Outline

Required Readings
Chapter 1
Sole, Klein & Moseley
I. Overview of Critical Care
   A. Evolution of Critical Care
   B. Critical Care Nursing Roles
   C. Critical Care Professional Organizations
   D. Standards of Care
   E. Trends & Issues
Chapter 2
Sole, Klein & Moseley
F. Patient/Family Education
   1. Critical Care Environment
   2. Critically Ill Patient
   3. Family Members
   4. Critical Care Nurse
   5. Synergy Model
Chapter 3
Sole p. 25-29
G. Ethical Issues
   1. Ethical Principles
   2. Resource Management in Critical Care
   3. Code of Ethics/Advocacy
   4. Decision Making in Critical Care
Chapter 3
Sole p. 29-38
H. Legal Issues
   1. Legal Relationships
   2. End of Life Issues
   3. Organ & Tissue Transplant
Chapter 4
Sole, et al
I. Psychosocial Alterations
   1. Comfort
      a. Anxiety
      b. Pain
   1. Physiology of Pain
   2. Types of Acute Pain
   Handouts
   3. Pain Assessment
   4. Pain Management
Handouts
   c. Sleep
      1. Sleep Alterations
         a. Sleep stages
         b. Sleep cycles
         c. Sleep changes
         e. Chronobiology
         f. Pharmacology
         g. Abnormal sleep
      2. Measurements
      3. Challenges
   2. Measurements
   3. Challenges
Chapter 11 II Cardiovascular System
Sole, et al A. Anatomy
Aehlert, 1. Structures
Chapter 1
  2. Conduction
  3. Coronary Artery Circulation
  4. Systemic Blood Flow
  5. Microscopic Structures

Chapter 7 B. Physiology
p. 127-133
Handouts
  1. Electrical Activity
  2. Mechanical Activity
  3. Cardiac Cycle
  4. Cardiac Output
      a. preload
      b. afterload
      c. contractility
  5. Heart Rate Regulation
      a. parasympathetic nervous system
      b. sympathetic nervous system
      c. intrinsic regulation
  6. Control of Peripheral Circulation

C. Cardiovascular Clinical Assessment
  1. History
  2. Physical Examination
      a. Inspection
      b. Palpation
      c. Percussion
      d. Auscultation

Chapter 11 D. Cardiovascular Diagnostic Procedures
Sole, et al 1. Laboratory Assessment
      a. Electrolytes
          1. Potassium
          2. Calcium
          3. Magnesium
      b. Cardiac Enzyme Studies
      c. Hemalogic Studies
      d. Serum Lipid Studies
      e. Various Chemistry Studies
          1. Thyroid Hormone Levels
          2. BUN & Creatinine
          3. Liver Enzymes
  2. Chest Radiology
  3. Magnetic Resonanoe Imaging
  4. Thallium Scan
  5. Cardiac Catheterization
  6. Electrophysiology Study
  7. Electrocardiology
      a. Basic Principles
      b. ECG analysis
      c. Exercise Electrocardiography

Sole et al. Ch. 6
Aehlert Chapter 2, 3, 4, 5, 6, 7
Chapter 7, Sole et al.

- 8. Echocardiography
- 9. Hemodynamic Monitoring
  - a. Arterial BP Monitoring
  - b. CVP Monitoring
  - c. Pulmonary Artery Monitoring
  - d. Intro Abdominal Pressure

Chapter 11, Sole, et al

E. Coronary Artery Disease (CAD)
- 1. Description
- 2. Etiology
- 3. Risk Factors
- 4. Pathophysiology
- 5. Acute Coronary Syndromes
- 6. Medical Management
- 7. Nursing Management

F. Myocardial Infarction (AMI)
- 1. Description
- 2. Etiology
- 3. Pathophysiology
- 4. Dysrhythmia
- 5. Structural Complications
- 6. Medical Management
- 7. Nursing Management
- 8. Patient Teaching

G. Heart Failure
- 1. Pathophysiology
- 2. Assessment & Diagnosis
  - a. Right heart failure
  - b. left heart failure
- 3. Complications
- 4. Medical Management
- 5. Nursing Management
- 6. Patient Education

