

Prescription Drug Monitoring Program

Recommendations for Best Practices on Dispenser Compliance and Data Integrity

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Executive Summary

Complete and accurate prescription drug information is vitally important to support efforts to reduce the incidence of prescription drug misuse and diversion. Health care providers (prescribers and dispensers) have a vested interest in ensuring that quality data are transmitted to and available from prescription drug monitoring programs (PDMPs). In January 2022, the PDMP Training and Technical Assistance Center (TTAC) convened a work group, comprised of PDMP administrators, to examine the issues surrounding prescription data, including timely transmission, identification of errors, and processes to ensure errors are corrected. The work group examined promising practices for PDMPs in identifying the dispensers required to transmit prescription data, effective ways to monitor dispensers' compliance, and how to provide dispensers with information about what data should be transmitted and how. The work group also examined where data errors may potentially occur and how PDMPs may identify the errors and processes to ensure timely corrective actions. This report details the areas where prescription data errors may occur, some procedures PDMPs employ to detect those errors, and steps to ensure that the erroneous data are corrected. In addition, it provides suggestions for prescribers, dispensers, and other stakeholders to prevent data errors from occurring. The report has three major sections: (1) Data Submission Compliance, (2) Data Quality, and (3) Error Remediation.

Data Submission Compliance

While the majority of dispensers transmit prescription data in accordance with a PDMP's requirements, there are some dispensers who do not. To maintain and provide a complete prescription history for authorized PDMP users, PDMPs must ensure that all the dispensers required to transmit prescription data do so in accordance with the laws of their respective states, districts, territories, or commonwealths (SDTCs). PDMPs have several sources (SDTC and federal) of information available to them or their data collection vendor to identify dispensers. This information exists within their agency or with the licensing authority. In cases where the PDMP allows exemptions to or waivers from electronic reporting of prescriptions, it is important to have procedures and policies in place to enable dispensers to request such exemptions or waivers and a process by which the PDMP can monitor the statuses of exempted or waived dispensers. This section examines other reasons why dispensers fail to submit data, including technological issues, lack of knowledge concerning procedures or requirements, or intentional noncompliance. Recommendations are included on several practices to maximize compliance such as validating data transmissions, transmitting data to the PDMP daily unless real-time transmission is required, testing licensees' knowledge of applicable statutes and regulations, and comparing data from pharmaceutical drug distributors to dispenser records transmitted to PDMPs.

Data Quality

Unintentional data errors may occur anywhere in the process of prescribing or dispensing a reportable medication. Prescription data errors may be the result of a prescriber's illegible handwriting, data entry errors at the pharmacy, or procedural flaws, to name a few. Common errors are broken down into four categories of information (patient, medication, prescriber, and dispenser) and three types of errors (minor, serious, and fatal). PDMPs have processes in place to identify errors before the prescription records become part of the PDMP database. This section explains in detail the most common prescription errors, the data quality checks to identify those errors, and actions that stakeholders can take to reduce their incidence.

Error Remediation

Identifying the errors is only a part of the process of ensuring that PDMPs have complete, accurate information. PDMPs have the responsibility to have in place a system that informs dispensers of the errors, details how to correct them, and monitors corrections. The policies and procedures in error remediation must facilitate the ability of the dispenser to clearly understand whether the error is with a single record, a series of records, or an entire data file. The instructions to the dispenser about correcting the errors must be precise and clear. This section details promising practices in the error notification and tracking of error corrections processes. It concludes with suggestions and methods to improve the efficiency of these processes.

Introduction

PDMP information can be utilized for public health, regulatory compliance, criminal investigations, intervention and prevention programs, and research and educational purposes. PDMPs are experiencing an increase in usage due to the increased awareness of PDMPs' effectiveness, mandatory PDMP usage statutes, and integration of PDMP reports into electronic health records and pharmacy management systems. Currently, there are 50 SDTCs with legislative action requiring prescribers or dispensers to request a PDMP report on their patients or make PDMP data an established part of medical practice.¹ Therefore, it is imperative that prescribers, dispensers, and PDMPs make every effort to ensure the prescription information is complete, accurate, and current. Stakeholders who request or are proactively provided (unsolicited reports) PDMP reports must be assured that the best possible data have been collected and a PDMP has taken appropriate steps to ensure the data's accuracy. PDMP reports play an increasingly important role in the care a patient receives from a prescriber or a dispenser. Drug courts rely on PDMP reports to assist in determining a participant's compliance, and regulatory boards depend on the data to help determine if a medical provider is meeting the standards of practice. Data reliability and accuracy become even more challenging as PDMPs reduce their reporting frequency to 7 days, 24 hours, or at the point of sale.

PDMP TTAC convened a work group to examine and identify effective processes employed by PDMPs and suggest enhanced processes that PDMPs may use to manage data compliance and ensure data integrity. The work group consisted of PDMP representatives from Kentucky and Montana. Topics of discussion included:

- Identifying processes to ensure data submission compliance.
- Identifying common data problems.
- Identifying processes for error remediation.

This report is the result of the work group's efforts and a previous panel's research in 2014. The 2014 work group consisted of representatives from Kentucky, Maine, Maryland, Texas, and Washington, as well as participation by researchers from Brandeis University. This revised report is intended to (1) provide techniques and policies PDMPs may wish to consider employing as they strive to provide quality prescription information to their authorized users and (2) detail suggested practices for prescribers, dispensers, and other

¹ Data from the PDMP Training and Technical Assistance Center, 2021 PDMP Assessment, <https://www.pdmpassist.org/Policies/Maps/PDMPolicies>

stakeholders to reduce the incidence of data errors. The report includes two appendices: Summary of Recommended Practices and Data Resources Links.

Section I—Data Submission Compliance

Dispensers are required by law to send controlled substance prescription information to a PDMP. There are 41 SDTCs that require reporting medications to their PDMP that are not federally scheduled or noncontrolled medications and 40 SDTCs that require reporting even when no reportable medications are dispensed (also known as a zero report). Oklahoma is currently the only PDMP that requires real-time transmission, and 49 PDMPs (91%) require daily transmission, 3 PDMPs (6%) every 2 to 7 days, and 1 PDMP (2%) has a transmission requirement greater than 7 days.² Nationally, there are approximately 71,000 pharmacies registered with the Drug Enforcement Administration (DEA) to dispense controlled substances.³ It is incumbent upon each PDMP to ensure resident and nonresident dispensers are transmitting data within the timeframes required by SDTC laws. This section describes techniques to identify dispensers, determine compliance, and propose practices to increase the compliance rate.

