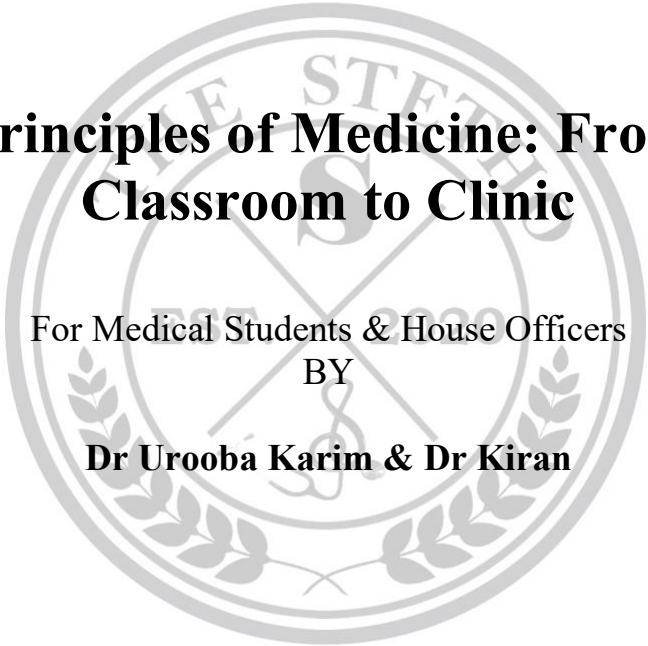




# **Principles of Medicine: From Classroom to Clinic**

For Medical Students & House Officers  
BY

**Dr Urooba Karim & Dr Kiran**

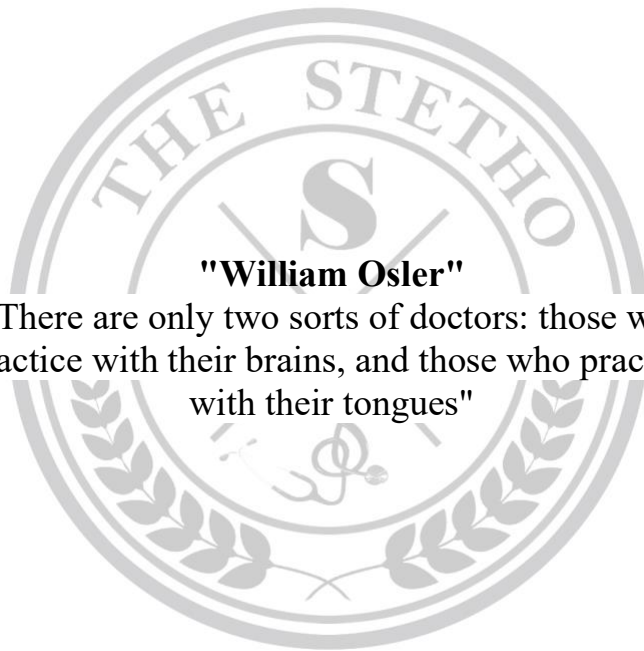


## ACKNOWLEDGEMENT

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Dr Urooba Karim and Dr Kiran





**"William Osler"**

**" There are only two sorts of doctors: those who practice with their brains, and those who practice with their tongues"**



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**Part I**

**Foundations of  
Urology**



# 1. Disorders of the Skin & Subcutaneous Tissue

## Introduction

The skin is the largest organ of the body, serving as a barrier against infection, trauma, and dehydration. It also plays roles in thermoregulation, sensation, and immune defense. Disorders of the skin and subcutaneous tissue are common in both outpatient and inpatient medicine. They range from mild conditions, such as acne, to life-threatening illnesses, such as necrotizing fasciitis or melanoma.

## Structure and Function Review

- **Epidermis:** stratified squamous epithelium (keratinocytes, melanocytes, Langerhans cells).
- **Dermis:** connective tissue with blood vessels, hair follicles, glands, nerves.
- **Subcutaneous tissue:** adipose and connective tissue; cushions, insulates, and connects skin to underlying structures.

Disruption at any level can produce clinical disease.

# Common Disorders

## 1. Infectious Disorders

- **Bacterial**

- *Impetigo*: superficial infection (Staphylococcus aureus, Streptococcus pyogenes). “Honey-colored crusts.”
- *Cellulitis*: infection of dermis/subcutaneous tissue. Presents with erythema, warmth, tenderness.
- *Abscess*: localized pus collection, often due to S. aureus. Requires incision and drainage.
- *Necrotizing fasciitis*: rapidly progressive infection with severe pain, systemic toxicity; surgical emergency.

- **Viral**

- *Herpes simplex virus (HSV)*: grouped vesicles on erythematous base; recurrent.
- *Varicella-zoster virus*: chickenpox (primary infection) vs shingles (reactivation, dermatomal).
- *Molluscum contagiosum*: small, dome-shaped, umbilicated papules.

- **Fungal**

- *Dermatophytes (tinea)*: ringworm, athlete’s foot, jock itch. Annular lesions with scaling borders.
- *Candida*: intertrigo in skin folds, satellite pustules.

## 2. Inflammatory Disorders

- *Eczema (Atopic Dermatitis)*: chronic, pruritic, associated with allergic diseases (asthma, allergic rhinitis). Flexural involvement in children/adults.
- *Psoriasis*: chronic, autoimmune; well-demarcated plaques with silvery scales on extensor surfaces and scalp. Nail pitting common.
- *Seborrheic Dermatitis*: erythematous plaques with greasy scales; common in scalp (“dandruff”), face, chest.
- *Contact Dermatitis*: allergic (delayed hypersensitivity, e.g. poison ivy) or irritant (soaps, chemicals).

## 3. Neoplastic Disorders

- **Benign**
  - Seborrheic keratosis: “stuck-on” appearance; common in elderly.
  - Lipoma: benign tumor of adipose tissue.
- **Premalignant**
  - Actinic keratosis: rough, scaly patches on sun-exposed areas; risk of squamous cell carcinoma.
- **Malignant**
  - Basal cell carcinoma: most common skin cancer; pearly papule, rolled borders, telangiectasia. Rarely metastasizes.
  - Squamous cell carcinoma: scaly, ulcerated nodule; potential for metastasis if neglected.

- Melanoma: malignant tumor of melanocytes; ABCDE rule (Asymmetry, Border, Color, Diameter, Evolving). High metastatic potential.

#### 4. Disorders of Subcutaneous Tissue

- **Panniculitis:** inflammation of subcutaneous fat.
  - *Erythema nodosum*: tender red nodules, usually on shins. Associated with infections (strep, TB), sarcoidosis, IBD, drugs.
- **Lipodystrophy:** abnormal fat distribution, often from chronic steroid use or insulin injections.

### Clinical Skills: From Classroom to Clinic

- **History:** onset, progression, associated symptoms (pruritus, pain, fever), exposure (new drugs, allergens, travel, sick contacts).
- **Examination:** morphology (macule, papule, plaque, vesicle, pustule, nodule, ulcer), distribution (localized vs generalized), systemic involvement.
- **Investigations:**
  - Swab/culture for bacterial or fungal infections.
  - Skin biopsy for uncertain diagnosis or suspected malignancy.

- Blood tests when systemic disease suspected.

## Management Principles

**Infectious:** antibiotics (topical or systemic), antifungals, antivirals; incision & drainage for abscesses.

**Inflammatory:** topical corticosteroids, emollients, antihistamines, immunomodulators (methotrexate, biologics for psoriasis).

**Neoplastic:** surgical excision, Mohs surgery, cryotherapy, topical chemo (5-FU, imiquimod), systemic therapy for advanced melanoma.

**Subcutaneous tissue disorders:** treat underlying cause (infection, autoimmune disease, drug trigger).

## Clinical Pearls

Always distinguish **benign lesions** from potential **skin cancers**.

