NCLEX · PHARM · 2026

ELITE HIGH-YIELD · NEXT GENERATION NCLEX

Glucocorticoids
the inflammation killers.

Potent anti-inflammatory & immunosuppressant steroids that mimic endogenous cortisol — a cornerstone of modern pharmacology with a long shadow of serious side effects.

DRUG CLASS
Corticosteroids (Adrenal Hormone)

BODY SYSTEM
Endocrine · Immune · Inflammatory

PROTOTYPE
Prednisone · Hydrocortisone

01 Drug Overview — Why We Give It

INDICATIONS

- **Adrenal insufficiency (Addison's disease) & adrenal crisis** — replacement therapy (hydrocortisone is first line)
- **Asthma & COPD exacerbations** — reduce airway inflammation
- **Autoimmune diseases** — SLE, rheumatoid arthritis, multiple sclerosis flares, IBD (Crohn's, UC)
- **Anaphylaxis (adjunct, NOT first-line)** — epinephrine is always first
- **Organ transplant** — prevent rejection (immunosuppression)
- **Cancer** — leukemia, lymphoma, multiple myeloma; also for chemo-induced nausea & appetite stimulation
- **Cerebral edema / ↑ ICP from tumors** — DEXAMETHASONE is the go-to
- **Spinal cord injury, nephrotic syndrome, severe allergic/dermatologic reactions**
- **Fetal lung maturity** — betamethasone/dexamethasone given to mother in preterm labor
- **COVID-19 (severe/hypoxic)** — dexamethasone reduces mortality in ventilated patients

02 Mechanism of Action — Simplified

MOA

```
// ANTI-INFLAMMATORY PATH
Drug binds glucocorticoid receptor → enters nucleus →
↓ phospholipase A2 → ↓ prostaglandins + ↓ leukotrienes
→ ↓ cytokines (IL-1, IL-6, TNF-α) → ↓ capillary permeability
→ ↓ WBC migration to tissue → ↓ INFLAMMATION

// IMMUNOSUPPRESSANT PATH
↓ T-cell & B-cell activity → ↓ antibody production
→ ↓ immune response (good for autoimmune, BAD for infection)

// METABOLIC (SIDE EFFECT DRIVER)
↑ gluconeogenesis → ↑ blood glucose
↑ protein catabolism → muscle wasting, thin skin
↑ Na⁺/H₂O retention + ↓ K⁺ → HTN, edema, hypokalemia
↓ osteoblast activity → OSTEOPOROSIS
```

⚡ ONE-LINER

Glucocorticoids = synthetic cortisol that **turns off inflammation AND immunity**, while cranking up **sugar, salt, and bone loss**.

03 Therapeutic Effects — Is It Working?

EXPECTED OUTCOMES

- ↓ **Inflammation:** less redness, swelling, warmth, pain at affected site
- **Asthma/COPD:** improved breath sounds, ↑ O_2 sat, ↓ wheezing, ↓ accessory muscle use, ↑ peak flow
- **Autoimmune:** ↓ joint pain/stiffness, fewer flare symptoms, improved ROM
- **Addison's:** resolution of hypotension, hypoglycemia, weakness, hyperpigmentation
- **Allergic reaction:** ↓ rash, ↓ urticaria, ↓ bronchospasm
- **Cerebral edema:** improved LOC, ↓ headache, ↓ ICP signs (Cushing's triad reversal)
- **IBD:** ↓ diarrhea, ↓ abdominal pain, formed stools, ↓ rectal bleeding

04 Side Effects & Adverse Reactions

SAFETY

COMMON · CUSHINGOID

- **Moon face, buffalo hump, truncal obesity** (fat redistribution)
- Weight gain, ↑ appetite
- Hyperglycemia (steroid-induced diabetes)
- HTN, fluid retention, peripheral edema
- Hypokalemia, hypernatremia
- Mood swings, euphoria, insomnia, anxiety
- Thin fragile skin, easy bruising, purple striae
- Acne, hirsutism, poor wound healing
- GI upset, indigestion, ↑ appetite
- Muscle weakness (steroid myopathy)
- Menstrual irregularities
- Cataracts, glaucoma (long-term)

