



Med Ed 101 Pharmacology Acronyms

A Quick Reference Guide for Students and Clinicians

Educational Resource From
Med Ed 101 and Real Life Pharmacology

Purpose of This Guide

This resource provides a concise collection of pharmacology acronyms encountered in clinical practice, pharmacy education, and board exam preparation. Understanding these acronyms can help healthcare professionals and students quickly recognize medication classes, clinical frameworks, and therapeutic concepts used in patient care.

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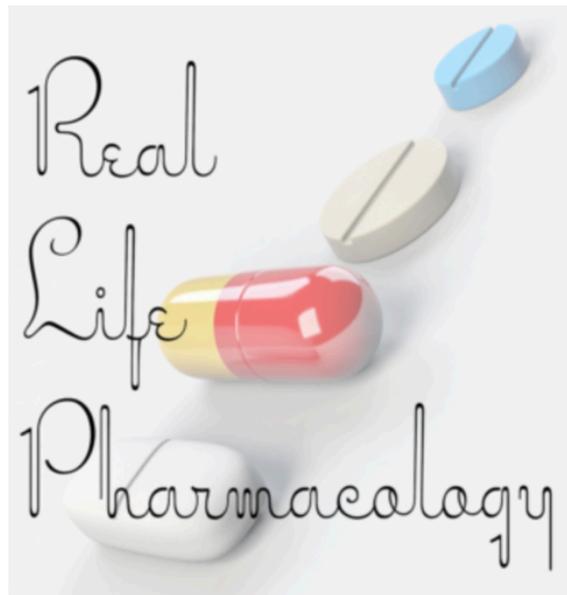


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[Real Life Pharmacology](#)

Practical pharmacology insights designed for pharmacists, pharmacy students, and healthcare professionals.

Notice an error? Suggestions? Shoot us an email at mededucation101@gmail.com

Cardiovascular:

★ ACEis – **BRAASH**

- **B**radynin ↑, → cough (dry) & angioedema
- **R**enal protection (diabetic nephropathy)
 - ↑ *creatinine acceptable* ≤ 30%
- **A**ce inhibition → ↓ angiotensin II → vasodilation
- **A**void in pregnancy
- **S**erum K⁺ ↑, aldosterone ↓
- **HFrEF** → ↓ remodeling & mortality

★ ARBs – **KAREN**

- **K**⁺ ↑, aldosterone ↓
- **A**ngioedema rare, less than ACEi (no cough)
- **R**enal protection (diabetic nephropathy)
 - ↑ *creatinine acceptable* ≤ 30%
- **E**jection fraction ↑ → improved outcomes in HFrEF
- **N**ot for pregnancy

★ CCB DHPs (amlodipine, nifedipine) – **FEETS**

- **F**lushing
- **E**dema (peripheral) – worse with NSAIDs
- **E**ffect mainly in blood vessels, not the heart (vascular selective)
- **T**achycardia (reflex)
- **S**afe in asthma

★ CCB non-DHPs (verapamil, diltiazem) – **CHAASM**

- **C**onstipation (verapamil)
- **H**eat rate ↓ (negative chronotrope)
- **A**V block (worsens heart block)
- **A**fib, SV tachycardia, angina (common indications)
- **S**ystolic HF contraindicated → worsens HFrEF
- **M**ed interactions CYP3A4 (statins, BBs, digoxin)

★ Beta-Blockers – **ABCDE**

- **A**sthma caution (non-selective)
- **B**radycardia
- **C**over post-MI & HF (select agents)
- **D**iabetes masking (hypoglycemia)
- **E**rectile dysfunction

★ Aldosterone antagonists (spironolactone, eplerenone) – **KING**

- **K+** ↑
- Improves mortality (HF_rEF)
- Nephron collecting duct and distal tubule
- Gynecomastia (spironolactone)

★ Alpha-2 agonists (clonidine, methyldopa) – **SAD BRAD**

- Sedation
- Abrupt stop → rebound HTN
- Dermatitis (transdermal)
- **BRAD**ycardia/hypotension