Rapidly progressive skin pain, systemic toxicity, or crepitus → suspect **necrotizing fasciitis**.

Chronic, scaly lesions on sun-exposed skin in elderly → think **actinic keratosis**.

In eczema, the cornerstone of treatment is **moisturization**, not steroids alone.

Skin findings can be the first clue to **systemic disease** (e.g., erythema nodosum with sarcoidosis).







## 2. Diseases of the Eyes, Ears, Nose, & Throat

### Introduction

The eyes, ears, nose, and throat (EENT) are vital for sensory function, communication, and quality of life. Disorders of these systems range from common, self-limiting conditions (conjunctivitis, otitis media, rhinitis) to vision- or life-threatening emergencies (acute angle-closure glaucoma, orbital cellulitis, epiglottitis). Understanding normal anatomy and physiology is essential to recognizing disease patterns and preventing complications.

### Section A: Eye Disorders

#### 1. Infectious/Inflammatory

- **Conjunctivitis**
  - *Bacterial*: purulent discharge, “stuck-together” eyelids (Staph, Strep, H. influenzae).
  - *Viral*: watery discharge, adenovirus common; often with pharyngitis (“pink eye”).
  - *Allergic*: bilateral, itchy, watery eyes; associated with atopy.

- **Keratitis:** corneal inflammation; may be bacterial, viral (HSV dendritic ulcers), or fungal. Risk with contact lenses.
- **Uveitis/Iritis:** pain, photophobia, blurred vision; associated with autoimmune disease (HLA-B27).

## 2. Structural & Functional

- **Cataract:** lens opacity; gradual painless vision loss; risk ↑ with age, diabetes, steroids.
- **Glaucoma**
  - *Open-angle:* progressive peripheral vision loss, high intraocular pressure.
  - *Angle-closure:* sudden pain, halos, mid-dilated fixed pupil → ophthalmologic emergency.

## 3. Retinal Disorders

- **Diabetic Retinopathy:** microaneurysms, hemorrhages, exudates, neovascularization.
- **Retinal Detachment:** “flashes of light,” curtain coming down, sudden vision loss.
- **Macular Degeneration:** central vision loss; dry (drusen deposits), wet (neovascularization).

# Section B: Ear Disorders

## 1. External & Middle Ear

- **Otitis Externa:** “swimmer’s ear,” pain with tragus/auricle movement, often *Pseudomonas*.
- **Otitis Media:** middle ear infection, common in children; bulging tympanic membrane, fever, conductive hearing loss.
- **Cholesteatoma:** keratinized debris erodes ossicles; chronic otitis media history.

## 2. Inner Ear

- **Ménière’s Disease:** triad = vertigo, tinnitus, sensorineural hearing loss; due to endolymphatic hydrops.
- **Benign Paroxysmal Positional Vertigo (BPPV):** brief vertigo triggered by position changes (Dix-Hallpike test positive).
- **Acoustic Neuroma (Vestibular Schwannoma):** unilateral sensorineural hearing loss + tinnitus + imbalance.

## Section C: Nose & Sinus Disorders

- **Rhinitis**
  - *Allergic:* sneezing, rhinorrhea, nasal congestion, itchy eyes/nose.
  - *Viral:* common cold; self-limited.
  - *Non-allergic/vasomotor:* triggered by irritants, temperature change.
- **Sinusitis**
  - Acute bacterial: facial pain, purulent nasal discharge, fever; often follows viral URI.

- Chronic sinusitis: symptoms >12 weeks; often multifactorial (allergic, infectious, structural).
- **Nasal Polyyps:** associated with asthma, aspirin sensitivity (Samter's triad).
- **Epistaxis:** anterior (Kiesselbach's plexus, common), posterior (sphenopalatine artery, severe).

## Section D: Throat & Upper Airway Disorders

- **Pharyngitis**
  - Viral: most common; sore throat, cough, rhinorrhea.
  - Bacterial (Group A strep): sudden sore throat, fever, exudates, tender cervical nodes. Risk of rheumatic fever.
- **Tonsillitis & Peritonsillar Abscess:** fever, sore throat, "hot-potato" voice, uvular deviation. Requires drainage.
- **Laryngitis:** hoarseness, often post-viral or voice overuse.
- **Epiglottitis:** rapidly progressive sore throat, drooling, stridor; usually H. influenzae (now less common with vaccine). Emergency airway risk.

## Clinical Skills:

- **History:** onset, duration, laterality, associated systemic symptoms (fever, weight loss, neurologic symptoms).
- **Exam:**
  - Eye: visual acuity, pupils, fundus exam, slit-lamp.
  - Ear: otoscopy, Weber/Rinne tests.
  - Nose: mucosa, septum, sinus tenderness.
  - Throat: tonsils, pharynx, laryngeal function.
- **Investigations:** cultures (throat swab, ear discharge), audiometry, imaging (CT sinuses, MRI brain for acoustic neuroma), endoscopy (nasopharyngoscopy, laryngoscopy).

## Management Principles

- **Eye:**
  - Conjunctivitis: bacterial (antibiotic drops), viral (supportive), allergic (antihistamines).
  - Cataract: surgical lens replacement.
  - Glaucoma: topical pressure-lowering drugs, laser, surgery.
- **Ear:**
  - Otitis externa: topical antibiotics, avoid water.
  - Otitis media: antibiotics if bacterial, tympanostomy tubes for recurrent.

- Ménière's: salt restriction, diuretics, vestibular rehab.
- **Nose & Sinuses:**
  - Allergic rhinitis: antihistamines, nasal steroids.
  - Acute sinusitis: supportive; antibiotics if severe/prolonged.
  - Epistaxis: compression, cautery, nasal packing; surgery if uncontrolled.
- **Throat:**
  - Strep pharyngitis: penicillin/azithromycin.
  - Peritonsillar abscess: drainage + antibiotics.
  - Epiglottitis: secure airway + IV antibiotics.

## Clinical Pearls

Any **sudden vision loss** is an emergency.

**Children with recurrent otitis media** should be screened for hearing loss, which can affect language development.

**Unilateral nasal obstruction in adults** = rule out malignancy.

**Hoarseness >2 weeks** in smokers → laryngeal cancer until proven otherwise.





# 3. Cardiovascular Disorders

## Introduction

The cardiovascular system delivers oxygen and nutrients to tissues, removes waste products, and maintains blood pressure and perfusion. Disorders of the heart and blood vessels are among the most common causes of morbidity and mortality worldwide. They range from manageable conditions like hypertension to life-threatening events like myocardial infarction and cardiac arrest.

## Section A: Ischemic Heart Disease

- **Stable Angina**
  - Chest pain with exertion, relieved by rest/nitroglycerin.
  - Caused by fixed atherosclerotic narrowing.
- **Unstable Angina**
  - Chest pain at rest or new-onset/worsening angina.
  - Warning sign of impending myocardial infarction.
- **Myocardial Infarction (MI)**
  - Severe, crushing chest pain, radiating to arm/jaw, associated with diaphoresis, nausea.
  - ECG: STEMI (ST elevation) or NSTEMI (ST depression, T-wave changes).

- Labs: Troponin elevation.
- Complications: arrhythmias, heart failure, shock.

## Section B: Heart Failure

- **Left-sided:** pulmonary congestion, dyspnea, orthopnea, paroxysmal nocturnal dyspnea.
- **Right-sided:** peripheral edema, ascites, hepatomegaly, jugular venous distension.
- **Systolic vs. Diastolic**
  - *Systolic:* reduced ejection fraction (<40%).
  - *Diastolic:* preserved ejection fraction, impaired filling.

## Section C: Hypertension

- Defined as sustained BP  $\geq 130/80$  mmHg.
- Risk factor for stroke, MI, heart failure, CKD.
- Often asymptomatic (“silent killer”).
- Primary (essential): 90–95%, no single cause.
- Secondary: due to renal disease, endocrine disorders (pheochromocytoma, hyperaldosteronism), sleep apnea.

