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Psychiatry and Addictions Case Conference

UW Medicine | Psychiatry and Behavioral Sciences

AMBULATORY ALCOHOL WITHDRAWAL

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Integrated Care Training Program
UW Psychiatry & Behavioral Sciences

project ECHO

SPEAKER DISCLOSURES

✓ No Conflicts of Interest

PLANNER DISCLOSURES

The following series planners have no relevant conflicts of interest to disclose; other disclosures have been mitigated.

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OBJECTIVES

1. Understand the etiology and biological underpinnings of Alcohol Withdrawal Syndrome (AWS)

2. Describe the disposition criteria for ambulatory alcohol withdrawal

3. Describe pharmacologic interventions

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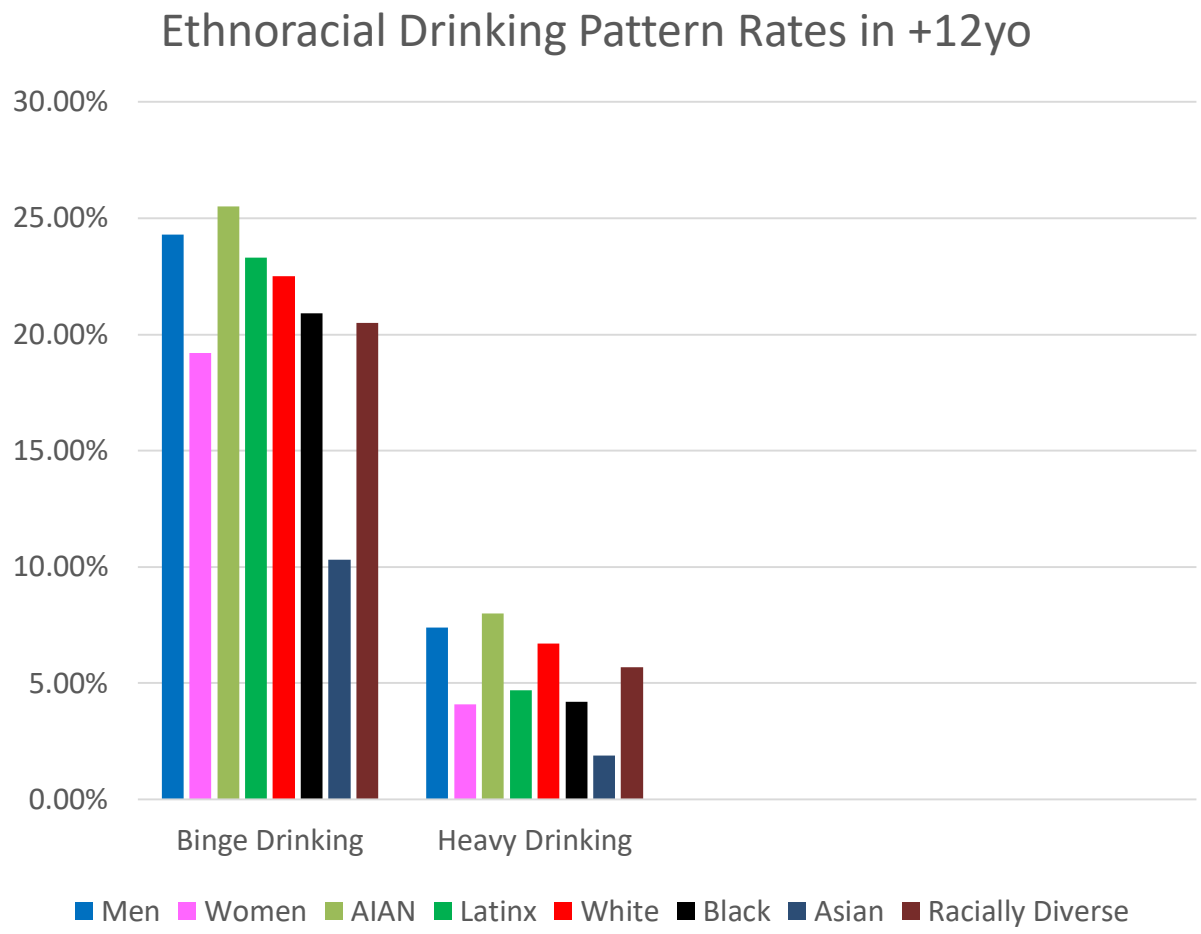
ALCOHOL BY THE NUMBERS

- **2022 National Survey on Drug Use and Health (NSDUH)**
  - **221.3 Million +12yo** drink at some point in their life
    - 5.7 Million 12-17yo
  - **Binge Drinking in +12yo**:
    - **61.2 Million (21.7%)**
      - 3.2% 12-17yo
      - 23.5% +18yo
  - **Past Month Heavy Drinking in +12yo**:
    - 16.1 Million (5.7%)
      - 0.2% 12-17yo
      - 6.3% +18yo

- **Alcohol Withdrawal Syndrome (AWS)**
  - AWS in ~50% with Moderate to Severe AUD
  - 5% of AUD have severe AWS – Seizures/DT
  - **VA PUGS retrospective study of 469,082 nationwide**
    - 5.8% inpatient AWS
    - Up to 19% in psychiatric admissions vs 4.4% Medical, 0.7% Surgical
  - Suspect AWS in these VA scenarios:
    - 38.3% = Other alcohol related disorder encounters
    - 19.4% = Other SUD encounters
    - 15.3% = Suicide attempt encounters
    - 13.9% = Liver Injury encounters



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AMBULATORY VS INPATIENT WITHDRAWAL

- **Study examined cost & duration of AWS treatment, comparing INPT to OUTPT**
  - N = 164 with mild to moderate sxms
  - No prior history of Seizures/DT
  - **Mean duration** of treatment
    - INPT = 9.2 days
    - OUTPT = 6.5 days
  - **Treatment Completion** at 6mo
    - INPT = 95%
    - OUTPT = 72%
  - **Cost** per patient
    - INPT = $3319 - $3665
    - OUTPT = $175 - $388

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ADVANTAGES OF AMBULATORY CARE

- Patient Centered
- Close Outpatient Follow-up + Comfort of home
- Advantages: Accessible, Flexible, Inexpensive, Minimized disruption, Reduced stigma
- Goal: Good outcomes + Reduced utilization of healthcare system

