



Prescription Drug Monitoring Programs: Tools for Education, Epidemiological Surveillance, Prevention, and Early Intervention

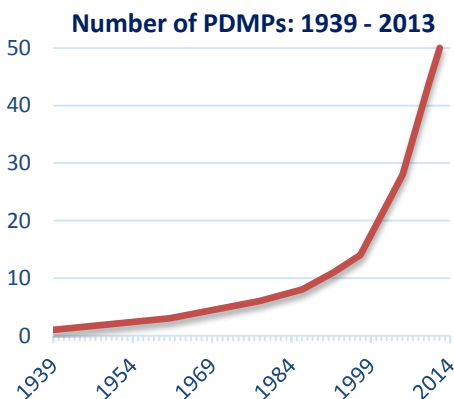
PDMPs are key tools for both public health and public safety initiatives to address the prescription drug abuse epidemic.

State public health agencies can benefit from new approaches and tools to address the prescription drug abuse epidemic. State prescription drug monitoring programs (PDMPs) facilitate appropriate prescribing and dispensing of controlled pharmaceuticals and interdiction of drug diversion to help address prescription drug abuse and improve health outcomes. While PDMPs have contributed substantially to safer prescribing and dispensing of controlled pharmaceuticals as well as reducing drug diversion, they are often underutilized by state and other public health agencies. To encourage wider use of PDMPs in public health, this issue brief provides state public health agencies with fundamental information on PDMPs and how they may be used to improve public health, particularly in education, surveillance, prevention, and early intervention. To maximize their benefits, PDMPs, in collaboration with state public health agencies and other stakeholders, should work toward adopting best practices in collecting, analyzing, disseminating, and utilizing prescription information.

Status of PDMPs

While several state PDMPs were established before the 1990s, it has been only in the last dozen years that most states have established PDMPs. PDMPs were created to improve patient care when controlled substances are prescribed and dispensed as well as to address prescription drug diversion and nonmedical use and abuse of controlled pharmaceuticals. PDMPs' specific goals include education and dissemination of information on the prescription drug abuse problem; assisting in public health initiatives, including early intervention and prevention programs; and providing information for drug investigations and enforcement.¹

A PDMP is based on a centralized, electronic database of pharmacies' information on dispensed prescriptions for controlled substances. Most states that permit practitioners to dispense also require them to submit prescription information to the PDMP. Many PDMPs now provide secure online access to this information (prescription history reports that include patient, prescriber, pharmacy, medication, and dosage information) for authorized end users, including prescribers, dispensers, regulatory boards, public safety agencies, and others. Public health agencies have access to identifiable PDMP information when they administer a PDMP (usually restricted to personnel engaged in PDMP administration).² In addition, some state laws permit public health agencies to access de-identified data for epidemiological purposes.



PDMPs in Illinois and New York were among the first in the nation and first to be housed in the state public health agency.

State health agencies can play a leadership role in optimizing the state's PDMP for education, epidemiological surveillance, prevention, and early intervention.

States vary widely with regard to the categories of end users and conditions under which they are permitted to request and receive prescription history reports. More than two-thirds of PDMPs are housed in and administered by a state public health agency or a sister health-related agency. Regardless of which agency handles administration, other agencies may often receive PDMP information. Statistical information is also usually available to state public health agencies for policy and planning.

Use of PDMP Information by State Public Health Agencies

Although PDMPs currently differ in their relative emphasis on improving patient pharmaceutical care versus reducing drug diversion and abuse, they are well positioned to serve both public health and public safety objectives in a collaborative manner. The appropriate prescribing and dispensing of controlled substances can reduce their diversion and abuse, while law enforcement efforts to limit drug diversion can protect public health. This is analogous to the collaboration of public health and public safety agencies in reducing motor vehicle crashes, injuries, and fatalities.

Primary areas in which PDMPs can be used to meet public health objectives include:

- *Education* – Providing information on prescribing trends and raising general awareness of the prescription drug abuse epidemic.
- *Epidemiological Surveillance* – Determining incidence and prevalence of certain medical and nonmedical uses of controlled pharmaceuticals statewide and by county, region, or city.
- *Prevention* – Enabling healthcare providers to avoid prescribing duplicate therapies and creating deterrents to drug diversion.
- *Early Intervention* – Detecting patients at risk of drug abuse at initial stages of drug-seeking behavior.