## Section D: Arrhythmias

- **Atrial Fibrillation (AFib)**
  - Irregularly irregular pulse, no P waves.
  - Risk: stroke, heart failure.

- Management: rate control, rhythm control, anticoagulation.
- **Atrial Flutter:** sawtooth waves on ECG.
- **Ventricular Tachycardia:** wide complex tachycardia, can progress to VFib.
- **Ventricular Fibrillation (VFib):** chaotic rhythm, cardiac arrest → immediate defibrillation.
- **Bradyarrhythmias:** sinus node dysfunction, AV block (1°, 2°, 3°).

## Section E: Valvular Heart Disease

- **Aortic Stenosis:** systolic ejection murmur, crescendo-decrescendo, radiates to carotids; syncope, angina, dyspnea.
- **Aortic Regurgitation:** diastolic decrescendo murmur, widened pulse pressure.
- **Mitral Stenosis:** diastolic rumble, opening snap; often rheumatic fever.
- **Mitral Regurgitation:** holosystolic murmur radiating to axilla.
- **Tricuspid Disease:** associated with IV drug use, right-sided failure.

## Section F: Vascular Disorders

- **Peripheral Arterial Disease (PAD)**
  - Intermittent claudication, diminished pulses, ulcers.
  - Risk factor: smoking, diabetes.

- **Deep Vein Thrombosis (DVT)**
  - Swelling, pain, redness; risk of pulmonary embolism.
- **Aneurysms**
  - Abdominal aortic aneurysm (AAA): pulsatile abdominal mass; rupture is life-threatening.
  - Thoracic aneurysm: associated with Marfan syndrome, hypertension.

## Section G: Inflammatory & Other Disorders

- **Endocarditis**
  - Infection of heart valves.
  - Signs: fever, new murmur, embolic phenomena.
  - Common pathogens: Staphylococcus aureus, Streptococcus viridans.
- **Pericarditis**
  - Sharp, pleuritic chest pain, improved by sitting forward.
  - ECG: diffuse ST elevation.
  - Complication: cardiac tamponade (Beck's triad – hypotension, JVD, muffled heart sounds).
- **Cardiomyopathies**
  - Dilated: systolic dysfunction, alcohol/viral/genetic causes.
  - Hypertrophic: thick septum, sudden death in young athletes.

- Restrictive: amyloidosis, sarcoidosis, fibrosis.

## Clinical Skills:

- **History:** chest pain (character, duration, triggers), dyspnea, palpitations, syncope, edema.
- **Physical Exam:** blood pressure, jugular venous pressure, heart sounds/murmurs, peripheral pulses.
- **Investigations:**
  - ECG for arrhythmias/ischemia.
  - Echocardiography for valvular disease/heart failure.
  - Cardiac biomarkers for MI.
  - Stress testing, angiography for coronary artery disease.

## Management Principles

- **Ischemic Heart Disease:** aspirin, statins, beta-blockers, nitrates, revascularization (PCI, CABG).
- **Heart Failure:** diuretics, ACE inhibitors/ARBs/ARNIs, beta-blockers, mineralocorticoid antagonists, lifestyle changes.
- **Hypertension:** lifestyle (diet, exercise, weight loss), antihypertensives (thiazides, ACE inhibitors, ARBs, calcium channel blockers).

- **Arrhythmias:** antiarrhythmics, cardioversion/defibrillation, pacemakers, anticoagulation (for AFib).
- **Valvular Disease:** medical management vs surgical replacement/repair.
- **PAD:** smoking cessation, antiplatelets, exercise, revascularization if severe.
- **DVT/PE:** anticoagulation (heparin, DOACs).
- **Pericarditis:** NSAIDs, colchicine; pericardiocentesis if tamponade.
- **Endocarditis:** IV antibiotics, valve surgery if severe.

## Clinical Pearls

- “Time is muscle”: immediate reperfusion is critical in acute MI.
- In elderly patients with syncope + murmur, always rule out **aortic stenosis**.
- **AFib + risk factors** → anticoagulation to prevent stroke.
- **Uncontrolled hypertension** is the most common cause of heart failure worldwide.
- Any **new murmur + fever** = endocarditis until proven otherwise.



# 4. Respiratory Disorders

## Introduction

The respiratory system is responsible for gas exchange, maintaining oxygen delivery and carbon dioxide removal. Disorders of the lungs and airways are among the most frequent problems in both outpatient and inpatient medicine, ranging from self-limited infections to chronic diseases that impair quality of life, and acute emergencies that threaten survival.

## Section A: Airway Disorders

### 1. Asthma

- **Pathophysiology:** chronic airway inflammation, reversible bronchoconstriction, hyperresponsiveness.
- **Clinical features:** recurrent wheezing, cough, chest tightness, shortness of breath; often worse at night/early morning.
- **Triggers:** allergens, exercise, cold air, respiratory infections.
- **Diagnosis:** spirometry showing reversible obstruction ( $FEV_1 \uparrow$  after bronchodilator).
- **Management:** stepwise approach (inhaled corticosteroids, beta-agonists, leukotriene inhibitors, biologics for severe).



## 2. Chronic Obstructive Pulmonary Disease (COPD)

- **Includes:** chronic bronchitis + emphysema.
- **Risk:** smoking is most important.
- **Features:** progressive dyspnea, chronic cough, sputum production.
- **Exam:** prolonged expiration, wheezes, barrel chest.
- **Diagnosis:** spirometry with  $FEV_1/FVC < 70\%$  not reversible with bronchodilators.
- **Management:** smoking cessation (most effective), inhaled bronchodilators, steroids for exacerbations, oxygen therapy if hypoxemic.

## Section B: Infectious Disorders

### 1. Pneumonia

- **Community-acquired (CAP):** Streptococcus pneumoniae most common. Presents with fever, productive cough, pleuritic chest pain, crackles.
- **Hospital-acquired (HAP):** Gram-negative organisms, MRSA.
- **Diagnosis:** chest X-ray with infiltrate, sputum culture.
- **Management:** empiric antibiotics (CAP: beta-lactam + macrolide or respiratory fluoroquinolone).

### 2. Tuberculosis (TB)

- **Cause:** Mycobacterium tuberculosis.
- **Features:** chronic cough, weight loss, fever, night sweats, hemoptysis.
- **Diagnosis:** CXR with cavitary lesions, sputum AFB stain/culture, PCR testing.
- **Management:** RIPE therapy (rifampin, isoniazid, pyrazinamide, ethambutol) for months.

### 3. Bronchitis

- **Acute:** usually viral; cough lasting weeks, self-limited.
- **Chronic:** productive cough  $\geq 3$  months for  $\geq 2$  years; a COPD phenotype.

## Section C: Restrictive & Interstitial Disorders

- **Pulmonary Fibrosis**
  - Causes: idiopathic, occupational exposures (asbestos, silica), autoimmune disease.
  - Features: progressive dyspnea, dry cough, clubbing, inspiratory crackles.
  - Imaging: reticular/nodular “honeycomb lung.”
  - Management: antifibrotics (nintedanib, pirfenidone), oxygen, transplant in advanced disease.
- **Sarcoidosis**

- Noncaseating granulomas; often affects lungs, lymph nodes, skin, eyes.
- CXR: bilateral hilar adenopathy.
- Management: corticosteroids for symptomatic disease.

## **Section D: Vascular & Thromboembolic Disorders**

- **Pulmonary Embolism (PE)**
  - Source: deep vein thrombosis.
  - Features: sudden dyspnea, pleuritic chest pain, tachycardia, hypoxemia.
  - Diagnosis: CT pulmonary angiography, D-dimer.
  - Management: anticoagulation (heparin → DOAC/warfarin).
- **Pulmonary Hypertension**
  - Causes: left heart disease, chronic lung disease, thromboembolic, idiopathic.
  - Features: exertional dyspnea, loud P2, signs of right heart failure.
  - Management: treat underlying cause; advanced cases → vasodilators (endothelin receptor antagonists, PDE-5 inhibitors).

