

Sedative-Hypnotics

Benzodiazepines · Z-Drugs · Barbiturates · Melatonin & Orexin Agents

🧠 System: CNS / Neuro

⚠️ High-Alert Class

🫁 Respiratory Depression Risk

👴 BEERS Criteria (Elderly)

1 DRUG OVERVIEW — WHY WE GIVE IT

KEY INDICATIONS

- ▶ **Insomnia** — short-term only (2–4 wks)
- ▶ **Anxiety** / panic disorders
- ▶ **Alcohol withdrawal** — DTs, seizures (lorazepam, diazepam)
- ▶ **Status epilepticus** — lorazepam IV = 1st line
- ▶ **Pre-op sedation** & conscious sedation (midazolam)
- ▶ **Muscle spasm** / spasticity (diazepam)

HIGH-YIELD CLINICAL USE

- ▶ 🚑 **Acute seizure**: lorazepam IV push
- ▶ 🍷 **Alcohol withdrawal protocol**: CIWA-scored benzo
- ▶ 💉 **Procedural sedation**: midazolam (Versed)
- ▶ 😴 **Sleep-onset insomnia**: zolpidem (Ambien)
- ▶ 👴 **AVOID in older adults** if possible (BEERS list)

2 MECHANISM OF ACTION — SIMPLIFIED

BENZODIAZEPINES & Z-DRUGS:

Bind GABA-A receptor → ↑ Cl⁻ influx → Hyperpolarization → ↓ Neuronal firing →
CNS depression

BARBITURATES: Prolong GABA-Cl⁻ channel **opening time** → deeper CNS depression (narrow therapeutic range ⚠️)

RAMELTEON: MT1/MT2 melatonin receptor agonist → mimics natural sleep cycle (no GABA activity, no dependence)

SUVOREXANT: Blocks orexin receptors → turns OFF wakefulness signal

🧠 **Key concept**: Benzos *increase frequency* of Cl⁻ channel opening (safer). Barbiturates *increase duration* of channel opening (deadlier in overdose).

3 THERAPEUTIC EFFECTS — WHAT "WORKING" LOOKS LIKE

MENTAL/BEHAVIORAL

- ▶ ↓ Anxiety, calmer affect
- ▶ Relaxed, less agitated
- ▶ Falls asleep within 30 min

PHYSICAL

- ▶ Sleep duration $\geq 6-8$ hrs
- ▶ Muscle relaxation
- ▶ Seizure cessation

MEASURABLE

- ▶ CIWA score ↓ in EtOH w/d
- ▶ Stable VS post-seizure
- ▶ No rebound anxiety/insomnia

4 SIDE EFFECTS & ADVERSE REACTIONS

✓ COMMON (EXPECTED)

- ▶ Drowsiness, sedation, dizziness
- ▶ Ataxia, unsteady gait
- ▶ Confusion, ↓ concentration
- ▶ Hangover / daytime grogginess
- ▶ Anterograde amnesia (esp. midazolam)
- ▶ Dry mouth, blurred vision
- ▶ **Paradoxical excitement** (elderly, children)

⚠ SERIOUS / LIFE-THREATENING

- ▶ **Respiratory depression** (#1 risk)
- ▶ **CNS depression → coma**
- ▶ **Withdrawal seizures** (can be FATAL)
- ▶ Dependence & tolerance
- ▶ Complex sleep behaviors (Z-drugs: sleep-driving, sleep-eating)
- ▶ Falls & fractures (elderly)
- ▶ Suicidal ideation (new/worsening)

☠ **TOXICITY SIGNS:** RR < 12, pinpoint pupils, hypotension, slurred speech, ataxia, stupor → coma. **Antidote:** **Flumazenil (Romazicon)** — NOT naloxone!

5 PRIORITY NURSING CONSIDERATIONS

▶ ASSESS / MONITOR

- ▶ RR every dose (hold if < 12/min)
- ▶ BP, HR, LOC, SpO₂
- ▶ Fall risk — **bed low, call light, side rails**
- ▶ Mental status — confusion vs sedation
- ▶ Signs of dependence / withdrawal

▶ HOLD / NOTIFY

- ▶ Hold if **RR < 12** or excessive sedation
- ▶ Hold if **SBP < 90** (hypotension)
- ▶ Notify HCP for new confusion in elderly