★ Vasodilators (hydralazine, minoxidil) – **FAST-H**

- Fluid retention/flushing/hypotension
- Angina exacerbating
- Sympathetic activation, reflex (↑ HR)
- Tachycardia/palpitations
- Hydralazine → lupus-like symptoms

★ Alpha blockers (tamsulosin, silodosin) – **FLOP-FLOP**

- First-dose syncope/orthostasis/dizziness
- Libido decreased/ejaculation failure
- Obstructed nose (rhinitis)/**O**uch headache
- Prostate (BPH) symptoms relief
- **Floppy** iris syndrome risk

★ Statins – **PARA-G**

- Pain (myalgias) - muscle aches, soreness, weakness
- **ALT/AST** ↑
- Rhabdomyolysis (rare) - severe muscle pain, dark urine, N/V
- Avoid pregnancy
- Grapefruit avoidance - simvastatin, lovastatin, and atorvastatin

★ Fibrates – **GLADS**

- **G**allstones
- **L**ipid ↓ (TG)
- **L**abs - ↑ SCr/renal function decline (esp. fenofibrate)
- **A**LT ↑ (hepatotoxicity)
- **D**rug interaction - ↑ statin myopathy/rhabdomyolysis (gemfibrozil)
- **S**kin - photosensitivity/rash (SJS rare)

★ Anticoagulant – **BLEEDS**

- **Bleeding risk**
- **Labs vary by agent**
- **Elderly caution, bleed risk with frequent falls**
- **Emergency reversal needed (vit K, Kcentra, FFP, pradaxa/andexxa, protamine)**
- **Drug interactions (amiodarone, abx, azoles, NSAIDs/antiplatelets)**
- **Surgery planning, potentially hold agent**

■ **DOAC – RAPIDS**

- **Renal function matters (dose adjustments)**
- **Apixaban safer (low bleed risk)**
- **P-gp/CYP3A4 interactions**
- **INR not monitored - no routine labs (major bleed, urgent surgery check Xa level)**
- **Direct reversal drugs (pradaxa/andexxa)**
- **Specific indication dosing (Afib ≠ VTE)**

■ **LMWH/Heparin – HIT BLEED**

- **HIT risk/thrombocytopenia**
- **IV or SQ**
- **Transition/bridge (used to bridge warfarin)**
- **BLEED - protamine reversal**

■ **Warfarin – WARFIS**

- **Watch INR (goal 2-3 typically)**
- **Avoid in pregnancy (teratogenic)**
- **Reversal = Vitamin K + PCC (Kcentra)/ FFP**
- **Factors II, VII, IX, X inhibited (+ Protein C/S)**
- **Interactions - tons (amiodarone, abx, alcohol, rifampin) + vitamin K diet changes**
- **Slow onset → often needs bridging (5-7 days to reach steady state)**

★ Antiplatelet – **DAPT**

- **Dual Antiplatelet therapy (clopidogrel + aspirin) → stent/ACS**
- **Aspirin: GI bleed/ulcers, reye syndrome, tinnitus**
- **P2Y12 inhibitors (clopidogrel, prasugrel, ticagrelor)**
 - **Clopidogrel prodrug activated by CYP2C19**
 - **Potency: (prasugrel > clopidogrel) - caution age ≥ 75 and weight < 60 kg with prasugrel**
 - **Avoid aspirin dose >100 mg with ticagrelor**
- **Timing (stop before surgery) → typically 5-7 days prior depending on surgery**

★ Thiazide – **CLUE-K**

- Calcium ↑ (can help prevent calcium stones/osteoporosis)
- Lipids ↑, glucose ↑ (transient metabolic effects)
- Uric acid ↑ (gout)
- Electrolytes: ↓ K and ↓ Na
- Kidney limits (GFR < 30) - reduced efficacy

★ Loop – **LOOPSS**

- Loop of Henle (blocks Na-K-2Cl in TAL)
- Ototoxicity
- Out with electrolytes: ↓ K, ↓ Mg, ↓ Ca
- Powerful diuresis (best for edema)
- Shrink volume → dehydration/hypotension + metabolic alkalosis
- Sulfa allergy (except ethacrynic acid)

