

Recommendations for Urine Drug Monitoring as a Component of Opioid Therapy in the Treatment of Chronic Pain

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Abstract

Objective. Several prominent guidelines recommend that patients on long-term opioid therapy have periodic urine drug monitoring (UDM) for appropriate use; however, none address the specific questions of which patients to test, which substances to test for, how often to test, and how to act on the results.

Design. In the absence of adequate scientific evidence in the literature, a panel of experts in the field of pain and addiction medicine was convened to develop consensus UDM recommendations. The panel met three times between March 2010 and April 2011, and reviewed several drafts of the recommendations document between meetings.

Results. The group was able to achieve consensus on a set of UDM recommendations addressing test selection, test frequency, interpretation of results, and how to handle discrepancies based on specific results.

Conclusion. While the participating panel members recognize that there currently is a limited evidence base to support the expert panel's recommendations, primary care providers and pain specialists are largely acting today based on anecdote, intuition, and individual experience. The recommendations are meant to begin to provide a framework for standardizing practices for UDM in the treatment of chronic pain, and to serve as a catalyst to advance research that quantifies the effects of UDM on opioid therapy management and patient outcomes.

Key Words. Drug Toxicology Screens; Opioids; Pain Management; Addiction; Chronic Pain

Introduction

Over the last decade, opioid therapy has become a more acceptable treatment option for chronic pain of noncancer origin. The increase in opioid use between the years 1980 and 2000 was only 8–16%, however, by 2002, use had increased by over 222% [1–6]. Along with the increase in the utilization of opioids has come an increase in abuse and diversion of these controlled substances. The Drug Abuse Warning Network reports that emergency department (ED) admissions attributed to opioid use more than doubled between 2004 and 2009, with over 400,000 ED visits in the United States in 2009 attributed to opioid use. Approximately 80% of these ED visits involved polysubstance abuse [7,8].

While urine drug monitoring (UDM) is one of the few tools available to clinicians to monitor for abuse, misuse, and diversion of opioids, its use especially by primary care providers is surprisingly low. Previous literature has reported utilization rates of UDM for chronic opioid therapy (COT) patients ranging from 8% to 30% in primary care practices [9–11]. Anecdotally, reports by clinicians specializing in pain medicine suggest that their use of UDM is more routine. It has been postulated that low utilization of UDM by primary care may be partly due to a lack of understanding of results and how to interpret and act on them [12]. Also, there exists some risk of misinterpretation of UDM, which can bring harm to a compliant patient. This risk may give some primary care practitioners pause when determining whether to use UDM in their practice. A

recent systematic review by Starrels and colleagues hypothesized that while UDM has theoretical benefits, currently most of the evidence for its role in preventing opioid misuse is weak, and that may explain why its use is not ubiquitous. The authors cite an urgent need for more rigorous research in this area to identify risk reduction strategies associated with improved clinical outcomes [13].

Despite the need for a stronger research base supporting the use of UDM to reduce abuse, misuse, and diversion of opioids, several medical societies and state medical boards endorse its use based primarily on its theoretical merits. The American Pain Society (APS) and the American Academy of Pain Medicine (AAPM), in their joint 2009 Opioid Treatment Guidelines stated that high-risk individuals on COT should have a urine drug test (UDT) or other test confirming adherence to the COT plan of care performed periodically. Additionally the APS-AAPM guidelines suggest that patient compliance of a COT plan of care should be evaluated even in patients not considered high risk, although this was not a strong recommendation [14]. Gourley, Heit, and Almahrezi in their seminal publication regarding universal precautions in pain medicine, advocate for UDM as a part of treating all chronic pain patients using opioids [15]. While most state medical boards that have endorsed UDM as a strategy to ensure safe and effective use of opioids only do so in general terms, the recent attempted passage of 64B8-9.0131 in Florida has demonstrated a possible movement by state medical boards to formalize the role of UDM in pain management through legislation [16]. The Florida Board of Medicine's "Standards of Practice for Physicians Practicing in Pain Management Clinics" originally mandated that all patients prescribed a controlled substance at a privately owned pain management clinic have UDM performed at the initiation of the controlled medication and on a random basis at least twice a year thereafter. The estimated economic impact of the bill resulted in some modifications that removed the UDM language in the bill which was ultimately passed in 2011; however, other states may follow in Florida's footsteps in an effort to reduce abuse, misuse, and diversion of controlled substances [16,17].