▶ CONTRAINDICATIONS

- ▶ Severe **respiratory disease** / COPD / sleep apnea
- ▶ **Pregnancy** (Cat D — benzos; fetal harm)
- ▶ Narrow-angle **glaucoma**
- ▶ **Myasthenia gravis**
- ▶ Severe liver disease

▶ DRUG INTERACTIONS

- ▶ **Opioids + benzos = BLACK BOX** (fatal RR depression)
- ▶ **Alcohol** — additive CNS depression
- ▶ Other CNS depressants, antihistamines
- ▶ Grapefruit juice ↑ levels (some benzos)
- ▶ CYP3A4 inhibitors (erythromycin, ketoconazole)

6 LABS & DIAGNOSTICS

LAB / TEST	NORMAL / THERAPEUTIC	WHY IT MATTERS
LFTs (AST/ALT)	AST 10–40 · ALT 7–56 U/L	Most benzos metabolized in liver — ↑ enzymes = toxicity risk
Phenobarbital level	15–40 mcg/mL (therapeutic)	> 40 = toxicity · > 60 = coma/death
BUN / Creatinine	BUN 10–20 · Cr 0.6–1.2	Renal excretion — adjust dose if impaired
CBC	WBC 5–10K	Rare blood dyscrasias (esp. barbiturates)
Pulse oximetry	SpO ₂ ≥ 95%	Early detection of respiratory depression
Urine drug screen	Positive confirms use	Used for overdose workup / compliance

7 ADMINISTRATION & SAFETY

ROUTE & TIMING

- ▶ **PO:** bedtime dosing for insomnia
- ▶ **Zolpidem:** immediately before bed — ensure **7–8 hrs** sleep available
- ▶ **IV benzos:** push **SLOWLY** (over 2–5 min)
- ▶ Do **NOT** crush/chew extended-release
- ▶ Lorazepam IV must be diluted; refrigerate

⚠ HIGH-ALERT PRECAUTIONS

- ▶ IV benzos = **HIGH-ALERT MEDICATION** (ISMP list)
- ▶ Resuscitation equipment at bedside for IV push
- ▶ Two-RN verification per facility policy
- ▶ **Flumazenil** ready for IV benzo use
- ▶ Continuous cardiac + SpO₂ monitoring
- ▶ **Taper gradually** — never stop abruptly

8 PATIENT EDUCATION

✓ TEACH THE PATIENT TO...

- ▶ **Avoid alcohol** completely
- ▶ **Avoid driving** / operating machinery until effects known
- ▶ Rise **slowly** (orthostatic hypotension)
- ▶ Take exactly as prescribed — **do not double dose**
- ▶ Do **NOT stop abruptly** — withdrawal seizures possible
- ▶ Store securely — **lock away** from children/teens
- ▶ Short-term use only (typically ≤ 4 weeks)

⚠ SEEK HELP IF...

- ▶ Trouble breathing or extreme drowsiness
- ▶ Sleep-driving, sleep-eating, or memory gaps (Z-drugs)
- ▶ New/worsening depression or suicidal thoughts
- ▶ Unusual behavior, hallucinations
- ▶ Rash, swelling of face/tongue (angioedema)
- ▶ Withdrawal symptoms: tremor, sweating, anxiety

🌙 **Good sleep hygiene teaching:** dark/cool room · no screens 1 hr before bed · no caffeine after noon · consistent bedtime · no naps > 30 min

 TRAP 1 · WRONG ANTIDOTE

Students pick **naloxone** for a benzo OD. **WRONG**. Naloxone reverses *opioids*. The correct benzo antidote is **FLUMAZENIL (Romazicon)**.

 TRAP 2 · "JUST STOP THE MEDICATION"

Benzo withdrawal can cause **fatal seizures** (unlike opioid withdrawal, which is miserable but rarely lethal). **Always taper**.

 TRAP 3 · ELDERLY CONFUSION = PARADOXICAL REACTION

New agitation/confusion in an older adult on a benzo is NOT "just dementia" — it may be a **paradoxical reaction**. **Hold & notify HCP**.

 TRAP 4 · OPIOID + BENZO = BLACK BOX

This combo causes **fatal respiratory depression**. If the question shows both ordered for the same patient, think **clarify with provider**.

 TRAP 5 · PRIORITY ACTION IN OVERDOSE

The #1 priority is NOT giving flumazenil first — it is **ABC: Airway, Breathing, Circulation**. Always secure the airway and support breathing **FIRST**.