★ Nitrate – **NITRATE**

- NO (nitric oxide) → cGMP (venodilation > arterial)
- Indication: angina relief
- Tolerance → need nitrate-free interval (ideally 10+ hours)
- Reflex tachycardia
- Adverse effects: headache, flushing
- Too low BP (hypotension/orthostasis/dizziness)
- Erectile dysfunction med contraindication (PDE-5 - i.e. sildenafil)

★ Inotropes – **BASHER**

- Beta 1 agonist (Dobutamine)
- Afterload reduction (Milrinone)
- Sympathomimetic effects (tachycardia, arrhythmias)
- Heart failure/decompensation (main indication)
- Electrolyte monitoring
- Renal monitoring

★ Antiarrhythmic – **PRO-QT**

- Proarrhythmia (can worsen rhythm/torsades risk)
- Rate control = Class II (BB) + Class IV (non-DHP CCBs)
- Organ toxicity (amiodarone: lung/thyroid/liver)
- QT prolongation → torsades (IA + III)
- T = Think structural heart disease (avoid class IC)

Class I = Na channel blockers (procainamide, lidocaine, flecainide)

- *IA (moderate QT): procainamide*
- *IB (less QT): lidocaine*
- *IC (widens QRS): flecainide*

Class II = Beta blockers (metoprolol, propranolol)

Class III = K channel blockers (amiodarone, sotalol, dofetilide)

Class IV = Ca channel blockers (verapamil, diltiazem)

Endocrine/Diabetes:

★ Insulin – BRAIN

- **Basal** (glargine/determir/degludec) - once daily dosing for most people
- **Rapid** = meals (lispro/aspart/glulisine)
- **Admin timing matters**
 - SA: 15 min prior to meal or immediately after
 - Regular: 20-40 min prior to meal, potential for late post-prandial hypoglycemia
- **Intermediate (NPH) peaks** → higher nocturnal hypoglycemia risk
- **Number 1 adverse effect** = hyperglycemia + weight gain

★ Metformin – MET-FAB

- **MOA:** ↓ hepatic glucose production
- **EGFR < 30** = stop
- **Tummy upset** (GI diarrhea/nausea)
- **Fatal lactic acidosis** (rare)
- **Appetite/weight neutral** or ↓
- **B** = B12 deficiency (long-term)

★ Sulfonylureas (glipizide, glyburide, glimepiride) – HUG-W

- **Hypoglycemia** (highest for glyburide - long-acting)
- **Use caution** in renal impairment (↑ hypoglycemia risk - esp. glyburide)
- **Geriatric caution** (Beers)
- **Weight gain** common

★ DPP-4 inhibitors – MILD-GTN

- **Modest A1c ↓** (~0.5-0.7%)
- **Infections** (URI/nasopharyngitis)
- **Linagliptin** = no renal adjustment
- **Dose adjust** in renal disease (except linagliptin)
- **Glucose-dependent** (low hypoglycemia risk)
- **Targets DPP-4** → ↑ endogenous incretins (↑ GLP-1, ↓ glucagon)
- **No weight change**

★ GLP-1s – SLIM-W

- **Slow gastric emptying**
- **Lose weight**
- **Injectable** (except oral semaglutide)
- **MTC** (thyroid cancer) warning (MEN2)
- **Weekly options** available

★ SGLT2s – **PEE-H**

- **Pee** more (osmotic diuresis)
- **Euglycemic** DKA risk
- **Extra genital** yeast infections & UTI's
- **Heart failure** & renal benefit

★ TZDs – **WHEE**

- **Weight gain**
- **Heart failure** and fractures
- **Edema**
- **Enhances** insulin sensitivity

★ Hormonal therapy (Estrogen/Progesterone) – **BLOAT**

- **Breast cancer** risk
- **Legs** (↑ VTE risk)
- **Older age** = higher risk
- **Avoid** in active cancer/VTE
- **Treats** menopausal symptoms