Identifying Dispensers

The first step to determine compliance is to identify the population of licensed dispensers who are required to transmit data to the PDMP. The term “dispensers” includes pharmacies that dispense reportable medications and may also include prescribers that dispense reportable medications directly to their patients. In some SDTCs, certain pharmacies may be exempt from transmitting information to the PDMP. This may include pharmacies that dispense medications to nursing home residents, methadone clinics, or pharmacies that are part of a correctional facility or system. Pharmacies are licensed by a licensing agency (board, health, consumer protection, etc.) in the SDTC where the pharmacy is located. In many cases, pharmacies must also be licensed in each SDTC into which they dispense medications (e.g., mail order pharmacies). In addition, there are 50 PDMPs that require prescribers who dispense controlled substances from their offices to transmit prescription data to the PDMP.⁴ All controlled substance medication dispensers must have a valid DEA controlled substances registration and, in some SDTCs, a valid board license number or National Provider Identifier (NPI).

It is important to note that the DEA does not issue a registration without a dispenser providing proof that they are first licensed in an SDTC. This fact plays an important role in PDMPs monitoring dispensers’ compliance. Due to the DEA policy of requiring SDTC licensing first, this may, at times, result in gaps between when a dispenser is licensed by an SDTC and when a DEA registration is issued. It is possible to have a dispenser listed in the SDTC licensing file and not in the DEA registrant file. For example, it is possible to have a dispenser close or a location have a change in ownership. The information could be updated in the SDTC licensing file before the DEA updated its files. Therefore, it is important for the PDMP to use both SDTC licensing files and DEA registrant files to ascertain the current status of a particular dispenser and to obtain

² Data from the PDMP Training and Technical Assistance Center, 2021 PDMP Assessment, <https://www.pdmpassist.org/Policies/Maps/PDMPPolicies>

³ Data from the DEA, Office of Diversion Control, Registrant Population by State and Business Activity, <https://apps.deadiversion.usdoj.gov/RAPR/raprRegistrantPopulationByStateAndBusinessActivity.xhtml#no-back-button>

⁴ Data from the PDMP Training and Technical Assistance Center, 2021 PDMP Assessment, <https://www.pdmpassist.org/Policies/Maps/PDMPPolicies>

continuous updates. When a PDMP uses a vendor to monitor dispenser reporting requirements, the PDMP must ensure the vendor is utilizing the most current information available. PDMPs can contact the appropriate SDTC licensing agency and the DEA to obtain a current copy of the licensees/registrants. Ideally, an online, real-time connection to the SDTC license/DEA registration files should be established. The SDTC license/DEA registration files can be matched against the records transmitted by the dispensers for a certain timeframe to create a list of dispensers that did not transmit data to the PDMP.

Possible Causes for Noncompliance by Dispensers

The overwhelming majority of dispensers comply with PDMP requirements and transmit data to a PDMP on schedule. Nontransmission or late transmission of data may be explained by several factors, including the following.

Exemptions or Waivers: It should be noted that not every licensed or registered dispenser is required to report data to a PDMP. As previously mentioned, many SDTCs have statutes/regulations to waive or exempt certain dispensers from reporting in the manner specified by statute under certain conditions. These conditions typically include health system pharmacies, correctional facility dispensaries, veterinarians, pharmacies that do not dispense reportable medications or dispense below a certain amount, and dispensers who are unable to electronically transmit prescription data. A PDMP waiver should only be issued for a certain period or until such time the condition for which the waiver was issued no longer exists.

Technology: Technical problems, either at the dispenser, the vendor, or the PDMP, sometimes prevent the transmission of data to the PDMP or the receipt of data by the PDMP. These problems may include computer crashes, server connectivity issues, power failures, etc. Some dispensers may not be aware that their data have not been transmitted or received due to software issues.

Knowledge: Dispensers' failures to comply with the reporting requirements, at times, may be related to a lack of knowledge of the law or regulations. This is particularly true with a new pharmacy or practitioner or an out-of-SDTC pharmacy that is required to report to a PDMP in the SDTC where the patient resides. In addition, there can be confusion on when the prescription data should be reported to the PDMP because of a misunderstanding of or ambiguity about the date sold, date dispensed, and date filled fields in some statutes or regulations.

Willful Noncompliance: There are unscrupulous dispensers, albeit a very small number, that willfully do not transmit data or transmit partial data to the PDMP because they are engaged in unlawful and harmful activity (i.e., prescription fraud, dispensing prescriptions from a pill mill, Medicaid fraud, practicing without a valid license) or do not feel obligated to report.

Recommended Practices for Maximizing Compliance

Exemptions or Waivers:

- PDMPs should have written guidelines detailing the exemption/waiver processes. These guidelines should be reviewed by the PDMP's legal office and should be made known to the pharmacy community and the SDTC's regulatory boards.
- If a dispenser is exempted or has a waiver, the PDMP guidelines should set a time limit for when the exemption/waiver is valid. For example, the PDMP should require that the dispenser reapplies for an exemption/waiver every year or in conjunction with their license renewal.
- A PDMP, by policy or regulation, should require the dispenser to notify the PDMP if their status changes, thus making them (the dispenser) no longer eligible for the exemption/waiver.
- The validity of the dispenser's reasons for obtaining an exemption/waiver should be independently confirmed by the agencies that have the authority to perform inspections at a dispenser's location or by PDMP staff members. This should occur before the exemption/waiver is issued and at least once during each exemption/waiver period. For example, if a waiver or exemption is requested because the dispenser does not dispense reportable medications, a reasonable effort should be made to inspect the premises or request sales records to verify that fact.

Validation of Data Transmission:

- A PDMP should encourage its dispensers to compare the number of records transmitted to the number of records successfully received by the PDMP or its vendor. Discrepancies in these numbers should be reported to the PDMP or its vendor in a timely manner for resolution.
- PDMPs should send a compliance report to the dispensers, summarizing the records submitted. At a minimum, these reports should include the number of records transmitted, the number of records accepted, the number of errors, and the number of outstanding errors to be corrected.
- Dispensers, if allowed by the PDMP, should be encouraged to routinely (e.g., quarterly) query the PDMP for a listing of prescriptions that have been dispensed from their location to compare to their internal records.

Technology

- Test transmissions should be performed following any change/modification to software or hardware by the dispenser, PDMP, PDMP software vendor (if applicable), or dispenser-system vendor.
- PDMPs vary in their transmission frequency requirement; however, none prohibit transmitting data in a shorter timeframe. To avoid instances of late reporting, dispensers should transmit the required data to the PDMP every night unless there is a requirement to report data in real time. Many dispensers program their systems to comply with the requirements of the law and may not be aware of the ability to transmit data daily. PDMPs should inform dispensers of this and include it in their brochures and outreach materials.

Knowledge:

- PDMPs and licensing/regulatory agencies should provide detailed information concerning any changes to existing statutes/regulations that impact a dispenser’s practice well in advance of the changes being enacted. A good policy is to notify all dispensers registered to report to the PDMP as well as the pharmacy system vendors and chain pharmacies. The information could also be compiled and included with license renewals.
- PDMPs and licensing/regulatory agencies should have links on their respective websites to full-text versions of current statutes/regulations.
- PDMPs should have links on their websites to the technical specifications for transmitting prescription information.
- PDMPs should provide guidance on data field definitions, particularly the date sold, filled, and dispensed fields, and when a prescription is required to be reported.
- Articles, frequently asked question (FAQ) documents, instructional guides, and/or training modules providing real-world scenarios should be made available to dispensers on the interpretation and application of statutes/regulations/rules/administrative policy. These can be provided as inserts with registration applications or renewals, presented during conferences, included in newsletters or through mass distribution, or recorded and linked to appropriate agency websites. PDMP TTAC has several [guidance documents](#) that may assist in the development of these resources.
- PDMPs should work with their licensing/regulatory agencies to include licensee testing on current statutes/regulations as a requirement to obtain or renew a license.
- PDMPs should make every effort to present at professional conferences or submit articles to professional organizations’ newsletters.

