



State Strategies to Improve the Use of Prescription Drug Monitoring Programs to Address Opioid and other Substance Use Disorders

Executive Summary

States have implemented many different strategies to address opioid use disorder/substance use disorders (OUD/SUD) and promote safe prescribing practices. One of these strategies is maintaining prescription drug monitoring programs (PDMPs) to inform clinical decisions and help support referrals to OUD/SUD treatment. PDMPs serve as information tools for many providers and public health and safety professionals who use the data to address OUD/SUD through improved clinical decision making, enhanced public health interventions, and faster detection of prescription fraud and diversion.

This toolkit was developed to highlight state practices in PDMP policy and identify opportunities to improve access and ease of use by health care providers. The toolkit includes a series of 10 considerations, highlighting different approaches states have taken to implement those strategies. In producing this toolkit, the National Governors Association Center for Best Practices (NGA Center) consulted with national and state experts, including through a virtual roundtable on March 31, 2020, that was largely comprised of state officials, to discuss how states have used their PDMPs as part of broader strategies to address OUD/SUD.

Because PDMPs are already widely adopted and utilized among states and providers, the considerations in this toolkit reflect opportunities for state leaders to share best practices and make enhancements to advance functionality and improve utilization as part of a broader data-driven approach to promote the health and wellbeing of state residents. It also serves as a primer for individuals interested in learning about how PDMPs can advance initiatives to address OUD/SUD.

Considerations for states in enhancing functionality and improving utilization of PDMPs

1. **Produce PDMP data analyses** that support clinical decision-making by health care providers.
2. **Expand types of substances** and overdose information tracked through the PDMP to identify potential overdoses or misuse of potentially addictive substances or dangerous drug combinations.
3. **Develop resources and tools** that help providers make referrals to specialists to address pain management, misuse, and addiction.
4. **Permit staff of prescribers and dispensers** and providers who have no prescribing authority to access PDMP data to facilitate clinical decision support and care coordination across health care providers.
5. **Provide chief medical officers** and other medical coordinators of health care institutions with access to PDMP data to enhance oversight of prescribing and dispensing practices.
6. **Support use of PDMP data by public health authorities** to identify hotspots, trends, and improve understanding of drug-related overdoses.
7. **Streamline provider access to PDMP data** within health information technology platforms, such as electronic health records (EHR) systems and health information exchanges (HIEs) to facilitate providers' efficient review of patient information from various sources.
8. **Increase use of PDMP data for cross-system data analyses** to find patterns of behavior and identify factors that might contribute towards inappropriate prescription drug use, addiction, and overdose.
9. **Promote interstate data sharing** for an improved picture of residents' controlled substance prescription histories to identify potential doctor shopping and create opportunities for greater care coordination across state lines.
10. **Identify financial strategies** to keep PDMPs sustainable and relevant with timely, accurate, comprehensive, and technologically actionable information as drug trends change over time.

Purpose of the Toolkit

This toolkit was developed to highlight state practices in prescription drug monitoring program (PDMP) policy and identify opportunities to improve access and ease of use by health care providers. Due to the evolving technological landscape and the impact of ongoing policy changes surrounding opioid and other substance use disorder (OUD/SUD), states are continuously identifying ways to improve their use and integration of PDMP data to support prescribers, dispensers, and patients. Because PDMPs are already widely adopted and utilized among states and providers, the considerations in this toolkit reflect opportunities for state leaders to make enhancements to advance functionality and improve utilization as part of a broader data-driven strategy to promote the health and wellbeing of state residents and to learn from one another about different approaches.*

Introduction

States have implemented many different strategies to address OUD/SUD and promote safe prescribing practices. One of these strategies is maintaining PDMPs to inform clinical decisions and help support referrals to OUD/SUD treatment. Specifically, PDMPs collect, analyze, and share specific data on controlled substances prescriptions (and some non-controlled substance prescription data) with health care providers and dispensers, which can help to identify prescription drug use patterns and reduce prescription drug related overdoses and deaths. PDMPs serve as information tools for many providers and public health and safety professionals who use the data to address OUD/SUD through improved clinical decision making, enhanced public health interventions, and faster detection of prescription fraud and diversion.

Background

PDMPs have been in existence for more than a century, with the first PDMP established in 1918 in New York.¹ Early PDMPs were often established in law enforcement agencies as drug enforcement tools to monitor schedule II controlled substances, the drugs initially considered the most susceptible to diversion.² By 2020, 53 states, territories, and the District of Columbia operate PDMPs to serve public health as well as public safety purposes, with most programs now administered by health agencies.³ States modified the early design of PDMPs as they saw abuse of prescribed controlled substances rise to epidemic proportions. PDMP effectiveness studies reveal that the programs have value in identifying patients at risk of drug overdoses.⁴ In response, states began to monitor most controlled substances, promote the use of their PDMPs for patient care and safety, and support data access for a range of providers and health oversight agencies. As states broadened the uses of their PDMPs, most created multidisciplinary advisory committees

* This toolkit does not provide granular, technical specifications for implementation of PDMP technical systems. Rather, it outlines considerations for states which may include clinical, policy and technical components. We encourage toolkit users to note that additional technical content may be important and relevant to states seeking to implement the outlined considerations. Information on available health IT content/vocabulary and exchange standards related to PDMP systems may be found in the [Office of the National Coordinator for Health IT \(ONC\) Interoperability Standards Advisory](#), including emerging standards leveraging application programming interfaces.

to guide the development and operation of their PDMPs as patient care and public health and safety tools.⁵ See [Appendix 1](#) for a table listing stakeholders commonly engaged in PDMP work.

