Urine Drug Testing In Adolescents

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Opioid Response Network

treatME
MMA Center for Quality Improvement / Maine Chapter, AAP

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Disclosures

- There are no financial interests or relationships to disclose.

Objectives

- This presentation will review the following:
  - The indications for drug testing
  - Proper urine collection procedures
  - Interpretation of drug test results, including the potential causes of false negative and false positive test results
  - Optimal strategies for sharing positive drug test results with the adolescent and his or her parents
  - Role of serial drug testing in the treatment of patients with known substance use disorders

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Types of Drug Tests

- Breath
- Saliva
- Blood
- Sweat
- Hair

http://www.drugcheck.com/dc_salivascan.html
http://www.overdriveonline.com/random-drug-testing-of-truckers-to-continue-at-50-percent-rate/
http://aboutdrugtesting.org/cheat.html

Types of Drug Tests

- Urine:
  - Well studied, standardized, relatively non-invasive
  - Drug concentrations relatively high.
  - Relatively long window of excretion after acute intoxication

Indications for Drug Testing

- Drug testing can be a useful adjunct in the evaluation of an adolescent with suspected substance use or a substance use disorder.
- Prior to considering drug testing, it is essential to perform a history and physical exam of the adolescent and obtain a collateral history from the adolescent's parents.
- Drug testing can also be used to monitor patients with known substance use.

Taking the History of an Adolescent with Suspected Substance Use

- Key points to look for:
  - New problems with grades or school
  - Skipping school
  - Changes in mood
  - Lack of interest in previous activities (e.g. sports, hobbies)
  - Changes in friends
  - Changes in sleep and awake cycles
  - Increased hostility
- Also important to get information regarding all medications that the adolescent is taking – prescribed and over-the-counter.

Physical Exam Findings

Suggestive of a Substance Use Disorder

- Weight loss
- Decreased attention to personal hygiene
- Injury to the nasal epithelium (from insufflation)
- Injection sites on upper or lower extremities

The physical exam will be normal in most adolescents even with serious substance use disorders.

Clinical Indications for Drug Testing

- Drug testing should be considered when the history and/or the physical suggests recent drug use, but the adolescent denies substance use.

When is drug testing indicated as part of an assessment?

<u>More useful</u>

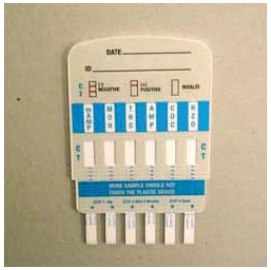
- Specific symptoms of intoxication noted (red eyes, alcohol on breath, nodding off)
- Specific substance in question (cannabis, cocaine, etc.)
- Recent time frame (within 72 hours)

<u>Less useful</u>

- Vague concerns "runs in the family"
- Fishing expedition "I really think he used something"
- Substance not easily detectable (inhalants, salvia)
- Long time frame (more than 72 hours)

Urine Panels

- Immunoassays
  - Quick, inexpensive
  - Screen for multiple drugs at the same time
  - Pre-determined "cut-off" value
    - **Ex. THC cut-off = 50 ng/mL**
  - Good sensitivity
  - High rate of false positives



Confirmatory Testing

Gas chromatography/Mass spectrometry

- Gold standard in drug testing
- Highly specific
- Can give quantitative levels
- More expensive than screening

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NICOTINE AND COTININE, URINE

Result Date: 01/08/20 09:33 PM

Analyte	Result Value	Ref. Range	Units
NICOTINE, URINE	978		ng/mL
COTININE, URINE	3107		ng/mL

THIS RESULT HAS BEEN VERIFIED BY REPEAT ANALYSIS.

Reference Range:

Nicotine, Urine
Smokers: 200-700 ng/mL
Nonsmokers: < or = 17 ng/mL

Cotinine, Urine
Smokers: 300-1300 ng/mL
Nonsmokers: < or = 20 ng/mL

Individuals exposed to second-hand or passive tobacco smoke may demonstrate concentrations of nicotine and cotinine greater than those indicated for non-smokers.