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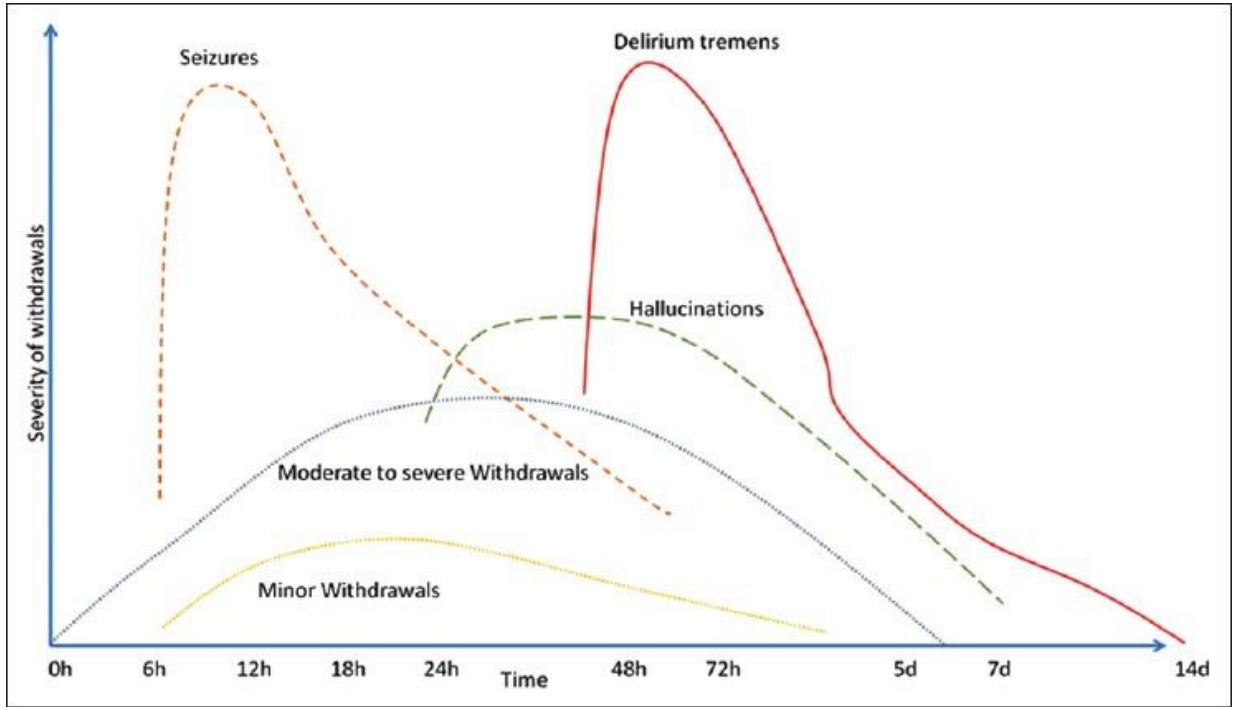
ALCOHOL WITHDRAWAL SYNDROME

- **AWS =** Recent cessation/reduction in alcohol use + withdrawal symptoms

- **Cluster of symptoms:**
  - HA, N/V, Tremors, Sweats, Tachycardia, HTN, Dilated Pupils, Insomnia, Disorientation, Anxiety, Paranoia, Agitation, Generalized Seizures, Hallucinations
  - **Seizure risk peaks ~12hrs**
  - **DT risk peaks ~3 days**

- **Imbalance of GABA (inhibitory) vs Glutamate (excitatory)**
  - Alcohol over stimulates GABA which inhibits glutamate release
  - Chronic use results in less organic GABA production and increased glutamate production to compensate
  - Withdrawal from alcohol causes a GABA deficit and glutamate toxicity resulting in withdrawal syndrome

- **Kindling Effect**



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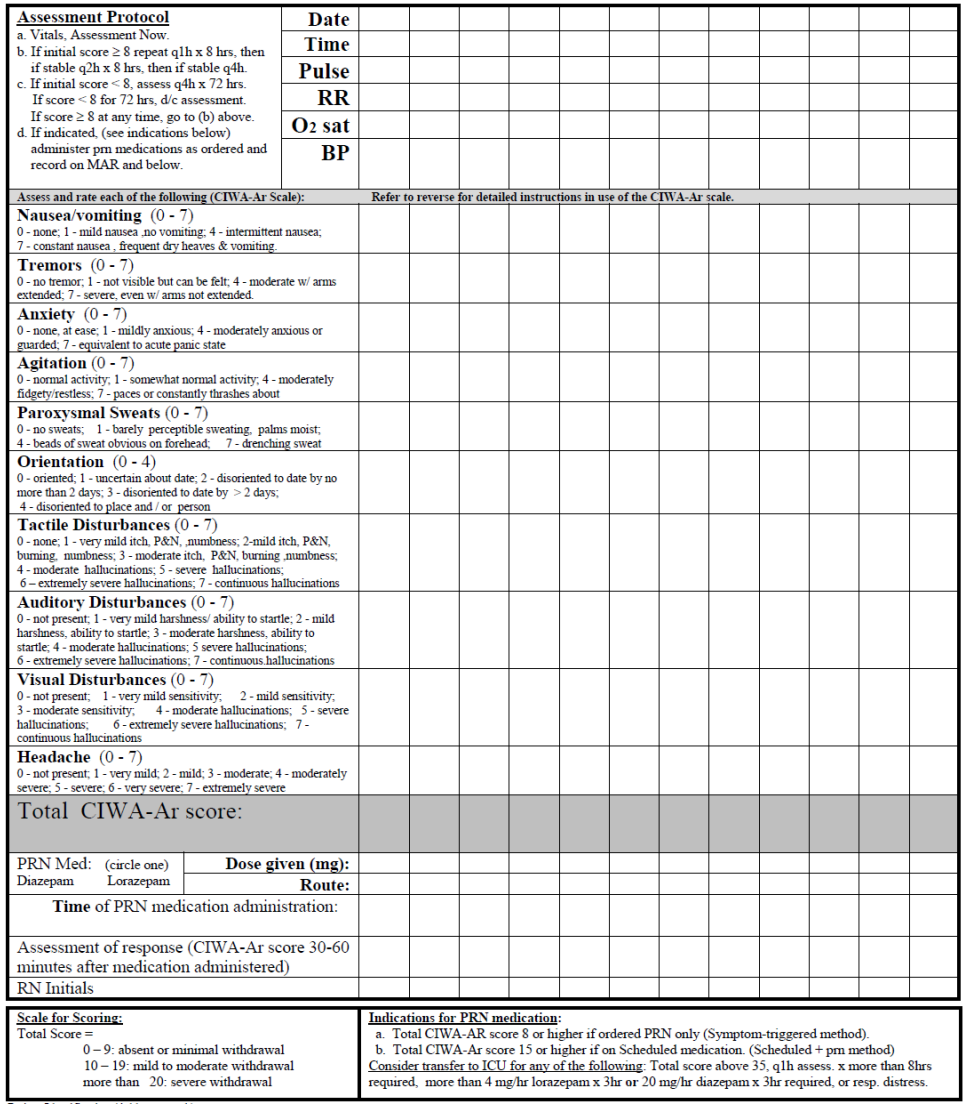
CLINICAL INSTITUTE WITHDRAWAL ASSESSMENT – ALCOHOL REVISED