A PDMP is a complex network of multiple components often administered by multiple entities with different approaches from state to state. PDMP systems are comprised of various technical capacities (e.g., patient matching, calculation of morphine milligram equivalent scores) and components (e.g., web portals, firewalls) that vary significantly across states. In any given state, the PDMP system may include state-developed and vendor-based solutions with the core PDMP database itself, as well as a wide range of technical systems supporting user interfaces and data exchange.

As part of the analysis for this publication, NGA reviewed PDMP-related statutes, rules and regulations to identify language on (1) integration or access to PDMP data via health IT systems, (2) storage of PDMP data or reports in a medical or health record, and (3) re-disclosure of PDMP data to providers or pursuant to the Health Insurance Portability and Accountability Act (HIPAA) and other rules governing medical or health information. [Appendix 2](#) cites PDMP enabling and operational statutes and regulations, and health care practice rules and regulations regarding access, use, and disclosure of PDMP in more than 35 states as of May of 2020.

PDMPs in the context of COVID-19

As states currently find themselves meeting new challenges associated with the COVID-19 pandemic, they are focused on strategies to reduce harm and ensure access to evidence-based services. Social distancing and stay-at-home orders disrupt individual and group in-person counseling and other forms of traditional treatment based on connectedness with others. While expanded use of telehealth makes treatment services available during the pandemic, the lack of traditional connectedness and increased isolation may put patients at higher risk of relapses and overdoses. Use of PDMP data to identify possible signs of potential misuse and abuse allows providers to intervene early and prevent relapses and overdoses.

Considerations for States

The following 10 considerations are intended to help states enhance functionality and improve utilization of PDMPs (numbering of strategies does not reflect a priority order).

1. Produce PDMP data analyses that support clinical decision-making by health care providers

Health care providers and dispensers use PDMPs to support safe and appropriate prescribing and dispensing. When providers encounter patients, they are presented with physical indicators, verbal information communicated by the patient, historical information available in a health record, and PDMP information (which may or may not be accessible via electronic health record (EHR) systems. Most states already distribute PDMP patient alerts or reports that serve as a quick resource to inform prescribers and dispensers about risk factors or concerning patterns of patient behavior.⁶ **Wisconsin** places alerts on an accessible patient panel dashboard that helps providers easily spot potential risks and gives providers immediate access to the full patient PDMP report.⁷ Examples of the types of information commonly used in patient alerts include:

- Concurrent prescriptions for opioids and benzodiazepines;
- Daily morphine milligram equivalents that meet or exceed a certain dosage;
- Early refills for a prescription;
- Visits to more than a certain number of prescribers and dispensers within a given time period;
- Instances of non-fatal overdoses or suspected overdoses; and
- Long-term opioid therapy with multiple health care professionals.

Patient alerts such as risk scores and comparable data presentations may also facilitate clinical interpretation of PDMP data. A risk score is a clinical decision support tool that analyzes PDMP data to identify patient risk factors for OUD/SUD and overdose and assigns a patient a score commensurate with the patient's determined level of risk. However, if the risk score calculations are provided by vendors and rely on proprietary algorithms for their calculations, they may challenge a state's ability to assess whether the presentation accurately reflects the PDMP's source data and whether the score accurately reflects level of risk for any given patient. In fact, states such as **Kentucky** prohibit or discourage using only risk scores to make clinical decisions as they may cause providers to make biased clinical decisions or miss key pieces of individual prescription information only available when reviewing complete PDMP reports.⁸ States that allow use of complementary proprietary data presentations, such as risk scores, may wish to clarify whether a review of only the risk score satisfies state requirements for providers and dispensers to check the PDMP.⁹

Health licensing boards in 48 states are authorized to use PDMP data to intervene with providers who may be, or are at risk of, prescribing or dispensing inappropriately.¹⁰ In all 48 states, boards

can request PDMP data for a specific inquiry or investigation of a licensee.¹¹ Twenty state PDMP agencies¹² have authority to proactively review the PDMP data and notify boards when the data shows state-specific indicators that certain providers have concerning prescribing or dispensing practices. State boards often use proactive notices to educate providers about best practices and help them align their prescribing and dispensing with state guidelines.¹³

Twenty-nine states help providers examine their prescribing practices through practice insight reports that summarize how their prescribing practices compare with peers' practices within their health care specialties (e.g., general practice, oncology, dental).¹⁴ These insight reports provide an opportunity for self-assessment and may help prevent potentially improper prescribing patterns and track metrics such as:

- Number of prescriptions issued or milligrams prescribed for a certain class or substance compared to peer averages by specialty;
- Top medications prescribed;
- Total number of patients receiving a certain daily morphine milligram equivalents (dosage of prescription)
- Total number of patients receiving opioids for a designated number of days; and
- Total number of patients receiving opioids and benzodiazepines.¹⁵

Delivery of the report with references to state prescribing guidance can help providers align their prescribing practices with OUD/SUD prevention strategies and state PDMP use mandates.

