Nuts and bolts:
Setting up a buprenorphine clinic

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Objectives

- Review qualifications and requirements of prescribing buprenorphine
- Overview of two example clinics
- Potential future directions and integration into primary care settings
- Group Discussion to identify barriers and needs to implement MAT within your area or organization.

Pertinent Policies and Positions

- Drug Addiction Treatment Act of 2000 (DATA 2000)
  - Gives qualified physicians the okay to prescribe or dispense Schedule III, IV or V medications any place they can practice.
    - ✕ Must be FDA approved.
    - ✕ NATA makes it illegal for narcotics to be prescribed off-label
    - ✕ Qualified physicians
      - ✕ Licensed Under State Law
      - ✕ Registered with the DEA
      - ✕ Qualified by training or certification
      - ✕ Must be capable of referring patients to counseling
    - ✕ Limits the number of unique patients who can be prescribed buprenorphine under one physician's care at any given time
- Comprehensive Addiction and Recovery Act (CARA)

- Notice of intent to prescribe
  - SAMHSA verifies that any one or more of the following conditions is met:
    - ✕Hold subspecialty board certification in addiction psychiatry (ABBPN) or addiction medicine (AOA)
    - ✕Hold addiction certificate from ASAM
    - ✕Participated as an investigator in a clinical trial involving buprenorphine
    - ✕Have training that state licensing board or HHS recognizes as adequate
    - ✕*** Completed required training for treatment and management of opioid use disorders totaling not less than 8 hours***
  - Waiver and special DEA number or “X” license is issued

- Preparing for office based treatment
  - Familiar and comfortable with prescribing
  - Office setup
    - Environment
    - Dispensing from office or patient bringing prescription?
  - Establish office procedures
    - Referrals for patients who are not appropriate
    - Coverage
    - Training for staff
    - Medical and psychosocial referrals
    - Special Confidentiality requirements
      - 42 C.F.R. Part 2: addiction treatment information is required to be handled with a greater degree of confidentiality.
      - Special Consent Form
  - Tracking patients

One Example

- Initial contact- referral made to the office.
  - QMHP or RN contacts patient for brief screening
    - Are you currently receiving methadone or buprenorphine?
      - Where are is treatment being received?
      - What is current dosage?
      - What is the reason for transferring care?
      - ***Obtain ROI to contact current treatment facility***
    - Have you received methadone or buprenorphine in the past? What was that experience like?
    - Will you have reliable transportation for your appointments?
    - Must be over 18
  - If appropriate, client is given information on the hours for a walk-in intake assessment.

Walk-in Intake assessment

- Meet with QMHP or RN for standard intake.
  - Current symptomatology
  - Overview of Medical History
    - ✕ Risk factors for communicable diseases
    - ✕ Current medication list
  - Psychosocial History
    - ✕ Trauma History
    - ✕ Housing, finances, support network, legal issues, community resources
  - Substance Use History
  - Routine screenings
    - ✕ PHQ-9, DAST, AUDIT, PTSD, DLA-20, suicide screening
  - Standing lab orders
    - ✕ BMP, CBC, LFTs, Hepatitis C, HIV, U/A and UDS
    - ✕ Urine pregnancy test if indicated
  - Education on clinic requirements

Requirements for buprenorphine

- Confirmed diagnosis of opioid use disorder
- Must agree to remain engaged in psychosocial interventions per the treatment plan
  - Eligible for all other services typically offered to patients with other substance use disorders.
  - Also required to attend monthly Opioid Replacement Group
- Must disclose contact with all other prescribers
- Avoid discussing medication and dosages with other clients or friends
- Ensure that medication is secure
- Agree to UDS and pill counts
- If they are agree to these items, we get them scheduled for an MAT evaluation with physician

Suboxone induction

- Scheduled for 60 minute physician appointment
  - Document start and stop time
- Review opioid use in depth
  - ✕ Timeline of substance use in general
  - ✕ Screen for all symptoms of opioid use disorder and classify as mild, moderate or severe
  - Past psychiatric, medical and family history
  - Social History
  - Physical exam
  - Review recent lab work, screening measures and explain diagnoses
  - Discuss treatment options and provide education on treatment contract, medication side effects, prognosis and expectations
  - Discuss plan with nurse and enter order for initial dosage of buprenorphine

