

Appropriate Use of Drug Testing in Clinical Addiction Medicine

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Biological drug testing is a tool that provides information about an individual's recent substance use. Like any tool, its value depends on using it correctly; that is, on selecting the right test for the right person at the right time. This document is intended to clarify appropriate clinical use of drug testing in addiction medicine and aid providers in their decisions about drug testing for the identification, diagnosis, treatment, and recovery of patients with, or at risk for, addiction. The RAND Corporation (RAND)/University of California, Los Angeles (UCLA) Appropriateness Method (RAM) process for combining scientific evidence with the collective judgment of experts was used to identify appropriate clinical practices and highlight areas where research is needed. Although consensus panels and expert groups have offered guidance on the use of drug testing for patients with addiction, very few addressed considerations for patients across settings and in different levels of care. This document will focus primarily on patients in addiction treatment and recovery, where drug testing is used to assess patients for a substance use disorder, monitor the effectiveness of a treatment plan, and support recovery. Inasmuch as the scope includes the recognition of addiction, which often occurs in general healthcare settings, selected special populations at risk for addiction visiting these settings are briefly included.

Key Words: addiction identification, addiction treatment, American Society of Addiction Medicine, drug testing, medication monitoring, opioid treatment services, substance use disorder

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RATIONALE

The purpose of the American Society of Addiction Medicine (ASAM) document *Appropriate Use of Drug Testing in Clinical Addiction Medicine* is to provide guidance about the effective use of drug testing in the identification, diagnosis, treatment, and promotion of recovery for patients with, or at risk for, addiction. This document draws on existing empirical evidence and clinical judgment on drug testing with the goal of improving the quality of care that people with addiction receive.

Drug testing uses a biological sample to detect the presence of a specific drug (or drugs) as well as drug metabolites that remain in the body following use for a window of time. No universal standards exist today in clinical drug testing for addiction identification, treatment, medication monitoring, or recovery. Relatedly, there is very limited empirical evidence about whether the use of drug testing in addiction treatment settings leads to improved clinical outcomes.

DOCUMENT FOCUS

This document focuses on when, where and how often it is appropriate to perform drug testing in the identification, treatment and recovery of patients with, or at risk for, addiction. These recommendations are not meant to be clinical practice guidelines, which typically focus on either more generalized or disease-specific recommendations. ASAM recognizes that drug testing is used in other contexts (eg, criminal justice, workplace and pain management settings). ASAM's intent with this document, however, is to focus primarily on patients in addiction treatment and recovery, where drug testing is used to assess the patient for a substance use disorder (SUD), monitor the effectiveness of their treatment plan and support recovery, and to also focus on selected special populations at risk for addiction in general healthcare settings. Although ASAM acknowledges that these recommendations may be applied to other settings where drug testing is utilized, note that the materials reviewed and methodology used were restricted to the populations and settings described.

TARGET POPULATION

This appropriateness document is intended for addiction specialists and for all providers utilizing drug testing in the context of the identification, treatment and monitoring of

patients with, or at risk for, addiction. This document will also be useful for physicians and other providers concerned about the possibility of addiction in their patient population.

RECOMMENDATION DEVELOPMENT PROCESS

The RAND Corporation (RAND)/University of California, Los Angeles (UCLA) Appropriateness Method (RAM) provides a specific process for combining the best available scientific evidence with the collective clinical judgment of field experts to arrive at recommended practices (Fitch et al., 2001). The RAM is ideal for the identification of underuse or overuse of specific clinical procedures or tests, as well as in situations where rigorous clinical trials are lacking. The use of the RAM produced a set of appropriateness statements regarding the use of drug testing in the identification, diagnosis, treatment, and promotion of recovery for patients with, or at risk for, addiction.

ASAM's Quality Improvement Council (QIC) was the oversight committee for the development of the appropriateness document. The QIC appointed a 10-member expert panel to participate throughout the development process, rate treatment scenarios, and review the draft document. In selecting the panel members, the QIC made every effort to avoid actual, potential, or perceived conflicts of interest that may arise as a result of relationships with industry and other entities among members of the expert panel. All QIC members, expert panel members, and external reviewers of the document were required to disclose all current related relationships, which are presented in the Supplemental Digital Content, <http://links.lww.com/JAM/A56>.

The expert panel was comprised experts and researchers from multiple disciplines, medical specialties, and subspecialties, including academic research, internal medicine, adolescent medicine, pain medicine, emergency medicine, medical toxicology, anesthesiology, psychiatry, and obstetrics/gynecology. Physicians with both allopathic and osteopathic training were represented. Furthermore, the panel members represented a range of practice settings including opioid treatment programs (OTPs), physician health programs, private practice, and academic medical centers. The expert panel was assisted by a technical team from the Institute for Research, Education and Training in Addictions (IRETA). The expert panel moderator and medical advisor was selected by the IRETA project team and approved by the QIC.

