ACUTE WITHDRAWAL CONSIDERATIONS

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OBJECTIVES: UTILIZE A CASE-BASED APPROACH TO-

- **Review management of common withdrawal syndromes**
  - Alcohol Use
  - Opioid Use
  - Benzodiazepine Use
  - Sympathomimetic Use (Methamphetamine, Cocaine)

- **Consideration of management options for complex withdrawal syndromes**
  - Severe Alcohol Withdrawal Syndrome
  - Precipitated Opioid Withdrawal Syndrome
    - Methadone
    - Buprenorphine
  - Polysubstance Use & Commitment Withdrawal

LIMITATIONS

- Despite common/overlapping institutional practice patterns, evidence is lacking regarding "ideal," management in many clinical situations
- Conscious and unconscious bias/stigma among interactions with patients with substance use
- Developing conversation about the role of the Emergency Department as "missed opportunity" for Opioid, Alcohol and Polysubstance Use

CASE 1:

45 year old male with PMHx HTN, AUD (6 beers each night) presents to the ED seeking assistance with sobriety. 6 months prior attempted to stop "Cold Turkey," however, developed chest pain and anxiety and began consuming alcohol again.

CASE 1 DISCUSSION

How can we assess and classify Alcohol Withdrawal?

Verbal/Responsive**:** CIWA-Ar for Alcohol Withdrawal (Clinical Institute Withdrawal Assessment for Alcohol)
Pros: Fast beside assessment (< 5 min), Validated (less over sedation in mild withdrawal, shorter hospitalizations, lower incidence of hospitalization)

Absent to Minimal Withdrawal : ≤8
Mild to Moderate Withdrawal: 9-19
Severe Withdrawal: ≥20

Cons: Subjective Scoring, unable to use in non-verbal (intubated, AMS)

Nausea/vomiting

Ask 'Do you feel sick to your stomach? Have you vomited?'

No nausea and no vomiting	0
Mild nausea and no vomiting	+1
(More severe symptoms)	+2
(More severe symptoms)	+3
Intermittent nausea with dry heaves	+4
(More severe symptoms)	+5
(More severe symptoms)	+6
Constant nausea, frequent dry heaves and vomiting	+7

Anxiety

Ask, 'Do you feel nervous?'

No anxiety, at ease	0
Mildly anxious	+1
(More severe symptoms)	+2
(More severe symptoms)	+3
Moderately anxious, or guarded, so anxiety is inferred	+4
(More severe symptoms)	+5
(More severe symptoms)	+6
Equivalent to acute panic states as seen in severe delirium or acute schizophrenic reactions	+7

Visual disturbances

Ask 'Does the light appear to be too bright? Is its color different? Does it hurt your eyes? Are you seeing anything that is disturbing to you? Are you seeing things you know are not there?'

Not present	0
Very mild sensitivity	+1
Mild sensitivity	+2
Moderate sensitivity	+3
Moderately severe hallucinations	+4
Severe hallucinations	+5
Extremely severe hallucinations	+6
Continuous hallucinations	+7

Tremor

Arms extended and fingers spread apart

No tremor	0
Not visible, but can be felt fingertip to fingertip	+1
(More severe symptoms)	+2
(More severe symptoms)	+3
Moderate, with patient's arms extended	+4
(More severe symptoms)	+5
(More severe symptoms)	+6
Severe, even with arms not extended	+7

Agitation

Normal activity	0
Somewhat more activity than normal activty	+1
(More severe symptoms)	+2
(More severe symptoms)	+3
Moderately fidgety and restless	+4
(More severe symptoms)	+5
(More severe symptoms)	+6
Paces back and forth during most of the interview, or constantly thrashes about	+7

Headache/fullness in head

Ask 'Does your head feel different? Does it feel like there is a band around your head?' Do not rate for dizziness or lightheadedness. Otherwise, rate 'severity.'

Not Present	0
Very mild	+1
Mild	+2
Moderate	+3
Moderately severe	+4
Severe	+5
Very severe	+6
Extremely severe	+7

Paroxysmal sweats

No sweat visible	0
Barely perceptible sweating, palms moist	+1
(More severe symptoms)	+2
(More severe symptoms)	+3
Beads of sweat obvious on forehead	+4
(More severe symptoms)	+5
(More severe symptoms)	+6
Drenching sweats	+7

Auditory disturbances

Ask, 'Are you more aware of sounds around you? Are they harsh? Do they frighten you? Are you hearing anything that is disturbing to you? Are you hearing things you know are not there?'

Not present	0
Very mild harshness or ability to frighten	+1
Mild harshness or ability to frighten	+2
Moderate harshness or ability to frighten	+3
Moderately severe hallucinations	+4
Severe hallucinations	+5
Extremely severe hallucinations	+6
Continuous hallucinations	+7

Orientation/clouding of sensorium

Ask 'What day is this? Where are you? Who am I?'

Oriented, can do serial additions	0
Can't do serial additions or is uncertain about date	+1
Disoriented for date by no more than 2 calendar days	+2
Disoriented for date by more than 2 calendar days	+3
Disoriented to place or person	+4

CASE 1 DISCUSSION

How can we assess and classify Alcohol Withdrawal?