Willful Noncompliance:

- Agencies with the legal authority to inspect dispenser locations should obtain a PDMP report on the dispenser’s prescription history to use as a reference guide when performing audits or inspections. PDMPs should strive to foster a collaborative relationship with such licensing/regulatory agencies and provide training on PDMP reports that are available to such agencies and how to best utilize the reports to carry out their responsibilities.
- PDMPs, if allowed, should obtain a list of controlled substances that have been ordered by a dispenser from the DEA (Automation of Reports and Consolidated Orders System or ARCOS data), drug manufacturers, and drug distributors and compare it to the dispensing history within the PDMP’s database. There are 13 PDMPs currently requiring such reports.⁵ Several PDMPs require licensed distributors to report all the sales of controlled substances made to pharmacies, health care facilities, and practitioners. If a PDMP does not have such authority, it should request assistance from the SDTC agency that does.

⁵ Data from the PDMP Training and Technical Assistance Center, 2021 PDMP Assessment, <https://www.pdmpassist.org/Policies/Maps/PDMPPolicies>

- PDMPs should consider cross-checking the date the prescription was dispensed to the patient with the date the prescription was transmitted to identify the dispensers who reported outside the statutory timeframe.
- PDMPs should review a dispenser’s data transmission history for a given period to reveal gaps in transmitted data, statistically significant variations in the number of records sent per transmission, and anomalies in dispensing trends to identify potential compliance issues.
- PDMPs should have a published process for authorized recipients of PDMP reports to report missing data to the PDMP for investigation.
- PDMPs should report any suspected administrative or criminal violations by a dispenser to the appropriate licensing/regulatory and/or law enforcement agency, if allowed under the SDTC’s statutes/regulations.
- PDMPs and licensing/regulatory agencies should have links on their respective websites detailing the consequences of noncompliance.

Section II—Data Quality

The data transmitted to PDMPs originate from prescriptions that may be handwritten, electronically prescribed, or telephonically (e.g., voice, facsimile) communicated by prescribers or their staff to the pharmacy. Consequently, errors may be unintentionally introduced during the process of prescribing or dispensing the prescription. The likelihood of errors increases when the written prescription information is incomplete, inaccurate, or illegible, resulting in the possibility of misinterpreting the prescription information. To alert and inform prescribers and dispensers about potential medication errors, The Joint Commission developed a “Do Not Use” list, which identifies medical abbreviations that prescribers should not use when writing prescriptions.⁶ The Joint Commission is a global driver of quality improvement and patient safety in health care. In addition, the Institute for Safe Medication Practices published *the ISMP List of Error Prone Abbreviations, Symbols, and Dose Designations*.⁷

Errors may also occur when entering prescription data into the pharmacy system for subsequent transmission to a third-party payer, if applicable, and the PDMP. For example, many pharmacy systems use a “pick list.” Simply put, a pick list is an alphabetical list of names from which to select the prescriber or patient; once selected, the system automatically inputs the information into the system. Although the use of pick lists saves the dispenser a tremendous amount of time, errors may occur. The information on the pick list may not contain the most current information (i.e., a patient’s address) or, in some cases, the wrong name is selected, resulting in a different patient or prescriber being associated with that prescription.

⁶ “Do Not Use List,” The Joint Commission, https://www.jointcommission.org/-/media/tjc/documents/resources/patient-safety-topics/patient-safety/do_not_use_list_9_14_18.pdf, (September 14, 2018)

⁷ *List of Error Prone Abbreviations, Symbols, and Dose Designation*, Institute for Safe Medication Practices, <https://www.ismp.org/recommendations/error-prone-abbreviations-list>, (February 5, 2021)

Common Data Errors

The quality of data eventually sent to a PDMP is dependent on the accuracy and completeness of the information provided by the dispenser. Generally, the information transmitted to a PDMP is the result of manual data entry by a pharmacist or pharmacy technician of prescriptions that are handwritten or transmitted by a prescriber or a prescriber's staff member. Furthermore, there are times when data are entered in the wrong field (i.e., the date when a prescription is filled or dispensed may be accidentally placed in the patient date of birth [DOB] field). Considering the thousands of data elements most pharmacies record daily, the data provided to a PDMP are usually of good quality. However, there is room for improvement and a necessity to consciously ensure accurate information as even the slightest error or omission may impact how a patient receives care. This section identifies the most common errors in PDMP data, lists methods used by PDMPs to discover the errors, offers possible causes, and proposes practices to reduce or eliminate error occurrence.

Information on a prescription may be categorized into four main informational groups: (1) patient, (2) medication, (3) prescriber, and (4) pharmacy. Data errors may be found in one or more of these informational groups and can be introduced when the prescription is issued or dispensed. Following are the most common possible errors for each of the four informational groups.

Patient Information

In most SDTCs, patient information on a prescription consists of their first and last name, their complete address, their DOB, and their patient identification number (e.g., driver's license, military identification). Following are examples of possible data errors:

- *Patient's first and last name:*
 - Illegible patient name
 - Variations in the form of the first name (e.g., James, Jimmy, Jimmie, Jim, J)
 - Use of a nickname instead of the legal name
 - Use of an animal's name instead of the owner's first name on a veterinary prescription
 - Hyphenated last names entered as a middle and last name or transposed
 - Use of maiden names in last name field
 - Use of assumed/professional names (e.g., celebrities)
 - First, middle, and last names entered out of order
 - Miscellaneous notes, titles, or suffixes inserted in the name field
 - Typographical errors

- *Address of the patient:*
 - Illegible or missing address, city, SDTC, and/or zip code
 - Variations in street name abbreviations (e.g., Avenue or Ave; Street, St, or Str; 2nd or Second; Route, Rte, or Rt)
 - Inconsistencies in address reporting (e.g., PO Boxes, Routes)
 - Lack of guidance on address -reporting for homeless patients
 - Incorrect zip code
 - Typographical errors

- *Date of birth:*
 - Illegible, missing, or invalid date
 - Use of prescription issued or filled date
 - Transposing date values (e.g., MM/DD/YY, YY/MM/DD, or DD/MM/YY)
 - Use of date of injury or date of claim
 - Typographical errors

- *Patient identification number:*
 - Illegible or missing identification numbers
 - Made-up identification numbers
 - Mislabeled type of identification
 - Invalid form of acceptable identification
 - Use of a different form of identification on separate prescriptions
 - Typographical errors