- **Score Domains**
  - N/V
  - Tremors
  - Anxiety
  - Agitation
  - Paroxysmal sweats
  - Orientation
  - Tactile disturbances
  - Auditory disturbances
  - Visual disturbances
  - Headaches

- **Total Score:** 0-67
  - **Mild =** 0-9 = Anxiety, tremors, insomnia, HA, palpitations, GI upset
  - **Moderate =** 10-19 = Mild sxms + Sweats, HTN, SOB, tachycardia, confusion, mild hyperthermia
  - **Severe =** 20+ = Moderate sxms + Disoriented, poor attention, AVH, seizures



Assessment Protocol a. Vitals, Assessment Now. b. If initial score ≥ 8 repeat q1h x 8 hrs, then if stable q2h x 8 hrs, then if stable q4h. c. If initial score < 8, assess q4h x 72 hrs. If score < 8 for 72 hrs, d/c assessment. If score ≥ 8 at any time, go to (b) above. d. If indicated, (see indications below) administer prn medications as ordered and record on MAR and below.	**Date**												
	Time												
	Pulse												
	RR												
	O_2 sat												
	BP												
Assess and rate each of the following (CIWA-Ar Scale):	**Refer to reverse for detailed instructions in use of the CIWA-Ar scale.**												
Nausea/vomiting (0 - 7) 0 - none; 1 - mild nausea ,no vomiting; 4 - intermittent nausea; 7 - constant nausea , frequent dry heaves & vomiting.													
Tremors (0 - 7) 0 - no tremor; 1 - not visible but can be felt; 4 - moderate w/ arms extended; 7 - severe, even w/ arms not extended.													
Anxiety (0 - 7) 0 - none, at ease; 1 - mildly anxious; 4 - moderately anxious or guarded; 7 - equivalent to acute panic state													
Agitation (0 - 7) 0 - normal activity; 1 - somewhat normal activity; 4 - moderately fidgety/restless; 7 - paces or constantly thrashes about													
Paroxysmal Sweats (0 - 7) 0 - no sweats; 1 - barely perceptible sweating, palms moist; 4 - beads of sweat obvious on forehead; 7 - drenching sweat													
Orientation (0 - 4) 0 - oriented; 1 - uncertain about date; 2 - disoriented to date by no more than 2 days; 3 - disoriented to date by > 2 days; 4 - disoriented to place and / or person													
Tactile Disturbances (0 - 7) 0 - none; 1 - very mild itch, P&N, ,numbness; 2-mild itch, P&N, burning, numbness; 3 - moderate itch, P&N, burning ,numbness; 4 - moderate hallucinations; 5 - severe hallucinations; 6 – extremely severe hallucinations; 7 - continuous hallucinations													
Auditory Disturbances (0 - 7) 0 - not present; 1 - very mild harshness/ ability to startle; 2 - mild harshness, ability to startle; 3 - moderate harshness, ability to startle; 4 - moderate hallucinations; 5 severe hallucinations; 6 - extremely severe hallucinations; 7 - continuous hallucinations													
Visual Disturbances (0 - 7) 0 - not present; 1 - very mild sensitivity; 2 - mild sensitivity; 3 - moderate sensitivity; 4 - moderate hallucinations; 5 - severe hallucinations; 6 - extremely severe hallucinations; 7 - continuous hallucinations													
Headache (0 - 7) 0 - not present; 1 - very mild; 2 - mild; 3 - moderate; 4 - moderately severe; 5 - severe; 6 - very severe; 7 - extremely severe													
Total CIWA-Ar score:													
PRN Med: (circle one) Diazepam Lorazepam	**Dose given (mg):**												
	Route:												
Time of PRN medication administration:													
Assessment of response (CIWA-Ar score 30-60 minutes after medication administered)													
RN Initials													

Scale for Scoring:	**Indications for PRN medication:**
Total Score = 0 – 9: absent or minimal withdrawal 10 – 19: mild to moderate withdrawal more than 20: severe withdrawal	a. Total CIWA-AR score 8 or higher if ordered PRN only (Symptom-triggered method). b. Total CIWA-Ar score 15 or higher if on Scheduled medication. (Scheduled + prn method) Consider transfer to ICU for any of the following: Total score above 35, q1h assess. x more than 8hrs required, more than 4 mg/hr lorazepam x 3hr or 20 mg/hr diazepam x 3hr required, or resp. distress.

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IS IT REALLY ALCOHOL WITHDRAWAL?

- **Hepatic Encephalopathy**
  - H/o hematemesis or melena, jaundice, sleep-wake reversal, icterus, asterixis, ascites, parotid enlargement, other cirrhotic stigmata
- **Encephalitis/Meningitis**
  - Fever, seizures, meningeal signs, focal neuro-signs
- **Head Injury**
  - Found down, bradycardia, HTN (Elevated ICP), pinpoint pupils, focal neuro-signs, ear/nose bleeds, hypoactive delirium/stupor
- **Thyrotoxicosis**
  - H/o thyroid illness, thyromegaly, exophthalmos
- **Pneumonia**
  - Fever, cough, predating delirium, low BP or O2sat
- **Psychosis**
  - AVH, fixed delusions, normal sensorium
- **Hyponatremia**
  - Poor PO intake, binge drinking, S/s dehydration, uremia, hypoactive delirium
- **Lithium Toxicity**
  - H/o drug OD, recent diarrhea/diuresis, NSAID use, serum Li >1.2 mEq/L
- **Antidepressant OD**
  - H/o OD, current diarrhea, myoclonic jerks, restlessness, seizures, altered sensorium
  - TCAs will present with dry skin, dilated pupils, and fever

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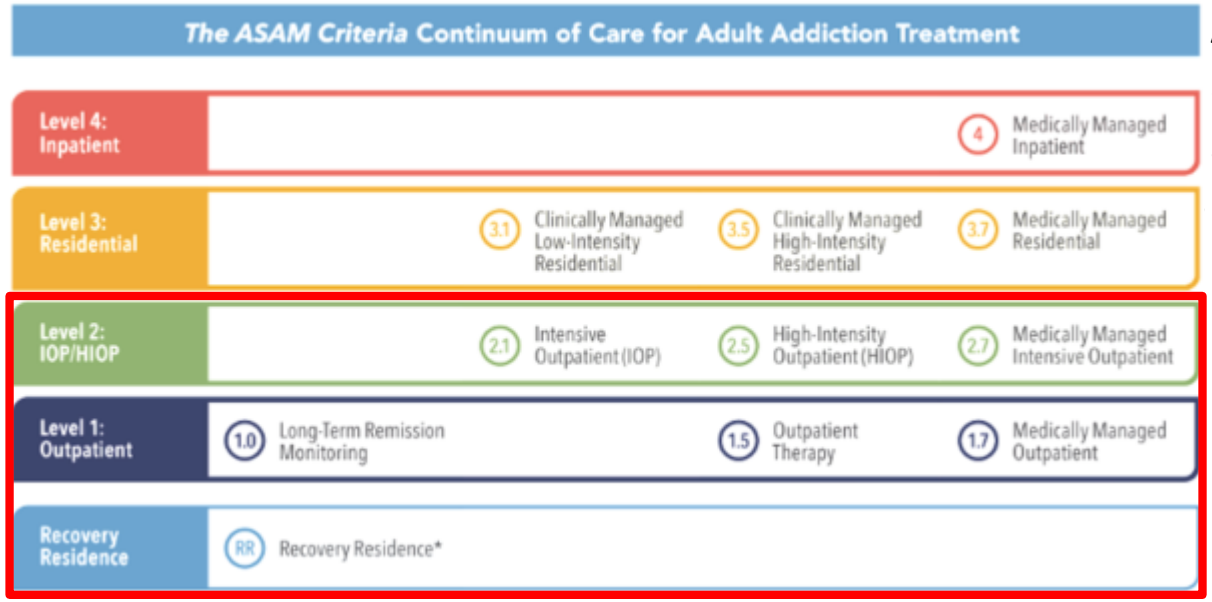
ASAM CRITERIA FOR TREATMENT PLACEMENT