Unable to Respond to Questions: Modified Minnesota Detoxification Scale (mMINDS)

Pros: Incorporates physiological variables

Cons: No standardized protocols, RCCTs

Modified Minnesota Detoxification Scale (MINDS)

PARAMETER (Patient receives score based on real-time assessment)	SCORE
Pulse (beats per minute)	
<90	0
90-110	1
>110	2
DIASTOLIC blood pressure (mmHg)	
<90	0
90-110	1
>110	2
*Tremor – Assess with patient's arms extended and fingers spread.	
Absent	0
Slightly visible or can be felt fingertip to fingertip	2
Moderate – Noticeably visible with arms extended	4
Severe – Noticeable even with arms not extended	6

Sweat	
Absent	0
Barely; Moist palms	2
Beads visible	4
Drenching	6
***Hallucinations** – Feeling crawling sensations over skin (tactile), hearing voices when no one has spoken (auditory), or seeing patterns, lights, beings, or objects that are not there (visual).	
Absent	0
Mild – Mostly lucid, sporadic/rare hallucinations	1
Moderate/Intermittent – Hallucinating at times (when first waking up or in between conversations/patient care) with moments of lucidity but able to be reoriented	2
Severe, continuous while awake	3
***Agitation** – Assess using the Richmond Agitation-Sedation Scale (RASS)	
Normal activity or sedated (RASS of 0 or less)	0
Somewhat > normal (RASS of +1)	3
Moderately fidgety, restless (RASS of +2)	6
Pacing, thrashing (RASS of ≥+3)	9

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Pacing, thrashing (RASS of ≥+3)	9
*Orientation	
Oriented x3 (person/place/time OR at patient's baseline OR too sedated to assess orientation)	0
Oriented x2	2
Oriented x1	4
Disoriented	6
*Delusions – Unfounded ideas that can be related to suspicions or paranoid thoughts, i.e patient believes their things have been stolen, or they are being persecuted unjustly	
Absent or unable to assess	0
Present	6
Seizures	
Not actively seizing	0
Actively seizing	6
TOTAL	
*If unable to assess a parameter secondary to over sedation or mechanical ventilation, score = 0	

CASE 1:

45 year old male with PMHx HTN, AUD (6 beers each night) presents to the ED seeking assistance with sobriety. 6 months prior attempted to stop "Cold Turkey," however, developed anxiety and began consuming alcohol again.

CIWA is currently < 8.

Safe for Ambulatory/Discharge Home with Self-Administered Medications?

- No history withdrawal delirium, seizures, ICU admission
- Low CIWA score (< 8-15)
- Low comorbid features/complex PMHx
- Appropriate Return Precautions/Outpatient Follow-Up

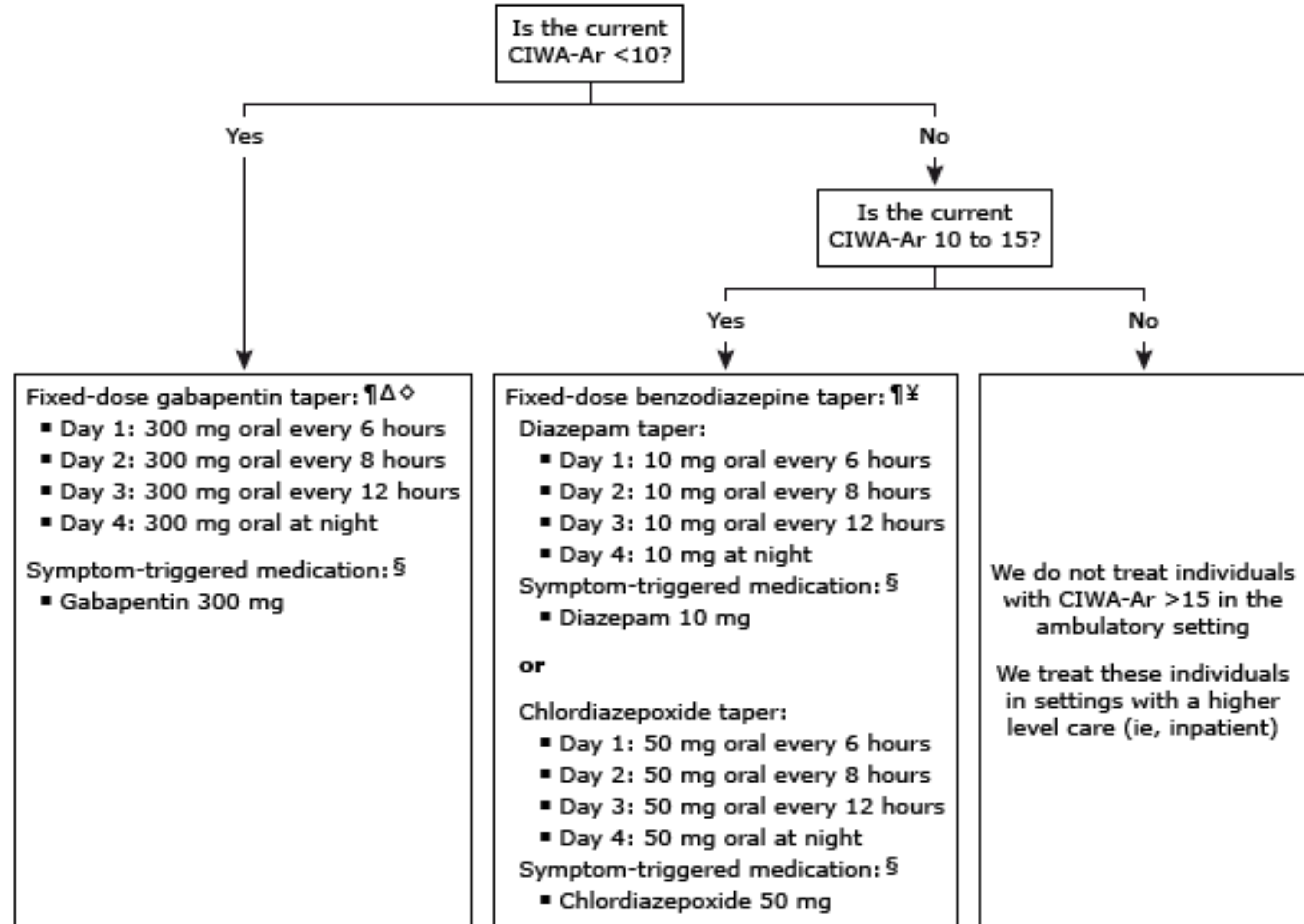
CASE 1:

Ambulatory/Discharge Home with Self-Administered Medications:

<u>Outpatient Withdrawal Treatment Options:</u>

- Gabapentin (proposed MOA increased GABA)
- Benzodiazepine Taper

CASE 1:



CASE 1:

Ambulatory/Discharge Home with Self-Administered Medications:

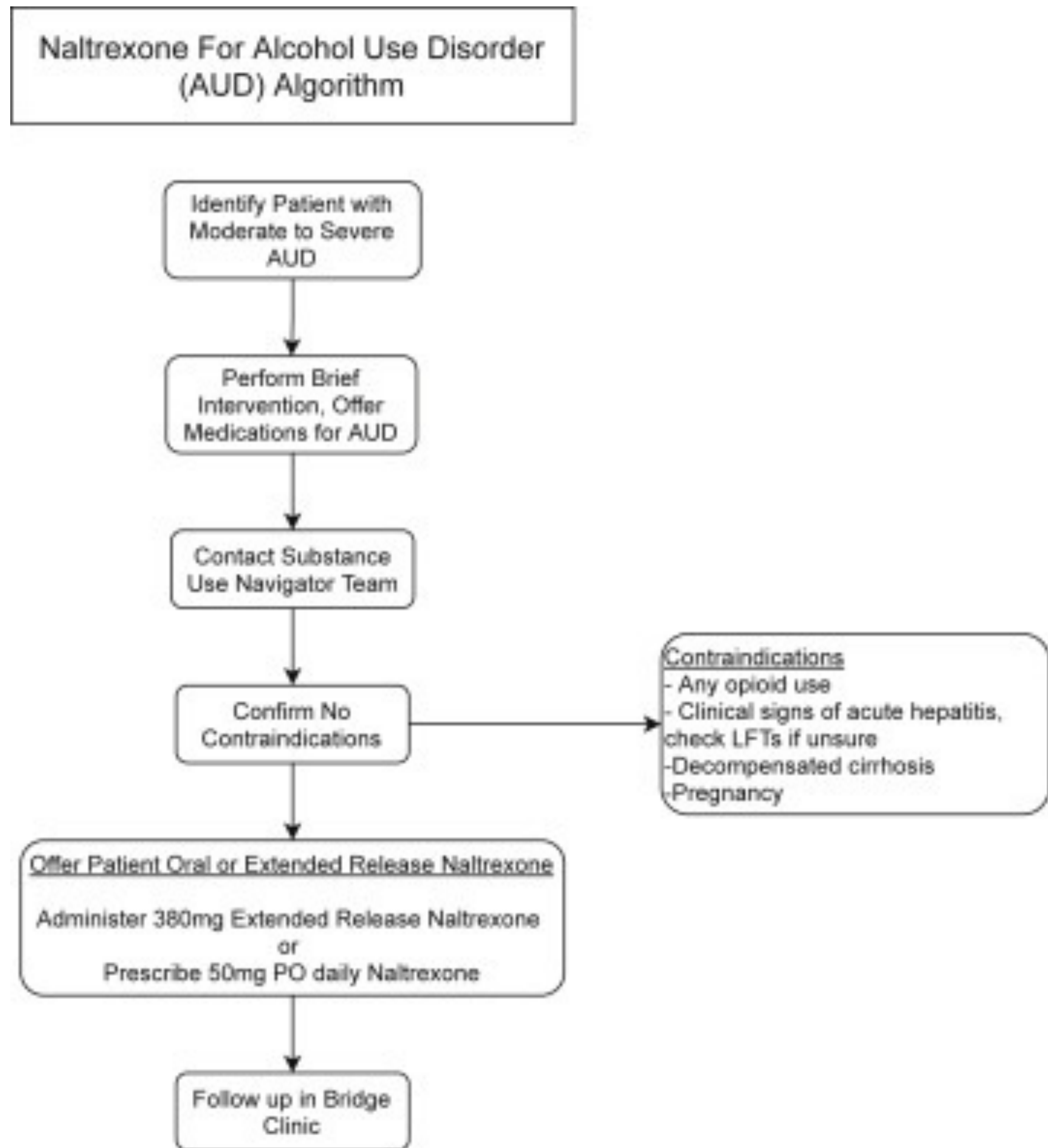
Additional Medications

- Reduces alcohol consumption, return to heavy drinking, total drinking days
- Does **not** prevent withdrawal

- Naltrexone (IM qMonth or PO)
  - Proposed MOA via Mu-Opioid Receptor Blockade
  - May begin treatment while patient still consuming alcohol
- Acamprosate (PO)
  - Proposed MOA via modulation of glutamate neurotransmission
  - Safe for use in those with hepatic disease
  - Appropriate for patients using both alcohol and opioids

"IMPLEMENTATION OF ORAL AND EXTENDED-RELEASE NALTREXONE FOR THE TREATMENT OF EMERGENCY DEPARTMENT PATIENTS WITH MODERATE TO SEVERE ALCOHOL USE DISORDER: FEASIBILITY AND INITIAL OUTCOMES." *ANNALS OF EMERGENCY MEDICINE* (2021)

15% FOLLOW-UP RATE IN FORMAL ADDICTION TREATMENT.



CASE 2:

45 year old male with PMHx HTN, AUD (6 beers each night) presents to the ED seeking ED seeking assistance with sobriety. 6 months prior attempted to stop "Cold Turkey," however, developed severe hallucinations and ultimately had one seizure.

