NGN · NCLEX-RN 2026

PHARMACOLOGY · RAPID REVIEW · <60 SEC SCAN

CNS *Stimulants*

CLASS: SYMPATHOMIMETIC CNS STIMULANTS | SYSTEM: NEUROLOGICAL / PSYCHIATRIC | SCHEDULE II (MOST) · HIGH-ALERT

1 DRUG OVERVIEW

- **ADHD** — first-line in children ≥6 y & adults
- **Narcolepsy** — excessive daytime sleepiness
- **Binge-eating disorder** (lisdexamfetamine only)
- Treatment-resistant depression (off-label)
- Shift-work sleep disorder / obstructive sleep apnea (modafinil)
- Goal: ↑ focus · ↑ wakefulness · ↓ impulsivity

2 MECHANISM OF ACTION

- Sympathomimetic — mimics natural catecholamines
- **↑ release** of dopamine & norepinephrine into synapse
- **↓ reuptake** of DA & NE at presynaptic terminal

```
↑ DA/NE in synapse → ↑ prefrontal cortex activity → ↑ focus / ↑ alertness → paradoxical calming in ADHD
```

3 THERAPEUTIC EFFECTS

- ↑ Attention span & task completion
- ↓ Hyperactivity & impulsivity
- ↑ School / work performance
- ↓ Daytime sleepiness (narcolepsy)
- **Evaluate at 2–4 wks** via parent/teacher rating scales

4 SIDE EFFECTS & ADRS

COMMON

- Insomnia · anorexia · weight loss
- ↑ HR · ↑ BP · palpitations
- Headache · dry mouth · irritability
- Growth suppression (children)

SERIOUS

- ⚠ Sudden cardiac death · MI · stroke (BBW)
- ⚠ New-onset psychosis / hallucinations
- ⚠ Seizures · serotonin syndrome

5 PRIORITY NURSING

- → **Assess** baseline BP, HR, EKG, wt, ht
- → **Monitor** growth curves q3–6 mo in peds
- → **Monitor** mood, sleep, appetite, tics
- ✋ HOLD: HR >100 · SBP >140 · chest pain
- ✋ HOLD: psychosis · new tics · seizures
- ⚠ CONTRA: MAOI in last 14 days → hypertensive crisis
- ⚠ CONTRA: severe CV dz · hyperthyroid · glaucoma · Hx substance abuse

⚠ Dependence / abuse (Schedule II)

⚠ Priapism · Raynaud-like vasospasm

- Interactions: SSRIs (5-HT syndrome), TCAs, decongestants, caffeine

6 LABS & DIAGNOSTICS

- **Baseline EKG** if CV risk or family Hx sudden death
- **BP & HR** — every visit (key "lab")
- **Growth chart** (ht/wt) q3–6 mo in children
- **TSH** — r/o hyperthyroidism before start
- CBC & LFTs periodically (long-term)
- Urine drug screen if diversion suspected
- ***Critical:*** HR >100 · SBP >140 · DBP >90 → notify

7 ADMINISTRATION & SAFETY

- **Route:** PO (tabs, caps, chewables, XR); transdermal patch (Daytrana)
- **Timing:** give in **AM** — last dose before **1600 (4 PM)** to prevent insomnia
- Take with or after breakfast (↓ appetite suppression)
- Do **NOT crush / chew** extended-release forms
- Patch: apply to hip × 9 hr; rotate sites; remove before sleep

⚠ **Schedule II — locked storage, no refills, written Rx only**

- "Drug holidays" on weekends / summer → ↓ growth suppression

8 PATIENT EDUCATION

- Take **exactly as prescribed** — never double dose
- Avoid **caffeine** & OTC decongestants (pseudoephedrine)
- No **alcohol** · no acidic juices with amphetamines (↓ absorption)
- Eat high-calorie meals ***before*** dose peaks
- Keep medication **locked & secure** — high street value