EVIDENCE REVIEW AND GRADING

Existing clinical guidelines offering guidance on the use of drug testing for patients with, or at risk for, addiction were located and reviewed. Overall, the review of existing guidelines revealed that numerous consensus panels and expert groups have offered guidance on the use of drug testing for patients with addiction. However, with the notable exceptions of the Substance Abuse and Mental Health Services Administration's (SAMHSA) Treatment Improvement Protocols (TIP) 40 and 43 (CSAT, 2007; CSAT, 2012), very few of these guidelines address drug testing in the context of patient levels of care. Publications by authoritative professional societies, including the

American Society of Addiction Medicine (ASAM), the American Academy of Pediatrics (AAP), and the American College of Obstetrics and Gynecologists (ACOG) were also consulted. Although not typically evidence-based, a representative sample of payer policies was also consulted for information about the patient populations and types and frequency of drug testing that are currently reimbursed in clinical care. See the Supplemental Digital Content, <http://links.lww.com/JAM/A56> for a complete list of clinical guidelines reviewed.

A review of empirical evidence regarding the use of drug testing in the identification, treatment, and monitoring of patients with, or at risk for, addiction was conducted. Relevant research was identified via a PubMed MeSH term search for Substance-related Disorders and Substance Abuse Detection articles published in the previous 10 years, capturing the most up-to-date findings for a field defined by rapidly advancing technological innovations. Important earlier articles were identified through reverse citation search. Given the relative paucity of research directly examining drug testing in SUD populations and settings, the review was not limited to randomized controlled trials or similarly rigorous methodologies; it included cohort studies and case studies. Of the 866 articles identified, 113 were retained following a title and abstract review for relevance to the topic of biological detection of addictive substances in an appropriate population or setting. See the Supplemental Digital Content, <http://links.lww.com/JAM/A56> for a complete list of articles reviewed.

Overall, the literature review revealed that drug testing has rarely been examined for its value as a clinical intervention or as a differential source of information. Many research studies include drug testing as an outcome measure of treatment adherence or progress, but few examined whether and how drug testing itself works to improve outcomes for patients with, or at risk for, addiction.

RAND/UCLA Appropriateness Method

Statements pertaining to the appropriate use of drug testing in the identification, treatment, and monitoring of patients with, or at risk for, addiction were derived from the review of existing guideline publications, payer policies, and literature. There were some clinical areas identified by the project team and medical advisor relevant to addiction treatment settings where existing clinical recommendations or adequate empirical evidence were not found (eg, certain levels of care). In these situations, appropriateness statements were generated in conjunction with the medical advisor and the lack of the existing evidence was clearly documented.

Each appropriateness statement was rated by the project team on degree of clinical consensus from previous guidelines and quality of empirical evidence. A high clinical consensus rating was reserved for statements supported by multiple sources. A high empirical evidence rating was reserved for statements emerging from multiple studies using rigorous study methodology (eg, randomized controlled trials). The statements and supporting evidence ratings were organized

into a table, which served as the foundation for rating by the expert panel. A background article discussing each appropriateness statement and relevant clinical or empirical evidence was also developed and provided to the expert panel members.

Each panel member rated the appropriateness of each statement on a 9-point scale where 1 = extremely inappropriate and 9 = extremely appropriate. Appropriateness refers to whether the expected benefit of following the guidance offered by a statement outweighs any anticipated risks, irrespective of cost. The experts were asked to use their own best clinical judgment (rather than perception of what other experts might say) of appropriateness for an average patient presenting to an average provider who performs drug testing in an average setting that provides care for patients with addiction.

Statements with median scores in the 1 to 3 range were classified as inappropriate, those in the 4 to 6 range as uncertain, and those in the 7 to 9 range as appropriate. Consensus was defined as a statement that received no more than 2 ratings outside of the median score range. This cutoff for disagreement is commonly used for panel sizes of 8 to 10 members.

Expert Panel Meeting

The 10-member expert panel came together for a 2-day meeting to discuss their ratings, focusing on statements that were rated uncertain or about which they disagreed. The goal of the discussion was to discern whether uncertain and divergent ratings were due to real clinical disagreement or “artefactual” disagreement, such as fatigue while completing the rating instrument or misunderstanding of the statements. The expert panel was encouraged to modify statements for clarity and suggest additional statements during the discussion.

After the meeting, each expert rated the appropriateness of the subset of previously uncertain and disagreed upon statements, as well as the new statements that were constructed, on a 9-point scale, where 1 = extremely inappropriate and 9 = extremely appropriate. A table of the statements, their final ratings and associated evidence ratings is included in the Supplemental Digital Content, <http://links.lww.com/JAM/A56>.

COMMENTS AND MODIFICATION

The first draft of the appropriateness document was created and sent to the expert panel and ASAM staff. During a subsequent teleconference held in January 2017, ASAM shared feedback with the project team regarding the document's organization, and a revised version was provided. ASAM directed an external review of the appropriateness document, which consisted of input from ASAM members and stakeholders including experts from the addiction treatment community, professional societies, and the public. The external review period was conducted from February 3, 2017, to February 28, 2017. Further edits to the appropriateness document were made on the basis of this feedback.

CLINICAL RECOMMENDATIONS

The clinical recommendations generated by the RAM and external review process are listed below. Additional discussion and references are included in the Supplemental Digital Content, <http://links.lww.com/JAM/A56>.

PART 1: PRINCIPLES OF DRUG TESTING IN ADDICTION TREATMENT

Clinical Value of Drug Testing

Principles of Biological Detection of Substance Use

Providers should understand that drug tests are designed to measure whether a substance has been used within a particular window of time.

Drug Testing and Self-Reported Substance Use

Drug testing should be used in combination with a patient's self-reported information about substance use.