Some examples of PDMP initiatives in these areas include:

- Many PDMPs have produced brochures and web-based materials for patients and healthcare providers to inform them about drug abuse and PDMPs.
- Idaho, Kentucky, Massachusetts, South Carolina, and Wyoming are beginning to use geospatial analyses to map and analyze patterns of medical and nonmedical use of opioids.
- Most PDMPs provide patient prescription history reports online and on demand to prescribers and dispensers.
- A number of PDMPs proactively send patient prescription history reports or electronic alerts to prescribers and dispensers to bring to their attention patients of concern.

A community-based collaboration in Wilkes County, North Carolina, contributed to a 69% decrease in drug overdose deaths between 2009 and 2011.

Interagency Collaborative Use of PDMP Information

Many PDMP initiatives depend on close collaboration between the PDMP agency and other state, federal, county, or local agencies. Collaboration between the PDMP agency and other branches of the agency where the PDMP is housed can also be effective. For example, professional licensing board and law enforcement investigations of inappropriate prescribing (including, in the extreme case, pill mills) identified through PDMP data can protect patients from substandard care.

Collaboration between PDMPs and state Medicaid programs may also contribute to improved health outcomes and reduced medical and liability costs. For example, the Washington State Department of Health provides batch transfer of PDMP data on Medicaid patients, allowing both programs to more quickly and reliably identify patients who may be at risk of prescription drug abuse and in need of appropriate changes in their medical care.³

Collaboration at the community level is also crucial. Project Lazarus in Wilkes County, North Carolina, involves a broad coalition of partners, including local health departments. This coalition empowered communities to significantly reduce the county's high overdose death rates, in part by use of PDMP data from the North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services.⁴

The 10 best practices for PDMPs outlined here provide a framework for consideration by state public health agencies as they continue to develop initiatives to address the prescription drug abuse epidemic.

Best Practices for PDMPs

Evidence suggests PDMPs are effective in improving the prescribing of controlled substances and helping to address the prescription drug abuse epidemic.⁵ PDMPs and state public health agencies may wish to identify opportunities to make PDMPs more effective in collecting, analyzing, disseminating, and utilizing their data to promote public health and safety. The following are brief synopses of some best and promising practices of potential interest and importance to public health. A full treatment of PDMP best practices may be found in a white paper from the PDMP Center of Excellence at Brandeis University.⁶

■ *Epidemiological analysis*

Epidemiological analyses can assist in drug abuse surveillance, evaluation, and prevention efforts. As standard practice, PDMPs make reports on individual prescription histories available to end users, but some also produce and disseminate other data analyses relevant to public health objectives involving prescription drugs. Distributing such analyses, which ordinarily de-identify patient-, prescriber-, and dispenser-specific information, may increase PDMPs' impact. PDMP data can be analyzed by geographic area (county, ZIP code, town, etc.) and time period to illuminate trends in both medical and nonmedical use of pharmaceuticals relevant to drug abuse surveillance and

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A number of PDMPs proactively send reports or electronic alerts to prescribers and dispensers concerning patients who may be at risk of prescription drug misuse or abuse.

prevention efforts. There is extensive room for state and community public health agencies to develop and refine the epidemiological use of PDMP data. PDMP data may be particularly useful in states that have established a state epidemiological work group with federal prevention funding, such as those supported by funding from the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA).

■ ***Unsolicited reporting***

Some PDMPs, in addition to supplying reports when requested or downloaded by end users (solicited reports), also send out reports proactively (unsolicited reports) based on analysis of PDMP data that suggests questionable activity such as potential doctor shopping (i.e., obtaining the same or similar drug from multiple prescribers and pharmacies) or potential inappropriate prescribing (e.g., pill mills). Unsolicited reports, whether paper or electronic, can serve several important functions: informing prescribers and pharmacists that patients may be abusing or diverting controlled substances; helping prescribers make better decisions about prescribing controlled substances, thus improving patient care; and informing potential end users about the PDMP and its value. Reports sent to investigative agencies and professional licensing boards can assist in drug diversion reduction efforts and in ensuring safe, effective, and legal medical practice. State and community public health agencies may wish to ensure that their state's PDMP is producing and distributing such reports and that the effectiveness of such reports is evaluated to improve their impact.⁷

■ ***Establishing criteria for questionable activity***

Validated criteria for questionable activity—for example, standard thresholds for numbers of prescribers or pharmacies visited in a given time period—are needed to target unsolicited reports and improve potential doctor shopping and aberrant prescribing measures. Despite the relatively widespread use of unsolicited reporting of individuals exhibiting possible questionable activity, there is little commonality in the identifying criteria used by PDMPs. Candidate measures beyond multiple prescribers and dispensers of the same pharmaceutical include, for example, the prescriptions' degree of overlap or average daily dosage for opioid prescriptions. State public health agencies may be particularly well-equipped to assist in establishing validated and standardized criteria.