ASAM Criteria = Guidelines for comprehensive biopsychosocial assessment to inform service planning, placement, continued stay, discharge

Describes a cyclical, multidimensional approach for patient assessment & describes the levels of care.

Should be used at first contact (referrals), during treatment (not doing well or achieving goals), and at discharge (next steps).

+20yrs of peer-reviewed evidence, patient centered

Proprietary software ($$$), requires training

When to Step Up/Down:

- Achieved goals & resolved problem —> **Step down**
- Unable to resolve problem despite adjustments to treatment plan, or if problems worsen —> **Step up**
- New problems emerge that cannot be effectively treated at this level of care —> **Step up**
- Lack capacity to resolve problems —> **Step up**

When to Maintain Current LOC (Level of Care):

- Making progress but **not yet achieved goals**
- **Not making progress but have capacity** to resolve problems, are actively working on goals, and continued treatment is necessary to reach goals
- **New problems** have been identified that can be treated **at this level**

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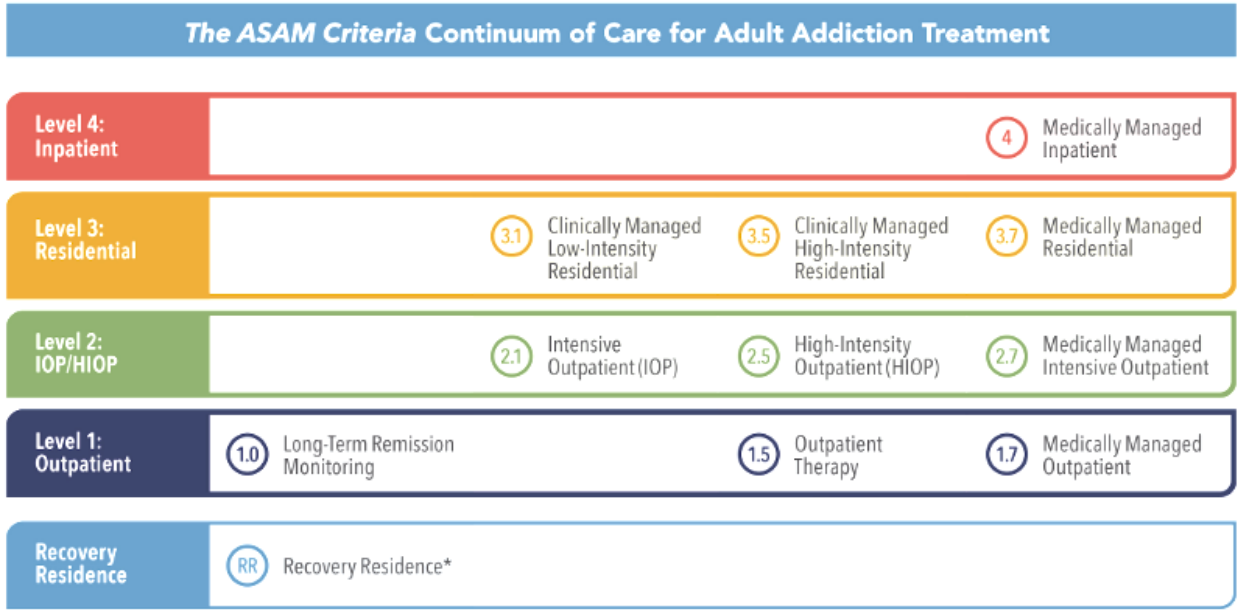
OUTPATIENT TREATMENT LEVEL

- **Level 0.5 = Early intervention**
  - **Where 90% of patients are!**
  - High risk for developing disorders, but insufficient info to diagnose as SUD
  - Opportunity for primary prevention
  - **Expectations:**
    - DUI education, basic education, early intervention with adolescents
    - Therapy, SBIRT, Naloxone
    - Requires capacity to move individuals in imminent danger to appropriate level of care or provide outpatient treatment together with early intervention
    - NIAAA Alcohol Treatment Navigator || (alcoholtreatment.niaaa.nih.gov)

- **Level 1 = Outpatient clinics, some onsite monitoring**
  - Have AUD diagnosis
  - **MAT clinics**: Methadone, buprenorphine, naltrexone, antabuse, counseling, resources. Also serves patients who may be in higher levels of care
  - **PCP or Family medicine clinic**
  - **Psychiatric clinic**
  - **ED**
  - **Expectations**:
    - Time commitment - Less than 9hrs of services/week (6 for adolescents)
    - Recovery and/or motivational enhancement strategies
    - Patients are low severity in all dimensions of assessment



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CONTRAINDICATIONS TO AMBULATORY WITHDRAWAL

- **Current or History of Severe Symptoms**
  - Prior DT, Seizure, current CIWA >15 due to high risk of complications during their withdrawal

- **Complex comorbidities:**
  - Heart failure NYHA class II+
  - Decompensated cirrhosis
  - Oxygen dependent COPD
  - CKD Stage 4
  - Epilepsy
  - Recent TBI with +LOC or intracranial hemorrhaging
  - Unstable psychiatric illness or imminent danger to others
  - Febrile illness
  - BZD use disorder
  - Pregnancy
  - Cognitive impairment or inability to follow instructions for detox

- **Limited means of communication or unavailability for regular check-in visits**

