PainWeek

ADVANCED EDUCATION

CERTIFICATION SERIES

CANNABINOIDS

Urine Drug Monitoring

Mark Garofoli, PharmD, MBA, BCGP, CPE

Faculty Disclosure

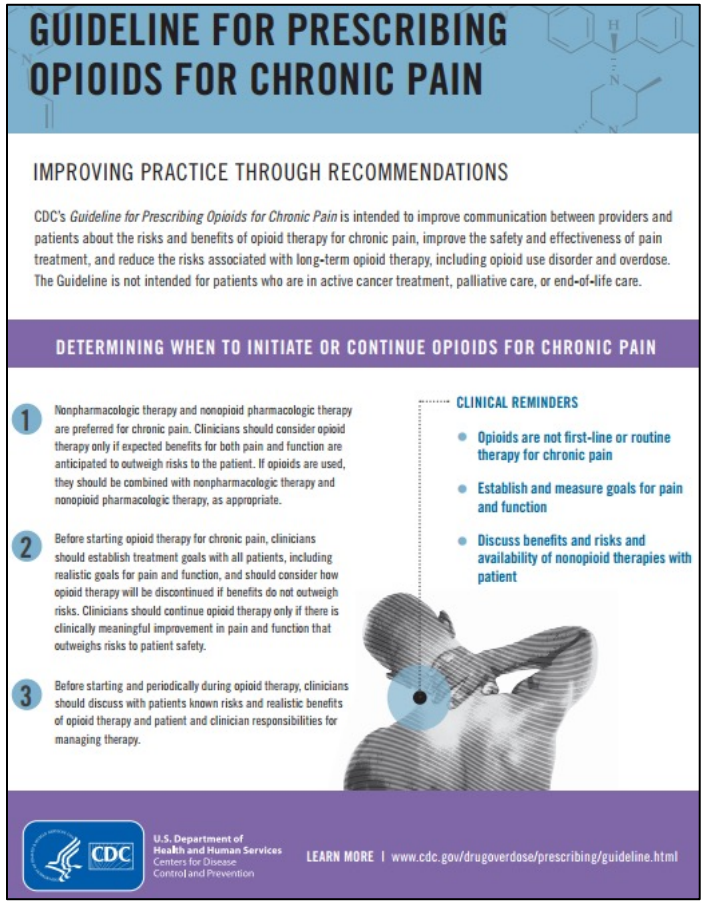
- **Consulting Fee**: HealthXL, Speranza
- **Other**: Expert Witness—Cardinal Health

This presentation was not a part of the presenter's official duties at the WVU and does not represent the opinion of WVU

Learning Objectives

- Distinguish urine drug screenings (UDS) and urine drug tests (UDT)
- Describe anticipated UDS and UDT results based on prescribed medications and utilized substances
- Recall common UDS controlled substance common crossreactants

2016 CDC Chronic Pain *Opioid* Guideline



GUIDELINE FOR PRESCRIBING OPIOIDS FOR CHRONIC PAIN

IMPROVING PRACTICE THROUGH RECOMMENDATIONS

CDC's *Guideline for Prescribing Opioids for Chronic Pain* is intended to improve communication between providers and patients about the risks and benefits of opioid therapy for chronic pain, improve the safety and effectiveness of pain treatment, and reduce the risks associated with long-term opioid therapy, including opioid use disorder and overdose. The Guideline is not intended for patients who are in active cancer treatment, palliative care, or end-of-life care.

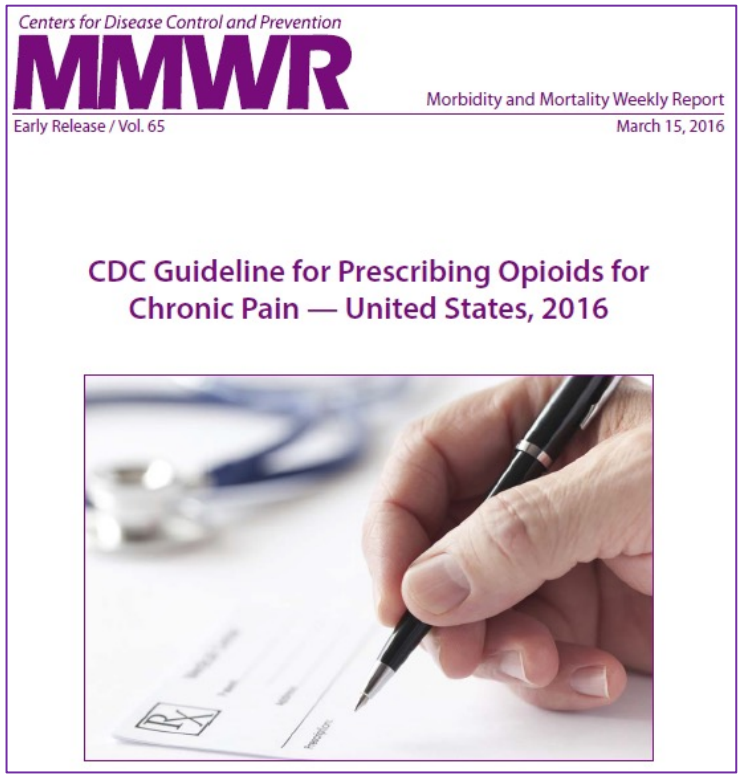
DETERMINING WHEN TO INITIATE OR CONTINUE OPIOIDS FOR CHRONIC PAIN

1. Nonpharmacologic therapy and nonopioid pharmacologic therapy are preferred for chronic pain. Clinicians should consider opioid therapy only if expected benefits for both pain and function are anticipated to outweigh risks to the patient. If opioids are used, they should be combined with nonpharmacologic therapy and nonopioid pharmacologic therapy, as appropriate.
2. Before starting opioid therapy for chronic pain, clinicians should establish treatment goals with all patients, including realistic goals for pain and function, and should consider how opioid therapy will be discontinued if benefits do not outweigh risks. Clinicians should continue opioid therapy only if there is clinically meaningful improvement in pain and function that outweighs risks to patient safety.
3. Before starting and periodically during opioid therapy, clinicians should discuss with patients known risks and realistic benefits of opioid therapy and patient and clinician responsibilities for managing therapy.

CLINICAL REMINDERS

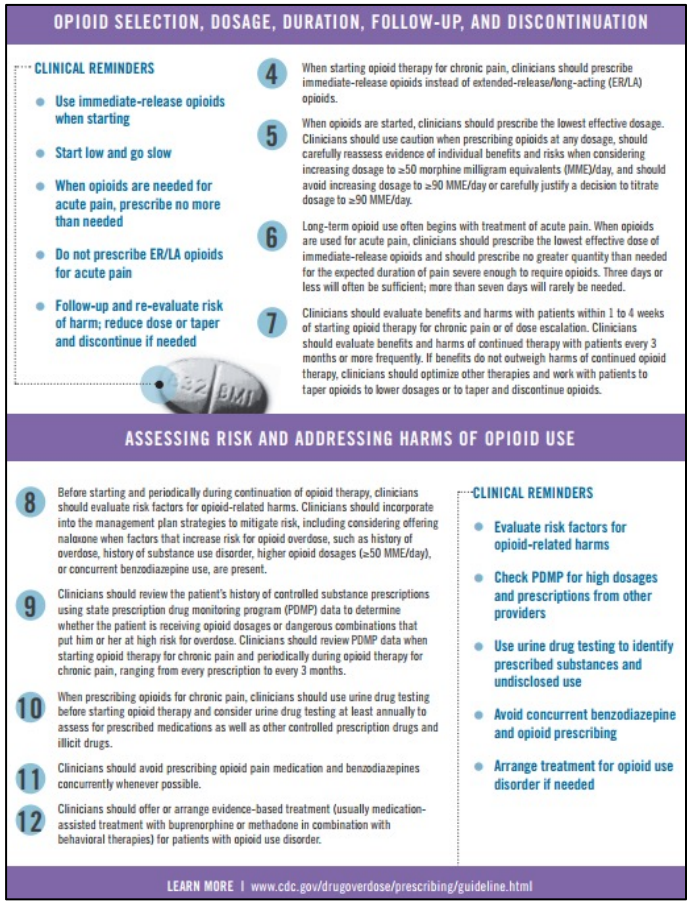
- Opioids are not first-line or routine therapy for chronic pain
- Establish and measure goals for pain and function
- Discuss benefits and risks and availability of nonopioid therapies with patient

LEARN MORE | www.cdc.gov/drugoverdose/prescribing/guideline.html



Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Early Release / Vol. 65
March 15, 2016

CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016



OPIOID SELECTION, DOSAGE, DURATION, FOLLOW-UP, AND DISCONTINUATION

CLINICAL REMINDERS

- Use immediate-release opioids when starting
- Start low and go slow
- When opioids are needed for acute pain, prescribe no more than needed
- Do not prescribe ER/LA opioids for acute pain
- Follow-up and re-evaluate risk of harm; reduce dose or taper and discontinue if needed

4. When starting opioid therapy for chronic pain, clinicians should prescribe immediate-release opioids instead of extended-release/long-acting (ER/LA) opioids.
5. When opioids are started, clinicians should prescribe the lowest effective dosage. Clinicians should use caution when prescribing opioids at any dosage, should carefully reassess evidence of individual benefits and risks when considering increasing dosage to ≥50 morphine milligram equivalents (MME)/day, and should avoid increasing dosage to ≥90 MME/day or carefully justify a decision to titrate dosage to ≥90 MME/day.
6. Long-term opioid use often begins with treatment of acute pain. When opioids are used for acute pain, clinicians should prescribe the lowest effective dose of immediate-release opioids and should prescribe no greater quantity than needed for the expected duration of pain severe enough to require opioids. Three days or less will often be sufficient; more than seven days will rarely be needed.
7. Clinicians should evaluate benefits and harms with patients within 1 to 4 weeks of starting opioid therapy for chronic pain or of dose escalation. Clinicians should evaluate benefits and harms of continued therapy with patients every 3 months or more frequently. If benefits do not outweigh harms of continued opioid therapy, clinicians should optimize other therapies and work with patients to taper opioids to lower dosages or to taper and discontinue opioids.

ASSESSING RISK AND ADDRESSING HARMS OF OPIOID USE

8. Before starting and periodically during continuation of opioid therapy, clinicians should evaluate risk factors for opioid-related harms. Clinicians should incorporate into the management plan strategies to mitigate risk, including considering offering naloxone when factors that increase risk for opioid overdose, such as history of overdose, history of substance use disorder, higher opioid dosages (≥50 MME/day), or concurrent benzodiazepine use, are present.
9. Clinicians should review the patient's history of controlled substance prescriptions using state prescription drug monitoring program (PDMP) data to determine whether the patient is receiving opioid dosages or dangerous combinations that put him or her at high risk for overdose. Clinicians should review PDMP data when starting opioid therapy for chronic pain and periodically during opioid therapy for chronic pain, ranging from every prescription to every 3 months.
10. When prescribing opioids for chronic pain, clinicians should use urine drug testing before starting opioid therapy and consider urine drug testing at least annually to assess for prescribed medications as well as other controlled prescription drugs and illicit drugs.
11. Clinicians should avoid prescribing opioid pain medication and benzodiazepines concurrently whenever possible.
12. Clinicians should offer or arrange evidence-based treatment (usually medication-assisted treatment with buprenorphine or methadone in combination with behavioral therapies) for patients with opioid use disorder.