Handouts

H. Cardiomyopathy
- 1. Description
- 2. Etiology
- 3. Nursing Management
- 4. Patient Teaching

Handouts

I. Valvular Heart Disease
- 1. Description
- 2. Etiology
- 3. Pathophysiology
  - a. Mitral Valve Stenosis
  - b. Mitral Valve Regurgitation
  - c. Aortic Valve Stenosis
  - d. Aortic Valve Regurgitation
  - e. Tricuspid Valve Stenosis
  - f. Tricuspid Valve Regurgitation
- 4. Medical Management
5. Nursing Management
6. Patient Education

Chapter 11 Sole, et al p. 341-348

J. Aortic Disease
1. Description
2. Etiology
3. Assessment and Diagnosis
4. Medical Management
5. Nursing Management
6. Patient Education

Handouts

K. Carotid Artery Disease
1. Description
2. Etiology
3. Medical Management
4. Nursing Management
5. Patient Education

Chapter 6 Sole, et al p. 121-125

L. Pacemakers
1. Temporary pacemakers
   a. Indications
   b. Pacemaker System
      c. Pacing Routes
d. Pacemaker Codes
e. Pacemaker Settings
f. Pacemaker Malfunctions
g. Medical Management
k. Nursing Management
l. Patient Education

Ch. 11 Sole, et al M. Thrombolytic Therapy
1. Eligibility
2. Thrombolytic Agents
3. Reprofusion
4. Nursing Management
5. Patient Education

Sole et al Ch. 11 p. 327

N. Catheterization Interventions
1. Indications
2. PTCA
3. Atherectomy
4. Laser Angiography
5. Coronary Stents
6. Nursing Management
7. Balloon Valvotomy

Chapter 9 p. 231-232

Aehlert 8

G. Pacemaker System
   a. Medical Management
   b. Nursing Management

Sole et al Ch. 11 p. 327

N. Catheterization Interventions
1. Indications
2. PTCA
3. Atherectomy
4. Laser Angiography
5. Coronary Stents
6. Nursing Management
7. Balloon Valvotomy
O. Cardiac Surgery
   1. Coronary Artery Bypass Surgery
   2. Valvular Surgery
   3. Cardio Pulmonary Bypass
   4. Postop Management
   5. Patient Education
   6. Recent Advances

p. 280-283 Sole et al.

P. Mechanical Circulatory Assist Devices
   1. Intra aortic Balloon Pump
   2. Ventricular Assist Devices

Handouts

Q. Vascular Surgery
   1. Endarterectomy
   2. AAA Repair
   3. Endovascular Stent Grafts
   3. Surgical Revascularization

Sole, et al Ch. 9 +11

R. Cardiac Drugs

S. Code Management

Chapter 8 Sole, et al p. 159-169

Handouts

III Pulmonary System

A. Anatomy & Physiology
   1. Thorax
   2. Upper Airway
   3. Bronchial Tree
   4. Pulmonary blood & lymph supply
   5. Ventilation
   6. V/Q Relationship
   7. Gas transport
   8. Oxyhemoglobin Dissociation Curve
   9. Compliance

B. Pulmonary Assessment
   1. History
   2. Physical Exam
      a. Inspection
      b. Palpation
      c. Percussion
      d. Auscultation
   3. Finding associated with common lung disorders

p. 169-175

Handouts

C. Pulmonary Diagnostic Procedures
   1. ABG Analysis
   2. Dead Space Equation
   3. Sputum Studies
   4. Bronchoscopy
   5. Thoracentesis
   6. PFTs
   7. V/Q Scanning
   8. CXR
   9. Capnography
   10. Pulse Oximetry
Chapter 13 Sole, et al  D. Pulmonary Disorders
p. 419-434 Sole, et al
1. Acute Respiratory Failure
   a. Description
   b. Etiology
   c. Pathophysiology
   d. Assessment and Diagnosis
   e. Medical Management
   f. Nursing Management
2. ARDS
   a. Description
   b. Etiology
   c. Pathophysiology
   d. Assessment and Diagnosis
   e. Medical Management
   f. Nursing Management
3. Pulmonary Embolism
   a. Description
   b. Etiology
   c. Pathophysiology
   d. Assessment and Diagnosis
   e. Medical Management
   f. Nursing Management
4. Air leak Disorders
   a. Description
   b. Etiology
   c. Pathophysiology
   d. Assessment and Diagnosis
   e. Medical Management
   f. Nursing Management
   g. Chest Tube Management