 TRAP 6 · ZOLPIDEM TIMING

Must have **7–8 hrs** available before activities. If the patient plans to wake in 4 hrs, the nurse should **hold the dose** and teach.

 "BENZOS" — Safety Checklist

- B** Breathing — watch RR < 12
- E** Elderly — fall & paradoxical risk
- N** Never with alcohol or opioids
- Z** Z-drugs → complex sleep behaviors
- O** Overdose → **Flumazenil**
- S** Slow taper — no abrupt stop

 Suffix Recognition

- PAM** → benzo (diazepam, lorazepam, temazepam)
- ZOLAM** → benzo (alprazolam, midazolam, triazolam)
- BARBITAL** → barbiturate (phenobarbital, secobarbital)
- Z start** → Z-drug (zolpidem, zaleplon, eszopiclone)
- TEON** → melatonin agonist (ramelteon)

 Quick Recall Patterns

- Benzos END in anxiety · Barbiturates END the patient (deadlier OD) 
- "Versed" = Midazolam → I was *verse-d* about the procedure but don't remember it (amnesia!)
- Ativan (lorazepam) = **A**lcohol withdrawal + status epilepticus
- Ambien (zolpidem) = needs **A**mple sleep time (7–8 hrs) → then **B**ed **I**mmediately · **E**ffects **N**ow



MOST TESTED DRUGS IN THIS CLASS

DRUG (BRAND)	CLASS	ONSET / HALF-LIFE	#1 NCLEX USE	WATCH FOR
Lorazepam (Ativan)	Benzo	Intermediate · 10–20 h	Status epilepticus, EtOH w/d	Respiratory depression IV
Diazepam (Valium)	Benzo	Long · 20–80 h (active metab)	Seizures, muscle spasm, EtOH w/d	Accumulation in elderly
Midazolam (Versed)	Benzo (short)	Rapid · 1–4 h	Procedural/conscious sedation	Amnesia; have flumazenil + bag-valve-mask
Alprazolam (Xanax)	Benzo	Short · 6–12 h	Anxiety, panic disorder	High abuse/dependence potential
Temazepam (Restoril)	Benzo	Intermediate · 8–15 h	Insomnia (sleep maintenance)	Daytime drowsiness
Zolpidem (Ambien)	Z-drug	Rapid · 2–3 h	Sleep-onset insomnia	Complex sleep behaviors
Eszopiclone (Lunesta)	Z-drug	Rapid · 6 h	Sleep-maintenance insomnia	Metallic taste, next-day impairment
Phenobarbital	Barbiturate	Slow · 50–140 h	Seizures (peds), status epilepticus	Narrow therapeutic range — check levels
Ramelteon (Rozerem)	Melatonin agonist	Rapid · 1–3 h	Sleep-onset insomnia (non-controlled)	Avoid fatty meals; no dependence
Suvorexant (Belsomra)	Orexin antagonist	Rapid · 12 h	Insomnia (sleep onset + maintenance)	Next-day drowsiness, sleep paralysis

Key difference: Benzos have anxiolytic + anticonvulsant + muscle relaxant + sedative effects. Z-drugs are *sedative only* (no seizure coverage). Barbiturates are older, deadlier, narrow therapeutic window. Ramelteon & suvorexant = **non-controlled**, no dependence.



CLINICAL JUDGMENT SNAPSHOT

#1

PRIORITY RISK

RESPIRATORY DEPRESSION → arrest → death. Especially with opioid, alcohol, or elderly co-factors.



WHAT HARMS FIRST

CNS depression → airway compromise. Pt becomes too sedated to protect airway → aspiration + hypoxia.

1st

FIRST NURSING ACTION

ABC — Assess airway & breathing, count RR, check SpO₂. If RR < 12 → **HOLD**, position, stimulate, notify, prepare flumazenil.

© **NGN Clinical Judgment (NCJMM):** Recognize cues (RR 8, SpO₂ 86%, unresponsive) → Analyze (benzo toxicity) → Prioritize (airway + ventilation) → Generate solutions (O₂, stimulate, flumazenil) → Take action (bag-mask, IV flumazenil per order) → Evaluate (RR > 12, SpO₂ > 95%, pt arousable).

"First to KILL": If you can only choose ONE monitor → **RESPIRATORY RATE**. If you can only choose ONE intervention for overdose → **support airway & breathing** (before flumazenil). If you can only remember ONE contraindication → **opioid co-administration**.