Medication Information

The medication information consists of the medication's name, the strength, the dosage form, the National Drug Code (NDC), the quantity, and the number of days supplied for the dispensed medication. The medication, the strength dosage form, and the quantity with instructions for administration are provided by the prescriber. Based on the information from the prescriber, the dispenser selects the appropriate NDC and the number of days supplied. Following are examples of possible data errors:

- *Medication name, strength, dosage form:*
 - Illegible medication information
 - Wrong medication identified
 - Medication not available in listed strength and/or dosage form

- *NDC:*
 - Invalid NDC (i.e., NDC entered at the pharmacy as all 1s or 9s, discontinued NDC)
 - Missing NDC for ingredients in a compounded prescription
 - Typographical errors

- *Quantity:*
 - Illegible, missing, or invalid quantity (e.g., the quantity entered as 300 rather than 30)
 - Mislabeled unit of measure (i.e., grams vs. milligrams or micrograms vs. milligrams)
 - Incorrect quantity of compounded medications

- *Days supplied:*
 - Number of days inappropriate for quantity dispensed
 - Instructions for administration or number of days are not clear

Prescriber Information

All SDTCs and federal law require certain prescriber information to be on a prescription for a controlled substance. This includes the prescriber's name, address, telephone number, and DEA registration number, or in some cases, a National Provider Identifier (NPI) number. In addition to the DEA registration, some SDTCs have their own controlled substances registration and require that to be on the prescription as well. The prescriber information sent to PDMPs, in most cases, consists only of the DEA controlled substance registration number and the date the prescription was issued/written. However, it can also include a DEA "suffix" when the prescriber is a resident or intern prescribing under a hospital's authority using the institution's DEA number. One common error occurs when a pharmacist is presented with a prescription from a group practice. These prescriptions may have the names of many prescribers who are in a particular practice. If the prescriber fails to denote or check that they are issuing the prescription and the pharmacist is unable to decipher the signature, the pharmacist is forced to contact the office to identify the correct provider or, when that option is not available, the pharmacist must make an educated guess as to which prescriber issued the prescription. Following are examples of possible data errors:

- *Registration number (i.e., DEA, NPI, state registration number):*
 - Illegible, missing, or invalid registration number
 - A fake, fraudulent, or stolen registration number
 - Expired registration number
 - Use of the incorrect DEA number when the prescriber has more than one DEA number (i.e., more than one practice address in the SDTC, registration in other SDTCs, or X DEA number for medication-assisted treatment (MAT))
 - The registration number used is not the correct number associated with the prescriber
- *Date issued/written:*
 - Illegible, missing, or invalid date
 - Date issued/written after the date filled/dispensed
 - Transposing date values (e.g., MM/DD/YY, YY/MM/DD, or DD/MM/YY)
- *DEA suffix (a unique number assigned to a resident/fellow by the institution where they are training):*
 - Illegible, missing, or incorrect DEA suffix

Pharmacy Information

The pharmacy information required to be on a prescription consists of the pharmacy's DEA controlled substance registration number, or in some cases, an NPI number, the date the prescription was filled/dispensed, and the Rx number assigned by the pharmacy to the prescription. Following are examples of possible data errors:

- *Registration number (i.e., DEA, NPI, state registration number):*
 - Missing, invalid, or expired registration number
 - The registration number used is not the correct number associated with the pharmacy

- *Date filled/dispensed/sold:*
 - Missing or invalid date
 - Date issued/written after the date filled/dispensed
 - Transposing date values (e.g., MM/DD/YY, YY/MM/DD, or DD/MM/YY)

- *Rx number:*
 - Missing Rx number

Common Data Transmission Errors

In addition to errors within the data, there may also be technical errors caused during data transmission from the pharmacy to the PDMP. Following are examples of possible data errors:

- Duplicate prescriptions reported by a dispenser
- Prescriptions filled for an out-of-state patient are reported to the PDMPs where the dispenser and patient are located
- Multiple transmissions of the same data file
- Transmission of a corrected prescription mislabeled as a new prescription
- Prescription data are transmitted even though the prescription is not dispensed to the patient
- Incorrect refill number
- Data format errors (i.e., invalid field terminators, field segment separators, invalid American Standard Code for Information Interchange [ASCII]) characters that may or may not be caught during parsing and validation
- Invalid or missing data validation rules

Identification of Errors

PDMPs have instituted processes into their programs to minimize errors. The processes include identifying errors, dispenser notifications, and policies and procedures to correct errors. A common PDMP practice is that during transmission from the dispenser to the PDMP, a series of data quality checks are performed before the prescription information is added to the PDMP's database. If an error is identified, PDMPs, or their vendors, communicate with the reporting dispenser and request that the dispenser resubmit the record for correction or the entire file, as appropriate. Legal issues typically preclude PDMP staff members from making corrections themselves; therefore, the preferred practice is to have the dispenser make the correction and resubmit the record. Fifty-two of the operational PDMPs contract with a data collection vendor, and two collect the data in-house. Regardless of the entity collecting the prescription data, all data should be processed through a validation process. It should be noted that in most validation processes, a prescription record does not have to successfully pass every validation check to be loaded into the PDMP database. For example, incorrect, missing, or inappropriate data (e.g., invalid DOB, invalid issue or dispense date, invalid days' supplied, invalid number of refills authorized) could be uploaded into the PDMP with the transmitter(s) notified of the error and incorrect data in a vital field, or the entire data file could contain a large number of errors (e.g., NDC is invalid, pharmacy DEA is blank or invalid, patient name is blank) and would not be uploaded in the PDMP; the data are rejected and sent back to transmitter(s). It is important to note that PDMPs and vendors do not necessarily classify data errors the same.

Below is a sampling of data checks that are typically performed for various fields. The data checks performed and the severity of the errors may vary among PDMPs. In addition, the fields required by a PDMP may vary among PDMPs.

Patient Information

- Patient's first and last name—cannot be blank and must be alpha characters
- Complete address of the patient—cannot be blank and the zip code must match the value in the U.S. Postal Service zip code file
- DOB—cannot be blank, must be numeric, and must be a valid date
- Patient identification number—cannot be blank and the ID format must match the ID type

Medication Information

- NDC—cannot be blank and must match the value in the NDC master file, contains no hyphens
- Quantity—cannot be blank and must be numeric (can contain decimal point)
- Days supplied—must be less than 365

Prescriber Information (Controlled Substance Prescriptions Only)

- DEA number—cannot be blank and must match the value in the DEA registration file
- Date issued/written—cannot be blank, must be numeric, must be a valid date, and cannot be after date filled/dispensed
- DEA suffix—no data checks performed

Pharmacy Information (Controlled Substance Prescriptions Only)

- DEA number—cannot be blank and must match the value in the DEA registration file
- Date filled/dispensed—cannot be blank, must be numeric, must be a valid date, and cannot be before the date issued/written
- Rx number—cannot be blank

Despite the validation checks performed by PDMPs on the prescription data sent by pharmacies, errors in the data may still exist after a prescription record is loaded into the PDMP database. For example, a pharmacy may enter the wrong provider, the wrong quantity (e.g., 100 rather than 10), the wrong dispensed date, or an incorrect date for the prescription was written. These errors may not be detected through the quality check system and may be subsequently identified in other ways:

- Additional quality checks performed by a PDMP
- Detection of incorrect or inaccurate information by recipients of PDMP reports
- Audit of pharmacy records by an authorized regulatory agency
- Investigation into regulatory compliance or criminal violations
- Use of business intelligence (BI) or validation tools to check for missing or invalid entries and “outlier” or “out of range” values

Recommended Practices for Minimizing Errors

The responsibility of transmitting prescription data rests upon the dispenser (e.g., pharmacy or dispensing practitioner); however, the prescriber plays a significant role in ensuring that the prescription data are complete and accurate. Below are some actions that can be taken by the prescriber, dispenser, and other stakeholders to improve the quality and integrity of the prescription data.