- **Significant risk of relapse**

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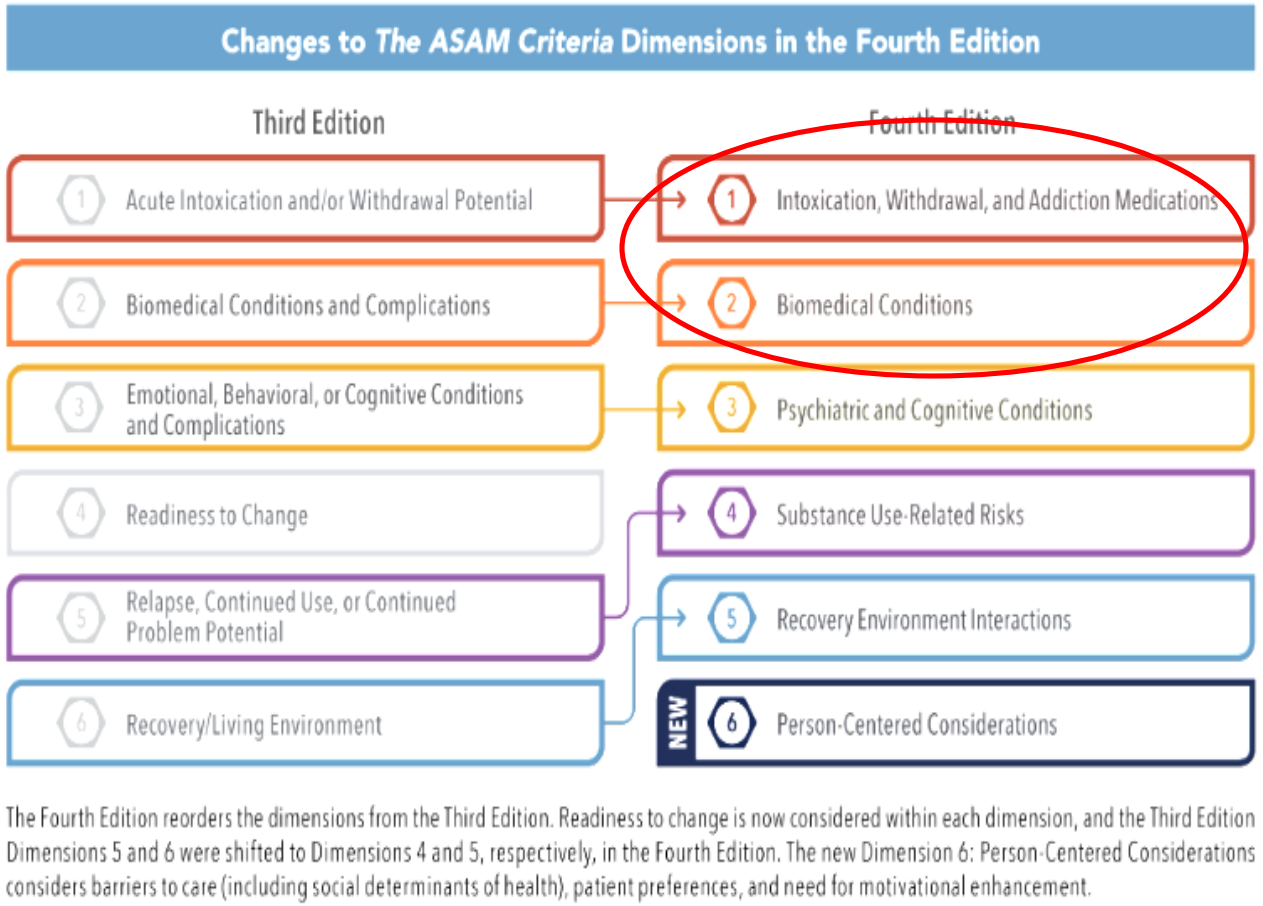
DIMENSIONAL ASSESSMENT (ASAM CRITERIA FRAMEWORK)

- Perform I**mmediate Needs Profile** during intake that helps triage for all dimensional issues

- **Dimension 1 – Intoxication, Withdrawal, Medications**
  - *"Have you ever had a life-threatening withdrawal?"*
  - 3 H's: History, Here & Now, How concerned are you?
  - Prior history, current amount, frequency/chronicity, recent sudden discontinuation/reduction of use
  - CIWA
- **Dimension 2 – Biomedical Conditions**
  - *"Any current, untreated severe physical problems?"*
  - Cardiac, Liver, Renal, Cancers, Seizures, Pancreatitis, Pregnant, Diabetes, Chronic pain syndromes
  - Current exacerbations from recent use?
  - Communicable diseases (COVID, Lice, MRSA, Monkey pox etc)



The Fourth Edition reorders the dimensions from the Third Edition. Readiness to change is now considered within each dimension, and the Third Edition Dimensions 5 and 6 were shifted to Dimensions 4 and 5, respectively, in the Fourth Edition. The new Dimension 6: Person-Centered Considerations considers barriers to care (including social determinants of health), patient preferences, and need for motivational enhancement.

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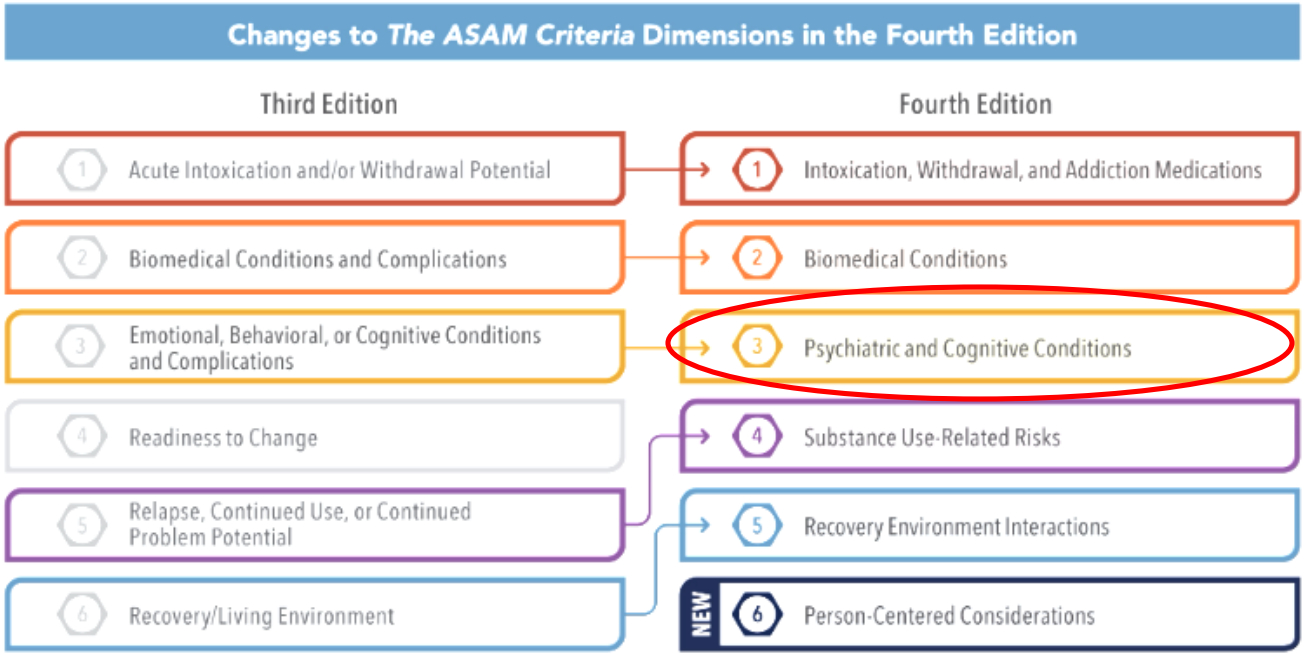
ASAM CRITERIA DIMENSIONS