Chapter 8 Sole, et al  E. Mechanical Ventilation/Airway
p. 175-212
1. Oxygen Therapy
2. Artificial Airways
   a. Pharyngeal Airways
   b. Endotrachial Tubes
   c. Tracheostomy Tubes
3. Airway Maintenance
4. Invasive Mechanical Ventilation
   a. Types of Ventilators
   b. Modes of Ventilators
   c. Ventilator Settings
   d. Complications
   e. Weaning
   f. Nursing Management
5. Noninvasive Mechanical Ventilation
6. Prone Positioning
F. Pharmacological Respiratory Measures
1. Bronchoditators and Adjuncts
2. Neuromuscular Blocking Agents

Chapter 12 Sole, et al

IV Neurological System

A. Neurological Anatomy & Physiology
   1. Tissues
   2. CNS
      a. Bony Structures
      b. Meninges
      c. Ventricular System
      d. CSF
      e. Blood Brain Barrier
   3. Brain
      a. Brain Stem
      b. Reticular Formation
      c. Cerebellum
      d. Diencephlon
      e. Basal ganglia
      f. Cerebrum
      e. Cerebral Circulation
   4. Spinal Cord
   5. Cranial Nerves

B. Neurological Clinical Assessment
   1. History
   2. Physical Exam
      a. LOC
      b. Motor Function
      c. Pupillary Function & Eye Movement
      d. Respiratory Patterns
      e. Vital Signs
   3. Glasgow Coma Scale
   4. Rapid Neurological Exam

C. Neurological Diagnostic Procedures
   1. Skull & Spine X-Rays
   2. CT
   3. MRI
   4. Cerebral Angiography
   5. Myelography
   6. Cerebral Blood Flow Studies
   7. Electro Physiology Studies
   8. Lumbar Punctures

D. Neurological Disorders

Handouts

1. Coma
   a. Description
   b. Etiology
   c. Pathophysiology
   d. Assessment and Diagnosis
   e. Medical Management
   f. Nursing Management

Handouts

2. Persistent Vegetative State
a. Description  
b. Etiology  
c. Pathophysiology  
d. Assessment and Diagnosis  
e. Medical Management  
f. Nursing Management

3. Brain Death

4. Stroke

a. Ischemic Stroke  
b. Subarachnoid Hemorrhage  
c. Intracerebral Hemorrhage  
d. Nursing Management

Handouts

5. Guillain-Barre Syndrome

a. Description  
b. Etiology  
c. Pathophysiology  
d. Assessment and Diagnosis  
e. Medical Management  
f. Nursing Management

Handouts

6. Craniotomy

a. Types of Surgery  
b. Pre-op Care  
c. Types of Brain Tumors  
d. Surgical Considerations  
e. Post op Management

Chapter 12 Sole, et al  
p. 366-384

E. Neurological Therapeutic Management

1. Assessment of ICP

a. Cerebral Blood Flow  
b. CPP  
c. Cerebral Metabolism  
d. Assessment Techniques

2. Managing Intracranial Hypertension

a. positioning  
b. hyperventilation  
c. temperature control  
d. blood pressure control  
e. seizure control  
f. lidocaine  
g. CSF drainage

3. Herniation

4. Pharmacological Management

a. Anticonvulsants  
b. Barbituates  
c. Osmotic diuretics  
d. loop diuretics  
e. calcium channel blockers  
f. local Anesthetics  
g. thrombolytics
Chapter 18  Sole, et al  V Trauma

A. Mechanisms of Injury
B. Phases of Trauma Care
   1. Prehospital Resuscitation
   2. Emergency Department Resuscitation
      a. primary survey
      b. resuscitation phase
      c. secondary survey
   3. Definitive Care
   4. Critical Care Phase

