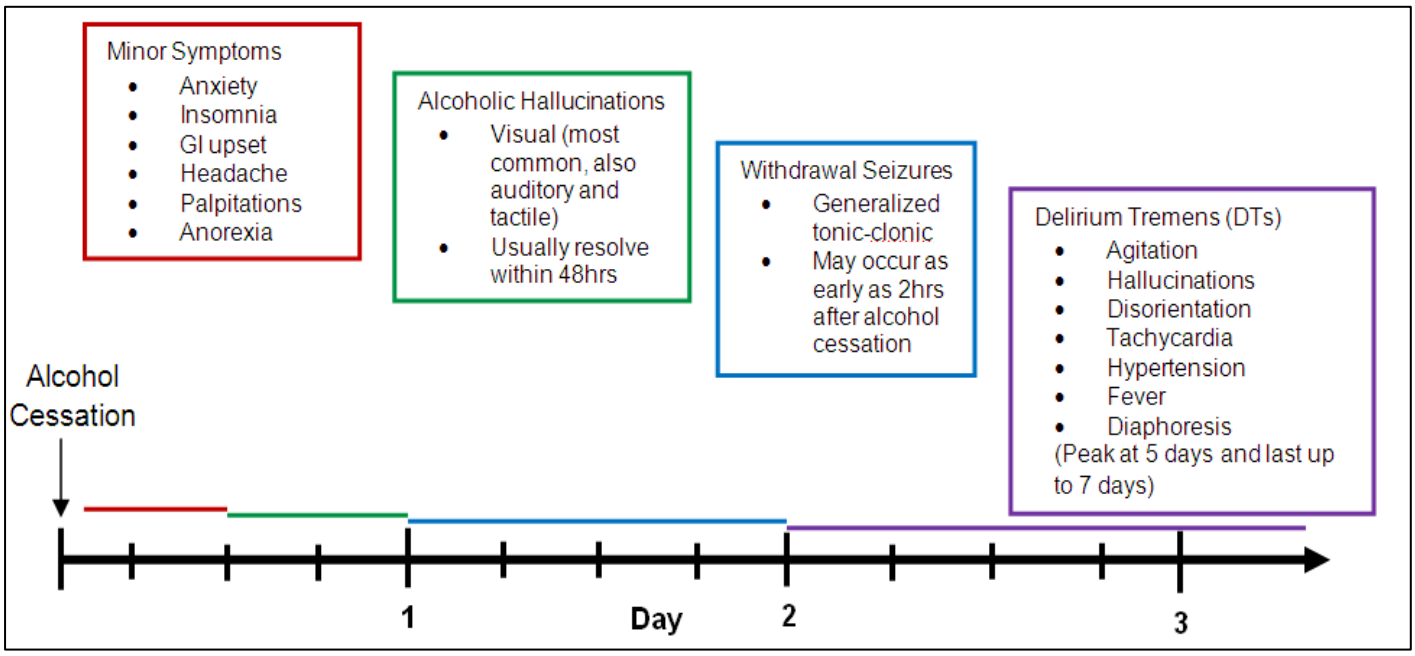
Alcohol Withdrawal

Key Aspects of Care

- Alcohol withdrawal syndrome (AWS) is potentially life-threatening and is common among hospitalized patients.
- Patients with symptoms of alcohol withdrawal require non-pharmacological as well as pharmacological interventions.
- **This is considered a guidance document only.**
  - Clinical judgment is necessary to assess a patient's degree of alcohol tolerance in the context of their symptoms, signs, and blood alcohol concentration.

Timeline Alcohol Withdrawal Signs and Symptoms

- Alcohol withdrawal syndrome can occur as early as 6 hours after alcohol cessation, usually peaks after 2-3 days, and can persist up to 7days after alcohol cessation.



