### Essentials of Critical Care Orientation (ECCO)

**Module Titles and Descriptions**

**ICU and PCU**

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### Professional Nursing Practice

**Continuous Professional Development**
- Introduction
- Lifelong Learning
- Skill Areas
- Learning Resources

**Team Competence**
- Introduction
- Core Competencies
- Collaboration and Integration
- Teamwork

**Embracing Change**
- Introduction
- Barriers to Change
- Strategies for Success

**Regulatory Measures and Hospital Impact**
- Introduction
- Reporting Impact
- Reported Measures
- Benchmarking Data
- My Unit Measures

**Ethics and Moral Distress**
- Introduction
- Common Causes
- A Distressing Situation
- Negative Impacts
- Individual Strategies
- Seek Support and Take Action
- Unit-Level Strategies

### Healthy Work Environments (HWEs)

**Identification**
- Introduction
- Six Standards
- Skilled Communication
- Communicating Effectively
- True Collaboration
- Effective Decision Making
- Other HWE Standards

**Patient Safety**
- Introduction
- Attributes of a Safety Culture
- A Just Culture
- Transition Planning
- Communication Handoff
- Safe Transport
- Common Adverse Events

**Evidence-based Practice (EBP)**
- Introduction
- Care Decisions Based on Evidence
- Common Barriers
- Sources of Evidence

**Patient- and Family-Centered Care**
- Introduction
- Core Concepts of Care
- Family Needs
- Communication Plan
- Unit Orientation

### Special Populations

**Older Adult Populations**
- Introduction
- Physiologic Domain
- Physical Domain
- Cognitive Domain
- Psychosocial Domain
- Evidence-based Practices
- Geriatric Syndromes

**Bariatric Populations**
- Introduction
- Comorbidities
- Pulmonary Complications
- Cardiac Complications
- Skin Care
- Thrombosis
- Dignity and Value
## Pain, Agitation, and Delirium

### Managing Pain and Agitation
- **Introduction**
- **Daily Goals Worksheet**
- **Pain and Physiologic Response**
- **Pain Assessment**
- **Pain Management**
- **Agitation and Anxiety**
- **Agitation and Sedation**

### Delirium
- **Introduction**
- **Risk Factors**
- **Assessment**
- **Subtypes of Delirium**
- **Stop, Think, and (last) Medicate**
- **Early Progressive Mobility Protocol**

### Post-Intensive Care Syndrome (PICS)
- **Introduction**
- **PICS Model**
- **Management Strategies**
- **Coping Skills**
- **Strategies for Discharge**

### The ABCDEF Bundle
- **Introduction**
- **Apply the ABCDEF Bundle**
- **Surveillance and Strategies**

### Complications of Critical Illness

#### Healthcare-Associated Infections
- **Introduction**
- **CLABSI**
- **VAE/VAP**
- **CAUTI**

#### Other Complications
- **Introduction**
- **Venous Thromboembolism (VTE)**
- **Healthcare-Associated Pressure Ulcers (HAPUs)**
- **Sleep Pattern Disturbances**
- **Gastritis/Stress Ulcers**

## Prioritizing and Organizing Care

### Pre-admission
- **Introduction**
- **Patient Update**
- **Quick Assessment First**
- **Interpret Assessment Findings**
- **Comprehensive Assessment**
- **Establishing a Baseline**

### Admission
- **Patient Update**
- **Stop, Think, and (last) Medicate**
- **Early Progressive Mobility Protocol**
- **Coping Skills**

### Ongoing Care
- **Patient Update**
- **Ongoing Focused Assessments**
- **Ongoing Reassessments**
- **Anticipating Complication-Preventing Strategies**

### Special Situations

#### Procedural Sedation
- **Introduction**
- **Types of Procedures**
- **Phases of Sedation Care (Phases 1, 2, 3)**
- **Complications**

#### Post-Anesthesia Recovery
- **Introduction**
- **Types of Anesthesia**
- **Delivery**
- **Post-Anesthesia Care**
- **Potential Complications**
- **Patient Care Priorities**

### Palliative and End-of-Life Care

#### Palliative Care
- **Introduction**
- **Defining Palliative Care**
- **Continuum of Care**
- **Anxiety**
- **Dyspnea**
- **Delirium**
- **Pain**

#### End-of-Life Care
- **Patient Introduction**
- **Patient Update**
- **Family Conference**
- **Transition to Comfort Care**
- **Withdrawing Ventilator Support**
- **Withdrawal of Mechanical Circulatory Support**
# ECCO: Caring for Patients With Cardiovascular Disorders: Part 1

## CARDIO PART 1 — ASSIGNMENTS, TOPICS, AND SUBTOPICS

### Assessing the Cardiovascular System

#### Assessing Symptoms
- Patient Introduction
- Signs and Symptoms
- Causes of Chest Pain and Assessment
- Causes of Dyspnea
- Patient Interview
- GERD or ACS

#### Auscultating
- Patient Update
- Auscultation Overview
- Anatomical Landmarks
- Heart Sounds
- Classifying Murmurs
- Identifying Heart Sounds

### Diagnosing ACS

#### Differentiating ACS Pain
- Patient Update
- Characteristics of ACS Pain
- Signs and Symptoms of STEMI
- Etiologies of Fatal MIs
- Types of Angina
- Ischemic Myocardial Disease
- Chest Pain Protocol

#### Identifying Ischemia and Infarction
- Patient Update
- 12-Lead ECG Tracing
- LMCA Infarction
- Posterior MI
- 12-Lead ECG Summary
- ECG Tracing

#### Interpreting Biomarkers
- Introduction
- Cardiac Biomarkers
- Rise and Fall of Biomarkers
- Cardiac Biomarker Frequency
- 9-Hour Biomarkers

### Myocardial Oxygen Supply and Demand

- Introduction
- Oxygen Balance
- Preload
- Contractility
- Afterload
- Oxygen Supply
- Monitoring and Medications

### Treating ACS

#### Treating a Patient With STEMI
- Patient Introduction
- Treatment Goals
- Thrombus
- Monitoring Patient Response
- ACS Medications
- Reperfusion
- Fibrinolytic Agents

#### Treating Patients With Non-STEMI and UA
- Patient Introduction
- Non-STEMI and UA
- Treatment Pathways
- Non-STEMI Treatment
- Types of UA
- UA Treatment
- Treatment Comparison

### Complications

#### Pulmonary Edema
- Topic Introduction
- Patient Assessment
- Communicate With Provider
- Myocardial Dysfunction
- Patient Update
- Patient Care Priorities
- Treatment Response

### RVI

- Patient Introduction
- Blood Supply
- Signs of RVI
- Diagnostic Tests
- Pathophysiology
- RVI Interventions
- Management of Patients With RVI

### Cardiogenic Shock and IABP

- Patient Introduction
- Cardiogenic Shock:
  - Signs and Symptoms
  - Pathophysiology
  - Treatment
- IABP

### Other Complications

- Topic Introduction
- Reinfarction
- Dysrhythmias
- Papillary Muscle Rupture
- ROSC
- Achieving TTM