CLINICAL REMINDERS

- Evaluate risk factors for opioid-related harms
- Check PDMP for high dosages and prescriptions from other providers
- Use urine drug testing to identify prescribed substances and undisclosed use
- Avoid concurrent benzodiazepine and opioid prescribing
- Arrange treatment for opioid use disorder if needed

LEARN MORE | www.cdc.gov/drugoverdose/prescribing/guideline.html

www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm.

2016 CDC Chronic Pain *Opioid* Guideline

Opioid Use Decision

1. Non-pharm, non-opioid, then opioid
2. Treatment goals
3. Risk assessments and side effects

Type/Amount/Time of Opioid

4. IR not ER
5. MME ≥50/day: use caution

   No Increasing MME ≥90 unless justified
6. Acute pain: short duration
7. Re-evaluate 1 month, then every 3 months

Risk/Harms of Opioid Use

8. Higher risk → naloxone
9. PDMP initially + every 1-3 months
10. UDT initially + annually
11. Avoid combining opioids and benzos
12. Opioid use disorder: offer MAT

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

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Adapted from: www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm.

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CENTERS FOR DISEASE CONTROL AND PREVENTION

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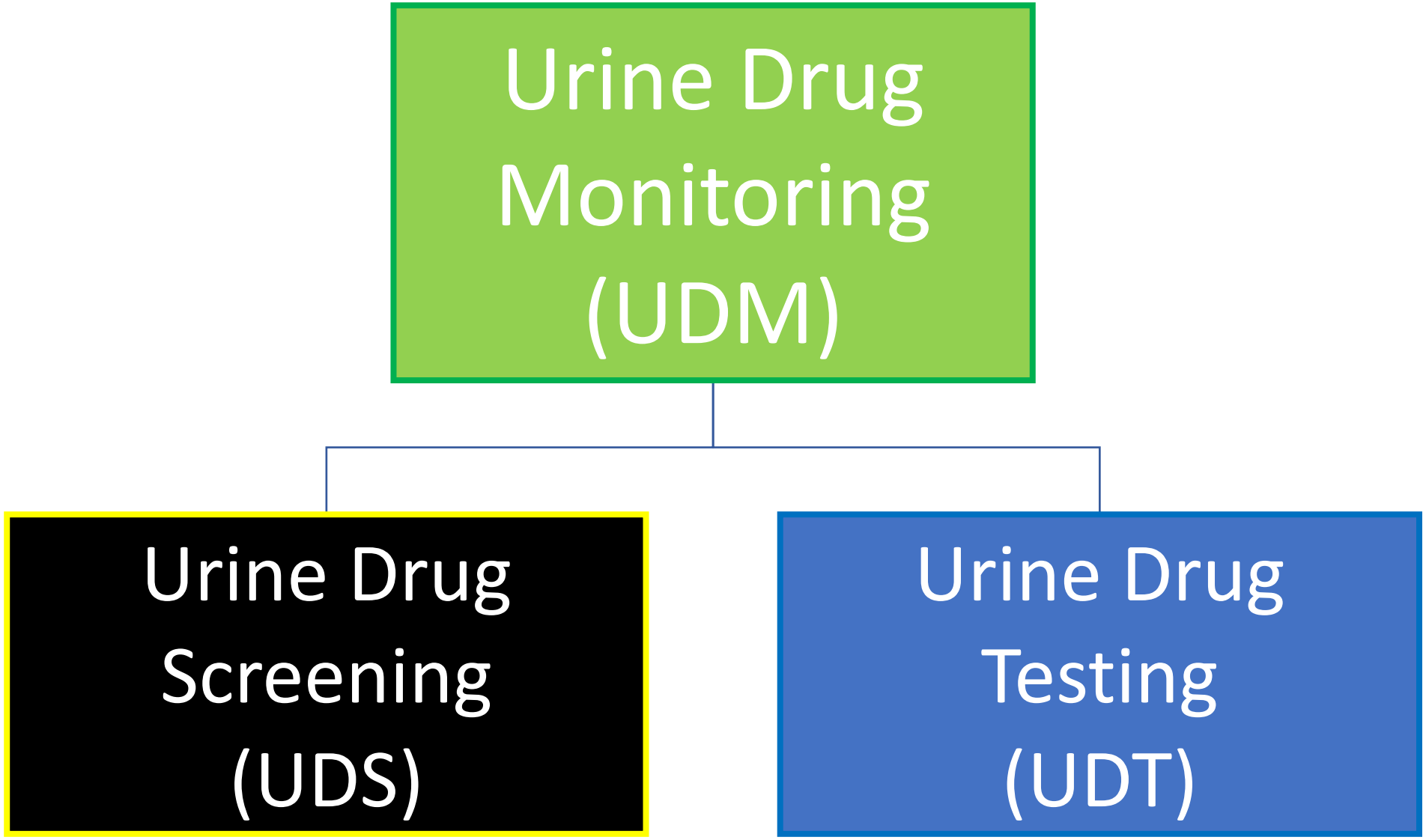
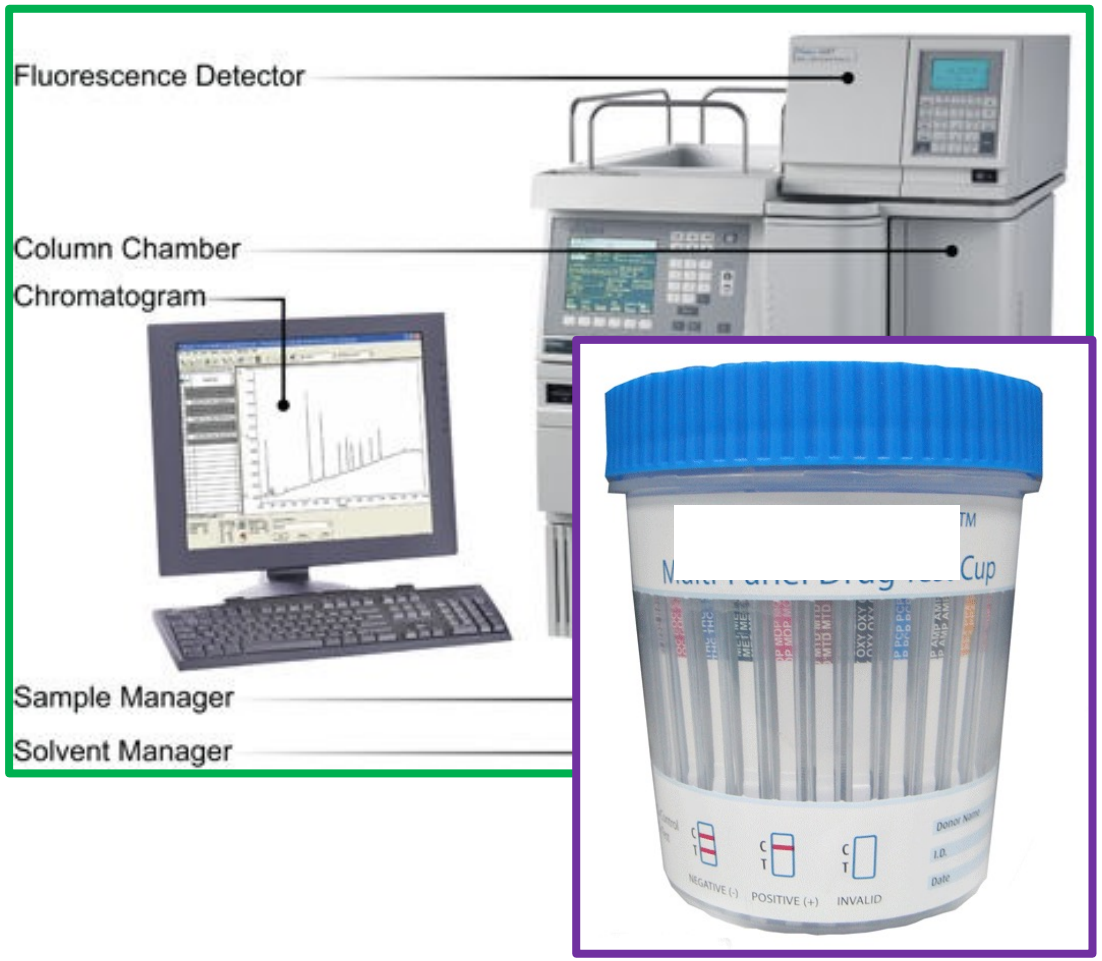
Adapted from: www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm.

TRUST, but Verify


Urine Drug Monitoring (UDM)
Urine Drug Screening (UDS)
Urine Drug Testing (UDT)

Urine Drug Monitoring



- Goals
- Improve proper medication adherence
- Prevent +/- detect medication misuse/diversion

Argoff. *Pain Med*. 2018;19(1):97-117.

Urine Drug Monitoring

Frequency

Risk	Frequency
Low	Annual
Moderate	≥ 2x/Year
High	≥ 3x/Year
Any	? Every Appointment ?

Jones. Pract Pain Manag. 2012;10(5): Moeller. *Mayo Clin Proc*. 2008;83(1):66-76.

Urine Drug Screening Strategies

- Patient/provider agreement → UDM procedures
- Randomized or scheduled (eg, appointments)
- Urine samples collected in a private bathroom without running water, soap, hand sanitizer, or other liquids, and with toilet water stained blue
- Urine specimen cups with temperature strips that fluoresce between 90°F and 100°F
- Urine creatinine and specific gravity can be ordered together with a drug test panel

Moeller. *Mayo Clin Proc*. 2008;83(1):66-76.

Debunking UDS Mythical Workarounds

1. Home remedies
   - Niacin, bleach, Certo, vinegar, goldenseal, cranberry juice
2. Synthetic urine
3. Dilution
4. Substitution
   - Someone else's urine

Moeller. *Mayo Clin Proc*. 2008;83(1):66-76.