⚠ **Seek help: chest pain · SOB · new mood/behavior change · priapism >4 hr**

- Do not stop abruptly → rebound fatigue / depression

9 NCLEX TEST TRAPS ⚠

- **Paradoxical effect:** stimulants ***calm*** ADHD pts — NOT sedate
- Evening dose is **WRONG** — causes insomnia (trap answer)
- Give **with** food, not on empty stomach (trap: "give on empty stomach")
- **Vyvanse = prodrug** (lisdexamfetamine) → ↓ abuse potential; activated in GI tract
- Growth suppression **IS reversible** with drug holidays
- Serotonin syndrome ≠ NMS — **stimulant + SSRI = 5-HT syndrome**
- "Take until symptoms resolve" is **WRONG** — chronic therapy
- Priority always = **cardiac**, not behavioral, side effects

10 MEMORY BOOSTERS 🧠

- **"STIMS"** side effects:
  S leep ↓ · **T** achycardia · **I** ntake ↓ (appetite) · **M** ood ↑↓ · **S** uppressed growth
- **"3 STOPS"** in pediatric ADHD:
  stop eating · stop sleeping · stop growing
- **"A.M. not P.M."** — dosing always morning
- **ADD = Add DA/NE** (the neurotransmitters stimulants release)
- **MAOI + stimulant = DEAD** (hypertensive crisis, 14-day washout)
- Amphetamines end in ***"-amine"*** · Methylphenidate = ***Ritalin/Concerta*** family

★ DRUG-CLASS DEEP DIVE

MOST TESTED STIMULANTS ON NCLEX

Key differences — generic · brand · peds vs adult · unique pearl

GENERIC	BRAND	SUB-CLASS	ONSET / DURATION	UNIQUE NCLEX PEARL
Methylphenidate	Ritalin · Concerta · Daytrana (patch)	Methylphenidate	IR 30–60 min / 3–5 hr · XR 10–12 hr	1st-line peds ADHD · patch removed before sleep
Dexmethylphenidate	Focalin	Methylphenidate	IR 4–6 hr · XR 12 hr	Active D-isomer of methylphenidate — ***½ the dose***
Amphetamine / Dextroamphetamine	Adderall · Adderall XR	Amphetamine	IR 4–6 hr · XR 10–12 hr	Avoid acidic juice (OJ) → ↓ absorption
Lisdexamfetamine	Vyvanse	Amphetamine ***(prodrug)***	Activated in GI · 10–14 hr	**Prodrug** → ↓ abuse · also tx binge-eating disorder
Dextroamphetamine	Dexedrine · ProCentra	Amphetamine	4–6 hr (spansule 6–10 hr)	Older drug · narcolepsy & ADHD
Methamphetamine	Desoxyn	Amphetamine	4–6 hr	Highest abuse potential · rarely prescribed

GENERIC	BRAND	SUB-CLASS	ONSET / DURATION	UNIQUE NCLEX PEARL
Modafinil / Armodafinil	Provigil · Nuvigil	Wakefulness-promoting (non-amphetamine)	12–15 hr	Narcolepsy / shift-work · **Schedule IV** · ↓ OCP effectiveness — use back-up contraception
Atomoxetine *(non-stim)*	Strattera	Selective NE reuptake inhibitor	Daily — steady state 1–2 wk	***NOT*** a stimulant · not scheduled · BBW: **suicidal ideation** in peds · hepatotoxicity
Guanfacine · Clonidine ER *(non-stim)*	Intuniv · Kapvay	α2-adrenergic agonist	Daily · titrate	Alternative in ADHD + tics/anxiety · watch **bradycardia & hypotension**

🧠 CLINICAL JUDGMENT SNAPSHOT

Clinical Judgment Snapshot

NCJMM · Recognize → Analyze → Prioritize → Act → Evaluate

① #1 PRIORITY RISK

Sudden cardiac death, MI, or stroke from sympathomimetic surge — especially in patients with undiagnosed structural heart disease or on MAOIs.

② WHAT HARMS THE PATIENT FIRST

Hypertensive crisis / tachydysrhythmia. HR and BP climb within **30–60 min** of dose — long before psychiatric or growth effects appear.

③ FIRST NURSING ACTION

Assess BP & HR before every dose. If HR >100, SBP >140, or chest pain → **HOLD the drug and notify the provider.** Do not administer until cleared.