### Cardiac Procedures

#### Noninvasive Cardiac Procedures

- Topic Introduction
- Echocardiogram (ECHO)
- TEE
- Comparing TTE and TEE
- Stress Testing
- Cardiac CT

#### Invasive Cardiac Procedures

- Topic Introduction
- Cardiac Catheterization
- Left Ventriculography
- Right-Heart Catheterization
- Percutaneous Coronary Interventions (PCIs)

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### Pre-Procedure Care

- Patient Update
- PCI Pre-Procedure Care
- Patient Care Priorities

### Post-Procedure Care

- Patient Update
- Patient Care Priorities
- Vascular Access Site Assessment
- Fluid Therapy
- Patient Education
- Focused Assessments
- Complications and Interventions

---

**MODULE DESCRIPTION:**

This module reviews fundamental information about cardiovascular system assessment and diagnostic testing for critically ill patients. Acute coronary syndromes are described, including:

- Pathophysiologic differences
- Diagnostic testing
- Medical and interventional treatment priorities for ST-elevation MI, non-ST-elevation MI, and unstable angina
- Complications of MI, including clinical signs and patient management, are addressed
  - ICU track includes brief discussions on IABP and targeted temperature management (TTM); PCU track covers indications and anticipated benefits of each
  - PCU track includes brief discussions on core measures, discharge planning/cardiac rehab, and patient education

**CE INFORMATION:**

5.5 ICU/PCU ANCC contact hours awarded (60-min. contact hour), CERP A.

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## Cardiovascular Disorders

### Hypertensive Crisis
- Patient Introduction
- Signs and Symptoms
- Organs at Risk
- Etiologies of Treatment
- Complications

### Septal Defects
- Topic Introduction
- Ventricular Septal Defects
- Atrial Septal Defects
- Complications

### Acute Inflammatory Diseases
- Topic Introduction
- Myocarditis
- Endocarditis
- Pericarditis
- Differentiating Diagnoses

### Cardiac Tamponade
- Patient Introduction
- Signs and Symptoms
- Etiologies
- Pathophysiology
- Pericardiocentesis
- Response to Intervention

### Aortic Repair
- Topic Introduction
- Types of Repair
- Types of Dissection
- Communicating Effectively

### Carotid Artery Stenosis
- Patient Introduction
- Symptoms and Diagnostics
- Pathophysiology
- Treatment
- Complications

### Vascular Disorders

#### Aortic Aneurysm
- Topic Introduction
- Defining Aortic Aneurysm
- Thoracic Aortic Aneurysm
- Abdominal Aortic Aneurysm
- Imaging Exams
- Medication
- Surgical or Endovascular Repair

#### Aortic Dissection
- Patient Introduction
- Signs and Symptoms
- Progression
- Pharmacologic Interventions

### Troubleshooting Pacemakers
- Patient Introduction
- ECG Tracing
- Malfunctions
- Troubleshooting Steps

### Implantable Cardioverter Defibrillator
- Patient Introduction
- Indications
- Response to V-Tach/V-Fib
- Programmed Therapies
- Inappropriate Shocks
- Temporary ICD Suspension

### Physiologic Studies (EPS)
- Patient Introduction
- Procedure

### Radiofrequency Ablation (RFA)
- Patient Update
- Procedure

### Long QT Syndrome (LQTS)
- Topic Introduction
- Defining LQTS
- Causes of Acquired LQTS
- Risk Factors for Acquired LQTS
- Prolonged QTc
- Calculating QTc
- Treating Acquired LQTS

### Cardioversion
- Patient Introduction
- Defining Cardioversion
- Indications
- Procedure

### Defibrillation
- Patient Update
- Defining Defibrillation
- Electrode Pads vs. Paddles
- Procedure

### Electrophysiology

### Pacemakers and ICDs

#### Introduction to Pacemakers
- Topic Introduction
- Temporary Pacing Indications
- Pacemaker Components
- Pacemaker Settings
- Temporary Pacemaker Setup
- Permanent Pacing Indications

#### Pacemaker Modes
- Topic Introduction
- Codes

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### Cardiovascular Disorders: Part 3

#### Cardiomyopathies

**Dilated Cardiomyopathy**
- **Topic Introduction**
- **Pathophysiology**
- **Compensatory Mechanisms**
- **Understanding Relationships**
- **Signs and Symptoms**
- **Diagnostic Testing**
- **Assessment Findings**

**Hypertrophic Cardiomyopathy**
- **Patient Introduction**
- **Signs and Symptoms**
- **Pathophysiology**
- **Diagnostic Tests**
- **Patient Update**
- **Treatment Priorities**
- **Treatment Outcomes**

**Stress-Induced Cardiomyopathy**
- **Patient Introduction**
- **Takotsubo**
- **Signs and Symptoms**
- **Treatment Options**
- **Contraindicated Treatments**
- **Potential Complications**
- **Recovery Process**

**Restrictive Cardiomyopathy**
- **Topic Introduction**
- **Pathophysiology**
- **Signs and Symptoms**
- **Treatment Priorities**
- **Meeting Patient Needs**
- **Surgical Options**

#### Heart Failure

**Systolic Heart Failure Assessment**
- **Patient Introduction**
- **Compensatory Mechanisms**
- **Classifications**
- **Signs and Symptoms**
- **Diagnostic Tests**

**Systolic Heart Failure Treatment**
- **Patient Update**
- **Treatment Goals**
- **Treatment Overview**
- **Effects on Compensation**
- **Complications**
- **Treatments**
- **Additional Treatments**

**Diastolic Heart Failure**
- **Topic Introduction**
- **Diastolic Dysfunction**
- **Pathophysiology**
- **Signs and Symptoms**
- **Diagnostic Tests**
- **Patient Assessment**
- **Treatments**

**Right-sided Heart Failure**
- **Topic Introduction**
- **Etiology**
- **Patient Assessment**
- **Assessment Findings**
- **Treatment Priorities**
- **Response to Treatment**

**Patient Education**
- **Patient Update**
- **Discharge Planning Considerations**
- **Patient Education Priorities**
- **Teach-Back**
- **Patient Conclusion**

#### Valvular Heart Disease

**Aortic Regurgitation**
- **Patient Introduction**
- **Pathophysiology**
- **Signs and Symptoms**
- **Chronic: Patient Assessment & Treatments**
- **Acute: Patient Assessment & Treatments**

**Aortic Stenosis**
- **Topic Introduction**
- **Pathophysiology**
- **Signs and Symptoms**
- **Chronic: Assessment**
- **Chronic: Treatment Priorities**
- **Acute: Surgical Treatment**
- **Acute: Medical Treatment**

**Mitral Regurgitation**
- **Topic Introduction**
- **Pathophysiology**
- **Signs and Symptoms**
- **Assessment**
- **Treatment Priorities**
- **Treatment Responses**

**Mitral Stenosis**
- **Topic Introduction**
- **Presentation**
- **Assessment**
- **Treatment Priorities**
- **Treatment Responses**

**Interventional and Surgical Treatments**
- **Topic Introduction**
- **Types of Treatments**
- **Percutaneous and Catheter-based Treatments**
- **Post-Procedural Care**

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**Module Description:**
This module addresses the following:
- Various cardiomyopathies (dilated, hypertrophic, stress-induced, and restrictive)
- Types of heart failure (systolic, diastolic, and right-sided)
- Valvular heart disease
Learners will apply an understanding of the different pathophysiologies to interpretation of clinical presentation and patient care management priorities.

