Comprehensive Nursing Disease Study Guide

A structured approach to understanding pathophysiology, assessment, diagnostics, and treatment for nursing students. This guide provides essential information to build your clinical reasoning skills for effective patient care.

Understanding Disease Processes

Definition

A disease process refers to the biological mechanisms that lead to the disruption of normal structure and function, resulting in characteristic signs and symptoms. It includes the underlying pathophysiology and progression of a condition.

Key Components

- Etiology - underlying cause of the disease
- Pathogenesis - how the disease develops
- Morphological changes - structural alterations
- Clinical manifestations - observable signs and symptoms
- Complications - secondary problems that arise

Understanding disease processes allows nurses to anticipate complications, recognize patient needs, and implement appropriate interventions based on the underlying pathophysiology.

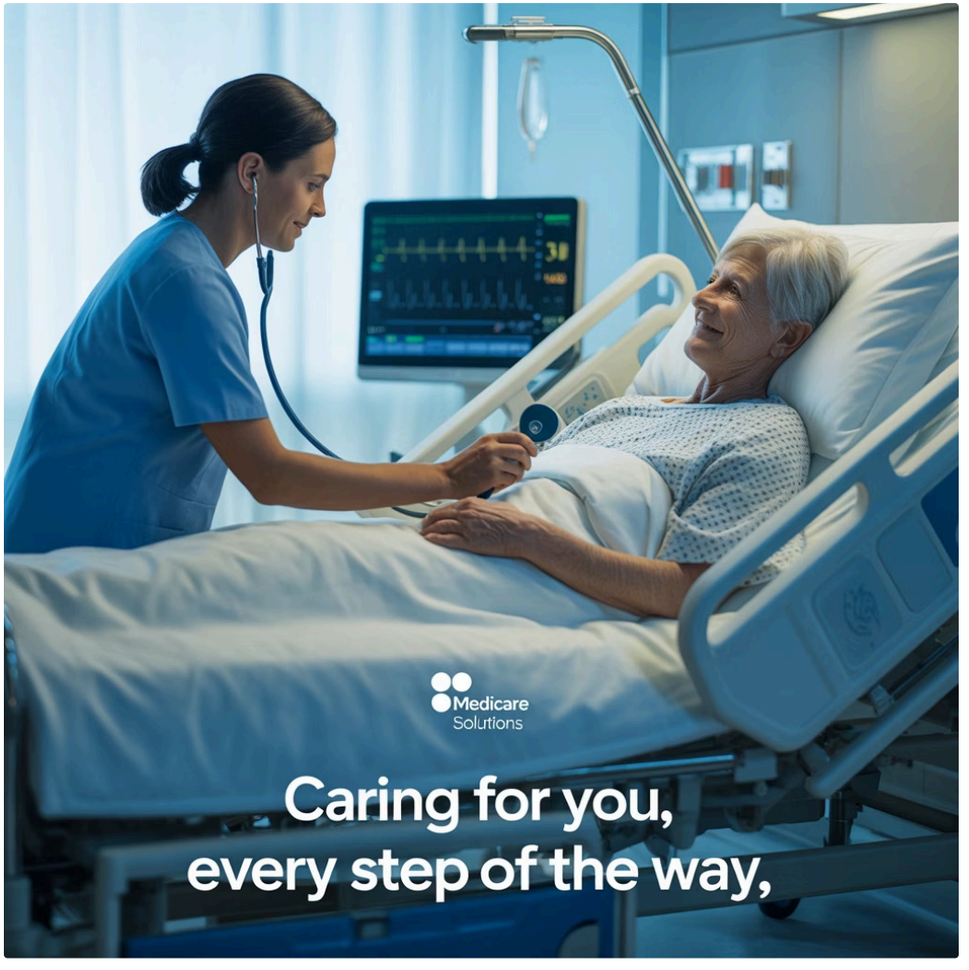
Signs, Symptoms & Assessment Findings

Objective vs. Subjective Data

Clinical assessment involves gathering both objective signs (what you observe) and subjective symptoms (what the patient reports) to form a complete clinical picture.

> Remember: Signs are what you **see**, symptoms are what patients **say**.

Physical assessment techniques include inspection, palpation, percussion, and auscultation to detect abnormalities and evaluate organ function.



Thorough assessment includes evaluating vital signs, general appearance, level of consciousness, and specific body systems relevant to the presenting condition.

Documentation should be accurate, objective, and comprehensive, noting both positive and negative findings that support or rule out potential diagnoses.

Laboratory Values & Interpretation

Complete Blood Count (CBC)

- WBC: 4,500-11,000/µL
- RBC: 4.5-5.9 million/µL (males), 4.0-5.2 million/µL (females)
- Hemoglobin: 13.5-17.5 g/dL (males), 12.0-16.0 g/dL (females)
- Hematocrit: 41-53% (males), 36-46% (females)
- Platelets: 150,000-450,000/µL

Metabolic Panel

- Glucose: 70-99 mg/dL (fasting)
- BUN: 7-20 mg/dL
- Creatinine: 0.6-1.2 mg/dL (males), 0.5-1.1 mg/dL (females)
- Sodium: 135-145 mEq/L
- Potassium: 3.5-5.0 mEq/L

Cardiac Markers

- Troponin I: < 0.04 ng/mL
- Troponin T: < 0.01 ng/mL
- CK-MB: 0-3.8 ng/mL
- BNP: < 100 pg/mL
- NT-proBNP: < 125 pg/mL (< 75 years)

Abnormal lab values must be interpreted in the context of the patient's clinical presentation, medication history, and other physiological factors. Serial measurements often provide more valuable information than single readings.