Drug testing is an important supplement to self-report because patients may be unaware of the composition of the substances(s) they have used.

Drug testing is particularly appropriate for patients facing negative consequences if substance use is detected, who are therefore less likely to provide accurate self-reported substance use information.

Discrepancy between self-report and drug tests results can be a point of engagement for the provider.

Drug Testing and Patient Outcomes

Because evidence suggests that drug testing assists with monitoring adherence and abstinence in treatment and can improve patient outcomes, drug testing should be used widely in addiction treatment settings.

Drug Testing and Evidence-Based Therapy

Contingency management is the most extensively researched behavioral therapy used in conjunction with drug testing. When utilizing contingency management therapy to encourage abstinence, providers should consider incorporating drug testing.

Clinical Use of Drug Testing

Therapeutic Tool

Drug testing is recommended as a therapeutic tool as part of evidence-based addiction treatment.

Providers should utilize drug testing to explore denial, motivation, and actual substance use behaviors with patients.

If drug-testing results contradict self-reports of use, therapeutic discussions should take place.

Providers should present drug testing to patients as a way of providing motivation and reinforcement for abstinence.

Providers should educate patients as to the therapeutic purpose of drug testing. To the extent possible, persuade patients that drug testing is therapeutic rather than punitive to avoid an “us versus them” mentality.

If a patient refuses a drug test, the refusal itself should be an area of focus in the patient's treatment plan.

Assessment

Treatment providers should include drug testing at intake to assist in a patient's initial assessment and treatment planning.

Results of a medical and psychosocial assessment should guide the process of choosing the type of drug test and matrix to use for assessment purposes.

Drug test results should not be used as the sole determinant in assessment for SUD. They should always be combined with patient history, psychosocial assessment, and a physical examination.

Drug testing may be used to help determine optimal placement in a level of care.

Drug testing can serve as an objective means of verifying a patient's substance use history.

Drug testing can demonstrate a discrepancy between a patient's self-report of substance use and the substances detected in testing.

For a patient presenting with altered mental status, a negative drug test result may support differentiation between intoxication and presence of an underlying psychiatric and/or medical condition that should be addressed in treatment planning.

Drug testing can be helpful if a provider is required to document a patient's current substance use.

Monitoring

Drug testing should be used to monitor recent substance use in all addiction treatment settings.

Drug testing should be only 1 of several methods of detecting substance use or monitoring treatment; test results should be interpreted in the context of collateral and self-report and other indicators.

PART 2: PROCESS OF DRUG TESTING IN ADDICTION TREATMENT

Choosing a Test

Clinical Necessity and Value

Before choosing the type of test and matrix, providers should determine the questions they are seeking to answer and familiarize themselves with the benefits and limitations of each test and matrix.

Test selections should be individualized based on specific patients and clinical scenarios.

Patients' self-reported substance use can help guide test selection.

Identifying Substance(s) of Interest

Drug testing panels should be based on the patient's drug(s) of choice and prescribed medications, and drugs commonly used in the patient's geographic location and peer group.

Addiction treatment programs/providers should establish a routine immunoassay panel.

Providers should not rely on the National Institute on Drug Abuse 5 (also known as the SAMHSA 5) as a routine drug panel.

Test panels should be regularly updated based on changes in local and national substance use trends. Providers should collaborate with the testing laboratory when determining the preferred test selections to obtain information about local and demographic trends in substance use.

Matrix Advantages and Disadvantages

Providers should understand the advantages and disadvantages of each matrix before considering rotational strategies.

If a particular specimen cannot be collected (eg, due to baldness, dry mouth, shy bladder), providers should consider collecting an alternative specimen.

If a given sample is likely to be prone to confounds, providers should choose an alternative matrix. For example, heavily chemically treated hair is not appropriate for drug testing.

Presumptive and Definitive Tests

Presumptive testing should be a routine part of initial and ongoing patient assessment.

Presumptive testing should be used when it is a priority to have more immediate (although less accurate) results.

Providers should know the cutoff threshold concentrations that their laboratory uses when interpreting a report of "no drug present."

Federal cutoff threshold concentrations used for occupational testing are not appropriate for clinical use because they are calibrated for workplace testing.

Definitive testing techniques should be used whenever a provider wants to detect specific substances not identified by presumptive methods, quantify levels of the substance present, and refine the accuracy of the results.

Definitive testing should be used when the results inform clinical decisions with major clinical or non-clinical implications for the patient (eg, treatment transition, changes in medication therapies, changes in legal status).

If a patient disputes the findings of a presumptive test, a definitive test should be done.

When ordering a definitive test, providers should advise the testing laboratory if the presence of any particular substance or group of substances is suspected or expected.

Because not all laboratories automatically perform a definitive test of positive presumptive results (the common term for this is "reflex" testing), providers should be aware that laboratories may require a specific order for definitive testing.

Cost

Providers should always consider cost both to patients and insurers when utilizing drug testing.

Responding to Test Results

Providers should attach a meaningful therapeutic response to test results, both positive and negative, and deliver it to patients as quickly as possible.

Providers should not take a confrontational approach to discussing positive test results with patients. Providers should be aware that immediate abstinence may not be a realistic goal for patients early in treatment. When making patient care decisions, providers should consider all relevant factors surrounding a case rather than make a decision based solely on the results of a drug test. Considering all relevant factors is particularly important when using drug test results to help make irreversible patient care decisions.