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2. Expand types of substances and overdose information tracked through the PDMP to identify potential overdoses or misuse of potentially addictive substances or dangerous drug combinations

Historically, most states limited prescription tracking to controlled substances.¹⁶ However, as states experience increases in overdoses involving other potentially addictive substances, **Iowa**, **Ohio** and numerous other states have expanded their prescription monitoring to include information about naloxone, gabapentin and other non-controlled substances to identify potential overdoses or misuse of potentially addictive substances or dangerous drug combinations.¹⁷ Examples of the range of drugs states might track include:

- Naloxone
- Gabapentin
- Medical marijuana
- Cannabidiol oil (CBD oil)
- All prescription drugs¹⁸

Nebraska's PDMP is the first to track all dispensed prescription drugs.¹⁹ Having all prescription information available to providers allows for a holistic view of a patient's prescription history. For example, a provider can see if a patient is refilling diabetes medication routinely or is receiving a drug combination that can cause harm. Monitoring all prescription drugs also improves overall medication management and reduces medication errors that account for admissions or readmissions to hospitals. Additionally, such comprehensive monitoring enables **Nebraska** to identify early patterns or trends in dispensing or prescribing for certain diseases, such as a spike in dispensing of Tamiflu for influenza.²⁰

Some states, such as **Utah** and **Wisconsin**, make a patient's non-fatal overdose information available to providers and dispensers through the PDMP.²¹ Access to this information may better inform providers and dispensers about a patient's potential risk of future overdoses allowing for earlier identification and intervention with patients who are misusing or abusing, or are at risk of misusing or abusing, potentially addictive substances.

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3. Develop resources and tools that help providers make referrals to specialists to address pain management, misuse, and addiction

The use of PDMP data to identify treatment and other health care needs of a patient is an important step in a provider's patient care plan. Some providers may have the training and capacity to offer treatment within their practice while other providers must follow-up to identify and refer a patient to additional supports such as pain medication, addiction, or other specialists to ensure their patients receive appropriate care.

States can provide training and tools to help locate available and appropriate referral resources, medication assisted treatment (MAT) providers, pain specialists, care coordination professionals, and other treatment modalities. At a minimum, states should consider helping providers identify available resources by including links to federal and state treatment resource websites or lists of OUD/SUD treatment programs. Some states, such as **Kentucky**,²² incorporate treatment locators in their PDMPs that show up-to-date and timely treatment program availability.

Effective use of PDMP data during a patient encounter to identify or confirm signs of potential abuse or OUD/SUD helps a provider intervene and refer the patient to treatment before the patient leaves the health care institution. Such a smooth continuum of health care services can increase the likelihood that the patient will agree to engage in the needed treatment. Evidence suggests that providers seamlessly transitioning opioid overdose survivors from emergency medical care to OUD/SUD treatment reduces future overdoses and improves recovery prospects. According to the Agency for Healthcare Research and Quality "a warm handoff is a handoff that is

conducted in person, between two members of the health care team, in front of the patient (and family if present).”²³ The Addiction Policy Forum, which is based in Pennsylvania, reports a 75 – 85% success rate among people who make it into treatment as a result of the state’s warm hand off plan.²⁴ **Rhode Island’s** warm hand off program, called AnchorEd²⁵, reports that from July 2016 to June 2017, 87% of overdose survivors who met with a peer recovery coach in the emergency department engaged in recovery supports upon discharge.^{26 *}

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4. Permit staff of prescribers and dispensers and providers who have no prescribing authority to access PDMP data to facilitate clinical decision support and care coordination across health care providers

Studies have found using PDMP data helps reduce the extent to which patients see multiple prescribers and/or multiple pharmacists within a designated time period (known as multiple provider episodes) as well as the supply of opioid prescription drugs in the community because providers are writing fewer prescriptions.²⁷ While states vary in the number and type of professionals permitted to access PDMP data,²⁸ PDMP policies generally focus on access for prescribers (such as physicians, physician assistants, nurse practitioners, and veterinarians), and dispensers (including pharmacists and dispensing practitioners).²⁹ [See [“What Can Prompt a PDMP Check”](#)]

In 2018, the Substance Use Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities Act (SUPPORT Act) was enacted to address the nation’s opioid and other substance use epidemic. Section 5042 of the SUPPORT Act requires prescribing Medicaid providers to check a qualified state PDMP before prescribing a controlled substance to a Medicaid patient no later than October 1, 2021.³⁰ According to the SUPPORT Act, a PDMP will be qualified if it provides certain information about a patient’s controlled substances prescriptions and identifying information about each Medicaid provider that prescribed a controlled substance to the patient within the previous 12 months.³¹ Also, the PDMP must facilitate clinical workflow integration.³²

To maximize the time prescribers and dispensers can dedicate to patient interactions and care, PDMP agencies authorize agents (also known as delegates or designees in some states) to obtain patient PDMP data on behalf of the provider or dispenser.³³ Use of agents is especially important in rural or other communities where there may be a limited number of licensed health care

* In response to the Secretary of HHS declaring a public health emergency, the U.S. Drug Enforcement Agency (DEA) issued [guidance](#) on March 17, 2020, that offers temporary flexibility for DEA-registered providers to prescribe controlled substances for patients for whom they have not had an in-person consultation as long as the provider is prescribing in alignment with their normal professional practice, the telemedicine visit occurs over a live (real time), audio visual two-way interactive communication system, and the provider is adhering to state and federal laws throughout the remainder of the public health emergency declaration. This flexibility may facilitate treatment during COVID-19 while many patients and providers are limiting patient care.

professionals or pharmacists within easy driving distance. Criteria to serve as an agent as well as the number of agents allowed per prescriber or dispenser vary by state.

