Interpreting Urine Drug Screens

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Disclosures

Objectives

- Know the basics of available urine drug testing available
- Know how to interpret basic urine drug screens
- Know common pitfalls in interpretation
- Know the metabolism of opioid and benzodiazepines to better interpret the urine drug screen results
- Know how to recognize and address aberrant behavior

Think about why you're testing

- **Clinical** Drug Screening is done for the patient, not to the patient
- Never make drug testing punitive


athome DRUG 12 TEST
athome DRUG 6 TEST
Amphetamine
Methamphetamine
Ecstasy
Marijuana
Cocaine
Opiates
athome DRUG TEST
Marijuana
athome DRUG TEST
Cocaine
39 99
29 99
17 99
17 99
smart buys
39.99
$5
34.99
$5 off


QuickTox
I.D.
Date


accutest
DRUG TEST CUP


01 MARQUIS REAGENT
07 SCOTT REAGENT
Cocaine


URISYS 2400

Screening tests

- test for monoclonal antibodies which are highly specific to the individual drugs or their metabolites
- High sensitivity (low levels of drugs can be detected) but may not be specific
  - May have high number of false positives on some assays
- Relatively inexpensive
- Available in various types of tests

Point of Care or Send to Lab?

- POC (point of care) in clinic
  - Immediate result
  - Able to discuss with the patient at the visit
  - Can make prescription decisions at the time of visit
  - Tests for the most commons substances, including oxycodone
- Send to lab
  - Can get a more detailed assay
  - Have to wait for the result

QuickTox

- Cocaine
- Opiates
- Methamphetamines
- THC
- Amphetamines
- Benzodiazepines
- Barbiturates
- Methadone
- Oxycodone

Send to Lab
example of TriCore assay

UDM

- Amphetamines
- Barbiturates
- Benzodiazepines
- Cocaine
- Methadone
- Opioids
- THC

UDM PAIN

- Amphetamines
- Barbiturates
- Benzodiazepines
- Cocaine
- Demerol
- Fentanyl
- Methadone
- Opiates
- Oxycodone
- Pcp
- Propoxyphene
- Soma
- THC
- Tramadol
- Tricyclics
- Zolpidem

Mr. Castillo

- 45yo male with a PMH of chronic joint pain secondary to osteoarthritis. He has been taking hydrocodone/APAP 5/325mg 1-2 tabs daily, PRN for the past few years. His POC UDM is as follows

Drug	**Result**
Cocaine	Negative
Opioid	Negative
Methamphetamine	Negative
THC	Positive
Amphetamines	Negative
Benzodiazepines	Negative
Barbiturates	Negative
Methadone	Negative
Oxycodone	Negative

Length of time drugs can be detected in urine

Drug	**Time**
• Alcohol	• 7-12 hours
• Amphetamines	• 48 hours
• Barbiturates	• Short-24 hrs, Long-3wk
• Benzodiazepines	• Short-3 days, Long-30 D
• Cocaine	• 2-4 days
• Marijuana	• 3-30 days
• Opioids	• 2-3 days
• Phencyclidine	• 8 days

Length of detection

- Marijuana – depends on use
  - Single use
  - Moderate use (4xwk)
  - Daily use
  - Heavy, long-term use
- Opioids- depends on drug
  - Codeine
  - Heroin
  - Hydromorphone
  - Methadone
  - Morphine
  - Oxycodone
  - propoxyphene

- Time of detection
  - 3 days
  - 5-7 days
  - 10-15 days
  - >30 days
  - 48 hours
  - 48 hours
  - 2-4 days
  - 3 days or more
  - 48-72 hours
  - 2-4days
  - 6-48 hours

Ms. Romero

- 62yo female who has been on phenobarbital for seizures for many years. She comes in for her refill and a POC UDM is done in clinic. What do you do next?