■ ***Integrating PDMPs with EHRs and HIEs***

Integrating PDMP data with electronic health records (EHRs), health information exchanges (HIEs), and pharmacy dispensing systems facilitates prescriber and dispenser access to PDMP data by reducing the time and effort needed to obtain a patient's prescription history. The Office of the National Coordinator for Health Information Technology at the U.S. Department of

Health and Human Services is leading an effort to develop a methodology for seamless transfer of PDMP data to prescribers, dispensers, and emergency departments before patients are seen by physicians and to pharmacies before dispensing. The ultimate goal is to provide secure PDMP data in real time to electronic records systems such that medical providers have continuous access to prescription history information vital to safe prescribing and dispensing of controlled substances. State public health agencies may be able to significantly facilitate such developments.

■ ***Increasing PDMP utilization***

Permitting and encouraging use of PDMP data by all appropriate end users, particularly in innovative applications, will maximize PDMP utilization and impact. Best practices in recruitment, utilization, and education will maximize participation in a PDMP. Public health agencies can participate in ensuring that their states promote understanding of the value and application of PDMP data in prescribing and dispensing, drug diversion investigations, drug abuse prevention programs, planning and siting of drug treatment programs and office-based opioid treatment, and other activities that address prescription drug abuse. To increase utilization, some states have adopted legislative mandates requiring PDMP use by medical practitioners in certain circumstances.⁸

A PDMP can be used in a manner analogous to a disease registry, which supports epidemiological analyses and interventions when an outbreak or epidemic is detected.

■ ***Interstate data-sharing among PDMPs***

Practices that enable cross-state data sharing will increase the application and utility of PDMP data. Since doctor shopping and other forms of prescription drug diversion often cross state lines, PDMP data from a single state are limited in their capacity to identify individuals potentially in need of intervention, whether by prescribers or investigative agencies. Combining data from neighboring states and states known to be major sources of diverted prescription drugs will help increase the capacity to identify diversion and doctor shopping for all participating states. The same advantages accrue in the discovery and investigation of pill mills and aberrant prescribing. Interstate epidemiological analyses of PDMP data hold the potential for identifying cross-border and multi-state emerging trends in drug abuse and can help guide policy as well as interventions. Public health agencies can actively work on and promote interstate data sharing.

■ ***Collaborating with other state agencies/national health organizations***

Coordination of PDMPs with wider health systems will enable enhanced use of PDMP data to improve prescribing and patient health and, as a byproduct, reduce public and private costs. PDMP collaboration with health agencies, such as by matching PDMP data with other medical information, promises to improve patient protection, safety, and health while increasing health data accuracy and interagency communication. It can also increase the visibility and

penetration of PDMPs in multiple health contexts, while fostering development of best practices in data integration across systems. Collaborative practices can include prescription data-sharing across PDMPs and state, county, local, and federal agencies as well as linking PDMP data with other prescription and health records to permit combined analyses. Public health agencies are well suited to encourage, facilitate, and lead development of such collaboration.

■ ***Improving data quality***

Complete and accurate data can improve reporting, are important for prescribers and pharmacists making patient care decisions, and can help in detecting questionable activity. The quality of a PDMP's output—analyses and reports, whether solicited or unsolicited—depends on the timeliness, completeness, accuracy, and consistency of collected data. Best practices need to be identified for all stages of data collection and data management. Public health agencies, given their multiple responsibilities for collecting important health related data, can help ensure that their states' PDMPs apply appropriate techniques to ensure and improve data quality.

■ ***Conducting evaluation***

Evaluation of PDMP activities can inform and improve activities and demonstrate the value of a PDMP. Evaluation practices and use of evaluation findings for quality improvement enable PDMPs to respond to changing demands and conditions and ensure their systems and policies permit maximum appropriate use of high-quality, timely PDMP data. Candidate practices include actions to:

- Conduct satisfaction and utilization surveys of end users.
- Conduct audits of PDMP system utilization for appropriateness and extent of use.
- Use PDMP data as outcome measures in evaluating program and policy changes.
- Analyze other outcome data (e.g., overdoses, deaths, hospitalizations, ER visits) to evaluate the PDMP's impact.