Induction Continued

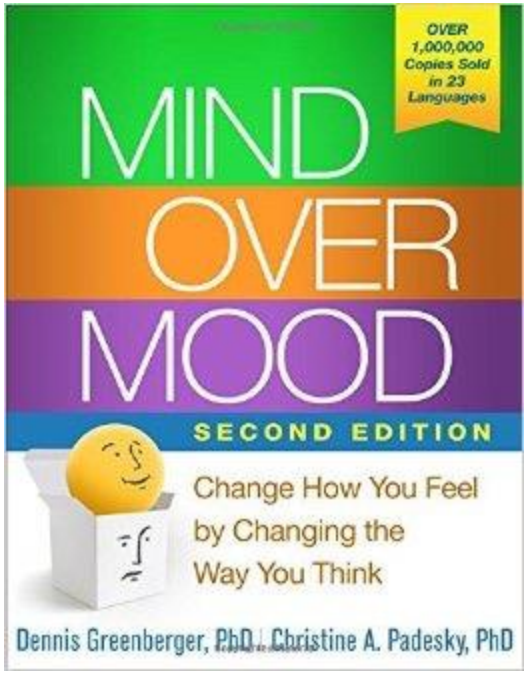
- Follow routine induction protocol
  - Nurse checks vitals, rates opiate withdrawal, gives patient subjective opiate withdrawal scale at beginning and hourly.
    - ✕Nursing provides additional education and coordinates care with other clinics/providers as necessary
  - Next order for buprenorphine given after 2 hours
  - Patient observed for one more hour then sent home
    - ✕Vitals, COWS and SOWS
    - ✕Provided with sheet to monitor subjective opiate withdrawal symptoms over night
    - ✕Scheduled for follow up the next day

Induction Day 2

- Follow up appointment with physician
  - 45 minutes
    - ✕ Review current withdrawal symptoms, opiate self report sheet, response to medication and any problems or concerns over the last 24 hours
    - ✕ Explain process for day 2 of induction
    - ✕ Use brief MI to begin formulating a relapse prevention
      - ✕ Specifically review plan for 12 step and other self help groups
- Continue Induction Protocol
- Schedule next visit- 1 day or one week

Ongoing treatment

- Engaged in regular services
  - Also required to attend 1 Opiate Replacement Group per month
    - ✕Several entry groups- move into a "home group"
    - ✕Mind Over Mood
    - ✕Entry groups serve as "make up" groups.
- Weekly medication appointments
- Transition to less frequent visits



Billing/Coding

- We operate as a hospital based clinic
  - Professional Fee and Facility Fee
    - Initial Intake- QMHP bills as usual
    - Initial day of induction- 99205 and High Level Nursing
      - Over half of session is spent providing education and coordinating care
      - We plan to do 3 inductions per morning simultaneously
    - Second day of induction- 99215 and High Level Nursing
      - Over half of session spent providing counseling and education
    - Ongoing groups, individual counseling
      - Tend to have low no-show rates
  - Process is profitable for clinic

Obtaining Buprenorphine

- Out of pocket costs- $200-$400/month
  - 89% of Missouri Insurance Plans cover this
  - $0-$2 Co-pay for medicaid
  - Medicare and Private insurance varies wildly
    - ✕ There are pharmacy cards that can significantly reduce the cost
  - Currently 3 Medication Assistance Programs
    - ✕ Suboxone Films- 1 year of free medication, once per lifetime. Max 3 pts per physician.
    - ✕ Zubsolv Tablets- 6 months with additional 6 months and unadvertised 6 months with letter. Max 1 pt per physician.
    - ✕ Bunavail Film- 6 months with 2 renewals, once per lifetime. Max 2 pts per physician.

Future Directions

- Train other psychiatrists within our group
  - Suboxone clinic transitions to a referral or consultation model
    - Referring physician agrees to provide buprenorphine for patient once stabilized
    - We provide:
      - Ongoing groups and therapy
      - Close communication and scheduled progress reports
      - Ongoing medication consultation
  - Roll this out to other willing primary care providers within our system
  - Roll this out to regional providers

Buprenorphine clinic set up

- Psychiatrist evaluates the patient, diagnoses opiate use disorder criteria, places consult/second opinion with the addiction psychiatrist
- Patient does urine drug screen, comes to see my clinic for a substance abuse assessment. Opiate use disorder diagnosis confirmed.
- Treatment options available discussed- MAT , methadone, buprenorphine- naloxone and naltrexone discussed, suitability for buprenorphine assessed.
- If patient agrees to start buprenorphine- naloxone, agrees to psychosocial treatment, patient scheduled for induction the next day or next available appointment.
- Patient counseled to not use 12-24 hours for a short acting opioid or 24-48 hours for long acting opioid.