Diagnostic Testing

Non-Invasive Tests

- X-rays: Skeletal integrity, chest conditions
- CT scans: Detailed cross-sectional imaging
- MRI: Soft tissue visualization
- Ultrasound: Real-time organ visualization
- ECG: Cardiac electrical activity

Invasive Procedures

- Biopsies: Tissue sampling for pathology
- Endoscopy: Direct visualization of organs
- Angiography: Blood vessel visualization
- Lumbar puncture: CSF sampling

1

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3

Minimally Invasive Tests

- Blood tests: Disease markers, organ function
- Urinalysis: Kidney function, infection
- Sputum cultures: Respiratory infections
- Skin testing: Allergies, tuberculosis

Nursing responsibilities include proper patient preparation, monitoring during and after procedures, specimen collection, and patient education about the purpose and process of diagnostic tests.

Treatment Approaches

Non-Pharmacological Interventions

- Lifestyle modifications (diet, exercise, stress management)
- Physical therapy and rehabilitation
- Psychotherapy and behavioral interventions
- Complementary therapies (acupuncture, massage)
- Patient education and self-management strategies

Pharmacological Treatments

- Medication selection based on diagnosis, comorbidities
- Consideration of drug interactions and side effects
- Monitoring therapeutic effects and adverse reactions
- Patient adherence support and education
- Dose adjustments based on patient response

Surgical & Procedural Interventions

- Pre-operative preparation and education
- Post-operative care and complication prevention
- Minimally invasive procedures
- Emergency interventions
- Long-term rehabilitation following procedures

Pharmacology for Nurses

Drug Classification

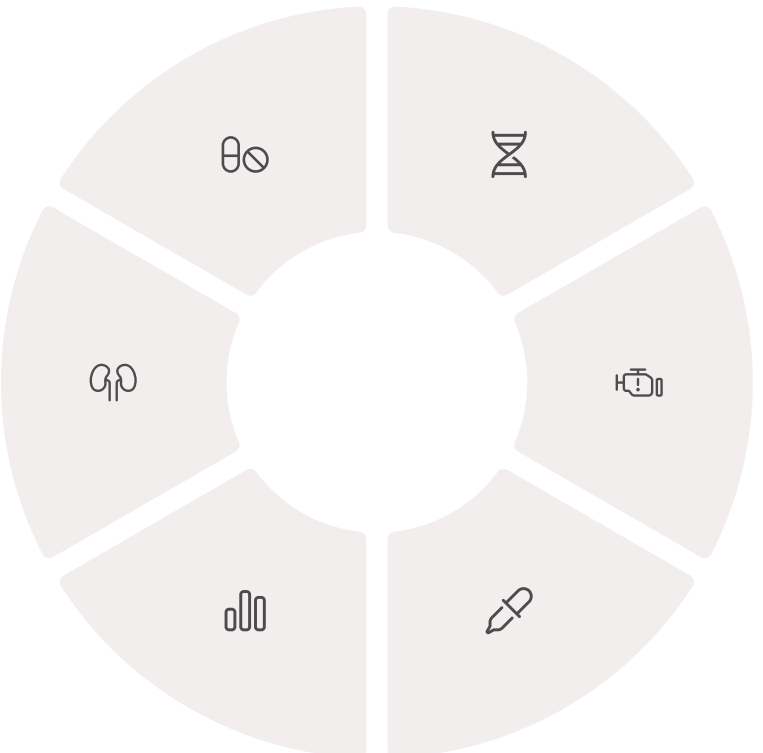
Understanding drug categories (beta-blockers, ACE inhibitors, anticoagulants) helps predict mechanisms, effects, and potential interactions.

Pharmacokinetics

The processes of absorption, distribution, metabolism, and excretion affect medication timing, dosing, and adjustments for organ dysfunction.

Dosage Calculations

Accurate dosage calculations prevent medication errors and ensure therapeutic effectiveness for patients of all ages.



Mechanism of Action

How drugs work at cellular/receptor levels explains therapeutic effects and guides appropriate administration timing.

Side Effects & Adverse Reactions

Recognizing expected side effects vs. serious adverse reactions is crucial for patient monitoring and intervention.

Administration Routes

Different routes (oral, IV, IM, subcutaneous) affect onset, duration, and bioavailability of medications.

Case Study: Diabetes Mellitus

Disease Process

Type 1: Autoimmune destruction of pancreatic beta cells

Type 2: Progressive insulin resistance with inadequate compensatory insulin secretion

Assessment

Polyuria, polydipsia, polyphagia, unexplained weight loss, fatigue, blurred vision

Assess for complications: retinopathy, neuropathy, nephropathy

Diagnostic Tests

Fasting glucose ⩾126 mg/dL

Random glucose ⩾200 mg/dL with symptoms

HbA1c ⩾6.5%

Oral glucose tolerance test ⩾200 mg/dL at 2 hours

Treatment

Type 1: Insulin therapy (basal-bolus regimen)

Type 2: Lifestyle modifications, oral agents (metformin first-line), injectable medications including insulin when needed

Nursing Considerations

- Monitor for signs of hypoglycemia and hyperglycemia
- Perform comprehensive foot assessments
- Provide education on proper insulin administration technique
- Teach self-monitoring of blood glucose
- Emphasize importance of diet, exercise, and medication adherence