In addition to permitting agent access, some states, such as **Kentucky** and **Washington**, allow health care institutions to maintain PDMP user accounts through which the institutions' prescribers, dispensers, and agents can access PDMP data.³⁴ Institutional accounts in **Kentucky** allow hospitals and other health care entities to efficiently create and manage a large number of delegate relationships.³⁵ **Washington's** facility account process uses an alternative method to verify the identities of providers and agents and streamlines their querying of the PDMP.³⁶

WHAT CAN PROMPT A PDMP CHECK

Forty-six states mandate that some or all categories of prescribers check the PDMP. Circumstances that can trigger a required PDMP check include:

When prescribing an opioid, benzodiazepine, or designated substance and for periodic prescriptions thereafter as long as the substance remains part of the treatment;

When issuing a replacement prescription for a controlled substance;

When a check is clinically indicated; and

When prescribing a controlled substance for drug addiction treatment, pain management or a worker's compensation claim;

When a prescriber has reason to believe a patient may be abusing or diverting substances.

Of the 46 states with prescriber mandates, 19 mandate that pharmacists or dispensers check the PDMP in certain situations, such as when:

Dispensing an opioid, benzodiazepine or other designated substance;

An individual is paying cash even though the individual has insurance on file;

A patient requests a refill substantially in advance of when a refill is due.

A dispenser has reason to believe a patient may be seeking a controlled substance for a non-medical reason;

A prescription is issued for a patient unfamiliar to the dispenser or located outside of the dispenser's usual geographic patient population area; and

PDMP Check Sources: ^{37 38 39}

Some states, such as **Utah** and **Maryland**, allow PDMP access to non-prescribing providers involved in a patient’s care, such as behavioral health specialists.⁴⁰ Non-prescribing members of integrated care teams can use the PDMP data to monitor if a patient is receiving controlled substance medications from one or more prescribers to inform a more comprehensive, coordinated, and effective treatment plan. States may also consider the added value of providing access to paramedics and other professionals who respond to emergencies and declared disasters and must provide on-the-spot treatment to save lives. Easy access to PDMP data may help such providers make more informed patient care decisions, especially when patients are unable to effectively communicate due to overdose or impairment.

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5. Provide chief medical officers and other medical coordinators of health care institutions with access to PDMP data to enhance oversight of prescribing and dispensing practices

Providing medical leadership with PDMP access is one strategy to help managers assess the prescribing and dispensing practices within their health care institutions and determine appropriate educational interventions to promote best practices when prescribing. Chief medical officers (CMOs) and medical coordinators who oversee prescribers and dispensers serve an important role in reducing the risk of prescription drug abuse or addiction. In states such as **West Virginia** and **Wisconsin**, CMOs and coordinators have authority to conduct regular reviews of their providers’ PDMP prescribing and dispensing histories.⁴¹

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6. Support use of PDMP data by public health authorities to identify hotspots, trends, and improve understanding of drug-related overdoses

As states’ OUD/SUD trends change over time, officials in many states use de-identified data and when appropriate, identified PDMP data, to help analyze the scope and nature of OUD/SUD. For example, **Louisiana** releases PDMP data to the state epidemiologist whose analysis informs the state’s public health surveillance activities.⁴² State officials can identify hotspots where patients are prescribed high doses of opioids or frequently receive dangerous combinations of medications. In addition, **Kentucky** recently passed legislation to allow the Cabinet for Health Family Services or applicable licensing board to use PDMP data to notify patients as soon as practical to help prevent disruption of medical treatment and to promote continuity of care when the office or clinic of a **Kentucky** provider abruptly closes or is subject to emergency closure by the state.⁴³

Some states, such as **Ohio** and **Tennessee**, provide PDMP access to medical examiners and coroners⁴⁴ to help determine drug-related causes of death.⁴⁵ States also may consider providing PDMP data to fatality review teams for examination of fatal overdoses. More accurate death investigation findings enhance states' understanding of their true rate of fatal drug-related overdoses and facilitate better planning and implementation of community health interventions.

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7. Streamline provider access to PDMP data within health information technology platforms, like EHR systems and health information exchanges (HIEs), to facilitate providers' efficient review of patient information from various sources

Making information easily accessible to providers and dispensers at the point of care, commonly known as integrating PDMP data, encourages providers and dispensers to access PDMP data and use it to inform clinical care. Similarly, policies that govern the storage of PDMP data within a medical record and the re-disclosure of that stored data should take into consideration implications for ease of access, use, and interpretation. Some states have used integration strategies that include the use of EHR systems or HIEs as a potential way to integrate. An HIE is an organization that provides technology and services to help providers across a region or state share vital health information.⁴⁶

Maximizing the extent to which providers can access prescription information and alerts through their EHR systems greatly enhances ease of use and likelihood that providers will incorporate review of PDMP information into their clinical workflow. For example, an **Illinois** pilot to allow PDMP access via EHR systems found that because of EHR access, provider queries to the PDMP increased 145-fold.⁴⁷ Although many PDMPs were initially standalone systems that required unique logins, increasingly, states are taking steps to help providers integrate PDMP checks into the EHR workflow, which can save time.⁴⁸

Recognizing that increased availability of PDMP data via integration with EHR systems can improve patient care decision making and reduce inappropriate opioid prescribing, federal agencies have prioritized PDMP-EHR integration funding for states. Key funding sources for integration efforts are the Centers for Disease Control and Prevention (CDC) Overdose to Data Action (OD2A) Program; the Bureau of Justice Assistance (BJA) Comprehensive Opioid, Stimulant, and Substance Abuse Program (COSSAP); and the Medicaid PARTNERSHIP Act of the 2018 SUPPORT Act.⁴⁹

Although providers may be able to access PDMP data within an EHR system, state policies vary regarding storage and re-disclosure of that data (see [Appendix 2](#)). Storage and re-disclosure rules for PDMP data may differ from policies that govern other patient prescription data in EHR systems, in part because many early PDMPs were developed as criminal justice tools. For example,