Recognizing the lack of clear guidance available to clinicians with respect to UDM, a multidisciplinary national recommendations panel was convened. The individuals on that panel were chosen based on their experience and knowledge in the field of pain and addiction medicine as well as knowledge of opioids and UDM. The guidance put forth in this publication is not meant to replace any mandates from individual state Boards of Medicine, but rather to provide additional guidance to primary care and pain medicine practitioners with regards to UDM. This guidance is intended to provide specific, but not overly complicated recommendations that apply to primary care providers, pain specialists, and other providers who prescribe opioids for long-term use for their patients. While several guideline sets issued by states and professional societies recommend that providers monitor their patients for appropriate use of opioids, there is little detail provided

on how or how often this should be done, or what to do with the results of tests. Special consideration was taken to balance both the patient and societal financial burden of monitoring, with the desire to provide appropriate patient care and to reduce potential abuse, misuse, and diversion of scheduled medications. Because there is limited literature that may be referenced in answering these questions, the panel suggests that this guidance be qualified as “expert-based recommendations, based on evolving, but weak evidence.” The recommendations put forth in this document have been termed as such because they are heavily based on expert opinion (which varies considerably) and are meant to serve as a supplement to clinical judgment and a foundation for discussion and not as “guidelines,” which are based on extensive peer-reviewed literature.

Methods

Funding and Potential Conflicts of Interest

Development of these recommendations was supported by Ameritox, Inc. through an unrestricted grant. Ameritox tasked the recommendations panel with developing consensus recommendations for monitoring the appropriate use of opioids, but did not otherwise have input into the discussion or the resulting recommendations. The potential conflicts of interest for each of the authors are listed at the title page of this document.

Composition of Panel

A panel of 11 experts in the field of pain and addiction medicine was assembled to discuss current evidence and create consensus recommendations regarding the use of UDM by primary care providers, pain specialists, and other providers who prescribe opioids for long-term use by their patients. These individuals were chosen by project co-chairs based on both their contribution to the field through peer review literature citations, as well as their long-term practice experiences and diverse backgrounds within pain and addiction medicine. The panel consisted primarily of director-level physicians, many at large academic medical centers or comprehensive pain clinics throughout the United States. The names of the individuals on the panel, and their credentials and affiliations appear at the beginning of this manuscript. The national recommendations panel was co-chaired by Steven Passik, PhD, and John Peppin, DO, FACP, with moderator services provided by Neil Goldfarb.

Recommendations Development Process

The recommendations panel was assembled three times in March and May of 2010 and April of 2011 to develop this guidance document. At the March 2010 meeting, the recommendations panel was provided with the results of a literature search summarizing state, professional societies, and international recommendations on UDM. At this meeting, an outline was created detailing who, how, and

when to use UDM in chronic pain patients. Additionally, some content was created surrounding differential diagnoses and potential actions for clinicians to take based on these diagnoses. An outline was distributed based on this meeting, and comments solicited in preparation for a follow-up in May 2010. At this second meeting who, how, and when to use UDM was further refined, and additional content was created surrounding differential diagnoses and potential actions for clinicians to take based on these diagnoses. After creating a complete outline of the recommendations resultant from these meetings, a consensus building was used to refine and revise the final outline of the recommendations, through distribution of drafts to panel participants, and distribution and incorporation of their comments, until the group members all expressed their satisfaction with the final outline [18]. This outline was then used to draft the final set of key questions, analysis, and recommendations, which were presented to the panel in April 2011, at which time final revisions were discussed and agreed upon by the panel.