- Induction day 1: urine drug screen, COWS done by nurse, score reported, if more then 4-5 induction started, patient prescribed 8-2 mg bup-naloxone, picks it up from pharmacy. (pharmacy called and asked to preferably give 2-0.5mg films/tabs depending on if insurance covers)
- Patient observed as he/she takes 2-0.5mg , a total of 8-2mg for the first day. Sent home to come back for induction day 2 the next day. Symptomatic mx for withdrawal sx present. educated to not use heroin at least 12 hours before appointment, so he is in withdrawal at time of being seen.
- Second day induction- administer maximum of 8-2mg, maximum of 16-4mg for day 2.
- Consequent days you can increase to a maximum of 24mg buprenorphine.
- Once induction is complete move to weekly follow ups.
- Contingency protocol for appointments followed, psychosocial treatment referral made, list of buprenorphine- naloxone patients stored for at least three years.


WHO
WHAT
WHERE
WHEN
WHY
HOW
QUESTIONS
ANSWERS

The Alcohol Use Disorders Identification Test: Interview Version

Read questions as written. Record answers carefully. Begin the AUDIT by saying "Now I am going to ask you some questions about your use of alcoholic beverages during this past year." Explain what is meant by "alcoholic beverages" by using local examples of beer, wine, vodka, etc. Code answers in terms of "standard drinks". Place the correct answer number in the box at the right.

1. How often do you have a drink containing alcohol?
   (0) Never [Skip to Qs 9-10]
   (1) Monthly or less
   (2) 2 to 4 times a month
   (3) 2 to 3 times a week
   (4) 4 or more times a week

2. How many drinks containing alcohol do you have on a typical day when you are drinking?
   (0) 1 or 2
   (1) 3 or 4
   (2) 5 or 6
   (3) 7, 8, or 9
   (4) 10 or more

3. How often do you have six or more drinks on one occasion?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily
   Skip to Questions 9 and 10 if Total Score for Questions 2 and 3 = 0

4. How often during the last year have you found that you were not able to stop drinking once you had started?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

5. How often during the last year have you failed to do what was normally expected from you because of drinking?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

7. How often during the last year have you had a feeling of guilt or remorse after drinking?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?
   (0) Never
   (1) Less than monthly
   (2) Monthly
   (3) Weekly
   (4) Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?
   (0) No
   (2) Yes, but not in the last year
   (4) Yes, during the last year

10. Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?
    (0) No
    (2) Yes, but not in the last year
    (4) Yes, during the last year

Record total of specific items here

If total is greater than recommended cut-off, consult User's Manual.

PATIENT HEALTH QUESTIONNAIRE-9

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING

0 + _____ + _____ + _____

=Total Score: _____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
☐	☐	☐	☐

PTSD CheckList – Civilian Version (PCL-C)

Client's Name: _____

Instruction to patient: Below is a list of problems and complaints that veterans sometimes have in response to stressful life experiences. Please read each one carefully, put an "X" in the box to indicate how much you have been bothered by that problem *in the last month*.

No.	Response	Not at all (1)	A little bit (2)	Moderately (3)	Quite a bit (4)	Extremely (5)
1.	Repeated, disturbing *memories, thoughts, or images* of a stressful experience from the past?					
2.	Repeated, disturbing *dreams* of a stressful experience from the past?					
3.	Suddenly *acting* or *feeling* as if a stressful experience *were happening* again (as if you were reliving it)?					
4.	Feeling *very upset* when *something reminded* you of a stressful experience from the past?					
5.	Having *physical reactions* (e.g., heart pounding, trouble breathing, or sweating) when *something reminded* you of a stressful experience from the past?					
6.	Avoid *thinking about* or *talking about* a stressful experience from the past or avoid *having feelings* related to it?					
7.	Avoid *activities* or *situations* because they *remind you* of a stressful experience from the past?					
8.	Trouble *remembering important parts* of a stressful experience from the past?					
9.	Loss of *interest in things that you used to enjoy?*					
10.	Feeling *distant* or *cut* off from other people?					
11.	Feeling *emotionally numb* or being unable to have loving feelings for those close to you?					
12.	Feeling as if your *future* will somehow be *cut short*?					
13.	Trouble *falling* or *staying asleep*?					
14.	Feeling *irritable* or having *angry outbursts*?					
15.	Having *difficulty concentrating*?					
16.	Being *"super alert"* or watchful on guard?					
17.	Feeling *jumpy* or easily startled?					