Chapter 12 Sole et al.  C. Specific Trauma Injuries
p. 384-391
p. 404-416

1. Traumatic Brain Injuries
2. Spinal Cord Injuries
   a. mechanisms of injury
   b. pathophysiology
   c. functional injury of spinal cord
   d. autonomic dysreflexia
   e. nursing management

Chapter 18 Sole, et al  D. Maxillofacial Injuries
Handouts  E. Thoracic Injuries
F. Abdominal Injuries
G. Genitourinary Injuries
H. Pelvic Fractures
I. Complications of Trauma
J. Special Considerations

Chapter 14 Sole, et al  VI Renal System
Handouts  A. Anatomy

   1. Glomerulus
   2. Bowman capsule
   3. Proximal convoluted tubule
   4. Loop of Henle
   5. Distal Convoluted Tubule
   6. Collecting Duct

B. Urine Formation
   1. Filtration
   2. Reabsorption
   3. Secretion

C. Function of the Kidneys
D. Fluid Balance
   1. Fluid Physiology
   2. Factors controlling fluid balance
E. Electrolyte Balance
1. Potassium
2. Sodium
3. Calcium
4. Phosphorus
5. Magnesium
6. Chloride
7. Bicarbonate

F. Renal Clinical Assessment & Dx Procedures
1. History
2. Physical Exam
   a. Inspection
   b. Auscultation
   c. Palpation
   d. Percussion
3. Weight
4. I & O
5. Laboratory Assessment
   a. Serum
      1. BUN
      2. Creatinine
      3. Osmolality
      4. Anion Gap
      5. Hgb and Hct
      6. Albumin
   b. Urine Analysis
      1. urine pH
      2. specific gravity
      3. osmolality
      4. glucose
      5. protein
      6. electrolytes
      7. sediment
      8. hematuria
6. Radiological Assessment
7. Renal Biopsy

G. Renal Disorders
1. Acute Renal Failure
   a. description
   b. etiology
      1. pre-renal
      2. intra-renal
      3. post-renal
c. ATN
   1. description
   2. etiology
   3. pathophysiology
   4. phases of ATN
      a. onset phase
      b. oliguric/anuric phase
      c. diuretic phase
      d. recovery phase
   d. Laboratory Assessment
   e. Radiological Findings
   f. Hemodynamic Monitoring & Fluid Balance
   g. Medical Management
   h. Nursing Management

H. Dialysis
   1. Vascular Access
   2. Hemodialysis
   3. CRRT
   4. Peritoneal Dialysis

I. Pharmacology
   1. Diuretics
      a. loop diuretics
      b. thiazide diuretics
      c. potassium sparing diuretics
      d. osmotic diuretics
   2. Methylxanthines

Chapter 16 Sole, et al

VII Gastrointestinal System
A. Anatomy & Physiology
B. Clinical Assessment & Dx Procedures
   1. History
   2. Physical Exam
      a. Inspection
      b. Auscultation
      c. Percussion
      d. Palpation
   3. Laboratory Studies
   4. Diagnostic Procedures
      a. Endoscopy
      b. Angiography
      c. Radiology
      d. Ultrasound
      e. CT
      f. Nuclear Scan
      g. Bleeding Scan
      h. MRI
      i. Liver Biopsy
C. GI Disorders
1. Acute GI Hemorrhage
   a. Description
   b. Etiology
      1. peptic ulcer disease
      2. stress related erosive syndrome
      3. esophageal varices
   c. Pathophysiology
   d. Assessment & Diagnosis
      1. Hematemesis
      2. Hematochezia & melena
      3. Laboratory studies
      4. Dx procedures
   e. Medical Management
   f. Nursing Management
2. Acute Pancreatitis
   a. description
   b. Etiology
   c. Pathophysiology
   d. Assessment and Diagnosis
   e. Medical Management
   f. Nursing Management
3. Fulminant Hepatic Failure
   a. Description
   b. Etiology
   c. Pathophysiology
   d. Assessment and Diagnosis
   e. Medical Management
   f. Nursing Management
4. Therapeutic Management
   a. NG tubes
   b. long intestinal tubes
   c. esophageal balloon tamponade tubes
   d. endoscopic treatments
   e. TIPS
   f. pH monitoring
   g. pharmacological agents
      1. Antulcer agents
      2. Vasopressin