Key Questions, Analysis, and Recommendations

Key Question 1. Whom to Test

Attempts have been made in the literature to use subjective data to predict a patient’s likelihood to abuse an opioid. While characteristics such as personal past or current history of substance abuse problems, family history of substance abuse problems, treatment in a drug rehabilitation facility, smoking history, and significant comorbid anxiety, depression, personality disorders, and environmental stressors increase the probability of opioid abuse, they alone or in combination are not solely predictive of abuse [19]. Studies have shown that behavioral monitoring and risk stratification, used either alone or in combination with UDM, were not able to detect abnormal urine monitoring results [20]. Additionally, patients may disguise their prior medical/family history, making risk stratification challenging [21,22]. Thus, while this information can be useful in assigning risk levels to patients, no patient is at zero risk for opioid abuse.

Recommendation 1.1

Given the difficulty in identifying drug use behaviors with subjective data, all patients who are prescribed a short- or long-acting opioid for long-term pain management (defined as >3 months by the recommendations panel) should be tested. In addition, UDM should be done in conjunction with a complete history and physical, appropriate psychological screens, and other evaluations. Further, attempts should be made to determine a pathophysiological etiology for the patient’s pain. A comprehensive treatment plan should incorporate and coordinate the full range of indicated and available rehabilitative, behavioral, multimodal therapies. This is in concert with the prevailing paradigm of effective disease management, incorporating preventative, disease modifying, monitoring, feedback, and positive reinforcement strategies to

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optimize outcomes [23,24]. Similar to the role of routine HbA1C testing and body mass index measurement in diabetes management to evaluate adherence to the treatment plan, clinicians need to recognize that all patients have a degree of risk for misuse of opioids and that monitoring is necessary to maintain patient safety, structure care with greater objectivity, and guide ongoing treatment decisions [15,25].

Key Question 2. How to Test Patients

Recommendation 2.1

The monitoring policy should be made clear to the patient at the first office visit (i.e., initial patient evaluation). The policy may include a statement regarding the therapeutic (i.e., nonpunitive) medical and legal purpose of monitoring, the protocol for monitoring, and how the results will be used.

Recommendation 2.2

Practitioners may wish to use a standard written agreement stating these policies, and delineating both the practitioner's and the patient's responsibilities [14,15]. If such an agreement is used, it should be reviewed with the patient on the initial visit, signed by both the patient and the practitioner, and copies may be given to the patient, selected pharmacies, and primary care provider. This document should be retained as part of the patient's medical record and a copy given to the patient. A copy of the AAPM's sample agreement for Long-term Controlled Substances Therapy for Chronic Pain can be accessed at (<http://www.partnersagainstpain.com/printouts/A7012CT6.pdf>). As a component of patient counseling, and in order to strengthen the therapeutic bond and trust between clinician and patient, it is recommended that the intent of such an agreement—as an instructive tool for purposes of improving health outcomes—be explicitly stated.

Recommendation 2.3

Monitoring should consist of a comprehensive urine drug test. Such a test may include illicit drugs, commonly prescribed opioids, and other prescription drugs of potential abuse (e.g., benzodiazepines, barbiturates, carisoprodol, and tramadol). As part of this process, the clinician may notify the laboratory as to what medications are prescribed and any concerns that may exist about specific nonprescribed medications being used. Whenever possible, the laboratory used should specialize in pain management, thus using appropriate reference ranges and offering a toxicologist who can help interpret difficult cases.

Recommendation 2.4

Turnaround time is an important consideration when selecting a test. Ideally, preliminary results should be available on the same day of the office visit. If results cannot be obtained quickly, the clinician may consider limiting the

dose or days supplied, or delaying prescription of medications until results are available and reviewed. Point of care (POC) testing when used to evaluate for the presence of illicit substances affords a relatively low-cost solution to the need for immediate information [26]. POC testing should be compliant with the methods and assurances put forth by the Clinical Laboratory Investigative Association.

Analysis 2.5

Current POC tests vary in comprehensiveness. In general, POC tests have high sensitivity and low specificity and may be used primarily for testing a patient at their initial visit as a screening measure for recent controlled substance prescription medication and potentially illicit drug use.

Recommendation 2.6

If POC tests are used and findings are inconsistent with prescribed therapy, a urine sample should be sent to the lab for quantitative evaluation. Current POC tests recommend the use of gas chromatography/mass spectrometry (GC/MS) to confirm preliminary analytical results obtained from a POC test [27,28]. POC testing is an important screening tool that should not be solely relied upon to monitor therapy due to insufficient specificity of these assays at the current level of technology. However, POC serves as a useful tool that should serve to warn of actual or potential abuse and act as a deterrent for drug seeking patients when a practice is known to test a patient.