Online Urine Purchasing

www.thewhizzinator.com

The Whizzinator Touch in White

The Whizzinator Touch in Tan

The Whizzinator Touch in Latino

The Whizzinator Touch in Brown

The Whizzinator Touch in Black

Homemade Urine Recipe(s)

Recipe 1

- 976 ml of 0.02 mole hydrochloric acid solution
- 1.9 ml of 0.25 ammonia solution
- 14.1 g sodium chloride or table salt
- 2.8 g potassium chloride
- 17.3 g urea
- 0.6 g calcium chloride
- 0.43 g magnesium sulfate

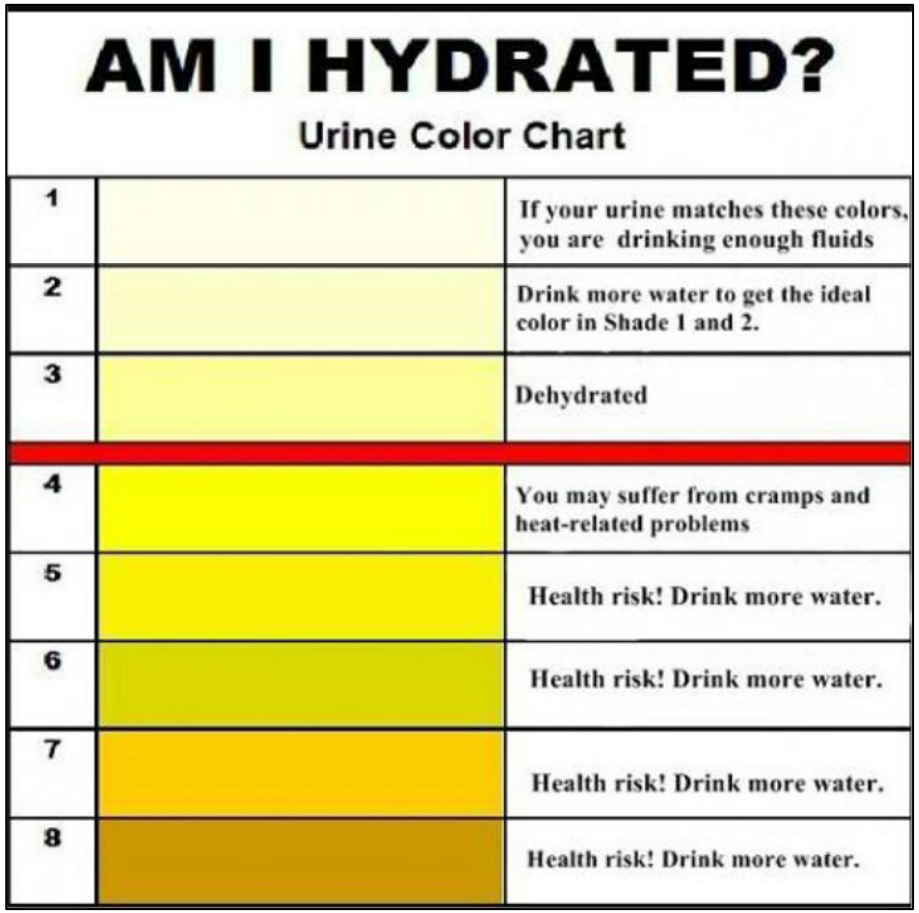
Recipe 2

- 750 ml distilled water
- 7.5 g sodium chloride or table salt
- 50 mg albumin powder (bovine or egg)
- 4.5 g potassium chloride
- 4.8 g sodium phosphate (monobasic)
- 18.2 g urea
- 2 g creatinine

www.swiftdetox.net/how-to-make-synthetic-urine/.
urinedrugtesthq.com/how-to-make-synthetic-pee.

Urine Color

- The yellow coloration of urine results from urobilin that is produced as a product of bilirubin degradation
- Normal urine color: light yellow to golden



emedicine.medscape.com/article/2172371-overview.

Urine Color	Medications	Description
Orange	Chlorzoxazone, isoniazid, phenazopyridine, sulfasalazine, & warfarin	Consumption of carrots Monitor for sparse blood in urine (hematuria)
Red	Chlorzoxazone, ibuprofen, phenazopyridine, rifampin, senna, & warfarin	Consumption of red beets, rhubarb, or carrots Monitor for sparse blood in urine (hematuria) Myoglobinuria from rhabdomyolysis
Brown	Acetaminophen, metronidazole, & nitrofurantoin	Myoglobinuria from rhabdomyolysis (“hand drumming”) Acute renal/hepatic disease Metastatic melanoma (rare reports)
Purple	Chlorzoxazone Combination of medications causing red or blue	Gram-negative bacteria
Blue	Amitriptyline, cimetidine, indomethacin, methocarbamol, metoclopramide, & zaleplon	Methylene blue
Green	Methocarbamol Medications causing blue (added to yellow urine)	Consumption of asparagus or black licorice UTI with pseudomonas
White	X	Calcium or phosphate crystals Infection
Black	Methocarbamol, methyldopa/l-dopa, senna, & sorbitol	Phenol or copper poisoning Consumption of iodine Metastatic melanoma (rare reports)

emedicine.medscape.com/article/2172371-overview.

Biologic Specimen Detection

Biologic Specimen	Detection Time After Ingestion					
	Minutes	Hours	Days	Weeks	Months	Years
Blood	X	X				
Saliva	X	X				
Urine	X	X	X			
Sweat	X	X	X	X		
Hair			X	X	X	X
Nails			X	X	X	X

Caplan. *J Anal Toxicol*. 2001;25:396-399.

Urine Drug Detection Times

Drug	Detection Time After Ingestion
Alcohol	7 to 12 hours
Amphetamines	2 to 3 days
Benzodiazepines (short-acting)	3 days
Benzodiazepines (long-acting)	30 days
Marijuana (single dose)	3 days
Marijuana (4x/week)	5 to 7 days
Marijuana (daily)	10 to 15 days
Marijuana (long-term)	>30 days
Codeine	2 days
Heroin	2 days
Hydromorphone	2 to 4 days
Methadone	3 days
Morphine	2 to 3 days
Oxycodone	2 to 4 days

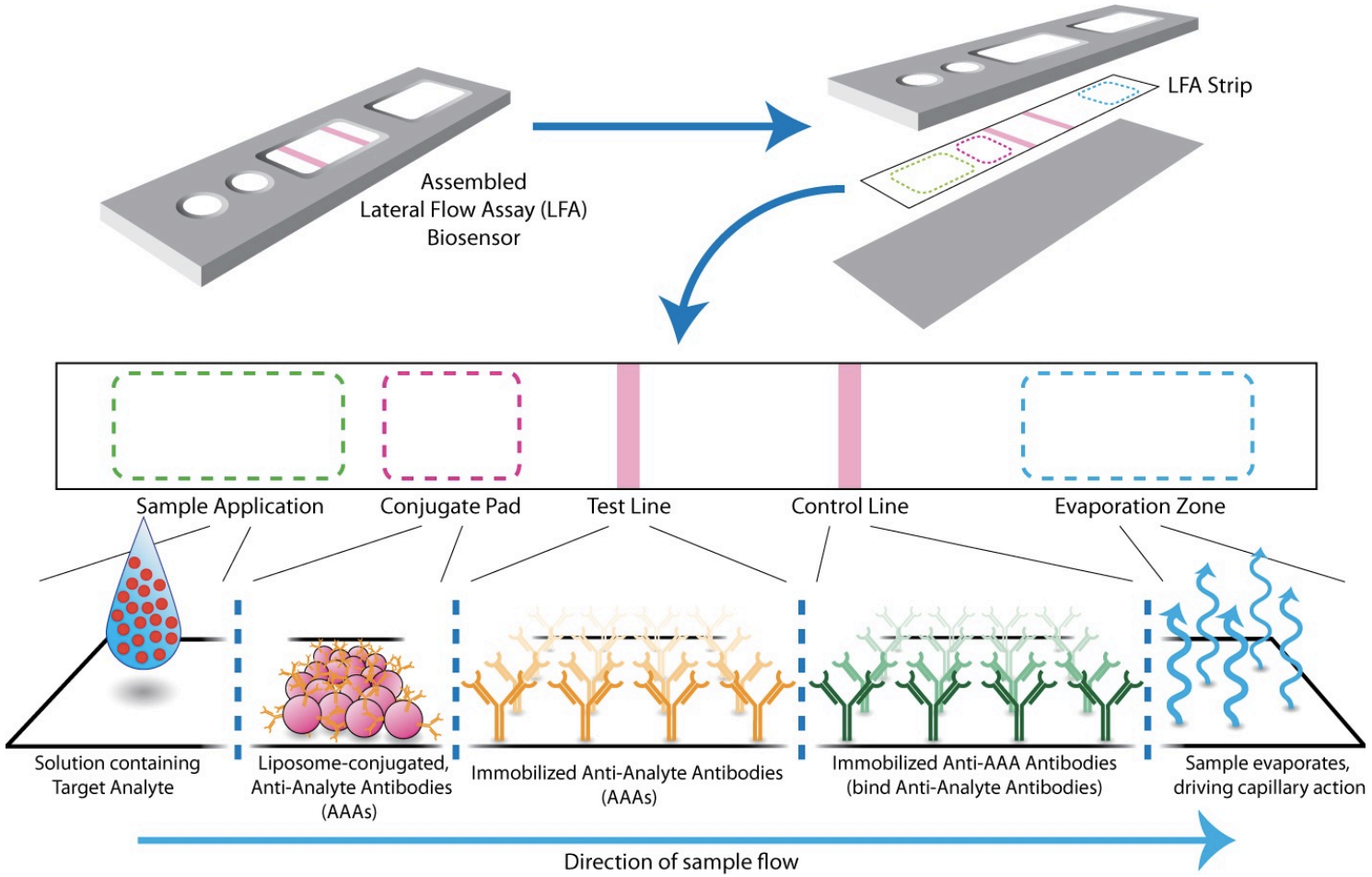
www.uspharmacist.com/article/urine-drug-screening-minimizing-false-positives-and-false-negatives-to-optimize-patient-care.

URINE DRUG MONITORING

Urine Drug Screening (UDS)	Urine Drug Testing (UDT)
Immunoassay screen (ie, cup)	GC-MS or LC-MS
PRESUMPTIVE	DEFINITIVE
In-office, point-of-care, or lab-based	Laboratory, highly specific & sensitive
Results within minutes	Results in hours or days
Various cups detect a majority of legal & illicit medications by structural class	Measures all drug/metabolite concentrations
Guidance for preliminary treatment decisions	Definitive identification & analysis
Cross-reactivity common: more false positives	False-positive results are rare
Higher cutoff levels: more false negatives	False-negative results are rare
$	$$$

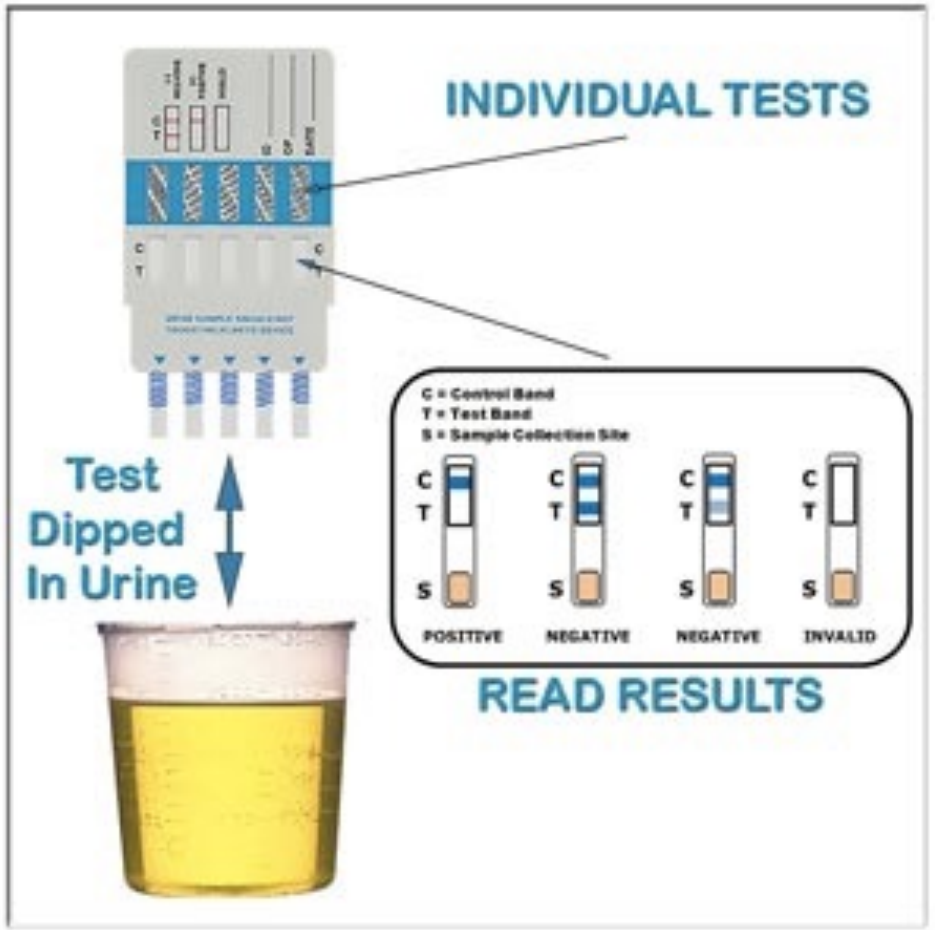
Moeller. *Mayo Clin Proc*. 2008;83(1):66-76.