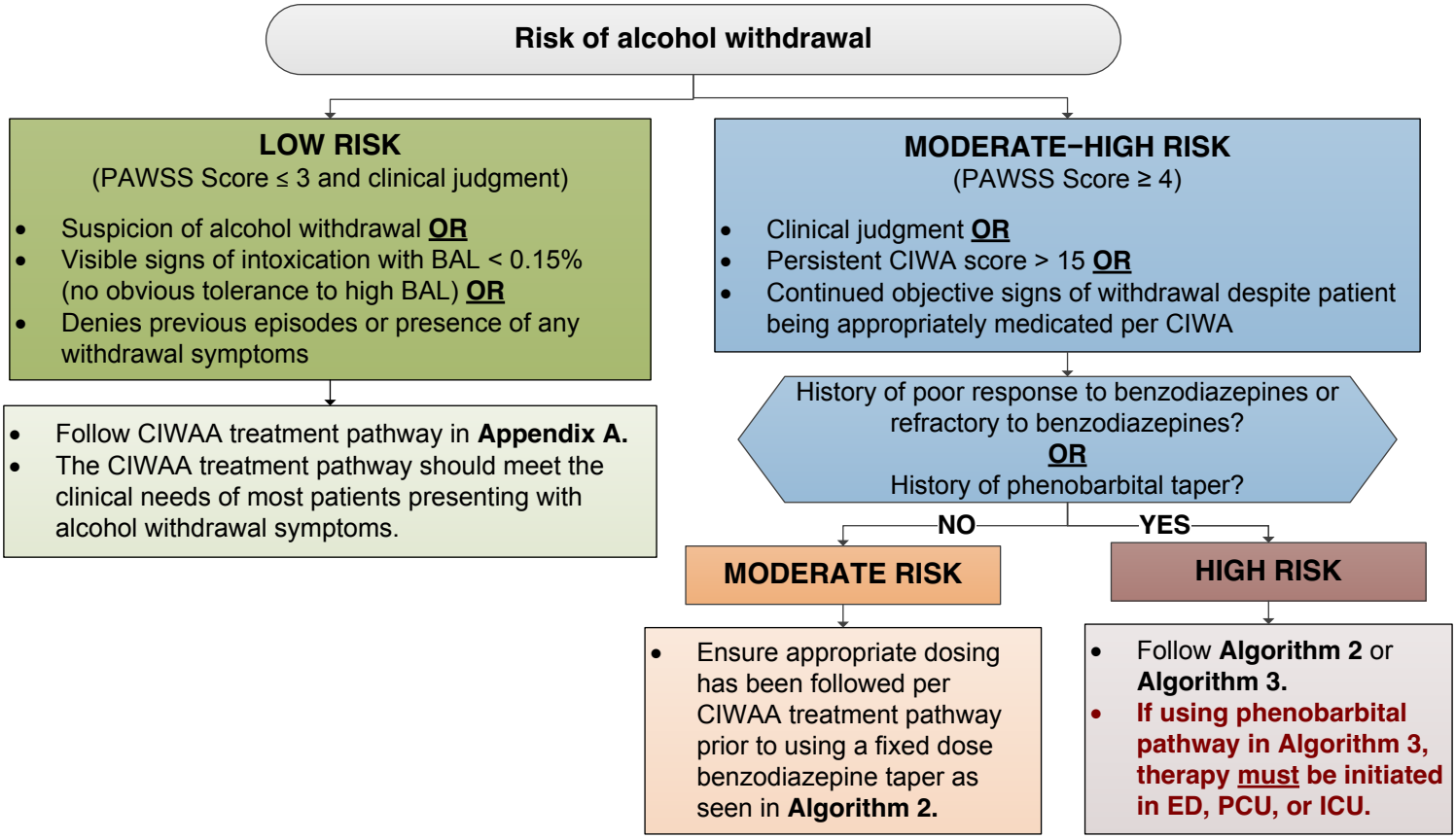
Diagnostic and Statistical Manual of Mental Disorders (DSM)-V Criteria Alcohol for Alcohol Withdrawal

