states added this authority to their statutes.

Designated substance abuse and mental health specialists in seven states can now view their patients’ PMP information.

Required Registration

Twenty-four states require certain prescribers or dispensers to enroll with the PMP whether or not they intend to access the PMP. Texas legislators recently authorized the state board of pharmacy to adopt rules requiring authorized users to be enrolled with the PMP when obtaining or renewing a professional license. If the board promulgates such rules, Texas will become the twenty-fifth state with mandatory PMP registration.

Policy makers in these states believe that mandating PMP enrollment will motivate enrollees to check the PMP more frequently. A review of PMP utilization in Utah before and after the mandate supports this belief. Utah officials found that after the implementation of required registration, the number of prescribers active on the state’s PMP site grew by 35% and the number of searches per login grew by 61%. Evaluation of other states’ mandatory enrollment is still in progress (Sims, 2010).

Twenty-seven states specify circumstances in which prescribers and sometimes dispensers must access and use PMP data. Dispensers include pharmacists and others who deliver the medication to the user pursuant to or through a lawful order of a prescriber. Laws and regulations of health care licensing bodies in most of these jurisdictions identify objective triggers for when a health care professional must check a patient’s PMP report. The triggers vary among the states. A New York nurse practitioner must review the patient’s PMP history before prescribing a Schedule II, III, or IV controlled substance unless one of numerous exemptions applies. A New Mexico certified nurse practitioner must review the patient’s PMP history before prescribing a controlled substance to treat chronic pain and at least every 6 months during an established patient’s continuous use of opioids.

Despite the variance, researchers attempt to glean lessons from the implementation of states’ mandated-use provisions. The Center of PMP Excellence at Brandeis University examined the requirements in Kentucky, Ohio, New York, and Tennessee and in 2014 reported that the mandates appeared to increase enroll-
ment and PMP requests by health care professionals. Additionally, the researchers found that increased PMP use was associated with a decrease in opioid prescribing in all four states and a decrease in physician shopping in New York, Ohio, and Tennessee (Prescription Drug Monitoring Program Center of Excellence at Brandeis, 2014).

More in-depth study of mandated-use states is needed to determine if all decreases in opioid or controlled substance prescribing are related to inappropriate prescribing. Of value to ongoing efforts to enhance PMPs will be an awareness of unintended consequences that impede the legitimate use of controlled substances.

**Barriers to Access and Use**

Mandates to register with and check the PMP leave unaddressed the barriers to easy access and use that challenge health care professionals. Obstacles reported by health care professionals included cumbersome registration processes and lack of knowledge of the program and its use as a clinical tool (Green et al., 2012; Hildebran et al., 2014; Rutkow, Turner, Lucas, Hwang, & Alexander, 2015). Moreover, much of the research identified time constraints as a key barrier to the registration and use of the PMPs by health care professionals. PMP administrators increasingly modify operations to overcome these obstacles by automating PMP registration, integrating PMP data into electronic health records (EHRs), and establishing institutional PMP accounts.

To address the lack of knowledge of PMPs, 13 states have instituted mandatory training for PMP registrants (National Alliance for Model State Drug Laws, 2015). Typically offered by the PMP administrative entity, training includes educational offerings on the registration process and efficient access to the PMP. Education on efficient and effective incorporation of the PMP as a clinical tool requires further research to determine best practices. According to the literature, the use of PMPs as clinical tools varies considerably among providers and practice settings. Training and education would promote an understanding of the data as well as efficiency in generating reports. States may consider including webinars and presentations on PMP topics during health care professional conferences and meetings.

Massachusetts, Maine, and Virginia are streamlining PMP enrollment by automating a registration when a practitioner applies for or renews a health care license. Arizona, Illinois, New Jersey, and other states also plan to initiate automated registration. In North Dakota, the PMP administrators attend state-based health care professional conferences to provide training, education, and assistance with registration, which has contributed to an increased number of authorized users since 2013 (North Dakota Prescription Drug Monitoring Program, 2015).

**Integration of PMP Data into Electronic Health Systems**

PMP data integration is a priority for the Office of the National Coordinator for Health Information Technology (ONC) and the Substance Abuse and Mental Health Services Administration (SAMHSA). In 2012, ONC with SAMHSA’s consultation conducted state pilots to explore options for obtaining PMP reports without exiting an EHR. The integration resulted in three main findings (MITRE, 2012):

- More prescribers and dispensers used the PMPs.
- The workflow was more streamlined because participants could access the PMP at the point of care.
- The health care professionals’ satisfaction increased as more tasks were automated.

ONC has a new round of pilots to standardize the technological approaches between health information technology (IT) and PMP systems. Pilot results will be outlined in a technical implementation guide that should be available publicly by the end of 2016. Simultaneously, SAMHSA has 16 state grantees testing secure, timely methods of transmitting prescription drug information to health care professionals. Some PMPs are taking crucial first steps toward integration by creating a single sign-on to eliminate multiple logins and by automating patient queries upon admissions to EDs.

Key decisions shaping the integration process involve which patient data access and disclosure rules will apply when PMP information is in the health IT system. In some states, a PMP report placed in a patient medical record is subject to disclosure under the same terms and conditions as other information in the medical record. Other states are in the process of determining whether to use this disclosure standard or to apply disclosure limitations imposed by PMP laws.