PCL-M for DSM-IV (11/1/94) Weathers, Litz, Huska, & Keane National Center for PTSD - Behavioral Science Division

This is a Government document in the public domain.

Drug Abuse Screening Test
DAST-10

These questions refer to the past 12 months.

1. Have you used drugs other than those required for medical reasons?	Yes	No
2. Do you abuse more than one drug at a time?	Yes	No
3. Are you always able to stop using drugs when you want to?	Yes	No
4. Have you had "blackouts" or "flashbacks" as a result of your drug use?	Yes	No
5. Do you ever feel bad or guilty about your drug use?	Yes	No
6. Does your spouse (or parents) ever complain about your involvement with drugs?	Yes	No
7. Have you neglected your family because of your use of drugs?	Yes	No
8. Have you engaged in illegal activities in order to obtain drugs?	Yes	No
9. Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?	Yes	No
10. Have you had medical problems as a result of your drug use (e.g. memory loss, hepatitis, convulsions, bleeding, etc.)?	Yes	No

Interpretation (Each "Yes" response = 1)

Score	Degree of Problems Related to Drug Abuse	Suggested Action
0	No Problems Reported	Encouragement & education
1-2	Low Level	Risky Behavior- Feedback & Advice
3-5	Moderate Level	Harmful Behavior- Feedback & Counseling; Possible referral for specialized assessment
6-8	Substantial Level	Intensive Assessment and referral

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APPENDIX 1
Clinical Opiate Withdrawal Scale

For each item, circle the number that best describes the patient's signs or symptom. Rate on just the apparent relationship to opiate withdrawal. For example, if heart rate is increased because the patient was jogging just prior to assessment, the increase pulse rate would not add to the score.

Patient's Name:_____ Date and Time ____/____/____:_____

Reason for this assessment:_____

Resting Pulse Rate: _____beats/minute *Measured after patient is sitting or lying for one minute* 0 pulse rate 80 or below 1 pulse rate 81-100 2 pulse rate 101-120 4 pulse rate greater than 120	**GI Upset**: *over last 1/2 hour* 0 no GI symptoms 1 stomach cramps 2 nausea or loose stool 3 vomiting or diarrhea 5 multiple episodes of diarrhea or vomiting
Sweating: *over past 1/2 hour not accounted for by room temperature or patient activity.* 0 no report of chills or flushing 1 subjective report of chills or flushing 2 flushed or observable moistness on face 3 beads of sweat on brow or face 4 sweat streaming off face	**Tremor** *observation of outstretched hands* 0 no tremor 1 tremor can be felt, but not observed 2 slight tremor observable 4 gross tremor or muscle twitching
Restlessness *Observation during assessment* 0 able to sit still 1 reports difficulty sitting still, but is able to do so 3 frequent shifting or extraneous movements of legs/arms 5 unable to sit still for more than a few seconds	**Yawning** *Observation during assessment* 0 no yawning 1 yawning once or twice during assessment 2 yawning three or more times during assessment 4 yawning several times/minute
Pupil size 0 pupils pinned or normal size for room light 1 pupils possibly larger than normal for room light 2 pupils moderately dilated 5 pupils so dilated that only the rim of the iris is visible	**Anxiety or Irritability** 0 none 1 patient reports increasing irritability or anxiousness 2 patient obviously irritable or anxious 4 patient so irritable or anxious that participation in the assessment is difficult
Bone or Joint aches *If patient was having pain previously, only the additional component attributed to opiates withdrawal is scored* 0 not present 1 mild diffuse discomfort 2 patient reports severe diffuse aching of joints/muscles 4 patient is rubbing joints or muscles and is unable to sit still because of discomfort	**Gooseflesh skin** 0 skin is smooth 3 piloerrection of skin can be felt or hairs standing up on arms 5 prominent piloerrection
Runny nose or tearing *Not accounted for by cold symptoms or allergies* 0 not present 1 nasal stuffiness or unusually moist eyes 2 nose running or tearing 4 nose constantly running or tears streaming down cheeks	Total Score _____ The total score is the sum of all 11 items Initials of person completing assessment: _____

Score: 5-12 = mild; 13-24 = moderate; 25-36 = moderately severe; more than 36 = severe withdrawal

This version may be copied and used clinically.