Dispensers

- Request a dispenser history report from the PDMP to compare the information from the prescription to the information received by the PDMP. If discrepancies are identified, take the appropriate corrective action.
- Electronic prescribing of controlled substances (EPCS) is permitted under federal law. Dispensers should take the necessary steps to allow the receipt of electronic prescriptions from prescribers to reduce the incidence of typographical errors and data misinterpretations.
- Modify the data entry screens to require confirmation of key fields (e.g., prescriber DEA registration numbers, medication NDC).
- Enhance pharmacy software systems to perform data quality checks prior to the transmission of data to the PDMP. The checks should match, or be similar to, the ones that PDMPs or their data collection vendors utilize to identify common mistakes at the source (e.g., missing or invalid data, incorrect formatting for a data field). In addition, the checks should flag “outlier” values (e.g., the prescriber's zip code is not in the same geographic area as the patient's zip code; medication quantity exceeds the typical amount for days supplied).
- Ensure that the appropriate fields are entered when refilling a prescription (ASAP field DSP06) or partially filling a prescription (ASAP DSP13).
- Ensure that all controlled substances on a compounded prescription are reported.
- Minimize the use of abbreviations in patient address fields or, when using abbreviations, ensure they follow the standard set by the U.S. Postal Service.
- Enhance pharmacy software systems to automatically fill in the city and SDTC based on the zip code.
- Use only the most current NDC, NPI, and DEA registration files as a cross reference; ideally, establish a real-time link to those files.
- Require the transmission of the X DEA number when reporting on prescriptions issued for MAT.
- To avoid errors in which data fields are transmitted to a PDMP, dispensers should transmit all the available data fields. Although PDMPs vary in the data fields they collect, all PDMPs are capable of receiving all data fields. The PDMPs may only load the fields that are specified in their statutes or regulations.
- Original Rx numbers should be automatically generated and unique for each prescription at each pharmacy.
- Patient information should be confirmed as current prior to its transmittal to the PDMP. Dispensers should request positive identification of the patient to ensure that it matches the information on the prescription or the dispenser's patient files.
- Any information that is questionable should be verified with the prescriber prior to dispensing the medication or transmitting the information to the PDMP.

- Avoid the use of hidden or invalid ASCII characters in a PDMP file. Some common ASCII characters can cause problems in a medication record.

Prescribers

- Request a prescriber history report from the PDMP to compare the information from the prescription to the information received by the PDMP. If discrepancies are identified, take the appropriate corrective action.
- EPCS is permitted under federal law. Prescribers should take the necessary steps to implement the use of electronic prescriptions to reduce the incidence of typographical errors and misinterpretation by the dispenser and decrease opportunities for fraudulent or altered prescriptions.
- If electronic prescribing is not a viable option, the prescriber should employ software to print the allowable information on the prescription.
- If neither of the above is an option, then the prescriber should write the required information legibly.
- Minimize the use of abbreviations in patient address fields, or when using them, ensure they follow the standard set by the U.S. Postal Service.
- Avoid the use of nicknames for patients.
- Patient information should be confirmed prior to issuing a prescription. Prescribers should request positive identification of the patient to ensure that it matches the information in the prescriber's patient files.
- Prescriber contact information should be included on the prescription to facilitate communication from the dispenser, if necessary.
- Include legible, precise instructions for the medication's use.

Other Stakeholders

- The DEA is responsible for issuing federally controlled substance registration numbers. The DEA should ensure that the registration information is updated daily when changes to a registrant's status have occurred. The registration file should be made available to appropriate stakeholders (e.g., dispensers, PDMPs) through a download or link to a real-time website.
- The DEA may consider modifying its registration file format to allow separate fields for professional degrees, specialties, and name suffixes.
- The Centers for Medicare and Medicaid Services (CMS) is responsible for maintaining the NPI file. NPI is a unique identification number for covered health care providers. Covered health care providers and all health plans and health care clearinghouses must use NPIs in the administrative and financial transactions adopted under the Health Insurance Portability and Accountability Act (HIPAA). The CMS should ensure that the information is updated when changes occur.
- The CMS and the DEA should develop a crosswalk between the DEA's registration file and CMS's NPI file and make it available to appropriate stakeholders through a download or link to a real-time website.

- The U.S. Food and Drug Administration (FDA) is responsible for assigning NDCs to pharmaceuticals. In some cases, the FDA issues a range of NDCs to a pharmaceutical manufacturer which assigns the NDC to one of its medications and, subsequently, notifies the FDA. The FDA should maintain a listing of all NDCs in use and make the entire list available to appropriate stakeholders (e.g., dispensers, PDMPs) through a download or link to a real-time website.
- Pharmaceutical manufacturers are required by law to proactively inform the FDA of all NDCs assigned to their medications.
- When a new medication is made available, the manufacturers should consider notifying the appropriate stakeholders (e.g., dispensers, PDMPs, data collection vendors, the FDA) of the NDC prior to the medication's distribution.
- PDMPs should provide detailed guidance on the data elements, formats, and procedures for reporting.

Section III—Error Remediation

For PDMPs to have the most impact on the prescription misuse and diversion problem and to support efforts in treatment, education, and research, it is imperative that the data sent to authorized users be as accurate as possible. Despite great strides made toward data quality, some erroneous information will be transmitted to PDMPs. It is, therefore, necessary that proper policies and procedures be in place to identify and correct erroneous information. Ultimately, it is the responsibility of the dispenser to ensure the accuracy of the prescription information as part of the dispenser's professional responsibilities and in compliance with the intent and spirit of the law. In instances where an error occurred in a past transmission and the person (e.g., pharmacist in charge) making the submission error is no longer available, the requirement to correct the error lies with the person currently responsible for the records. PDMPs also have the responsibility to ensure that policies and procedures are in place for timely notification and correction of erroneous data. Notifying a dispenser about which errors need correction is only half of the solution. Processes need to be implemented to ensure that the corrections are made and the PDMP database is updated appropriately and in a timely manner. This section will detail some of the current processes PDMPs employ to notify the dispenser of an error and track error resolution. In addition, this section proposes practices to facilitate these processes to increase efficiency.

