

# **EHN 315 MEDICAL AND SURGICAL PATHOLOGIES**

**HND Program: EXHIST University Yaounde**

## **THE CIRCULATORY AND IMMUNE/LYMPHATIC SYSTEM.**

*Instructor:*

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# INTRODUCTION TO MEDICAL - SURGICAL NURSING

## Learning Objectives

At the end of this course, the student will be able to:

- Discuss the evolution and trends of medical-surgical nursing
- Discuss the classification of diseases
- Understand the roles and responsibilities of the nurse in the medical-surgical settings:
  - out-patient unit
  - In-patient unit
  - Intensive care unit
- Differentiate medical and surgical asepsis:
  - Inflammation/infection
  - Stages and factors of Pressure Injuries
  - Wound care and dressing techniques
  - Phases of wound healing
- Care for surgical patients in the pre-operative, intra-operative, and post-operative state
- Understand and demonstrate alternative therapies used in treating patients with medical-surgical disorders.



# Evolution and Trends of Medical-Surgical Nursing

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Medical-surgical nursing, also known as adult health nursing, is a **specialty area of practice that provides nursing services to patients from adolescence through the end of life in a variety of inpatient and outpatient clinical settings** (for example, ICU, acute and subacute care rehabilitation units, clinics, ambulatory care units, urgent care centers, home healthcare agencies, and long-term care facilities). The Academy of Medical-Surgical Nursing (AMSN) sets specific role expectations for the MS nurse.

MS nurses care for patients undergoing surgical procedures or being treated for medical conditions requiring complex nursing care. “The care provided is holistic and is rooted in health promotion, disease prevention, and health maintenance.” Comprehensive, total patient care, rather than focusing on a particular organ system or problem, is an important aspect of this specialty. Medical-surgical or adult health nurses may pursue advanced degrees and practice as clinical nurse specialists, nurse practitioners, and researchers.

# Evolution and Trends of MS Nursing Cont...

The origins of medical-surgical nursing can be traced back to the Crimean War (1853-1856), which was fought between the British Empire and the Russian Empire.

After the return of Florence Nightingale from the war in 1860, she established the Nightingale Training School for Nurses at St. Thomas' Hospital in London, which was the first professional nursing school in the world. The school curriculum included medical-surgical nursing and other areas of nursing, such as obstetrics and pediatrics.

In the United States, the development of medical-surgical nursing was influenced by the work of Dorothea Dix, a social reformer and nurse who advocated for better care for the mentally ill. Dix's efforts led to the establishment of mental hospitals across the United States, where nurses provided medical-surgical care to patients with physical illnesses and mental health conditions.

In the 20th century, the introduction of antibiotics for treating infectious diseases reduced mortality rates among surgical patients and significantly advanced medical-surgical nursing.

# Evolution and Trends of MS Nursing Cont...

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In the 20th century, nursing organizations, such as the American Nurses Association, were established to advocate for nurses' rights and interests and promote nursing as a profession. This later gave birth to the Academy of Medical-Surgical Nursing (AMSN) in 1991. In 1996, the AMSN published its own Scope and Standards of Medical-Surgical Nursing Practice.

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Contemporary medical-surgical nursing continues to evolve as healthcare systems and technologies advance. The role of the medical-surgical nurse is now more diverse than ever before, encompassing areas such as perioperative nursing, critical care nursing, and ambulatory care nursing.

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In addition, the importance of interprofessional collaboration has become increasingly recognized in medical-surgical nursing. Nurses now work closely with physicians, pharmacists, physical therapists, and other healthcare professionals to provide coordinated and comprehensive care to patients.

# International Classification of Diseases

The following is a classification of diseases according to systems:

## **Integumentary Disorders**

- Candida albicans
- Herpes zoster (Shingles)
- Methicillin-Resistant Staphylococcus aureus (MRSA)
- Erysipelas and cellulitis
- Skin cancer
- Psoriasis
- Acne Vulgaris
- Stevens-Johnson Syndrome

## **Musculoskeletal Disorders**

- Fat embolism
- Rheumatoid Arthritis
- Osteoarthritis
- Osteoporosis
- Gout

## **Immune Disorders**

- Goodpasture's Syndrome
- Autoimmune Diseases (Systemic lupus erythematosus [SLE], Systemic Sclerosis, Pemphigus)
- Lyme Disease
- HIV/AIDS
- Posttransplantation immunodeficiency

## **Oncology and Hematological Disorders**

- Cancer
- Leukemia
- Lymphoma (Hodgkin's Disease)
- Multiple Myeloma
- Testicular Cancer, cervical cancer, ovarian cancer, endometrial (uterine) cancer, Breast cancer
- Esophageal cancer, gastric cancer, pancreatic cancer, intestinal tumors,
- Lung cancer, laryngeal cancer
- Prostate cancer, bladder cancer
- Anemia (Iron-deficiency anemia, vitamin B12-deficiency anemia, folate-deficiency anemia, aplastic anemia)