★ SERMs (Raloxifene, Tamoxifene) – **BONES**

- **Bone protection**
- **Opposite effects** by tissue
- **No endometrial cancer** (raloxifene)
- **Estrogen agonist/antagonist**
- **Stroke/VTE** risk

★ Aromatase Inhibitors – **FAVER**

- **Fracture risk/bone loss**
- **Adjuvant** in breast cancer treatment
- **Vasomotor symptoms** (hot flash, night sweats, etc)
- **Estrogen suppression**
- **Risk** of cardiovascular effects

★ Bisphosphonates – **FAST-J**

- **First-line** for osteoporosis
- **Avoid lying down** x 30 min
- **Stomach/esophageal irritation**
- **Take** on empty stomach with full glass of water
- **Jaw osteonecrosis** (rare)

★ **Thionamides – STAMPED**

- **Sore throat = STOP**
- **TPO inhibition**
- **After 1st trimester use Methimazole**
- **Methimazole preferred (longer t_{1/2}, less toxicity)**
- **PTU (propylthiouracil) worse hepatotoxic**
- **Eruptions (derm reactions)**
- **Delayed effects (takes time to work)**

★ **T4 (Levothyroxine) – THYROID-L**

- **Titrate carefully**
- **Heart effects**
- **Yields CNS effects in toxicity**
- **Risk to bones**
- **Observe metabolism**
- **Interactions matter**
- **Delayed full effects**
- **Loss of weight if excessive dose**

★ **Desmopressin – WATER**

- **Water retention**
- **Avoid in hyponatremia**
- **Titrate carefully**
- **Effective for Diabetes insipidus**
- **Receptors V₂ (Renal effects only)**

Neurology:

★ SSRIs – **SAD-GI**

- **Sexual dysfunction and low Sodium**
- **Anxiety and depression indication**
- **Discontinuation syndrome**
- **GI upset (Sertraline is the worst for diarrhea)**
- **Inhibit CYP (varies by agent)**

★ SNRIs – **BP-N**

- **Blood pressure ↑ (dose related)**
- **Pain benefit (neuropathy)**
- **Nausea**

★ TCAs – **DEATH**

- **Dysrhythmias**
- **EKG monitoring (QT prolongation)**
- **Anticholinergic effects**
- **Toxic in overdose**
- **Hypotension (orthostasis)**

★ Serotonin modulators (Trazodone, Vortioxetine)– **SLEEP**

- **Sedation**
- **Low sexual dysfunction**
- **Erectile adverse effect (priapism–trazodone)**
- **Elderly fall risk**
- **Partial serotonin activity**

★ Alpha-2 antagonist (Mirtazapine) – **HUGS**

- **Histamine blockade**
- **Up appetite**
- **Gain weight**
- **Sleepy**

★ NDRI (Bupropion) – **ACTIVE**

- **Activating, may cause anxiety**
- **Contraindicated in seizures/eating disorders**
- **Tobacco cessation & Tremor**
- **Inhibits NE & DA**
- **Very low sexual SE**
- **Energy ↑**

★ **Anxiolytic (Buspirone) – SLOW**

- **Slow onset (2-4 weeks), Safer than Benzos in the elderly**
- **Low sedation**
- **Ok in long-term use**
- **Won't cause dependence**

★ **Antihistamines (1st gen - diphenhydramine) – DRY**

- **Drowsy**
- **Retention (urinary)**
- **Yucky anticholinergic effects**

★ **Benzodiazepines – SCARE**

- **Sedation**
- **Cognitive impairment**
- **Addiction**
- **Respiratory depression**
- **Elderly fall risk (BEERS)**

★ **FGAs (Typical Antipsychotics) – EPS**

- **EPS**
- **Prolactin ↑**
- **Severe dystonia (acute)**

★ **SGAs (Atypical Antipsychotics) – MET-S**

- **Metabolic syndrome**
- **EPS (less than FGAs)**
- **TD (still possible)**
- **Sedation**

★ **Mood stabilizers – BLAST**

- **Blood monitoring (lithium/valproate)**
- **Liver toxicity (valproate)**
- **Avoid in pregnancy**
- **Skin rash (lamotrigine)**
- **Thyroid & kidney (lithium)**