As PMP reports become available at the point of care, health care professionals and dispensers must remember that the idiosyncrasies of the data affect clinical interpretation. Because the frequency of dispenser reporting varies among PMPs, the timeliness of information from multiple states for the same patient
may differ. According to Griggs, Weiner, and Feldman (2015), for PMP reports to be accurate, data entry at several points must occur correctly. First, the patient name and date of birth must be accurate. Currently, there are only 22 states that require photo identification when filling prescriptions for controlled substances (Griggs, Weiner, & Feldman, 2015). Without a requirement of photo identification, a patient can falsify information to obtain controlled substances. Data on the prescription from the health care provider must also be correct and then must be entered correctly by pharmacies. Despite improvements to the system, health care professionals must be aware of these potential limitations of the PMP as a clinical tool.

Authorized PMP users are traditionally individuals with individual user accounts. However, Kentucky officials designed an institutional account process. A chief medical officer (CMO) of a hospital or long-term care facility may sign up as a master account holder. In this role, the CMO may designate employees who work under the CMO’s direction to query the PMP for treatment purposes regarding a patient or resident of the facility. The institution agrees to provide specified education to the designated employees and to maintain monitoring and auditing procedures to ensure proper use and disclosure of the PMP report.

Distribution of Proactive Alerts or Reports
Forty-five states and D.C. permit PMP administrators to notify authorized users when the database indicates unusual or suspicious prescription activity. (See Figure 2.) If there is reason to believe a violation of the law or a health care licensing standard has occurred, the PMP administrator contacts the applicable law enforcement or licensing entity and provides the relevant information. State health care regulatory boards sometimes establish prescribing or dispensing norms or guidelines, which, if violated, justify distribution of a PMP alert to a licensing entity.

Many PMPs operate in consultation with advisory committees or councils. These advisory bodies or specified subcommittees also influence the guidelines used to trigger an alert to a regulatory agency. If a patient visited a certain number of prescribers or pharmacies to obtain the same or a similar prescription in a particular time period—for example, 30 days—the PMP administrator issues an alert to the health care professionals who prescribed or dispensed the patient’s medications. The alert may be a letter sent or made available electronically that notifies each of the patient’s prescribers of the patient’s multiple visits. The letter suggests that if the patient’s activity concerns the prescriber, he or she may access the patient’s PMP report to better understand the context of the visits.

Criteria for determining prescribing and dispensing behavior outside of proper parameters lack uniformity across jurisdictions. The same is true with formulas used to signal which multiple provider events represent problematic behavior by a patient. Factors influencing the standards for proactive alerts include the use of professional peer review committees, indicators of possible prescription drug abuse or diversion, and the functional limits of PMPs.

Future Trends and Challenges
With the declaration of a national prescription drug epidemic, the nation looks to health care professionals such as APRNs to be an integral part of patient and public safety solutions. They have the responsibility to prescribe safely and appropriately monitor controlled substances.

As measures continue to improve PMPs, much focus is placed on how a PMP may impact direct patient care. APRNs can incorporate PMP data into the clinical setting to contribute to the safety of the patient and the public through informed clinical decision making. Further consideration of PMP use in practice and sharing of reports with patients at the bedside may contribute to effective, efficient use of PMPs.

In looking to the future of PMPs and the impact on APRN practice, it is apparent that policy will play an important role in the utilization and sustainability of these programs. As the 2015 state legislative sessions come to a close, the enacted PMP bills are predictors of 2016 legislative activities. Next year’s sessions are likely to consider frequency of dispenser reporting, delegate or designee authority for health care professionals, mandated registration and use, and proactive alerts. Federal officials have also reinforced a commitment to continued PMP data integration initiatives. However, challenges exist that policy makers must address to develop PMPs further as optimal public health and safety tools.

PMPs need stable, long-term funding. A combination of dedicated funding sources must be available to sustain PMP
operations at the highest levels of efficiency and effectiveness. PMP improvements must be guided by evidence showing what works. Periodic studies and surveys are not enough. An increasing array of health and safety professionals seeks to use PMP data. Determination of how PMPs can best serve the needs of so many diverse users requires ongoing, comprehensive study and evaluation. This examination should identify the PMP data elements that different categories of health care professionals need, the best presentation formats for easy applicability in various health care work environments, and the most efficient data delivery mechanisms for timely access. Additionally, researchers must study the value of PMP components such as proactive alerts to determine which ones most benefit patient care and safety.

Reduced reliance on prescription controlled substances to treat certain conditions often occurs after a review of PMP patient reports. Federal and state leaders must support and encourage reimbursement of alternative evidence-based treatment methods to relieve a patient’s suffering. PMPs help identify people who may be abusing or addicted to prescription drugs. However, identification alone is insufficient to address the underlying abuse or addiction. State officials must adopt procedures to determine if people have an addiction, and if so, to refer them to appropriate treatment. A comprehensive continuum of drug and alcohol addiction treatment resources must be available to those in need. At a minimum, this continuum will include detoxification, inpatient rehabilitation, outpatient treatment, and family and codependency treatment. Medication-assisted treatment is an additional therapy that many states now include among their treatment options. Drug and alcohol addiction treatment should be provided by programs licensed or certified by the state’s single authority on substance abuse services. Without proper referral and treatment services, abusers and addicts may seek other substances to satisfy their cravings as their supply of prescription drugs from health care professionals ends. Thus, without such services, PMPs could play a role in simply transferring society’s abuse and addiction problem to another drug or category of drugs.

References