Unclear Test Results

Providers should contact the testing laboratory if they have any questions about interpreting a test result or to request information about the laboratory procedures that were used.

Providers may consult with a medical toxicologist or a certified Medical Review Officer (MRO) for assistance in interpreting drug test results.

If the provider suspects the test results are inaccurate, he or she should consider repeating the test, changing the test method, changing/adding to the test panel, adding specimen validity testing, or using a different matrix.

If tampering is suspected, samples should not be discarded. Rather, further testing should be performed to help identify whether and how tampering occurred.

Providers should consider samples that have been tampered with to be presumptive positive.

Presumptive Test Results

Positive presumptive test results should be viewed as “presumptive positive” results until confirmed by an independent chemical technique such as Gas Chromatography-Mass Spectrometry (GC-MS) or Liquid Chromatography-Mass Spectrometry (LC-MS).

An appropriate response to positive presumptive test results includes speaking with the patient.

Providers should seek definitive testing if the patient denies substance use.

Providers should review all medications, herbal products, foods, and other potential causes of positive results with the patient.

An appropriate response to positive presumptive test results may include speaking with the laboratory for assistance in interpreting the test results.

Because presumptive tests may use cutoff values, a negative presumptive test result should not be over-interpreted. It does not rule out substance use or SUD, as the latter is a clinical diagnosis.

It is appropriate to consider ordering a definitive test if presumptive test results are negative, but the patient exhibits signs of relapse.

Definitive Test Results

In the event of a positive definitive test result, consider intensifying treatment or adding adjunctive treatments.

An appropriate response to positive definitive test results may include speaking with the laboratory for assistance in interpretation.

Providers should use caution when using drug test results to interpret a patient’s amount or frequency of substance use. Individual metabolism and variability in absorption should be considered.

Providers should not over-interpret a negative definitive test result. It does not rule out substance use or SUD, as the latter is a clinical diagnosis.

Test Scheduling

Test Frequency

For people in addiction treatment, frequency of testing should be dictated by patient acuity and level of care.

Providers should look to tests’ detection capabilities and windows of detection to determine the frequency of testing.

Providers should understand that increasing the frequency of testing increases the likelihood of detection of substance use, but there is insufficient evidence that increasing the frequency of drug testing has an effect on substance use itself.

Drug testing should be scheduled more frequently at the beginning of treatment; test frequency should be decreased as recovery progresses.

During the initial phase of treatment, drug testing should be done at least weekly. When possible, testing should occur on a random schedule.

When a patient is stable in treatment, drug testing should be done at least monthly. Individual consideration may be given for less frequent testing if a patient is in stable recovery. When possible, testing should occur on a random schedule.

Random Testing

Random unannounced drug tests are preferred to scheduled drug tests.

A random-interval schedule is preferable to a fixed-interval schedule because it eliminates known non-testing periods (eg, if Monday is randomly selected from a week interval, the patient knows they will not be tested Tuesday-Saturday) and it is preferable to a truly random schedule because it limits the maximum number of days between tests.

PART 3: ADDITIONAL KEY ELEMENTS OF A TESTING PROGRAM

Documentation and Confidentiality

Addiction treatment programs should provide written drug testing procedures to patients. Procedures should be reviewed with the patient at the start of his or her treatment.

Providers should document the rationale for the drug tests they order and the clinical decisions that are based upon drug test results.

Providers should ask patients about and document potential sources of cross-reactivity, including various foods and current medications.

Particular characteristics of a sample with the potential to lead to problems with interpretation (eg, hair that has been chemically treated) should be documented at the time of collection.

Test results should be documented.

Test results should be kept confidential to the extent permitted by law. Providers should thoroughly explain to patients all rules regarding confidentiality, consent, and sharing test results with outside entities.

In general, providers should use caution when sharing test results with outside entities such as justice settings or employers. When sharing test results with outside entities, it is optimal that positive results be verified with a definitive test.

Practitioner Education and Expertise

Knowledge and Proficiency

Providers responsible for ordering tests should be familiar with the limitations of presumptive and definitive testing.

Providers responsible for ordering tests should be familiar with the potential for cross-reactivity in drug testing.

Providers responsible for ordering tests should consider the possible impact of tampering on test results. Providers should note that tampering is more likely in settings where consequences for substance use are severe, such as discharge from treatment.

Providers responsible for ordering tests should understand the potential benefits of alternative matrices to urine (eg, oral fluid, hair, etc).

Providers responsible for ordering tests should be aware of the costs of different test methods.

If the provider responsible for making clinical decisions based on test results does not have training in toxicology, he or she should collaborate with a medical toxicologist, a toxicologist from the testing laboratory, or an individual with MRO certification, as needed.

Language and Attitude

Providers should communicate with patients about drug testing using non-stigmatizing language. For example, results should be discussed as “positive” or “negative” as opposed to “clean” or “dirty.”

Providers should exhibit a consistent and positive attitude toward drug testing. Ambivalent attitudes toward drug testing among staff can be a barrier to its effective use.

Test Facilities and Devices

Point of Care Tests

Staff training and demonstrated proficiency is particularly important for organizations that use point of care tests (POCTs).

Providers performing POCTs should be evaluated for their proficiency. POCTs should be performed only by providers who demonstrate adequate proficiency with the drug test in question. Facilities using POCTs should periodically evaluate the accuracy of their system in comparison to a qualified laboratory.