Drug	Result
Cocaine	Negative
Opioid	Negative
Methamphetamine	Negative
THC	Negative
Amphetamine	Positive
Methadone	Negative
Barbiturate	Positive
Benzodiazepine	Positive
Oxycodone	negative

Confirmatory testing

- Specific Confirmatory testing can be done for individual drugs. Not recommended on every test.
- Recommended for
  - Unexpected result on screen
  - To confirm a false negative or false positive

Specifics of confirmatory test

Benzodiazepines

- Alprazolam
- Diazepam
- Temazepam
- Chlordiazepoxide
- Oxazepam
- Clonazepam
- Lorazepam

Opioids

- Codeine
- Morphine
- Hydrocodone
- Hydromorphone
- Oxycodone
- Oxymorphone
- 6-monoacetylmorphine (6-MAM) *heroin*

Most Common False Positives- Amphetamines

- Bupropion
- Desipramine
- Dextroamphetamine
- Ephedrine
- Labetalol
- MDMA
- Methamphetamine
- Phentermine
- Phenylephrine
- Promethazine
- Pseudoephedrine
- Ranitidine
- Trazodone

Possible false positives

- Benzodiazepines
  - Sertraline
- Opioids
  - Dextromethorphan
  - Rifampin
- Cocaine is cocaine
  - Usually no need to do confirmatory testing

Mrs. Smith

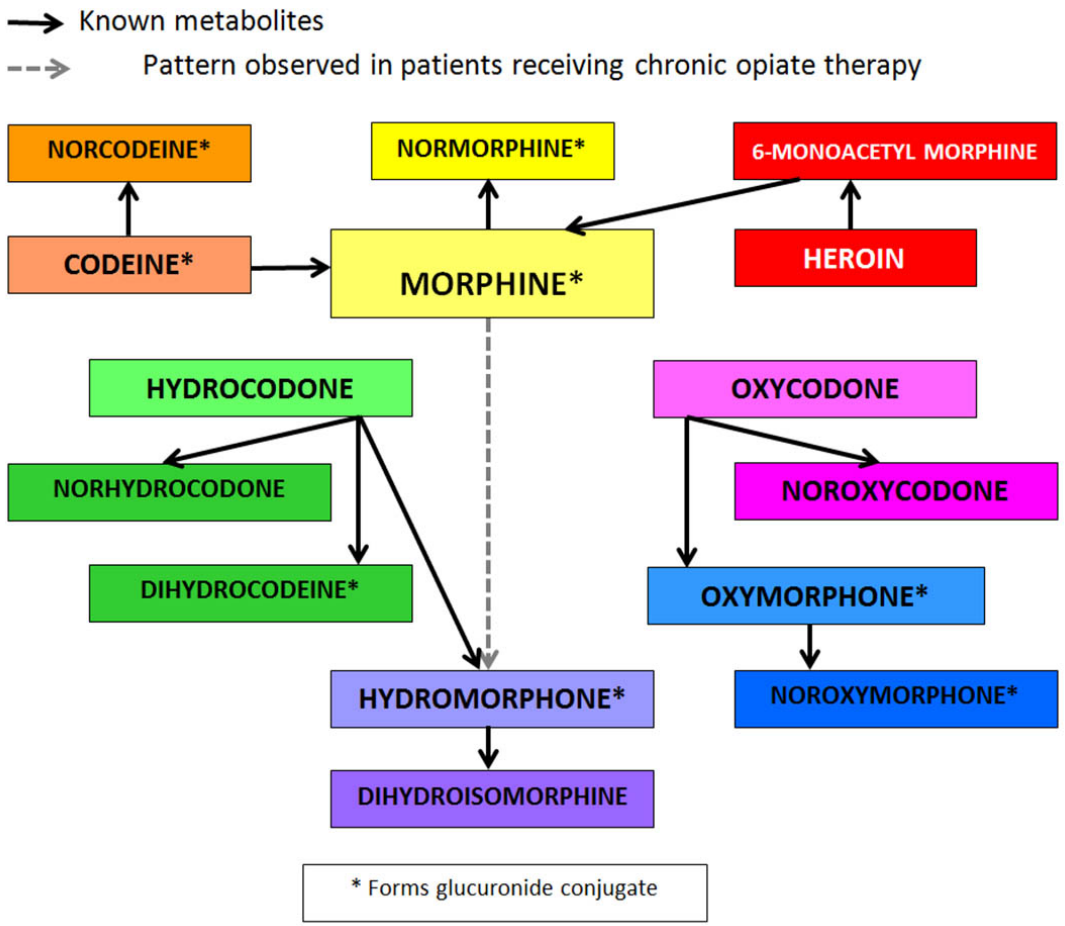
- A 55 yo female with a history of chronic back pain comes in for her refills. She is prescribed oxycodone 5mg QID. A UDM is sent to lab and returns the next day. What do you think of these results?