Source: Wesson, D. R., & Ling, W. (2003). The Clinical Opiate Withdrawal Scale (COWS). *J Psychoactive Drugs*, 35(2), 253–9.

Subjective Opiate Withdrawal Scale (SOWS)

Instructions: Answer the following statements as accurately as you can. Circle the answer that best fits the way you feel now.

0=not at all
1=a little
2=moderately
3=quite a bit
4=extremely

		Not at all	A little	Moderately	Quite a bit	Extremely
1	I feel anxious.	0	1	2	3	4
2	I feel like yawning.	0	1	2	3	4
3	I'm perspiring.	0	1	2	3	4
4	My eyes are tearing.	0	1	2	3	4
5	My nose is running.	0	1	2	3	4
6	I have goose flesh.	0	1	2	3	4
7	I am shaking.	0	1	2	3	4
8	I have hot flashes.	0	1	2	3	4
9	I have cold flashes.	0	1	2	3	4
10	My bones and muscles ache.	0	1	2	3	4
11	I feel restless.	0	1	2	3	4
12	I feel nauseous.	0	1	2	3	4
13	I feel like vomiting.	0	1	2	3	4
14	My muscles twitch.	0	1	2	3	4
15	I have cramps in my stomach.	0	1	2	3	4
16	I feel like shooting up now.	0	1	2	3	4

The Subjective Opiate Withdrawal Scale (SOWS) consist of 16 symptoms rated in intensity by patients on a 5-point scale of intensity as follows: 0=not at all, 1=a little, 2=moderately, 3=quite a bit, 4=extremely. The total score is a sum of item ratings, and ranges from 0 to 64.

Source: Reprinted from Handelsman et al. 1987, p. 296, by courtesy of Marcel Dekker, Inc.

Other Sources: Gossop 1990; Bradley 1987.

Symptom Tracking Form

Use this form to track your symptoms after leaving the office. For each of the times listed, rate each of these symptoms from 0 (not having them) to 10 (almost unbearable). Bring this sheet to your next appointment to review it with your doctor.

Date	Time	Nausea	Diarrhea	Muscle Aches	Headache	Sweating	Low Energy	Anxiety	Craving
	8 am								
	10 am								
	Noon								
	2 pm								
	4 pm								
	6 pm								
	8 pm								
	10 pm								
	8 am								
	10 am								
	Noon								
	2 pm								
	4 pm								
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	10 am								
	Noon								
	2 pm								
	4 pm								
	6 pm								
	8 pm								
	10 pm								

Consent to Coordinate Care with Pharmacy and Third Party Payors

I, _____, authorize *<physician or treatment program>* to disclose any information needed to confirm the validity of my prescription, for submission for payment for the prescription or to apply for a medication assistance program. This information may be shared with the dispensing pharmacy to which I present my prescription or to which my prescription is called/sent/faxed as well as to third party payors.

_____.

The purpose of this disclosure is to assure the pharmacy or medication assistance program of the validity of the prescription, so it can be legally dispensed and for payment.

This consent is subject to revocation at any time except to the extent that the program which is to make the disclosure has already taken action in reliance on it. If not previously revoked, this consent will terminate upon completion of treatment.

_____ _____

Patient/Guardian Signature

Date

_____ _____

Physician Signature

Date

Urine Drug Screens

Roopa Sethi MD

Case 1

- 33 years old Caucasian male -Yale VA, West Haven.
- Currently on 24/6mg of buprenorphine/naloxone tablets daily since May, 2012.
- Urine drug screens every week.
- Positive urine for buprenorphine and negative for illicit drugs every week since May.

Case 1

- Dec, 19, 2012 negative urine drug screen for buprenorphine. Negative for any other illicit substances.
- Confirmatory test ordered.
- Patient claims -taking medications as prescribed.