This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute Chantilly, VA. It has not been cleared or approved by the U.S. Food and Drug Administration. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

STAND PNL + FENTANYL

Result Date: 01/08/20 09:33 PM

Analyte	Result Value	Ref. Range	Units
Alcohol Metabolites	NEGATIVE	<500	ng/mL
See Note 1			
See Note 2			
Creatinine	191.8	> or = 20.0	mg/dL
pH	6.6	4.5-9.0	
Oxidant	NEGATIVE	<200	mcg/mL
Fentanyl	NEGATIVE	<0.5	ng/mL
See Note 1			
Norfentanyl	NEGATIVE	<0.5	ng/mL
See Note 1			
See Note 2			
Amphetamines	NEGATIVE	<500	ng/mL
Barbiturates	NEGATIVE	<300	ng/mL
Benzodiazepines	NEGATIVE	<100	ng/mL
Buprenorphine	NEGATIVE	<5	ng/mL
Cocaine Metabolite	NEGATIVE	<150	ng/mL
Heroin Metabolite	NEGATIVE	<10	ng/mL
Marijuana Metabolite 20	POSITIVE	<20	ng/mL
Marijuana Metabolite	1778	<5	ng/mL
See Note 1			
MDMA/MDA	NEGATIVE	<500	ng/mL
Methadone Metabolite	NEGATIVE	<100	ng/mL
Opiates	NEGATIVE	<100	ng/mL
Oxycodone	NEGATIVE	<100	ng/mL
Phencyclidine	NEGATIVE	<25	ng/mL

When you order a urine drug test:

- Know what you are ordering, i.e. know what is included in the lab's custom panel
- Order additional tests as needed based on the patient's history
- Decide in advance who will be getting the results (i.e. parents)

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Interpretation of Urine Drug Test Results:

FALSE NEGATIVE TEST RESULTS

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Interpretation of Urine Drug Test Results

Common sources of false negative drug tests:

- Intentional *dilution* of urine sample
- *Adulteration* of urine sample
- *Substitution* of a different urine sample
- Use of substance *not detected* by the drug test panel
- Substance used, but *outside of the time frame* detectable by the test

Jaffee W.B., et al. Is this urine really negative? A systematic review of tampering methods in urine drug screening and testing. *Journal of Substance Abuse Treatment*, 2007 Jul;33(1):33-42.

False Negative Tests

Dilute Tests

- One of the most common methods for attempting to defeat a urine drug test
- Patient consumes a large amount of fluids in order to dilute the specimen and drive down drug concentrations below the screening threshold.
- Important to check "**random urine creatinine**" and **specific gravity** of each sample.

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False Negative Dilute Tests

- Creatinine 25-50 mg/dl, SG < 1.010
  - Moderately dilute, repeat test
  - Limit fluid intake to less than 8 ounces in the 2 hours before the test
- Creatinine 5-25 mg/dL; SG < 1.005
  - Very dilute, consider positive
- Creatinine <2 mg/dl
  - Substituted (not urine), consider positive

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False Negative Adulterated Tests

- Household products: bleach, salt, Visine, soap
- Gluteraldehyde
- Potassium nitrate
- Pyridinium chlorochromate
- Hydrogen peroxide

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A Sample of Products

Synthetic Urine

Urine "detoxifier" (in vitro adulterant)

Real powdered urine

Detecting Presence of Adulterants

- Importance of **Specimen Validity Testing**
- pH 4.5-9 (HHS cutoff)
- Creatinine greater than 20
- Specific gravity
- Specific testing for adulterants
  - Detect oxidants, nitrites etc.

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Urine Collection Procedures

Proper urine collection technique:

- Direct observation
- Department of Transportation protocol

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Department of Transportation Protocol

Patient is required to:

- Show picture identification
- Empty pockets/wash hands

Facility:

- No running water
- Toilet water is dyed blue
- Temperature is checked immediately

Commercial labs may offer this service but generally require a specific order.

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False Negative Tests

Substance not detected by panel

- Many of the drugs commonly used by teens are not reliably detected by immunoassay screens.
- Examples include inhalants, oxycodone, fentanyl, Ecstasy, dextromethorphan, and synthetic cannabinoids (K2, Spice).
- It is critical to know what the testing panel includes when ordering a drug test.
- Deciding which substance to test for should be based on the suspected substance being used, the substances of abuse in the patient population, and substances used locally (http://www.samhsa.gov/data/DAWN.aspx).

Most substances can be detected in a urine sample, but an appropriate assay must be specifically ordered. Inhalants are not excreted in urine and cannot be detected with urinalysis.