Alcohol Withdrawal	Alcohol Withdrawal Delirium (Delirium Tremens/DTs)
A. Cessation of (or reduction in) alcohol use that has been heavy and prolonged. B. Two (or more) of the following, developing within several hours to a few days after the cessation of (or reduction in) alcohol use described in Criterion A: 1. Autonomic hyperactivity (e.g., sweating or pulse rate greater than 100 bpm) 2. Increased hand tremor 3. Insomnia 4. Nausea or vomiting 5. Transient visual, tactile, or auditory hallucinations or illusions 6. Psychomotor agitation 7. Anxiety 8. Generalized tonic-clonic seizures C. The signs or symptoms in Criterion B cause clinically significant distress or impairment in social, occupational, or other important areas of functioning. D. The signs or symptoms are not attributable to another medical condition and are not better explained by another mental disorder, including intoxication or withdrawal from another substance.	A. A disturbance in attention (i.e., reduced ability to direct, focus, sustain, and shift attention) and awareness (reduced orientation to the environment). B. The disturbance develops over a short period of time (usually hours to a few days), represents a change from baseline attention and awareness, and tends to fluctuate in severity during the course of a day. C. An additional disturbance in cognition (e.g., memory deficit, disorientation, language, visuospatial ability, or perception). D. The disturbances in Criteria A and C are not better explained by another preexisting, established, or evolving neurocognitive disorder and do not occur in the context of a severely reduced level of arousal, such as coma. E. There is evidence from the history, physical examination, or laboratory findings that the disturbance is a direct physiological consequence of another medical condition, substance intoxication or withdrawal (i.e., due to a drug of abuse or to a medication), or exposure to a toxin, or is due to multiple etiologies.

Prediction of Alcohol Withdrawal Severity Score (PAWSS)

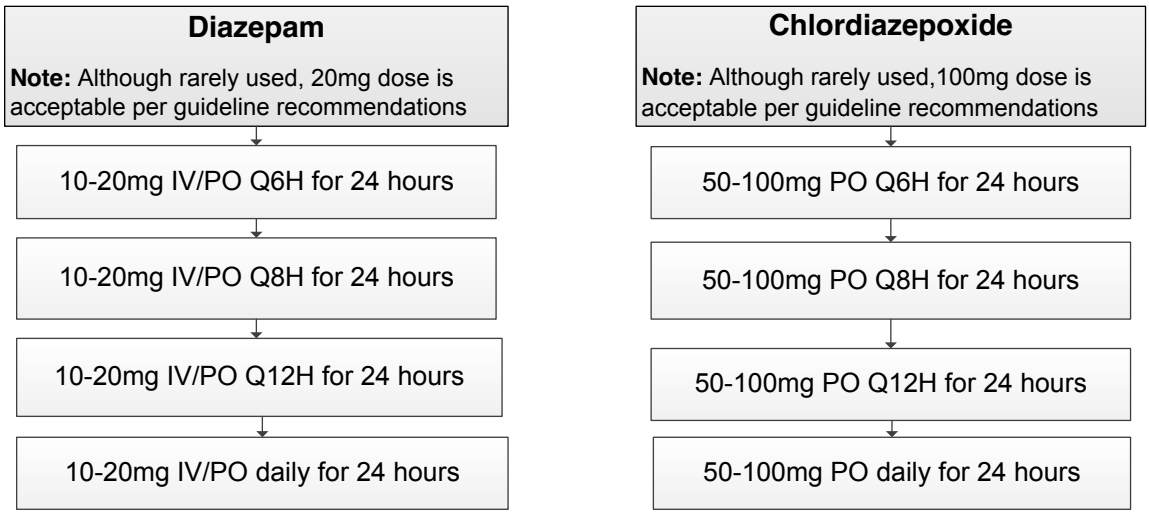
Part A: Threshold Criterion	Score *(1 point)*
1. Have you consumed any amount of alcohol (i.e. been drinking) within the last 30 days?	
OR did the patient have a positive blood alcohol level (BAL) on admission?	
If the answer is Yes to either question, proceed with test:	
Part B: Patient Interview	
2. Have you ever experienced previous episodes of alcohol withdrawal?	
3. Have you ever experienced an alcohol withdrawal seizure?	
4. Have you ever experienced delirium tremens or DT's?	
5. Have you ever undergone alcohol rehabilitation treatment? (i.e., inpatient, outpatient treatment programs or alcoholic anonymous attendance)	
6. Have you ever experienced blackouts?	
7. Have you combined alcohol with other "downers" like benzodiazepines or barbiturates during the last 90 days?	
8. Have you combined alcohol with any other substance of abuse during the 90 days?	
Part C: Clinical Evidence	
9. Was the patient's blood alcohol level (BAL) on presentation > 200 mg/dL?	
10. Is there evidence of increased autonomic activity? (i.e., HR > 120 bpm, tremor, sweating, agitation, nausea)	
Total Score	
Notes: Maximum score = 10. This instrument is intended as a **screening tool**. The greater the number of positive findings, the higher the risk for development of alcohol withdrawal syndromes. A score of ≥ 4 suggests HIGH RISK for moderate to severe AWS; prophylaxis and/or treatment may be indicated.	