## **Endocrine Disorders**

- Hypothyroidism and hyperthyroidism
- Hypoparathyroidism and Hyperparathyroidism
- Hypopituitarism and hyperpituitarism
- Diabetes Insipidus (DI) and Syndrome of Inappropriate Antidiuretic Hormone (SIADH)
- Addison's Disease and Cushing's Syndrome
- Diabetes Mellitus
- Diabetes Ketoacidosis (DKA) and Hyperosmolar Hyperglycemic Syndrome (HHS)

## **Gastrointestinal Disorders**

- Gastroesophageal Reflux Disease
- Gastritis
- Peptic Ulcer Disease
- Bariatric Surgery
- Dumping Syndrome and Hiatal Hernia
- Cholecystitis
- Cirrhosis
- Esophageal Varices
- Hepatitis A, B, C, D, E
- Pancreatitis
- Irritable Bowel Syndrome (IBS)
- Ulcerative Colitis
- Crohn's Disease
- Appendicitis
- Diverticulosis and Diverticulitis
- Hemorrhoids



## **Respiratory System Disorders**

- Pneumothorax
- Asthma
- Chronic Obstructive Pulmonary Disease (COPD)
- Pneumonia
- Severe Acute Respiratory Syndrome (SARS)
- Covid-19 (Coronavirus)
- Influenza
- Legionnaire's Disease
- Pleural Effusion
- Epyema
- Plurisy
- Pulmonary Embolism
- Histoplasmosis
- Sarcoidosis
- Occupational Lung Disease
- Tuberculosis

## **Cardiovascular Disorders**

- Coronary Artery Disease
- Angina
- Myocardial Infarction
- Heart Failure
- Inflammatory Diseases of the Heart (Pericarditis, myocarditis, endocarditis)
- Cardiac Tamponade
- Valvular Heart Disease
- Cardiomyopathy
- Vascular Disorders (Venous Thrombosis, Deep Vein Thrombophlebitis, Venous insufficiency, Varicose veins)
- Arterial Disorders (Peripheral Arterial Disease, Raynaud's Disease)
- Aortic Aneurysms
- Hypertension

## Renal and Urinary Disorders

- Acute Kidney Injury
- Chronic kidney disease (CKD)
- Uremic Syndrome
- Acute Cystitis
- UTI
- Urethritis & Ureteritis
- Pyelonephritis
- Glomerulonephritis
- Nephrotic Syndrome
- Polycystic Kidney Disease
- Hydronephrosis
- Renal Calculi
- Kidney Tumors
- Epididymitis
- Prostatitis, Benign Prostatic Hypertrophy (HPH [Hyperplasia])
- Bladder Trauma

## Eye and Ear Disorders

- Refractive errors (Myopia, Hyperopia, Astigmatism)
- Legal Blindness
- Cataracts
- Glaucoma
- Retinal Detachment
- Macular degeneration
- Conjunctivitis
- Conductive hearing loss
- Sensorineural hearing loss
- Presbycusis
- Otitis
- Meniere's Syndrome

# Neurological Disorders

- Hyperthermia
- Traumatic Head Injury
- Spinal Cord Injuries
- Cerebral Aneurysm
- Seizures
- Stroke
- Multiple Sclerosis
- Myasthenia Gravis
- Parkinson's Disease
- Trigeminal Neuralgia
- Bell's Palsy
- Guillain-Barre Syndrome
- Amyotrophic Lateral Sclerosis (ALS)
- Encephalitis
- West Nile Virus Infection
- Meningitis

# ROLES & RESPONSIBILITIES OF THE NURSE IN:

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## **Out-Patient Unit**

Monitoring vital signs and checking patient's weight.

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Entering patient's health information into the medical record

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Preparing the patient on the physician's examination table for physical examination

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Educating the patient on subsequent appointments

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Taking the patient to the lab, radiology, etc, for diagnostic exams and to the in-patient unit for admission when needed

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Educating the patient on sample collection for examination

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Collecting and sending the patient's blood to the lab for testing.

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## In-Patient Unit & Intensive Care Unit

Medical-surgical patients require acute care interventions such as surgery or intravenous (IV) antibiotic administration to treat an infection. Below are some common conditions for someone on a medical-surgical floor:

- A person with diabetes is admitted for elevated blood glucose.
- A person with congestive heart failure (CHF) with fluid overload
- Orthopedic injuries or postoperative care for knee replacement surgery
- IV antibiotics for Infectious diseases such as methicillin-resistant *Staphylococcus aureus* (MRSA) or COVID-19
- Sepsis treatment with IV fluids and medications
- Telemetry for cardiac patient monitoring



## In-patient & ICU cont...

- care for patients with injuries, acute or chronic medical conditions,
- Assess, diagnose, plan, implement, and evaluate the patient's condition.
- care for surgical patients before and after an operating room (OR) procedure
- Prevent nosocomial or hospital-acquired infections, such as catheter-associated urinary tract infections.
- monitor patients' vital signs, mental status, and any changes in a patient's overall condition.