CIWA currently 24

CASE 2 DISCUSSION

Moderate to Severe Withdrawal

- CIWA > 8-15 & mMINDs
  - Benzodiazepines
  - Barbiturates (Phenobarbital, perhaps shorter ICU stay, incidence and duration of MV)?

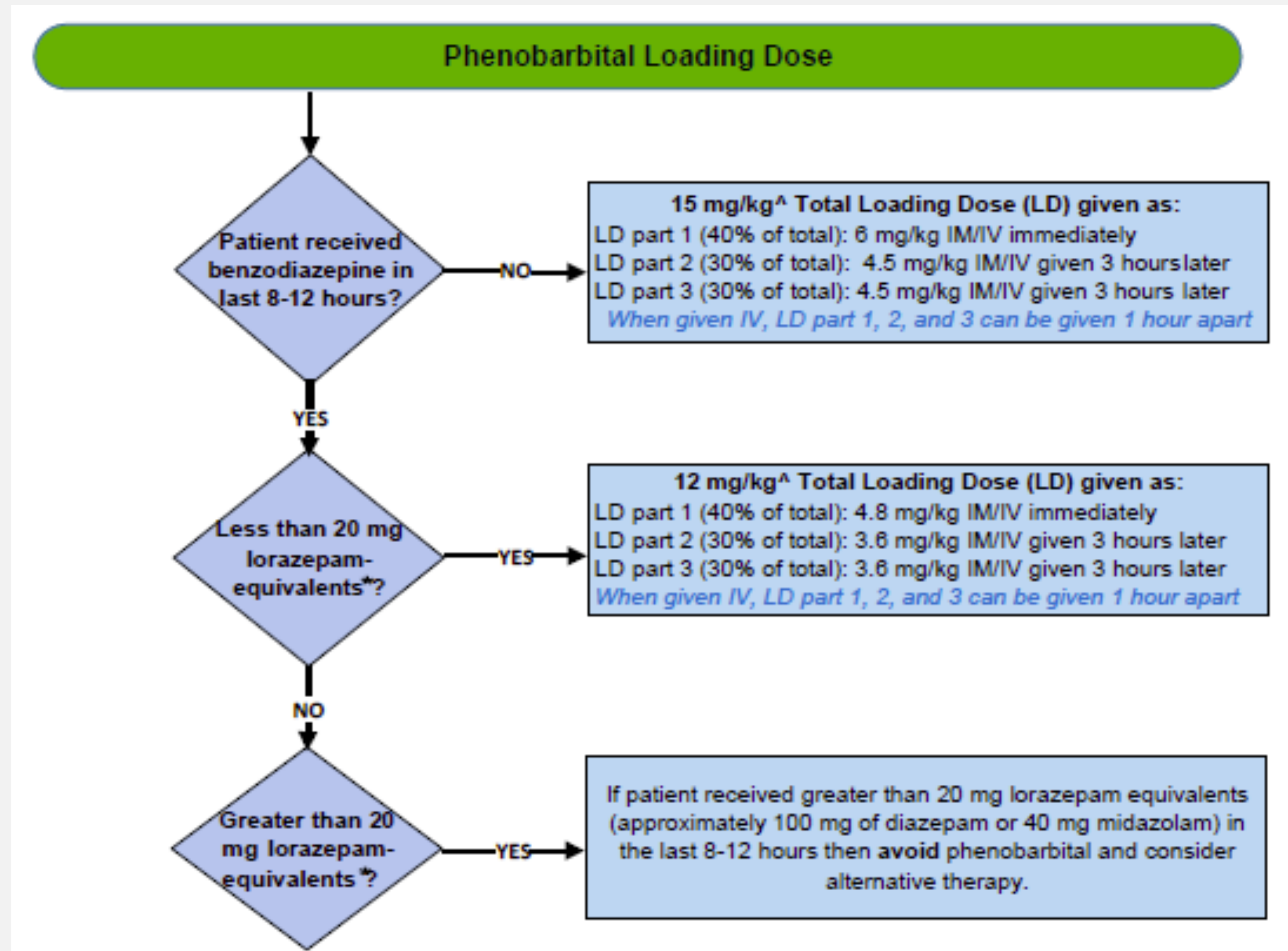
Is "Monotherapy," needed? vs multi-modal?

- Benzodiazepines + Gabapentin (reduces total benzodiazepines, LOS)?
- Gabapentin + Baclofen (GABA-agonist, perhaps shorter LOS) ?
- +/- Dexmedetomidine (Precedex, improved CIWA)