## **Section E: Pleural Disorders**

- **Pleural Effusion**

- Fluid accumulation; classified as transudate (CHF, nephrotic syndrome) or exudate (infection, malignancy).
- Diagnosis: chest X-ray, thoracentesis with Light's criteria.
- Management: treat underlying cause, drain if large/symptomatic.
- **Pneumothorax**
  - Air in pleural space, collapse of lung.
  - Spontaneous (tall young men, ruptured bleb) or secondary (COPD, trauma).
  - Tension pneumothorax: tracheal deviation, hypotension, distended neck veins → emergency needle decompression.

## Section F: Neoplastic Disorders

- **Lung Cancer**
  - Types:
    - *Non-small cell (NSCLC)*: adenocarcinoma (most common), squamous cell, large cell.
    - *Small cell*: aggressive, associated with smoking.
  - Features: chronic cough, hemoptysis, weight loss, recurrent pneumonia, paraneoplastic syndromes.
  - Diagnosis: imaging + biopsy.
  - Management: surgery (early NSCLC), chemo/radiation, targeted therapies, immunotherapy.

## Clinical Skills

- **History:** dyspnea (acute vs chronic), cough (productive? duration?), chest pain, hemoptysis, systemic features (fever, weight loss, night sweats).
- **Exam:** respiratory rate, use of accessory muscles, percussion, auscultation (wheezes, crackles, absent breath sounds).
- **Investigations:**
  - Chest X-ray (pneumonia, effusion, mass, pneumothorax).
  - CT chest for detailed imaging.
  - Pulmonary function tests (obstructive vs restrictive).
  - ABG for hypoxemia/hypercapnia.
  - Bronchoscopy for sampling/biopsy.

## Management Principles

- **Airway disease:** asthma/COPD → inhalers, steroids, smoking cessation.
- **Infections:** pneumonia → antibiotics; TB → multidrug therapy.
- **Restrictive/interstitial:** remove exposure, immunosuppression, antifibrotics.
- **Vascular:** PE → anticoagulation; pulmonary HTN → targeted therapy.
- **Pleural:** effusion → thoracentesis; pneumothorax → chest tube/needle decompression.

- **Neoplastic:** surgery, chemo, radiation, targeted therapy depending on type and stage.

## Clinical Pearls

- Always consider **PE** in acute dyspnea with risk factors (immobility, recent surgery, cancer).
- **Asthma vs COPD:** asthma is reversible obstruction; COPD is irreversible.
- **Unexplained recurrent pneumonia** in the same lung segment may suggest **obstructing lung cancer**.
- **Tension pneumothorax** is a clinical diagnosis—don't wait for imaging before decompression.
- A normal chest X-ray **does not rule out PE** or early pneumonia.



# 5. Gastrointestinal & Nutritional Diseases

## Introduction

The gastrointestinal (GI) tract is responsible for digestion, absorption of nutrients, and elimination of waste. It also plays a key role in immunity, fluid balance, and host–microbe interactions. Disorders of the GI system and nutrition are common, ranging from self-limited conditions like viral gastroenteritis to life-threatening illnesses such as gastrointestinal bleeding or cirrhosis.

## Section A: Esophageal Disorders

- **Gastroesophageal Reflux Disease (GERD)**
  - Pathophysiology: reflux of gastric contents due to lower esophageal sphincter dysfunction.
  - Features: heartburn, regurgitation, worse lying down/after meals.
  - Complications: Barrett's esophagus, strictures, adenocarcinoma.
  - Management: lifestyle modification, PPIs, surgery (fundoplication if refractory).
- **Esophagitis:** causes include reflux, infection (Candida, HSV, CMV), pills, caustic ingestion.



- **Achalasia:** failure of LES relaxation; progressive dysphagia to solids & liquids. “Bird beak” on barium swallow.
- **Esophageal Varices:** portal hypertension complication; risk of massive upper GI bleed.

## Section B: Gastric & Duodenal Disorders

- **Peptic Ulcer Disease (PUD)**
  - Causes: H. pylori infection, NSAID use.
  - Features: epigastric pain related to meals (duodenal relieved by food, gastric worsened).
  - Complications: bleeding, perforation, obstruction.
  - Management: eradicate H. pylori (triple therapy), stop NSAIDs, PPIs.
- **Gastritis:** acute (NSAIDs, alcohol, stress) or chronic (autoimmune, H. pylori).
- **Gastric Cancer:** often late diagnosis; weight loss, anemia, early satiety.

## Section C: Small & Large Intestine Disorders

- **Irritable Bowel Syndrome (IBS)**
  - Functional disorder with abdominal pain + altered bowel habits, without structural abnormality.

- Management: diet (low FODMAP), antispasmodics, reassurance.
- **Inflammatory Bowel Disease (IBD)**
  - *Crohn's disease*: anywhere mouth–anus; transmural inflammation; skip lesions; fistulas, strictures.
  - *Ulcerative colitis*: colon only, continuous from rectum; mucosal inflammation; bloody diarrhea; ↑ colon cancer risk.
  - Management: 5-ASA, steroids, immunomodulators, biologics, surgery if severe.
- **Diverticulosis/Diverticulitis**
  - Diverticulosis: asymptomatic outpouchings, common in elderly.
  - Diverticulitis: inflamed, presents with LLQ pain, fever, leukocytosis.
  - Complications: abscess, perforation, fistula.
  - Management: antibiotics, surgery if complicated.
- **Colorectal Cancer**
  - Risk: age, IBD, family history, diet.
  - Screening: colonoscopy beginning at age 45–50.
  - Features: change in bowel habits, anemia, blood in stool, weight loss.

## Section D: Hepatobiliary Disorders

- **Hepatitis**: viral (A–E), autoimmune, drug-induced.

- **Cirrhosis:** end-stage scarring; causes include alcohol, viral hepatitis, NAFLD.
  - Complications: portal hypertension, varices, ascites, hepatic encephalopathy, HCC.
- **Cholelithiasis (Gallstones):** cholesterol stones most common.
- **Cholecystitis:** gallstone obstruction, RUQ pain, fever, Murphy's sign.
- **Choledocholithiasis/Cholangitis:** bile duct obstruction → infection (Charcot's triad: fever, jaundice, RUQ pain).

## Section E: Pancreatic Disorders

- **Acute Pancreatitis**
  - Causes: gallstones, alcohol, hypertriglyceridemia, drugs.
  - Features: severe epigastric pain radiating to back, ↑ amylase/lipase.
  - Management: supportive (NPO, IV fluids, pain control).
- **Chronic Pancreatitis**
  - Causes: alcohol most common.
  - Features: chronic abdominal pain, steatorrhea, diabetes.
- **Pancreatic Cancer**
  - Features: painless jaundice, weight loss, epigastric pain.
  - Poor prognosis, often advanced at diagnosis.

## Section F: Nutritional Disorders

- **Malnutrition:** protein-energy deficiency (marasmus, kwashiorkor).
- **Obesity:** excess energy intake vs expenditure; risk of diabetes, cardiovascular disease, cancer.
- **Vitamin Deficiencies**
  - Vitamin A: night blindness.
  - Vitamin D: rickets/osteomalacia.
  - Vitamin K: bleeding disorders.
  - Vitamin B12: megaloblastic anemia, neuropathy.
- **Mineral Deficiencies**
  - Iron: microcytic anemia.
  - Iodine: goiter, hypothyroidism.
  - Zinc: poor wound healing, immune dysfunction.