California established one of the first PDMPs as part of its attorney general’s office to help law enforcement detect and prevent drug diversion.⁵⁰

Some states, like **Ohio**, allow users to view PDMP information within the EHR system but prohibit storing the data in the electronic medical record.⁵¹ **Ohio** officials want to ensure providers use the most accurate and up-to-date information available, including new prescriptions or corrections to previously reported prescriptions, to make patient care decisions.⁵² An increasing number of states, however, permit storage of PDMP data within an electronic medical record. For example, **Kentucky** permits providers to store PDMP data reports in a PDF or HTML format to easily access historical information for mandatory use audits and for substantiating treatment decisions based on the patient’s prescription history that may differ from standard clinical protocols.⁵³ Additionally, **Nebraska** allows providers to store discrete PDMP data elements for medication reconciliation purposes.⁵⁴

Single sign on that allows a user to select a button or a link to display the PDMP data as a separate report within the clinical record may be the way some users prefer to view the PDMP data because it is a distinct view of the patient’s controlled substance history. However, some providers may prefer to see the PDMP data integrated as discrete data elements merged into other medication history within the medical record for a more comprehensive list of medications that a patient is taking.

When providers store PDMP data in a medical record, state policies define which other members of the patient care team may access the stored data. EHR systems must re-disclose or allow access to the stored data in accordance with state policies that may include:

- Requiring compliance with the rules that govern data received through the PDMP web portal, even when data are integrated in a medical record;
- Aligning re-disclosure policies with policies that apply to other prescription data within the medical record; or
- A hybrid approach, applying general medical record re-disclosure requirements in most situations with specific restrictions on re-disclosure for PDMP data for certain civil cases and other specified circumstances involving standard of care determinations (see [Appendix 2](#)).

In some states where PDMP laws and regulations are silent regarding storage and re-disclosure policies, state officials may provide an interpretation that supports and facilitates interoperability.

Providers in states like **Maryland** and **Washington** are able to request and receive PDMP data through their states’ HIEs. By connecting through the HIE, Chesapeake Regional Information System, **Maryland** providers not only access PDMP data but can also access other relevant patient data such as vital statistics data and admission, discharge and transfer data.⁵⁵ The one-stop access for patient data from multiple sources has the potential to facilitate viewing a more comprehensive patient history than information that might exist within the EHR and can help guide clinical decision making.

Use of HIEs and similar platforms for sharing PDMP data can reduce the time PDMP agencies spend administering data sharing agreements. The PDMP agency can manage one or a few data sharing agreements with HIEs rather than maintaining agreements with each individual institution that requires PDMP data. As a result, PDMP staff can dedicate more time to improved analytics and functionalities for patient care, health care quality, and public health surveillance initiatives. Incentivizing the use of HIEs to access PDMP data may help providers better coordinate the PDMP data with other data shared through an HIE, such as data from emergency departments, drug courts, and vital statistics etc. In states where there are multiple HIEs, it is important that the HIEs successfully share data with each other to ensure seamless data access.

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8. Increase use of PDMP data for cross-system data analyses to find patterns of behavior and identify factors that might contribute towards inappropriate prescription drug use, addiction, and overdose

Reviewing PDMP data independently or alongside other clinical information is a critical step to address inappropriate drug use, addiction, and overdose. Integrating PDMP data with other sources of information requires analytic capacity to identify trends, patterns of behavior, and other potential links between prescription drug use and other activities. For instance, as overdoses from fentanyl and abuse of other illegal substances (often times not tracked in the PDMP) increase, linking PDMP data with other state data sets can help state officials better understand current and emerging trends and predict overdose risk involving non-prescription substances. Such analyses can help states work across departments and agencies to identify program and service delivery improvements. [See [“Potential Patterns”](#)]

Maryland’s predictive risk model using PDMP data helped identify 40% of all 2016 overdose deaths in the state and its expansion of the risk model to include other clinical and criminal justice data sets led to highly accurate predictions of risk for opioid overdose in a broad and diverse population.⁵⁶ Merged datasets identified high risk individuals accounting for 20% more of the state’s 2016 overdose deaths than were identified solely through PDMP data.⁵⁷ Linked data demonstrated that patients with opioid addiction who receive MAT were substantially less likely to overdose and persons involved with the justice system had much higher overdose risk.⁵⁸

Massachusetts analyzed PDMP data with 21 other state data sets to assess fatal and nonfatal opioid overdoses in the state from 2011–2015.⁵⁹ By linking the datasets, state officials learned that in 2015 over 4% of state residents age 11 and older had opioid use disorder.⁶⁰ The five-year opioid overdose death rate of mothers with opioid use disorder was 321 times higher than the rate among mothers without the disorder.⁶¹ The risk of overdose death for homeless persons

POTENTIAL PATTERNS

Data sources that states may consider analyzing alongside PDMP data

Substance abuse treatment data to identify risk of death from overdoses or injuries and illnesses caused by non-fatal overdoses;

Emergency Medical Services (EMS) trip record information and bystander administrations of naloxone to determine the number of non-fatal overdoses;

Cancer staging data that identifies palliative treatment using opioid medications;

Death records and medical examiner data regarding circumstances of death and **toxicology reports** to identify substances that contributed to or caused death;

Hospital services and claims data for emergency department visits, inpatient hospitalizations and outpatient observations;

Medicaid and Children’s Health Insurance Program data to identify program recipients who received opioid use disorder treatment;

Corrections/jail data for adult offenders and their treatment to determine the rate of OUD/SUD and risk of overdoses among the population;

