Screening tools for detecting problematic opioid use and potential application to community pharmacy practice: a review

Bryn Lindley1
Nicholas Cox2
Gerald Cochran3

1University of Utah, College of Pharmacy, Salt Lake City, UT, USA; 2University of Utah, College of Pharmacy, Department of Pharmacotherapy, Salt Lake City, UT, USA; 3University of Utah, School of Medicine, Division of Epidemiology, Salt Lake City, UT, USA

Abstract: Problematic opioid use, constituted by a myriad of conditions ranging from misuse to use disorders, has continued to receive an increasing amount of attention in recent years resulting from the high use of opioids in the United States coinciding with morbidity and mortality. Deaths from drug overdoses increased by over 11% between 2014 and 2015, which supports the need for identification of problematic opioid use in additional health care settings. One of these settings is community pharmacy. The community pharmacy is a unique health service setting to identify and potentially intervene with patients at risk of or exhibit problematic opioid use. Problematic opioid use can be identified using one of the various screening tools in conjunction with evaluating prescription drug monitoring systems. A total of 12 tools were identified that could be employed in community pharmacy settings for identifying problematic opioid use. This review highlights these tools and strategies for use that can be utilized in the community pharmacy, which should be adapted to individual pharmacy settings and local needs. Future research should assess pharmacy personnel’s knowledge and perceptions of problematic opioid use and associated screening tools and interventions, which tools can be most effectively used in a community pharmacy, workflow needs to implement problematic opioid use screenings, and the impact of pharmacist engagement in problematic opioid use screening on patient clinical outcomes.

Keywords: opioid use, opioid use disorder, screening tool, community pharmacy

Introduction
Problematic opioid use has continued to receive an increasing amount of attention in recent years resulting from the high use of opioids in the United States coinciding with morbidity and mortality. Given that there is a spectrum of opioid use consumption behaviors associated with opioid-related adverse events, ranging from misuse to a diagnosed disorder, this review will use the term “problematic opioid use” to encompass this myriad of behaviors. In 2017, over 190 million opioid prescriptions were dispensed with a prescribing rate of 58.7 per 100 persons.1 Likewise, 10,632,000 adults reported the misuse of opioid medications in 2017.2 More than 36% of individuals in 2017 who reported misuse of opioid medications in the last year obtained these opioids through filling prescriptions.3 Most unfortunately, high prescribing rates and related problematic opioid consumption patterns contributed to the number of deaths from drug overdoses, which increased by 11.4% between 2014 and 2015. In total for 2015, there were 33,091 deaths due to opioid overdoses alone, which translates to 91 deaths per day from opioid
These opioid-related adverse events also represent a heavy burden to the healthcare system. Incremental healthcare spending associated with the first episode of opioid misuse, dependence, or overdose ranges from US$5,385 to US$14,810 per individual.6

Problematic opioid use often accompanies other disease states, with mental health diagnoses being among the most prominent. Specifically, problematic use is often seen in conjunction with depressive, anxiety, posttraumatic stress, and panic disorders,6–11 which relationships between mental health and opioids are likely linked insofar that problematic opioid use is a patient’s form of self-medication management for underlying psychiatric care needs.6 In addition to mental health conditions, substance use behaviors also have been closely associated with problematic opioid use, which includes alcohol use disorders, cigarette smoking, other prescription drug misuse, and illicit substance use.7,8,12 Other studies have identified a relationship between physical health states and problematic opioid use, with acute and chronic pain conditions being among the most prominent.13 Animal and human data have shown that persistent inflammatory pain can desensitize some opioid receptors from the body’s natural increase in endogenous opioid peptides.13 This desensitization could play a role in the vulnerability of patients to opioid misuse by altering the neurobiological reward pathway.

Given problematic opioid use is a multifactorial health problem along with its significant prevalence and incidence documented across North America, it is critical to have the engagement of multiple types of health care providers to identify and implement solutions. A major underutilized setting with significant potential for such expansion is community pharmacy,14,15 which has an unparalleled potential for public health impact in addressing problematic opioid misuse. Between 2007 and 2015, the number of community pharmacies in the United States increased by 6.3%.16 In 2015, there were over 67,753 pharmacies, which included community, clinic, and mass production pharmacies.16 Of the 67,753 pharmacies, 50,502 were community pharmacies,16 with a workforce of more than 170,000 pharmacists.17 A majority of patients have close access to a pharmacist given that over 90% of United States residents live within 5 miles of a community pharmacy. Most valuably, the community pharmacy is uniquely situated in the healthcare process to screen for and identify patients who exhibit problematic opioid medication use. For example, pharmacists have rapid and ready access to opioid prescription fill information,18 including information and training on potentially lethal co-prescriptions, such as opioids benzodiazepine medications.19–25 Likewise, community pharmacists have a vital patient-specific perspective with ease of access to interact directly and regularly with patients needing information and care.18 From these interactions, community pharmacists can build a relationship with patients, which likely promotes pharmacists’ consistent rank within top-trusted professionals.26

Due to these factors, namely relatively easy access to patients and extensive drug and healthcare knowledge, the implementation of practical screening tools in community pharmacies may be an effective strategy to identify patients who exhibit problematic opioid use. However, previous research that has studied pharmacist interest and ability to identify and engage patients regarding opioid use has shown that while most pharmacists view problematic use as a major concern, they report lack both the tools and training to effectively do so.27,28