SERIOUS / LIFE-THREATENING

- **ADRENAL CRISIS** — if stopped abruptly after >2 weeks of use (hypotension, shock, hypoglycemia, hyponatremia, hyperkalemia, death)
- **Severe infection / sepsis** — masked fever & WBC response; opportunistic fungal/viral (TB reactivation, candida, PCP)
- **GI bleeding / peptic ulcer perforation** — esp. with NSAIDs
- **Hyperglycemic crisis / DKA / HHS**
- **Osteoporosis & pathologic fractures** (hip, vertebral)
- **Avascular necrosis of femoral head**
- **Steroid psychosis** (hallucinations, severe mood changes)
- **Growth suppression** in children
- **Cushing's syndrome** (exogenous)
- **Immunosuppression → disseminated infection**

NCLEX RED FLAG

A patient on chronic steroids with **new abdominal pain + rigid abdomen** = **GI perforation until proven otherwise**. Steroids mask peritoneal signs — fever and pain may be minimal.

05 Priority Nursing Considerations

ASSESS · MONITOR · HOLD

MONITOR CONTINUOUSLY

- → **ASSESS** VS — especially BP (↑) and HR
- → **MONITOR** blood glucose (fingersticks, esp. AC/HS)
- → **MONITOR** daily weight & I&O (fluid retention)
- → **MONITOR** K^+, Na^+, glucose, WBC
- → **ASSESS** for s/s infection (may be masked — low-grade = significant)
- → **ASSESS** mental status, mood, sleep
- → **ASSESS** skin integrity, bruising, wound healing
- → **MONITOR** for GI bleeding (black tarry stools, hematemesis, ↓ H&H)
- → **ASSESS** bone pain, fall risk (osteoporosis)

HOLD · CONTRAINDICATIONS

- → **HOLD** & notify HCP if active/systemic fungal infection
- → **HOLD** live vaccines (MMR, varicella, intranasal flu, yellow fever) — contraindicated
- → **NEVER** discontinue abruptly after >2 weeks — MUST TAPER
- → **NOTIFY** HCP: uncontrolled HTN, DM, severe infection, psych history
- → **CAUTION** in peptic ulcer disease, osteoporosis, CHF, renal disease, pregnancy
- → **STRESS DOSE** needed for surgery, trauma, serious illness

INTERACTIONS

- **NSAIDs / aspirin** → ↑↑ GI bleed risk
- **Loop/thiazide diuretics** → ↑↑ hypokalemia
- **Digoxin** → dig toxicity (from hypokalemia)
- **Warfarin** → altered INR
- **Insulin / oral hypoglycemics** → ↓ effectiveness (hyperglycemia)
- **Vaccines (live)** → contraindicated

06 Labs & Diagnostics

CRITICAL VALUES

LAB	EXPECTED CHANGE	WHAT IT MEANS
Blood Glucose	**↑ ↑ (often >200)**	Steroid-induced hyperglycemia; monitor AC & HS, may need insulin
Potassium (K^+)	**↓ (<3.5)**	Hypokalemia → arrhythmias, muscle weakness, dig toxicity
Sodium (Na^+)	**↑ (>145)**	Hypernatremia from mineralocorticoid effect → edema, HTN
WBC	**↑ (demargination)**	⚠️ Falsely elevated — does NOT rule out infection; assess other signs
Calcium	**↓ (long-term)**	Bone demineralization → osteoporosis
Cortisol Level	↓ endogenous	HPA axis suppression — why we must taper
ACTH	**↓**	Negative feedback from exogenous steroid
H&H / Stool guaiac	**↓ / positive**	Occult GI bleed from ulcer
DEXA Scan	↓ bone density	Baseline + yearly for long-term users
PPD / QuantiFERON	Baseline screen	Rule out latent TB before starting chronic therapy

07 Administration & Safety

HIGH-ALERT

- **Routes:** PO, IV, IM, SubQ, inhaled, topical, intra-articular, intranasal, ophthalmic
- **Take with food or milk** — prevent GI upset & ulcers
- **Morning dosing (once-daily)** — mimics natural cortisol circadian rhythm, reduces HPA suppression
- **Alternate-day dosing** — preferred for chronic use to minimize adrenal suppression & growth delay in kids
- **TAPER, never stop abruptly** — typical taper: reduce 10% every few days if used >2 weeks
- **Inhaled (fluticasone, budesonide):** RINSE MOUTH after use — prevent oral candidiasis (thrush) & hoarseness
- **IV methylprednisolone:** administer slowly; rapid push can cause cardiac arrhythmias/arrest
- **Stress-dose coverage:** patients on chronic steroids need extra IV hydrocortisone before surgery, trauma, major illness
- **Topical:** apply thin layer; avoid occlusive dressings unless ordered (↑ systemic absorption)
- **Injection sites:** rotate IM sites; intra-articular — no more than 3–4 times/year per joint

> **HIGH-ALERT SAFETY PEARL**
>
> A patient on **chronic prednisone going to surgery** needs a **stress dose of IV hydrocortisone**. Without it → adrenal crisis on the OR table.