Juvenile system data for youth offenders and their treatment to determine the rate of OUD/SUD and risk of overdoses among the population;

Child welfare data that helps identify risk of neglect;

Labor department data that helps identify common fields of employment for people experiencing an overdose; and

Mental health data for psychiatric hospitalizations and related services.

was up to 30 times higher than for the rest of the population.⁶² By connecting data from EMS, hospitals and bystander interventions, state officials found that nonfatal overdoses increased approximately 200% between 2011 and 2015.⁶³ Based on insights from the innovative data linking, the state implemented new policies for opioid prescribing, prescriber education, required PDMP checks, OUD/SUD evaluations for overdose survivors in emergency rooms, and expanded treatment.⁶⁴ The interdisciplinary approach resulted in a 4% decrease in opioid-related overdoses in 2017 compared to 2016. Preliminary data for 2018 suggest that overdoses continue to decline, and the prescribing of opioids is down 30% since 2016.⁶⁵

Rhode Island’s Data Ecosystem completed major cross agency studies involving PDMP data that resulted in policy changes. The state’s MAT study found that since 2013, only 26-46% of Medicaid members enrolled in MAT within six months of their first observed Medicaid opioid use disorder diagnosis or overdose.⁶⁶ For those who experienced an overdose, the rate dropped to 8%.⁶⁷ The finding led to the start of a robust MAT peer recovery coach program.⁶⁸ A child maltreatment prevention study identified families most in need of wraparound support at a child’s birth.⁶⁹ The

state used the finding to obtain over \$30 million in MAT grant funds.⁷⁰ A Medicaid contract management study tracked primary care visits, specifically for children most at risk of maltreatment.⁷¹ Based on the findings, the state added new priority measures including avoidable emergency department visits and readmissions.⁷²

Leveraging PDMP and other system data to identify trends and implement interventions can pose challenges in addressing potentially disparate and complicated privacy protections to which each data source is subject. **Maryland** and **Massachusetts** identified key implementation steps to streamline and overcome challenges of cross-system data analysis:

- Adopt necessary legislation and data use agreements to resolve differing legal access, use, privacy and security requirements for various datasets;
- Identify and develop a plan to address data issues regarding gaps, quantity and quality; and
- Develop an information technology structure that can link, store and allow access to merged datasets in compliance with federal and state privacy and security standards.⁷³

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9. Promote interstate data sharing for an improved picture of residents' controlled substance prescription histories to identify potential doctor shopping and create opportunities for greater care coordination across state lines

Interstate data sharing refers to the process of sharing PDMP data across state lines via data sharing platforms known as hubs. Interstate data sharing requires states to align varying technical and policy requirements governing PDMPs (e.g., data collected, data placement, patient matching, PDMP role-based access, and security protocols) and agreed upon terms and conditions.

Sharing PDMP data with providers and other authorized data users across state lines is a critical strategy to create a more comprehensive prescription history for patients. It can help address patients who may live near a state border and regularly seek care in multiple states, individuals who may reside in different states throughout the year, as well as individuals seeking prescription drugs from new sources.

One challenge states may face when becoming a data sharing partner is the difference in state policies pertaining to access, storage, and re-disclosure of PDMP data.⁷⁴ Absent aligned policies for disclosing information to prescribers, dispensers and non-prescribing providers of patient care, states may consider identifying an approach to facilitate adherence among providers and vendors.

Sharing PDMP data with increasing numbers of states, especially non-contiguous states, involves consideration of numerous strategic factors.⁷⁵ Key factors include:

- Analysis of patient prescription fill data to identify percentage of in-state and out-of-state residents receiving prescriptions, as well as metrics on fills for out-of-state persons. For example, in **Kentucky** in 2017 and 2018, 8.2% of the unique persons receiving Schedule II-V controlled substances dispensed in the state were residents of other states. Of those unique out-of-state persons, 84.4% were residents of **Kentucky's** border states;⁷⁶
- Patient matching methods;⁷⁷
- Technologies available for PDMP-to-PDMP data sharing;
- Policies that govern integrating out-of-state PDMP data into EHRs (including privacy policies);
- Multi-state health information or emergency department information sharing platforms available for use;
- Security measures and auditing capabilities offered by vendors; and
- Connection and data sharing costs charged by vendors to access and share PDMP data across state lines.

PDMPs primarily share data across state lines through two sharing hubs, PMP InterConnect and RxCheck.

- PMP InterConnect is owned by the National Association of Boards of Pharmacy and operated by Appriss Health.
- RxCheck is operated by the Bureau of Justice Assistance, U.S. Department of Justice, and managed by the Integrated Justice Information Systems Institute.

Fifty of the 53 PDMPs in states, D.C. and territories share data via PMP InterConnect⁷⁸ and 43 share or are onboarding to share through RxCheck.⁷⁹ An additional 8 PDMPs are completing memoranda of understanding to share data via RxCheck or are in data sharing discussions with RxCheck administrators.⁸⁰ States may choose to use either or both hubs depending on need, cost and capabilities. Both hubs have steering committees or boards comprised exclusively of state officials.

Both hubs maintain data security and privacy standards and provide interstate data sharing and integration capabilities.⁸¹ The CDC and BJA require that states receiving agency funds for PDMP activities respond to a patient query via the hub a state used to submit the query.⁸² For example, if State A sends a patient query to State B via PMP InterConnect, then State B must respond to the query via PMP InterConnect. Therefore, the more states with which a given state connects, the higher likelihood it will require use of both hubs to maximize information exchange.