★ Phenytoin – PHENITOX

- Plasma monitoring
- Hair changes
- Enzyme inducer (CYP3A4, 2C9, 2C19)
- Neurologic SE (Ataxia, tremor, ect)
- Immune SE (Yellow brown rash, SJS/TENs)
- Teratogenic
- Osteoporosis
- EXcessive toxicity risk with small dose changes

★ Levetiracetam – BRAKE

- Behavioral changes
- Renal dose adjustments
- Alertness/Ataxia
- Kinetic simplicity (few DDI)
- Emergent Rash (SJS/TENs)

★ Valproic Acid – LIPIDS

- Liver failure
- Inhibitor of enzymes
- Pregnancy risk (Teratogenic)
- Increased Ammonia
- Dose monitoring
- Systemic gains (weight)

★ Carbamazepine – CHEWS

- CYP Inducer (3A4, 2C9, 1A2)
- HLA-B*1502 (risk of SJS)
- Epoxide metabolite
- Water retention (SIADH risk)
- Safety risk for blood (Anemia/Agranulocytosis)

★ Lamotrigine – LAMOS

- Lamotrigine rash
- Aseptic meningitis risk
- Maintenance for Bipolar
- Oral contraceptives DDI
- Slow for dose titration → SJS black box (rash)

★ **Topiramate – STONES**

- **Stones** (kidney)
- **Teratogenic**
- **Oligohidrosis**
- **Neuro-slowng** (“Dopamax”)
- **Electrolytes** (HCO₃ and Metabolic acidosis)
- **Sensory tingling**

★ **Z-drugs – DREAM**

- **Dizziness**
- **Rare parasomnias**
- **Elderly fall risk** (BEERS)
- **Amnesia**
- **Mimic benzo effects**

★ **Triptans – CV**

- **Coronary vasoconstriction**
- **Vascular disease contraindication**

★ **CGRP – HEAD**

- **Headache prevention**
- **Easy dosing** (monthly)
- **Antibody or oral options**
- **Drug interactions minimal**

★ **Stimulants – FAST**

- **Focus** ↑
- **Appetite** ↓
- **Sleep** ↓
- **Tachycardia/BP** ↑

★ **Dopamine agonist – HOLE**

- **Hallucinations**
- **Obsessive behaviors** (eating/gambling, etc.)
- **Low BP**
- **Edema**

★ **Anticholinergic – HOT**

- **Hyperthermia**
- **Obstruction** (urinary)/constipation
- **Tachycardia**

★ **NMDA – CALM**

- **Cognition preservation**
- **Alzheimer's (moderate-severe)**
- **Low side effects**
- **Modulates glutamate**

★ **Acetylcholinesterase inhibitors – SLUDGE**

- **Salivation**
- **Lacrimation**
- **Urination**
- **Diarrhea**
- **GI cramps**
- **Emesis**

★ **Gabapentinoids – ANERT**

- **Ataxia/dizziness**
- **Neuropathic pain/seizures**
- **Euphoria/abuse potential**
- **Renal dose adjustments**
- **Taper slowly**

Gastrointestinal and Genitourinary:

★ H2 receptor antagonists – **ACID** ↓

- **Acid** ↓ (basal & nocturnal)
- **CNS** effects (elderly, cimetidine)
- **Interactions** (cimetidine = CYP inhibitor)
- **Delirium** risk (poor renal function)
- ↓ pepsin

★ PPIs – **MAGIC**

- **Mg²⁺** ↓
- **Acid** suppression (most potent)
- **GI** infections (C.diff)
- **Interstitial** nephritis
- **Ca²⁺** absorption ↓ / fractures

★ 5-alpha reductase inhibitor – **SHRINK**

- **Shrinks** prostate
- **Hair** growth
- **Reduces** PSA
- **Impotence**
- **Need** months for effect
- **Kids/pregnancy** risk

★ Alpha-1 blocker (BPH) – **FLOP**

- **First-dose** syncope and Floppy iris syndrome
- **Lower** urinary symptoms
- **Orthostasis**
- **Pressure** ↓