Therefore, in an effort to advance pharmacy practice, supply pharmacists with needed tools, and elevate pharmacists’ ability to engage with patients to address the opioid epidemic—the purpose of this literature review is to provide an overview of available screening instruments for problematic opioid use with their corresponding characteristics, strengths, and limitations and to discuss the potential benefits of utilization of these tools in community pharmacies. Without the routine use of evidence-based screening and assessment tools, pharmacy practitioners risk overlooking or incorrectly identifying patient need. Importantly, with this compilation of resources, pharmacists can utilize the results generated by the administration of these tools: 1) to improve patient education on risk of opioid use; 2) as grounds for direct or indirect referrals to addiction professionals for comprehensive assessment and/or medication-assisted therapy; 3) to support provision of referrals to social support/services or mental healthcare; 4) to communicate concerns and/or coordinate care with primary care or medical specialty providers (eg, pain management); 5) as a basis for refusal to dispense medications as appropriate; and 6) as evidence for the need of naloxone rescue kits and/or training. An inherent aspect of a community pharmacists’ role is to evaluate the safety of the medication to be dispensed and to do so in a patient-specific manner (eg, how safe is this medication for this patient?). For medications with a baseline higher risk of toxicity/harm (eg, opioids), this safety evaluation is even
more critical. While pharmacists have substantial training and knowledge about opioid medications and their baseline risk, they are often underprepared for the challenging and complicated task of evaluating the patient receiving opioids and their baseline risk. By increasing pharmacists’ understanding of screening instruments for problematic opioid use, pharmacists can be better prepared to provide patient-specific care for patients prescribed opioids. Within the following review, it is important to note that when specific measures of problematic opioid use are discussed, we use the language from the authors of that measure that characterize the specific behaviors captured by the instrument itself (eg, aberrant use, misuse, opioid use disorder (OUD)).

Methods
The purpose of this project was to review the published literature and summarize available opioid screening tools. Screening tools were identified by reviewing titles and abstracts of search results on PubMed and Google Scholar. Search terms included “opioid screening tools,” “opioid use disorder screening tools,” and “opioid misuse screening tools.”

Screening tool inclusion criteria for this review consisted of identifying instruments that: 1) were comprised of quantitative/close-ended response set options, 2) possessed empirical support, 3) identified some form or degree of problematic opioid use, and 4) could be implemented in community pharmacy either via pharmacist interview of patients or patient self-report. The following results section summarizes these tools by reporting: number of items, purpose of the tool (ie, specific problematic use pattern identified), method of administration, question response type, recommended actions for clinicians based on results, and validation information. In addition, we provide a narrative discussion of the tools and how such tools may be applied within the community pharmacy setting.

Results
Twelve screening tools were included in this review. Table 1 summarizes the screening tools identified. The Brief Risk Questionnaire (BRQ) is a 12 item, patient self-administered questionnaire that utilizes yes/no and Likert-style questions to assess a patient’s risk of opioid misuse by asking a series of behavioral and family, personal, and social history questions. Each answer is given a point value with the total score ranging from 0 to 24. A higher score indicates a higher risk of misusing opioids. The BRQ was shown to have a higher risk of false positives when compared to the Opioid Risk Tool (ORT), the Pain Medication Questionnaire (PMQ), and the Brief Risk Interview. Within a clinical practice, this tool could be utilized prior to patients starting opioid therapy to assess their risk of misuse. Similarly, this tool could be used in a community pharmacy prior to dispensing a new opioid prescription and technicians could flag patients filling an opioid prescription for the first time and refer them to the pharmacist for consultation prior to dispensing.

The Current Opioid Misuse Measure (COMM) is available as a paper version with 17 items and is self-administered. The COMM identifies patients exhibiting aberrant opioid-related behavior through a series of Likert-style questions. This tool asks the patient to report their behavior over the last 30 days through a series of questions. Because of the Likert questions, each item has the potential of contributing 4 points to the total score. A score ≥9 indicates a positive, while a score of <9 indicates a negative. The COMM has a high sensitivity leading to increased accuracy in identifying patients with aberrant opioid-related behavior. This tool does not distinguish between different types of aberrant behavior, such as opioid misuse or abuse, instead of identifying aberrant behavior. Clinicians can use the results of this tool to determine which patients could benefit from additional counseling, interventions, or a naloxone kit.

The Leeds Dependence Questionnaire is a self-administered questionnaire that contains a 10 Likert-style questions to assess a patient’s risk of developing opioid dependence. This tool asks a series of questions related to tolerance and withdrawal of opioids. Each item is scored 0–3 with the maximum score being 30. The higher the score, the higher the risk of opioid dependence. Current literature has not established sensitivity or specificity of this tool. Prescribers and pharmacists can use this risk score to identify patients who would benefit from the additional intervention for their opioid risk.