Case 1

- Medications:
  - Trazodone 50mg every night at bedtime for insomnia.
  - Sennoides 8.6 mg two times a day as needed.
  - mirtazapine 7.5mg at bedtime for insomnia.
- On review of the charts, poison ivy reaction on arm - came to the emergency department a week ago.
- Prescribed a 7 day course of prednisone 40mg daily.
- He has not been taking any over the counter medications.

Case 1

- Results of confirmatory tests: Buprenorphine levels negative = 0 and the norbuprenorphine levels were 11.

- What do I do with these results?
- What does it mean?

- **Urine color**:
  - Urine specimens should be shaken .
  - Excessive bubble formation*[warner e al]*.

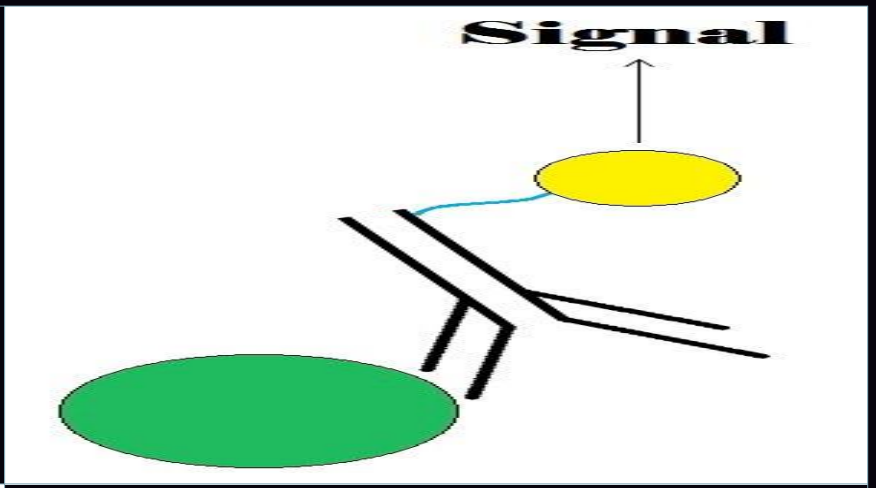
- U**rine temperature**
  - Recorded within 4 minutes of collection.
  - temperature should 32 - 38 degree centigrade.
  - Ph between 4.5-8.0.
  - Specific gravity should be between 1.002- 1.020

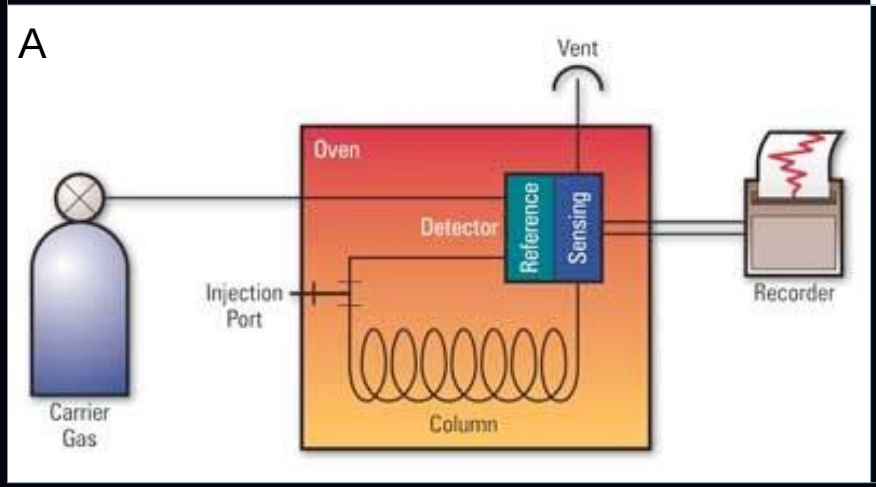
Urine drug Testing

- Urine screen tests- Immunoassays
- Confirmatory tests - Gas Chromatography-Mass Spectrometry*[moeller et al]*.
- Why do we chose the urine?
  - Accessible
  - Concentrations of the drugs and metabolites, higher in the urine *[Armbruster et al]* .
- Immunoassays use antibodies to detect the presence of specific drugs or metabolites *[Armbruster et al]*.