★ Antimuscarinic – **DRY MAD**

- **Dry** mouth
- **Retention** (urinary)
- **Yawn** vision (blurred)
- **Memory** issues (confusion)
- **Avoid** in glaucoma
- **Delirium** (elderly)

★ **Beta-3 agonist (mirabegron) – RELAX**

- **Relaxes detrusor**
- **Elevates BP**
- **Less dry mouth**
- **Alternative to anticholinergics**
- **Xtra caution in HTN**

★ **Anticholinergic – HOT BLIND**

- **Hyperthermia**
- **Outflow obstruction**
- **Tachycardia**
- **Blurred vision**
- **Low saliva**
- **Ileus**
- **Neuro effects**
- **Delirium**

★ **Antidiarrheal (loperamide) – STOP**

- **Slows motility**
- **Toxic megacolon risk**
- **Opioid receptor (peripheral)**
- **Pediatric caution**

★ **5-ASA (mesalamine) – COLON**

- **Colitis control**
- **Once daily options**
- **Local gut action**
- **Outside gut minimal effects**
- **Nephrotoxicity (rare)**

Infectious Disease:

★ **Pencillins – PEN SAFE**

- **Pregnancy safe**
- **Enterococcus**
- **Neisseria (some)**
- **Syphilis**
- **Allergy**
- **First-line common infections**
- **Enzyme resistance (B-lactamase)**

★ **1st gen cephalosporin – PEK**

- **Positive cocci**
- **E. coli**
- **Klebsiella**

★ **2nd gen cephalosporin – HEN PEK**

- **H. influenzae**
- **Enterobacter**
- **Neisseria**
- **PEK**

★ **3rd gen cephalosporin – SPACES**

- **Serratia**
- **Pseudomonas (ceftazidime)**
- **Acinetobacter**
- **Citrobacter**
- **Enterobacter**
- **S. pneumonia**

★ **4th gen cephalosporin – PSYCH**

- **Pseudomonas**
- **Strong gram +**
- **Y-lactamase stable**
- **CNS penetration**
- **Hospital infections**

★ 5th gen cephalosporin – **MRSA**

- **MRSA**
- **Respiratory pathogens (CAP)**
- **SSTI**
- **Atypicals (limited)**

★ Carbapenems – **PEARLS**

- **Pseudomonas**
- **Enterobacter**
- **Anaerobes**
- **Resistant gram -**
- **Listeria**
- **Strep and Staph (MSSA)**

★ Monobactams (Aztreonam) – **NEG**

- **Neisseria**
- **Enterobacter**
- **Gram - (including Pseudomonas)**

★ Glycopeptides (vancomycin) – **GRAB-C**

- **Gram +**
- **Red man syndrome**
- **Active against MRSA**
- **Bowel infection (C. diff)**
- **Check kidneys and therapeutic levels**

★ Lipoglycopeptides – **MR. COPS**

- **MRSA**
- **Resistant gram +**
- **Clostridium**
- **Other strep**
- **Pneumococcus**
- **Staph (MSSA)**

★ **Aminoglycosides – PENG-NOT**

- **P**seudomonas
- **E**nterobacter
- **N**eisseria
- **G**ram -
- **N**ephrotoxicity
- **O**totoxicity
- **T**eratogenic

★ **Macrolides – MAC QT**

- **M**otility ↑
- **A**typicals
- **C**YP inhibition
- **Q**T prolongation
- **T**aste/GI upset

★ **Flouroquinolones – TENDON**

- **T**endon rupture
- **E**levated QT
- **N**euro effects
- **D**ysglycemia
- **O**ld adults caution
- **N**o pregnancy

★ **Tetracyclines – TEETH**

- **T**eeth discoloration
- **E**sophagitis
- **E**nteric absorption ↓ (Calcium, iron, zinc)
- **T**eratogenic
- **H.** pylori/atypicals

★ **Lincosamide (clindamycin) – BAD GUT**

- **B**acteroides
- **A**naerobes
- **D**iarrhea
- **G**ram + cocci
- **U**pper body infections
- **T**oxic megacolon (C.diff)