The Mini International Neuropsychiatric Interview (MINI) is a comprehensive questionnaire consisting of 120 items that assess a patient’s drug dependence. This tool is available as both a patient and provider administered tool. While this tool could be used for drug dependence in general, it has specific sections and assessments on opioid use. Both versions of the MINI were validated against the gold standard Structured Clinical Interview for...
| Tool | # Items | Tool purpose | Self- or clinician- administered | Response type | Interpretation | Recommend action | Risk prior to or during opioid therapy | Validation |
|------|---------|--------------|----------------------------------|---------------|----------------|-----------------|----------------------------------------|------------|
| Brief Risk Questionnaire<sup>29</sup> | 12 | Identify opioid misuse | Self | Likert and yes/no | Higher the number, the higher the risk | No | Prior | Sensitivity =0.75 Specificity =0.38 |
| Current Opioid Misuse Measure<sup>30</sup> | 17 | Identify aberrant opioid use behaviors | Self | Likert Scoring through computer algorithm | No | During | Sensitivity/specificity not reported |
| Leeds Dependence Questionnaire<sup>31,32</sup> | 10 | Identify opioid dependence | Self | Likert | Higher the score, higher the risk | No | During | Sensitivity/specificity not reported |
| Mini International Neuropsychiatric Interview-Patient Rated<sup>32</sup> | 120 | Diagnose opioid dependence | Self/clinician | Yes/no | Higher score indicates higher risk | No | During | Sensitivity =0.39 Specificity =0.92 PPV =0.35 NPV =0.93 Clinician: Sensitivity =0.45 Specificity =0.96 PPV =0.5 NPV =0.95 |
| National Institute on Drug Abuse modified Alcohol, Smoking, and Substance Involvement Screening Test<sup>33,37</sup> | 10 | Identify risky opioid use | Clinician | Likert | Higher score indicates higher risk | Yes | Prior or during | Sensitivity/specificity not reported |
| Opioid Risk Tool<sup>34</sup> | 10 | Identify chronic pain patients at risk of aberrant opioid use | Self | Yes/no | Higher score indicates higher risk | No | Prior | Sensitivity =0.25 Specificity =0.83 |
| Pain Medication Questionnaire<sup>29,35</sup> | 26 | Identify chronic pain patients at risk of aberrant opioid use | Self | Likert | Higher score indicates OUD | No | Prior | Sensitivity =0.38 Specificity =0.87 |

(Continued)
| Tool                                                                 | # Items | Tool purpose              | Self- or clinician-administered | Response type | Interpretation                                                                 | Recommend action | Risk prior to or during opioid therapy | Validation                                      |
|----------------------------------------------------------------------|---------|---------------------------|---------------------------------|---------------|--------------------------------------------------------------------------------|------------------|----------------------------------------|------------------------------------------------|
| Prescription Opioid Misuse Index<sup>36</sup>                       | 6       | Identify opioid misuse    | Self                            | Yes/no        | >1 affirmative answer classifies OUD                                             | No               | During                                 | Sensitivity =0.852 Specificity =0.692          |
| Rapid Opioid Dependence Screen<sup>12</sup>                         | 8       | Identify opioid dependence| Both                            | Yes/no        | ≥3 affirmative responses diagnosis opioid dependence                           | No               | During                                 | Sensitivity =0.97 Specificity =0.76 PPV =0.69 NPV =0.98 |
| Severity of Dependence Scale<sup>32</sup>                          | 5       | Identify opioid dependence| Self                            | Likert        | Higher the score, the higher the risk                                            | No               | During                                 | Sensitivity =0.86 Specificity =0.83 PPV =0.86 NPV =0.83 |
| Screener and Opioid Assessment for Patients with Pain-Revised<sup>37</sup> | 24      | Identify chronic pain patients at risk of aberrant opioid use | Provider                   | Likert        | ≥18 indicates a positive for OUD                                                | No               | Prior                                  | Sensitivity =0.81 Specificity =0.68 PPV =0.57 NPV =0.87 |
| Tobacco, Alcohol, Prescription, and Other Substance Tool<sup>38</sup> | 4       | Identify risky opioid use | Yes/no                          |               | Higher score indicates higher risk                                              | No               | During                                 | Sensitivity =0.85 Specificity =0.91 PPV =0.32 NPV =0.99 |

**Abbreviations:** NPV, negative predictive value; OUD, opioid use disorder; PPV, positive predictive value.
Prescribers can use the results of this tool to identify patients who could benefit from additional education or interventions to decrease their risk for opioid dependence. Because of the large amount of questions, this tool would not be feasible in a traditional community pharmacy workflow. This tool would likely best be administered when the patient can make an appointment with the pharmacist for assessment and discussion about results.

The National Institute on Drug Abuse Modified Alcohol, Smoking, and Substance Involvement Screening Test (NMASSIST) is a 10-item questionnaire adapted from the WHO Alcohol, Smoking, and Substance Involvement Screening Test, version 3.0 and assesses low, moderate, and high illicit or nonmedical opioid use severity. This tool is administered by the provider prior to or during opioid therapy and can be administered via paper or electronic survey. Item scores vary depending on the response to each. The paper survey will outline the risk levels as 0–3 being low risk, 4–26 being moderate risk, and over 26 being high risk. Alternatively, the electronic version will calculate risk level and include recommendations for next actions at the end of the survey. This tool could be beneficial to clinicians because of the recommendations included with the results in addition to screening for abuse of other substances. Sensitivity or specificity are not reported within the current literature. This tool could be utilized by both prescribers and pharmacists to help identify patients with moderate or high risk of illicit or nonmedical opioid use. This could be implemented in pharmacy and clinical practice by pharmacists and prescribers identifying patients with frequent opioid prescriptions with the purpose of reviewing the results and recommendations.

The ORT is a 10-item, yes/no questionnaire self-administered by the patient prior to starting opioid therapy. This tool asks a series of questions about personal and family history of substance abuse as well as psychiatric disorders to assess the risk of aberrant opioid behaviors. The scores for each item vary based on the item and if the patient is female or male. A score 0–3 indicates a low risk of aberrant opioid behaviors, 4–7 indicates a moderate risk, and a score >7 indicates a high risk. This tool has a low sensitivity, but is highly specific, indicating it could be a good tool in ruling out aberrant opioid behaviors. This tool can be utilized by prescribers to help identify patients who are at a higher risk of aberrant opioid behaviors prior to initiating opioid therapy. Similarly, pharmacists can effectively implement this tool with patients who are filling their first opioid prescription to help personalize counseling or make an alternate therapy recommendation to the prescriber. This tool could also be effectively implemented in a community pharmacy because of its brief nature.