• Amphetamines	Positive
• Barbiturates	Negative
• Benzos	Negative
• Cocaine	Negative
• MTD	Negative
• Opiate	Negative
• Propoxyphene	Negative
• THC	Negative

Opioids

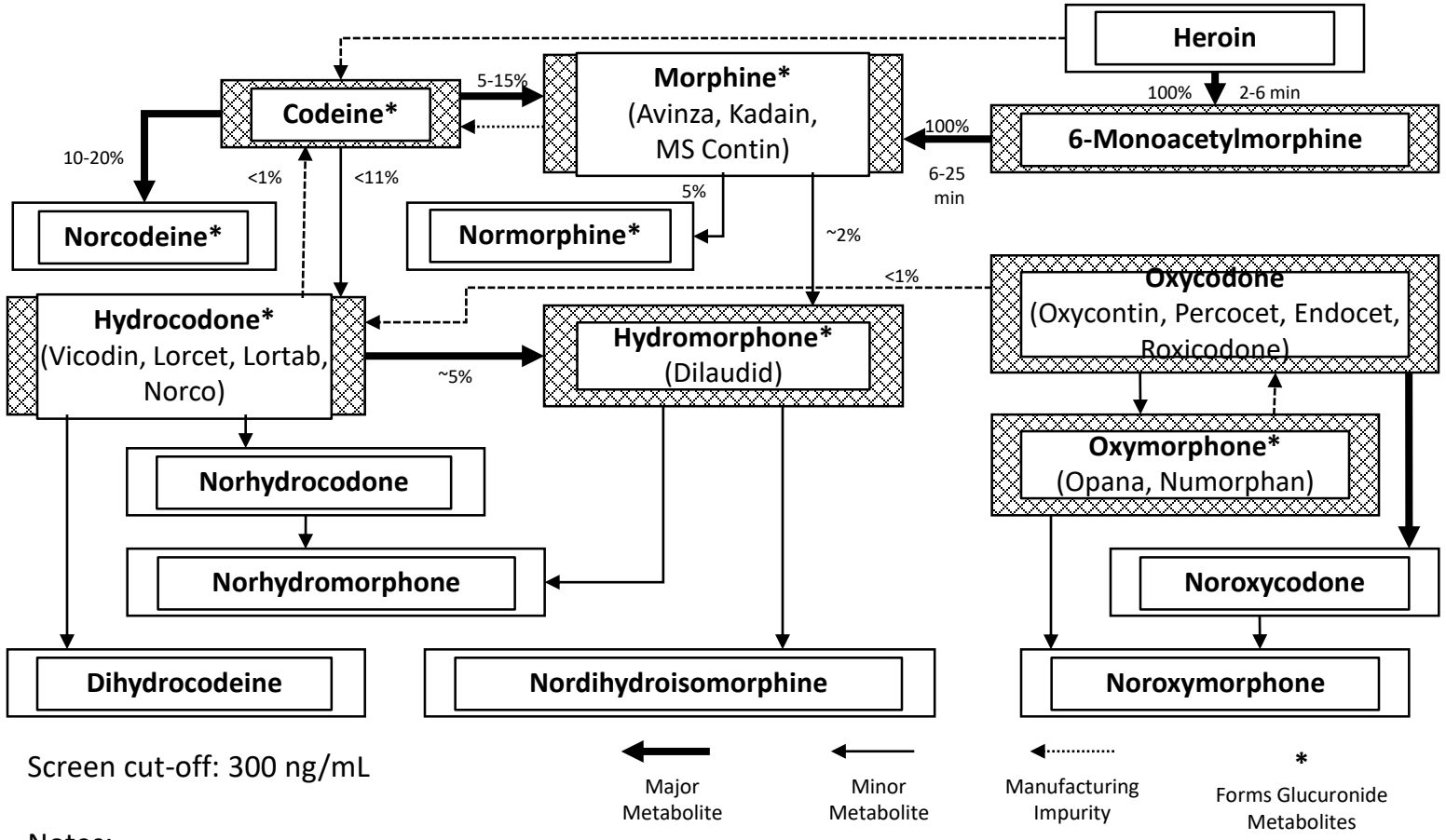
- Screening assays can be difficult to interpret
- Semi-synthetic and synthetic drugs do not always yield a positive screen
- Hydrocodone should be positive on opiate assay
- Oxycodone, Methadone and Buprenorphine are commonly a separate assay
- Oxycodone can also cause positive opiate assay in high doses