Recommendation 2.7

In requesting a urine sample, temperature and specific gravity should be measured on the sample. Many collection cups have a temperature gauge on the side of the cup, and specific gravity is reported by the majority of laboratories. These simple precautions can help ensure the sample has not been tampered with or substituted [29]. Chain of custody is usually not necessary in small practices, but can be instituted if it is felt necessary [30].

Key Question 3. When to Test

Recommendation 3.1

The initial test may be viewed as a component of risk assessment to aid in risk stratification and to evaluate the patient's therapeutic baseline (of currently prescribed substances) at this single point in time. Subsequent tests may be viewed as confirmatory or ongoing monitoring based on initial identified risk level and therapeutically prescribed medications. This initial test may be performed at the first visit when opioid therapy seems likely. For the pain medicine consultant, it may be desirable to schedule this screening prior to the initial visit as part of the previsit package of clinical materials (e.g., past medical records, imaging studies, diagnostic tests, prescription monitoring program (PMP) check, etc [31,32].

Recommendation 3.2

Risk factors may be used to determine the frequency of follow-up. The Screener and Opioid Assessment for People with Pain Revised (SOAPP-R) is recommended by this panel (http://www.painedu.org/load_doc.asp?file=SOAPP-R.pdf). The SOAPP-R assigns individuals to low-, medium-, and high-risk categories and is less susceptible to overt deception than its predecessor, SOAPP version 1.0 [33]. However, the panel recognizes that there are other validated and useful screens, e.g., the Current Opioid Misuse Measure and the Opioid Risk Tool [14,34–37]. These tools are only a component of risk assessment, and screening for risk factors via patient interview or other data collection method is recommended. Risk factors, which may be considered in determining the follow-up visit schedule, frequency of follow-up monitoring, and number of days opioid prescribed per prescription, may include

- Findings from baseline test.
- Smoking history [38,39].
- Past medical history [19].
- History of psychiatric diagnosis that predisposes patient to abuse [40–42].
- History of prior opioid use and known misuse [1,21].
- Personal and family history of substance abuse [1,21].
- Social environment that poses concern over misuse or diversion.

Risk factors and discussion of these risks with the patient should be documented in the medical record. Electronic versions of comprehensive pain assessments are currently available and can be integrated into electronic medical records.

Recommendation 3.3

Practitioners may consider developing a procedure for periodic but nonpredictable drug use monitoring of all patients who are on long-term opioid therapy, e.g., having patients draw from a hat, flip a coin, or roll a die at each visit to determine if they will be tested at that visit. The purpose of this type of process is to minimize burden (staff time, costs, etc) while imparting a sense of fairness and preventing individuals with problematic drug use behaviors from anticipating the time of testing. It is important to recognize that while difficult to implement, true random monitoring involves calling a patient into the office at a time other than during a visit to submit to a urine test within 24 hours of notification. The panel recognizes that this may not be realistic to implement practice-wide, and thus suggests the following:

- Patients at low risk of misuse may be periodically eligible for monitoring at each visit, with a minimum of one test conducted every 6 months. If POC testing is used, at least one comprehensive GC/MS or liquid chromatography dual mass spectrometry (LC/MS/MS) test may be conducted yearly.
- Patients at medium to high risk may be periodically eligible for monitoring at each visit, with a minimum of

one test conducted every 3 months. If POC testing is used, at least one comprehensive GC/MS or LC/MS/MS test may be conducted every 6 months.

Recommendation 3.4

Risk may be periodically reassessed, and should not be considered static based on baseline findings in any patient [37,43,44]. Patients who request refills ahead of schedule, request higher doses of opioid therapy, or who otherwise evidence behaviors, which may be associated with misuse of opioids may be tested when such concerns manifest; this testing is best done without the patient suspecting it will occur. Additionally, patients suspected of abusing other substances or diverting the prescribed drug(s) may undergo more frequent GC/MS or LC/MS/MS testing. The panel recommends these individuals be co-managed by a provider who specializes in substance abuse [45]. Pill counts and the use of PMP reports may be used whenever possible, especially in medium- and high-risk individuals.