Similar to the ORT, the PMQ is self-administered and assesses behaviors associated with aberrant opioid use. The PMQ has 26 Likert-style questions. The score of each item ranges from 0 to 4 with a maximum possible score of 104. Patients with a score 70–104 are at high risk for aberrant opioid-related behavior, whereas those with a score 35–69 are at moderate risk, and 0–34 are at low risk. The PMQ is highly specific, but is limited in sensitivity, which means this tool could be used effectively to rule out patients at risk of aberrant opioid-related behavior. Prescribers and pharmacists can implement and utilize this tool in a similar fashion to the ORT, except the PMQ is longer and could be less preferable in a busy pharmacy.

The Prescription Opioid Misuse Index (POMI) is a self-administered tool that contains a series of 6 yes/no questions to help identify patients with opioid misuse while taking prescription opioids. Each affirmative answer receives 1 point with the maximum score being 6. An affirmative answer to >1 question indicates the patient exhibits prescription opioid misuse. This tool has high sensitivity and specificity for identifying patients with patterns of misuse while they are on opioid therapy. This tool could be effectively used by both prescribers and pharmacists to identify patients who are currently on opioids and are exhibiting opioid misuse. Because of the brevity of this tool, it can be implemented into the community pharmacy workflow by the pharmacist or by having a technician initiating the questionnaire and the pharmacist providing additional counseling or dispensing a naloxone kit based on the results.

The Rapid Opioid Dependence Screen (RODS) tool contains 8 items and asks a series of yes/no questions to assess the risk of opioid dependence during current opioid use. This tool could be administered by either a provider or patient. The first 2 questions assess for lifetime use of opioids. The following questions assess physiological, behavioral, and cognitive factors that are associated with opioid dependence. Each affirmative answer receives 1 point with a maximum score 8–16 being high risk.
score of 8.32 If a patient’s score is 3 or greater, the patient should be considered for the diagnosis of opioid dependence.32 This tool has high sensitivity and negative predictive value which shows that this tool can be useful in ruling out opioid dependence in patients on opioid therapy.32 The RODS tool is brief and can be administered quickly. This tool could be integrated in the pharmacy by either having the pharmacist administer the questionnaire or request patients to complete it as they wait for their prescriptions. This tool can help pharmacists identify patients who would benefit from additional counseling or interventions.

The Severity of Dependence Scale (SDS) can be self-administered by the patient during opioid therapy.32 This tool identifies patients at risk of developing or have already developed opioid dependence by asking a series of 5 Likert-style questions.32 Each item is scored 0–3 with a maximum score of 15.32 A higher value indicates that the patient is at high risk of developing opioid dependence, if not already present.32 This tool has high specificity, sensitivity, negative predictive value, and positive predictive value, which means it can be reliable in identifying patients at risk of developing opioid dependence.32 The results from this tool could be used by prescribers to determine the level of dependence a patient is experiencing or if they are at risk of developing dependence. Because of the short nature of this questionnaire, the SDS can be a rapid tool to utilize in a community pharmacy. Patients can complete the questionnaire while waiting for their prescriptions and the pharmacist can review the results with them at the point of sale.

The Screener and Opioid Assessment for Patients with Pain-Revised (SOAP-R) is 24 item, provider-administered questionnaire with Likert scale questions.37 This tool asks a series of questions to assess personal history and psychological disorders in the last 30 days.37 Each item is scored 0–4 with the maximum score being 96.37 With a cutoff of 18 or greater, prescribers or pharmacists can utilize this tool to assess the risk of aberrant opioid-related behavior prior to a patient starting opioid therapy.37 Because of the length of this questionnaire, it would fit into a community pharmacy workflow ideally as a scheduled appointment with the pharmacist where they can administer the questionnaire and review the results. This tool can also help to identify patients who could benefit from a naloxone kit.

Finally, the Tobacco, Alcohol, Prescription, and Other Substance (TAPS) is an online screening tool that can be administered by the patient or provider.38 It starts with 4 questions, which possess skip patterns in order to isolate only pertinent items to respondents.38 These first 4 questions assess the frequency of tobacco, alcohol, illicit drugs, and prescription drugs, including opioids, anxiolytics, and stimulants in the last year.38 From these, the tool focuses on the areas the patient gave an affirmative answer.38 This tool has 3 questions specific to opiate pain relievers if the patient responded with an affirmative answer in this section of the first 4 questions.38 This tool is used to assess the risk of problematic opioid use in patients who are currently taking opioids by considering the frequency of opioid use over the past 3 months.38 Compared to DSM-5 criterion, the TAPS tool has a low-positive predictive value and a high-negative predictive value indicating this tool can be effectively used to rule out risky opioid use.38 A pharmacist could use the results of this screening tool to refer the patient to appropriate interventions or alter the course of therapy. Due to the potentially short nature of this tool and the ease of online access, this tool could be implemented into the pharmacy workflow. The patient can complete the questionnaire while waiting and the pharmacist can review the results and make recommendations at the point of sale.

While all of these tools are subjective and depend on the patient’s response, they can be helpful in identifying patients with problematic opioid use when used in conjunction with another more objective measure. Other objective measures can include a prescription refill history or a review of the prescription drug monitoring program (PDMP).