False Negatives: Missed Window of Detection

Substance	Detection Window
THC	3-30 days
Amphetamines	2-3 days
Barbiturates	1-3 days
Benzodiazepines	1-7 days
Cocaine & metabolite	6 hours – 3 days
Methadone	7-9 days
PCP	8 days
Opiates	1-3 days

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Testing for Cannabis

- Generally cleared in 3-5 days in "occasional users"
- Lipid soluble and may be stored in adipose tissue in ***heavy, chronic*** users
  - Prolonged excretion may be up to 4-6 weeks in these cases

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Testing for Alcohol

- Alcohol (ethanol) has a relatively short detection window in urine – about 12 hours after use
- Preferred is to test for *alcohol metabolites* in the urine:
- **Ethyl glucuronide** and **Ethyl sulfate**
- These metabolites are detectable in the urine for up to 80 hours after use
- Many lab panels don't include alcohol but testing for these metabolites can be added upon request

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Testing for Opioids

- Opiate=naturally existing; Opioid=synthetic
- Opiate screen detects morphine and codeine
- Heroin is metabolized to morphine and codeine and will give a positive opiate screen
- Oxycodone screen will test for OxyContin, Percocet, Vicodin etc. Opiate screen will not detect these substances
- Fentanyl screen must be ordered separately

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Interpretation of Urine Drug Test Results:

FALSE POSITIVE TEST RESULTS

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False Positives Common Cross-Reactors**

Marijuana	•NSAIDs (Ibuprofen, Ketoprofen, Naproxen) • Vitamin B supplements (Promethazine)
Cocaine	•Amoxicillin
Amphetamine	•Cold medications (ephedrine) •Diet aids (Phenylephrine) •Asthma medications (Afrin, Primatine)
PCP	•Dextromethorphan
Opiates	•Fluroquinilone antibiotics

**Confirmatory test will be negative

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Cross-Reactivity with Amphetamine Immunoassay

Benzphetamine	Mexiletine	Pseudoephedrine
Buproprion	N-acetyl procainamide	Quinacrine
Chloroquine	Oxymetazoline (Afrin)	Ranitidine
Chlorpromazine	Phentermine	Selegiline
Ephedrine	Phenylephrine	Trazodone
Fenfluramine	Phenylpropanolamine	Tyramine
Fluoxetine	Propranolol	Vicks inhaler
Labetolol		

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Drug test Sensitivity and specificity

- Drug screening tests typically identify:
  - **95-98%** of true negative results
  - **99-100%** of true positive results

Citation: Substance Abuse and Mental Health Services Administration. *Clinical Drug Testing in Primary Care.* Technical Assistance Publication (TAP) 32. HHS Publication No. (SMA) 12-4668. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2012.

Clinical "False Positives"

- Food products or appropriate use of medications can result in a positive drug test result even in the context of a patient who is not using drugs.

http://fiestafarms.ca/12186/food/behold-the-magical-poppyseed

Clinical False Positives **

Marijuana	Prescription Marinol use (uncommon in teens)
Cocaine	De-cocanized teas, used common in South America.
Amphetamine	Prescription use of amphetamines (I.e. for ADHD).
Opiates	•Poppy seeds (in very large quantities). •Prescription use of opiates for pain.

**Confirmatory test will be positive

What to do When a Patient Refuses a Drug Test?

- The explicit policy of the American Academy of Pediatrics is that physicians should not order a drug test without the adolescent patient's knowledge or consent.
- If a patient refuses an indicated drug test, parents should set limits using logical consequences.
- An example would be restriction of driving or other activities until the adolescent agrees to a drug test, and parents could ascertain the safety of these activities.

When a Drug Test is Positive...

Interview

- Interview the patient privately in person to determine if another factor could explain the lab findings.
- Always interpret results in context.

When a Drug Test is Positive...

Report Results

- Inform teen of an unexpected test result without giving details. "There was a problem with your drug test."
- Interpret results based on self report.

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When a Drug Test is Positive...

Present Information to Parents

- Discuss exactly what information will be shared.
- Decide who will present the information.
- If the patient requests to speak to the parent privately, confirm the information once they are done.
- Keep the report simple and brief: "Joe had a dilute drug test and told me he used cannabis and took some pills last week. "

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When a Drug Test is Positive...