## Clinical Skills

- **History:** appetite, weight changes, dysphagia, nausea, vomiting, abdominal pain, bowel habits, jaundice, GI bleeding.
- **Exam:** abdominal inspection, palpation (masses, organomegaly), percussion (ascites), rectal exam.
- **Investigations:**
  - Endoscopy for ulcers, bleeding, malignancy.
  - Imaging: ultrasound (gallstones, ascites), CT (pancreatitis, diverticulitis).

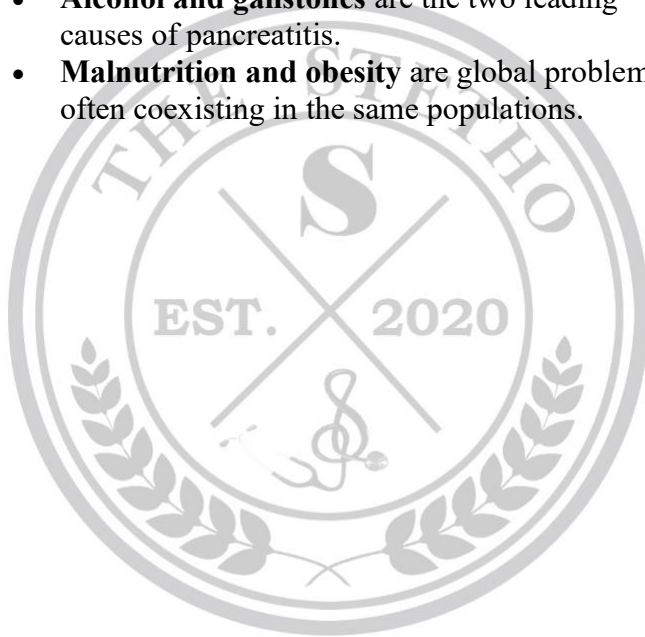
- Labs: LFTs, amylase/lipase, CBC, electrolytes, stool studies.
- Colonoscopy for screening and diagnosis.

## Management Principles

- **GERD/PUD:** acid suppression, H. pylori eradication.
- **IBD:** stepwise medical therapy, surgery for complications.
- **GI bleeding:** stabilize (fluids, blood), endoscopy for diagnosis and treatment.
- **Hepatobiliary:** treat underlying cause, transplant for end-stage liver disease.
- **Pancreatitis:** supportive, address underlying trigger.
- **Cancer:** surgery, chemo, radiation depending on type/stage.
- **Nutritional:** supplementation, dietary modification, public health measures (fortification, weight management).

## Clinical Pearls

- **Red flag GI symptoms:** weight loss, anemia, dysphagia, hematemesis/melena, persistent vomiting. Always investigate.
- **Screening colonoscopy saves lives**—colorectal cancer is preventable.
- **Massive upper GI bleed:** esophageal varices and peptic ulcer disease are top considerations.
- **Alcohol and gallstones** are the two leading causes of pancreatitis.
- **Malnutrition and obesity** are global problems, often coexisting in the same populations.





# 6. Disorders of Pregnancy, Childbirth, & Puerperium

## Introduction

Pregnancy and childbirth bring unique physiological changes that can unmask or worsen disease. While most pregnancies progress without major complications, certain disorders can threaten the health of the mother and fetus. The puerperium (first 6 weeks postpartum) is also a critical period for recovery and recognition of complications. Early recognition and management are vital to reduce maternal and neonatal morbidity and mortality.

## Section A: Pregnancy-Related Disorders

### 1. Hyperemesis Gravidarum

- Severe nausea/vomiting → dehydration, electrolyte imbalance, weight loss.
- Differentiated from normal morning sickness by severity.
- Management: IV fluids, antiemetics, thiamine supplementation.

### 2. Hypertensive Disorders of Pregnancy



- **Gestational Hypertension:** BP  $\geq 140/90$  after 20 weeks without proteinuria.
- **Preeclampsia:** hypertension + proteinuria OR end-organ damage after 20 weeks.
- **Eclampsia:** preeclampsia + seizures.
- **HELLP Syndrome:** hemolysis, elevated liver enzymes, low platelets.
- Management: antihypertensives (labetalol, hydralazine), magnesium sulfate for seizure prophylaxis, delivery is definitive treatment.

### 3. Gestational Diabetes Mellitus (GDM)

- Abnormal glucose tolerance first diagnosed in pregnancy.
- Risks: macrosomia, neonatal hypoglycemia, maternal type 2 diabetes later.
- Screening: oral glucose tolerance test at 24–28 weeks.
- Management: diet, insulin if uncontrolled.

### 4. Rh Incompatibility

- Rh-negative mother, Rh-positive fetus → maternal alloimmunization.
- Risk of hemolytic disease of newborn in subsequent pregnancies.
- Prevention: Rho(D) immune globulin at 28 weeks and postpartum.

### 5. Infections in Pregnancy

- TORCH: Toxoplasmosis, Other (syphilis, varicella, parvovirus), Rubella, CMV, HSV.
- Can cause congenital anomalies, stillbirth, neonatal infection.
- Prevention: vaccination (rubella, varicella preconception), screening, safe food practices.

## **Section B: Disorders of Childbirth**

### **1. Preterm Labor**

- Labor before 37 weeks.
- Risks: neonatal prematurity complications.
- Management: tocolytics (short-term), corticosteroids (fetal lung maturity), magnesium sulfate (neuroprotection).

### **2. Post-term Pregnancy**

- 42 weeks.
- Risks: macrosomia, meconium aspiration, stillbirth.
- Management: induction of labor.

### **3. Dystocia (Difficult Labor)**

- Causes: “3 Ps” – Passenger (fetal size/position), Passage (pelvic anatomy), Power (uterine contractions).
- Management: operative delivery (forceps, vacuum, cesarean).

## 4. Obstetric Hemorrhage

- **Placenta Previa:** painless vaginal bleeding in 2nd/3rd trimester; placenta covers cervical os.
- **Placental Abruption:** painful bleeding, uterine tenderness, fetal distress.
- **Postpartum Hemorrhage (PPH):** >500 mL after vaginal delivery, >1000 mL after cesarean. Causes: uterine atony (most common), retained tissue, trauma, coagulopathy.

## 5. Amniotic Fluid Disorders

- **Polyhydramnios:** excess fluid; causes include maternal diabetes, fetal anomalies.
- **Oligohydramnios:** low fluid; causes include ruptured membranes, placental insufficiency, renal agenesis.

# Section C: Disorders of the Puerperium (Postpartum Period)

## 1. Postpartum Infections

- **Endometritis:** fever, uterine tenderness, foul lochia; common after cesarean.
- **Mastitis:** painful breast, fever; usually *Staphylococcus aureus*.
- **Management:** antibiotics, continue breastfeeding for mastitis.

## 2. Postpartum Mood Disorders

- **Postpartum blues:** transient mood swings, tearfulness, resolves within 2 weeks.
- **Postpartum depression:** persistent sadness, impaired function; requires therapy ± medication.
- **Postpartum psychosis:** rare, hallucinations, delusions; psychiatric emergency.

## 3. Thromboembolic Disorders

- Pregnancy is a hypercoagulable state → risk of DVT, pulmonary embolism postpartum.
- Management: anticoagulation (heparin, LMWH).

## Clinical Skills

- **History:** prenatal risk factors, bleeding, contractions, fluid leakage, headaches/visual changes (preeclampsia), mood changes postpartum.
- **Exam:** blood pressure, fundal height, fetal heart tones, pelvic exam if indicated.
- **Investigations:**
  - Ultrasound (placental location, fetal growth, amniotic fluid).
  - Glucose tolerance test (GDM).
  - Labs: CBC, LFTs, coagulation studies (HELLP, PPH).

## Management Principles

- Early prenatal care to detect/manage risk factors.
- Timely interventions: induction, cesarean when needed.
- Emergency preparedness: protocols for hemorrhage, eclampsia, sepsis.
- Postpartum follow-up: monitor bleeding, mood, lactation, contraception planning.