Prescription drug monitoring programs
Many assessment tools available base risk assessment on patient responses, which may introduce bias in the assessment of the target behavior and may over- or under-estimate patients’ risk of having or developing patterns of problematic opioid use. Some tools, for instance, base risk assessment on observed numbers of opioid fills, prescribers and pharmacies, are available in PDMPs. A PDMP is an electronic database that tracks controlled substance prescriptions, including opioids, in and among states.39 Commonly used metrics to identify the risk of problematic opioid use include high-opioid dosage, patients visiting multiple providers and/or pharmacies, and concurrent use of opioids with medications that can increase the negative effects of opioids, such as benzodiazepines.40 Previous research has assessed the correlation between OUD and these 3 metrics and found a
significantly higher percentage of patients with OUD fell into at least one of the 3 metrics categories as compared to patients with OUD who did not fall into one of these categories.  

Table 2 summarizes PDMP features in the United States (including the District of Columbia). Most states collect data on drugs that are schedules II through V, but some only include II through IV. While most states update their PDMP daily, others update it less frequently. Updating the PDMP in real time or daily allows for prescribers and dispensers to receive the most accurate information about their patient before prescribing or dispensing a controlled substance. A more recent addition to some PDMPs is the prescriber’s report card, which is a report that is sent to the provider, either solicited or unsolicited, and summarizes prescribing history and includes a comparison to the average prescriber in that specialty. The goal of this report is to bring awareness to the provider as well as provide an efficient method for providers to review patient risks. Likewise, many PDMPs participate in interstate data sharing. This allows for a more complete-controlled substance fill history that would be used to calculate risk scores, as some patients fill controlled substances in multiple states.  

Discussion
Community pharmacists are uniquely situated to effectively administer the above-described tools. Community pharmacists have rapid access to opioid prescription fill information and are positioned to regularly interact with patients more frequently than primary care providers. There are also a growing number of community pharmacies, making patient access to community pharmacists highly feasible. Because of this, employment of the screening tools identified in this review could help identify additional patients with problematic opioid use. Examples of benefits of community pharmacists utilizing these tools include increased identification of patients with problematic opioid use, outpatient intervention referrals, and dispensation of a naloxone kit.

Implementation of screening
Successful implementation of screening tools may require changes to pharmacy workflow and a pharmacy-wide commitment to the effort. The most optimal screening tool may vary depending on existing pharmacy workflow, patient demographics, baseline patient opioid use, misuse, or abuse, and pharmacy personnel training. Fortunately, the National Institute on Drug Abuse is working to enhance to move this important agenda forward. A recent clinical study evaluated the utility of the TAPS screening tool in primary care settings, which results showed strong feasibility and validity for the tool. A current prospective study is underway that is working to validate the TAPS tool in a community pharmacy sample of patients filling opioid medications (NCT03936985), which results have the potential to anchor this instrument specifically to community pharmacy.

An important aspect of feasibility may be relying on non-pharmacist personnel, such as pharmacy technicians, to conduct screenings. A recent study evaluated the use of the POMI and other health screening tools in 4 different community pharmacies in southwestern Pennsylvania. In this study, pharmacy technicians primarily offered/initiated

Table 2 Prescription drug monitoring program summary

| Criterion                                      | Number of states |
|-----------------------------------------------|------------------|
| Drugs monitored                               |                  |
| Schedule II–V                                 | 42               |
| Schedule II–IV                                | 9                |
| Collection frequency                          |                  |
| Daily                                         | 46               |
| Every ≤7 days                                 | 4                |
| Every >7 days                                 | 1                |
| Naloxone tracking                             |                  |
| Administration information                    | 14               |
| Dispensation information                      | 3                |
| Administration and dispensation information   | 14               |
| Prescriber report card                        | 25               |
| Interstate sharing                            | 45               |
| Prescription Drug Monitoring Program health record integration | 43               |
the survey via electronic tablet to patients over 18 years old while the patient waited for their opioid medication. This study included 333 patients and found a misuse rate of >15% among respondents. The results of this study specifically highlight the feasibility of using the POMI tool in the community pharmacy because of its brevity and accuracy. Given these findings, just as medical assistants regularly perform intake interviews in primary care settings, trained and supervised pharmacy technicians may be optimal to administer questionnaires. Moreover, a community pharmacy could utilize electronic self-administered questionnaires while patients drop off and wait to pick up opioid prescriptions. Such a method could be employed and could precede a pharmacist-directed intervention. Recent research has shown that pharmacy-led screening and intervention can successfully mitigate opioid misuse, decrease depression, improve pain, and deliver overdose prevention messaging and training.

While there are many ways for pharmacists to become more engaged in the assessment of problematic opioid use, there are also barriers to implementation of pharmacist engagement in screening. Some aspects of pharmacy practice have become more impersonal with the utilization of mail order and central fill pharmacies, which do not allow for in-person screening or assessment. In such settings, pharmacists evaluate the patient based solely on their prescription profiles or through PDMPs without direct communications with the patient; this can be problematic when trying to assess the extent or patient-specific features of problematic opioid use.

An additional barrier to screening and assessment lack of pharmacist time. In community pharmacy settings, the pharmacist’s time is often limited between normal workflow activities, such as verifying filled prescriptions, receiving phone calls, educating patients on their prescriptions, and monitoring technician work. Family members also may pick up prescriptions on behalf of patients, which does not allow in-person screenings. It is fortunate some large-scale chains have adopted internal policies that mandate counseling to support patient engagement around overdose prevention. Similar actions should be taken regarding the identification of patient risk.