Users of POCT devices need to be educated about the tests. They need to understand the statistical and analytical sensitivity of the device.

They need to understand the spectrum of analytes (drugs and metabolites) detected by the device.

They need to understand any known interferences from drugs or metabolites that could affect interpretation of results.

They need to understand the nomenclature of the device.

Users of POCTs should refer to the POCT package insert and/or the manufacturer to determine the device’s capabilities.

Cost issues should be considered when deciding to initiate a POCT protocol. These include costs associated with additional staff time and training, space to perform testing, quality assurance procedures, and documentation of POCT results.

Choosing a Laboratory

Providers should seek to work with a laboratory that has expertise in drug testing in addiction treatment settings.

When selecting a laboratory, providers should investigate whether state law requires a specific certification.

It is important to work with a laboratory qualified to perform accurate tests and assist in the interpretation of results.

Providers should work to create a collaborative relationship with the laboratory; important areas for collaboration are test panel selection, detecting sample tampering, interpreting test results, and identifying regional drug use trends.

When selecting a laboratory, providers should contact the toxicology director or a medical toxicologist at the laboratory to discuss panels, types of drug tests, testing procedures, and technical assistance.

Because drug testing should be individualized, laboratories should allow providers to order specific tests for each patient.

PART 4: BIOLOGICAL MATRICES

Urine

Use of Urine Drug Testing in Addiction Treatment

Urine should be considered the most well-established and well-supported biological matrix for presumptive detection of substance use in a clinical setting.

Urine should be considered the best established matrix for POCTs.

If tampering is of high concern or appropriate measures to reduce the likelihood of tampering cannot be taken, providers should consider using an alternative specimen type.

Urine Sample Integrity

Urine should be considered the matrix most prone to sample tampering through dilution, adulteration and substitution.

Providers should choose collection methods that protect patients’ dignity and privacy while minimizing opportunities for tampering.

Observed sample collection can deter urine sample tampering; if there are concerns about tampering, collection should be observed by a same-gender staff member.

Observed urine sample collection does not completely prevent sample tampering; providers should consider other strategies to mitigate urine sample tampering.

Providers should consider the use of an unobtrusive sample collection method for patients with a history of psychological trauma, especially sexual trauma.

Providers should employ appropriate measures in the facility where patients provide specimens to decrease the likelihood of urine sample tampering during unobserved collection.

Do not allow personal items in the collection area.

Ensure that potential adulterants, such as soap, ammonia, or bleach are not readily available in the collection area.

Consider placing blue dye in the toilet and turn off the water source to the collection area during collection.

If a provider suspects that a patient has engaged in substance use but continues to produce negative urine test results, sample collection should be observed and specimen validity testing should be conducted.

If a sample is suspected of having been tampered with, it should be tested for specimen validity including creatinine concentration, pH level, specific gravity, and adulterants.

All samples undergoing definitive testing should be tested for creatinine concentration, pH level, and specific gravity (if creatinine is low).

Signs of Urine Sample Tampering

All urine samples should be checked for unusual specimen characteristics. Characteristics include

Temperature outside expected range of 90 to 100 degrees within 4 minutes of production (This can be checked using a heat sensitive strip).

Unusual color or smell, soapy appearance, cloudiness or particles floating in the liquid.

If a urine sample exhibits unusual specimen characteristics, the sample should undergo specimen validity testing to help identify whether and how tampering occurred.

Responding to Specimen Validity Test Results

Providers should consider samples that have been tampered with to be presumptive positive.

For patients with past incidences of dilute urine samples, it is advisable to collect samples in the morning or request that patients decrease water intake prior to sample collection.

For patients with past incidences of dilute urine samples, use creative solutions, such as collecting before work, on days off, or use an alternative matrix.

Urine Testing for Specific Substances

Urine testing for the use of alcohol is appropriate with current clinical tools. Ethyl glucuronide is an appropriate target metabolite when monitoring a patient for complete alcohol abstinence.

Ethanol-containing products, including hand sanitizers and mouthwash, should be avoided before an ethyl glucuronide test.

Urine testing is helpful when assessing amphetamine use. Particular caution should be paid to the interpretation of amphetamine immunoassays due to known limitations in specificity.

Urine testing is helpful when assessing benzodiazepine use.

Particular caution should be paid to the interpretation of benzodiazepine immunoassays due to known limitations in specificity.

Immunoassay results should be used cautiously when monitoring a patient's adherence to prescribed benzodiazepines. If a patient reports that he or she is taking the drug but a urine drug screen is negative, further analysis using definitive testing should be considered.

Urine testing is helpful when assessing opioid use.

Particular caution should be paid to the interpretation of opiate immunoassays due to known limitations in specificity.

Patients should be instructed to avoid the consumption of food items that contain poppy seeds because they can result in a positive opiate test.

Urine testing is helpful when assessing cannabis use, although it is difficult to determine the timing or cessation of consumption in chronic users due to extended windows of detection for tetrahydrocannabinol.

Blood

The relevance of blood testing in addiction treatment is limited mostly to emergency situations where there is a need to assess intoxication or impairment.

Breath

No statements about the appropriateness of breath testing were endorsed by the expert panel.

