



Corticosteroids — Prescribing Safely

Know the equivalent dose, cover the predictable harms, and plan the exit on the day you start

PRED 20 mg × 4 wk

→ consider PJP cover

GET THE DOSE EQUIVALENCE RIGHT *the commonest prescribing error is a conversion error*

Drug	Equivalent dose	Character and when to choose it
Hydrocortisone	20 mg	Short-acting with substantial mineralocorticoid activity. The agent for adrenal insufficiency and adrenal crisis , and for anyone who cannot take oral medication.
Prednisone / prednisone	5 mg	The oral workhorse. Intermediate duration, mild mineralocorticoid effect. Give as a single morning dose to align with the physiological cortisol peak, which reduces insomnia and limits adrenal suppression.
Methylprednisolone	4 mg	Minimal mineralocorticoid activity, so useful where fluid retention matters . The usual choice for intravenous pulse therapy.
Dexamethasone	0.75 mg	Long-acting with no mineralocorticoid activity — potent and easy to underestimate, since 8 mg of dexamethasone is roughly 53 mg of prednisone . Preferred for cerebral edema and antiemesis . Does not replace mineralocorticoid , so it is not adequate alone in primary adrenal insufficiency.

THE HARMS ARRIVE ON A TIMETABLE *anticipate them rather than react*

DAYS

Hyperglycemia, insomnia, mood change, agitation and frank psychosis, appetite and fluid retention. **Steroid psychosis is dose-related and often missed as delirium.** Also **masked infection** — steroids blunt fever and peritonism, so a perforation or an abscess can present quietly.

WEEKS TO MONTHS

Adrenal suppression, cushingoid change, weight gain, proximal myopathy, skin thinning and bruising, hypertension, and opportunistic infection. **Bone loss is fastest in the first 3 to 6 months**, which is why bone protection is decided at the start, not at the annual review.

LONGER TERM

Osteoporotic fracture, avascular necrosis of the hip, cataract and glaucoma, diabetes, dyslipidemia and growth suppression in children. **New hip or groin pain in a steroid-treated patient is avascular necrosis until proven otherwise**, and plain films are normal early — ask for MRI.

WHAT TO CO-PRESCRIBE *decided at initiation, not retrospectively*

Issue	Action
Bone protection	Assess fracture risk whenever 3 months or more of treatment is anticipated . Ensure calcium and vitamin D , and add a bisphosphonate for those at higher risk — older age, prior fragility fracture, low bone density, or higher doses. Do not wait for a DEXA result to start in a clearly high-risk patient.
PJP prophylaxis	Consider <i>Pneumocystis</i> prophylaxis at prednisone 20 mg daily or more for 4 weeks or longer , and at lower doses when combined with other immunosuppression , particularly cyclophosphamide. TMP-SMX is first-line. Prophylaxis is commonly withdrawn as the dose falls back towards the mid-teens.
Glucose	Morning steroid causes predominantly afternoon and evening hyperglycemia , so a fasting glucose will miss it — check before the evening meal. Screen anyone at risk, and treat with an agent matched to that profile such as gliclazide or an intermediate-acting insulin given with the steroid.
Gastroprotection	Steroids alone are a weak ulcer risk . Add a proton pump inhibitor when combined with an NSAID or aspirin , or with prior ulcer disease or anticoagulation — not reflexively for everyone.
Vaccination	Bring influenza, pneumococcal and COVID-19 vaccination up to date, ideally before starting . Live vaccines are contraindicated on significant immunosuppression , so give them beforehand or defer. Check varicella immunity and counsel on chickenpox and shingles exposure.
Screening before prolonged use	Consider latent tuberculosis, hepatitis B and strongyloides in those from endemic areas — steroids can precipitate strongyloides hyperinfection , which is frequently fatal and entirely preventable.

STOPPING SAFELY *the part that gets people readmitted*

- Short courses can usually stop abruptly.** Less than about **3 weeks** of treatment, at conventional doses, in someone with no repeated recent courses, does not require a taper.
- Assume the adrenal axis is suppressed** after **3 weeks or more of supraphysiological dosing**, with repeated courses, or with evening dosing. Suppression can persist for **months after stopping**, so the risk does not end with the last tablet.
- Taper by disease activity down to a physiological dose (around 5 mg prednisone), then slow down.** The early reductions are limited by the disease relapsing; the final few milligrams are limited by the adrenal axis recovering, and are where people get stuck.
- Give sick day rules and a steroid emergency card.** **Double the dose during intercurrent illness**, and use **parenteral hydrocortisone if vomiting or unable to absorb**. Patients on long-term steroids need **additional cover for surgery**. This conversation prevents more harm than any dose adjustment.
- Recognize adrenal crisis: hypotension unresponsive to fluid, hyponatremia, hyperkalemia, hypoglycemia, vomiting and abdominal pain** in a patient who has recently stopped or reduced steroids. **Give hydrocortisone 100 mg intravenously immediately and do not wait for cortisol results.** Distinguish it from **steroid withdrawal syndrome**, which produces malaise, arthralgia and mood disturbance with a normal cortisol.

PEARLS & PITFALLS

- Taper only if the course exceeded about 3 weeks, or the patient is Cushingoid.** Shorter courses can stop abruptly; tapering them needlessly prolongs exposure and delays recovery of the axis.
- Never stop a chronic steroid during acute illness.** Adrenal suppression can persist for up to a year after prolonged therapy, so the stress dose goes up, not down.
- Check the conversion every time.** Dexamethasone is roughly 6.7 times as potent as prednisone, and this is where the tenfold errors happen.
- Decide bone protection on day one** — most steroid-related bone loss happens in the first few months.
- Fasting glucose misses steroid hyperglycemia.** Check before the evening meal instead.
- Steroids mask fever and peritonism.** A quiet abdomen in a steroid-treated patient can still be a perforation.
- Give sick day rules and an emergency card** to anyone on prolonged treatment — adrenal crisis is preventable and is what kills.
- New hip pain on steroids is avascular necrosis until MRI says otherwise.** Plain films are normal early.

References: Endocrine Society and Society for Endocrinology guidance on glucocorticoid-induced adrenal insufficiency and steroid emergency cards · ACR guideline for the prevention and treatment of glucocorticoid-induced osteoporosis · consensus guidance on *Pneumocystis* prophylaxis during immunosuppression · national guidance on steroid-induced hyperglycemia.

Educational aid; verify against local protocol, indication-specific dosing and patient factors.