Error Notification Process

Regardless of whether data are transmitted to the PDMP directly or through a data collection vendor, dispensers are almost immediately notified when serious or fatal errors are identified or records are rejected. With most PDMPs, the dispensers are sent an electronic message via the data transmission portal informing them of the problem and detailing that there are errors with a single record, series of records, or the entire data file. The dispenser is instructed to make the necessary corrections and retransmit the corrected prescription records through the data transmission portal.

In some cases, PDMPs that receive prescription data directly from the dispensers do not have the ability to notify dispensers of errors or rejected records via a data transmission portal. Those PDMPs will notify the dispenser with instructions to remedy the problem. Prescription errors identified in the data transmittal process or discovered through subsequent review by the PDMP or some other means are made known to

the dispensers. After making the necessary corrections, the dispenser retransmits the corrected prescription records through the data transmission portal or sends the corrections via an alternative method.

It is important to note that many of the national chain pharmacies send their prescription records to a central, corporate database from which the records are transmitted to the appropriate PDMPs. Consequently, error notifications are often routed to the transmitting location instead of the dispenser's location. If errors cannot be resolved at the central, corporate level, then the error notifications are forwarded by the corporate location to the dispenser's location to remedy.

Error Tracking

The common practice among PDMPs is that every prescription transmitted to a PDMP undergoes a series of validation checks prior to being uploaded. The prescription records that fail to pass any of these checks are annotated with an error message. Depending on the severity of the error, the record is either rejected (all fatal and some serious errors) or uploaded (all minor and some serious errors).

When a record is rejected, a log file is created containing the prescription information, the error notation, and the date the record was returned to the transmitting location. The log file is routinely reviewed, either by the PDMP staff or the data collection vendor, to ensure that rejected prescriptions are corrected and retransmitted to the PDMP within the required timeframe. The dispenser makes the corrections and updates the transaction header of the prescription record to reflect that the transmission is an error correction. If the error is corrected in the data transmission portal, then the record is automatically removed from the error log. If an alternative method is used, then the error log is manually updated.

In some cases, records containing minor errors are uploaded. However, the errors are resolved by the PDMP staff as time and resources allow. Typically, this involves contact with the dispenser using electronic or written communication detailing the issue and the manner and timeframe for correction. The dispenser makes the corrections and updates the transaction header of the prescription record to reflect that the transmission is an error correction. The error log is manually updated.

Recommended Practices for Error Remediation

PDMPs

- Maintain accurate contact information for individual dispensers, vendors, and chain pharmacies.
- Promptly notify dispensers when errors are discovered, preferably by electronic means.
- Send error notifications to both the dispenser and transmission location if they are not the same.
- Provide sufficient information about the prescription record and problem to the dispenser to assist in locating the record and remedying the issue.
- Notify dispensers of their requirements under the statute or regulation to correct erroneous information and the possible consequences for failing to meet those requirements (i.e., administrative fines, criminal charges, sanctions on their license).
- Maintain an electronic file on error notifications that identifies the dispenser, the prescription, and the error type.
- Develop a program that automatically generates a listing of past-due error notifications.

- Maintain an electronic file on errors corrected that identifies the dispenser, the prescription, the original information, the updated information, the date the record was corrected, and who made the correction(s).
- Maintain an electronic file listing the dispensers with the number of errors for each reporting period, the most common errors made, the average timeframe to resolve errors, and the number of unresolved errors.
- Use the files listed above to create training sessions or educational packets on common errors for dispensers.
- Notify the appropriate SDTC authority of dispensers that have a history of excessive errors or failures to correct errors within the specified timeframe.

Dispensers

- Promptly correct errors when notifications are received from the PDMP or the data collection vendor.
- Verify that corrections were accepted and error notification records were appropriately updated.
- Process corrections electronically, if possible.
- Use PDMP error notifications to identify common errors and take steps to prevent future occurrences of similar errors such as conducting staff training, changing business procedures, making software modifications, etc.
- Maintain an electronic file on the records that have been corrected, noting which records were corrected, the corrections made, the date the error notifications were received, the date the records were corrected and sent to the PDMP, and the name of the person making the corrections.

Vendors

- Promptly notify dispensers when errors are discovered electronically, if possible.
- Send error notifications to both the dispenser and transmission location if they are not the same.
- Provide sufficient information about the prescription record and problem to the dispenser to assist in locating the record and remedying the issue.
- Develop a program that automatically generates a listing of past-due error notifications and alerts the PDMP and dispenser of these issues.
- Prescription errors should stay on the error report until corrected.
- Provide a weekly electronic report to the PDMPs on error notifications that include the identity of the dispenser, the prescription, and the error type.
- Provide a weekly electronic report to the PDMPs on errors corrected that include the identity of the dispenser, the prescription, the original information, the updated information, the date the record was corrected, and who made the correction(s).
- Provide a quarterly electronic report listing the dispensers with the number of errors for each reporting period, the most common errors made, the average timeframe to resolve errors, and the number of unresolved errors.
- Automatically terminate any process that continuously uploads duplicate records without the need for manual intervention.

Conclusion

The importance of PDMPs in addressing this country's prescription drug misuse epidemic has been clearly demonstrated and recognized. The use of substandard data may negatively impact and impede any necessary progress to curb the epidemic. It is therefore vital for stakeholders to access complete, accurate, and current PDMP data. Certainly, the proper assessment of a patient's prescription history is an important concern, and PDMP data are the best resource for that information. It is also vital for regulatory/licensing boards and law enforcement to use this information to ensure prescribers and dispensers are practicing medicine effectively and legitimately and meeting the established standards of care. The use of PDMP data by researchers can help formulate policies and laws for governmental entities. The recommended practices in this guide will enable PDMPs, dispensers, prescribers, and other stakeholders to improve the quality of the prescription data carried by the PDMPs, thus being more dependable for use by all the stakeholders.