Recommendation 3.5

Practitioners should be aware of their state's requirements for monitoring, which may mandate particular testing schedules or impose other regulations for prescribing opioids. This information should be obtained from the appropriate state regulatory agency.

Key Question 4. How to Interpret Results

Analysis 4

Interpretation of test findings of concern requires consideration of many factors, including consideration of patient history and risk factors; type, frequency, and magnitude of the findings; patient advance disclosure and/or acknowledgment of findings; practitioner's assessment and ability to address the findings with the patient. The finding of illicit drugs or medications not prescribed poses both a health risk and undermines trust. A patient's pain cannot be treated effectively in an environment of poor trust or where the patient is purposefully trying to mislead the clinician [15,46]. Ongoing prescription of controlled substances in the face of illicit drug use also poses ethical, regulatory, and legal risk for the prescriber. The recommendations panel recognizes the complexity of the issues and has developed several recommendations to help guide practice.

Results of concern may be classified into the following broad categories:

1. Prescribed drug is not detected.
2. An illicit drug is detected.
3. A nonprescribed scheduled drug or drug of concern (e.g., carisoprodol) is detected.

Each of these potential findings is discussed in turn, including potential reasons for the finding, and potential

Table 1 Potential differential diagnoses based on UDM results

UDM Results		
Prescribed Drug Not Detected	Illicit Drug Detected	Nonprescribed Scheduled Drug or Drug of Concern Detected
Not taking	Supplemental pain relief	Supplemental pain relief
Diversion	Addiction	Addiction
Hoarding	Deliberate use or abuse	Deliberate use or abuse
Lab error	Lab error	Lab error
Self-escalating	Trading prescription drug for illicit	Doctor shopping
Binge use		Uncoordinated care
Timing of specimen to last dose		Metabolites of prescribed drug
Taking medication prn		
Rapid metabolism		
Drug–drug interaction		

follow-up actions. Table 1 shows the potential differential diagnoses for each of the broad categories of results listed above. It is important to note that counterfeit urine does exist, and precautions should be taken as detailed in Recommendation 2.6 in order to prevent its substitution for a patient’s actual sample.

Recommendation 4.1—Prescribed Drug is Not Detected. Construct a differential diagnosis for findings based upon exigent information, which may include

- Diversion.
- Hoarding.
- Not taking the medication/never got the prescription filled.
- Lab error.
- Self-escalating.
- Binge use.
- Timing of specimen collection in relation to most recent dose.
 - Urine retention times of commonly prescribed opioids are provided in Table 2.
- Taking the medication on an occasional basis and not as prescribed

Table 2 Approximate urine retention times for commonly prescribed opioids [48,49]

Drug	Time (Hours)
Codeine	48
Fentanyl	15–20
Hydrocodone	20–25
Hydromorphone	48–96
Meperidine	15–20
Methadone	72
Morphine	48–72
Oxycodone	48–96

- Rapid metabolism (relatively rare—consider a genetic test if patient’s self-report is credible).
- Drug–drug interaction.

Actions that might be taken following a GC/MS or LC/MS/MS test that confirms the absence of the prescribed drug will be discussed in Section 5. Note that the absence of a prescribed product in combination with an illicit substance or nonprescribed scheduled drug or drug of concern is an especially alarming finding that requires immediate action.

Recommendation 4.2—Illicit Drug is Detected. Construct a differential diagnoses for findings based upon exigent information, which may include

- Deliberate use or abuse of the illicit drug.
- Addiction.
- Seeking additional pain relief.
- False positive/lab error.
 - Table 3 depicts the agents that are known to interfere with the results of a urine test. Note that confirmatory tests such as GC/MS reduce the possibility of positive or negative interference from these agents, dramatically. The level of interference of these agents listed in Table 3 varies widely, and should be discussed with the vendor that administers testing in your clinic.
- Self-medication.
- Bartering prescribed drug in exchange for illicit drug or other goods/services.

Actions that can be taken following a test that confirms the presence of an illicit drug will be discussed in Section 5.