Oral Fluid

Oral fluid testing is appropriate for presumptive detection of substance use in addiction treatment settings.

Oral fluid collection with a device that facilitates saliva collection is preferable to expectoration.

The creation of a sample for oral fluid testing should be observed.

It is recommended that patients abstain from eating for 15 to 60 minutes prior to oral fluid sample collection.

If a patient recently took a drug by mouth (ingestion or inhalation), it is recommended to wait at least 2 hours before collecting an oral fluid sample.

Sweat

There is insufficient evidence to support the use of sweat testing in addiction treatment. More research is needed before sweat testing can be recommended over urine testing in clinical settings.

Hair

Hair testing in addiction treatment can detect long-term patterns of use. Routine use of hair testing is not appropriate for addiction treatment.

PART 5: SETTINGS

Outpatient Services (Level of Care 1.0) and Intensive Outpatient/Partial Hospitalization Services (2.0)

Because the opportunity for substance use is greater in outpatient treatment than in more intensive levels of care, drug testing has a particularly important role in monitoring substance use.

Providers should implement a random unannounced schedule of testing in outpatient services whenever possible, because the patient's opportunity for substance use is greater relative to residential treatment.

Drug testing should be scheduled on days following weekends, holidays, and paydays when feasible. Providers should communicate with patients about plans for additional drug tests around events/special occasions.

Additional drug testing should be considered if a patient is experiencing stressful psychological events.

Residential/Inpatient Services (3.0) and Medically Managed Intensive Inpatient Services (4.0)

Drug testing plays an important role in maintaining a drug-free therapeutic environment in residential treatment.

When residents leave the treatment program on passes, they should be asked to provide a sample for drug testing shortly after their return. Providers should communicate with patients about plans for additional drug testing following their return.

Opioid Treatment Services

The primary purposes of drug testing in the context of opioid treatment services (OTS) are (a) detecting substance use that could complicate treatment response and patient management, (b) monitoring adherence with the prescribed medication, and (c) monitoring possible diversion.

Drug testing can be an important tool for detecting the use of substances that can be lethal in combination with a prescribed opioid agonist medication (eg, benzodiazepines).

Drug testing has potential application across all stages of OTS including pre-induction assessment and treatment planning, active treatment, and during maintenance and recovery. Providers should utilize drug testing during the assessment phase and throughout treatment.

Providers should utilize drug testing as an aspect of contingency management in OTS.

Provider education should include knowledge of the metabolic pathways of commonly prescribed opioids.

Testing Schedule

Drug testing frequency is determined by stage of treatment as well as other patient factors and should be individualized.

Testing should be more frequent during the stabilization period and less frequent during the maintenance period.

Drug testing during and after tapering from methadone or buprenorphine continues to be an important way to support a patient's recovery; providers may want to consider

increasing drug testing frequency during tapering and in the period after tapering.

Responding to Test Results

Expected drug test results (ie, positive for prescribed medication and negative for unexpected substances) should be praised and responded to with tangible contingencies such as take-home doses of medication.

High concentration of a parent drug in the absence of its metabolites is consistent with sample tampering in the form of post-collection addition of the drug to the sample and potential diversion. In this case, a follow-up assessment should be conducted with the patient.

A test that is negative for the prescribed medication (eg, negative for buprenorphine in a patient prescribed buprenorphine) should not be used on its own to determine that diversion is occurring.

Unexpected drug test results could indicate the need for 1 or more of the following responses: (a) a higher level of care; (b) a higher dose of medication; (c) a different schedule of testing, such as random rather than scheduled and/or more frequent; and/or (d) increased education for the patient.

Considerations for Opioid Treatment Service Settings

For patients in OTP settings, the federally mandated 8 tests per year should be seen as a minimum, and it is often appropriate to perform testing more frequently than 8 times per year; determinations about testing frequency and duration should be made with consideration of individual patients, as noted above.

For patients in OTP settings, provider responses to unexpected test results can include discontinuation or reduction of take home doses of medication, more frequent or random schedule of drug testing, and increased counseling and peer group sessions.

Considerations for Office-Based Opioid Treatment Settings

For patients in office-based opioid treatment settings, the drug test panel should include the therapeutic drug and/or its metabolites.

In addition to drug testing, diversion can be reduced or prevented by frequent office visits, Prescription Monitoring Programs, observed dosing, and medication counts.

In order to provide buprenorphine or naltrexone treatment, providers must have access to drug testing laboratories.

Frequency of drug testing in buprenorphine treatment should be at least monthly, unless otherwise clinically indicated (eg, patients who have become stable in recovery may require less frequent testing).

Drug testing (and a negative test result for opioids) is indicated before starting treatment of opioid use disorder using naltrexone. Drug testing also is indicated throughout treatment using naltrexone.

Frequency of drug testing in treatment of opioid use disorder using naltrexone should be at least monthly, unless otherwise clinically indicated.

Recovery Residences

Weekly random drug testing is appropriate in a recovery residence.

Any patient expelled from a recovery residence should be able to continue an ongoing therapeutic relationship with his or her outpatient addiction treatment provider.

PART 6: SPECIAL POPULATIONS**Adolescents**

Use drug testing to assist in early identification of substance use in high-risk populations of adolescents including but not limited to those with known past substance use and those in treatment for mental health disorders.

Drug testing to monitor adolescents in addiction treatment or recovery from an SUD can be performed by providers in primary care.