# In-patient & ICU cont...



spend a great deal of time administering medications. A critical element of medication administration is a deep understanding of the pharmacodynamics of each drug and monitoring for side effects.



document all clinical care they provide to each of their patients. The patient record is a legal document, so it is essential to maintain real-time, accurate charting for each nursing intervention.



perform basic bedside procedures, such as starting an IV, inserting a Foley catheter, blood draws, wound care, and dressing changes.



empower patients to improve their health through patient teaching. Patient education supports patient safety and improves outcomes.



take part in both patient and political advocacy. Nursing advocacy has the power to affect patient care and nursing practice.



Care for patients on ventilation and oxygen; suctioning.



# DIFFERENCES BETWEEN MEDICAL AND SURGICAL ASEPSIS

**Asepsis:** the absence of germs.

**Medical asepsis (clean technique):** procedure used to **reduce** the number of microorganisms and **prevent** their spread. Examples include handwashing, hand rubbing, “no touch” dressing technique, and use of nonsterile gloves. Application of the **5 moments of hand hygiene is vital**.

Hands are the most common mode of pathogen transmission. Frequent **hand washing** is the most common means of preventing healthcare-associated infections.

**Hand Rubbing:** To effectively reduce the growth of germs on hands, hand rubbing with alcohol-based sanitizer must be performed by following all the illustrated steps. This takes only **20–30 seconds!**

**Hand washing:** To effectively reduce the growth of germs on hands, handwashing with water and soap under a running tap must last at least **30 - 40 seconds** and should be performed by following all the illustrated steps.

**Surgical asepsis (sterile technique):** procedure used to **eliminate** any microorganisms. Examples include sterilization of surgical instruments, use of sterile gloves, and sterile wound dressing.



# 5 MOMENTS OF HAND HYGIENE



# How to Handrub?

**RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED**

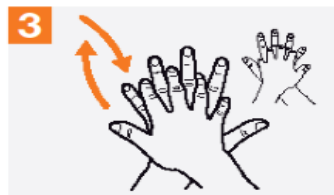
**⌚ Duration of the entire procedure: 20-30 seconds**



Apply a palmful of the product in a cupped hand, covering all surfaces;



Rub hands palm to palm;



Right palm over left dorsum with interlaced fingers and vice versa;



Palm to palm with fingers interlaced;



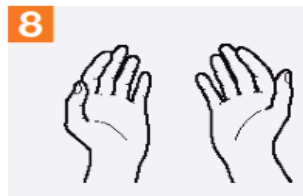
Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



Once dry, your hands are safe.



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# How to Handwash?

**WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB**

**⌚ Duration of the entire procedure: 40-60 seconds**



Wet hands with water;



Apply enough soap to cover all hand surfaces;



Rub hands palm to palm;



Right palm over left dorsum with interlaced fingers and vice versa;



Palm to palm with fingers interlaced;



Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



Rinse hands with water;



Dry hands thoroughly with a single use towel;



Use towel to turn off faucet;



Your hands are now safe.