Opioid Metabolism



OPIOID METABOLISM CHART

Shading indicates compounds that are confirmed at Tricore Reference Labs.



Screen cut-off: 300 ng/mL

Notes:

-The UOPIT test code screen is not sensitive to oxycodone and oxymorphone;
The UOXYC test code screen is designed to detect these compounds.

-Therapeutic doses of ofloxacin (Floxin) or levofloxacin (Levaquin) may cause a false positive screen result.

-Ingestion of poppy seed products can cause a positive result.

Confirmation cut-off: 75 ng/mL for all compounds, except 6-MAM at 5 ng/mL

Hybrid confirmatory codes

- Automatically does confirmatory testing on opioids
- The remainder of the panel is a screen
- Great for drug screens with chronic opioid therapy patients
- Can pick the test based on additional screening testing you want
- Can also do reflex confirmatory testing on other positive screens

Pain Management Codes at TriCore

- See chart for specific test codes “UP codes”. **Can get very expensive**.
- Automatically does a confirmatory test on Opioids and a screen for other substances
  - Codeine
  - Morphine
  - Hydrocodone
  - Hydromorphone
  - Oxycodone
  - Oxymorphone
  - 6-monoacetylmorpine (heroin)- Metabolizes to morphine and codeine quickly

Pain Management Test Codes

TriCore Medical Pain Management Urine Drug Screens and Reflex Positive Confirmation Test Codes.

TEST	TEST_NAME	**MXOPIT**	**Ur Opiate Confirmation**	(UCREAT)	(Ur Creatinine)	UAMPH	Ur Amphet Screen	UBARB	Ur Barbiturate Sc	UBENZ	Ur Benzodiazepi	UTHC	Ur THC Screen	UCOCN	Ur Cocaine Sc	UETOH	Ur Ethanol Sc	UMTHN	Ur Methadone Sc	UPCP	Ur PCP Screen	UTRIQN	Ur Tricyclic Screen	UOPIT	Ur Opiate Screen	UOXYC	Ur Oxycodone Screen	UPROP	Ur Propoxyphene Sc	UFEN	Ur Fentanyl Screen	UDEM	Ur Demerol Screen	USOMA	Ur Soma Screen	UZOL	Ur Zolpidem Screen	UTRAM	Ur Tramadol Screen
UDS (UDM)	**Ur Drug Screen**					**X**		**X**		**X**		**X**		**X**										**X**															
UDPMN (UDM	**Ur Pain Mgt. New**			**X**		**X**		**X**		**X**		**X**		**X**				**X**		**X**		**X**		**X**		**X**		**X**		**X**		**X**		**X**		**X**		**X**	
UDPME (UDME	Ur Pain Mgt. Exist			X		X		X		X		X		X				X		X				X		X		X										
UPMCP	Ur Pain Mgt. Compliance	X																																				
UPMC1	Ur Pain Mgt. Compliance 1	X		X														X																				
UPMC1R	Ur Pain Mgt. Compliance 1R	X		X														X																				
UPMC2	Ur Pain Mgt. Compliance 2	X		X		X				X				X				X																				
UPMC2R	Ur Pain Mgt. Compliance 2R	X		X		X				X				X				X																				
UPMC3	Ur Pain Mgt. Compliance 3	X		X		X				X				X				X												X		X		X		X		X
UPMC3R	Ur Pain Mgt Compliance 3R	X		X		X				X				X				X												X		X		X		X		X
UDPMNR	Pain Mgt UDS + confirmation			X		X		X		X		X		X				X		X		X		X		X		X		X		X		X		X		X