Utility of prescription drug monitoring programs in community pharmacy

PDMPs also stand as important tools to identify patterns of dangerous use of prescription drugs, namely controlled substances. With the combination of the objective PDMP and a more subjective opioid use screening tool, community pharmacists can have effective methods to assess patient risk. This combination of screening methods is particularly salient given that only limited information is available in the field regarding the benefit of PDMPs alone. PDMP analyses have primarily shown reduced opioid prescribing; with unclear results for impact on opioid overdose or sub-use disorder threshold behaviors, such as misuse. These outcomes are likely based on the fact that, while risk metrics are available in many PDMP platforms across the United States, patient-focused decision support for pharmacists is limited if patients are identified as at risk. The pharmacist’s response to patient risk information thus is subjective. It is critical for states, PDMP vendors, clinicians, and researchers to work collaboratively to develop, test, and implement such decision support to guide pharmacist actions.

Maintaining/managing clinical judgement

It is critical to note, however, as with all screening tools in other disease states, no tool can completely replace clinical decision-making. The tools summarized in this article, while potentially useful, cannot consider every single patient situation. Pharmacists utilizing these tools must consider multiple factors when making decisions such as whether to intervene with a patient, and whether to dispense. Additionally, pharmacists must be thoughtful when considering the best approach to administer screening questions or questionnaires in the most non-judgmental and non-confrontational manner.

There is substantial social stigma associated with opioid use, and pharmacists should be considerate of these when implementing screenings. Such stigma and concerns were identified in a recent study that collected the perceptions of both the pharmacists and the patients during naloxone dispensation. Results showed some pharmacists were uncomfortable with naloxone dispensation for fear of decreased trust between the patient and pharmacist and misunderstanding as to why the pharmacist is offering naloxone. Some considerations include use of private counseling areas/rooms when administering questions and/or questionnaires, sufficient patient education as to the purpose of questions and/or questionnaires prior to administration, and objective criteria when identifying patient to whom to administer screening tools.
Conclusion

This review summarizes 12 tools available to aid in the screening of patients at risk for problematic opioid use. These screening tools can be utilized for a variety of purposes in community pharmacy settings and could improve pharmacy practice given that tool results could provide critical patient-specific information to pharmacists that may impact dispensing, patient and/or prescriber education, referrals, risk mitigation interventions (eg, naloxone), or other interventions. While this review summarized tools that could be implemented in a community pharmacy setting, it also highlights the need for more research. Future research directions include assessment of which tools can be most effectively used in a community pharmacy and/or other primary care settings, assessment of workflows to implement problematic opioid use screenings, and the assessment of the impact of pharmacist engagement in problematic opioid use screening on patient clinical outcomes. Moving forward with these future directions in research and practice stand to make a critical advancement in the field for identifying, treating, and prevention of opioid-related harm.

Disclosure

Dr Cochran is partly supported by grants from the National Institute on Drug Abuse (NIDA: R21DA04373502; UG1DA049444). The authors report no other conflicts of interest in this work.

References

1. Passik SD, Kirsh KL, Casper D. Addiction-related assessment tools and pain management: instruments for screening, treatment planning, and monitoring compliance. Pain Med. 2008;9(Suppl 2):S145–S166. doi:10.1111/j.1526-4637.2008.00486.x

2. SAMHSA. Behavioral Health Trends in the United States: Results from the 2017 National Survey on Drug Use and Health. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2018.

3. SAMHSA. Key Substance Use and Mental Health Indicators in the United States: Results from the 2017 National Survey on Drug Use and Health (HHS Publication No. SMA 18-5068, NSDUH Series H-53). Rockville, MD: Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality; 2018.

4. Seth P, Scholl L, Rudd R, Bacon S. Overdose deaths involving opioids, cocaine, and psychostimulants—United States, 2015–2016. MMWR Morb Mortal Wkly Rep. 2018;67:349–358.

5. N K. The economic burden of opioid abuse: updated findings. J Manag Care Spec Pharm. 2017;23(4):427–445.

6. Amari E. Nonmedical prescription opioid use and mental health and pain comorbidities: a narrative review. Can J Psychiatry. 2011;56(8):495–502. doi:10.1177/070674371105600808

7. Martins S. Pathways between nonmedical opioid use/death and psychiatric disorders: results from the National epidemiologic survey on alcohol and related conditions. Drug Alcohol Depend. 2009;103(1–2):16–24. doi:10.1016/j.drugalcdep.2009.01.019

8. Novak S. Physical pain, common psychiatric and substance use disorders, and the non-medical use of prescription analgesics in the United States. Drug Alcohol Depend. 2009;100(1–2):63–70. doi:10.1016/j.drugalcdep.2008.09.013

9. Schwartz AC, Bradley R, Penza KM, et al. Pain medication use among patients with posttraumatic stress disorder. Psychosomatics. 2006;47(2):136–142. doi:10.1176/appi.psy.47.2.136

10. Patel RS, Elmaadawi A, Nasr S, Haskin J. Comorbid post-traumatic stress disorder and opioid dependence. Cureus. 2017;9(9):e1647.