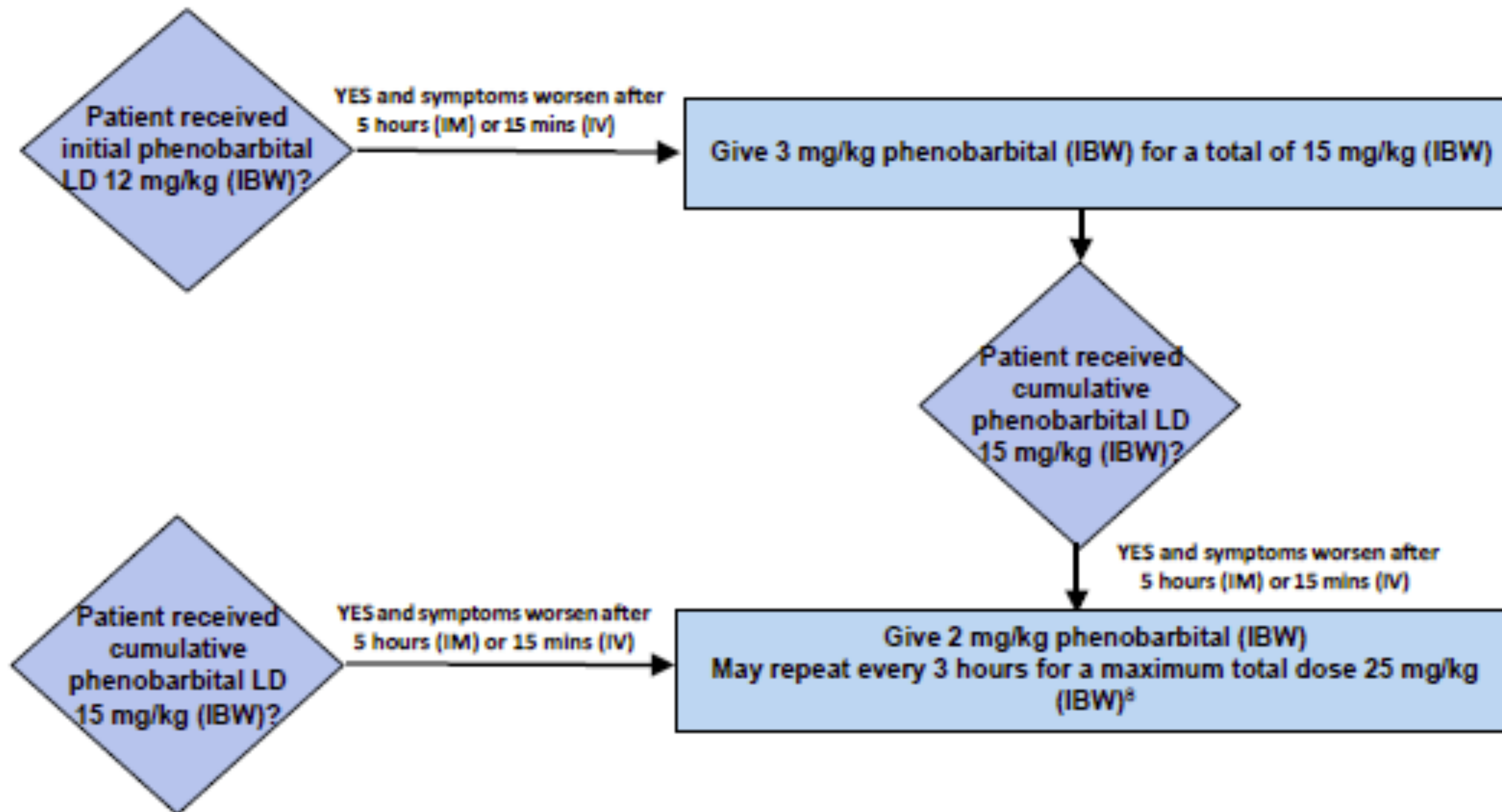
CASE 2: PERSONAL BIAS/PRACTICE

Moderate to Severe Alcohol Withdrawal

- I personally use IM or IV Phenobarbital



CASE 2: PERSONAL BIAS/PRACTICE



CASE 3:

32 year old female presents with abdominal pain, nausea, vomiting, diarrhea. She actively uses heroin and desires to stop use. Her last use was 2 days previously.

- ED-Based Initiation of Buprenorphine (partial mu opioid agonist)
  - COWS Score is 10

GI Upset Over last 0.5 hours	
No GI symptoms	0
Stomach Cramps	+1
Nausea or loose stool	+2
Vomiting or diarrhea	+3
Multiple episodes of vomiting or diarrhea	+5

Tremor observation of outstretched hands	
No tremor	0
Tremor can be felt, but not observed	+1
Slight tremor observable	+2
Gross tremor or muscle twitching	+4

Yawning observation during assessment	
No yawning	0
Yawning once or twice during assessment	+1
Yawning three or more times during assessment	+2
Yawning several times/minute	+4

Anxiety or irritability	
None	0
Patient reports increasing irritability or anxiousness	+1
Patient obviously irritable/anxious	+2
Patient so irritable or anxious that participation in the assessment is difficult	+4

Gooseflesh skin	
Skin is smooth	0
Piloerection of skin can be felt or hairs standing up on arms	+3
Prominent piloerection	+5

Resting Pulse Rate (BPM) Measure pulse rate after patient is sitting or lying down for 1 minute	
≤80	0
81-100	+1
101-120	+2
>120	+4