Ms. Clark

- 55yo female who has been prescribed clonazepam 1mg BID for anxiety, PTSD. You get the POC test in clinic and it is negative for benzodiazepines.

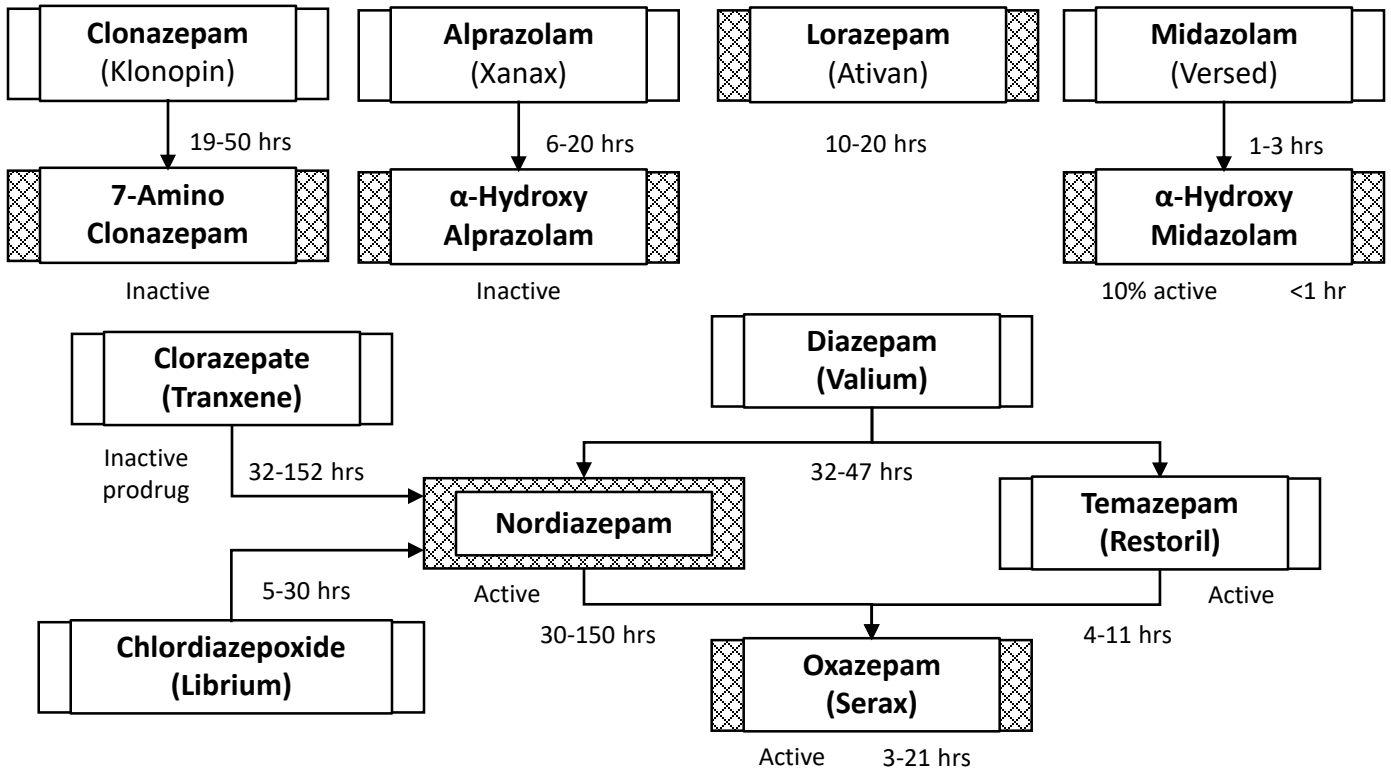
- How do you interpret this result?
- What would you do next?