11. Bilevicius E, Sommer JL, Asmundson GJG, El-Gabalawy R. Posttraumatic stress disorder and chronic pain are associated with opioid use disorder: results from a 2012–2013 American nationally representative survey. Drug Alcohol Depend. 2018;188:119–125. doi:10.1016/j.drugalcdep.2018.04.005

12. Becker W. Non-medical use, abuse and dependence on prescription opioids among U.S. adults: psychiatric, medical and substance use correlates. Drug Alcohol Depend. 2008;94(1–3):38–47. doi:10.1016/j.drugalcdep.2007.09.018

13. Wilson-Poe A, Moron J. The dynamic interaction between pain and opioid misuse. Br J Pharmacist. 2018;175:2770–2777. doi:10.1111/bph.13873

14. Cochran G, Hruschak V, DeFosse B, Hohmeier KC. Prescription opioid abuse: pharmacists’ perspective and response. Integ Pharm Res Pract. 2016;5:65–73. doi:10.2147/IPRP.S9539

15. Wu L-T, Ghitz AE, Burns AL, Mannelli P. The opioid overdose epidemic: opportunities for pharmacists. Subst Use Rehabil. 2017;8:53–55. doi:10.2147/SAR.S144268

16. Qato DM, Zenk S, Wilder J, Harrington R, Gaskin D, Alexander G. The availability of pharmacies in the United States: 2007–2015. PLoS One. 2017;12(8). doi:10.1371/journal.pone.0181372

17. CDC. Select Features of State Pharmacist Collaborative Practice Laws. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention; 2013.

18. Hoppe J, Howland MA, Nelson L. The role of pharmacies and pharmacists in managing controlled substance dispensing. Pain Med. 2014;15:1996–1998. doi:10.1111/pme.12531

19. Toblin RL, Paulozzi LJ, Logan JE, Hall AJ, Kaplan JA. Mental illness and psychotropic drug use among prescription drug overdose deaths: a medical examiner chart review. J Clin Psychiatry. 2010;71(4):491–496. doi:10.4088/JCP.09m05567blu

20. Ferries EA, Gilson AM, Aparasu RR, Chen H, Johnson ML, Fleming ML. The prevalence of and factors associated with receiving concurrent controlled substance prescriptions. Subst Use Misuse. 2017;52(12):1639–1645.

21. Paulozzi LJ, Logan JE, Hall AJ, McKinstry E, Kaplan JA, Crosby AE. A comparison of drug overdose deaths involving methadone and other opioid analgesics in West Virginia. Addiction. 2009;104(9):1541–1548. doi:10.1111/add.2009.104.issue-9

22. Wilsey BL, Fishman SM, Gilson AM, et al. Profiling multiple provider prescriber of opioids, benzodiazepines, stimulants, and anorectics. Drug Alcohol Depend. 2010;112(1–2):99–106. doi:10.1016/j.drugalcdep.2010.05.007

23. Sowa EM, Fellers JC, Raisinghani RS, et al. Prevalence of substance misuse in new patients in an outpatient psychiatry clinic using a prescription monitoring program. Prim Care Companion CNS Disord. 2014;16:1.

24. Paulozzi LJ, Strickler GK, Kreiner PW, Koris CM. Controlled substance prescribing patterns—prescription behavior surveillance system, eight states, 2013. MMWR Surveill Summ. 2015;64(9):1–14. doi:10.15585/mmwr.ss6409a1

25. Jones JD, Mogali S, Comer SD. Polydrug abuse: a review of opioid and benzodiazepine combination use. Drug Alcohol Depend. 2012;125(1–2):8. doi:10.1016/j.drugalcdep.2012.07.004

26. Rifkind R. Americans rate nurses highest on honesty, ethical standards. 2014; Available from: http://www.webcitation.org/6lZvbKPQD. Accessed May 17, 2016.
27. Cochran G, Field C, Lawson K, Erickson C. Pharmacists’ knowledge, attitudes and beliefs regarding screening and brief intervention for prescription opioid abuse: a survey of Utah and Texas pharmacists. J Pharm Health Serv Res. 2013;4(2):71–79. doi:10.1111/jphs.12013

28. Balough MM, Nwanpka S, Umui EJ. Readiness of pharmacists based in Utah about pain management and opioid dispensing. Pharmacy (Basel). 2019;7(1):11. doi:10.3390/pharmacy7010011

29. Jones T, Schmidt M, Moore T. Further validation of an opioid risk assessment tool: the brief risk questionnaire. Ann Psychiatry Ment Health. 2015;3:3.

30. McCaffrey S. Development of a brief version of the Current Opioid Misuse Measure (COMM): the COMM-9. Pain Med. 2019;20:113–118. doi:10.1093/pm/pny205

31. Raistrick D. Development of the Leeds Dependence Questionnaire (LDQ): a questionnaire to measure alcohol and opiate dependence in the context of a treatment evaluation package. Addiction. 1994;89:563–572.

32. Wickershamsam J. Validation of a brief measure of opioid dependence: the Rapid Opioid Dependence Screen (RODS). J Correct Health Care. 2015;21(1):12–26. doi:10.1177/107835814557513

33. Rawson RA, Maxwell J, Rutkowski B. OxyContin abuse: who are the users? Am J Psychiatry. 2007;164:1636. doi:10.1176/appi.ajp.2007.07091393

34. Webster L. Predicting aberrant behaviors in opioid-treated patients: preliminary validation of the opioid risk tool. Pain Med. 2005;6(6):432–442. doi:10.1111/j.1526-4637.2005.00072.x

35. Adams L, Gatchel R, Robinson R, et al. Development of a self-report screening instrument for assessing potential opioid medication misuse in chronic pain patients. J Pain Symptom Manage. 2004;27(5):440–459. doi:10.1016/j.jpainsymman.2003.10.009

36. Knisely JS, Wunsch MJ, Cropsy KL, Campbell ED. Prescription opioid misuse index: a brief questionnaire to assess misuse. J Subst Abuse Treat. 2008;35(4):380–386. doi:10.1016/j.jsat.2008.02.001