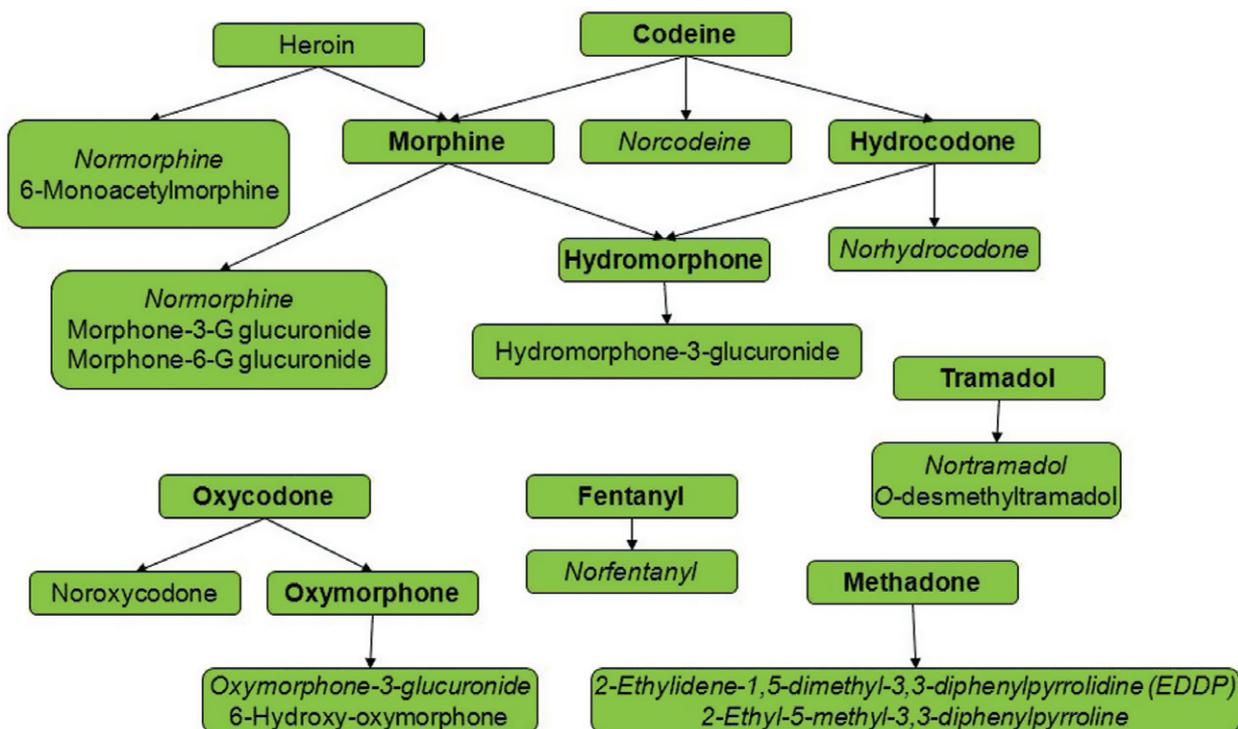
Recommendation 4.3—Nonprescribed Scheduled Drug or Drug of Concern is Detected. Construct a differential diagnoses for findings based upon available information that may include those etiologies listed above for “illicit drug is detected,” plus

Table 3 Known agents to cause interference in UDM results (immunoassay methodology) [12,48,50]

Interferences in UDM

Opioids	Marijuana	Cocaine	Amphetamines	Benzodiazepines
Poppy seeds	Hemp seed	Coca leaf tea	Typical antipsychotics	NSAIDs
Quinolone antibiotics	NSAIDs	Salicylates	Zolpidem	Zolpidem
Zolpidem	PPIs	Zolpidem	Selegiline	Oxaprozin
Naloxone	Zolpidem	Fluconazole	Phentermine	Sertraline
Buprenorphine	Efavirenz		Trazodone	
Verapamil	Tolmetin		Bupropion	
Rifampin			Amantadine	
Dextromethorphan			Desipramine	
Diphenhydramine			Labetalol	
Quinine			Phenylephrine	
Nalmefene			Pseudoephedrine	
Tolmetin			Ranitidine	
Papaverine			Tolmetin	

- Multiple prescribers/uncoordinated care.
 - A PMP can be useful to determine whether products are obtained legitimately and which prescriber is writing for them.
- Metabolites.
 - Note that the metabolites associated with commonly prescribed opioids are shown in Figure 1 to aid in the interpretation of a UDT.