## Clinical Pearls

- **Hypertensive disorders** are leading causes of maternal morbidity and mortality.
- **Vaginal bleeding in late pregnancy**: painless → placenta previa; painful → placental abruption.
- **PPH is most often due to uterine atony**; first step = uterine massage + uterotonics.
- **Postpartum blues are common and self-limited**, but screen for depression.
- **Breastfeeding should continue** during mastitis; it helps resolve infection.



# 7. Endocrine Disorders

## Introduction

The endocrine system regulates metabolism, growth, reproduction, and homeostasis through hormones secreted by glands such as the thyroid, pancreas, adrenals, and pituitary. Disorders arise from hormone excess, deficiency, or resistance, and can have widespread effects. Recognizing subtle signs is important, as untreated endocrine disease can cause severe complications or death.

## Section A: Pituitary Disorders

- **Pituitary Adenomas**
  - *Prolactinoma*: most common; galactorrhea, amenorrhea, infertility, hypogonadism.
  - *GH-secreting*: acromegaly (adults), gigantism (children).
  - *ACTH-secreting*: Cushing's disease.
  - Management: medical (dopamine agonists for prolactinoma), surgery, radiation if refractory.
- **Hypopituitarism**
  - Deficiency of pituitary hormones due to tumor, infarction (Sheehan syndrome), trauma.

- Features: secondary adrenal insufficiency, hypothyroidism, hypogonadism.

## Section B: Thyroid Disorders

- **Hypothyroidism**
  - Causes: Hashimoto's thyroiditis (autoimmune), iodine deficiency, post-surgery/radioiodine.
  - Features: fatigue, cold intolerance, constipation, weight gain, bradycardia, dry skin.
  - Labs: ↑ TSH, ↓ free T4.
  - Management: levothyroxine replacement.
- **Hyperthyroidism**
  - Causes: Graves' disease (autoimmune, exophthalmos, pretibial myxedema), toxic multinodular goiter.
  - Features: heat intolerance, weight loss, palpitations, tremor, tachycardia.
  - Labs: ↓ TSH, ↑ free T4/T3.
  - Management: beta-blockers for symptoms, antithyroid drugs (methimazole, PTU), radioactive iodine, surgery.
- **Thyroid Nodules and Cancer**
  - Most nodules benign.
  - Malignancies: papillary (most common), follicular, medullary, anaplastic (aggressive).
  - Evaluation: ultrasound, fine-needle aspiration (FNA).



## Section C: Adrenal Disorders

- **Cushing's Syndrome**
  - Excess cortisol (ACTH-dependent or independent).
  - Features: truncal obesity, moon face, buffalo hump, striae, hypertension, diabetes.
  - Diagnosis: dexamethasone suppression test, 24-hr urinary cortisol.
  - Management: surgery (pituitary or adrenal tumor), medical suppression if inoperable.
- **Addison's Disease (Primary Adrenal Insufficiency)**
  - Cause: autoimmune, infections (TB, HIV), metastasis.
  - Features: fatigue, hypotension, hyperpigmentation, hyponatremia, hyperkalemia.
  - Diagnosis: low cortisol, high ACTH, failed cosyntropin stimulation.
  - Management: glucocorticoid + mineralocorticoid replacement.
- **Pheochromocytoma**
  - Catecholamine-secreting tumor of adrenal medulla.
  - Features: episodic headache, sweating, palpitations, hypertension.
  - Diagnosis: plasma/urine metanephrines.
  - Management: alpha-blockade then surgery.

## Section D: Pancreatic Endocrine Disorders

- **Diabetes Mellitus (DM)**
  - *Type 1*: autoimmune destruction of  $\beta$ -cells  
→ absolute insulin deficiency.
  - *Type 2*: insulin resistance + relative deficiency; associated with obesity, metabolic syndrome.
  - Complications: microvascular (retinopathy, nephropathy, neuropathy), macrovascular (CAD, stroke, PAD).
  - Management: lifestyle, oral agents (metformin first-line), insulin (T1DM, advanced T2DM).
- **Diabetic Ketoacidosis (DKA)**
  - Acute complication of T1DM.
  - Features: polyuria, polydipsia, abdominal pain, Kussmaul breathing, fruity odor.
  - Labs: metabolic acidosis, ketones, hyperglycemia.
  - Management: IV fluids, insulin, electrolyte replacement.
- **Hyperosmolar Hyperglycemic State (HHS)**
  - Complication of T2DM; severe hyperglycemia, dehydration, no significant ketosis.

## Section E: Parathyroid Disorders

- **Hyperparathyroidism**
  - Primary: adenoma (most common).
  - Features: “stones, bones, groans, psychiatric overtones.”
  - Labs: ↑ calcium, ↓ phosphate, ↑ PTH.
  - Management: surgery if symptomatic/severe.
- **Hypoparathyroidism**
  - Causes: post-thyroid surgery, autoimmune.
  - Features: hypocalcemia → tetany, muscle cramps, seizures, Chvostek & Trousseau signs.
  - Management: calcium + vitamin D replacement.

## Section F: Reproductive-Endocrine Disorders (Female)

- **Menstrual Irregularities:** often linked to PCOS, thyroid disease, pituitary dysfunction.
- **Menopause:** estrogen deficiency → hot flashes, osteoporosis risk, urogenital atrophy.
- **Management:** lifestyle, hormone replacement therapy (HRT) in selected patients.

## Clinical Skills

- **History:** weight change, heat/cold intolerance, polyuria/polydipsia, fatigue, mood changes, menstrual history.
- **Exam:** thyroid size/nodules, skin changes, blood pressure, body habitus, pigmentation.
- **Investigations:**
  - Hormone assays (TSH, T4, cortisol, ACTH, insulin, PTH).
  - Stimulation/suppression tests (cosyntropin, dexamethasone).
  - Imaging: ultrasound (thyroid), CT/MRI (pituitary/adrenals).

## Management Principles

- Replace deficient hormones (levothyroxine, insulin, steroids).
- Suppress excess hormones (antithyroid drugs, surgery, radiotherapy).
- Address complications (osteoporosis, cardiovascular risk, metabolic syndrome).
- Lifelong monitoring for chronic conditions (DM, hypothyroidism, Addison's).

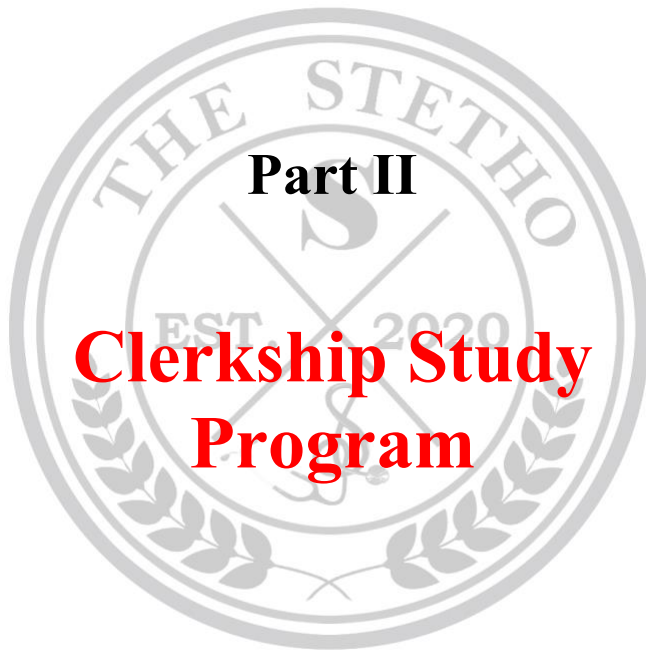
## Clinical Pearls

- Always rule out **pregnancy** when evaluating amenorrhea.