When an adult observes symptoms characteristic of substance use in an adolescent, providers should use drug testing as part of an assessment for a possible addiction.

Adolescents and Self-Reported Substance Use

Even if an adolescent reports substance use, providers should consider drug testing for additional information because adolescents are less likely to self-report accurately.

Adolescents and Home Testing Kits

Because of a variety of limitations with home drug testing process and interpretation, providers should not encourage the use of home drug testing for adolescents.

Adolescent Consent

Before beginning the drug testing process with an adolescent, providers should explain drug testing protocols in full.

Drug testing an adolescent without his or her consent is not appropriate, except in emergency situations (eg, accidents, suicide attempts, and seizures).

Providers should acquire consent before drug testing an adolescent with symptoms such as school failure, fatigue, or excessive moodiness. Because these are not emergency situations, they are not hazardous enough to warrant skipping this step.

If an adolescent refuses to consent to a drug test, the provider should clearly document refusal and continue to evaluate the possibility of SUD through other methods and refer the patient to a specialist with additional mental health or substance use expertise.

Adolescent Confidentiality

Before beginning the drug testing process, providers should ask the adolescent for permission to share the results with parents/guardians and discuss confidentiality with parents/guardians in order to encourage parental involvement.

If an adolescent declines to share drug test results, the provider should not share them unless there is an acute risk of harm to the patient or others.

Test Choice

Drug test panels for adolescents should include the substances most used by the demographic.

Responding to Positive Test Results

If a positive definitive drug test result indicates that an adolescent is engaging in high-risk substance use, the provider should assist the patient and his or her parent or guardian in developing a plan for monitoring and treatment.

Pregnant Patients**Consequences and Confidentiality**

Providers should be aware of the adverse legal and social consequences of detecting substance use among pregnant women. They should familiarize themselves with local and state reporting requirements before conducting a drug test and relay this information to each patient before conducting a drug test.

Screening, Assessment, and Monitoring

Comprehensive substance use assessment, which may include drug testing, is part of obstetrical best practices. Providers working with this population should learn about and appropriately use clinical laboratory tests.

For a pregnant patient with a history of addiction, providers should be aware that the postpartum period is a time of increased vulnerability. Therefore, assessment for relapse, which may include drug testing, should be part of the postpartum visit.

Providers should keep drug test results and associated diagnoses confidential to the extent permitted by law.

Patient-Provider Relationship

When speaking with patients, providers should emphasize the therapeutic reasons for drug testing to avoid stigmatization.

Test Considerations

In a prenatal care setting, routine Screening and Brief Intervention for alcohol use should be conducted, but laboratory testing is not recommended except in cases of suspected or known risk factors for Alcohol Use Disorder.

As pregnant women who use substances are less willing to disclose the use of opioids and benzodiazepines than other substances, testing for opioids and benzodiazepines helps identify an often underreported behavior.

Urine is an appropriate matrix for drug testing women who are pregnant.

Test Results

As a follow up to a presumptive positive test result, providers should use definitive tests to clearly identify individual drugs.

Responses to positive drug test results can include: patient education, referral to treatment, and the creation of a treatment plan.

Providers should be familiar with local treatment resources and programs for pregnant women.

People in Recovery

It is appropriate to conduct drug testing for a minimum of 5 years in healthcare settings for most patients in stable recovery. The frequency of drug testing for patients in stable recovery should depend on the severity and chronicity of the patient's addiction.

It is appropriate for patients in stable recovery to receive periodic Recovery Management Checkups that include a drug testing component.

Immediate evaluation for treatment or treatment intensification as a response to a positive drug test result is appropriate for most patients in stable recovery.

Health and Other Professionals

Drug testing is especially useful in supporting recovery of individuals who have increased access to psychoactive substances, including healthcare professionals and professionals in safety sensitive positions. Additional testing should be considered for those in recovery who have significant occupational exposure to addictive substances.

RESEARCH RECOMMENDATIONS

This document is intended to provide guidance about the effective use of drug testing in the identification, diagnosis, treatment, and promotion of recovery for patients with, or at risk for, addiction. There were areas with insufficient evidence to make a recommendation, and/or a recommendation was not rated with agreement by the expert panel members. These areas were translated into the research recommendations below.

PART 1: PRINCIPLES OF DRUG TESTING IN ADDICTION TREATMENT

- Further research is needed on whether and how drug testing can be used to determine efficacy of and adjustments to treatment plans.
- Additional research is needed on the relationship between drug testing and functional status and other addiction treatment outcomes. Further research should include mediators and moderators of the relationship.
- More research is needed on the utility of clinical drug testing in populations where SUD is often identified, including primary care, emergency room, and pain management patients.

PART 2: PROCESS OF DRUG TESTING IN ADDICTION TREATMENT

- Significantly more research is needed on optimal testing frequency as well as the relationship between specific frequency and duration of drug testing and treatment monitoring and outcomes.
- Additional research is needed on how to utilize drug testing to detect novel and synthetic drugs (eg, cannabinoids, cathinones).
- Although evidence suggests that random testing schedules are more effective than testing on a predictable timeline, further study is needed to determine whether there are situations where non-random testing is sufficient.
- Further and ongoing research is needed on which drugs should be included in drug test panels.