★ Oxazolidinones – **GRABS-B**

- **Gram +**
- **Resistant strains (MRE, MRSA)**
- **Anaerobes (limited)**
- **Bone marrow suppression**
- **Staph and Strep**
- **Brain effects (possible serotonin syndrome)**

★ Nitroimidazole (metronidazole) – **FLAG**

- **Flagyl**
- **Liver metabolism**
- **Alcohol reaction (maybe not as severe as once thought)**
- **Giardia/anaerobes**

★ Sulfonamides (TMP-SMX) – **SULFA**

- **SJS**
- **Urine crystals**
- **Low glucose (↑ insulin)**
- **Folate inhibition**
- **Allergy**

★ Polymyxins – **GRAM-P**

- **Gram -**
- **Resistant strains**
- **Acinetobacter**
- **Moraxella (some)**
- **Pseudomonas**

★ Rifamycins – **TRIBE-C-HR**

- **Tuberculosis**
- **Rifampin-sensitive mycobacteria**
- **Intracellular pathogens (Legionella)**
- **Broad gram + (some staph)**
- **Enteric bacteria (limited)**
- **CYP3A4 DDIs**
- **Hepatotoxic**
- **Red-orange body fluids**

★ Antivirals (acyclovir class) – **VIRUS**

- **Viral DNA inhibition**
- **IV hydration (crystals)**
- **Renal toxicity**
- **Uptake via viral kinase**
- **Shingles/HSV**

★ NRTIs (tenofovir, emtricitabine, abacavir, lamivudine, zidovudine) – **BACKBONE**

- **Backbone of ART (usually 2 drugs)**
- **Abnormal lactic acidosis (mitochondrial toxicity)**
- **Creatinine/bone issues (TDF)**
- **Kidney toxicity (TDF)**
- **Bone density ↓ (TDF)**
- **Overlap with Hep B (TDF/TAF, FTC, 3TC)**
- **Nausea/GI**
- **End with “-ine/-vir” (many)**

★ NNRTIs (efavirenz, rilpivirine, etravirine, doravirine) – **RASHY**

- **Rash (SJS possible)**
- **Altered CNS effects (efavirenz dreams)**
- **Strong CYP interactions**
- **Hepatotoxicity**
- **Y = “You can’t mix with everything” (DDIs)**

★ Protease Inhibitors (darunavir, atazanavir, lopinavir/ritonavir) – **PROBLEM**

- **Potent, high barrier to resistance**
- **Ritonavir boosting (CYP3A4 inhibitor)**
- **Obesity/lipodystrophy**
- **Blood sugar ↑ (hyperglycemia)**
- **Lipids ↑**
- **Enzyme inhibition = tons of DDIs**
- **Metabolic syndrome**

★ **Integrase Inhibitors (dolutegravir, bictegravir, raltegravir) – INTEGRATE**

- Initial first-line
- **No major toxicity usually**
- Typically rapid viral load drop
- **Elevated weight (some pts)**
- **GI upset**
- **Reacts with polyvalent cations (Ca/Mg/Fe)**
- **Avoid taking with antacids same time**
- **Tolerated well**
- **Effective**

★ **Entry/Fusion/Attachment Inhibitors (maraviroc, enfuvirtide) – OUTSIDE**

- **Only used special cases/resistance**
- **Unique mechanisms**
- **Tropism testing (maraviroc)**
- **SubQ injection (enfuvirtide)**
- **Injection site reactions**
- **Drug interactions possible**
- **Expensive/less common**

★ **Antifungals – AZOLE**

- **All ↑ QT**
- **Zymes (CYP inhibition)**
- **Oral absorption issues**
- **Liver toxicity**
- **Ergosterol ↓**

★ **Echinocandins – FITS**

- **Fungal coverage**
- **IV only**
- **Thrombophlebitis and infusion reactions**
- **Sky high LFTs**

Analgesic and Anti-Inflammatory Agents:

★ Opioids – **MORPHINE**

- **Miosis** (pinpoint pupils)
- **Overdose**
- **Respiratory depression**
- **Physical dependence/tolerance/addiction**
- **Hypotension** (histamine, esp. morphine)
- **Ileus/constipation**
- **Nausea AE** and **Narcan reversal**
- **Euphoria/sedation**

★ NSAIDs/Anti-inflammatory – **GRENAL**

- **GI bleed**
- **Renal injury**
- **Edema**
- **No pregnancy** (3rd tri)
- **Analgesic and antipyretic**
- **Lower prostaglandins**

★ Xanthine oxidase inhibitors – **DROP UA**

- **Decrease uric acid**
- **Rash** (SJS risk)
- **Outbreaks from high uric acid** (gout flare)
- **Purinol interactions** (Azathioprine)
- **UA stones** ↓

★ Corticosteroids – **CUSHING**

- **Cataracts**
- **Ulcers**
- **Sugar** ↑
- **Hypertension**
- **Infection risk**
- **Necrosis (AVN)**
- **Growth suppression**

★ DMARDs – **SLOW**

- **Slow onset**
- **Labs required**
- **Organ toxicity** (liver)
- **Worsen infections** (immunosuppressant activity)

★ **TNF-alpha (Humira, Enbrel, Cimzia, Remicade) - ASIAS**

- **ALT/AST increase**
- **Screening for TB prior to initiation**
- **Immune suppression - increased risk of infections**
- **Avoid live vaccines**
- **Site of injection reaction - rash, itching, swelling, or pain**

★ **JAK inhibitors (Rinvoq, Xeljanz, Opzelura) - CHAIR**

- **Cholesterol increases (total, LDL, and HDL)**
- **Headache, acne, fatigue**
- **Administration: topical or oral instead of an injection**
- **Immune suppression - increased risk of infections**
- **Risk of major cardiovascular events (MI, nonfatal stroke, CV death)**

Respiratory:

★ SABA (albuterol) – **FAST**

- **F**irst-line rescue ideally with an inhaled corticosteroid
- **A**lbuterol = tremor/anxiety
- **S**timulates B2 → bronchodilation
- **T**achycardia

★ SAMA (ipratropium) – **SLOW**

- **S**hort acting
- **L**ess systemic effects
- **O**utput secretions ↓ (dry mouth)
- **W**orks best in COPD

★ LABA (salmeterol, formoterol) – **CONTROL**

- **C**ontroller (not rescue)
- **O**nset varies (formoterol fast-ish, can use for rescue)
- **N**ever use alone in asthma
- **T**achycardia/tremor possible
- **R**educes symptoms/exacerbations
- **O**ften combined with ICS (asthma)
- **L**ong duration (~12 h)

★ LAMA (tiotropium, umeclidinium) – **COPD**

- **C**OPD cornerstone
- **O**utput secretions ↓ (dry mouth)
- **P**revents exacerbations
- **D**on't use as rescue

★ ICS (budesonide, fluticasone) – **RINSE**

- **R**educes inflammation
- **I**mproves asthma control
- **N**ot for acute rescue
- **S**ide effects: thrush/hoarseness
- **E**nsure mouth rinse after use

★ **LTRA – LUNGS**

- Long term controller
- Useful for EIB
- Neuropsychiatric black boxed warning
- Good adjunct for ICS
- Safe generally

★ **Methylxanthines (Theophylline) – TOXIC LUNG**

- Tachyarrhythmias (cardio-toxic)
- Overstimulation (CNS)
- EXtreme seizures (significant sign of toxicity)
- Increases cAMP (bronchodilation)
- CYP1A2 interactions (macrolides, FQ, Smoking)
- Low therapeutic window
- Upset stomach (nausea)
- Not first line
- Geriatrics at high risk

★ **PDE-5 inhibitors (Sildenafil, Tadalafil) – PAH RELIEF**

- Pulmonary arterial hypertension (group 1)
- Amplifies NO
- Hypotension
- Right ventricular afterload reduction
- Eye changes
- Long vs short acting (Tad = Long)
- Interactions (Nitrates)
- ENT warning (sudden hearing loss)
- First line oral class