Immunoassay



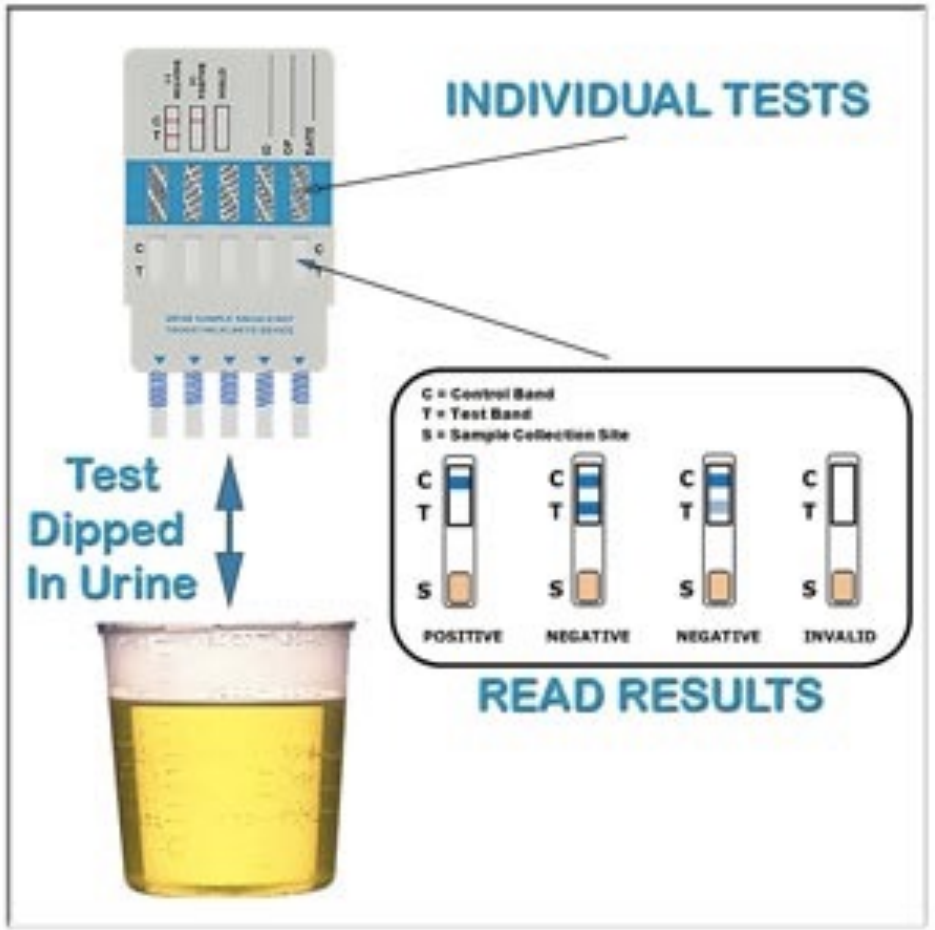
www.uni-regensburg.de/chemistry-pharmacy/analytical-chemistry/baeumner/research/lateral-flow/index.html.

One Fancy Cup
Immunoassay



www.americanscreeningcorp.com: pain.sh/3mn.

One Fancy Cup
Immunoassay



www.medicinenet.com/urinalysis/article.htm.

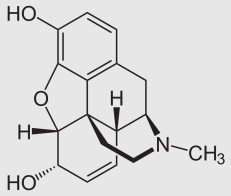
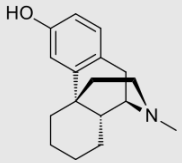
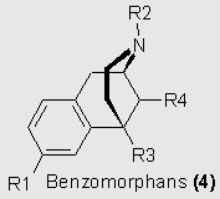
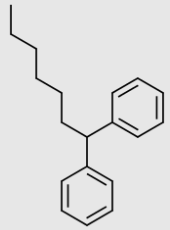
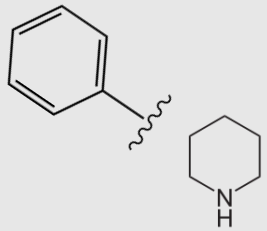
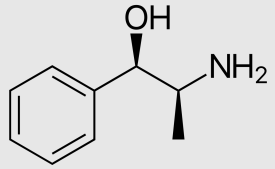
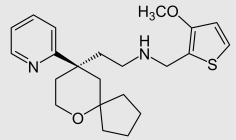
Urine Drug Monitoring

Cut-Off Amounts (SAMSHA)

Chemical	UDS Cut-Off (ng/mL)	UDT Cut-Off (ng/mL)
THC	50	15
Opiates	2,000	2,000
Hydrocodone/Hydromorphone	300	100
Oxycodone/Oxymorphone	100	100
6-MAM	10	10
Amphetamines/Meth/MDMA	500	250
Cocaine (Benzoylecgonine)	150	100
PCP	25	25

www.drugabuse.gov/sites/default/files/files/UrineDrugTesting.pdf. www.samhsa.gov/sites/default/files/workplace/frn_vol_82_7920_.pdf.

Opioid Med Chem 101: Structures

Structural Class	Phenanthrenes		Benzomorphan	Dipheylheptanes	Phenylpiperidines	Phenylpropylamines	New Entity
Rings	5 Rings	4 Rings		2 Rings		2 Rings	New
Structure							
Medication(s)	Opium Codeine Diacetylmorphine Hydrocodone Hydromorphone Benz-Hydrocodone Morphine Oxycodone Oxymorphone Naloxone Naltrexone Nalmefene Buprenorphine	Butorphanol Levorphanol	Pentazocine	Methadone Propoxyphene	Fentanyl/Analogs Sufentanil Meperidine Diphenoxylate Loperamide	Tapentadol Tramadol	Oliceridine

Adapted from Trescot. *Pain Physician*. 2008;11(2 Suppl):S133-153.

URINE DRUG SCREENS						
SUBSTANCE	5 Panel	7 Panel	10 Panel	12 Panel	13 Panel	14 Panel
THC	X	X	X	X	X	X
Cocaine	X	X	X	X	X	X
Opiates	X	X	X	X	X	X
PCP	X	X	X	X	X	X
Amphetamines	X	X	X	X	X	X
Benzodiazepines		X	X	X	X	X
Barbiturates		X	X	X	X	X
Methadone			X	X	X	X
Propoxyphene			X	X	X	X
Quaaludes			X	X	X	X
Ecstasy				X	X	X
Oxycodone				X	X	X
Fentanyl					X	X
Meperidine					X	X
Buprenorphine						X

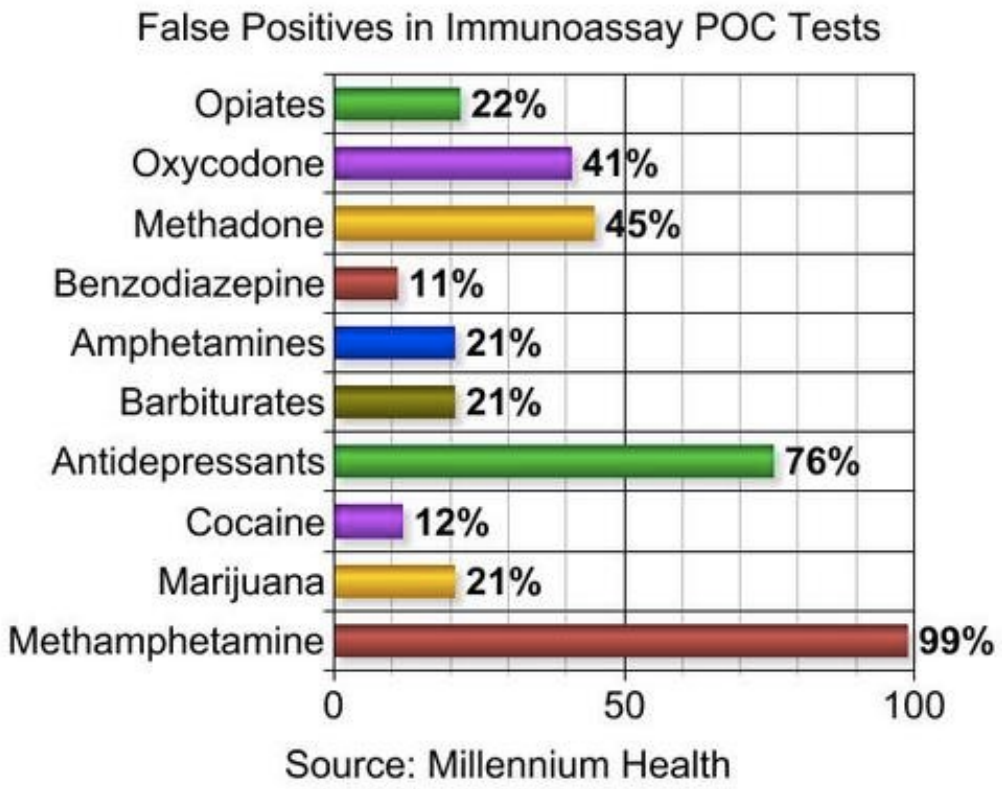
Moeller. *Mayo Clin Proc*. 2008;83(1):66-76.
www.mobilehealth.net/screening/drug-screening/5-panel/the-different-drug-panels/.

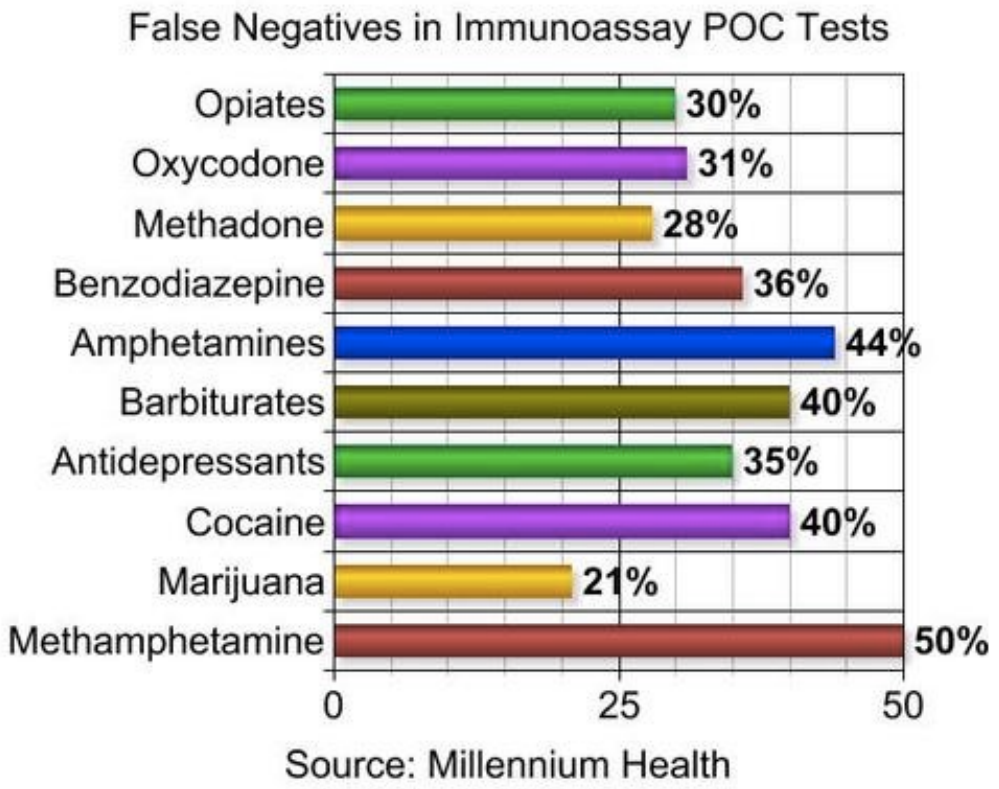
Subjectively Specific

Urine Drug Screenings (UDS) Add-On Screenings
6-MAM (6-AM)
Synthetic Cannabinoids
Cathinones (Bath Salts)
Dextromethorphan (DXM)
Ethanol
Propofol
Methylphenidate
Carisoprodol
Zolpidem
And so on…

www.mobilehealth.net/employee-screening-drug-respiratory-fit/drug-screening/what-drug-panel/

Right, Wrong, Maybe, Sometimes???





www.painnewsnetwork.org/stories/2015/4/11/urine-drug-test-often-gives-false-results.