**CE Information:**
5.3 ICU/PCU ANCC contact hours awarded (60-min. contact hour), CERP A.

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ECCO: Caring for Patients With Cardiovascular Disorders: Part 4

MODULE DESCRIPTION:
This module explores the following:
• Coronary artery bypass grafting
• Cardiac valve repair and replacement
• Surgical approaches
• Physiologic effects of cardiopulmonary bypass
• Expected patient course
• Identification of patient care priorities
• Recognition and management of potential complications

The topic “The First 24 Hours: ICU-only Patient Care Assignment on Postoperative Care” is included in the ICU-only module.

CE INFORMATION:
3.5 ICU or 3.3 PCU ANCC contact hours awarded (60-min. contact hour), CERP A.
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CARDIO PART 4 — ASSIGNMENTS, TOPICS, AND SUBTOPICS

Preoperative and Intraoperative Management

CABG
• Patient Introduction
• CABG Indications
• OPCAB
• MIDCAB
• Bypass Conduits
• Patient Care Considerations
• Patient Update

Valve Surgery
• Topic Introduction
• Indications
• Replacement Risk Factors
• Mechanical and Tissue Valves
• Patient Care Considerations

Preoperative Patient Care
• Patient Update
• Patient Care Priorities
• Diagnostic Workup
• Diagnostic Studies
• Medications Prior to Surgery

Intraoperative Patient Care
• Patient Update
• CPB Interventions
• Inflammatory Response
• SIRS Treatment Priorities
• Catecholamines and HTN
• RAAS Activation
• Additional Systemic Effects

This topic is included to educate nurses on intraoperative conditions that affect postoperative management.

Postoperative Management

First 24 Hours: ICU-Only Patient Care
• Topic Introduction
• Communicate Effectively
• Hypothermia Outcomes
• Patient Assessment

First 24 Hours: Patient Care
• Topic Introduction
• Patient Update
• Fluid Imbalances
• Glycemic Control
• Patient Update
• Mobility
• Patient Care Priorities

First 24 Hours: Complications
• Topic Introduction
• Excessive CT Output
• Cardiac Output Assessment
• Cardiac Tamponade Assessment
• Dysrhythmia Treatments
• Neurologic Deficits
• Pulmonary Complications

Beyond 24 Hours: Patient Care
• Topic Introduction
• Patient Assessment at 24 Hours
• Cardiac Rehabilitation
• Interventions
• Patient Update
• Discharge Teaching

TAVR

TAVR Selection and Procedure
• Patient Introduction
• Eligibility and Site Selection
• Procedure
• Patient Update

TAVR Approaches
• Complications
• Conduction Abnormality Risk

• Additional Patient Care
• Treatments

1 TAVR = Transcatheter aortic valve replacement

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Important: Check assignment, topic level or description for ICU/PCU-only content
ECCO: Caring for Patients With Pulmonary Disorders: Part 1

MODULE DESCRIPTION:
This module provides an in-depth review of pulmonary assessment techniques, including lung sounds, diagnostic tests, and arterial blood gas interpretation. Additionally, this module provides a review of oxygen delivery devices and noninvasive positive pressure ventilation. Additional reviews include management of the following disorders:
- Pulmonary hypertension
- Pulmonary emboli
- Pneumonia
- Acute respiratory failure
- Asthma
- Chronic obstructive pulmonary disease
- Acute respiratory distress syndrome, and pleural space abnormalities, including pneumothorax and hemothorax.
- Nursing priorities for managing post-pneumonectomy and post-thoracotomy

Within each topic, assessments, interventions, and potential complications are explored.

CE INFORMATION:
4.8 ICU or 4.5 PCU ANCC contact hours awarded (60-min. contact hour), CERP A.

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PULMONARY PART 1 — ASSIGNMENTS, TOPICS, AND SUBTOPICS

Assessment, Diagnostics, and Monitoring
Pulmonary Assessment
- Topic Introduction
- Auscultation Procedure
- Normal Breath Sounds
- Abnormal Breath Sounds
- Adventitious Breath Sounds
- Recognizing Breath Sounds
- Calculating P/F Ratio

Diagnostic Testing
- Topic Introduction
- Chest X-Ray
- Radiodensity
- CT, MRI, and V/Q Scan
- Bronchoscopy
- Patient Care Priorities
  - Viewing Radiographs (ICU Only and learner is not tested on content)

Monitoring
- Topic Introduction
  - SpO2 Monitoring
  - EtCO2 Monitoring
  - Monitoring Oxygenation and Ventilation

Managing Oxygenation and Ventilation
ABG Analysis
- Topic Introduction
- Acid-Base Balance
- ABG Decision Grid
- Acid-Base Disorder

Oxygen Delivery
- Topic Introduction
  - Supplemental Oxygen Indicators
  - Supplemental Oxygen Devices
  - Indicators for Advancement

Positive Pressure
- Topic Introduction
  - Indications and Contraindications
  - Comparing CPAP and BiPAP
  - Endotracheal Intubation

Pulmonary Disorders
Pulmonary Hypertension
- Patient Introduction
  - Disease Progression
  - Clinical Presentation
  - Patient Management
  - Pharmacologic Therapies
  - Patient Care Priorities

Pulmonary Emboli
- Topic Introduction
  - Etiology and Risk Factors
  - Clinical Presentation
  - Treatment Outcomes

Pneumonia
- Topic Introduction
  - Etiology
  - Risk Factors
  - Clinical Presentation
  - Meeting Patient Needs

Asthma/Status Asthmaticus
- Topic Introduction
  - Pathophysiology of Asthma
  - Pathophysiology of Status Asthmaticus
  - Interventions

COPD
- Patient Introduction
  - Etiology
  - Pathophysiology
  - Signs, Symptoms, and Assessment
  - Therapies
  - Patient Care Priorities

Respiratory Failure and ARDS
Respiratory Failure
- Patient Introduction
  - Pathophysiology
  - Diagnostic Testing
  - Patient Care Priorities

ARDS
- Patient Update
  - Berlin Definition
  - Pathological Response
  - Patient Care Priorities
  - Alveolar Ventilation
  - Monitoring and Interventions

Pleural Space Abnormalities
Pneumothorax and Hemothorax
- Topic Introduction
  - Etiology
  - Causes, Signs, and Symptoms
  - Patient Presentations
  - Treatment

Pleural Effusions
- Topic Introduction
  - Signs and Symptoms
  - Management Strategies
  - Empyema

Thoracic Surgical Procedures
Overview of Procedure
- Topic Introduction
  - Types of Invasive Procedures
  - Lung Surgeries

Thoracotomy and Pneumonectomy
- Topic Introduction
  - Postsurgical Interventions
  - Patient Education
  - Respiratory Failure
  - Pain Management
  - Pneumonectomy

Thoracentesis and Chest Tubes
- Topic Introduction
  - Thoracentesis Procedure
  - Chest Tubes
  - Closed-Chest Drainage Systems
  - Drainage Chambers
  - Chest Tube Placement Procedure

Important: Check assignment, topic level or description for ICU/PCU-only content
## ECCO: Caring for Patients With Pulmonary Disorders: Part 2

### MODULE DESCRIPTION:
This module provides an in-depth review of managing the patient who is receiving invasive mechanical ventilation. The following nursing priorities are identified:
- Managing patients with endotracheal vs. tracheostomy tubes
- Assessing readiness for weaning
- Weaning
- Extubation vs. decannulation
- Preventing complications associated with mechanical ventilation

Within each topic, assessments, evidence-based interventions, and strategies to prevent complications are explored.