Tests- urine samples

Immunoassays:





:Gas chromatography

Mass Spectrometry:

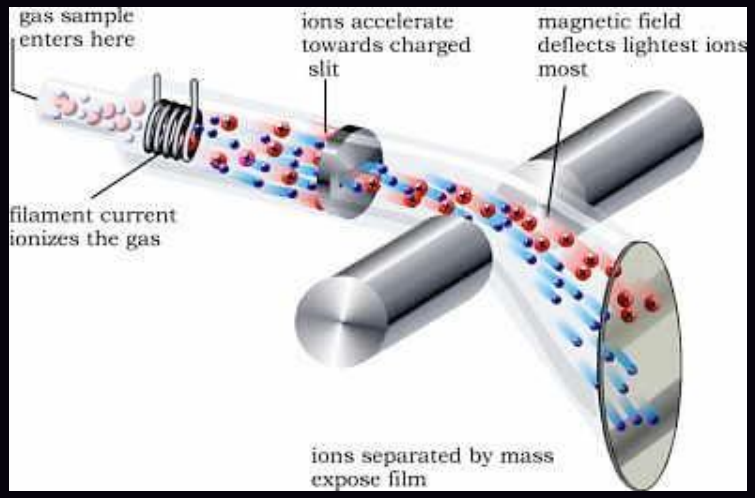


TABLE 2. **Length of Time Drugs of Abuse Can Be Detected in Urine**

Drug	Time
Alcohol	7-12 h
Amphetamine	48 h
Methamphetamine	48 h
Barbiturate	
Short-acting (eg, pentobarbital)	24 h
Long-acting (eg, phenobarbital)	3 wk
Benzodiazepine	
Short-acting (eg, lorazepam)	3 d
Long-acting (eg, diazepam)	30 d
Cocaine metabolites	2-4 d
Marijuana	
Single use	3 d
Moderate use (4 times/wk)	5-7 d
Daily use	10-15 d
Long-term heavy smoker	>30 d
Opioids	
Codeine	48 h
Heroin (morphine)	48 h
Hydromorphone	2-4 d
Methadone	3 d
Morphine	48-72 h
Oxycodone	2-4 d
Propoxyphene	6-48 h
Phencyclidine	8 d

Substance tested via immunoassay	Potential agents causing false-positive result
Alcohol[20]	Short-chain alcohols (eg, isopropyl alcohol)
Amphetamines[21-40]	Amantadine
	Benzphetamine
	Bupropion
	Chlorpromazine
	Clobenzorex[b]
	l-Deprenyl[c]
	Desipramine
	Dextroamphetamine
	Ephedrine
	Fenproporex[b]
	Isometheptene
	Isoxsuprine
	Labetalol
	MDMA
	Methamphetamine
	l-Methamphetamine (Vick's inhaler)[d]
	Methylphenidate
	Phentermine
	Phenylephrine
	Phenylpropanolamine
	Promethazine
	Pseudoephedrine
	Ranitidine
	Ritodrine
	Selegiline
	Thioridazine
	Trazodone
	Trimethobenzamide
	Trimipramine
Benzodiazepines[16,41,42]	Oxaprozin
	Sertraline

Substance tested via immunoassay	Potential agents causing false-positive result
Cannabinoids[1,8,43-48]	Dronabinol
	Efavirenz
	Hemp-containing foods
	NSAIDs
	Proton pump inhibitors
	Tolmetin
Cocaine[49-51]	Coca leaf tea
	Topical anesthetics containing cocaine
Opioids, opiates, and heroin[8,16,52-63]	Dextromethorphan
	Diphenhydramine[e]
	Heroin
	Opiates (codeine, hydromorphone, hydrocodone, morphine)
	Poppy seeds
	Quinine
	Quinolones
	Rifampin
	Verapamil and metabolites[e]
Phencyclidine[8,52,64-70]	Dextromethorphan
	Diphenhydramine[e]
	Doxylamine
	Ibuprofen
	Imipramine
	Ketamine
	Meperidine
	Mesoridazine
	Thioridazine
	Tramadol
	Venlafaxine, O-desmethylvenlafaxine
Tricyclic antidepressants [71-81]	Carbamazepine[f]
	Cyclobenzaprine
	Cyproheptadine[f]
	Diphenhydramine[f]
	Hydroxyzine[f]
	Quetiapine

Amphetamines:

- ImmunoAssays to detect:
  - amphetamines,
  - dextroamphetamines,
  - methamphetamine and
  - Illicit compds like methylenedioxyethylamphetamine, methylenedioxyamphetamine and methlenedioxymethylamphetamine (MDMA).