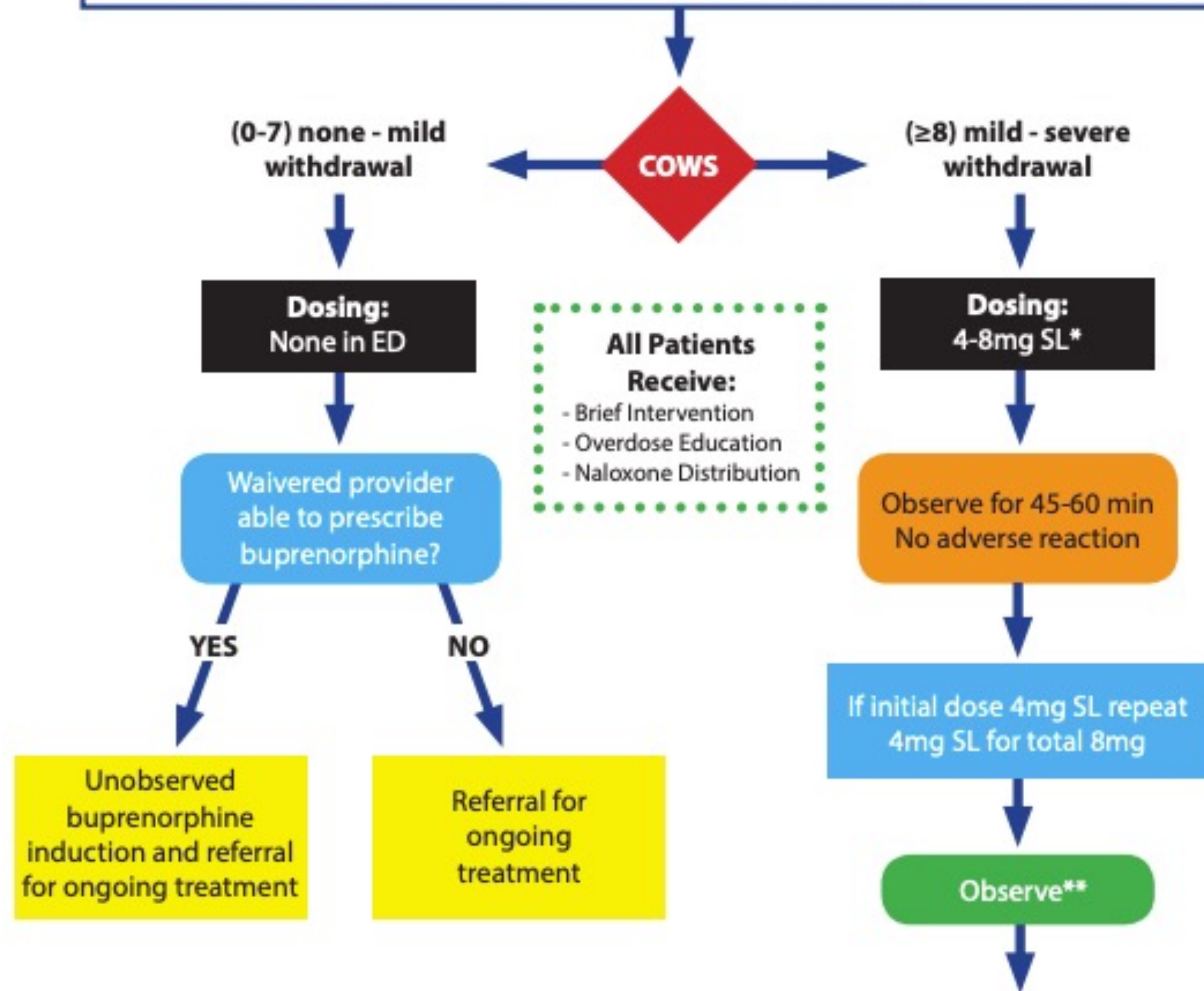
Sweating Sweating not accounted for by room temperature or patient activity over the last 0.5 hours	
No report of chills or flushing	0
Subjective report of chills or flushing	+1
Flushed or observable moistness on face	+2
Beads of sweat on brow or face	+3
Sweat streaming off face	+4

Restlessness observation during assessment	
Able to sit still	0
Reports difficulty sitting still, but is able to do so	+1
Frequent shifting or extraneous movements of legs/arms	+3
Unable to sit still for more than a few seconds	+5

Pupil size	
Pupils pinned or normal size for room light	0
Pupils possibly larger than normal for room light	+1
Pupils moderately dilated	+2
Pupils so dilated that only the rim of the iris is visible	+5

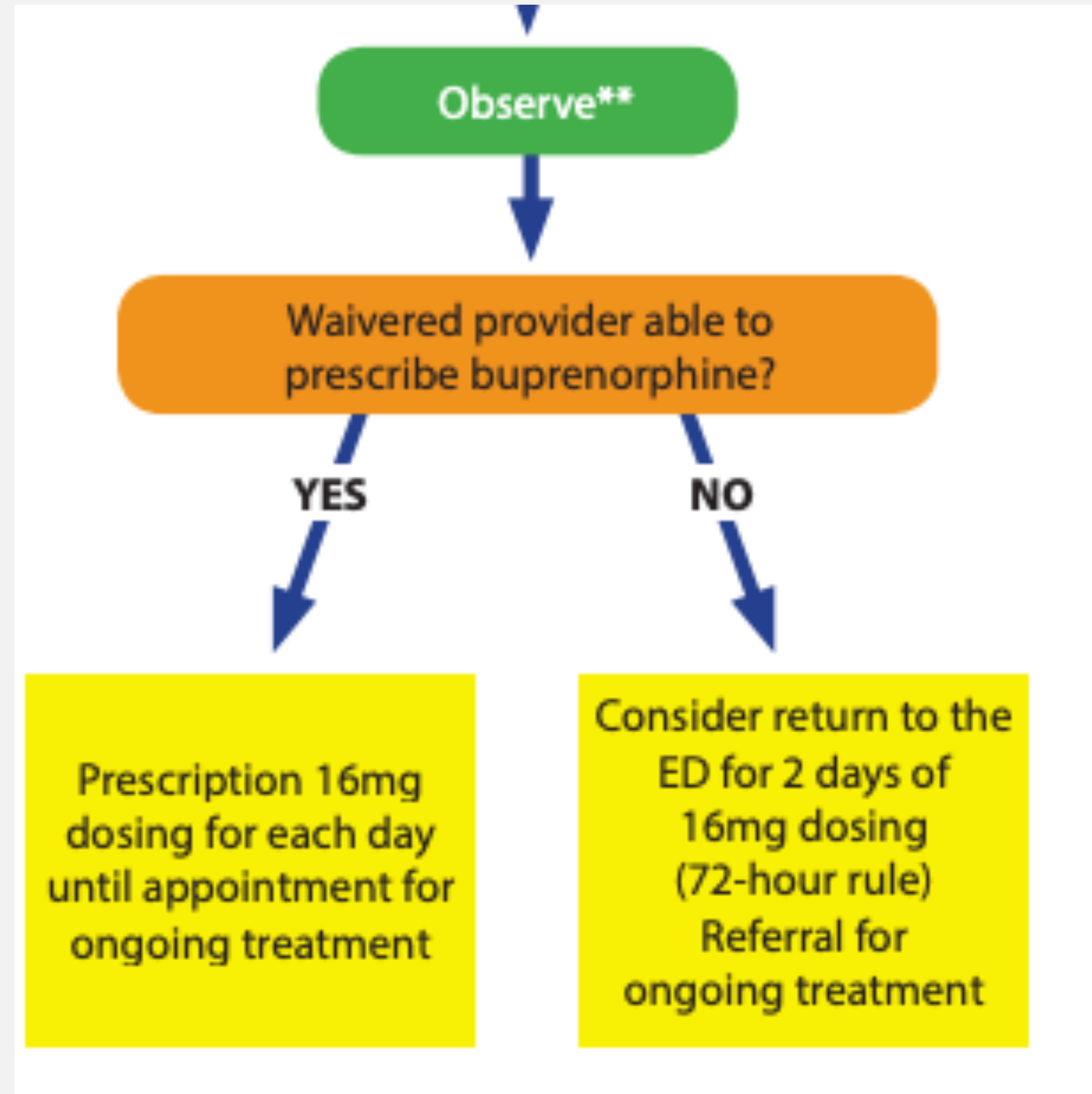
Bone or joint aches If patient was having pain previously, only the additional component attributed to opiate withdrawal is scored	
Not present	0
Mild diffuse discomfort	+1
Patient reports severe diffuse aching of joints/ muscles	+2
Patient is rubbing joints or muscles and is unable to sit still because of discomfort	+4