Be the Adolescent's Advocate

- Keep the parents focused on the future:
- Redirect if they ask "who, what, where, when" questions which tend to "shut down" communication.
- Discuss the plan for moving forward. "What' s most important now is how we will move forward. Joe is committed to not using drugs. He has agreed to continue random urine testing and see a counselor to support him in not using drugs again; we will all sign a contract to this effect…"

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Drug Testing for Therapeutic Monitoring

- For patients with known substance use or substance use disorders, we often recommend weekly random drug testing to monitor the patients' progress and motivate them to cut back
- Often paired with a contingency management approach
- Patient may initially refuse drug testing but agree after negotiation with parents

ASAP Drug Testing Program

- Weekly for 12 weeks
- Random, i.e. adolescent does not choose the date
- Collection can be done in the lab or at home
- We prefer at home supervised collection whenever possible
- First a.m. void optimal; most concentrated

ASAP Drug Testing Program, continued

- If the patient has "an unexpected drug test result", parent gets a call asking that the adolescent come in to discuss in person with an ASAP physician or NP
- We will tell the parent urgently if the positive drug test result poses an immediate safety concern (e.g. opioid or cocaine use)

Quantitative THC levels

- We can monitor progress by reviewing quantitative THC levels
- These levels are obtained by dividing the raw THC value by the random urine creatinine, then multiply by 100
- Generally, levels fall in one of three categories:
- Low levels < 100
- Moderate levels 100 - 1000
- High levels > 1000

Example of Drug Test Results Reviewed with an ASAP Patient

11/21 THC 439, cotinine 228
11/27 THC 181, cotinine 120
12/5 THC 541, cotinine 60 ****12/11 ASAP VISIT**
12/12 THC 514, cotinine negative
12/20 THC 109, cotinine 537
1/3 THC 49, cotinine 310
1/9 THC 26, cotinine negative
1/15 THC 25, cotinine 60 ****1/21 ASAP VISIT**

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Aidan

15-year-old boy with severe cannabis and nicotine use disorder.

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ASAP Drug Testing Program, Continued

Examples of ASAP patients who are participating in our drug testing program, and typical (or atypical) drug test results

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NICOTINE AND COTININE, URINE
Result Date: 12/29/19 08:48 AM

Analyte	Result Value	Ref. Range	Units
NICOTINE, URINE	658		ng/mL
COTININE, URINE	1370		ng/mL

Reference Range:

Nicotine, Urine
Smokers: 200-700 ng/mL
Nonsmokers: < or = 17 ng/mL

Cotinine, Urine
Smokers: 300-1300 ng/mL
Nonsmokers: < or = 20 ng/mL

Individuals exposed to second-hand or passive tobacco smoke may demonstrate concentrations of nicotine and cotinine greater than those indicated for non-smokers.

This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute Chantilly, VA. It has not been cleared or approved by the U.S. Food and Drug Administration. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

STAND PNL + FENTANYL
Result Date: 12/29/19 08:48 AM

Analyte	Result Value	Ref. Range	Units
Alcohol Metabolites	NEGATIVE	<500	ng/mL
See Note 1			
See Note 2			
Creatinine	172.5	> or = 20.0	mg/dL
pH	6.3	4.5-9.0	
Oxidant	NEGATIVE	<200	mcg/mL
Fentanyl	NEGATIVE	<0.5	ng/mL
See Note 1			
Norfentanyl	NEGATIVE	<0.5	ng/mL
See Note 1			
See Note 2			
Amphetamines	POSITIVE	<500	ng/mL
Amphetamine	6666	<250	ng/mL
See Note 1			
Methamphetamine	10252	<250	ng/mL
See Note 1			
Barbiturates	NEGATIVE	<300	ng/mL
Benzodiazepines	NEGATIVE	<100	ng/mL
Buprenorphine	NEGATIVE	<5	ng/mL
Cocaine Metabolite	NEGATIVE	<150	ng/mL
Heroin Metabolite	NEGATIVE	<10	ng/mL
Marijuana Metabolite 20	POSITIVE	<20	ng/mL
Marijuana Metabolite	14	<5	ng/mL
See Note 1			
MDMA/MDA	NEGATIVE	<500	ng/mL
Methadone Metabolite	NEGATIVE	<100	ng/mL
Opiates	NEGATIVE CONFIRMED	<100	ng/mL
Codeine	NEGATIVE	<50	ng/mL
See Note 1			
Hydrocodone	NEGATIVE	<50	ng/mL
See Note 1			
Hydromorphone	NEGATIVE	<50	ng/mL
See Note 1			
Morphine	NEGATIVE	<50	ng/mL
See Note 1			
Norhydrocodone	NEGATIVE	<50	ng/mL
See Note 1			
Oxycodone	NEGATIVE	<100	ng/mL
Phencyclidine	NEGATIVE	<25	ng/mL

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Dennis

14-year-old boy with moderate cannabis use disorder, no history of other substance use

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NICOTINE AND COTININE, URINE

Result Date: 01/17/20 11:41 PM

Analyte	Result Value	Ref. Range	Units
NICOTINE, URINE	2		ng/mL
COTININE, URINE	5		ng/mL

Reference Range:

Nicotine, Urine
Smokers: 200-700 ng/mL
Nonsmokers: < or = 17 ng/mL

Cotinine, Urine
Smokers: 300-1300 ng/mL
Nonsmokers: < or = 20 ng/mL

Individuals exposed to second-hand or passive tobacco smoke may demonstrate concentrations of nicotine and cotinine greater than those indicated for non-smokers.