08 Patient Education

TEACHING

- **NEVER stop suddenly** — even if feeling better. Sudden D/C = adrenal crisis → death
- **Wear a MedicAlert bracelet** stating "steroid dependent"
- **Carry a card** listing dose & duration; inform all providers (dentists, surgeons)
- **Avoid crowds & sick contacts** — infection risk is real
- **NO live vaccines** — get flu shot (inactivated), pneumococcal, shingles (non-live only)
- **Take in AM with food** — better tolerance, mimics body's natural rhythm
- **Increase calcium (1200 mg) + Vit D (800–1000 IU)** daily; weight-bearing exercise
- **Diet:** low sodium, high potassium, high protein, adequate calcium; limit simple sugars
- **Monitor glucose** if diabetic (doses may need adjustment)
- **Report immediately:** black tarry stools, severe abdominal pain, fever/sore throat, unexplained bruising, vision changes, severe mood swings, sudden weight gain, swelling of face/ankles
- **Eye exams yearly** — cataracts, glaucoma screening
- **Inhaled steroids:** rinse mouth after every use; use spacer for MDI

09 NCLEX Test Traps ⚠

DON'T MISS

1 **"My symptoms are gone, so I stopped my prednisone."**

~~✗ Tempting distractor: "Good, monitor for relapse."~~

✓ NCLEX answer: Educate — abrupt stop = adrenal crisis. Notify HCP; must taper.

2 **WBC is 14,000 on a patient taking prednisone.**

~~✗ Distractor: "Confirms infection is present."~~

✓ Truth: Steroids cause demargination → falsely ↑ WBC. Must correlate with other signs (temp, cultures, symptoms).

3 **Patient on chronic steroids with low-grade fever 99.8°F.**

~~✗ Distractor: "Mild fever — recheck in 4 hours."~~

✓ Truth: Steroids *mask* fever. ANY fever = significant → notify HCP, assess for sepsis.

4 **Anaphylaxis patient — which med FIRST?**

~~✗ Distractor: IV methylprednisolone, diphenhydramine.~~

✓ Answer: **EPINEPHRINE IM**. Steroids are adjunctive (slow onset, prevent biphasic reaction).

5 **Which food should be limited?**

~~✗ Distractor: "Bananas (↑ potassium)"~~

✓ Answer: **Sodium**. Encourage high-K^+ foods (bananas, oranges) — steroids cause hypokalemia.

6 **Patient taking inhaled fluticasone reports white patches in mouth.**

✓ Answer: Oral candidiasis (thrush) → teach to **rinse mouth after each use**; use spacer. Not a systemic infection.

7 **Cushing's syndrome from steroids vs. Addison's from abrupt D/C**

✓ Too much steroid = Cushing's (moon face, HTN, ↑glucose). Sudden stop = Addison's/adrenal crisis (hypotension, ↓glucose, ↑K^+).

8 **Pre-op patient on chronic prednisone.**

~~✗ Distractor: "Hold dose day of surgery."~~

✓ **Answer: Give stress-dose IV hydrocortisone — they cannot mount a stress response.**

10 Memory Boosters

MNEMONICS

"CUSHINGOID" — Side Effects

- **C** Cataracts / Cushingoid appearance
- **U** Ulcers (peptic) / GI bleed
- **S** Skin changes — thinning, striae, bruising
- **H** Hypertension / Hyperglycemia / Hypokalemia
- **I** Infection risk / Immunosuppression
- **N** Necrosis (avascular, femoral head)
- **G** Growth retardation / Glucose ↑
- **O** Osteoporosis / Obesity (truncal)
- **I** Increased appetite / Insomnia
- **D** Depression / psychosis / Diabetes