- **Dimension 3 – Psychiatric & Cognitive Conditions**
  - *"Do you feel you are imminently in danger and could harm yourself or someone else?"*
  - SI, HI, AVH
  - Mood, Trauma, Impulse dysregulation, Psychosis
  - Personality disorders
  - Cognitive concerns
  - Chronicity, acute s/s, instability leading to higher risk rating
  - MH symptoms correlated with SUD?
  - Social functioning:
    - How does substance usage interfere with relationships?
    - Does use prevent fulfilling responsibilities & roles patient has?



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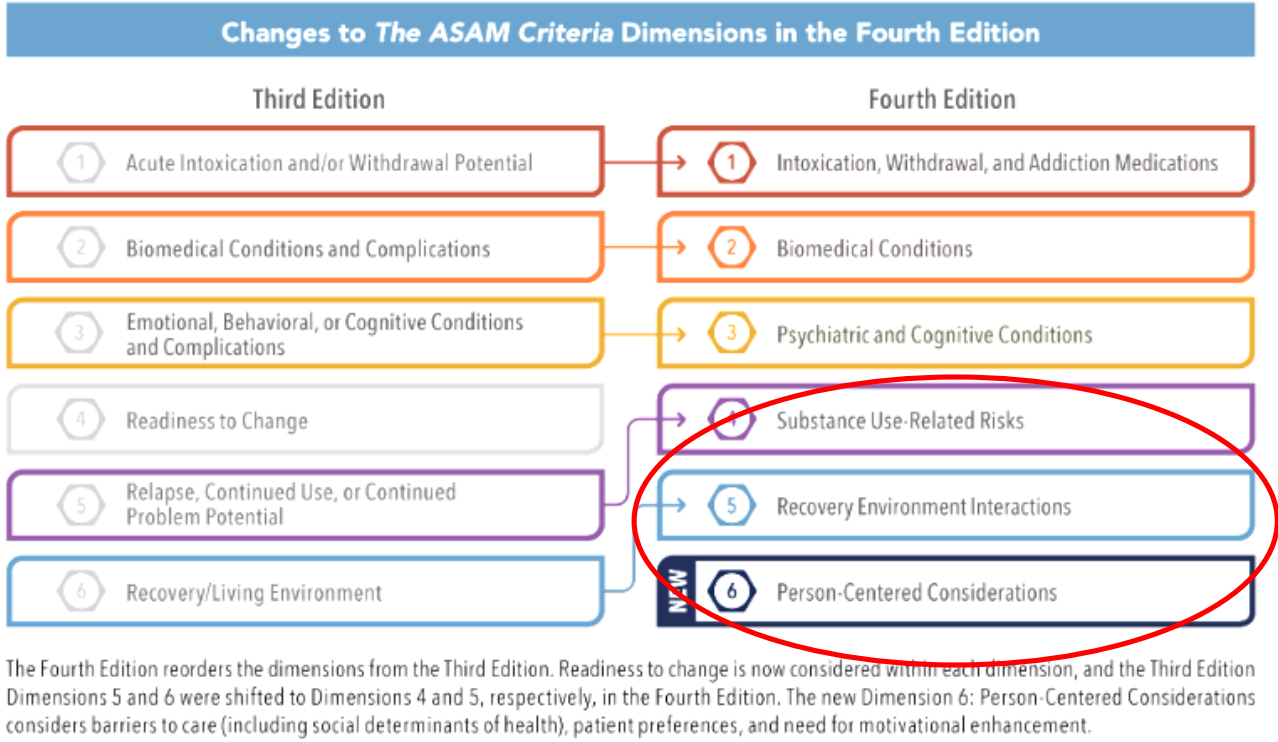
ASAM CRITERIA DIMENSIONS

- **Dimension 4 – Substance Use Related Risks**
  - *"Are you currently under the influence? Are you likely to continue using substances or relapse in an imminently dangerous manner?"*
  - **Imminent danger** = Strong probability + Very near future + Significant risk of adverse outcomes
  - Likelihood of risky substance use and related behaviors
  - Degree of insight, impulse control, medication response
  - Ability to cope with negative emotions, peer pressure, stress, and cravings
  - Risk of use to others

- **Dimension 5 – Recovery Environment Interactions**
  - *"Are any dangerous family, significant others, living/working situations threatening your safety, immediate well-being, and/or sobriety?"*
  - Ability to function in current environment
  - Safety in current environment
  - Ambulatory supports, social network
  - Cultural perceptions of substance use

- **Dimension 6 – Person-Centered Considerations**
  - Patient preferences for treatment
  - SDOH Barriers: Finances, Transportation, Food, Occupational, Legal mandates -- licensing requirements (pilots, truckers, etc)



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PHARMACOLOGIC INTERVENTIONS

- Goal of medications:
  - Reduce withdrawal symptoms
  - Reduced Cravings
  - Reduced Use
  - Retention in Treatment

- Several Options:
  - Benzodiazepines
  - Anticonvulsants
  - Alpha Agonists & other adjunctive medications

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TO BENZO, OR NOT TO BENZO…?

- **European meta-analysis from 6/2023**
  - 11 Non-BZDs outperformed 5 BZDs in reducing CIWA-Ar, Total Severity Assessment, and Selective Severity Assessment
  - Reducing CIWA-Ar Scores
    - CIWA 7-15: Gabapentin > Chlordiazepoxide, Lorazepam (tapering)
    - CIWA 10-20: Carbamazepine > Oxazepam, Lorazepam (tapering)
    - CIWA 7-20: Pregabalin/Gabapentin, Carbamazepine, Topiramate, Lamotrigine > Chlordiazepoxide, Oxazepam, Lorazepam (Fixed + Tapering)
  - Tremors:
    - Propranolol isn't better than diazepam or chlordiazepoxide
  - Sedation:
    - Gabapentin less sedating than Chlordiazepoxide, Lorazepam
  - Anxiety:
    - Propranolol isn't better than diazepam or oxazepam
  - BP/HR:
    - Propranolol, Clonidine > Chlordiazepoxide
  - Agitation/AVH
    - Haloperidol > Chlordiazepoxide
  - ASE:
    - Fatigue is worse with BZD
    - Non-BZD have more seizures
  - Non-BZD have multiple effects
    - Mitigate kindling via stabilizing gated ion channels
    - Reduce neurotransmitter toxicity (Glutamate, adrenaline, DA, 5HT)

