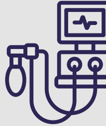
Treatment of Severe and Complicated Alcohol Withdrawal Syndrome

This decision pathway provides an evidence-based framework to guide the recognition and management of severe and complicated alcohol withdrawal syndrome (AWS) in emergency and inpatient settings, with an emphasis on rapid symptom control, early risk stratification, and safe use of phenobarbital and benzodiazepines.

Severe alcohol withdrawal is defined by high symptom burden or high predicted risk, including[1]:

- Prior episodes of severe withdrawal
- Clear withdrawal despite a positive blood alcohol level
- Elevated scores on commonly used scales (CIWA-Ar ≥16–20, mMINDS ≥20, or BAWS ≥8)
- PAWSS ≥4 in hospitalized patients indicating high risk for progression



Complicated withdrawal refers to patients with withdrawal plus features such as refractory agitation, need for rapidly escalating sedative doses, or associated medical or neurologic instability that may require ICU-level monitoring, continuous infusions, or mechanical ventilation.

Severe and Complicated Alcohol Withdrawal Decision Pathway

The decision pathway is structured to allow clinicians to choose a primary agent based on patient risk and clinical environment:

- **Initial Stabilization:** Clinicians may select between lorazepam or diazepam titration or move directly to phenobarbital. Diazepam is preferred over lorazepam for its faster onset and longer duration of action, allowing for more rapid titration.[1]

- **Dose Escalation:** Benzodiazepine doses should be doubled every 10–20 minutes until symptoms abate. If control is not achieved after escalating to high doses (e.g., 32 mg lorazepam or 160 mg diazepam[1,2]), the pathway directs a switch to phenobarbital loading.[3]

- **Phenobarbital Loading:** For patients failing benzodiazepines or those with high-risk features, low dose (10 mg/kg) or high dose (15 mg/kg) phenobarbital loading is recommended based on Ideal Body Weight (IBW).[3,4,5]

- **Adjunctive and Maintenance Therapy:** For refractory cases (uncontrolled after 30 mg/kg of phenobarbital), ICU-level adjunctive agents like dexmedetomidine or ketamine[6] are recommended. Ongoing care is directed by serial symptom reassessment, with attention to supportive care, including nutritional support and screening for other substance dependencies.[1]

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Lorazepam Titration

IV Lorazepam dose doubled every **20** minutes until AWS symptoms abate
at any time may switch to PB titration of PB load

00:00 **2** mg
↓
00:20 **4** mg
↓
00:40 **8** mg
↓
consider ICU level of care
00:60 **16** mg
↓
01:20 **32** mg

Diazepam Titration

Diazepam preferred over lorazepam for faster onset, more rapid titration and longer duration of action

IV Diazepam dose doubled every **10** minutes until AWS symptoms abate
at any time may switch to PB titration of PB load

00:00 **10** mg
↓
00:10 **20** mg
↓
00:20 **40** mg
↓
consider ICU level of care
00:30 **80** mg
↓
00:40 **160** mg

AWS symptoms controlled?

- YES → Serial Symptom Reassessment q1-4h. *See page 3 & 4 for information on using BAWS for Serial Symptom Assessment*
- NO → **Phenobarbital Titration** or **Phenobarbital Load**

Phenobarbital Titration

Phenobarbital 130 mg IV every 15 minutes until AWS symptoms abate

→ AWS symptoms controlled?

Low Dose Phenobarbital Load

If patient has low risk features or has already been treated heavily with benzodiazepines consider ICU level of care

Phenobarbital 10 mg/kg (IBW) IV over 30 minute

AWS symptoms controlled?

- YES → Maintenance Dosing
- NO → Phenobarbital 130-260 mg IVPB. May repeat every 10-20 minutes for uncontrolled AWS until total PB dose is 30 mg/kg IBW

AWS symptoms controlled?