This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute Chantilly, VA. It has not been cleared or approved by the U.S. Food and Drug Administration. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

STAND PNL + FENTANYL

Result Date: 01/17/20 11:41 PM

Analyte	Result Value	Ref. Range	Units
Alcohol Metabolites	NEGATIVE	<500	ng/mL
See Note 1			
See Note 2			
Creatinine	133.3	> or = 20.0	mg/dL
pH	7.2	4.5-9.0	
Oxidant	NEGATIVE	<200	mcg/mL
Fentanyl	NEGATIVE	<0.5	ng/mL
See Note 1			
Norfentanyl	NEGATIVE	<0.5	ng/mL
See Note 1			
See Note 2			
Amphetamines	NEGATIVE	<500	ng/mL
Barbiturates	NEGATIVE	<300	ng/mL
Benzodiazepines	NEGATIVE	<100	ng/mL
Buprenorphine	NEGATIVE	<5	ng/mL
Cocaine Metabolite	NEGATIVE	<150	ng/mL
Heroin Metabolite	NEGATIVE	<10	ng/mL
Marijuana Metabolite 20	POSITIVE	<20	ng/mL
Marijuana Metabolite	479	<5	ng/mL
See Note 1			
MDMA/MDA	NEGATIVE	<500	ng/mL
Methadone Metabolite	NEGATIVE	<100	ng/mL
Opiates	POSITIVE	<100	ng/mL
Codeine	NEGATIVE	<50	ng/mL
See Note 1			
Hydrocodone	NEGATIVE	<50	ng/mL
See Note 1			
Hydromorphone	NEGATIVE	<50	ng/mL
See Note 1			
Morphine	139	<50	ng/mL
See Note 1			
Norhydrocodone	NEGATIVE	<50	ng/mL
See Note 1			
Oxycodone	NEGATIVE	<100	ng/mL
Phencyclidine	NEGATIVE	<25	ng/mL

Kristen

23-year-old young woman with severe opioid and alcohol use disorder, history of numerous overdoses, in the ASAP Suboxone Program following prolonged inpatient treatment in the setting of a Section 24.

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FASTING: UNKNOWN

STAND PNL + FENTANYL

Result Date: 09/15/19 07:35 PM

Analyte	Result Value	Ref. Range	Units
Alcohol Metabolites	POSITIVE	<500	ng/mL
See Note 1			
Ethyl Glucuronide (ETG)	1204	<500	ng/mL
See Note 1			
Ethyl Sulfate (ETS)	662	<100	ng/mL
See Note 1			
See Note 2			
Creatinine	276.2	> or = 20.0	mg/dL
pH	6.1	4.5-9.0	
Oxidant	NEGATIVE	<200	mcg/mL
Fentanyl	219.0	<0.5	ng/mL
See Note 1			
Norfentanyl	>1000.0	<0.5	ng/mL
See Note 1			
See Note 2			
Amphetamines	NEGATIVE	<500	ng/mL
Barbiturates	NEGATIVE	<300	ng/mL
Benzodiazepines	NEGATIVE	<100	ng/mL
Buprenorphine	POSITIVE	<5	ng/mL
Buprenorphine	35	<5	ng/mL
See Note 1			
Norbuprenorphine	495	<5	ng/mL
See Note 1			
Cocaine Metabolite	POSITIVE	<150	ng/mL
Benzoylecgonine	237	<100	ng/mL
See Note 1			
Heroin Metabolite	NEGATIVE	<10	ng/mL
Marijuana Metabolite 20	NEGATIVE	<20	ng/mL
MDMA/MDA	NEGATIVE	<500	ng/mL
Methadone Metabolite	NEGATIVE	<100	ng/mL
Opiates	NEGATIVE	<100	ng/mL
Oxycodone	NEGATIVE	<100	ng/mL
Phencyclidine	NEGATIVE	<25	ng/mL