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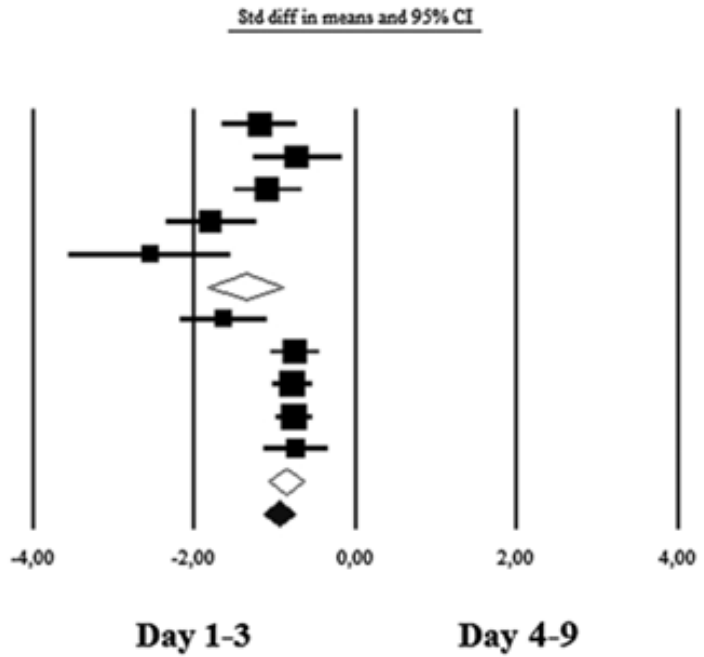
TO BENZO, OR NOT TO BENZO…?

- **Systemic Review-based Meta Analysis from Pribek et al. from 1/2021**
  - **Reducing CIWA**
    - Non-BZD = BZD
  - **Preventing Seizures, DTs, Delirium**
    - BZD > Non-BZD

Subgroup within study	Study name	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value	Total
		Statistics for each study							
1	Addolorato et al., 1999	-1,186	0,238	0,057	-1,653	-0,719	-4,976	0,000	30
1	Johnston et al., 1991	-0,729	0,281	0,079	-1,280	-0,178	-2,592	0,010	16
1	Sönmez et al., 2016	-1,087	0,216	0,047	-1,511	-0,663	-5,025	0,000	34
1	Cavus et al., 2012	-1,793	0,290	0,084	-2,361	-1,224	-6,182	0,000	31
1	Sengul et al., 2009	-2,553	0,516	0,266	-3,564	-1,542	-4,948	0,000	16
Means for BZD		-1,361	0,239	0,057	-1,829	-0,893	-5,699	0,000	
2	Addolorato et al., 1999	-1,637	0,279	0,078	-2,185	-1,090	-5,862	0,000	30
2	Heberlein et al., 2017	-0,748	0,153	0,023	-1,047	-0,449	-4,903	0,000	55
2	Heberlein et al., 2010	-0,784	0,126	0,016	-1,032	-0,537	-6,212	0,000	82
2	Heberlein et al., 2015	-0,766	0,114	0,013	-0,991	-0,542	-6,705	0,000	99
2	Heberlein et al., 2014	-0,742	0,206	0,043	-1,146	-0,338	-3,598	0,000	30
Means for nBZD		-0,858	0,110	0,012	-1,073	-0,643	-7,828	0,000	
Overall		-0,945	0,100	0,010	-1,140	-0,750	-9,492	0,000	



Subgroups
1: BZD: benzodiazepine
2: nBZD: non-benzodiazepine

Std diff in means: standardized mean difference
CI: confidence interval

Overall heterogeneity
$Q(9) = 32.946; p < 0.001$
$I^2 = 72.68$

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BENZODIAZEPINES FOR OUTPATIENT WITHDRAWAL

- **Most effective** at reducing both withdrawal symptoms and **preventing seizures**

- **Considerations:**
  - CIWA Score
  - Medical risk factors
    - Age, liver & kidney function, respiratory status, frequency/quantity of alcohol use, history of seizures/DTs, history of benzodiazepine use disorder
  - Cognitive status
  - Ambulatory support
  - Polypharmacy
  - Monitoring & Follow-up
    - Toxicity S/s, OD, withdrawal, emergency instructions
    - Daily phone calls preferred

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WHICH BENZO SHOULD I USE?

Benzodiazepine		Equivalent Doses *(varies between individuals)*
Short-acting *(half-life of drug and metabolites < 6 hours)*	Oxazepam	20 mg
	Triazolam	0.5 mg
Intermediate-acting *(half-life of drug and metabolites 6-24 hours)*	Alprazolam	0.5 mg
	Lorazepam	1 mg
	Temazepam	20 mg
Long-acting *(half-life of drug and metabolites > 24 hours)*	Chlordiazepoxide	25 mg
	Clobazam	20 mg
	Clonazepam	0.5 mg
	Clorazepate	15 mg
	Diazepam	10 mg
	Flurazepam	15-30 mg
Example: 4 mg of lorazepam per day is equivalent to about 40 mg of diazepam per day.		

General Rules of Thumb

- No one-size fits all solution!
- Long Acting > Short Acting
- Low Potency > High Potency
- Use a "LOT" benzo for Liver Impairment
  - Lorazepam
  - Oxazepam
  - Temazepam

***Diazepam** parent drug T1/2 = 20-48hrs, major active metabolite T1/2 = 100hrs.*
***Clonazepam** T1/2 = 30-40hrs*

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SYMPTOM TRIGGERED REGIMEN

Ambulatory = Moderate symptoms

- Remote areas, patient preference for outpatient

Symptom Triggered Treatment Regimen

- Take vitals & CIWA Assessment
- Dose benzos based on CIWA scores
- Shorter duration of treatment, less total dose of BZDs
- Initial Score +8
  - » Repeat CIWA each hour until score stabilizes
  - » Then reassess q2hr x 8hrs, if further stability then q4hr
  - » D/c CIWA monitoring once scoring <8 x3 days
- Initial Score <8
  - » Repeat CIWA q4hr x 3days. D/c CIWA if <8 x3 days

Standard drink = 14g alcohol

- ***Drinks vary in alcohol content***
- Elevated Scores
  - » CIWA 7-8 = Mild, no intervention
  - » CIWA 9-15 = Moderate, Give "one drink"
  - » CIWA 16-20 = Severe, Give "two drinks"

***Regular check-ins recommended**

	Diazepam	Chlordiazepoxide	Lorazepam	Oxazepam
Equivalent doses (to 10 g alcohol)	5 mg	25 mg	1 mg	15 mg
Onset of action	Rapid	Intermediate	Intermediate	Slow
Half-life	Long	Long	Short	Short
Active metabolites	Yes	Yes	No	No
Hepatic metabolism	Yes	Yes	No	No
Routes of administration	Oral/intravenous	Oral	Oral/sublingual/intravenous/intramuscular	Oral