37. Butler S, Fernandez K, Benoit C, Budman S, Jamison R. Validation of the revised Screener and Opioid Assessment for Patients with Pain (SOAPP-R). J Pain. 2008;9(4):360–372. doi:10.1016/j.jpain.2007.11.014

38. Gryczynski J. Validation of the TAPS-1: a four-item screening tool to identify unhealthy substance use in primary care. J Gen Intern Med. 2017;32(9):990–996. doi:10.1007/s11606-016-3934-5

39. Wunsch MJ, Cropsy KL, Campbell ED, Knisely JS, OxyContin use and misuse in three populations: substance abuse patients, pain patients, and criminal justice participants. J Opioid Manag. 2008;4(2):73–79. doi:10.1055/j:ptom.2008.0011

40. Cochran G, Lo-Ciganic W, Gellad W, et al. Prescription opioid quality measures applied among Pennsylvania medicare enrollees. J.Manage Care Spec Pharm. 2018;24(9):875–885. doi:10.18553/jmcp.2018.24.3.191

41. Compton WM, Denisco R. Prescription drug abuse. In: Galanter M, Kleber HD, editors. The American Psychiatric Publishing Textbook of Substance Abuse Treatment. 4th ed. Arlington, VA US: American Psychiatric Publishing, Inc.; 2008:595–607.

42. Cochran G, Bacci J, Yiloja T, et al. Prescription opioid use: patient characteristics and misuse in community pharmacy. J Am Pharm Assoc (2003). 2016;56:248–256. doi:10.1016/j.japh.2016.01.008

43. McNeely J, Wu LT, Subramaniam G, et al. Performance of the Tobacco, Alcohol, Prescription Medication, and Other Substance Use (TAPS) tool for substance use screening in primary care patients. Ann Intern Med. 2016;165(10):690–699. doi:10.7326/M16-0317

44. Cochran G, Field C, Hruschak V, Seybert A, Gordon A, Tarter R. Community pharmacy-led intervention for opioid medication misuse (June, 2019). College on Problems of Drug Dependence, 81st Annual Meeting, San Antonio, TX.

45. Shafer E, Bergeron N, Smith-Ray R, Robson C, O’Koren R. A nationwide pharmacy chain responds to the opioid epidemic. J Am Pharm Assoc (2003). 2017;57(2):S123–S129.

46. Bao Y, Pan Y, Taylor A, et al. Prescription drug monitoring programs are associated with sustained reductions in opioid prescribing by physicians. Health Aff (Millwood). 2016;35(6):1045–1051. doi:10.1377/hlthaff.2015.1673

47. Dowell D, Zhang K, Noonan RK, Hockenberry JM. Mandatory provider review and pain clinic laws reduce the amounts of opioids prescribed and overdose death rates. Health Aff (Millwood). 2016;35(10):1876–1883. doi:10.1377/hlthaff.2016.0448

48. Ali MM, Dowd WN, Classen T, Mutter R, Novak SP. Prescription drug monitoring programs, nonmedical use of prescription drugs, and heroin use: evidence from the National survey of drug use and health. Addict Behav. 2017;69:65–77. doi:10.1016/j.addbeh.2017.01.011

49. Kreiner PW, Strickler GK, Undurraga EA, Torres ME, Nikitin RV, Rogers A. Validation of prescriber risk indicators obtained from prescription drug monitoring program data. Drug Alcohol Depend. 2017;173(Suppl 1):S31–S38. doi:10.1016/j.drugalcde.2016.11.020

50. Young LD, Kreiner PW, Panas L. Unsolicted reporting to prescribers of opioid analogesies by a state prescription drug monitoring program: an observational study with matched comparison group. Pain Med. 2017;19(7):1396–1407.

51. Mayo P, Simoni-Wastila L, Griffin BA, et al. Impact of prescription drug monitoring programs (PDMPs) on opioid utilization among medicare beneficiaries in 10 US States. Addiction. 2017;112(10):1784–1796. doi:10.1111/add.13860

52. Paulozzi LJ, Kilbourne EM, Desai HA. Prescription drug monitoring programs and death rates from drug overdose. Pain Med. 2011;12(5):747–754. doi:10.1111/j.1526-4637.2011.01062.x

53. Patrick SW, Fry CE, Jones TF, Buntin MB. Implementation of prescription drug monitoring programs associated with reductions in opioid-related death rates. Health Aff (Millwood). 2016;35(7):1324–1332. doi:10.1377/hlthaff.2015.1496

54. Nam YH, Shea DG, Shi Y, Moran JR. State prescription drug monitoring programs and fatal drug overdoses. Am J Manag Care. 2017;23(5):297–303.

55. Haegerich TM, Paulozzi LJ, Manns BJ, Jones CM. What we know, and don’t know, about the impact of state policy and systems-level interventions on prescription drug overdose. Drug Alcohol Depend. 2014;145:34–47. doi:10.1016/j.drugalcde.2014.10.001

56. Green T, Case P, Fiske H, et al. Perpetuating stigma or reducing risk? Perspectives from naloxone consumers and pharmacists on pharmacy-based naloxone in 2 states. J Am Pharm Assoc (2003). 2017;57(S19–S27). doi:10.1016/j.japh.2017.01.013

57. Mdege N, Lang J. Screening instruments for detecting illicit drug use/abuse that could be useful in general hospital wards: a systematic review. Addict Behav. 2011;36:1111–1119. doi:10.1016/j.addbeh.2011.01.008