- **Hyperthyroidism in elderly** may present with atrial fibrillation rather than classic symptoms.
- **Hypertension + hypokalemia** → think hyperaldosteronism.
- **Diabetic patients:** cardiovascular disease is leading cause of death.
- **Pheochromocytoma:** never give beta-blocker without alpha-blockade first.







## **Part II**

# **Clerkship Study Program**





# 8. Internal Medicine

## Introduction

Internal medicine (IM) focuses on the prevention, diagnosis, and management of adult diseases. During the clerkship, students learn to integrate knowledge across organ systems, refine clinical reasoning, and manage patients with multiple comorbidities. IM training emphasizes history-taking, physical examination, problem-solving, and evidence-based decision-making.

## Section A: Core Competencies for Clerkship

- **History & Physical Examination**
  - Obtain complete medical, social, family, and medication histories.
  - Perform thorough exams (cardiac, respiratory, abdominal, neurologic).
- **Clinical Reasoning**
  - Formulate differential diagnoses based on presenting complaints.
  - Prioritize likely and dangerous conditions.
- **Communication**
  - Present cases clearly on rounds.
  - Communicate empathetically with patients and families.
- **Teamwork**

- Collaborate with residents, attendings, nurses, and allied staff.
- **Documentation**
  - Write accurate daily progress notes, admission notes, and discharge summaries.

## **Section B: Common Presentations**

- Chest pain
- Dyspnea
- Fever
- Abdominal pain
- Syncope
- Palpitations
- Fatigue and weight loss
- Edema
- Altered mental status

Each presentation requires a systematic approach: history, focused exam, differential diagnosis, initial investigations, and early management.

## **Section C: High-Yield Conditions**

### **Cardiovascular**

- Hypertension, heart failure, coronary artery disease, arrhythmias, valvular disease.

### **Pulmonary**

Asthma, COPD, pneumonia, pulmonary embolism, pleural effusion.

## **Gastrointestinal**

Peptic ulcer disease, IBD, cirrhosis, GI bleeding.

## **Renal**

Acute kidney injury, CKD, nephrotic/nephritic syndromes, UTI.

## **Endocrine**

Diabetes mellitus, thyroid disease, adrenal disorders.

## **Hematology/Oncology**

Anemia, coagulopathies, leukemias/lymphomas, solid tumors.

## **Infectious Disease**

Sepsis, HIV, endocarditis, tuberculosis.

## **Rheumatology**

Rheumatoid arthritis, SLE, gout.

## **Neurology (in IM context)**

Stroke, seizures, delirium.

## Section D: Clerkship Skills – From Classroom to Clinic

- **Patient Rounds**
  - Present concisely: ID, chief complaint, overnight events, vitals, exam, labs, assessment, plan.
- **Order Writing**
  - Admission orders: fluids, labs, imaging, medications, diet, consults.
  - Use “ADC VANDALISM” mnemonic: Admit, Diagnosis, Condition, Vitals, Activity, Nursing, Diet, Allergies, Labs, IV fluids, Special orders, Medications.
- **Procedures** (depending on rotation site)
  - IV insertion, arterial blood gases, EKG interpretation.
  - Observe or assist in lumbar puncture, paracentesis, thoracentesis.
- **Preventive Care**
  - Screening (cancer, diabetes, hypertension).
  - Counseling (smoking cessation, vaccinations, diet/exercise).

## Section E: Learning Tips

- **Active Learning**

- Use patient cases as anchors for self-study.
- Look up each patient's diagnosis in textbooks or UpToDate.
- **Efficiency**
  - Prepare 2–3 differential diagnoses for every major complaint.
  - Carry pocket reference guides.
- **Feedback**
  - Ask for mid-rotation feedback from residents/attendings.
  - Reflect on strengths and weaknesses.

## Section F: Assessment During Clerkship

- **Clinical Performance:** professionalism, teamwork, communication.
- **Knowledge:** shelf exam (NBME-style multiple choice).
- **Skills:** presentations, notes, patient interactions.
- **Attitude:** reliability, initiative, respect for patients and team.

## Clinical Pearls

- Always think of **worst-case diagnoses first** (e.g., chest pain → MI, PE, aortic dissection).
- In IM, **comorbidities matter:** always consider how one disease affects another.

- Your role is to be **thorough but concise**: detail-oriented in gathering data, but succinct in reporting.
- Never forget **basic preventive medicine**: vaccines, lifestyle counseling, screening.





# 9. Family Practice

## Introduction

Family practice (also called family medicine) is a primary care specialty that provides **comprehensive, continuous, and coordinated care** for patients of all ages, genders, and backgrounds. It integrates biomedical, behavioral, and social sciences to address acute illness, chronic disease, preventive care, and health promotion. The clerkship exposes students to outpatient medicine, continuity of care, and the importance of the physician–patient relationship.

## Section A: Core Competencies

- **Comprehensive Care:** manage acute problems, chronic illnesses, and preventive needs in the same setting.
- **Continuity of Care:** follow patients over time and across different care settings.
- **Holistic Approach:** incorporate psychosocial, cultural, and family dynamics into care.
- **Health Maintenance & Screening:** age-appropriate screenings, vaccinations, counseling.
- **Chronic Disease Management:** hypertension, diabetes, asthma, COPD, depression.
- **Communication:** patient education, shared decision-making, motivational interviewing.



## Section B: Common Presentations in Family Practice

- Cough, sore throat, fever.
- Hypertension follow-up.
- Diabetes management.
- Back pain, joint pain, musculoskeletal injuries.
- Depression, anxiety, insomnia.
- Abdominal pain, constipation, diarrhea.
- Well-child visits, immunizations.
- Women's health: contraception, Pap smears, prenatal care.
- Men's health: prostate screening, sexual health.
- Geriatric care: falls, dementia, polypharmacy.

## Section C: Preventive & Health Maintenance Care

- **Children:** vaccination schedule, growth and development monitoring.
- **Adolescents:** sexual health counseling, mental health screening.
- **Adults:** BP, cholesterol, diabetes screening; cancer screening (cervical, breast, colorectal, prostate individualized).
- **Elderly:** osteoporosis, fall risk, cognitive screening, advance care planning.
- **Lifestyle Counseling:** smoking cessation, weight management, exercise, alcohol moderation.

## Section D: Chronic Disease Management

- **Hypertension:** monitor BP, lifestyle, medications (thiazides, ACE inhibitors, ARBs, calcium channel blockers).
- **Diabetes Mellitus:** lifestyle, oral agents, insulin if needed; screen for complications.
- **Asthma/COPD:** inhaler use, smoking cessation, vaccinations.
- **Depression/Anxiety:** screening, counseling, medications, referrals when needed.
- **Hyperlipidemia:** statins for cardiovascular risk reduction.
- **Obesity & Metabolic Syndrome:** diet, exercise, behavioral modification, pharmacotherapy if severe.

## Section E: Procedural Skills in Family Practice

- Pap smears, pelvic exams.
- Skin biopsies, cryotherapy for lesions.
- Joint injections, splinting/casting for simple fractures.
- Suturing minor lacerations.
- Vaccinations.

## Section F: Clerkship Skills – From Classroom to Clinic

- **Patient Encounters:** learn to balance acute complaints with preventive care in a single visit.
- **Documentation:** SOAP notes with emphasis on patient-centered goals.
- **Case Presentations:** focus on both the acute issue and the patient's long-term health needs.
- **Follow-Up Planning:** coordinate labs, imaging, referrals, and health maintenance.

## Section G: Learning Tips

- Prepare for clinic by reviewing **guidelines for screening and immunizations** (e.g., USPSTF).
- Carry a pocket reference for common outpatient medications and dosing.
- Learn motivational interviewing for behavior change.
- Observe how attendings build long-term relationships with patients.
- Reflect on social determinants of health that affect your patients.

## Section H: Assessment in Family Practice

- **Clinical Skills:** communication, patient education, physical exams.