Additional ICU-only content specific to patients receiving neuromuscular blockade is available in the ICU module only.

### CE INFORMATION:
3.3 ICU/PCU ANCC contact hours awarded (60-min. contact hour), CERP A.

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### PULMONARY PART 2 — ASSIGNMENTS, TOPICS, AND SUBTOPICS

#### Invasive Ventilation

**Endotracheal Intubation**
- Patient Introduction
- Indications for Intubation
- ETT Placement
- Post-Intubation Priorities
- Preventing Complications

**Tracheostomy Tubes**
- Patient Introduction
- Indications for Tracheostomy
- Types of Tubes
- Tracheostomy Care
- Emergent Reinsertion
- Mucous Plugging

#### Mechanical Ventilation

- Topic Introduction
- Ventilator Settings
- Ventilator Cycle Events
- Volume and Pressure Ventilation
- Volume Ventilation
- Pressure Ventilation
- Nursing Priorities

#### Troubleshooting Ventilators

- Topic Introduction
- Ventilator Panel Controls
- Alarm Causes and Nursing Actions
- Nursing Priorities

#### Managing the Ventilated Patient

**Spontaneous Awakening Trials (SATs)**
- Patient Update
- SAT Safety Screen
- Patient Care Priorities
- Failed Sedation Interruption

**Neuromuscular Blockade [ICU Only]**
- Topic Introduction
- Preventing Complications
- Train-of-Four
- Pain and Sedation Assessment
- Pain and Neurologic Assessment

**Preventing Complications**
- Topic Introduction
- Cardiovascular Complications
- Pulmonary Complications
- Multisystem Complications
- Gastrointestinal Complications

**Weaning From Ventilation**
- Topic Introduction
- SBT\(^1\) Safety Screen Criteria
- Assessing Weaning Readiness
- SBT Goals
- Facilitating the Weaning Process
- Weaning Approaches
- Long-Term Ventilation Weaning

\(^1\)SBT = Spontaneous Breathing Trial

**Exubation and Decannulation**
- Topic Introduction
- Exubation Equipment
- Exubation Procedure
- Patient Care Priorities
- Decannulation Equipment
- Decannulation Preparation
- Reintubation Precautions

---

\(^1\)SAT = Spontaneous Awakening Trial
ECCO: Hemodynamic Monitoring of Critically Ill Patients: Part 1

MODULE DESCRIPTION:
This module provides an in-depth review of hemodynamic monitoring systems for arterial and central venous pressure monitoring.

Topics include:
- Basics of components
- Setup for hemodynamic monitoring
- Arterial pressure monitoring
- Waveform analysis
- Central venous pressure (CVP) monitoring
- CVP waveform analysis

Each topic area explores measures to ensure accuracy, troubleshoot hemodynamic monitoring systems, and prevent complications.

CVP waveform analysis and clinical application is an ICU-only topic and included in the ICU module only.

CE INFORMATION:
3.9 ICU/PCU ANCC contact hours awarded (60-min contact hour), CERP A.

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HEMODYNAMIC PART 1 — ASSIGNMENTS, TOPICS, AND SUBTOPICS

Basics of Hemodynamic Monitoring Systems

Components and Functions
- Topic Introduction
- Closed Fluid-Filled Systems
- Component Functions
- External Equipment Functions

Obtaining Accurate Values
- Topic Introduction
- Ensure Accurate System Values
- Level the Air-Fluid Interface
- Locate the Phlebostatic Axis
- Dynamic Response Test
- Ensure Optimal Waveforms
- Patient Safety

Arterial Pressure Monitoring

Basics of Arterial Catheters
- Topic Introduction
- Catheter Insertion Sites
- Allen’s Test
- System Setup
- Catheter Kit and Other Supplies
- Insertion Procedure
- Enforce Sterile Technique

Complications of Arterial Monitoring
- Topic Introduction
- Common Complications
- 3-Way Stopcock
- Patient Safety
- Interventions

Arterial Waveforms
- Topic Introduction
- Arterial Waveform Pattern
- Common Waveform Alterations
- Clinical Interpretation of Waveform Features
- Calculate Mean Arterial Pressure (MAP)

Measurement of Arterial Pressure
- Topic Introduction
- Measure of Hydrostatic Pressure
- Indirect Methods of Monitoring BP
- Verify Waveform Accuracy

Removing Arterial Monitoring Systems
- Topic Introduction
- Procedural Steps

Central Venous (CV) Catheters

Catheter Types, Sites, and Techniques
- Topic Introduction
- Physiology of CVP Monitoring
- Types of CV Catheters
- Insertion Sites
- Patient Introduction
- Team Communication

Managing Central Venous (CV) Catheters
- Topic Introduction
- Prevent Bloodstream Infections
- Maintain Sterile Technique
- Insertion Procedure
- Multi-Lumen CV Catheter Ports

Waveform Analysis and Clinical Application
- Patient Update
- Complete System Setup
- Measuring CVP
- Components of CVP Waveform
- Measuring Mean CVP
- Altered Waveforms
- Causes of Abnormal CVP

Complications¹
- Patient Update
- Common Complications
- Interventions

¹Includes information on preventing air embolism during insertion and removal of central venous catheters.
ECCO: Hemodynamic Monitoring of Critically Ill Patients: Part 2

MODULE DESCRIPTION:
This module provides an in-depth review of nursing priorities for the following:
• Hemodynamic monitoring
• Pulmonary artery pressure monitoring
• Assessment
• Consequences of cardiac output monitoring
• Assessment and interventions for oxygenation and oxygen transport
• Alterations in preload, afterload, and contractility

Each topic area will explore measures to ensure accuracy, troubleshoot monitoring issues, intervene for alterations, and prevent complications.

The assignment titled Pulmonary Artery Catheters is available in the ICU module only.

CE INFORMATION:
5.4 ICU or 4.7 PCU ANCC contact hours awarded (60-min. contact hour), CERP A.