Runny nose or tearing Not accounted for by cold symptoms or allergies	
Not present	0
Nasal stuffiness or unusually moist eyes	+1
Nose running or tearing	+2
Nose constantly running or tears streaming down cheeks	+4


Assess for opioid type and last use
Patients taking methadone may have withdrawal reactions to buprenorphine up to 72 hours after last use. Consider consultation before starting buprenorphine in these patients
(0-7) none - mild withdrawal
COWS
(≥8) mild - severe withdrawal
Dosing:
None in ED
All Patients Receive:
- Brief Intervention
- Overdose Education
- Naloxone Distribution
Dosing:
4-8mg SL*
Waivered provider able to prescribe buprenorphine?
Observe for 45-60 min
No adverse reaction
YES
NO
If initial dose 4mg SL repeat 4mg SL for total 8mg
Unobserved buprenorphine induction and referral for ongoing treatment
Referral for ongoing treatment
Observe**

X-Waiver Eliminated

Bridge to community follow-up needed
Prescribe 3-7 days until next appointment



CASE 4:

32-year-old female presents with abdominal pain, nausea, vomiting, diarrhea. She uses prescription methadone daily and intermittently uses heroin. She was found to be apneic and unresponsive today. She received "multiple doses," naloxone from a bystander and subsequently became alert and agitated.

Her COWS score is 30.

CASE 4 DISCUSSION

- Consider giving portion of home dose Methadone
  - Alternatively, 20–30 mg while monitoring for signs of over sedation, an additional10 mg every 4 hours

CASE 5:

52 year old female with PMHx generalized anxiety disorder, depression, PTSD presents with tachycardia, concern for "severe anxiety." She has been traveling and ran out of her prescription lorazepam (1 mg TID) 3 days previously.

CASE 5 DISCUSSION

Benzodiazepine Withdrawal

- Withdrawal symptoms can over develop over a period of 1 day – 3 weeks

- Consider giving prescription *or usual used dose* to treat withdrawal
- For severe symptoms IV Benzodiazepines
- Plan on initiating prescription benzodiazepine taper
  - 4 -16 weeks taper

No great evidence for adjuvant therapy

CASE 6:

42 year-old-male with PMHx substance use (cocaine, methamphetamine) presents with suicidal ideation, abdominal discomfort and inability to sleep for 4 days. He has stopped using cocaine in the setting of significant behavioral concerns from coworkers and family members.

CASE 6 DISCUSSION

Sympathomimetic/Stimulant Withdrawal & Cessation

- Monitor for increased risk of depression, anxiety
- ”Serious,” symptoms rare, however, include seizure

- Cocaine Use Disorder:
  - “Supportive,” care and close psychosocial treatment
    - Propranolol (proposed to reduce anxiety due to decreasing activity of noradrenergic receptors)
    - Topiramate (GABA agonism, inhibits glutamate)
    - Developing evidence regarding long-acting stimulants and amphetamines (modafinil)

CASE 6 DISCUSSION

Sympathomimetic/Stimulant Withdrawal & Cessation

- Methamphetamine Use Disorder:
  - "Supportive," care and close psychosocial treatment
    - Bupropion with naltrexone?
    - Mirtazapine?
  - *"What is our (ED) role in treating…?"*

CASE 7:

68 year-old-male with PMHx AUD (hx of withdrawal seizures requiring intubation) , HTN, AFib, DM, COPD with AFib w/RVR, acute agitation. HR irregularly irregular 120-150, BP 110/50.

CIWA is initiated and after multiple doses of IV benzodiazepines..

Telemetry shows AFIB w/rates 150-180.

Patient is dangerously striking out with inability to follow redirection..