Case 2

- 32 years old AA male, being followed in the buprenorphine/naloxone clinic for last 5 months.
- Regular urine drug screens every week .
- Negative -illicit substances in the urine drug screens.
- Last 2 weeks, has been positive for amphetamines in the urine.

Case 2

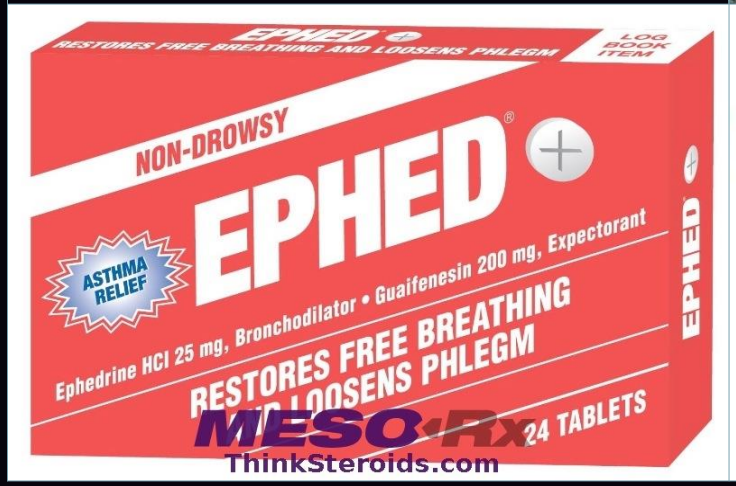
- Patient has a PPH of Amphetamine dependance, Opiate dependance on agonist therapy.
- Denies the use of illicit substances.
- Urine drug screen (immunoassays) positive, sent for confirmation by GC-MS, which confirms amphetamines as well.
- All other labs-negative, physical exam wnl.

Case 2

- PMH is positive for hypertension, metoprolol 12.5 mg bid.
- No other medical problems.
- Patient reports being sick for the last 2 weeks, using sudafed(pseudoephedrine), Vicks inhaler 2-3 times a day occasionally.
- How will you approach this case?

- Q : Amphetamine assays are positive for which of the decongestants? (pick multiple choices if needed)

- Pseudoephedrine
- Ephedrine
- Phenylephrine



- Q Which of the following psychotropic medications will show positive for amphetamine immunoassays?
  - Bupropion
  - phenothiazines(Chlorpromazine, Promethazine, thioridazine)
  - TCA (Desipramine and Doxepin)
  - All the above

- Methamphetamine- d-methamphetamine and l-methamphetamine

d- isomer -cns stimulant effects

l- isomer -works peripherally also detected in the immunoassays

	**Selegiline and Deprenyl- produce l-methamphetamine and l-amphetamine - positive results on immunoassays.**
Routine GC-MS isomers cant distinguish between the 2 isomers.	**Chiral chromatography(that is not ordered as a confirmatory)can distinguish between the 2 isomers.**

Opiates:

URINE DRUG SCREENING

TABLE 4. **Classification of Opioids**

Derivation	Opioid
From opium	Opium, morphine, codeine, thebaine
Semisynthetic	Heroin, hydrocodone, hydromorphone, oxycodone
Synthetic	Methadone, propoxyphene, meperidine, fentanyl

- Urinalysis testing for opiates- tests metabolite of heroin and codeine namely morphine. Morphine forms 3- morphine glucoronide and 6-morphine glucoronide.
- Fentanyl not detected- lack of metabolites.
- Oxycodone not detected- derivation from thebaine, compd. not detected in urine.

- Opiate screening cut off levels - 300 to 2000 ng/ml. Done in Dec, 1998, to prevent false positive results from poppy seeds.
- However sensitivity - increased by using the lower values.

Rifampicin and quinolones also give false positive results.

Ingestion of poppy seed cookies (containing one teaspoon of poppy seed filling) can produce positive results for opiates within 2 hrs of ingestion.

Case 1: Buprenorphine

- Buprenorphine- semi- synthetic opoid- derived from thebaine.
- Extensive first pass metabolism.
- Metabolized by n-dealkylation to nor-buprenophine.
- This happens with the enzyme CYP-3A4.

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