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HEMODYNAMIC PART 2 — ASSIGNMENTS, TOPICS, AND SUBTOPICS

Pulmonary Artery (PA) Catheters

Indications for PA Catheters
• Patient Introduction
• Indications for PA Catheter
• Uses of PA Catheters
• Precautions, Relative Contraindications

Catheter Types
• Topic Introduction
• Types of PA Catheters
• PA Catheter Ports

Catheter Insertion
• Patient Update
• Catheter Insertion Sites
• Insertion Procedure Tasks
• Monitor Waveforms
• Obtaining PAOP
• Balloon Inflation Safety Alert
• Verify Catheter Placement

Waveform Analysis
• Topic Introduction
• Components of PAP Waveform
• Measure PA Pressures at End-Expiration
• PAOP Waveform
• Measure Mean PAOP
• Overwedge
• Conditions That Change Waveforms

Complications and Associated Problems
• Topic Introduction
• Insertion-related Complications
• Equipment and Catheter Problems
• Patient-related Complications
• CLABSI
• PA Rupture

Cardiac Output

Factors Affecting Cardiac Output
• Topic Overview
• Cardiac Output Factors
• Cardiac Index
• Stroke Volume Index (SVI)
• Preload
• Afterload
• Contractility

Measuring Cardiac Output
• Topic Introduction
• Calculation Methods
• Intermittent Bolus Thermodilution
• Ensuring Accuracy in TDCO
• Continuous Cardiac Output (CCO)
• Factors Affecting CCO Measurements

Clinical Application of Cardiac Output
• Patient Update
• Hemodynamic Instability
• Causes of Low Cardiac Output
• Assessing Low Cardiac Output
• Elevated Cardiac Output

Minimal and Noninvasive Monitoring
• Topic Introduction
• Types of Minimally Invasive Cardiac Output Monitoring
• Functional Hemodynamics
• Passive Leg Raise (PLR) Maneuver
• Simplified Treatment Algorithm
• Fluid and Titration Interventions

Oxygenation and Transport

Oxygen Supply and Demand
• Topic Introduction
• Tissue Perfusion
• Oxygen Supply
• Oxygen Delivery (DO₂)
• Mixed Venous Oxygen Saturation (SvO₂)
• SvO₂ and ScvO₂
• Oxygen Supply/Demand Imbalance

Conditions Affecting Oxygen Monitoring
• Topic Overview
• DO₂/VO₂ Imbalances
• Conditions Increasing Oxygen Demand
• Indicators of Oxygen Imbalance
• Causes of Decreased SvO₂/ScvO₂
• “Good Lung, Bad Lung”

Clinical Applications
• Topic Introduction
• Continuous SvO₂ and ScvO₂ Monitoring
• Improving Oxygen Supply and Reducing Demand

Pharmacological Management

Managing Preload
• Patient Update
• Measures of Preload
• Crystalloids
• Colloids
• Blood Products
• Monitoring Preload
• Preload Reducers

Managing Afterload
• Topic Introduction
• Conditions That Elevate PVR
• Reducing PVR
• Systemic Vascular Resistance (SVR)

Managing Contractility
• Patient Update
• Positive Inotropes
• Negative Inotropic Medications
• Treatment and Titration

Pulmonary Artery (PA) Catheters
ICU Only

Indications for PA Catheters
ICU Only

• Patient Introduction
• Indications for PA Catheter
• Uses of PA Catheters
• Precautions, Relative Contraindications

Catheter Types
ICU Only

• Topic Introduction
• Types of PA Catheters
• PA Catheter Ports

Catheter Insertion
ICU Only

• Patient Update
• Catheter Insertion Sites
• Insertion Procedure Tasks
• Monitor Waveforms
• Obtaining PAOP
• Balloon Inflation Safety Alert
• Verify Catheter Placement

Waveform Analysis
ICU Only

• Topic Introduction
• Components of PAP Waveform
• Measure PA Pressures at End-Expiration
• PAOP Waveform
• Measure Mean PAOP
• Overwedge
• Conditions That Change Waveforms

Complications and Associated Problems
ICU Only

• Topic Introduction
• Insertion-related Complications
• Equipment and Catheter Problems
• Patient-related Complications
• CLABSI
• PA Rupture
MODULE DESCRIPTION:
This module provides an in-depth review of neurologic assessment techniques, including:
- Standardized scales
- Diagnostic tests
- Intracranial pressure monitoring
- Overview of death by neurologic criteria
- Vital sign evaluation

Nursing priorities for the patient with intracranial pressure (ICP) monitoring include:
- Use of invasive ICP monitoring
- ICP waveform analysis
- Setup, maintenance, and troubleshooting cerebral spinal fluid drains

Each topic area explores measures to ensure accuracy, troubleshoot monitoring issues, intervene for alterations, and prevent complications.

The PCU module does not offer testing on the EVD drainage system, troubleshooting the EVD, or the ICP waveform analysis.

CE INFORMATION:
4.0 ICU/PCU ANCC contact hours awarded (60-min. contact hour), CERP A.

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Important: Check assignment, topic level or description for ICU/PCU-only content

### NEURO PART 1 — ASSIGNMENTS, TOPICS, AND SUBTOPICS

#### Special Assessment Techniques

**LOC and Mental Status (includes Speech and Delirium)**
- Topic Introduction
- Types of Neurologic Exams
- Assessing LOC
- Assessing Mental Status
- Types of Aphasia
- Dysarthria
- Assessing Cognition and Mental Status

**Motor and Sensation**
- Topic Introduction
- Assessing Motor Function
- Evaluating Pronator Drift
- Assessing Sensation
- Assessing Sensation in Patients With SCI

**CN and Brainstem Function**
- Topic Introduction
- Cranial Nerve (CN) Assessment
- Special Patient Populations

**Scales and Special Assessments**
- Patient Introduction
- Glasgow Coma Scale (GCS)
- GCS: Eye Opening
- GCS: Motor Response
- GCS: Verbal Response
- GCS: Total Score
- Other Assessment Techniques

**Vital Sign Alterations**
- Topic Introduction
- Autonomic Nervous System (ANS)
- Cushing’s Triad
- Neurologic Emergencies

**ICP and Brain Herniation**
- Increased ICP
  - Topic Introduction
  - Monro-Kellie Hypothesis

**Neurologic Monitoring**
- Causes
- Pathophysiology and Etiology
- Signs and Symptoms
- Effects

**Herniation**
- Patient Introduction
- Cranial Anatomy
- Brain Herniation
- Emergency Interventions

**Death by Neurologic Criteria**
- Patient Update
- Criteria
- Laws and Policies
- Testing
- Communicating With Family
- Organ Donation/Procurement

### Diagnostic Testing

**Specialized Diagnostic Tests**
- Topic Introduction
- Electroencephalogram (EEG)
- Lumbar Puncture (LP)
- Electromyography (EMG) and Nerve Conduction Studies (NCSs)

**Imaging Diagnostics**
- Topic Introduction
- CT and CT Angiography (CTA)
- Magnetic Resonance Imaging (MRI)
- Transcranial Doppler (TCD)
- Cerebral Angiography and Endovascular Treatment

**Lab Values**
- Topic Introduction
- Sodium and Water Imbalances
- Serum and Urine Osmolality
- Additional Lab Testing
- Patient Monitoring of AEDs

### Cerebral Spinal Fluid (CSF) Devices

- Patient Introduction
- CSF Drainage
- Adjusting Drainage Amounts
- Patient Transport
- Assessing Drainage
- Troubleshooting the EVD
- Lumbar Drain

Content both ICU/PCU, but PCU not tested on the EVD drainage system or troubleshooting
**MODULE DESCRIPTION:**

This module addresses neurologic disorders, including:
- Strokes
- Subarachnoid hemorrhage
- Traumatic brain and spinal cord injuries
- Seizures
- Selected central nervous system infections

Presenting signs, diagnosis, and treatments are explored with an emphasis on patient care priorities and clinical decision-making.