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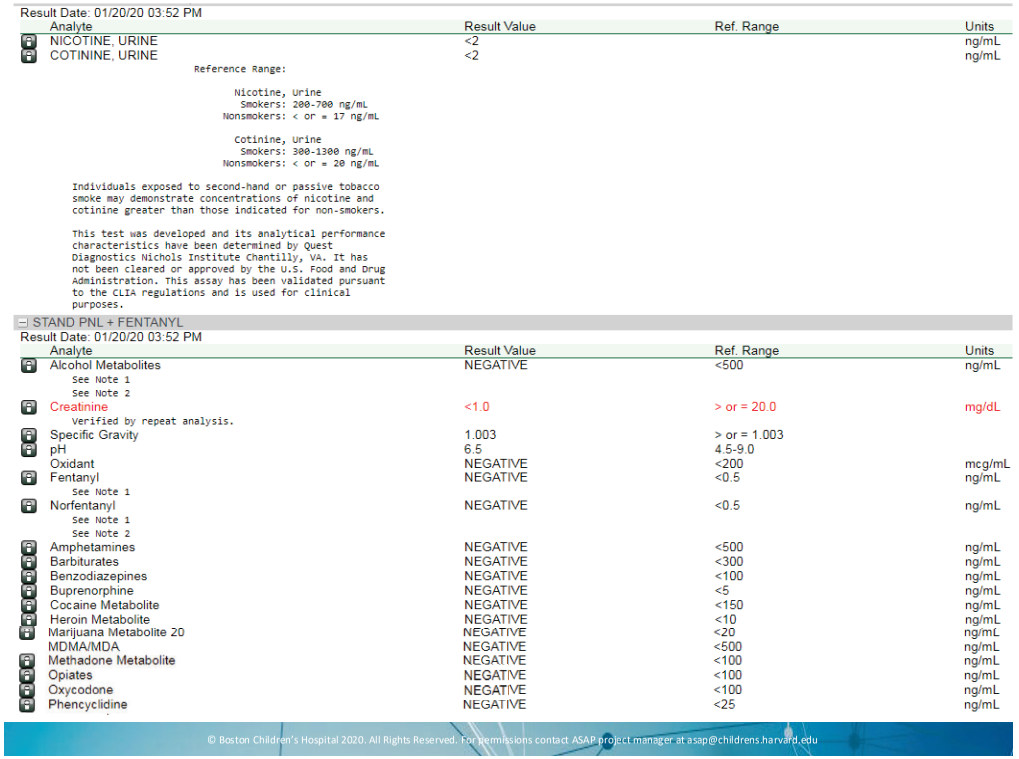
Jessica

15-year-old girl referred to ASAP with marijuana and nicotine use. Coming in for individual counseling with ASAP social worker. Mother seeking a social worker for “Parental Guidance”.



Result Date: 01/20/20 03:52 PM

Analyte	Result Value	Ref. Range	Units
NICOTINE, URINE	<2		ng/mL
COTININE, URINE	<2		ng/mL

Reference Range:

Nicotine, Urine
Smokers: 200-700 ng/mL
Nonsmokers: < or = 17 ng/mL

Cotinine, Urine
Smokers: 300-1300 ng/mL
Nonsmokers: < or = 20 ng/mL

Individuals exposed to second-hand or passive tobacco smoke may demonstrate concentrations of nicotine and cotinine greater than those indicated for non-smokers.

This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute Chantilly, VA. It has not been cleared or approved by the U.S. Food and Drug Administration. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

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Result Date: 01/20/20 03:52 PM

Analyte	Result Value	Ref. Range	Units
Alcohol Metabolites	NEGATIVE	<500	ng/mL
See Note 1			
See Note 2			
Creatinine	<1.0	> or = 20.0	mg/dL
Verified by repeat analysis.			
Specific Gravity	1.003	> or = 1.003	
pH	6.5	4.5-9.0	
Oxidant	NEGATIVE	<200	mcg/mL
Fentanyl	NEGATIVE	<0.5	ng/mL
See Note 1			
Norfentanyl	NEGATIVE	<0.5	ng/mL
See Note 1			
See Note 2			
Amphetamines	NEGATIVE	<500	ng/mL
Barbiturates	NEGATIVE	<300	ng/mL
Benzodiazepines	NEGATIVE	<100	ng/mL
Buprenorphine	NEGATIVE	<5	ng/mL
Cocaine Metabolite	NEGATIVE	<150	ng/mL
Heroin Metabolite	NEGATIVE	<10	ng/mL
Marijuana Metabolite 20	NEGATIVE	<20	ng/mL
MDMA/MDA	NEGATIVE	<500	ng/mL
Methadone Metabolite	NEGATIVE	<100	ng/mL
Opiates	NEGATIVE	<100	ng/mL
Oxycodone	NEGATIVE	<100	ng/mL
Phencyclidine	NEGATIVE	<25	ng/mL