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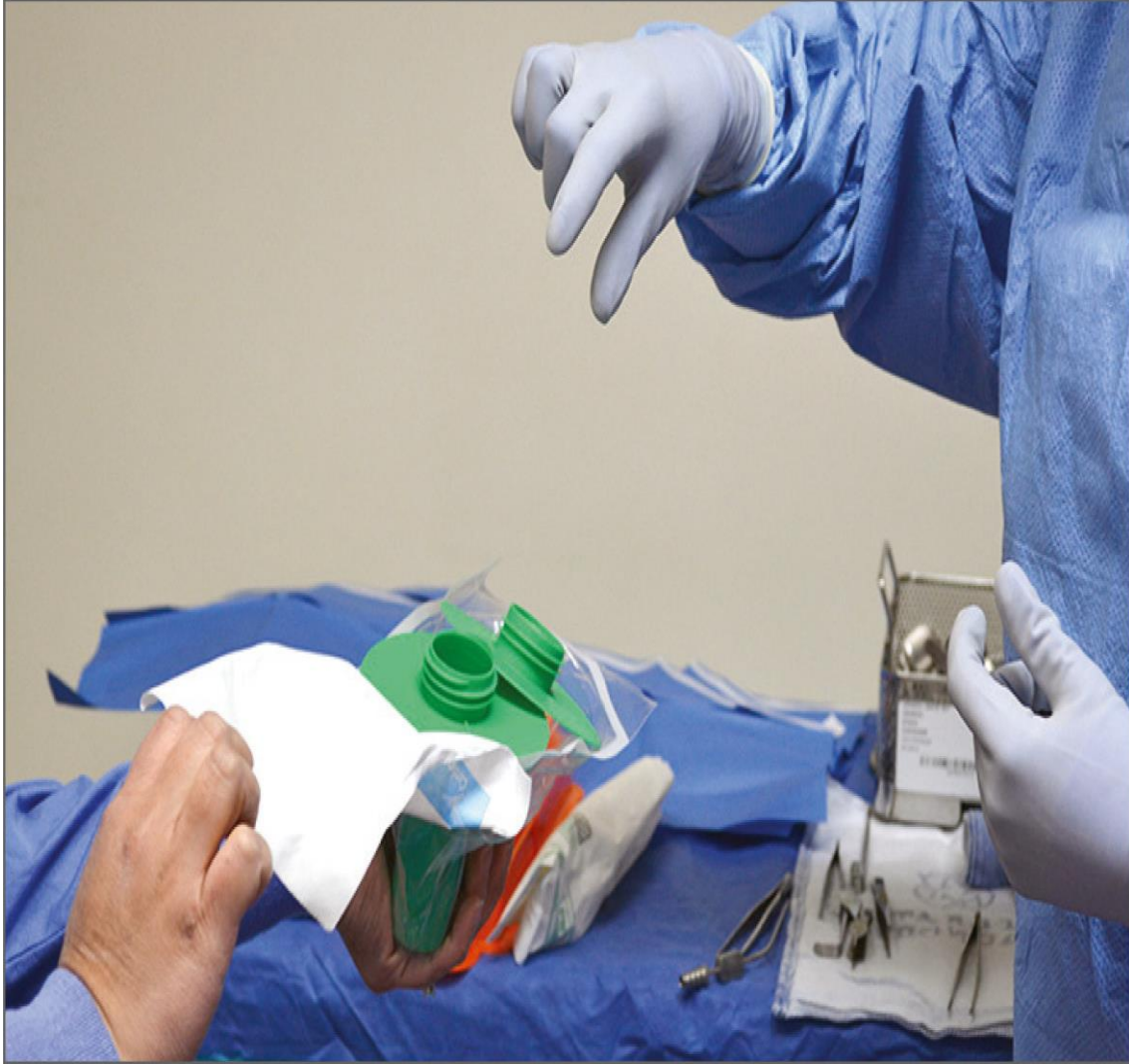
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# A Sterile field



# Assignment.

1. List 8 items used during a minor sterile procedure.
2. List the DOs and DON'Ts at a sterile field.

# INFLAMMATION/INFECTION

Initiation of the innate immune response (skin, mucous membranes) triggers inflammation (acute inflammation). The major function of the innate immune response is to vacuum up debris and pathogens in a process called *phagocytosis*. Phagos means *eat* and cyte means *cell*; in phagocytosis the *cell ingest solid particles, such as microorganisms or cellular debris*. Therefore, **inflammation** is *the protective or destructive response of the body tissue to irritation or injury*. Example: inflammation of the synovial joint in Rheumatoid arthritis, sinusitis.

**Infection** is the invasion of the body by pathogenic microorganisms causing disease.

Inflammation may be acute or chronic. While acute inflammation is short-lived, chronic inflammation occurs when an inflammatory response fails to resolve, leading to the risk of developing Cardiovascular Diseases, CKD, cancer, and even depression.

The cardinal signs of inflammation are:

- redness (rubor),
- heat (calor),
- swelling (tumor),
- pain (dolor),
- loss of function.

The process begins with transitory vasoconstriction (mast cells and macrophages release histamine and cytokines, respectively), followed by a brief increase in vascular permeability (increase in blood flow to the injured or infection site).

The second stage is prolonged and consists of a sustained increase in vascular permeability, exudation of fluids from the vessels, clustering of leukocytes along the vessel walls, phagocytosis of microorganisms, deposition of macrophages, and finally, migration of fibroblasts to the area and development of new, normal cells. The severity, timing, and local character of any particular inflammatory response depend on the cause, the area affected, and the host's condition.

# SUMMARY OF ACUTE INFLAMMATION

1. **detection of danger** (mast cells and macrophages release histamine and cytokines to cause vasoconstriction)
2. **leukocyte recruitment and elimination of stimuli** (neutrophils engulf bacteria, killing them through the process of phagocytosis)
3. **resolution** (macrophages engulf neutrophils, cleaning up the injury debris while releasing fibroblasts)
4. **wound healing** (fibroblasts support the regrowth of tissue).

THE END!

THANK YOU FOR ATTENDING MY CLASS.

SEE YOU IN THE NEXT CLASS...