- Further research is needed on determinations of when a definitive test as follow-up or in place of a presumptive test should occur.
- Additionally, more research is needed on the benefits of forgoing presumptive testing and beginning with definitive testing, and on discerning the roles of different kinds of definitive testing.

PART 3: ADDITIONAL CONSIDERATIONS FOR DRUG TESTING IN ADDICTION TREATMENT

- More research on effective personnel training to increase the reliability of drug testing conducted at the point of care is needed.
- The development of appropriate cutoffs for POCT needs more research. Though manufacturer recommended cutoffs are generally more appropriate for workplace rather than clinical drug testing, producing guidelines for a clinical setting requires more information.
- Further research is needed on the effects of conducting onsite testing and interpretation versus routinely sending tests to a laboratory for results.
- Further research on the impact of insurer regulations and restrictions on drug testing, addiction treatment, and overall healthcare costs would be useful.

PART 4: BIOLOGICAL MATRICES

- Further research is needed to develop a protocol for evaluating sample tampering in urine drug testing. Further research is also needed to clarify what methods should be employed to verify specimen validity in alternative matrices.
- Additional study is required to determine the detectability of cannabis use in multiple matrices, namely oral fluid and hair.
- Research is lacking on which substances' metabolites can be helpfully detected through hair testing. More information on false positives, environmental adulterants, and detection windows would be beneficial.
- More research is needed on whether hair and nail testing is clinically useful in ascertaining substance use patterns and history.
- More research is needed on the utility of sweat testing in addiction treatment settings.
- Additional research is needed on oral fluid, including which specific drugs/metabolites oral fluid testing might best detect.
- Further research on tobacco testing in the context of addiction treatment would be useful.

PART 5: SETTINGS

- Further research is needed on the role of drug testing for identification of potential issues in primary care or other settings outside of addiction treatment such as mental health settings.
- Before making any specific recommendations of frequency or duration specific to level of care, further research should occur.
- Further research will be required to offer complete information regarding appropriate drug testing panels in OTS.

The same applies to the role of drug testing in determining optimal dosing in the context of OTS.

- In the context of OTS, further research is needed on frequency of drug testing and on response to drug testing results.
- Further research is needed to determine whether testing frequency should vary between full agonists, partial agonists, and antagonists when treating addiction involving opioid use.

PART 6: SPECIAL POPULATIONS

- Although it is agreed that instances exist where an adolescent ought to be drug tested regardless of their own desires, the exact circumstances would benefit from further refinement.
- Further research is needed to determine what, if any, clinical benefit there is to routinely utilizing drug testing with pregnant women.
- Additional research is needed on what methods might be utilized to test for identification of alcohol use during pregnancy.
- Further research is needed on how widely the drug testing standards developed for Primary Health Providers could be applied to other addiction treatment programs.

APPLICABILITY AND IMPLEMENTATION ISSUES

This document is intended to aid providers in their clinical decision-making and patient management. The document strives to identify and define clinical decision-making junctures that meet the needs of most patients in most circumstances. Clinical decision-making should involve consideration of the quality and availability of expertise and services in the community wherein care is provided. In circumstances in which the document is being used as the basis for regulatory or payer decisions, improvement in quality of care should be the goal. Because lack of patient understanding and adherence may adversely affect outcomes, providers should make every effort to promote the patient’s understanding of, and adherence to, prescribed and recommended pharmacological and psychosocial treatments and any associated testing. Patients should be informed of the risks, benefits, and alternatives to a particular treatment or test, and should be an active party to shared decision-making whenever feasible. Recommendations in this document do not supersede any federal or state regulation.

CONCLUSIONS

Drug testing should be a routine part of initial and ongoing patient assessment of recent substance use in all addiction treatment settings. Drug test results should be not be used as the sole determinant when making patient care decisions; instead, they should be used in conjunction with patients’ substance use self-reports, treatment history, psychosocial assessment, and physical examination. Drug testing should be included at intake to assist in a patient’s initial assessment and treatment planning and as a routine part of ongoing assessment for substance use that could complicate treatment response and patient management. Test selections should be individualized based a patient’s drug of choice, prescribed medications, and drugs commonly used in the patient’s geographic location and peer group. Treatment setting factors such as opportunity for substance use, the need to maintain a drug-free therapeutic environment, ensuring adherence with prescribed medications and monitoring for

possible diversion also play a role in test selection. Frequency of testing should be dictated by patient acuity and level of care and tests’ detection capabilities and windows of detection.

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REFERENCES

- Center for Substance Abuse Treatment. (2007). Clinical Guidelines for the Use of Buprenorphine in the Treatment of Opioid Addiction. Treatment Improvement Protocol (TIP) Series 40. HHS Publication No. (SMA) 04–3939. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2004, Retrieved from <http://store.samhsa.gov>. Accessed April 13, 2017.
- Center for Substance Abuse Treatment. (2012). Medication-Assisted Treatment for Opioid Addiction in Opioid Treatment Programs. Treatment Improvement Protocol (TIP) Series 43. HHS Publication No. (SMA) 12–4214. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2005, Retrieved from <http://store.samhsa.gov>. Accessed April 13, 2017.
- Fitch K, Bernstein SJ, Aguilar MD, et al. The RAND/UCLA Appropriateness Method User’s Manual (No. RAND/MR-1269-DG-XII/RE). Santa Monica, CA: RAND Corp.; 2001.