Appendix A – Summary of Recommended Practices

STAKEHOLDER	TOPIC	RECOMMENDATION
Dispensers	Data Submission Compliance	PDMPs should encourage a dispenser to compare the number of records transmitted to the number of records successfully received by the PDMP or its vendor. Discrepancies in these numbers should be reported to the PDMP or its vendor in a timely manner for resolution.
		Dispensers, if allowed by the PDMP, should be encouraged to routinely (e.g., quarterly) query the PDMP for a listing of prescriptions that have been dispensed from their location to compare to their internal records.
		Test transmissions should be performed upon any change/modification to software or hardware by the dispenser, PDMP, PDMP software vendor (if applicable), or by dispenser-system vendors.
		PDMPs vary in their transmission frequency requirement; however, none prohibit transmitting data in a shorter timeframe. To avoid instances of late reporting, dispensers should transmit the required data to the PDMP every night; unless there is a requirement to report data in real-time.
	Data Quality	Request a dispenser history report from the PDMP to compare the information from the prescription to information received by the PDMP. If discrepancies are identified, take the appropriate corrective action.
		Electronic prescribing of controlled substances is permitted under federal law. Dispensers should take the necessary steps to allow for receipt of electronic prescriptions from prescribers to reduce the incidence of typographical errors and data misinterpretation.
		Modify the data entry screens to require confirmation of key fields (e.g., prescriber DEA registration numbers).
		Enhance pharmacy software systems to perform data quality checks prior to transmission to the PDMP. The checks should match or be similar to the ones that PDMPs or their data collection vendors utilize to stop common mistakes at the source (e.g., missing or invalid data, incorrect formatting for a data field). In addition, the checks should flag for 'outlier' values (e.g., prescriber zip code not in same geographic area as patient's zip code; medication quantity exceeds the typical amount for days supplied).
		Ensure the appropriate fields are entered when refilling a prescription (ASAP field DSP06) or partially filling a prescription (ASAP DSP13).
		Ensure that all controlled substances on a compounded prescription are reported.
		Minimize the use of abbreviations in patient address fields or, when using them, ensure they follow the standard set by the U.S. Postal Service.
		Enhance pharmacy software systems to automatically fill in the city and SDTC based on the zip code.
		Use only the most current NDC and DEA registration files as a cross reference; ideally, establish a real-time link to those files.
		Require transmission of X DEA number when reporting prescriptions issued for MAT.
		To avoid errors in which data fields are transmitted to a PDMP, dispensers should transmit all the available data fields. Although PDMPs vary in the data fields they collect, they are capable of receiving all data fields. The PDMPs may only load the fields that are specified in their statutes or regulations.
		Original Rx numbers should be automatically generated and unique for each prescription at each pharmacy.
		Patient information should be confirmed as current prior to its transmittal to the PDMP. Dispensers should request positive identification of the patient to ensure it matches the information on the prescription or in the dispenser's patient files.
	Any information that is questionable should be verified with the prescriber prior to dispensing the medication or transmitting the information to the PDMP.	
	Error Remediation	Promptly correct errors when notifications are received by the PDMP or the data collection vendor.
		Avoid the use of hidden or invalid ASCII characters in a PDMP file. Some common data ASCII characters can cause problems in a medication record.
		Verify that the corrections were accepted and error notification records were appropriately updated.
Process corrections electronically, if possible.		
Use PDMP error notifications to identify common errors and take steps to deter future occurrences of similar errors such as staff training, change in business procedures, software modifications, etc.		
Maintain an electronic file on the records that have been corrected, notating which records were corrected, the corrections made, the date the error notifications were received, the date the records were corrected and sent to the PDMP, and the name of the person making the corrections.		

Appendix A—Summary of Recommended Practices (continued)

STAKEHOLDER	TOPIC	RECOMMENDATION
PDMPs	Data Submission Compliance	The validity of the dispenser’s reason to obtain an exemption/waiver should be independently confirmed by the agencies that have the authority to perform inspections at a dispenser’s location or by the PDMP staff. This should occur before the exemption/waiver is issued and at least once during each exemption/waiver period. For example, if a waiver or exemption is requested because the dispenser does not dispense controlled substances, a reasonable effort should be made to inspect the premises or request sales records to verify that fact.
		PDMPs should have written guidelines detailing the exemption/waiver processes.
		If a dispenser is exempted or has a waiver, the PDMP should set a time limit for which the exemption/waiver is valid. For example, the PDMP should require that the dispenser reapplies for an exemption/waiver every year or in conjunction with their license renewal.
		PDMPs, by policy or regulation, should require the dispenser to notify the PDMP if their status changes, thus making them no longer eligible for the exemption/waiver.
		PDMPs should send a compliance report to the dispensers summarizing the records which were submitted. At a minimum, these reports should include the number of records transmitted, the number of records accepted, the number of errors, and the number of outstanding errors to be corrected.
		PDMPs and licensing/regulatory agencies should provide detailed information concerning any change to existing statutes/regulations that impacts a dispenser’s practice well in advance of the changes being enacted. A good policy is to notify all dispensers registered to report to the PDMP and the pharmacy system vendors and chain pharmacies. The information could also be compiled and included with license renewals.
		PDMPs and licensing/regulatory agencies should have links on their respective websites to full-text versions of current statutes/regulations.
		PDMPs should have links on their websites to the technical specifications for transmitting prescription information.
		PDMPs should provide guidance on the data field definitions, particularly the date sold, filled, and dispensed fields and when a prescription is required to be reported.
		Articles, FAQ documents, instructional guides, and/or training modules providing real-world scenarios should be made available to dispensers on the interpretation and application of statutes/regulations. These can be provided as inserts with registration applications or renewals presented during conferences, included in newsletters or mass distribution, or recorded and linked to appropriate agency websites. PDMP TTAC has several guidance documents that may assist in the development of these resources.
		PDMPs should make every effort to present at professional conferences or submit an article to professional organizations’ newsletters.
		PDMPs, if allowed, should obtain a list of controlled substances that have been ordered by a dispenser from the DEA (ARCOS data), drug manufacturers, and drug distributors and compare it to the dispensing history within the PDMP’s database. Several PDMPs require licensed distributors to report to the SDTC all the sales of controlled substances made to pharmacies, health care facilities, and practitioners.
		PDMPs should, if resources allow, cross check the date the prescription was dispensed to the patient with the date the prescription was transmitted to identify the dispensers that reported outside the statutory timeframe.
		PDMPs should, if resources allow, review a dispenser’s data transmission history for a given period to reveal gaps in transmitted data, statistically significant variations in the number of records sent per transmission, and anomalies in dispensing trends to identify potential compliance issues.
		PDMPs should have a published process for authorized recipients of PDMP reports to report missing data to the PDMP for investigation.
		PDMPs should report any administrative or criminal violation by a dispenser to the appropriate licensing/regulatory and law enforcement agency if allowed under the SDTC’s statutes/regulations.
		PDMPs should provide detailed guidance on the data elements, formats, and procedures for reporting.
PDMPs and licensing/regulatory agencies should have links on their respective websites detailing the consequences of noncompliance.		
Send error notifications to both the dispenser and transmission location if they are not the same.		