Benzodiazepines

- Urine drug testing can be complicated by the multiple drugs available
- Most POC assays detect unconjugated oxazepam
- Chlorazepate, chlordiazepoxide, diazepam, and temazepam metabolize to oxazepam
- Clonazepam metabolizes to 7-amino benzodiazepine
- Alprazolam, lorazepam and triazolam are excreted as glucuronide conjugates

BENZODIAZEPINE METABOLISM CHART

Shading indicates compounds that are confirmed at Tricore Reference Labs.
Times are elimination half-lives.



Screen cut-off: 200 ng/mL

Notes:
-The UBENZ test code screen is not sensitive to 7-Aminoclonazepam,
and does not detect glucuronide forms of Lorazepam or Oxazepam.
-Therapeutic doses of oxaprozin (DAYPRO) may cause a false positive result.

Confirmation cut-off: 25 ng/mL for all compounds

Mr. Sedillo

- 55yo male with chronic low back pain secondary to failed spinal surgery syndrome. He has been calling clinic for early refills over the past few months. He says he has been taking one or two extra tabs of oxycodone on several days of the week due to increasing pain.

- How will you handle his request?

Questions For Patient and Practitioner

Patient

- Were you confused about how to take the prescription?
- Did you think more pills, more relief?
- Were you overly active and then have more pain & take more?
- Have you been depressed or anxious and the drugs made you feel better?

Practitioner

- Has the pain condition progressed?
- Is there a new pain generator?
- Is there an undiagnosed psychiatric disorder needing treatment?
- Have you set and followed limits and rules?
- (SAMSHA TIP 54)

Mr. Jones

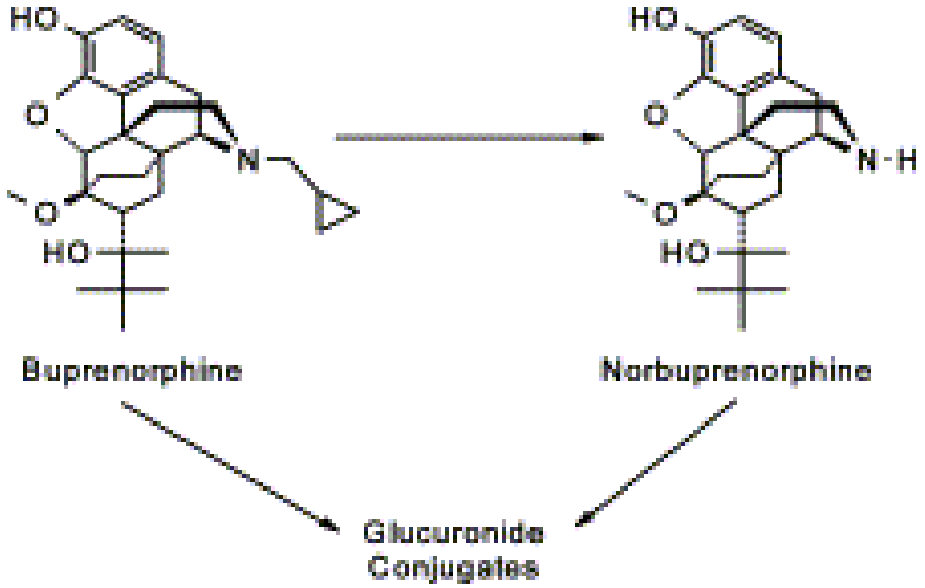
- 40yo male who is on Bup/Nal for opioid use disorder. He has called for the third time, saying his medication has been stolen. His POC UDM is negative for Bup the last two visits, but he says it was b/c it was stolen so he did not have it.