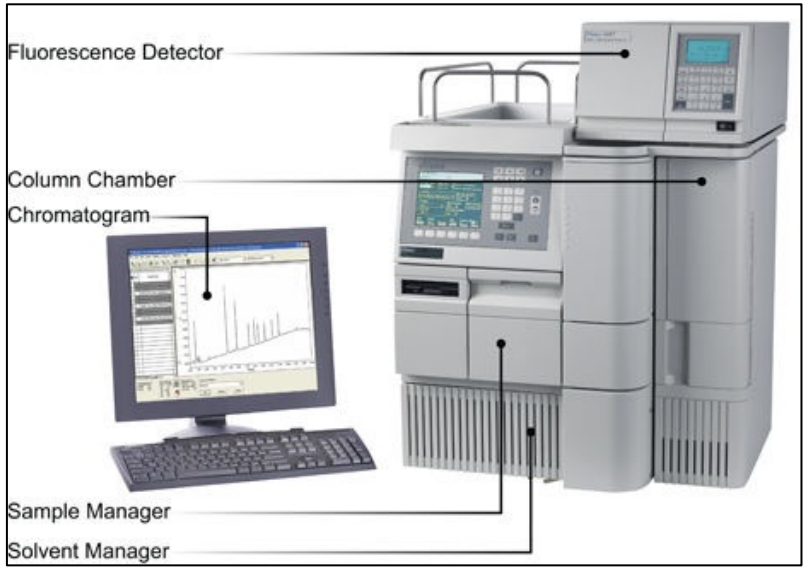
Urine Drug Screening False Positives

Substance	UDS Cross-Reactant
Cannabinoids	Dronabinol, NSAIDs (ibuprofen/naproxen), efavirenz, PPIs (pantoprazole), & promethazine
Opioids	chlorpromazine, dextromethorphan, diphenhydramine, doxylamine, poppy seeds, quinine, & quinolones, rifampin, & verapamil
Amphetamines	amantadine, bupropion, chlorpromazine, fluoxetine, labetalol, menthol, metformin, methylphenidate, phentermine, phenylephrine, promethazine, propranolol, pseudoephedrine, ranitidine, selegiline (l-meth/amphetamine metabolites), & trazodone
PCP	chlorpromazine, dextromethorphan, diphenhydramine, doxylamine, ibuprofen, imipramine, lamotrigine, meperidine, thioridazine, tramadol, & venlafaxine
LSD	amitriptyline, bupropion, buspirone, diltiazem, fentanyl, fluoxetine, labetalol, methylphenidate, metoclopramide, prochlorperazine, risperidone, sertraline, trazodone, & verapamil
Barbiturates	Ibuprofen & naproxen
Benzodiazepines	oxaprozin, sertraline, & some herbals
Alcohol	asthma inhalers & isopropyl alcohol (short chain alcohol)
Methadone	quetiapine
TCAs	carbamazepine, cyclobenzaprine, diphenhydramine, hydroxyzine, & quetiapine

Moeller. *Mayo Clin Proc*. 2008;83(1):66-76.
www.uspharmacist.com/article/urine-drug-screening-minimizing-false-positives-and-false-negatives-to-optimize-patient-care.

Urine Drug Monitoring

Conversation Starters



Conversation Leaders

UDM Billing Terminology

- **ELISA or EIA**
  - Enzyme-linked immunosorbent assay
  - Detects and measures antibodies in your blood
- **CLIA**
  - Clinical Laboratory Improvement Amendments of 1988
- **CLFS**
  - Clinical laboratory fee schedule
- **CPT**
  - Current procedural terminology

➢ Insurers typically have an annual limit for how many screens/tests can be performed

www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNMattersArticles/Downloads/SE18001.pdf.

UDM Billing
In Office

CPT Code AMA/CMS	Testing	UDS/UDT	Medicare Reimbursement Fee
80305	Immunoassay w/ direct reading (Cup, Card, Cartridge, Dipstick)	UDS	$13.46
80306	Immunoassay w/ instrument reading (Cup, Card, Cartridge, Dipstick)	UDS	$17.96
80307	Chemistry Analyzer (e.g., EIA,), Chromatography (e.g., GC, HPLC), or Mass Spectrometry +/- Chromatography	UDS	$71.83
G0659	Chromatography (e.g., GC, HPLC) with Mass Spectrometry in Physician's Office Lab (POL)	UDT	$71.83

Pain.sh/9kg.

UDM Billing
Send Off

CPT Code AMA/CMS	UDT GC/LC + Mass Spectrometry	Medicare Reimbursement Fee
G0480	1 to 7 Substances	$114.43
G0481	8 to 14 Substances	$156.59
G0482	15 to 21 Substances	$198.74
G0483	>/= 22 Substances	$246.92

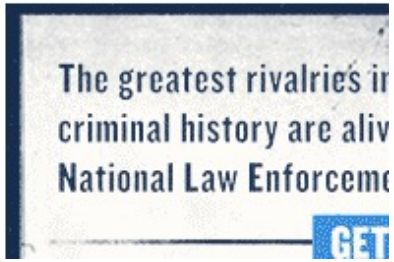
www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNMattersArticles/Downloads/SE18001.pdf.

Profitable Pee

Maryland Medicaid program bans some drug testing due to costs

By Meredith Cohn • Contact Reporter
The Baltimore Sun

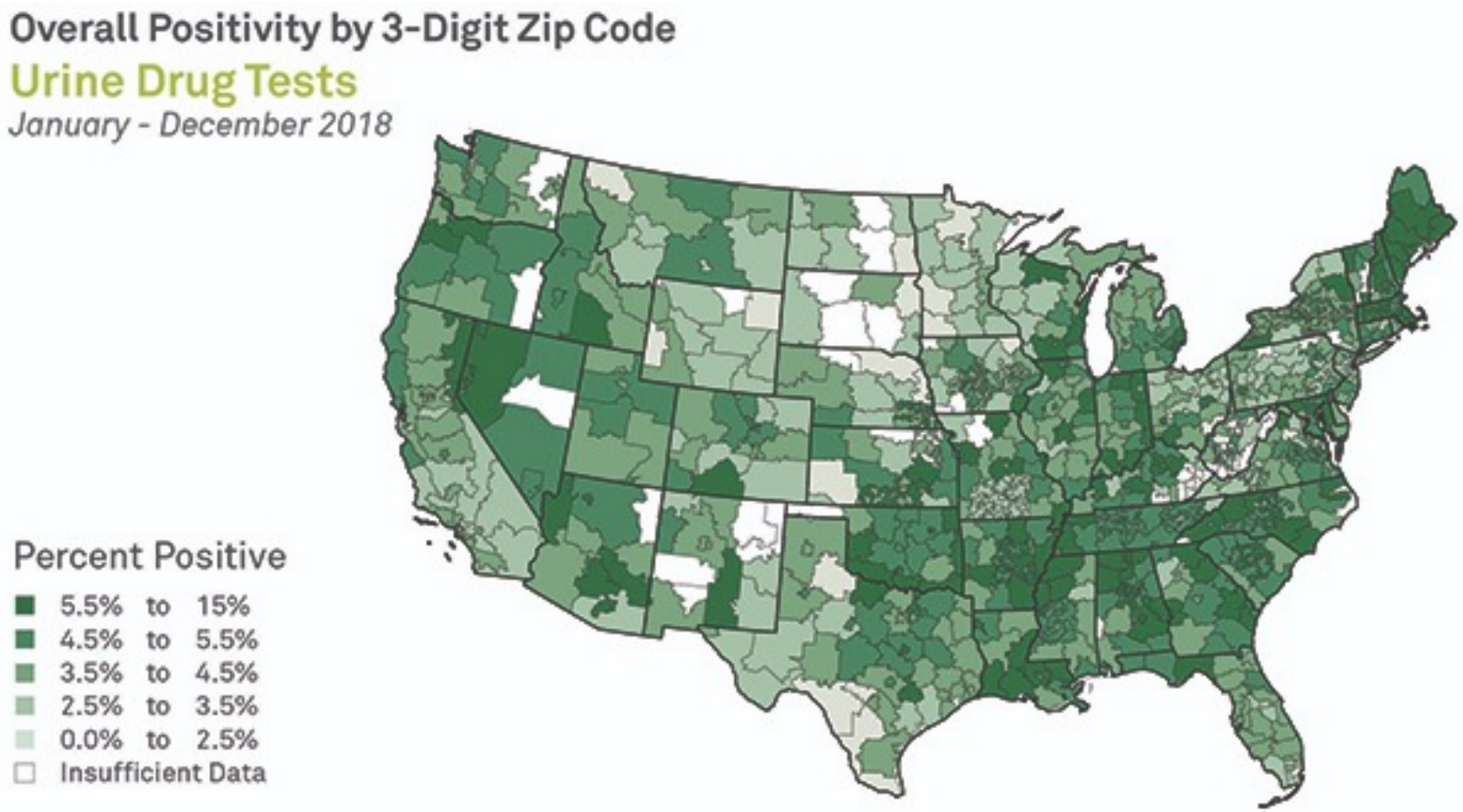
FEBRUARY 15, 2018, 3:30 PM



UDM Positivity Rates

- Lab can provide your practice's rate of specific substances being positively identified in urine monitoring
- If 0% repeatedly for specific substances, one could possibly consider eliminating that urine monitoring
- However, drug utilization trends change and adapt over time