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SYMPTOM TRIGGERED + LOADING DOSE REGIMEN

Symptom Triggered + Loading Dose *(ONLY if necessary)*

- Consider if patient has **higher risk features** such as history of DTs or Seizures
- **Single loading dose of ~3 drinks (Diazepam 20mg)**
- **Then, ~3 drinks (Diazepam 20mg) Q2hr until CIWA <10**
- **Consider the time of their last drink/reduction in use

Predictors of Severe Alcohol Withdrawal Symptoms

Older age
Comorbid medical or surgical illness
Past history of DT or alcohol withdrawal seizure
Severe withdrawal symptoms at initial assessment, despite having significant blood alcohol levels
Presence of dehydration
History of having had withdrawal seizure during this current withdrawal state before the assessment
Presence of hyponatremia or hypokalemia
Elevated AST or GGT levels
Low platelet count
The presence of structural brain lesions
Duration of alcohol use and average daily quantity of alcohol consumed are not consistent predictors of severe alcohol withdrawal

AST – Aspartate aminotransferase; GGT – Gamma glutamyl transferase; DT – Delirium tremens

	Diazepam	Chlordiazepoxide	Lorazepam	Oxazepam
Equivalent doses (to 10 g alcohol)	5 mg	25 mg	1 mg	15 mg
Onset of action	Rapid	Intermediate	Intermediate	Slow
Half-life	Long	Long	Short	Short
Active metabolites	Yes	Yes	No	No
Hepatic metabolism	Yes	Yes	No	No
Routes of administration	Oral/intravenous	Oral	Oral/sublingual/intravenous/intramuscular	Oral

WHAT ABOUT FIXED DOSE TAPERS?

When to use Fixed-Dose Tapers

- Severe withdrawals (CIWA +20) or Unable to follow symptom triggered instructions
  - Fixed dose Taper +/- Symptom Triggered

Standard Tapers

Diazepam

Day 1: 10mg PO q6h (40mg TDD)
Day 2: 10mg PO q8h (30mg TDD)
Day 3: 10mg PO q12h (20mg TDD)
Day 4: 10mg QHS
Day 5: Discontinue

Chlordiazepoxide

Day 1: 50mg PO q6h (200mg TDD)
Day 2: 50mg PO q8h (150mg TDD)
Day 3: 50mg PO q12hr (100mg TDD)
Day 4: 50mg QHS
Day 5: Discontinue

Precision Tapers

Calculating the Starting Fixed Dose

- **Alcohol (g) = Alcohol vol (ml) * 0.008 * %ETOH content (w/v)**
  - 1 beer = (355ml) *0.008 * 6% ABV = 17g (~1.2 standard drinks)
  - 12 beers = ~205g = ~14.6 standard drinks
  - Using diazepam, 10mg = 1.4 drinks
  - ~102mg diazepam, but limited to 60mg daily
- Match to their recent alcohol intake & withdrawal severity

Duration of treatment for Fixed Regimens

- Day 1: Find starting dose and stabilize, consider time of last drink
- Days 2-4: Reducing starting dose by 25%/day for 3 days
- Day 5: Discontinue
- Daily check-ins, may extend up to total of 7-10 days

- Reminder: Standard drink = 14g
  - Diazepam 5-10mg PO, ceiling dose 60mg/day
  - Chlordiazepoxide 25-50mg PO, ceiling dose 125mg/day
  - Lorazepam 1-2mg PO, holding parameters
  - Oxazepam 15-30mg PO, holding parameters

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ALTERNATIVES TO BENZOS

– Anticonvulsants
  - ***Good choice for mild symptoms (CIWA <10)***
    – **Gabapentin 300mg q6h → 300mg q8h → 300mg q12hr → 300mg QHS**
      » Stabilizes kindling effect
      » Reduces drinking rates, cravings, anxiety, insomnia, daytime sedation, increased ability to work compared to lorazepam
      » Comparable to chlordiazepoxide for AWS, less daytime sedation
    – **Carbamazepine 200mg q6h → 200mg q8hr → 200mg q12hr → 200mg QHS**
      » Significant reduction in AWS compared to Oxcarbazepine
      » Outperforms placebo in reducing drinking, drinking days, and time to first heavy drinking day
    – **Oxcarbazepine 1500-1800mg/day**
      » No difference from placebo to reduce AWS
      » Comparable to carbamazepine outcomes
      » Delays time to relapse by 58.6%
      » Decreases hostility-aggression
    – **Topiramate 300mg daily**
      » Moderate effect size (Cohen's d = 0.52) on %HDD
      » Improved medical & psychosocial scores
      » Challenging ASE at high doses
    – **Valproic Acid 500mg TID**
      » Less symptom triggered benzos, less symptom progression, not for moderate-severe AWS

– Alpha-2 Agonists
  - Clonidine 0.1mg BID, consider if HTN

– Adjunctive medications
  - Propranolol
  - Haloperidol

Condition	Treatment Options
Headache or other pain	• Acetaminophen 1,000 mg every 4-6 hours as needed (max 4 g/day) • Ibuprofen 400 mg 3 times daily as needed (avoid in gastritis, ulcers)
Diarrhea	• Loperamide 4 mg orally initially, followed by 2 mg after each loose stool (max 16 mg daily)
Nausea or vomiting	• Metoclopramide 10 mg orally every 4-6 hours as needed (max 3 doses daily) • Prochlorperazine 5 mg orally 3 times daily as needed • Ondansetron 8 mg orally once daily
Muscle spasms	• Methocarbamol 1500 mg orally 3 times daily (max 4 g/day) • Carisoprodol 250 mg orally 4 times daily • Cyclobenzaprine 5-10 mg orally 3 times daily

– Vitamins
  - B1 Thiamine 500mg/day for 2 weeks
    – Critical for preventing Wernicke's Encephalopathy
  - B9 Folate 2mg/day
    – RBC formation, macrocytosis, MCV +100
  - B12 Cyanocobalamin 500-2000mcg daily
    – Alcoholic neuropathy
  - Multivitamin including B2, B6, Vit C due to gastric malabsorption

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OTHER AGENTS

- Ketamine?
  - Promising, but too early to recommend

- Relapse prevention medications
  - Naltrexone
  - Acamprosate
  - Disulfiram

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SUMMARY

- Alcohol Use Disorder & Alcohol Withdrawal Syndrome cause significant morbidity and mortality
- CIWA is the gold standard to monitor withdrawal symptoms
- ASAM Criteria is the gold standard for patient placement
- Benzodiazepines are the first line treatment for moderate to severe symptoms
- Gabapentin and Carbamazepine can be used as monotherapy for mild symptoms, or as adjunctive medications for moderate to severe AWS
- When using adjunctive medications, tailor treatment plans based on comorbidities

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THANK YOU!

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