Accurate matching of patient prescription histories with patient data requests is critical to ensure that providers have complete and reliable information on which to base clinical care decisions. However, patient matching can be even more challenging when states use different matching methods. Some specific challenges to effective intrastate and interstate matching include:

- Proprietary algorithms and approaches provided by vendors make it difficult for a state to know how the vendor is matching patients to prescription data and effectiveness of the vendor's methods;

- Different patient matching methods between the PDMP and EHR systems. For instance, some EHRs rely on an exact patient match known as deterministic matching. With deterministic matching, if a query is executed for Robert Johnson, only prescriptions for Robert Johnson will display. Some EHRs use a combination of deterministic matching and probabilistic, or “fuzzy” matching. PDMPs can also use either deterministic, probabilistic or a combination of both types of matching. In a situation where a PDMP uses both matching options, matching may include the deterministic match Robert Johnson, and probabilistic matches such as Robbie Johnson, Bobby Johnson, Robson Johnson, etc. The provider then has to decide which of the patients in the response are potentially accurate matches for his or her patient, and request access to the data for those patients. Several demographic elements can be used to match; name is only provided as an example to demonstrate how different methods work;
- Variations in data format, standards, and quality between EHRs, PDMPs, and pharmacy information systems; and
- Variations because some systems will match based on as little as a partial spelling while others utilize a more comprehensive patient index that relies on one or more data sources with complex algorithms that remove duplicates and link entries across systems.⁸³

States are adopting innovative strategies to correctly identify patients. For instance, **North Carolina** created an inter-agency data sharing initiative called the Government Data Analytics Center, which promotes processes, governance, standards and tools to consistently define and manage data across sources.⁸⁴ These processes allowed the state’s PDMP to quickly leverage data from the Division of Motor Vehicles (DMV) to enhance entity resolution and allow for more precise reporting. DMV data has the benefit of linking information to an individual across time and place, unlike PDMP data, which only offers a snapshot of an attested name and address at a given time with no link to previous and future changes. By expanding inter-agency data sharing efforts and improving the accuracy of entity resolution processes from non-traditional health data sources, states can improve the accuracy of patient matching for intrastate and interstate data sharing.

[\[RETURN TO LIST OF 10 CONSIDERATIONS \]](#)

10. Identify financial strategies to keep PDMPs sustainable and relevant with timely, accurate, comprehensive, and technologically actionable information as drug trends change over time

Technology and drug use patterns are constantly evolving and require flexibility of systems and analytics as well as connections. In addition, federal policies provided through legislation, regulation, and guidance require states to continuously adapt to new requirements that support interoperability and data sharing.

PDMPs’ ability to efficiently deliver dispensed prescription information to providers and public health and safety officials is critical to prevent and respond to OUD/SUD. Federal agencies offer

states a variety of funding programs to continually enhance PDMPs and transform them into optimal health and safety information tools. CDC's OD2A Program allows states to maximize PDMPs by:

- Moving towards universal registration and use;
- Making PDMPs easier to use and access;
- Making PDMP data more timely;
- Expanding and improving proactive PDMP reporting to identify and address inappropriate prescribing patterns; and
- Using PDMP data to better understand the nature of the prescription drug overdose epidemic.⁸⁵

BJA's COSSAP funds will support implementation or enhancement activities that:

- Encourage the use of PDMPs to improve clinical decision making and prevent the abuse and diversion of controlled substances; and
- Track prescribing across providers and states through integration to promote safety and responsible prescribing.⁸⁶

The State Opioid Response Grant Program provided by the Substance Abuse and Mental Health Services Administration (SAMHSA) supports the use of PDMPs to accomplish the program's goals of:

- Improving access to MAT by increasing the likelihood of community providers identifying at risk patients;
- Reducing unmet treatment need by identifying, evaluating, and referring patients with OUD to treatment;
- Reducing opioid overdose related deaths through prevention, treatment, and recovery activities; and
- Potentially improving medical care by giving the provider an opportunity to develop a more comprehensive clinical appreciation of the patient's status.⁸⁷

Pursuant to the Medicaid PARTNERSHIP Act, § 5042 of the 2018 SUPPORT Act, the Centers for Medicare & Medicaid Services (CMS) makes FY2020 funds available to facilitate integration of PDMP data into EHR systems using existing standards.⁸⁸ CMS provides 100% federal Medicaid matching funds for integration of qualified PDMPs with existing Medicaid mechanized claims processing and information retrieval systems.⁸⁹ After FY2020, states may be able to use two other Medicaid funding programs to support ongoing PDMP operations and improvements:

- 42 C.F.R. § 433.112 may provide a 90% federal match for the design, development, installation or enhancement activities related to qualified PDMPs that are integrated with existing Medicaid mechanized claims processing and information retrieval systems; and
- 42 C.F.R. § 433.116 may provide a 75% federal match for the operation of qualified PDMPs that are integrated with existing Medicaid mechanized claims processing and information retrieval systems.⁹⁰

While the combined federal funding programs support multiple PDMP activities, each program has its own requirements, restrictions, and performance measures. The labor and time needed to comply with the separate requirements can sometimes be significant. Through efficient blending of federal monies, states can develop highly valuable PDMP tools while reducing administrative costs involved in managing federal funds. Long-term maintenance of robust PDMPs requires states to look beyond federal financial resources which may be re-allocated in the future to other national priorities. Leveraging other available public and private sector resources and identifying strategies to use PDMP data across programs can increase likelihood of providing stable, long-term funding to ensure that PDMPs can help providers and public health and safety officials effectively respond to evolving challenges.

