

**CCSAP 2021 Book 1 (*Endocrinology and Rheumatology Care*)**

Release date: March 15, 2021

**BCCCP test deadline: 11:59 p.m. (Central) on Sept. 15, 2021.**

**ACPE test deadline: 11:59 p.m. (Central) on March 15, 2024.**



**Continuing Pharmacy Education Credit:** The American College of Clinical Pharmacy

and the American Society of Health-System Pharmacists are accredited by the Accreditation Council for Pharmacy Education (ACPE) as providers of continuing pharmacy education (CPE).

**ACSAP Target Audience:** The target audience for CCSAP 2021 Book 1 (*Pulmonary and Endocrinology*) is not only ICU and ED pharmacists across the spectrum of care but also any pharmacist caring for acutely ill patients whose management may be complicated by these challenging scenarios.

**Module I (5.5 CPE) Pulmonary and Endocrinology I**

**UAN:** 0217-0000-21-030-H01-P

**Chapter: Mechanical Ventilation and Pulmonary Procedures**

**Learning Objectives**

1. Justify the role of the clinical pharmacist in the care of mechanically ventilated patients.
2. Evaluate the key differences among the different modes of mechanical ventilation.
3. Develop a pharmacist-oriented evaluation and associated interventions for a mechanically ventilated patient.
4. Evaluate the independent effect of inspiratory positive airway pressure on the different organ systems in critically ill patients and potential for associated pharmacotherapy.
5. Justify the role of adjunctive therapy specific to the mechanically ventilated patient.
6. Account for the therapeutic use of pulmonary procedures in critically ill patients.

**Chapter: COPD, Asthma, and PAH**

**Learning Objectives (A)**

1. Apply knowledge of disease-specific endotypes and their implications in the targeted treatment for chronic obstructive pulmonary disease (COPD) and asthma.
2. Develop a comprehensive therapeutic plan for a patient experiencing an acute exacerbation of COPD.
3. Design an appropriate therapeutic plan for a patient presenting with life-threatening status asthmaticus.
4. Develop a therapeutic plan for pharmacologic management of pulmonary arterial hypertension (PAH) in critically ill patients.

5. Design a therapeutic plan for managing care transitions of PAH patients who require additional or interchangeable medication therapy.

## **Module 2 (5.0 CPE) Pulmonary and Endocrinology II**

**UAN:** 0217-0000-21-031-H01-P

### **Chapter: Drug-Induced Pulmonary Disorders and Pulmonary Drug Delivery**

#### **Learning Objectives (A)**

1. Evaluate the potential for drug-induced lung injury as part of the differential diagnosis.
2. Distinguish among the various causes of drug-induced lung injury.
3. Design an appropriate treatment plan for different types of drug-induced lung injuries.
4. Assess the use of adjunctive inhaled/intrapulmonary medications.
5. Develop a treatment plan for use of adjunctive inhaled/intrapulmonary medications.

### **Chapter: Pneumonia in the ICU**

#### **Learning Objectives**

1. Design appropriate empiric therapies for likely organisms causing HAP/VAP and severe CAP in high and low risk patients.
2. Develop definitive therapy plans for HAP/VAP and severe CAP including drug selection/de-escalation, pharmacokinetic optimization, dosing, and duration of therapy.
3. Evaluate options for patients who experience therapy failure or recurrent pneumonia.
4. Justify the use of antiviral and corticosteroid therapy for patients with severe CAP.

## **Module 3 (5.5 CPE) Pulmonary and Endocrinology III**

**UAN:** 0217-0000-21-032-H01-P

### **Chapter: Endocrinology in the ICU**

#### **Learning Objectives (A)**

1. Assess patients for critical illness–related changes in normal endocrine physiology.
2. Justify recommendations to implement corticosteroid therapy.
3. Distinguish between anti-diuretic hormone issues occurring in the ICU.
4. Develop a monitoring plan for thyroidal supplementation therapy in the setting of thyroid insufficiency.
5. Evaluate current evidence for glycemic control recommendations in the general ICU population.
6. Distinguish between acute adrenal abnormalities and chronic critical illness related disorders.

### **Chapter: Immune-Mediated Reactions**

#### **Learning Objectives**

1. Evaluate critically ill patients for the immunology and pathophysiology of immune-mediated reactions.
2. Develop evidence-based recommendations for the management of refractory hypotension in the setting of anaphylactic shock.

3. Distinguish differences in the presentation of dermatologic emergencies, including toxic epidermal necrolysis and Stevens-Johnson syndrome.
4. Develop a treatment and monitoring plan for therapy in the setting of a dermatologic emergency.
5. Distinguish differences in etiology and pathophysiology between types of angioedema.
6. Design a pharmacologic treatment plan for management of acute angioedema.

#### **Module 4 (6.5 CPE) Pulmonary and Endocrinology IV**

**UAN:** 0217-0000-21-033-H01-P

#### **Interactive Case: Acute Respiratory Distress Syndrome**

##### **Learning Objectives**

1. Apply guideline recommendations for the use of prone positioning, extracorporeal membrane oxygenation, extracorporeal carbon dioxide removal, and inhaled vasodilators in acute respiratory distress syndrome (ARDS).
2. Distinguish the use of neuromuscular blocking agents and glucocorticoids in the treatment of ARDS on the basis of recent evidence.
3. Evaluate current evidence regarding the potential role of vitamins in ARDS treatment.
4. Design an appropriate fluid management strategy for a patient with ARDS.
5. Assess patients for the various phenotypes of ARDS and recommend specific drug therapy on the basis of phenotype.

#### **Interactive Case: Extracorporeal Membrane Oxygenation**

##### **Learning Objectives**

1. Evaluate the impact of extracorporeal membrane oxygenation (ECMO) circuits on pharmacokinetic alterations of medications and the interplay of circuit, medication, and patient factors.
2. Design an appropriate anticoagulation regimen for a patient requiring ECMO.
3. Design an appropriate pain and sedation regimen for a patient receiving ECMO.
4. Develop an optimal antimicrobial regimen and perform therapeutic drug monitoring as indicated for a patient receiving ECMO to maximize therapeutic efficacy.

#### **Interactive Case: Neuromuscular Blocking Agents**

##### **Learning Objectives**

1. Distinguish the pharmacologic and pharmacodynamic properties of various neuromuscular blocking agents (NMBAs) and their reversal strategies.
2. Evaluate the depth of neuromuscular blockade and patient-specific factors to inform NMBA use and reversal in surgical patients.
3. Design appropriate NMBA therapy for a patient requiring rapid sequence intubation.
4. Justify the appropriateness of NMBA use and reversal for nonrespiratory indications in critically ill patients.