Algorithm 1. Patient Risk Stratification for Alcohol Withdrawal



Note: CIWAA should be continued during the time a fixed dose taper is initiated. A PRN benzodiazepine can be recommended for objective breakthrough withdrawal of symptoms. Consult psychiatry if uncertain on how care should progress.

Algorithm 2. Fixed Dose Benzodiazepine Taper*

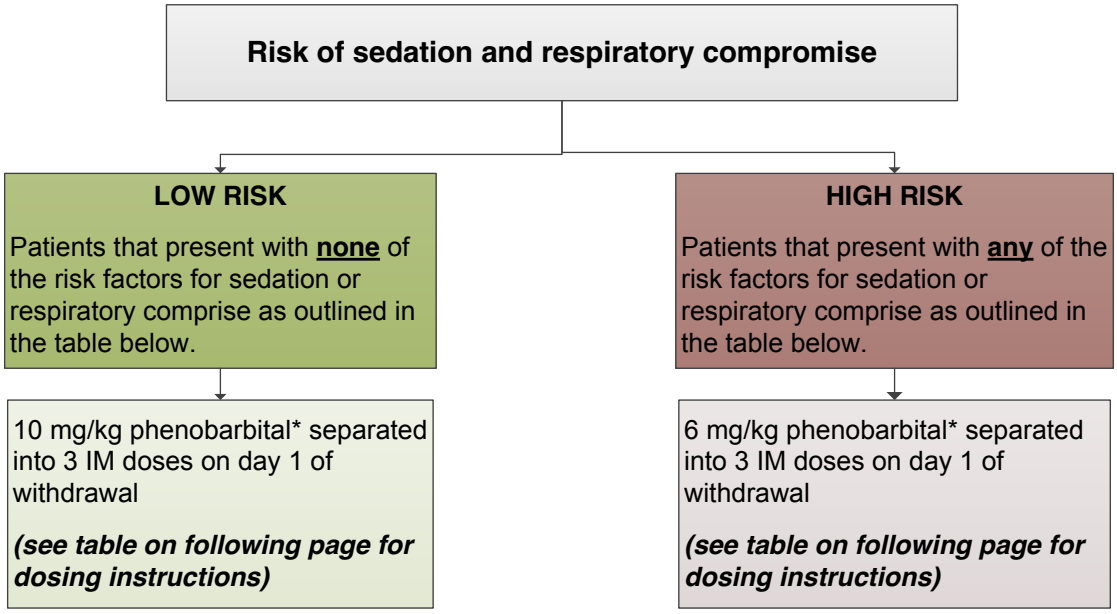


*Pick either diazepam (IV/PO) or chlordiazepoxide (PO only).

Notes:

- **For patients with cirrhosis or severe hepatic dysfunction, consult pharmacy for benzodiazepine dose adjustment.**
- Daily dose should not be decreased by more than 20-30% (including factoring amount of PRNs required day before).
- Consult social work for further treatment options and to aid in connecting the patient with outpatient treatment programs.
- If NG/OG administration is required, please use diazepam.
- Patients on a fixed dose benzodiazepine taper should receive CIWAA dose benzodiazepines if indicated by a high CIWAA score.

Algorithm 3. Phenobarbital Pathway Based on Risk of Sedation and Respiratory Compromise



*Dosing is based on ideal body weight (IBW) unless actual body weight is less than IBW. While IM is the preferred route of administration, IV can be used in specialized patient populations.

Note: Attending physician must approve use of phenobarbital prior to initiation. Monitor vitals Q2 hours for the first 24-hours of phenobarbital administration. Patients should be on telemetry and pulse ox. Do **not** use phenobarbital in patients with fulminant liver failure. Exercise caution when administering phenobarbital to patients with liver disease and consider consult to pharmacy.