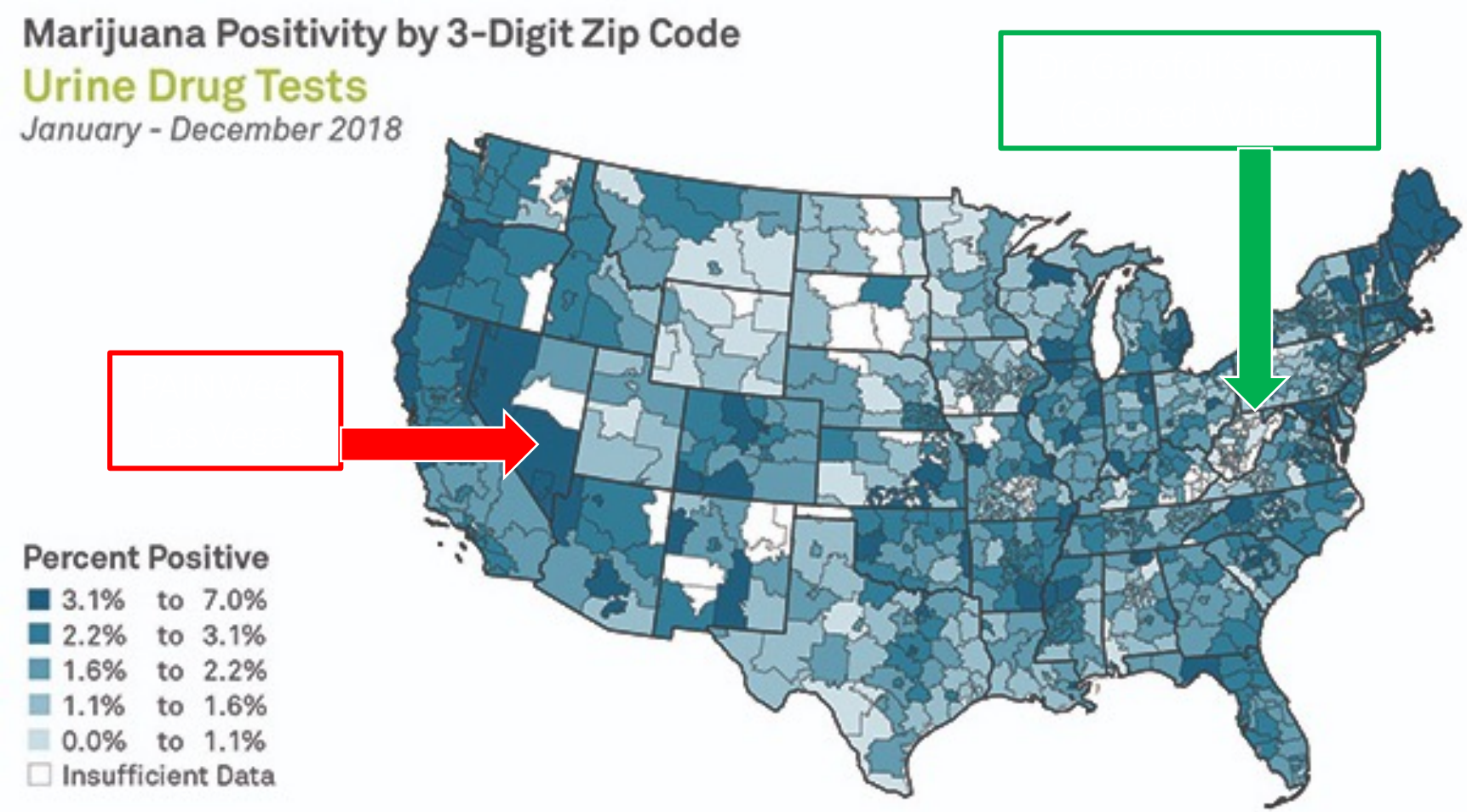
National Urine Drug Tests
Overall Positive Results



www.questdiagnostics.com/home/physicians/health-trends/drug-testing.html.

National Urine Drug Tests

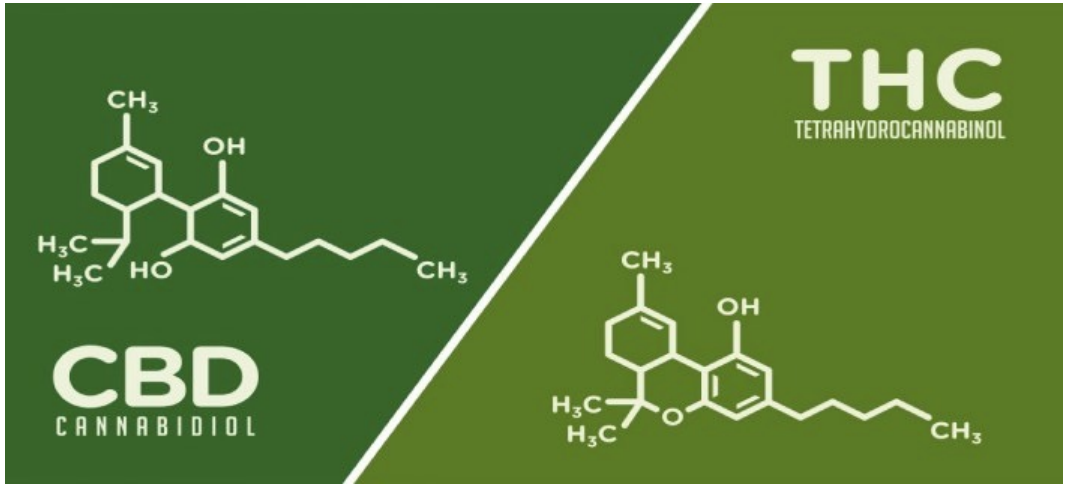
THC Positive Results



www.questdiagnostics.com/home/physicians/health-trends/drug-testing.html.

Cannabinoids

- THC metabolite: THC-COOH
  - Carboxylic acid group added to allow for kidney excretion
- CBD should not screen (+) for THC, however
  - High % of products contain other substances (eg, THC)
  - JAMA 2017 study: 26 of 84 (~30%) CBD extracts had accurate labels
  - Structures are very similar



www.usdrugtestcenters.com/drug-test-blog/181/can-you-fail-a-drug-test-due-to-cbd.html.
Bonn-Miller. *JAMA*. 2017;e318:1708-1709.

Patient Cases

Patient Case #1

Prescribed Methadone

- Conduct a pill count and complete history

➢Pick UDS panel to evaluate adherence

Patient Case #1

Prescribed Methadone

- Conduct a pill count and complete history

➢Pick UDS panel to evaluate adherence

URINE DRUG SCREENS				
SUBSTANCE	5 Panel	7 Panel	10 Panel	12 Panel
THC	X	X	X	X
Cocaine	X	X	X	X
Opiates	X	X	X	X
PCP	X	X	X	X
Amphetamines	X	X	X	X
Benzodiazepines		X	X	X
Barbiturates		X	X	X
Methadone			X	X
Propoxyphene			X	X
Quaaludes			X	X
Ecstasy				X
Oxycodone				X

Patient Case #2

UDS 12 Pain Panel

- Lower than expected pill count
  - Diverted the rest?
  - Took a pill a few hours prior to UDS?
- Gradual (if any) opioid taper needed?

UDS 12 Pain Panel	Result
Marijuana (THC)	-
Cocaine	-
Opiates	-
PCP	-
Amphetamines	-
Benzodiazepines	-
Barbiturates	-
Methadone	-
Propoxyphene	-
Quaaludes	-
MDMA (Ecstasy)	-
OXYCODONE	**+**

Patient Case #2

UDS 12 Pain Panel

- Lower than expected pill count
  - Diverted the rest?
  - Took a pill a few hours prior to UDS?
- Gradual (if any) opioid taper needed?

UDT	Result
OXYCODONE	+
Oxymorphone	-
Noroxycodone	-

UDS 12 Pain Panel	Result
Marijuana (THC)	-
Cocaine	-
Opiates	-
PCP	-
Amphetamines	-
Benzodiazepines	-
Barbiturates	-
Methadone	-
Propoxyphene	-
Quaaludes	-
MDMA (Ecstasy)	-
OXYCODONE	+

Patient Case #3

- Verified current medication list (April)
  - Dextromethorphan, diphenhydramine, MVI, and lisinopril

UDS 7 Panel	Result
Marijuana (THC)	-
Cocaine	-
OPIATES	**+**
PCP	-
Amphetamines	-
Benzodiazepines	-
Barbiturates	-

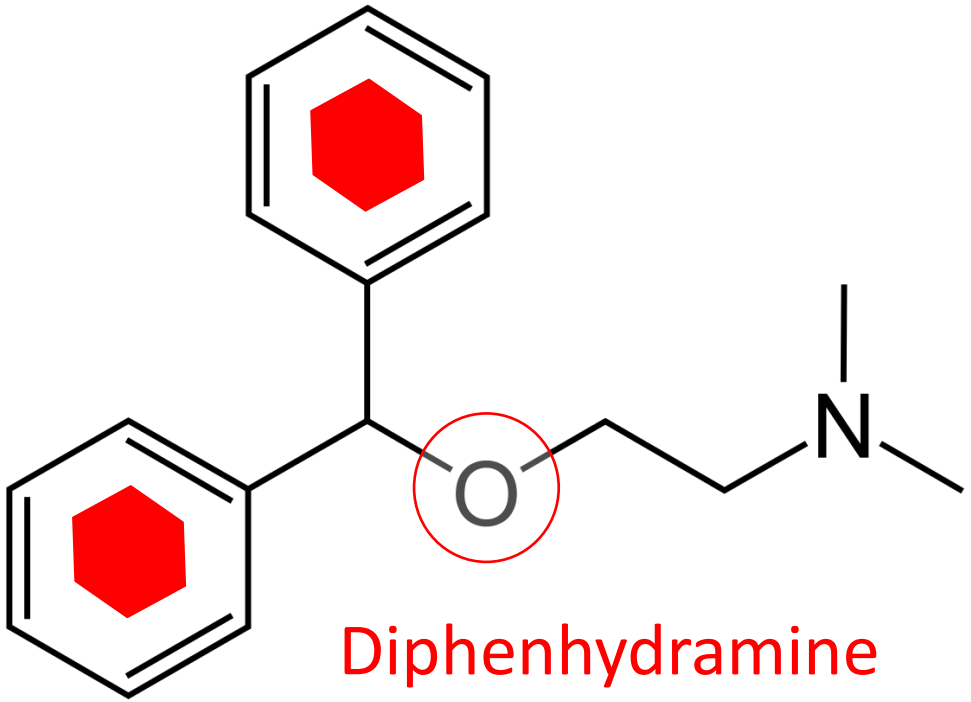
Patient Case #3

- Verified current medication list (April)
  - Dextromethorphan, diphenhydramine, MVI, and lisinopril

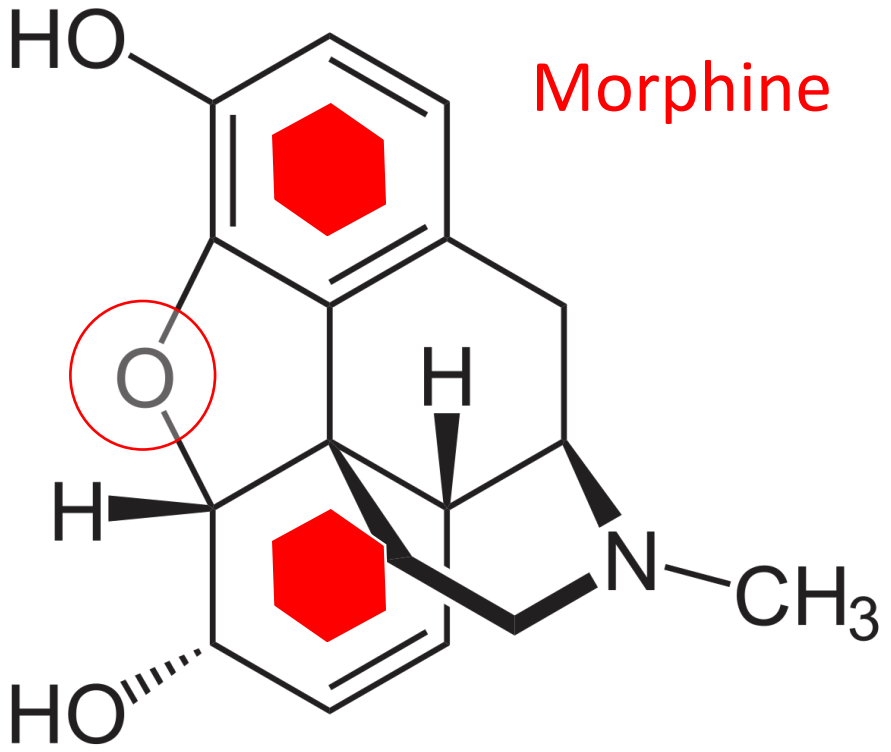
UDT	Result
Morphine	-
6-MAM	-
Oxycodone	-
Oxymorphone	-
Noroxycodone	-
DEXTROMETHORPHAN	**+**
DIPHENHYDRAMINE	**+**