Notes:
 -Pharmaceutical Opioids in **BOLD**
 -Inactive Metabolites in *ITALICS*
 -Only small amounts of hydrocodone (11%) following codeine administration and hydromorphone (2.5%) following morphine administration are found in the urine.

Figure 1 Metabolism of commonly prescribed and illicit opioids [47].

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Suspected Explanation	Potential Actions												
	Document findings and schedule a follow up	Ask patient about results	Review initial agreement with patient	Counsel the patient	Verify results with the lab	Consider retesting the patient	Follow the Five S's	Consider more frequent screening	Consider therapy change	Consider discontinuation of opioids	Consider discharge from the practice	Notify other providers	Consider referral to specialist
Not taking	◊	◊	◊	◊			◊	◊	◊				◊
Diversion	◊	◊	◊	◊			◊	◊	◊	◊	◊	◊	◊
Hoarding	◊	◊	◊	◊			◊	◊	◊				◊
Lab error	◊	◊			◊	◊							
Self-escalating/binge use	◊	◊	◊	◊			◊	◊					◊
Timing of specimen to last dose	◊	◊	◊	◊		◊	◊						
Taking med prn	◊	◊	◊	◊				◊	◊				
Rapid metabolism	◊	◊	◊	◊	◊	◊							◊
Drug-drug interaction	◊	◊	◊	◊	◊			◊					◊
Supplemental pain relief	◊	◊	◊	◊				◊	◊				◊
Addiction	◊	◊	◊	◊				◊	◊	◊			◊
Deliberate use or abuse	◊	◊	◊	◊				◊	◊	◊			◊
Trading prescription drug for illicit	◊	◊	◊	◊				◊	◊	◊	◊	◊	◊
Doctor shopping	◊	◊	◊	◊				◊	◊	◊	◊	◊	◊
Uncoordinated care	◊	◊	◊	◊				◊	◊				◊
Metabolites of prescribed drug	◊	◊	◊	◊	◊								

Figure 2 Potential actions based upon the differential diagnoses presented in section 4.

Actions that can be taken following a test that confirms the presence of a nonprescribed drug or drug of concern will be discussed in Section 5.

Key Question 5. How to Handle Discrepancies in Test Results

Analysis 5

The recommendations panel recognizes that each patient is unique, and that a great deal of clinical judgment is required to handle discrepancies in a patient's UDT. In some cases, it may be realistic and appropriate to involve a patient's family when handling a discrepancy. However, any family involvement would have to conform to the Health Insurance Portability and Accountability Act privacy rules. The following potential actions are provided with the understanding that they are not appropriate at all times in every patient. Figure 2 delineates what potential actions would be appropriate based on the differential diagnoses presented in Section 4.

Recommendation 5.1—Potential Actions Based on Findings

5.1.1

- Verify the results with the lab. A good relationship with a laboratory is critical. Phone calls can frequently settle a possible aberrant finding quickly.

5.1.2

- Document findings and schedule a follow-up visit as soon as is feasible.

5.1.3

- Meet with patient: Discuss the findings in an open-ended (i.e., nonjudgmental, non-accusatory) manner, in order to invite candor from the patient.
 - ◊ Does patient have an explanation for the findings?
 - ◊ Do the patient's statements match or contradict test results?
- Review the initial treatment agreement with the patient.
- Counsel the patient as appropriate.
- Consider retesting or additional testing

5.1.4

Based upon information gleaned from the interview, if abuse/misuse is suspected:

- Maintain current therapy (justify reasons via documentation and additional contingencies in ongoing plan of care).
- Change therapy/discontinue opioids.
- Consider outcomes of retention vs discharge of the patient from the practice.
 - ◊ Practice should have a protocol for discharging patients. This protocol may include a written notification of discharge, reasonable efforts made to refer the patient to chemical dependency treatment, and explicit instructions on how and where to obtain medical care in a timely manner. State medical boards should be consulted where appropriate on the issue of discharging patients, as they may have put forth guidance on certain discharge issues (e.g., the amount of notice required to allow patients adequate time to secure a new clinician).