Complication	Risk Factors
Risk of sedation	• > 65 years of age • Hepatic dysfunction or cirrhosis • Concomitant or recent opioids, benzodiazepines, or other sedatives that may suppress respiratory drive • Head injury

Respiratory compromise	• Pneumonia
	• Coexisting pulmonary disease:
	  ○ Chronic obstructive pulmonary disease (COPD)
	  ○ Asthma
	  ○ Interstitial lung disease
	  ○ Pulmonary fibrosis
	• Rib fractures
	• Chest tube(s)
	• Pulmonary contusion(s)
	• C-collar/brace

Phenobarbital Dosing by Withdrawal Day

Loading Dose	
Day 1	**Total dose divided as follows:**
	Dose 1: 40% of total dose administered IM x 1 dose
	Dose 2: 30% of total dose administered IM 3 hours after dose 1
	Dose 3: 30% of total dose administered IM 3 hours after dose 2
Maintenance Dose	
Day 2	Phenobarbital 64.8 mg PO Q12H x 2 doses
Day 3	Phenobarbital 32.4 mg PO Q12H x 2 doses
Day 4	Phenobarbital 32.4 mg PO Q24H x 1 dose
Breakthrough Dose	
Phenobarbital 65 mg IM Q6H as needed if patient presents two or more of the symptoms listed below: • SBP >160 mmHg or DBP >100 mmHg • HR >110 bpm • Diaphoresis • Tremors • Hallucinations • Significant agitation (RASS > 2)	

NOTES:

- If using phenobarbital algorithm, do not use CIWAA to determine need for breakthrough medication.
  - Avoid all sedating medications (no benzodiazepines).
- IM is preferred route for phenobarbital administration due to increased risk of respiratory depression when given IV.
  - If IV phenobarbital is needed, lower doses and close monitoring is required.
    - 60−180 mg x 1 dose loading dose
    - 30−90 mg Q8H maintenance dose
    - 15−60 mg IV Q8H PRN
- IM phenobarbital is not intended to be used to treat seizures.
- IM should not be used in patients with lower extremity burns, therapeutic anticoagulation, or platelet count < 50,000, INR > 2.
- Follow IM phenobarbital maximum volume dosing limits:
  - ≤ 2mL in deltoid
  - ≤ 3mL in vastus lateralis
- Phenobarbital serum level monitoring is recommended in the following high risk patient populations. If serum phenobarbital level >30 µg/mL, maintenance dose should be adjusted.
  - Severe liver disease/cirrhosis
  - Acute renal failure or ESRD
  - Combination of liver and renal disease
  - Signs and symptoms of barbiturate toxicity:
    - Hypotension
    - Bradycardia
    - Severe CNS depression
    - Respiratory depression (RR < 8 breaths per minute)
  - Significant drug interactions e.g. phenytoin

Adjunctive Medications

Medication	Dose and Frequency	Comments
Folic acid	1mg PO/IV daily.	• Folate deficient anemia associated with alcohol abuse.
Magnesium	Treat IV/PO as needed to reach appropriate serum levels.	
Multivitamin	1 dose daily PO/IV.	• Not needed if patient is receiving tube feeds.
Thiamine*	100mg PO/IV/IM Q8H/TID during acute alcohol withdrawal, then reduce dose 100 mg daily thereafter.	• Administer before IV dextrose or glucose derivative to prevent **Wernicke's encephalopathy** *(see below for signs, symptoms, and treatment).*

*If patient has altered mental status or is at high risk for delirium tremens (DTs), consider higher dose of thiamine.

Wernicke's Encephalopathy (WE)

Patients at moderate or high risk for alcohol withdrawal should be considered at risk for Wernicke Encephalopathy. These patients should receive IV thiamine to assure high blood levels.

Signs and symptoms of WE:

- Anterograde amnesia
- Ataxia
- Opthalmoplegia
- Nystagmus
- Unsteady gait

Treatment of WE:

- Thiamine 500 mg IV STAT x 1, then Q24H x 2 days, for a total of 3 doses for all Moderate and High Risk patients.
- For patients unable to take PO, thiamine IV should be continued.
- For patients able to take PO/per feeding tube, IV thiamine should be discontinued after 3 doses and replaced with thiamine 100 mg PO/per feeding tube TID.
- On hospital discharge thiamine should be continued at 100 mg PO daily.