Conclusion

PDMPs serve many critical functions to support states, including identifying patients at risk of OUD/SUD and detecting emerging problematic trends in prescription drug use. To optimize their use, states must address a variety of policy and technical issues to both maximize provider and dispenser ease of access and adhere to privacy and security goals due to the sensitive nature of PDMP data. The opportunity to share PDMP data across state lines increases the potential to identify concerning patterns of behavior for individuals traveling between states although the policy and technical issues between states are magnified and more complex to address when considering the variability in policies.

With the advent of new technologies, it is becoming increasingly easier to facilitate data exchange within and across states. However, financial investments in specific products, time to make changes, and vendor policies may serve as a barrier to adopting change. States have access to a wide range of funding sources from federal agencies, though each funding source has specific requirements that can add to the complexity of braiding and blending funds. States that are able to maintain agility and evolve with the changing landscape of prescription drug use patterns and leverage data across programs to identify trends and interventions for individuals at risk are likely to have more robust and comprehensive opioid strategies benefiting patients, prescribers, dispensers and state agencies, and garner the greatest sustained support within state government.

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Appendices

Appendix 1: PDMP Stakeholders

As states broadened the uses of their PDMPs, most created multidisciplinary advisory committees to guide the development and operation of their PDMPs as patient care and public health and safety tools.⁹¹ States that wish to strengthen their PDMPs as effective tools to prevent and respond to OUD/SUD may consider engaging a comprehensive range of public and private sector stakeholders. On the following page is a table with the types of stakeholders states typically engage in PDMP work.

APPENDIX 1

PDMP STAKEHOLDERS

EXECUTIVE BRANCH

“Drug Czars”, Offices of Drug/
Substance Abuse Policy or other

State officials responsible for
statewide coordination of systems

PDMP Agencies/Administrators

Department of Health/Human
Services

Department of Medical Assistance/
Medicaid

Department of Medicare/Elderly
Services

Department of Workforce
Development/Labor & industry

Emergency Medical Services
Bureau/Division

Department of Public Safety

Bureau of Narcotics

Attorney General

Department of Corrections/Dept.
of Probation and Parole

HEALTH/PDMP INFORMATION TECHNOLOGY

PDMP IT staff/contractors

HIE IT staff/contractors

EHRs/eMRs IT Experts

Emergency Department
Information Exchange IT

LEGISLATIVE BRANCH

Health committees

Public safety committees

Insurance committees

Labor & industry committees

EMPLOYER

Employee assistance professionals

Drug free workplace professionals/
programs

Drug testing professionals/
programs

Private insurers/payers

HEALTH LICENSING

Board of Medicine/boards
overseeing MDs, DOs and
Physician’s Assistants

Board of Nursing

Board of Podiatry

Board of Optometry

Board of Veterinarians

Board of Pharmacy

COMMUNITY/SCHOOL

Anti-drug coalitions

Harm reduction groups

Drug endangered children alliances

PTAs and parents’ groups

Student assistance professionals/
programs

School/faith-based drug education
and prevention professionals/
programs

Individuals in recovery

Pain and chronic care patients

Senior citizen associations

FEDERAL/TRIBAL

DEA/DEA agents

High Intensity Drug Trafficking
Areas

Indian Health Service/tribes/tribal
providers

VA/VA providers

Military Health Agency/military
health providers

HEALTH PROFESSIONALS/ ASSOCIATIONS

MDs and DOs (general
practitioners, family practice,
obstetrics, pediatrics, geriatrics,
residents)

Physician’s Assistants

Nurses

Podiatrists

Dentists

Veterinarians

Pharmacists

EMS providers

Addiction treatment specialists

Pain management specialists

Mental health specialists

Epidemiologists and others who
conduct public health surveillance
activities

CROSS-SECTOR COMMITTEE/ COUNCIL/TASKFORCES

PDMP Advisory Committees

Controlled Substances Advisory
Committee

State and local opioid/SUD
Taskforces

Fatality/Mortality Review
Committees

PUBLIC SAFETY & CORRECTIONS PROFESSIONALS/ASSOCIATIONS

Drug Diversion investigators

Prosecutors

Medical examiners

Coroners

Forensic pathologists

Probation/parole officers

Drug court judges/oversight
personnel

Appendix 2: State-by-state statutory or regulatory language

See highlights of state statutory or regulatory language regarding (1) integration or access via health IT (2) storage of PDMP data/report in a medical/health record, or (3) re-disclosure of PDMP data to health care providers or pursuant to HIPAA and other rules governing medical/health information [here](#).

Appendix 3: PDMP Resources

- **BJA's [Comprehensive Opioid, Stimulant, and Substance Abuse Program](#)** (COSSAP) offers financial and technical assistance to states to support overdose response efforts. BJA also offers the [Harold Rogers Prescription Drug Monitoring Program](#) grant to support state addiction response efforts.
- **The [Prescription Drug Monitoring Program Training and Technical Assistance Center](#)**, supported by BJA's COSSAP, offers assistance to states to bolster the effectiveness of their PDMPs.
- In 2017, **SAMHSA** published [Prescription Drug Monitoring Programs: A Guide for Healthcare Providers](#).
- **The CDC** provides funding to states to support overdose response efforts through [Overdose Data to Action](#). CDC also provides an [explainer](#) on the benefits of PDMP utilization.
- **CMS** published [answers](#) to several frequently asked questions about SUPPORT Act funding.
- **ONC** provides a range of policy resources to support states in the [Opioid Epidemic & Health IT section of its Health IT Playbook](#).

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