Additional content on status epilepticus is included in the ICU module.

**CE INFORMATION:**

4.9 ICU/PCU ANCC contact hours awarded (60-min. contact hour), CERP A.

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### NEURO PART 2 — ASSIGNMENTS, TOPICS, AND SUBTOPICS

#### Ischemic Stroke

**Etiology of Ischemic Stroke**
- Patient Introduction
- Etiology
- Risk Factors
- TIA
- Symptoms
- Treatment
- Clinical Presentation

**Diagnosing Stroke**
- Patient Update
- Imaging Techniques
- CT and MRI Perfusion
- Circulation Evaluation
- ECG, TTE, and TEE

**Immediate Management of Ischemic Stroke**
- Patient Introduction
- Stroke Response Team
- Patient Care Priorities
- Hypotension
- Hypertension
- Patient Assessment
- Tests

**Fibrinolytic Therapy for Ischemic Stroke**
- Patient Update
- rtPA
- Patient Care Priorities
- Complications
- Monitoring for ICH
- Management of Hemorrhages

**Additional Ischemic Stroke Treatments**
- Topic Introduction
- Strategies
- Intra-Arterial (IA) Fibrinolysis
- Combination Therapy
- Patient Management
- Patient Care

#### Hemorrhagic Stroke

**Intracerebral Hemorrhage (ICH)**
- Patient Introduction
- ICH
- Signs and Symptoms
- Focus of Care
- Patient Care Priorities
- Interventions

**Subarachnoid Hemorrhage**
- Patient Introduction
- Pathophysiology
- Signs and Symptoms
- Severity Scoring System
- Patient Care Priorities
- Complications
- Patient Management

**Patient Management for All Strokes**
- Topic Introduction
- Patient Care Priorities
- Early Mobilization
- Complications
- Medications
- Treatment Goals
- Collaborative Care

**Traumatic Brain and Spinal Cord Injuries**

**Traumatic Brain Injuries**
- Patient Introduction
- Primary and Secondary Injuries
- Etiology
- Intracranial Hemorrhage
- Patient Care Priorities
- Interventions
- Topic Conclusion

**Traumatic Spinal Cord Injuries**
- Patient Introduction
- Etiology
- Priority Assessments

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**Other Pathological Conditions**

**Seizures**
- Patient Introduction
- Seizures
- ILAE Classification System
- Seizure Activity Phases
- Status Epilepticus
- Diagnostic Testing
- Treatments

Module offers additional ICU-only content on status epilepticus.

**Central Nervous System Infections**
- Topic Introduction
- Encephalitis
- Meningitis
- Brain Abscess
- Diagnosis
- Nursing Intervention
- Patient Care
GI — ASSIGNMENTS, TOPICS, AND SUBTOPICS

Diagnostic Testing

Imaging Exams
- Topic Introduction
- Abdominal Radiograph
- Ultrasound
- CT Scan
- MRI
- Nuclear Medicine Scan
- Angiography

Endoscopic Procedures
- Topic Introduction
- Introduction to Fiberoptic Endoscopy
- EGD
- ERCP
- Colonoscopy
- Patient Care Priorities

Lab Studies
- Topic Introduction
- Stool Tests
- Blood Tests

Other Diagnostic Procedures
- Topic Introduction
- Liver Biopsy
- Peritoneal Lavage

Patient Care Priorities
- Patient Assessment
- Hemodynamic Response to Hemorrhage
- Management Goals
- Patient Care Priorities
- Teamwork

Interventions
- Patient Update
- Interventions
- Sclerotherapy
- Banding
- Balloon Tamponade
- Signs of Complications

Monitoring Responses
- Patient Update
- Assessing Post-Intervention
- Anticipate Lab Findings
- Signs of Bleed Resolution

Liver Failure

Patient Presentation
- Patient Introduction
- Signs and Symptoms
- Causes
- Understanding Orders

Assessment
- Patient Assessment
- Patient Care Priorities
- Encephalopathy Grades
- Physical Signs of Liver Failure
- Indications of Overt Bleeding
- Patient Care Priorities
- Abnormal Lab Values

Monitoring Responses
- Patient Update
- Ammonia and Encephalopathy
- Ammonia and Neurotoxicity
- Cerebral Edema
- ICP Monitoring Controversy

More Complications of Liver Failure
- Topic Introduction
- Infections and Sepsis
- Hypoglycemia
- Portal Hypertension
- Hepatopulmonary Syndrome (HPS)
- Position a Patient With HPS
- Hepatorenal Syndrome

Intra-abdominal Hypertension

Screening for IAH
- Patient Update
- Risk Factors
- Pathophysiology
- Systemic Effects
- Measuring Pressure
- Effects of Increased IAP

Monitoring IAP
- Topic Introduction
- Measuring IAP
- IAH/ACS Definitions
- Monitoring for Trends
- IAH Grades

Managing Complications
- Patient Update
- Managing Rising IAP

Acute Pancreatitis

Diagnosis and Treatment
- Patient Introduction
- Pain Management
- Etiology of Acute Pancreatitis
- Risk Factors
- Diagnostic Imaging Studies
- Lab Studies
- Treatment Priorities

Anticipating Complications
- Patient Update
- Trends to Monitor
- Risks Associated With ERCP
- Treatment

Managing Complications
- Patient Update
- Signs of Complications

Continued on next page …
Other Pathologies

Bowel Ischemia and Infarction
- Patient Introduction
- Risk Factors
- Pathophysiology
- Diagnostic Exams
- Treatment Interventions
- Post-Intervention
- Complications

Ileus and Obstructions
- Topic Introduction
- Ileus Pathophysiology and Etiology
- Obstruction Pathophysiology and Etiology
- Patient Care Priorities
- Surgical Intervention

GI Infections
- Patient Introduction
- C. diff Risk Factors
- Treatment Priorities
- Treatment Outcomes
- Meeting Patient Needs
- Preventing Spread
- Reducing Risk

Abdominal Trauma
- Topic Introduction
- Assessment
- Patient Care Priorities
- Types of Abdominal Trauma
- Diagnostic Tools
- Indications for Surgery
- Potential Complications

Nutritional Support

Assessing Nutrition Needs
- Patient Introduction
- Risk Factors
- Hypermetabolism
- Effects of Malnutrition

- Nutritional Evaluation
- Causes of Malnutrition
- Nutritional Interventions

Determining Nutrition Route
- Topic Introduction
- Comparing Nutrition Routes
- Indications for EN
- Benefits of EN
- Contraindications to EN

Enteral Nutrition: Delivery Devices
- Patient Update
- Types of EN Devices
- Avoiding Nutrition Delays

Enteral Feeding: Tube Placement
- Patient Update
- Verifying Proper Tube Placement
- Assessing Aspirated Fluid
- Evaluating EN Tolerance
- Managing Gastric Residual Volume (GRV)
- Advancing Nutrition Rate

Enteral Nutrition: Monitoring
- Patient Update
- Nutritional Interruptions
- Preventing Tube Occlusion
- Risks and Complications of EN

Enteral Nutrition: Diarrhea Risk
- Patient Update
- Causes of Diarrhea
- Preventing Tube Contamination

Parenteral Nutrition (PN)
- Patient Introduction
- Indications of PN
- Benefits of PN
- Types of PN
- Potential Complications
- Controlling Glucose
- PN Administration
ECCO: Caring for Patients With Renal Disorders: Part 1

**MODULE DESCRIPTION:**
This module provides an in-depth review of the following:
- Assessment tools for monitoring kidney function
- Nursing priorities for fluid and electrolyte disorders
- Scoring systems to differentiate acute kidney injury and chronic kidney disease
- Overview of types of renal replacement therapies (RRTs)
- Temporary vs. permanent access catheters used for dialysis

Each topic area explores measures to intervene for alterations and prevent complications.