CASE 7 DISCUSSION-WHERE WE LOSE OUR MINDS

Patient is intubated without event, however, is hypertensive w/persistent AFIB w/RVR.

mMINDS is > 40

“Refractory Delirium Tremens”

Options:

- +/- Benzodiazepine infusion
- +/- Propofol
- +/- Phenobarbital (130 mg-260 mg IV q 15 minutes) or perhaps load w/15 mg/kg?
- +/- Dexmedetomidine

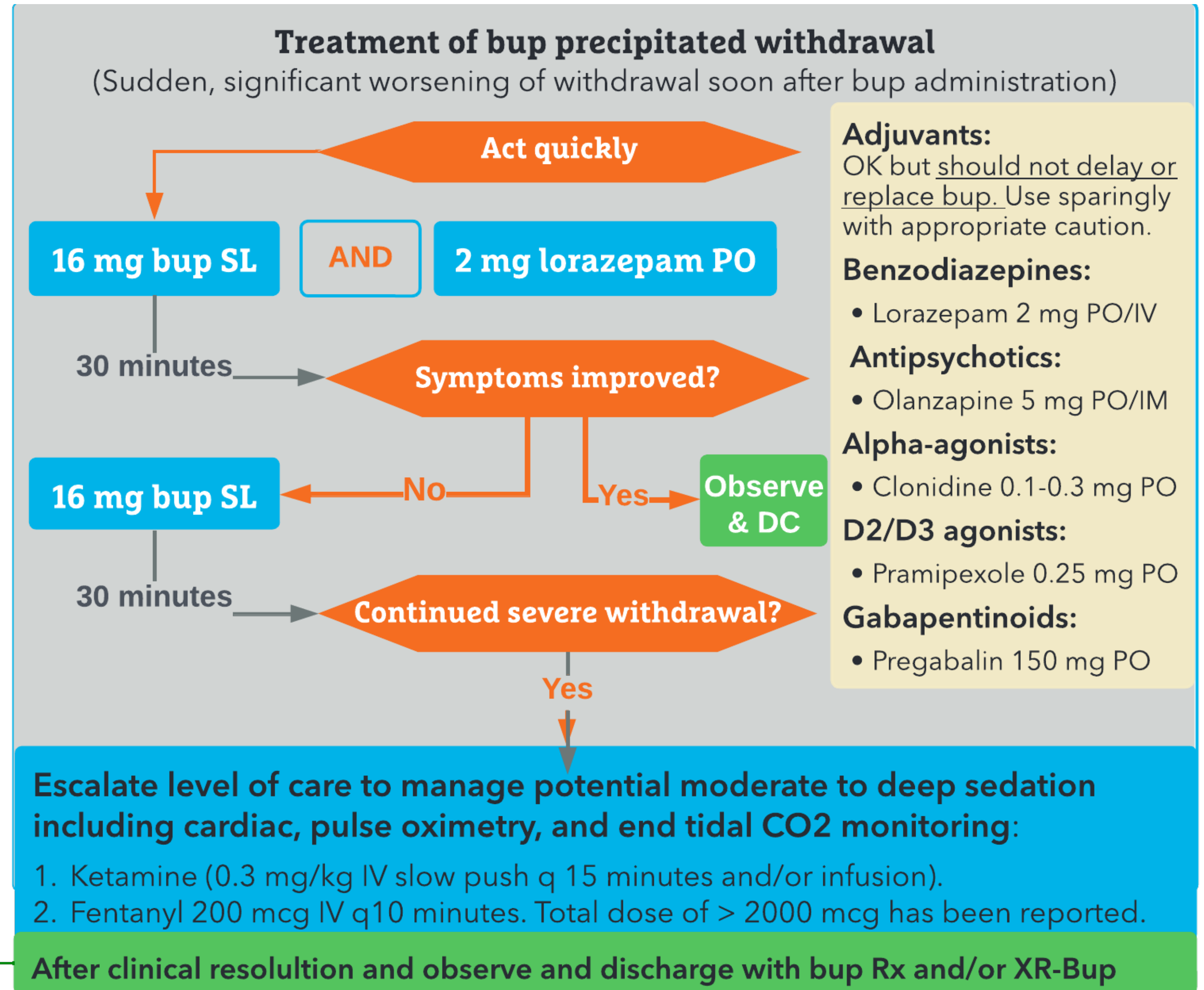
CASE 8:

34 year-old-female with PMHx opioid use disorder presenting to ED requesting assistance with cessation. Initiated on buprenorphine and subsequently develops abdominal pain, nausea and vomiting, diarrhea and anxiety.

CASE 8 DISCUSSION

- Prevention is the BEST treatment.
- Once in PW, the best treatment is buprenorphine
  - 16 mg BUP +/- 1-2 mg lorazepam
  - Repeat 16 mg BUP and/or 0.3 mg/kg ketamine

CASE 8 DISCUSSION



Credit: Andrew Herring

CASE 9

56 year-old-male with a PMHx AUD (10 shots vodka/day), Polysubstance use (cocaine, benzodiazepines, heroin), Tobacco use disorder (1 PPD), Bipolar Disorder, Major Depressive Disorder presents after being found on the ground outside of a bar. Staff report he had to be forcefully removed from premises after demanding alcohol and not having money to pay for it. Received 4 mg naloxone with resulting agitation, then received IM ketamine from EMS with resulting improved agitation. Noted to have continued altered mental status, sinus tachycardia 130, nausea and vomiting.

CASE 9 DISCUSSION

Polysubstance use with concurrent intoxication and withdrawal

- Benzodiazepine Infusion?
- Opioid Infusion?
- Propofol Infusion?
- Phenobarbital?
- Methadone Initiation with taper?

ADDITIONAL CONSIDERATIONS

- Critical need for stakeholder & champion engagement across the spectrum of care to develop, study and implement new SUD care protocols
- As healthcare continues to face worsening access to timely healthcare, the ED may be the "only," option for increasingly complex substance use intervention
- Anticipate the rise of increasingly complex polysubstance use disorders with psychiatric comorbidities
- Evidence is severely lacking.

Wado!

Thank you.

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