The "6 S's" of Steroid Trouble

- **S** **Sugar** — hyperglycemia
- **S** **Salt** — Na^+/H_2O retention, HTN, edema
- **S** **Skin** — thinning, bruising, poor healing
- **S** **Stomach** — GI upset, ulcers
- **S** **Sickness** — infection risk (masked)
- **S** **Sadness** — mood swings, psychosis

Drug-Name Pattern — ends in "-SONE" or "-OLONE"

-sone: predni**sone**, dexametha**sone**, beclometha**sone**, hydrocorti**sone**, betametha**sone**

-olone: methylpredni**solone**, triamcin**olone**, predni**solone**

Inhaled exceptions: fluticaSONE, budeSONide, mometaSONE

"Don't STOP the STEROID"

Sugar check · **T**aper never stop · **E**at with food · **R**inse mouth (inhaled) · **O**steoporosis prevention · **I**nfection — avoid · **D**aily weight

FINAL SECTION · NCJMM CLINICAL JUDGMENT SNAPSHOT

Think Like the NCLEX.

Q: WHAT IS THE #1 PRIORITY RISK WITH THIS DRUG?

Adrenal crisis **from abrupt discontinuation — followed closely by** ***masked infection / sepsis*** **from immunosuppression.**

Q: WHAT WILL HARM THE PATIENT FIRST?

In the short term → *hyperglycemic crisis, GI bleed, or undetected infection* (steroids hide fever + WBC rise). In the long term → *osteoporotic fracture, avascular necrosis, cataracts*.

Q: FIRST NURSING ACTION — SUSPECTED ADRENAL CRISIS?

① Assess ABCs + VS (expect hypotension, shock). ② *IV hydrocortisone 100 mg STAT*. ③ IV fluids (NS). ④ Correct glucose & electrolytes (↓ Na, ↑ K). ⑤ Notify HCP.

Q: FIRST ACTION — CHRONIC STEROID PATIENT WITH NEW FEVER?

Treat as *infection until proven otherwise* — cultures, labs, notify HCP. Even low-grade fever is significant.

Q: FIRST ACTION — PATIENT ON PREDNISONE REPORTS BLACK TARRY STOOLS?

Hold the dose, assess VS for shock, check H&H, notify HCP — suspected GI bleed from steroid-induced ulcer.

+ Most Tested Drugs in This Class

KEY DIFFERENCES

DRUG	POTENCY	MINERALOCORTICOID (NA/H_2O)	KEY USE / NCLEX PEARL
Hydrocortisone (Solu-Cortef, Cortef)	Low (1×)	High	**Adrenal crisis / Addison's** — replacement of choice. IV STAT in shock.
Prednisone (PO) **Prednisolone** (PO liquid/peds)	Intermediate (4×)	Moderate	Most common oral steroid — asthma tapers, autoimmune disease. Prednisolone is active form (better in liver disease).
Methylprednisolone (Solu-Medrol, Medrol)	Intermediate (5×)	Minimal	IV pulse for MS exacerbation, severe asthma, anti-rejection. "Dose-pack" PO taper.
Dexamethasone (Decadron)	High (25–30×)	None	**Cerebral edema, ↑ICP, COVID-19 (severe), fetal lung maturity, chemo antiemetic.** Long-acting.
Betamethasone	High (25×)	None	**Preterm labor — fetal lung maturity** (antenatal, 24–34 wk).
Fludrocortisone (Florinef)	Low GC	Very High	**Addison's disease** — mineralocorticoid replacement; orthostatic hypotension.
Fluticasone (Flovent, Flonase) **Budesonide** (Pulmicort) **Beclomethasone**	Inhaled / Intranasal	—	**Asthma/COPD maintenance** (NOT rescue). Rinse mouth → prevent thrush. Onset days-weeks.
Triamcinolone (Kenalog)	Intermediate (5×)	None	Intra-articular injection (joints), topical dermatology, intranasal.

🎯 QUICK-PICK RECALL

Adrenal crisis / Addison's → Hydrocortisone · **Cerebral edema / ICP** → Dexamethasone · **Preterm labor** → Betamethasone · **MS flare / severe asthma IV** → Methylprednisolone · **Chronic outpatient** → Prednisone · **Maintenance asthma** → Fluticasone (inhaled)

END OF INFOGRAPHIC · GLUCOCORTICOIDS · NCLEX-RN 2026 · HIGH-YIELD PHARMACOLOGY