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- Communicate with the patient's other providers when possible.

5.1.5

If diversion is suspected, the following actions are recommended:

- Talk to the patient as soon as possible, preferably with a third party (e.g., nurse or other office personnel).
- Follow the five S's which are limit supply, select drug with lower street value, schedule more frequent visits, schedule more frequent UDM, involve a substance abuse specialist [43]
 - If diversion is confirmed, the opioid may be discontinued and the authorities can be notified (where criminal behavior—e.g., altering Rx, forging Rx, diversion, stolen Rx, confirmed shopping—is suspected). According to federal statutes, the clinician is not under legal obligation to notify law enforcement (although individual state laws may vary); however, the patient will most likely obtain opioids from another provider and continue to divert. There are social responsibilities that the clinician must consider.
- Consider outcomes of retention vs discharge of the patient from the practice.
 - Practice should have a protocol for discharging patients. This protocol may include a written notification of discharge, reasonable efforts made to refer the patient to chemical dependency treatment, and explicit instructions on how and where to obtain medical care in a timely manner.

5.1.6

Where addiction is suspected, the following actions are recommended:

- Co-management with a specialist in abuse and decide to continue or discontinue the opioid.
- Talk to the patient.
- Follow the five S's.
- Referral to addiction specialist or 12-step program.
 - Confirm participation in program.
 - Work in collaboration with the addiction specialist.
- Follow-up to monitor patient's progress in recovery.

5.1.7

When the patient is not taking the opioid as prescribed:

- Talk to the patient: open a dialog ("help me to understand . . .").
- Reinforce rules, refer to initial agreement.
- Educate on proper use.
- Change formulation.

Conclusions

While the evidence base for the use of UDM as a strategy to help reduce opioid misuse, abuse, and diversion has not been well established, UDM has a recognized role in

the treatment of patients using opioids for chronic pain [51]. Various medical societies and state boards of medicine have endorsed UDM in the treatment of chronic pain patients making it increasingly used by pain specialists, although its use by primary care providers still lags [9–11]. The role of UDM can be summarized by a mnemonic, the five p's;

1. Protect patients.
2. Protect practitioners.
3. Protect access (to valuable therapies; i.e., maintain opioid availability for medical necessity).
4. Protect the community and society.
5. Promote the cost-effective use of health care resources.

It has been the goal of this panel to provide a comprehensive set of recommendations for primary care providers and pain specialists alike. These recommendations are based primarily on expert opinion, and due to a lack of literature and research to inform the questions addressed in them, they should be considered based on weak evidence. Recognizing that clinician opinion varies considerably with respect to UDM, it is expected that the recommendations presented in this document will generate considerable debate among practicing clinicians and policy makers. This is their intention, as clinical opinion is the only option to help guide other clinicians in the absence of strong research evidence.

One consideration that is not touched upon in these recommendations but deserves consideration is the cost of what has been put forth in these recommendations. This panel recognizes the significant costs that new technology adds to the cost of caring for patients, with UDT being no exception. When caring for patients, clinicians must be aware of these costs when weighing the risks of testing vs not testing. The clinician must balance the medical-legal risks as well as the ethical ones, when deciding whether ordering a particular test is warranted. Thus, this panel recommends that the financial burden of periodic testing be compared with the benefit this additional surveillance may confer on the health system and society as a whole. A cost-effectiveness model would also help clinicians and policy makers elucidate at what price UDT is feasible at certain frequencies for certain populations.

This panel advocates strongly for research that quantifies the effect of UDM on opioid therapy for pain treatment and its outcomes. This includes research that quantifies the effect of UDM on treatment, the incidence of discrepancies following the institution of universal UDM, the impact of various frequencies of UDT on patient outcomes. Also, research that better quantifies the clinical consensus for dealing with discrepancies in UDTs, as well as patient attitudes toward testing while on COT would be helpful to better inform and stratify the recommendations contained in this manuscript.

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