Appendix A – Summary of Recommended Practices (continued)

STAKEHOLDER	TOPIC	RECOMMENDATION
PDMPs (continued)		Promptly notify dispensers when errors are discovered electronically, if possible.
		Provide sufficient information about the prescription record and problem to the dispenser to assist in locating the record and remedying the issue.
		Provide a weekly electronic report to the PDMPs on error notifications that include the identity of the dispenser, the prescription, and the error type.
		Provide a weekly electronic report to the PDMPs on errors corrected that include the identity of the dispenser, the prescription, the original information, the updated information, the date the record was corrected, and who made the correction(s).
		Provide a quarterly electronic report listing the dispensers with the number of errors for each reporting period, the most common errors made, the average timeframe to resolve errors, and the number of unresolved errors.
		Automatically terminate any process that continuously uploads duplicate records without the need for manual intervention.
		Maintain accurate contact information for individual dispensers, vendors, and chain pharmacies.
		Notify dispensers of their requirements under the statute or regulation to correct erroneous information and the possible consequences for failing to meet those requirements (i.e., administrative fines, criminal charges, sanctions on their license).
		Maintain an electronic file on error notifications that identifies the dispenser, prescription, and error type.
		Develop a program that automatically generates a listing of past-due error notifications.
		Prescription errors should stay on the error report until corrected.
		Maintain an electronic file on errors corrected that identifies the dispenser, the prescription, the original information, the updated information, the date the record was corrected, and who made the correction(s).
		Maintain an electronic file listing the dispensers with the number of errors for each reporting period, the most common errors made, the average timeframe to resolve errors, and the number of unresolved errors.
		Use the files listed above to create training sessions or educational packets on common errors for dispensers.
		Data Vendors
Send error notifications to both the dispenser and transmission location if they are not the same.		
Provide sufficient information about the prescription record and problem to the dispenser to assist in locating the record and remedying the issue.		
Provide a weekly electronic report to the PDMPs on error notifications that include the identity of the dispenser, the prescription, and the error type.		
Provide a weekly electronic report to the PDMPs on errors corrected that includes the identity of the dispenser, the prescription, the original information, the updated information, the date the record was corrected, and who made the correction(s).		
Provide a quarterly electronic report listing the dispensers with the number of errors for each reporting period, the most common errors made, the average timeframe to resolve the errors, and the number of unresolved errors.		
Automatically terminate any process that continuously uploads duplicate records without the need for manual intervention.		
Maintain accurate contact information for individual dispensers, vendors, and chain pharmacies.		
Notify dispensers of their requirements under the statute or regulation to correct erroneous information and the possible consequences for failing to meet those requirements (i.e., administrative fines, criminal charges, sanctions on their license).		
Maintain an electronic file on error notifications that identifies the dispenser, the prescription, and the error type.		
Develop a program that automatically generates a listing of past due error notifications.		
Prescription errors should stay on the error report until corrected.		
Maintain an electronic file on errors corrected that identifies the dispenser, the prescription, the original information, the updated information, the date record was corrected, and who made the correction(s).		
Maintain an electronic file listing the dispensers with the number of errors for each reporting period, the most common errors made, the average timeframe to resolve the errors, and the number of unresolved errors.		
Use the files listed above to create training sessions or educational packets on common errors for dispensers.		
Notify the appropriate SDTC authority of dispensers that have a history of excessive errors or fail to correct errors within the specified timeframe.		

Appendix A—Summary of Recommended Practices (continued)

STAKEHOLDER	TOPIC	RECOMMENDATION
Prescribers	Data Quality	Request a prescriber history report from the PDMP to compare the information from the prescription to the information received by the PDMP. If discrepancies are identified, take the appropriate corrective action.
		Electronic prescribing of controlled substances is permitted under federal law. Prescribers should take the necessary steps to implement the use of electronic prescriptions to reduce the incidence of typographical errors and misinterpretations by the dispenser and decrease opportunities for fraudulent or altered prescriptions.
		If electronic prescribing is not a viable option, the prescriber should employ software to print the allowable information on the prescription.
		If neither of the above is an option, then the prescriber should write the required information legibly.
		Minimize the use of abbreviations in patient address fields or, when using them, ensure they follow the standard set by the U.S. Postal Service.
		Avoid the use of nicknames for patients.
		Patient information should be confirmed that it is current prior to issuing a prescription. Prescribers should request positive identification of the patient to ensure it matches the information in the prescriber’s patient files.
		Prescriber contact information should be included on the prescription to facilitate communication from the dispenser, if necessary.
		Include legible, precise instructions on the medication’s use.
Other Stakeholders	Data Submission Compliance	Licensing/regulatory agencies should include licensee testing on current statutes/regulations as a requirement to obtain or renew a license.
		Agencies with the legal authority to inspect dispenser locations should obtain a PDMP report on the dispenser’s prescription history to use as a reference guide when performing audits or inspections. PDMPs should foster a collaborative relationship with such licensing/regulatory agencies.
		PDMPs and licensing/regulatory agencies should have links on their respective websites detailing the consequences of noncompliance.
	Data Quality	The DEA is responsible for issuing federally controlled substance registration numbers. The DEA should ensure that the registration information is updated daily when changes to a registrant’s status have occurred. The registration file should be made available to appropriate health care entities (e.g., dispensers, PDMPs, data collection vendors) through a free download or link to a real-time website.
		The DEA should consider modifying its registration file format to allow separate fields for professional degrees, specialties, and name suffixes.
		The CMS is responsible for maintaining the NPI file. NPI is a unique identification number for covered health care providers. Covered health care providers and all health plans and health care clearinghouses must use NPIs in the administrative and financial transactions adopted under HIPAA. The CMS should ensure that the information is updated when changes occur.
		The CMS and the DEA should develop a crosswalk between the DEA’s registration file and the CMS’s NPI file and make it available to appropriate stakeholders through a download or link to a real-time website.
		The FDA is responsible for assigning NDCs to pharmaceuticals. In some cases, the FDA issues a range of NDCs to a pharmaceutical manufacturer which assigns the NDC to one of its medications and, subsequently, notifies the FDA. The FDA should maintain a listing of all NDCs in use and make the entire list available to appropriate health care entities (e.g., dispensers, PDMPs, data collection vendors) through a free download or link to a real-time website.
		Medication manufacturers should proactively inform the FDA of all NDCs assigned to their medications. In instances where a new medication is made available, the manufacturers should notify the appropriate health care entities (e.g., dispensers, PDMPs, data collection vendors, FDA) of the NDC prior to the medication’s distribution.

Appendix B – Data Resource Links

American Society for Automation in Pharmacy (ASAP)	https://www.asapnet.org/
Automation of Reports and Consolidated Orders System (ARCOS)	https://www.deadiversion.usdoj.gov/arcos/
DEA Controlled Substances Act Registration Database	https://apps.deadiversion.usdoj.gov/webforms2/spring/validationLogin?execution=e1s1
DEA Pharmaceutical Distributors Directory	https://www.dealookup.com/PharmaceuticalDistributors.asp
DEA Pharmaceutical Manufacturers Directory	https://www.dealookup.com/PharmaceuticalManufacturers.asp
Electronic Prescriptions for Controlled Substances	https://www.deadiversion.usdoj.gov/ecom/e_rx/index.html
FDA National Drug Code Directory	https://www.fda.gov/drugs/informationondrugs/ucm142438.htm
Health and Medical License Lookup	http://www.healthguideusa.org/health_license_lookup.htm
National Council for Prescription Drug Programs (NCPDP)	https://www.ncpdp.org/
National Provider Identifier (NPI) Files	NPPES NPI Registry (hhs.gov)
Prescription Drug Monitoring Programs (PDMPs) Information	Contacts: https://www.pdmpassist.org/State Websites: https://www.pdmpassist.org/pdf/PDMP_websites_directory.pdf
United States Postal Service Address Management	https://www.usps.com/nationalpremieraccounts/manageprocessandaddress.htm