Home Drug Testing

- Viable option if insurance will not cover cost of outside laboratory testing
- Should use “CLIA waived tests”
- Advantage: Immediate results

Home Drug Testing : Disadvantages

- Relies on enzyme testing, which is less specific and can lead to false positives
- Panels usually don’t include alcohol (and nicotine)
- Will not give quantitative THC levels
- Relatively contraindicated for adolescents using a variety of different substances

Summary

Urine drug testing is a complex procedure!

- Use proper collection procedures.
- Check for dilution.
- Confirm all positive tests.
- Use extended panels if indicated by history.
- Use caution in interpreting tests.

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Adolescent Substance Use and Addiction Program (ASAP)

Boston Children's Hospital

Outpatient clinics in Boston and Waltham

Adolescents and young adults up to age 23

Please call your regional MCPAP team, request an ASAP Consult, and you will be connected with an ASAP Consultant at BCH.

Western & Central Massachusetts Team
844-926-2727
Baystate Medical Center
UMass Memorial Medical Center

Eastern Massachusetts Team: Boston South
844-636-2727
Boston Children's Hospital
McLean Hospital Southeast
Tufts Medical Center

Eastern Massachusetts Team: Boston North
855-627-2763
Massachusetts General Hospital
North Shore Medical Center

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Appendix

False Negative Dilute Tests

- Large fluid volume
- Diuretics
- Creatine (to artificially raise creatinine)
- Vitamin B (to increase urine pigment)

In Vitro Adulterants

- Peroxidase, peroxide (Stealth)
- Nitrites (Klear)
- Glutaraldehyde (UrinAid)
- Pyridinium Chlorocromate (Urine Luck)
- Halogens (bleach, iodine)
- *Act by interfering with the immunoassay, confirmatory test*

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AAP Clinical Report: Testing for Drugs of Abuse in Children and Adolescents

Levy, Siquirera & COMMITTEE ON SUBSTANCE ABUSE
June 2014

- "Many national organizations, including the AAP, have consistently cautioned against involuntary drug testing in adolescents. Adolescents should be engaged in their own care…**Drug testing of a competent adolescent without his or her consent is, at best, impractical and without his or her knowledge is unethical and illegal**. However, an adolescent's refusal to consent to a drug test should not prematurely conclude an evaluation of a substance use problem or disorder…"

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN®

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Methamphetamine in a Drug Test

- Methamphetamine is metabolized into amphetamine (not the other way around)
- Methamphetamine has d- and l-isomers
  - d-methamphetamine is a CNS stimulant
  - l-methamphetamine works peripherally and does not produce euphoric effects
  - Has the patient used Vicks nasal inhaler?
  - Chiral analysis can distinguish between the two isomers if it's important clinically

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Charlie

Analyte	Result Value
d Methamphetamine	95
l Methamphetamine	5

Results greater than 80% l-methamphetamine may be consistent with the use of an over-the-counter nasal inhaler which contains l-methamphetamine or the use of the drug selegiline. Presence of more than 20% d-methamphetamine usually indicates the use of Schedule II or illicit methamphetamine.

18-year-old young man with severe nicotine and marijuana use disorders. Engaging is ASAP treatment but not willing to stop his marijuana use. Prescribed amphetamine and sertraline for ADHD and depressive disorder, respectively.

NICOTINE AND COTININE, URINE
Result Date: 12/09/19 08:46 PM

Analyte	Result Value	Ref. Range	Units
NICOTINE, URINE	2954		ng/mL
THIS RESULT HAS BEEN VERIFIED BY REPEAT ANALYSIS.			
COTININE, URINE	1722		ng/mL

Reference Range:

Nicotine, Urine
Smokers: 200-700 ng/mL
Nonsmokers: < or = 17 ng/mL

Cotinine, Urine
Smokers: 300-1300 ng/mL
Nonsmokers: < or = 20 ng/mL

Individuals exposed to second-hand or passive tobacco smoke may demonstrate concentrations of nicotine and cotinine greater than those indicated for non-smokers.