- How do you handle his request?

Buprenorphine testing

- POC test
  - Tests for buprenorphine alone

- Buprenorphine plus metabolites



Interpreting buprenorphine metabolites

- Buprenorphine 250
- Buprenorphine-glc 788
- Norbuprenorphine 362
- Norbuprenorphine-glc 891

- Buprenorphine >1000
- Buprenorphine-glc --------
- Norbuprenorphine 10
- Norbuprenorphine-glc --------

Dealing with aberrant behavior

- Misuse of the drug
- Development of dependence/addiction
- Diversion
- Adulteration

Aberrant Behavior

Aberrant Behavior is behavior that suggests prescription misuse, abuse, or addiction. (SAMSHA TIP 54)

"Prescribing opioids will lead to abuse/addiction in a small percentage of chronic pain patients, but a larger percentage will demonstrate ADRBs and illicit drug use. These percentages appear to be much less if CPPs are preselected for the absence of a current or past history of alcohol/illicit drug use or abuse/addiction." (Fishbain et al.)

Prevalence of Addiction in Chronic Pain Patients

- Structured review of available studies of development of aberrant behavior/addiction in patients on opioids for chronic pain.
- 24 studies with 2,057 patients with rate of 3.27% for abuse/addiction.
- Rate of abuse/addiction in patients with no past or current SUD was 0.19%
  - Fishbain DA. *Pain Med*. 2008;9:444-58.

Prevalence of Addiction in Chronic Pain Patients

- More recent study [Vowles et al. 2015]: meta-analysis.
- 38 studies included
- Average rates of problematic use 21-29%
- Average rates of addiction 8-12%

Risk Factors for aberrant behavior

- Lifetime history of substance use disorder (alcohol, tobacco, illicit substances)
- Psychiatric co-morbidity
- History of pre-adolescent sexual abuse
- Family history of substance abuse
- History of legal problems
- Younger age (16 – 45)
- Increased functional impairment

Spectrum of Aberrant Behaviors: *mild*

- Requests for higher doses
- Requests for specific formulation
- Occasional loss of prescription
- Occasional increase of dose without permission

Spectrum of Aberrant Behaviors: *moderate*

- Use of Rx to treat symptom other than pain
- Stockpiling Rx in time of reduced symptom
- Significant energy spent assuring supply
- Multiple unsanctioned dose escalations
- Recurrent prescription losses
- Decline in function from baseline
- Concurrent use of illicit substances

Spectrum of Aberrant Behaviors: *severe*

- Continual escalation of dose
- Seeking Rx from other providers or ER
- Stealing drugs
- Consistently buying Rx off street
- Diverting/Selling Rx
- Forging prescriptions
- Injection of oral Rx

Tapering Opioids

- Normal taper
  - 10% reduction per week
  - Can go by dose or by MME
  - May need to slow down at 60-80 MME
- Rapid taper
  - 25% reduction every 3-5 days
  - May need to manage withdrawal symptoms with other medications
- Consider transition to buprenorphine

Tapering Benzodiazepines

- Can expect to take months
- Transition from short-acting to long-acting drug
  - Diazepam or clonazepam
- Decrease dose by 5-10% per week
- Once half the dose reduction has been met, slow down to dose reduction q 2 wks
- Consider adjunctive therapy
  - Buspirone, vistaril, clonidine, SSRI, GABA agonists

Questions?


No, we cannot schedule your random drug test for next week.
someecards
user card

Contact information

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