

Pharmacology

System	Drug Classes & Mechanisms of Action	Common Therapeutic Uses & Adverse Effects
General Pharmacology	- Pharmacokinetics (absorption, distribution, metabolism, excretion) - Pharmacodynamics (receptor binding, efficacy, potency) - Drug metabolism (CYP450 enzymes, first-pass effect) - Drug interactions and toxicity	- Adverse drug reactions (hypersensitivity, hepatotoxicity, nephrotoxicity) - Therapeutic drug monitoring (narrow therapeutic index drugs) - Drug overdose management (naloxone, acetylcysteine)
Hematopoietic & Lymphoreticular	- Anticoagulants (heparin, warfarin, DOACs) - Antiplatelets (aspirin, clopidogrel) - Erythropoiesis-stimulating agents (EPO) - Immunosuppressants (cyclosporine, tacrolimus)	- Treatment of anemia (iron, folate, vitamin B12) - Prevention of thrombosis (DVT, PE, stroke prevention) - Risks of bleeding (anticoagulation therapy) - Bone marrow suppression (chemotherapy)
Central & Peripheral Nervous	- Anesthetics (local – lidocaine, general – propofol) - Analgesics (opioids, NSAIDs, acetaminophen) - Anticonvulsants (phenytoin, valproate, levetiracetam) - Psychotropic drugs (antidepressants, antipsychotics, anxiolytics)	- Pain management (acute, chronic, neuropathic) - Seizure prevention and control - Side effects (sedation, respiratory depression, serotonin syndrome) - Parkinson's treatment (levodopa, dopamine agonists)
Skin & Connective Tissue	- Corticosteroids (topical, systemic) - Antihistamines (H1 blockers) - Retinoids (isotretinoin, tretinoin) - Immunomodulators (methotrexate, biologics for psoriasis)	- Eczema, psoriasis, acne treatment - Management of allergic skin reactions - Risks (photosensitivity, teratogenicity of isotretinoin)
Musculoskeletal	- NSAIDs (ibuprofen, naproxen, celecoxib) - Disease-modifying anti-rheumatic drugs (DMARDs) - Gout medications (allopurinol, colchicine) - Muscle relaxants (baclofen, cyclobenzaprine)	- Pain and inflammation control - Osteoarthritis and rheumatoid arthritis treatment - Osteoporosis prevention (bisphosphonates, calcitonin) - Risks (GI ulcers with NSAIDs, immunosuppression with DMARDs)
Respiratory	- Bronchodilators (β 2-agonists, anticholinergics) - Anti-inflammatory drugs (corticosteroids, leukotriene inhibitors) - Antihistamines (H1 blockers) - Cough suppressants and mucolytics	- Asthma and COPD management - Allergic rhinitis and anaphylaxis - Adverse effects (tachycardia from β 2-agonists, steroid-induced osteoporosis)
Cardiovascular	- Antihypertensives (ACE inhibitors, ARBs, β -blockers, diuretics) - Antiarrhythmics (class I-IV) - Lipid-lowering agents (statins, fibrates) - Vasodilators (nitrates, calcium channel blockers)	- Hypertension, heart failure, arrhythmia treatment - Cholesterol management (statins, PCSK9 inhibitors) - Side effects (hyperkalemia with ACE inhibitors, reflex tachycardia with vasodilators)
Gastrointestinal	- Acid suppressors (PPIs, H2 blockers) - Antiemetics (ondansetron, metoclopramide) - Laxatives and prokinetics - Hepatoprotective agents	- GERD, peptic ulcer disease treatment - Management of nausea, vomiting, and constipation - Risks (C. difficile infection with PPIs, tardive dyskinesia with metoclopramide)
Renal/Urinary	- Diuretics (loop, thiazide, potassium-sparing) - Drugs affecting electrolyte balance - Anticholinergics for bladder dysfunction - Erythropoietin-stimulating agents (for CKD)	- Treatment of hypertension, heart failure (diuretics) - Urinary incontinence therapy - Risks (hyperkalemia, electrolyte imbalances)
Reproductive	- Contraceptives (oral, IUDs, emergency contraception) - Fertility treatments (clomiphene,	- Pregnancy prevention and management - PCOS and menopause treatment - Risks

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	gonadotropins) - Hormone replacement therapy (estrogen, testosterone) - Drugs for erectile dysfunction (PDE5 inhibitors)	(thromboembolism with estrogen, testosterone abuse)
Endocrine	- Diabetes medications (insulin, metformin, GLP-1 agonists) - Thyroid drugs (levothyroxine, methimazole) - Adrenal hormones (glucocorticoids, mineralocorticoids) - Osteoporosis drugs (bisphosphonates, calcitonin)	- Diabetes mellitus management - Thyroid disorder treatment - Risks (hypoglycemia with insulin, adrenal suppression with steroids)