- NO → AWS symptoms not controlled after PB 30 mg/kg
- YES → Maintenance Dosing

IBW = ideal body weight not actual body weight use calculator based on sex and height

High Dose Phenobarbital Load

Well tolerated by most patients

Phenobarbital 15 mg/kg (IBW) IV over 30 minutes

AWS symptoms controlled?

- YES → Maintenance Dosing
- NO → Phenobarbital 130-260 mg IVPB. May repeat every 10-20 minutes for uncontrolled AWS until total PB dose is 30 mg/kg IBW

AWS symptoms controlled?

- NO → AWS symptoms not controlled after PB 30 mg/kg
- YES → Maintenance Dosing

AWS symptoms not controlled after PB 30 mg/kg

Consider alternative or additional diagnoses
e.g. hypoglycemia, DKA, thyrotoxicosis, sepsis/CNS infection, intracranial hemorrhage or stroke, serotonin syndrome, α2 agonist withdrawal, serotonin syndrome, stimulant or anticholinergic toxicity

↓

ICU level of care

Dexmedetomidine 0.2-1.4 µg/kg/hr
Ketamine 0.15-0.3 mg/kg/hr
Antipsychotics

These agents address symptoms and not underlying withdrawal Adjunctive therapy, and are not appropriate for monotherapy

Consider **endotracheal intubation** with propofol/BZD induction and sedation
AWS/sedation monitoring with RASS or MINDS scores

Maintenance Dosing (Low Dose Load)

Starting on Hospital Day #2
Phenobarbital 1 mg/kg IBW PO BID x 2 days

Maintenance Dosing (High Dose Load)

Starting on Hospital Day #2
Phenobarbital 1-2 mg/kg IBW PO BID x 2-3 days

↓

Serial Symptom Reassessment q1-4h
See page 3 & 4 for information on using BAWS for Serial Symptom Assessment

For All Patients

Thiamine 500 mg IV TID x 3 days
Replace Mg, PO4
IV fluids dehydration common
MVI with folate PO QD

Screen for other substance dependencies esp. nicotine and opioids

Treatment of Severe and Complicated Alcohol Withdrawal Syndrome

Brief Alcohol Withdrawal Scale (BAWS) for Serial Symptom Assessment

Symptom	0 None	1 Mild	2 Moderate	3 Severe
Tremor	No tremor	Not visible, but can be felt	Moderate, with arms extended	At rest, without arms extended
Diaphoresis/Sweats	No sweats	Mild, barely visible	Beads of sweat	Drenching sweats
Agitation Richmond Agitation-Sedation Scale	RASS = 0 Alert and calm	RASS = +1 Restless, anxious, apprehensive, movements not aggressive	RASS = +2 Agitated, frequent non-purposeful movement	RASS = +3 or +4 Very agitated or combative, violent
Confusion/Orientation	Orientation to person, place, time	Disoriented to time (e.g., by more than 2 days or wrong month or wrong year) or to place (e.g., name of building, city, state), but not both	Disorientation to time and place	Disorientation to person
Hallucinations (visual, auditory, tactile)	None	Mild (vague report, reality testing intact)	Moderate (more defined hallucinations)	Severe (obviously responding to internal stimuli, poor reality testing)

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Symptom-triggered Treatment Based on BAWS

BAWS	Intervention	Alternatives	Reassess
0-2	None	None	q4h x 24 hours, then q6h x 24 hours, then discontinue protocol
3-5	Chlordiazepoxide (CDZ) 50 mg PO	Diazepam 10 mg IV Lorazepam 2 mg IV	q4h
6-8	CDZ 100 mg PO	Diazepam 20 mg IV Lorazepam 4 mg IV*	q1h If BAWS not <6 in 1 hour, Medical Intensive Care Unit (MICU) consult
9 or higher	Diazepam 20 mg IV+ CDZ 100 mg PO RRT activation	None	

CDZ: chlordiazepoxide
****Lorazepam is traditionally favored in liver failure, however comparative safety of different benzodiazepines in patients with liver disease has not been studied; the symptom-triggered protocol above can be used with any benzodiazepine.***

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