UDS 7 Panel	Result
Marijuana (THC)	-
Cocaine	-
OPIATES	**+**
PCP	-
Amphetamines	-
Benzodiazepines	-
Barbiturates	-

Structurally Speaking…



Diphenhydramine



Morphine

Dextromethorphan (DXM)

Dose (mg)	Effects
Low	Cough Suppressant
Moderate	Pain Management
100-200	Mild Stimulation
201-400	Euphoria & Hallucinations
540	Distorted Vision & Coordination
601-1500	Dissociative Sedation

Drug Facts

Active Ingredient (In each 5 mL)	Purpose
Dextromethorphan polistirex equivalent to 30 mg dextromethorphan hydrobromide	Cough suppressant

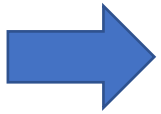
Clinical Pharmacology Online Database.

Dextromethorphan

Med Chem 101

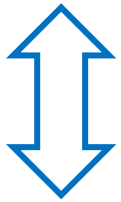
OTC

Dextromethorphan (DXM)



CYP-2D6
O-demethylation

Dextrorphan (DXO)
"D-enantiomer" of racemorphan



Levorphanol
"L-enantiomer" of racemorphan

Clinical Pharmacology Online Database.

No More 19yo DXM Abuse???

www.chaindrugreview.com/west-virginia-becomes-18th-state-to-adopt-age-18-sales-law-on-cough-medicine/.

Patient Case #4

- Patient currently not utilizing any medications

UDS 7 Panel	Result
Marijuana (THC)	-
Cocaine	-
OPIATES	**+**
PCP	-
Amphetamines	-
Benzodiazepines	-
Barbiturates	-

Patient Case #4

- Patient currently not utilizing any medications
  - Aunt Doreen's Easter Bread
    - Poppy Seeds

UDT	Result
MORPHINE	**+**
6-MAM	-
Oxycodone	-
Oxymorphone	-
Noroxycodone	-

UDS 7 Panel	Result
Marijuana (THC)	-
Cocaine	-
OPIATES	**+**
PCP	-
Amphetamines	-
Benzodiazepines	-
Barbiturates	-

“Poppy Seed Defense”

- Poppy seeds do not contain opium but are coated by it
- Concentration of coating varies, depending on
  - Amount of rainfall during the curing of the seed pods
  - Washing of the seeds
- Bread, bagels, muffins, pastries, smoothies, fillings, etc
- Approximately 1 TSP poppy seeds may result in false-positive UDS for opiates
- Cake material: Morphine urine concentrations can be in thousands of ng/mL2
- Bagels: Morphine urine concentrations can be in hundreds of ng/mL3

Rohrig. *J Anal Toxicol*. 2003;27:449-452.

“Poppy Seed Defense”

2015 Mayo Clinic Case Study

Patient reported drinking tea prepared from 1 to 2 POUNDs of poppy seeds daily (OWS upon discontinuation). The patient’s LCMS results included:

- Morphine 37,600 ng/mL
- Codeine 2,580 ng/mL
- Hydromorphone 1,430 ng/mL

- Thebaine: short T1/2 (similar to 6-MAM)

- Codeine and morphine produce <11% hydrocodone and **<2.5%** hydromorphone
  - ➢ Hydromorphone 1,430 / morphine 37,600 = 3.8%
    - ➢ In other words, **>2.5%**

Pearson. *Mayo Clin Proc*. 2015;90(12):1734-1740 .

Patient Case #5

- Patient with a broken arm not happy about needing to conduct a UDS due to recent UTI
- You ask how long ago the UTI was, and patient says it still hurts

Which of the following antibiotics could produce a false positive UDS for opiates?

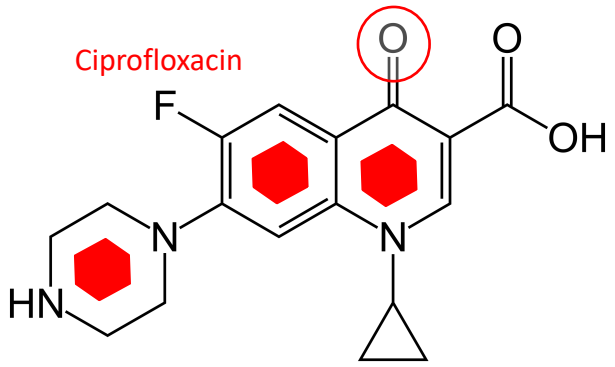
a) Azithromycin
b) Cefdinir
c) Cephalexin
d) Ciprofloxacin

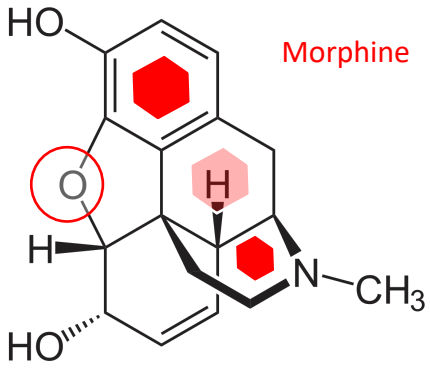
Patient Case #5

- Patient with a broken arm not happy about needing to conduct a UDS due to recent UTI
- You ask how long ago the UTI was, and patient says it still hurts

Which of the following antibiotics could produce a false positive UDS for opiates?

a) Azithromycin
b) Cefdinir
c) Cephalexin
d) CIPROFLOXACIN*





Patient Case #6

- Patient currently not utilizing any medications

UDS 7 Panel	Result
MARIJUANA (THC)	+
Cocaine	-
Opiates	-
PCP	-
Amphetamines	-
Benzodiazepines	-
Barbiturates	-

Patient Case #6

- Patient currently not utilizing any medications

UDT	Result
THC	-
Amphetamine	-
Morphine	-
Oxycodone	-

UDS 7 Panel	Result
MARIJUANA (THC)	+
Cocaine	-
Opiates	-
PCP	-
Amphetamines	-
Benzodiazepines	-
Barbiturates	-

Patient Case #7

- Patient attempted to falsify the UDS by ingesting goldenseal
  - Goldenseal is an herb in the buttercup family with a large yellow root, native in southeastern Canada and the northeastern United States

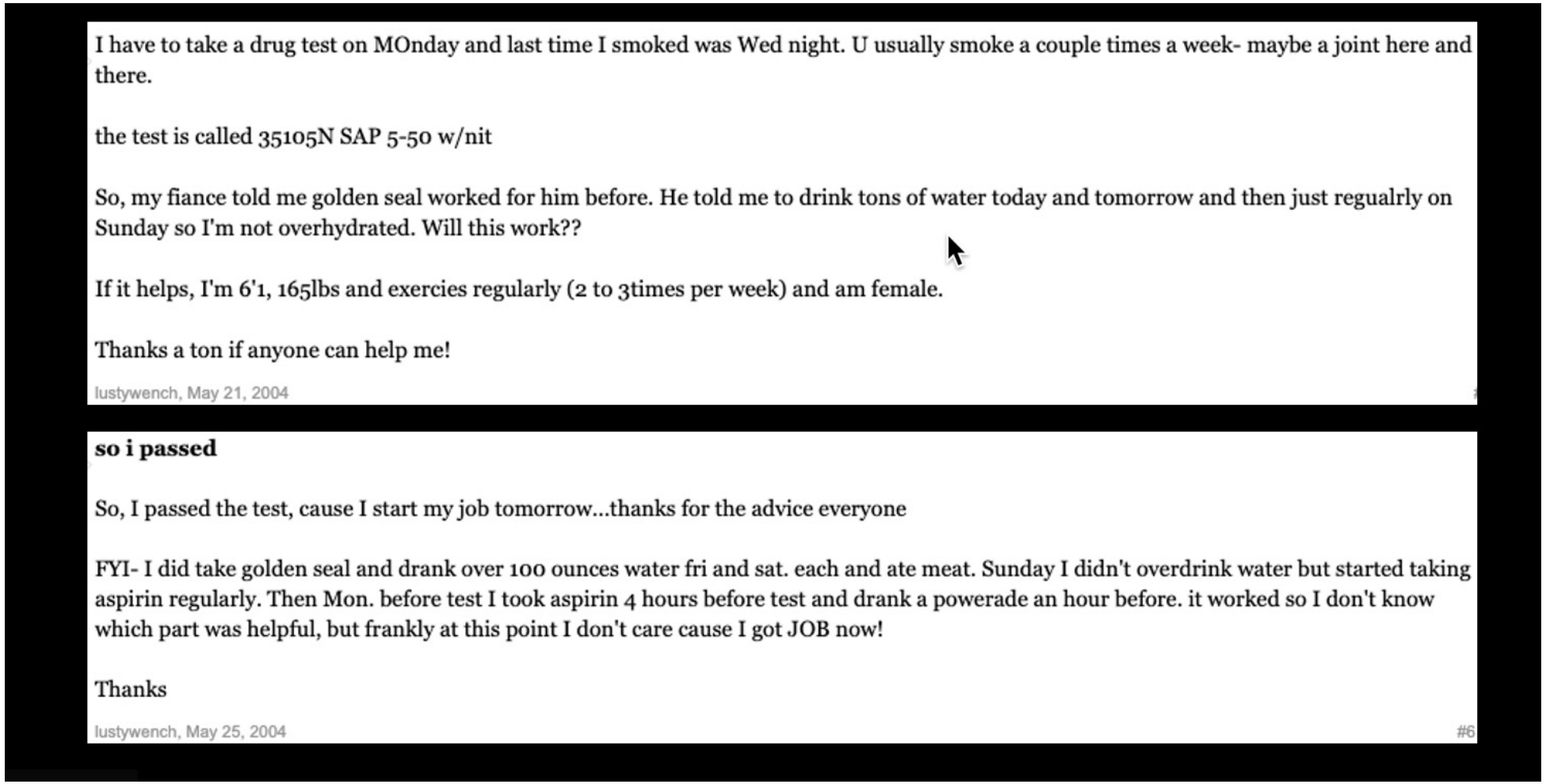
UDT	Result
THC	+
Amphetamine	-
Morphine	-
Oxycodone	-

UDS 7 Panel	Result
MARIJUANA (THC)	+
Cocaine	-
Opiates	-
PCP	-
Amphetamines	-
Benzodiazepines	-
Barbiturates	-

Goldenseal: Myth, Legend, Fact, Fiction?