This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute Chantilly, VA. It has not been cleared or approved by the U.S. Food and Drug Administration. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

STAND PNL + FENTANYL
Result Date: 12/09/19 08:46 PM

Analyte	Result Value	Ref. Range	Units
Alcohol Metabolites	NEGATIVE	<500	ng/mL
See Note 1			
See Note 2			
Creatinine	241.8	> or = 20.0	mg/dL
pH	6.6	4.5-9.0	
Oxidant	NEGATIVE	<200	mcg/mL
Fentanyl	NEGATIVE	<0.5	ng/mL
See Note 1			
Norfentanyl	NEGATIVE	<0.5	ng/mL
See Note 1			
See Note 2			
Amphetamines	POSITIVE	<500	ng/mL
Amphetamine	>15000	<250	ng/mL
See Note 1			
Methamphetamine	NEGATIVE	<250	ng/mL
See Note 1			
Barbiturates	NEGATIVE	<300	ng/mL
Benzodiazepines	NEGATIVE CONFIRMED	<100	ng/mL
Alphahydroxyalprazolam	NEGATIVE	<25	ng/mL
See Note 1			
Alphahydroxymidazolam	NEGATIVE	<50	ng/mL
See Note 1			
Alphahydroxytriazolam	NEGATIVE	<50	ng/mL
See Note 1			
Aminoclonazepam	NEGATIVE	<25	ng/mL
See Note 1			
Hydroxyethylflurazepam	NEGATIVE	<50	ng/mL
See Note 1			
Lorazepam	NEGATIVE	<50	ng/mL
See Note 1			
Nordiazepam	NEGATIVE	<50	ng/mL
See Note 1			
Oxazepam	NEGATIVE	<50	ng/mL
See Note 1			
Temazepam	NEGATIVE	<50	ng/mL
See Note 1			
Buprenorphine	NEGATIVE	<5	ng/mL
Cocaine Metabolite	NEGATIVE	<150	ng/mL
Heroin Metabolite	NEGATIVE	<10	ng/mL
Marijuana Metabolite 20	POSITIVE	<20	ng/mL
Marijuana Metabolite	>5000	<5	ng/mL
See Note 1			
MDMA/MDA	NEGATIVE	<500	ng/mL
Methadone Metabolite	NEGATIVE	<100	ng/mL
Opiates	NEGATIVE	<100	ng/mL
Oxycodone	NEGATIVE	<100	ng/mL
Phencyclidine	NEGATIVE	<25	ng/mL

Jamie

24-year-old woman with a history of severe opioid use disorder, in the ASAP Suboxone Program for the past 6 years. Briefly relapsed on heroin 5 years ago, but subsequently did well. Started using marijuana a few months ago after years of complete abstinence from substances.

STAND PNL + FENTANYL

Result Date: 01/19/20 03:59 PM

Analyte	Result Value	Ref. Range	Units
Alcohol Metabolites	NEGATIVE	<500	ng/mL
See Note 1			
See Note 2			
Creatinine	59.0	> or = 20.0	mg/dL
pH	5.8	4.5-9.0	
Oxidant	NEGATIVE	<200	mcg/mL
Fentanyl	NEGATIVE	<0.5	ng/mL
See Note 1			
Norfentanyl	1.0	<0.5	ng/mL
See Note 1			
See Note 2			
Amphetamines	NEGATIVE	<500	ng/mL
Barbiturates	NEGATIVE	<300	ng/mL
Benzodiazepines	NEGATIVE	<100	ng/mL
Buprenorphine	POSITIVE	<5	ng/mL
Buprenorphine	22	<5	ng/mL
See Note 1			
Norbuprenorphine	180	<5	ng/mL
See Note 1			
Cocaine Metabolite	NEGATIVE	<150	ng/mL
Heroin Metabolite	NEGATIVE	<10	ng/mL
Marijuana Metabolite 20	POSITIVE	<20	ng/mL
Marijuana Metabolite	31	<5	ng/mL
See Note 1			
MDMA/MDA	NEGATIVE	<500	ng/mL
Methadone Metabolite	NEGATIVE	<100	ng/mL
Opiates	NEGATIVE	<100	ng/mL
Oxycodone	NEGATIVE	<100	ng/mL
Phencyclidine	NEGATIVE	<25	ng/mL

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Thank you! Please fill out our brief survey

https://tinyurl.com/TREAT-ME