**CE INFORMATION:**
4.9 ICU/PCU ANCC contact hours awarded (60-min. contact hour), CERP A.

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### RENAL PART 1 — ASSIGNMENTS, TOPICS, AND SUBTOPICS

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Topics and Subtopics</th>
</tr>
</thead>
</table>
| Assessment | Testing and Monitoring
  - Topic Introduction
  - Lab Results
  - Urinalysis
  - Serum and Urine Osmolality
| | Other Diagnostic Tests
  - Topic Introduction
  - Types of Dysfunction
  - Diagnostic Imaging
| | Fluid and Electrolytes
  - Fluid Deficit and Excess
    - Topic Introduction
    - Patient Findings
    - Therapy
    - Water Intoxication
    - Fluid Volume Excess Therapy
  - Electrolyte Imbalances
    - Topic Introduction
    - Hypo/Hypernatremia
    - Hyper/Hypokalemia
    - Hypo/Hypercalcemia
    - Hypophosphatemia
    - Hypomagnesemia

### Chronic Kidney Disease (CKD)

- Chronic Kidney Disease
  - Topic Introduction
  - Disease Progression
  - Patient Introduction
  - Patient Care Priorities

### Acute Kidney Injury (AKI)

- **Classifying AKI**
  - Patient Introduction
  - RIFLE Criteria
  - KDIGO Guidelines
  - Signs and Symptoms

- **AKI and Acute Tubular Necrosis (ATN)**
  - Patient Update
  - AKI Risk Factors
  - Types of Renal Dysfunction
  - Interventions
  - Oliguric Phase

### Medication and Contrast-Induced AKI (CI-AKI)

- Topic Introduction
- Patient Introduction
- Nephrotoxic Medications
- Prevention/Intervention

### Peritoneal Dialysis

- Topic Introduction
- Patient Introduction
- Assess the Patient
- Interventions

### Renal Replacement Therapy (RRT)

- Topic Introduction
- Indicators
- Patient Management

### Hemodialysis (HD) and HD Access Sites

- Topic Introduction
- Patient Update
- Protocols
- Patient Care Priorities
- Arteriovenous Patient Care
- Post HD
MODULE DESCRIPTION:

This module provides an in-depth overview of principles of renal replacement therapy (RRT) for the patient experiencing continuous renal replacement therapy (CRRT).

Topics include:
• Evaluating CRRT orders based on patient condition
• Assessing and troubleshooting the CRRT circuit
• Calculating fluid removal rates
• Ensuring patient safety

Within each topic area, measures to intervene for alterations and prevent complications are explored.

CE INFORMATION:

3.2 ICU ANCC contact hours awarded (60-min. contact hour), CERP A.

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RENAL PART 2 — ASSIGNMENTS, TOPICS, AND SUBTOPICS

Common Considerations in CRRT  [ICU Only]

Principles of Renal Replacement Therapy  [ICU Only]
• Topic Introduction
• Patient Considerations
• Continuous Renal Replacement Therapy (CRRT)

Transport Mechanisms in CRRT  [ICU Only]
• Patient Update
• Dialysate Composition
• Dialysis Principles

Maintaining the Filter and the Circuit  [ICU Only]
• Topic Introduction
• Fluid Replacement and Anticoagulation
• Intake and Output Fluids (Calculations for Net Fluid Removal)
• Patient Care Priorities (Dialysate/Replacement Solutions)
• Anticoagulants
• Complications

Types and Complications of CRRT  [ICU Only]

Types of CRRT  [ICU Only]
• Topic Introduction
• CRRT Procedures (SCUF, CVVH, CVVHD, CVVHDF)

Complications of CRRT  [ICU Only]
• Topic Introduction
• Patient Update
• Clotting Interventions
• Patient Care Priorities
• Correcting Acidosis
• Collaborative Care
• Patient Management for Decompensation on CRRT
Caring for Patients With Endocrine Disorders

MODULE DESCRIPTION:
This module provides an in-depth overview of assessment, management, nursing priorities, and evaluation of managing patients with a variety of endocrine disorders. Topics include:

• Assessing the endocrine system
• Managing diabetes and diabetic emergencies
• Managing patients with disorders of the pituitary, adrenal, thyroid, and parathyroid glands
• Information on patients with cerebral salt wasting
• Managing hyperglycemia in the critically ill patient with continuous insulin infusions

Each topic area explores assessment tools and diagnostic measures to intervene for alterations, and tips to prevent complications.

CE INFORMATION:
5.0 ICU/PCU contact hours awarded (60-min. contact hour), CERP A.

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ENDO — ASSIGNMENTS, TOPICS, AND SUBTOPICS

Endocrine System Assessment

Assessing Pancreatic Function
• Topic Introduction
• Patient Introduction
• Blood Glucose Testing
• Blood Glucose Values
• Ketones

Assessing Pituitary Functions
• Topic Introduction
• ADH
• Subjective and Objective Assessments
• ADH Effects on Osmolality
• Fluid Volume Status

Thyroid and Parathyroid Functions
• Topic Introduction
• Thyroid Hormone Levels
• Hypo- or Hyperthyroidism
• Parathyroid Glands
• Diagnostic Labs
• Hypo- or Hyperparathyroidism

Assessing Adrenal Function
• Topic Introduction
• Signs and Symptoms
• Diagnostic Labs
• Evaluating Adrenocorticotropic Hormone (ACTH)
• Patient Management

Diabetes and Complications

Diabetes and Complications
• Patient Introduction
• Types of Diabetes
• Etiology
• Pathophysiology
• Therapeutic Interventions
• Maintaining Blood Glucose Levels
• Insulin Therapy

Hypoglycemia
• Patient Introduction
• Risks of Hypoglycemia
• Patient Assessment
• Treatment Protocols
• Patient Care Priorities
• Maintaining Blood Glucose Levels
• Monitoring

Diabetic Ketoacidosis (DKA)
• Patient Update
• Pathophysiology
• Signs and Symptoms
• Treatment Goals
• Management Priorities
• Electrolyte Management
• Normalizing Blood Glucose

Hyperglycemic Hyperosmolar State (HHS)
• Topic Introduction
• Patient Presentation
• Pathophysiology
• Clinical Monitoring
• Lab Values
• Management
• Differential Diagnosis

Hypothyroidism
• Topic Introduction
• Pathophysiology
• Thyroid Hormone Balance
• Signs and Symptoms
• Thyroid Storm
• Treatment
• Intervention and Evaluation