- Pharmacist John Uri Lloyd wrote the fiction novel “Stringtown on the Pike” in 1890 (murder with a victim having strychnine in the stomach)
- Murder victim’s morning habit of taking bitters (an ingredient of which was goldenseal) was the cause of the false positive for the deadly poison
- Two recent studies have showed no goldenseal effect on urine drug tests
- Subjects who drank large amounts of water had the same urine drug levels as subjects who took goldenseal pills with the water

Goldenseal: Myth, Legend, Fact, Fiction?



I have to take a drug test on MOnday and last time I smoked was Wed night. U usually smoke a couple times a week- maybe a joint here and there.

the test is called 35105N SAP 5-50 w/nit

So, my fiance told me golden seal worked for him before. He told me to drink tons of water today and tomorrow and then just regualrly on Sunday so I'm not overhydrated. Will this work??

If it helps, I'm 6'1, 165lbs and exercies regularly (2 to 3times per week) and am female.

Thanks a ton if anyone can help me!

lustywench, May 21, 2004

so i passed

So, I passed the test, cause I start my job tomorrow...thanks for the advice everyone

FYI- I did take golden seal and drank over 100 ounces water fri and sat. each and ate meat. Sunday I didn't overdrink water but started taking aspirin regularly. Then Mon. before test I took aspirin 4 hours before test and drank a powerade an hour before. it worked so I don't know which part was helpful, but frankly at this point I don't care cause I got JOB now!

Thanks

lustywench, May 25, 2004 #6

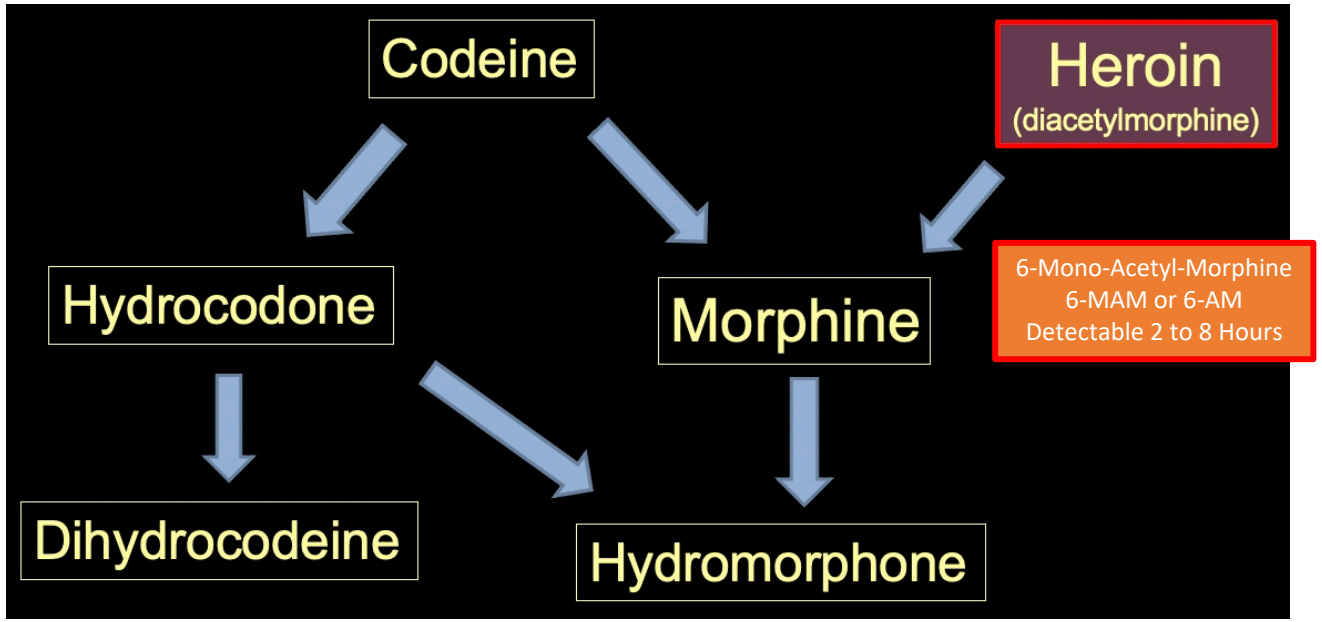
vacmr.org/goldenseal-drug-test/.

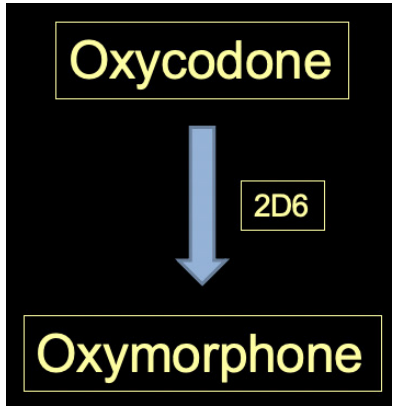
Patient Case #8

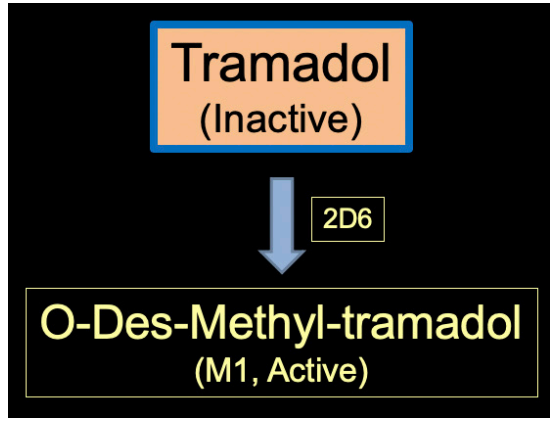
- Confirmed current medication list
  - Acetaminophen/codeine #4 Q 4 hours PRN
  - Ibuprofen 200 mg Q 6 hours PRN
- Pharmacogenomics (CYP450-2D6)?
- "Overuse" due to subpotent opioid?
- Illicit use of other opioids?

UDT	Result
Methadone	-
EDDP	-
MORPHINE	**+**
6-MAM	-
HYDROMORPHONE	**+**
HYDROCODONE	**+**
DIHYDROCODEINE	**+**
Oxycodone	-
Oxymorphone	-
Noroxycodone	-

Opioid Metabolism
Active Metabolites

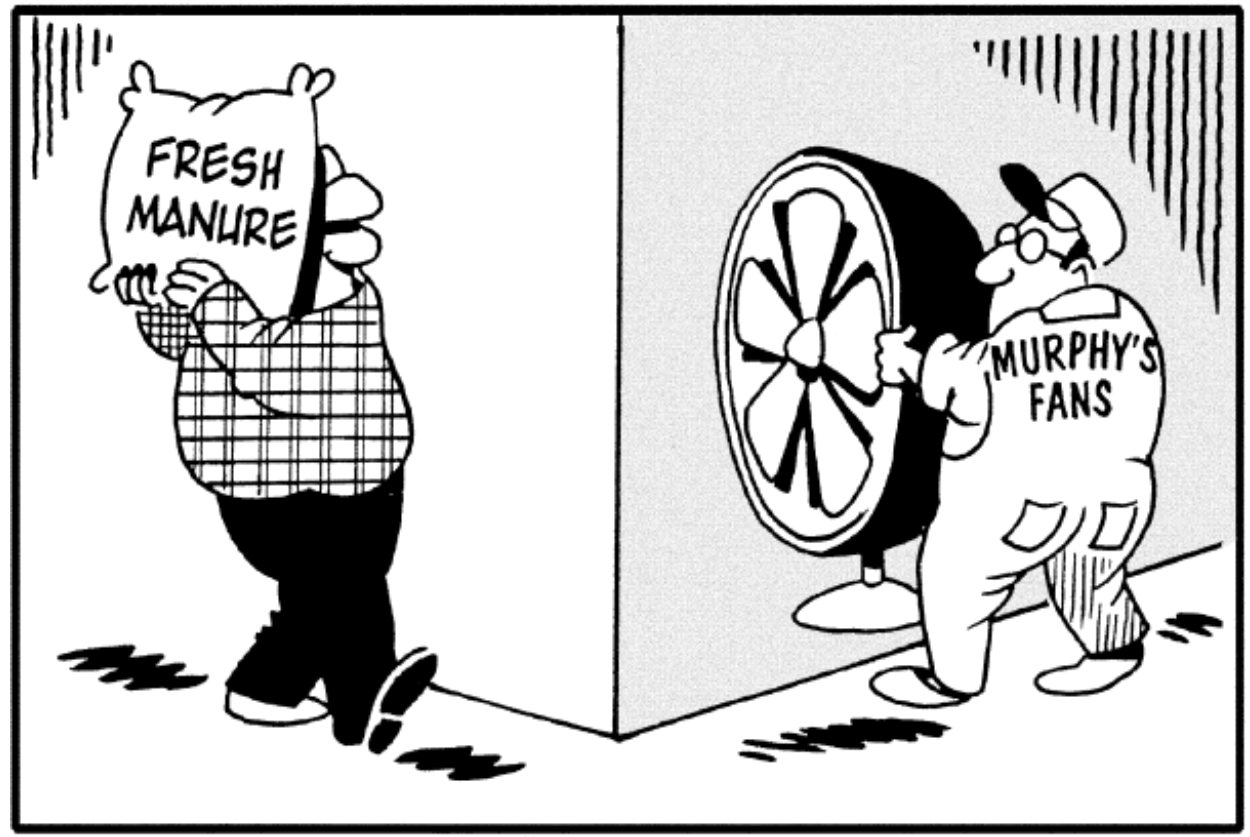






Adapted from the WV SEMP Guidelines. www.sempguidelines.org.
Cone. *J Anal Toxicol.* 1991;15(1):1-7.


OKAY...
NOW WHAT?!


FRESH MANURE
MURPHY'S FANS

Patient Dismissal

Confirmed Drug Seeking or Diversion

- Reference the patient and provider agreement/contract
- Treatment can continue with noncontrolled substance therapies
- Refer to a substance use disorder specialist/program, or an entity that can connect
- Contact law enforcement if concern for safety of patient or others exists
- Respect for all those directly or indirectly involved in the specific patient case should be upheld, while also ensuring both a procession within federal/state laws and an appropriate level of patient care

Avoid Patient Abandonment

1. DOCUMENT everything thoroughly
2. Patient signs termination letter in person with a witness (or certified mail return receipt)
   - Provide at least a 30-day notice in the letter and offer to continue medical treatment for that time period
   - Stress the importance of continued medical care and potential consequences of not getting that care
   - Refer the patient to a number of professionals who may accept the patient for care
   - Offer to promptly transfer medical records to the new provider once established

Fishbain. *Pain Med.* 2009;10(4):722-729.

www.deadiversion.usdoj.gov/tips_online.htm

1-877-RX-Abuse

(1-877-792-2873)

WVU Medicine Center for Integrative Pain Management

- ALL patients have a UDT (GCMS)
- Results available within 24 hours
- Results provided via secure online portal website
  - Preset notification settings (timing, specific results, etc)
- Violators receive a certified letter
- Conversation….

wvumedicine.org/ruby-memorial-hospital/services/wvu-specialty-clinics/pain-management-center/.

To Infinity, and Beyond…

PainWeek

ADVANCED EDUCATION

CERTIFICATION SERIES

CANNABINOIDS

Urine Drug Monitoring

Mark Garofoli, PharmD, MBA, BCGP, CPE