Chapter 15 Sole, et al. D. Hemotology
1. A&P
2. Components of Blood
3. Hemostasis
4. Nursing Assessment
5. Disorder
6. The bleeding patient
7. DIC
8. Blood Administration

VIII Nutrition in Critical Care
Chapter 5 Sole, et al

A. Nutrition Metabolism
   1. Carbohydrates
   2. Proteins
   3. Lipids
B. Malnutrition
C. Metabolic Reaction to Starvation and Stress
D. Nutritional Assessment
E. Nutritional Impact on Systems
   1. Cardiovascular
   2. Pulmonary
   3. Neurologic
   4. Renal
   5. GI
   6. Endocrine
F. Administering Nutrition Support
   1. Enteral Support
   2. TPN
G. Assessing response to nutritional support

IX Endocrine System

Chapter 17 Sole, et al

A. Anatomy & Physiology

Chapter 35 Sole, et al

B. Clinical Assessment & Dx Procedures
   1. History
   2. Physical Exam
   3. Laboratory Tests

C. Endocrine disorders

p. 590-592 Sole, et al

1. DKA
   a. Description
   b. Etiology
   c. Pathophysiology
   d. Assessment and Diagnosis
   e. Medical Management
   f. Nursing Management

p. 592-600 Sole, et al

2. HHNC
   a. Description
   b. Etiology
   c. Pathophysiology
   d. Assessment and Diagnosis
   e. Medical Management
   f. Nursing Management

p. 600-603 Sole, et al

3. Hypoglycemia
   a. Pathophysiology
   b. Assessment
   c. Nursing Dx
   d. Medical Interventives
   e. Pt outcomes

p. 630-635 Sole, et al

4. DI
   a. Description
   b. Etiology
      1. Central DI
      2. Nephrogenic DI
3. Psychogenic DI
   c. Pathophysiology
d. Assessment & Diagnosis
      1. Sodium
      2. Urinalysis
      3. I & O
e. Medical Management
f. Nursing Management

p. 635-639 Sole, et al

4. SIADH
   a. Description
   b. Etiology
c. Pathophysiology
d. Assessment and Diagnosis
e. Medical Management
f. Nursing Management

Handouts
XI SIRS & MODS
A. Inflammatory Response
   1. Local response
   2. Systemic response

Sole, et al
B. MODS
   1. Clinical Course & Progression
   2. Pathophysiologic Mechanisms
   3. Organ Specific Manifestations
   4. DIC
C. Nursing Management

Chapter 10 Sole, et al
X Shock
A. Hypovolemic Shock
B. Cardiogenic Shock
C. Anaphylactic Shock
D. Neurogenic Shock
E. Septic Shock

Chapter 19 Sole, et al
XII Burns
A. Anatomy & Function of Skin
B. Pathophysiology & Etiology of Burn Injury
   1. zone of coagulation
   2. zone of stasis
   3. zone of hyperemia
C. Classification of Burn Injuries
   1. Size of Injury
   2. Depth of Injury
   3. Types of Injury
      a. thermal burns
      b. electric burns
      c. chemical burns
d. radiation burns
   4. Location of Injury
D. Initial Burn Management
E. Special Management Considerations
F. Nursing Management
   1. Resuscitative phase
   2. Acute care phase
   3. Rehabilitative phase

Handouts

XIII Transplantation
A. Transplant rejection
   1. Graft rejection
   2. Immunosuppressive therapy
B. Heart transplanatation
   1. Indication and selection
   2. Surgical procedure
   3. Post-op management
   4. Long term consideration
C. Heart and Lung/Lung Transplantation
   1. Indications & Selection
   2. Surgical Procedure
   3. Post-op management
   4. Long term consideration
D. Liver Transplantation
   1. Indication & Selection
   2. Surgical Procedure
   3. Post-op Management
   4. Long term Follow up
E. Kidney Transplantation
   1. Selection of transplantation
   2. Surgical procedure
   3. Post-op management
   4. Long term considerations