Public health agencies are well practiced in program evaluation and therefore suited to conduct, encourage, or help structure each state's evaluation of PDMP functions.

■ ***Securing funding***

Stable and adequate funding of PDMPs is essential for consistent operation and optimum utilization. Best practices in securing consistent, long-term funding will provide a stable platform for PDMPs to operate, implement new technologies as needed, and maintain sufficient staffing levels. Adequate funding facilitates data access for authorized end users, implementation of interoperability between PDMPs, and effective analysis and dissemination of

prescription information. Public health agencies can help ensure sustained and adequate PDMP funding.

Implementation of Best Practices

Decisions to implement any of these or other best practices will necessarily involve needs assessments⁹ as well as consideration of the state's other public health priorities, resources and infrastructure, legal authority, privacy issues, the benefit/cost ratio, and the extent of public support, among other considerations. In prioritizing best practices for adoption, a state may wish to consider: (1) the need to ensure a minimum standard of accuracy, completeness, and consistency of PDMP databases as a necessary underpinning for all aspects of PDMP data utilization; (2) the need to optimize all subsequent phases of PDMP operations, including data preparation, analysis, reporting, recruitment of end users, and utilization of data; (3) the impact of a practice on enhancing other PDMP capacities and functions and maximizing PDMP effectiveness, were it to be widely adopted; (4) the feasibility of implementing the practice; and (5) the extent to which the practice integrates the PDMP into the wider public health and public safety systems.

As part of the planning for a best practice implementation, a state may wish to consider conducting pre- and post-implementation evaluations.

Resources

For additional information on PDMPs and PDMP best practices, including use of PDMPs in public health, please consult the following websites:

- PDMP Center of Excellence: www.pdmpexcellence.org
- PDMP Training and Technical Assistance Center: www.pdmpassist.org
- Alliance of States with Prescription Monitoring Programs: www.pmpalliance.org

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In collaboration with the PDMP Training and Technical Assistance Center at Brandeis University, the Prescription Drug Monitoring Program Center of Excellence provides academically sound and practice-relevant information, evaluation, and expertise to PDMPs and their stakeholders. It is advised by an expert panel of nationally recognized professionals in addiction treatment, pain medicine, public health, and epidemiology.

¹ Alliance of States with Prescription Monitoring Programs. "The Goals of Prescription Monitoring." 1999. Available at <http://www.pmpalliance.org/pdfs/resourcespdfs/goalsprescripmonitor.pdf>. Accessed 10-23-2013.

² Public health agency prescribers and dispensers engaged in direct patient care, such as in public health hospitals and clinics, may have access to identifiable PDMP information on their patients.

³ PDMP Center of Excellence. "Using PDMPs to Improve Medical Care: Washington State's Data Sharing Initiative with Medicaid and Worker's Compensation." *Notes from the Field*. April 2013. Available at http://www.pdmpexcellence.org/sites/all/pdfs/washington_nff_final.pdf. Accessed 10-23-2013.

⁴ PDMP Center of Excellence. "Project Lazarus: Using PDMP Data to Mobilize and Measure Community Drug Abuse Prevention." *Notes from the Field*. June 2012. Available at http://www.pdmpexcellence.org/sites/all/pdfs/project_lazarus_nff_a.pdf. Accessed 10-23-2013.

⁵ PDMP Center of Excellence. "Briefing on PDMP Effectiveness." 2013. Available at http://www.pdmpexcellence.org/sites/all/pdfs/briefing_PDMP_effectiveness_april_2013.pdf. Accessed 10-23-2013.

⁶ Clark T, Eadie J, Knue P, et al. *Prescription Drug Monitoring Programs: An Assessment of the Evidence for Best Practices*. Boston, Massachusetts: PDMP Center of Excellence, 2012. Available at http://www.pdmpexcellence.org/sites/all/pdfs/Brandeis_PDMP_Report_final.pdf. Accessed 10-23-2013.

⁷ A more extended discussion of unsolicited reports and their use is being prepared by the PDMP Center of Excellence and should become available for use by Fall 2013 at www.pdmpexcellence.org.

⁸ PDMP Center of Excellence, COE Briefing, Mandating PDMP Participation by Medical Providers: Current Status and Experience in Kentucky, 2013. Available at: <http://www.pdmpexcellence.org/content/mandating-medical-provider-participation-pdmps>. Accessed 12-10-2013.

⁹ A needs assessment tool is available from the PDMP Center of Excellence. See www.pdmpexcellence.org for contact information.