- **Knowledge:** outpatient medicine and preventive care exam questions.
- **Professionalism:** respect for continuity of care and long-term relationships.
- **Efficiency:** balancing time in busy clinics while maintaining thoroughness.

## Clinical Pearls

- **Prevention is central:** never miss an opportunity for screening or vaccination.
- **Every visit counts:** patients may not come back for months, so address health maintenance even during acute visits.
- **Chronic disease care** relies as much on lifestyle counseling as on medications.
- **Listen actively:** family physicians often detect psychosocial stressors driving physical complaints.
- **Family practice is about continuity:** small interventions today can prevent major illnesses tomorrow.



# 10. Geriatrics

## Introduction

Geriatrics focuses on the care of older adults, usually aged 65 and above. This population often presents with multiple chronic illnesses, polypharmacy, cognitive or functional decline, and unique psychosocial needs. The geriatric clerkship emphasizes comprehensive assessment, patient-centered goals of care, and improving quality of life rather than simply treating disease.

## Section A: Core Competencies

- **Comprehensive Geriatric Assessment**
  - Medical: chronic diseases, acute complaints.
  - Functional: ADLs (activities of daily living), IADLs (instrumental ADLs).
  - Cognitive: screen for dementia, delirium, depression.
  - Social: living situation, caregivers, support systems.
- **Communication**
  - Discuss goals of care, advance directives, code status.
  - Involve family and caregivers in decisions.
- **Prevention & Health Maintenance**

- Vaccinations (influenza, pneumococcal, shingles).
- Screening (cancer, osteoporosis, depression, fall risk).
- Medication review to minimize polypharmacy.

## Section B: Common Presentations in Geriatrics

- Falls and gait instability.
- Cognitive decline (dementia, delirium, depression).
- Polypharmacy and adverse drug effects.
- Malnutrition, weight loss.
- Incontinence.
- Functional decline (loss of independence).
- Pain management.
- End-of-life care needs.

## Section C: High-Yield Geriatric Conditions

### Neurologic & Cognitive

- **Dementia:** progressive decline in memory and function (Alzheimer's, vascular, Lewy body).
- **Delirium:** acute fluctuating confusion, often triggered by infection, meds, hospitalization.
- **Depression:** common but often underdiagnosed.

## **Musculoskeletal**

- **Osteoporosis:** risk of hip and vertebral fractures.
- **Osteoarthritis:** chronic pain, mobility limitation.

## **Cardiovascular**

- Hypertension, atrial fibrillation, heart failure.
- Increased risk of stroke and MI.

## **Endocrine & Metabolic**

- Type 2 diabetes, thyroid disease, malnutrition, vitamin deficiencies.

## **Genitourinary**

- Urinary incontinence, BPH, recurrent UTIs.

## **Geriatric Syndromes (cross-cutting)**

- Frailty, immobility, sensory impairment (hearing/vision loss), pressure ulcers.

## **Section D: Functional & Social Aspects**

- **ADLs:** bathing, dressing, feeding, toileting, transferring.



- **IADLs:** shopping, cooking, managing finances, transportation, medications.
- **Fall Risk Assessment:** history, gait exam, home safety.
- **Elder Abuse & Neglect:** screen sensitively and report when suspected.

## Section E: Clerkship Skills – From Classroom to Clinic

- **History & Exam:** ask open-ended questions, allow extra time, assess hearing/vision.
- **Medication Review:** identify polypharmacy, avoid Beers list drugs when possible.
- **Care Coordination:** collaborate with physical therapy, social work, nursing, palliative care.
- **Documentation:** include functional status and goals of care.

## Section F: Learning Tips

- Learn to differentiate **delirium vs dementia vs depression**.
- Memorize high-yield **vaccination and screening recommendations** for older adults.
- Observe how attendings discuss **advance care planning and code status**.
- Pay attention to **non-specific presentations** (e.g., infection may present as confusion, not fever).
- Always ask about **falls, incontinence, mood, memory, and medications**.

## Section G: Assessment in Geriatrics

- **Clinical Skills:** communication, functional assessments, cognitive testing.
- **Knowledge:** common geriatric syndromes, polypharmacy, prevention.
- **Professionalism:** empathy, patience, respect for dignity.
- **Exam:** NBME questions often focus on functional decline, delirium, falls, and ethical decision-making.

### Clinical Pearls

- **Delirium = acute, fluctuating;** dementia = chronic, progressive.
- **Falls are never “normal aging”**—always look for reversible causes.
- **Polypharmacy is a leading cause** of confusion, falls, and hospitalizations.
- **Pain is often undertreated** in older adults—assess and manage proactively.
- **End-of-life discussions** should start early and reflect patient preferences.





## **Part III**

# **Appendices**



# Glossary of Terms

- **ADLs (Activities of Daily Living):** Basic self-care tasks such as eating, bathing, dressing, toileting, and transferring.
- **Anemia:** A condition in which the blood has a reduced capacity to carry oxygen due to low hemoglobin or RBC count.
- **Ascites:** Accumulation of fluid in the peritoneal cavity, often due to cirrhosis.
- **CVA (Cerebrovascular Accident):** Another term for stroke; caused by interruption of blood flow to the brain.
- **Dyspnea:** Shortness of breath or difficulty breathing.
- **Edema:** Swelling caused by fluid accumulation in tissues.
- **Nephrotic Syndrome:** Kidney disorder marked by heavy proteinuria, hypoalbuminemia, and edema.
- **Polypharmacy:** Use of multiple medications, often  $\geq 5$ , common in older adults.
- **Sepsis:** Life-threatening organ dysfunction caused by an abnormal host response to infection.
- **Torsion (Ovarian/Testicular):** Twisting of blood supply to the ovary or testis, causing ischemia and acute pain.

# Quick-Reference Diagnostic Algorithms

## 1. Chest Pain (Adult)

1. **Immediate Rule-Out:** MI, PE, aortic dissection, pneumothorax.
2. **Initial Tests:** ECG, troponin, chest X-ray.
3. **Stable & Non-ischemic:** consider GERD, costochondritis, anxiety.

## 2. Shortness of Breath

- **Acute:**
  - Hypoxemia → check airway, oxygen, ABG.
  - Chest X-ray → pneumonia, CHF, pneumothorax.
  - D-dimer/CT angiography if PE suspected.
- **Chronic:**
  - Spirometry (COPD, asthma, restrictive disease).
  - Echocardiogram (heart failure).

## 3. Abdominal Pain

- **RUQ** → gallstones, hepatitis, cholangitis.
- **Epigastric** → PUD, pancreatitis, MI.
- **RLQ** → appendicitis, ovarian torsion.
- **LLQ** → diverticulitis.
- **Diffuse** → peritonitis, bowel obstruction.

## 4. Altered Mental Status

- **AEIOU TIPS mnemonic:** Alcohol, Epilepsy/Electrolytes, Insulin (hypo/hyperglycemia), Overdose/Oxygen, Uremia, Trauma, Infection, Psychiatric, Stroke.
- Initial steps: vitals, glucose, electrolytes, infection screen, neuro exam.

## 5. Fever in a Hospitalized Patient

- **Immediate Checks:** IV lines, urinary catheter, surgical sites, lungs.
- Common causes: pneumonia, UTI, bloodstream infection, wound infection, drug fever.

## 6. Vaginal Bleeding (Reproductive Age)

- **First Step:** rule out pregnancy ( $\beta$ -hCG).
- **If pregnant** → ectopic pregnancy, miscarriage, placenta previa/abruption (depending on trimester).
- **If not pregnant** → consider anovulatory cycles, fibroids, polyps, malignancy.

## 7. Acute Neurologic Deficit (Stroke Pathway)

- **Onset <4.5 hrs:** evaluate for tPA eligibility.
- **Large vessel occlusion:** consider thrombectomy.
- **CT Head:** rule out hemorrhage.
- Secondary prevention: antiplatelet therapy, statin, risk factor modification.







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