Hypertension
• Topic Introduction
• Pathophysiology and Etiology
• Thyroid Inhibitors
• Myxedema Coma
• Identifying Myxedema Coma
• Myxedema Coma Interventions

Hypoparathyroid Disorders

Syndrome of Inappropriate Antidiuretic Hormone (SIADH)
• Patient Update
• Pathophysiology

Pheochromocytoma
• Topic Introduction
• Signs and Symptoms
• Diagnostic Tests

Important: Check assignment, topic level or description for ICU/PCU-only content
ECCO: Caring for Patients With Hematological Disorders

MODULE DESCRIPTION:
This module provides an in-depth overview of assessment, management, nursing priorities, interventions, and evaluation for managing patients with a variety of hematologic and coagulation disorders.
Topics include:
- Laboratory evaluation for hematologic and coagulation disorders
- Nursing priorities and treatment options for managing patients with thrombocytopenia
- Heparin-induced thrombocytopenia (HIT)
- Disseminated intravascular coagulation (DIC)
- Anemia
- Venous thromboembolism (VTE)
- Drug-induced coagulopathies
- Reversal agents for anticoagulants

Nursing priorities are addressed for patients receiving blood product transfusions and assessing for transfusion complications including pulmonary edema, transfusion reaction, transfusion-related acute lung injury (TRALI), and transfusion-associated circulatory overload (TACO).

Each topic area explores assessment tools and diagnostics, measures to intervene for alterations, and tips to prevent complications.

CE INFORMATION:
4.5 ICU/PCU ANCC contact hours awarded (60-min. contact hour), CERP A.

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HEMATOLOGICAL — ASSIGNMENTS, TOPICS, AND SUBTOPICS

Diagnostic Testing
Hematologic Studies
- Topic Introduction
- Patient Introduction
- Complete Blood Count (CBC)
- H&H
- Common Errors
- Platelet Count
- Non-CBC Tests

Coagulation Studies
- Topic Introduction
- PT-INR and aPTT
- Lab Draws
- Considerations for Testing
- Additional Diagnostic Tests (FSP, D-Dimer, Anit-Xa, Fibrinogen, TEG)

Thrombocytopenias
Thrombocytopenia
- Topic Overview
- Pathophysiology
- Etiologies
- Treatment
- Transfusion Risks
- Transfusion Thresholds
- Response to Treatment

Heparin-Induced Thrombocytopenia (HIT)
- Patient Introduction
- Pathophysiology
- Risk Factors
- Signs and Symptoms
- Diagnostic Criteria
- Treatment

Disseminated Intravascular Coagulation (DIC)
- Patient Update
- Pathophysiology
- Risk Factors
- Diagnostic Tests

Other Pathologic Conditions
Anemia
- Topic Introduction
- Compensatory Mechanisms
- Signs and Symptoms
- Types of Anemia
- Diagnostic Tests
- Treatment
- Response to Treatment

Venous Thromboembolism (VTE)
- Topic Introduction
- Risk Factors
- Treatment
- Anticoagulant Transition
- Contraindications

Drug-Induced Coagulopathies
- Topic Introduction
- Risk Factors
- Diagnostic Tests and Response to Treatment
- Anticoagulant Reversal Agents

Transfusions and Complications
Transfusion of Blood Products
- Patient Update
- Transfusion Indications
- Double-Check Procedure
- Transfusion Protocol
- Complications
- Response to Treatment

Complications of Transfusions
- Topic Introduction
- Complications
- Transfusion Reaction
- Pulmonary Edema & TACO
  1 TACO = Transfusion Associated Circulatory Overload
  2 TRALI = Transfusion Related Acute Lung Injury

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ECCO: Caring for Patients With Multisystem Disorders

MODULE DESCRIPTION:
This module provides an in-depth review of the following:
- Different types of shock (hypovolemic, cardiogenic, neurogenic, and anaphylactic)
- SIRS-sepsis-septic shock continuum
- Multisystem organ dysfunction syndrome (MODS)
- Rhabdomyolysis
- Necrotizing fasciitis
- Behavioral issues in critical care, including alcohol withdrawal and substance abuse

Each topic area explores assessments, evidence-based interventions, and strategies to prevent complications.

The assignment Multisystem organ dysfunction syndrome (MODS) is available in the ICU module only.

CE INFORMATION:
4.3 ICU or 3.7 PCU contact hours awarded (60-min. contact hour), CERP A.

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Shock

**Shock Syndrome**
- Patient Introduction
- Types of Shock
- Stages of Shock
- Patient Management

**Hypovolemic Shock**
- Patient Update
- Etiologies
- Hemorrhage Classification
- Diagnostic Indicators
- Corrective Actions

**Cardiogenic Shock**
- Patient Introduction
- Mortality Rate
- Underlying Causes
- Pathophysiology
- Diagnostics
- Treatment

**Obstructive Shock**
- Topic Introduction
- Common Causes
- Treatment

**Neurogenic Shock**
- Topic Introduction
- Sympathetic Tone Loss
- Causes
- Diagnosis
- Hemodynamic Status
- Treatment

**Anaphylactic Shock**
- Topic Introduction
- Pathophysiology
- Diagnostic Criteria
- Signs and Symptoms
- Treatment

**SIRS, Sepsis, and MODS**

**SIRS, Sepsis, MODS Continuum**
- Topic Introduction
- Continuum of Systemic Inflammatory Response Syndrome (SIRS)
- Explanation of 2016 Sepsis Definition Change
- Screening Tools

**SIRS**
- Patient Introduction
- SIRS Criteria
- Assess the Patient
- Pathophysiology
- Patients at Risk

**Sepsis**
- Assess the Patient
- Pathophysiology
- Diagnostic Criteria

**Sepsis (formerly called Severe Sepsis)**
- Patient Update
- Indicators of Organ Dysfunction
- Impaired Capillary Perfusion
- Pathophysiology
- 3-Hour Sepsis Bundle
- Trending
- 6-Hour Sepsis Bundle

**Additional Evidence-Based Interventions**
- Topic Introduction
- Septic Shock
- Evidence-Based Interventions
- Family Support and Goals of Care

**MODS**
- Patient Update
- Populations at Risk
- Primary MODS
- Secondary MODS
- Pathophysiology

**Behavioral**

**Alcohol**
- Patient Introduction
- Patient Screening
- Assessing for Alcohol Withdrawal
- Initial Management
- Treatment Management
- Monitor Patient Response
- Symptom-Triggered Therapy

**Drug Overdose**
- Topic Introduction
- Diagnostic Testing
- Drug Overdose Management
- Neurologic Depression
- Clearing Toxins
- Specific Drug Treatments
- Monitoring and Preventing Complications

**Necrotizing Fasciitis and Rhabdomyolysis**

**Necrotizing Fasciitis**
- Topic Introduction
- Etiology and Pathophysiology
- Signs and Symptoms
- Patient Profile
- Patient Assessment
- Immediate Priorities
- Psychosocial Support

**Rhabdomyolysis**
- Topic Introduction
- Pathophysiology
- Causes
- Signs and Symptoms
- Diagnostic Criteria
- Complications
- Interventions