Laboratory Tests

- Alcohol, whole blood – acute admissions
- CBC with differential and platelet count
- Chem 7, Phos, Mg, Calcium
- Liver function panel
- PT (INR)
- Drug screen, urine – multiple

Additional Tests as Indicated

- Lipase
- Uric acid
- Ammonia
- Volatile panel:
  - Ethanol
  - Methanol
  - Isopropyl alcohol
  - Acetone
- Cardiac telemetry is recommended only for patients with underlying cardiac disease

Potential Consults

- Social Work consult:
  - Further assessment of alcohol use
  - Additional resources
  - Referral to post-discharge abstinence programs
- Nicotine Dependency consult
- Psychiatry consult:
  - If patient has an untreated co-morbid psychiatric disorder.
  - There are concerns over psychiatric pharmacotherapy.
- Nutrition consult

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Related Tools

OSUWMC Guidelines

- Delirium: Management of ICU Patients
- Delirium: Management of Non-ICU Patients

Protocols

- CIWA-AR Lorazepam Dosing

Order Sets

- OSU IP GEN: Alcohol Withdrawal-Low/Moderate Risk (Utilizing CIWA)
- OSU IP GEN: Alcohol Withdrawal- High Risk

Calculators and Tools

- CIWA-Ar for Alcohol Withdrawal
- Ideal Body Weight (IBW) Calculator
- Managing Alcohol Withdrawal in Acute Care-video
- DSM-5 Criteria

Quality Measures

- Hospital length of stay
- Percent of patients transferred to the ICU
    - ICU length of stay
- Percent of patients who are intubated
- Percent of patients who receive:
    - Benzodiazepine
    - Phenobarbital

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Disclaimer: *Clinical practice guidelines and algorithms at The Ohio State University Wexner Medical Center (OSUWMC) are standards that are intended to provide general guidance to clinicians. Patient choice and clinician judgment must remain central to the selection of diagnostic tests and therapy. OSUWMC's guidelines and algorithms are reviewed periodically for consistency with new evidence; however, new developments may not be represented.*

Appendix A. CIWAA Treatment Pathway

Assessment

- If patient is considered to be low risk (PAWSS score ≤ 3) then:

  Nurse's Role:
  - Check vital signs, complete **the** CIWA-Ar (Clinical Institute Withdrawal Assessment–Addiction research)
    - *CIWA-Ar is available in IHIS under "Doc Flowsheets" in the "Toxicity Assessment" section*
  - Notify physician and obtain an order to initiate the alcohol withdrawal order set MED: Secondary DX- Alcohol Withdrawal
  - Consider moving patient closer to nursing station for observation
  - Evaluate risk of elopement; if patient at risk, then follow elopement policy

  Physician's Role:
  - Sign order to initiate alcohol withdrawal order set MED: Secondary DX- Alcohol Withdrawal

- Consider initiating precautions for aspiration, seizures, or falls *(physician or nurse)*

CIWA-Ar Assessment Parameters CIWA-Ar Score	VS and CIWA-Ar Frequency	Medication (IVP / PO / NG)
< 8	Q4H x 6 – If CIWA-AR score < 8, stop	None
8−14	Q2H	Lorazepam (Ativan) 1 mg
15−20*	Q1H	Lorazepam (Ativan) 2 mg
21−30*	Q1H	Lorazepam (Ativan) 3 mg
31−45*	Q1H	Lorazepam (Ativan) 4 mg
For breakthrough	Q30 Minutes	Lorazepam (Ativan) 1−2 mg

* For persistent CIWAA score > 15, patient is at moderate risk. Use fixed-dose benzodiazepine taper.

Medications**

Medication	Dose / Frequency	Comments
Lorazepam (Ativan)***	1−4 mg	Based on CIWA-Ar score
Lorazepam (Ativan)***	1−2 mg Q30Min	PRN breakthrough symptoms
Thiamine (Vitamin B1)	100 mg PO/IVP STAT and then 100 mg PO/IVP QAM X 2 doses	Before IV dextrose to prevent Wernicke's encephalopathy (give PO if feasible)
Magnesium oxide (Mag Ox)	As needed	For low serum magnesium

** Prescribing alcohol, intravenous or oral (e.g., beer, whiskey), is contraindicated because of toxicity to other organs including the liver, pancreas, heart, and brain.

***If unable to take lorazepam, use alternative benzodiazepine; or if unable, consider using clonidine.