

**PedSAP 2020 Book 2 (*Cardiology and Nephrology*)**

**Release date: September 15, 2020**

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

**ACPE test deadline: 11:59 p.m. (Central) on September 15, 2023.**



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

is accredited by the Accreditation Council for Pharmacy Education (ACPE) as providers of continuing pharmacy education (CPE).

**PedSAP Target Audience:** The target audience for PedSAP 2020 Book 2 (*Cardiology and Nephrology*) is board-certified and advanced-level clinical pharmacists caring for pediatric patients with cardiologic and nephrologic disorders.

**Module I (5.5 CPE): UAN 0217-0000-20-044-H01-P**

**Chapter: Congenital Heart Defects, Heart Surgeries, Low Cardiac Output Syndrome**

**Learning Objectives**

1. Distinguish the pathophysiology of common congenital heart defects and lesions compared with normal heart physiology to classify which defects are cyanotic, acyanotic, and/or single ventricle defects.
2. Evaluate which congenital defects benefit from alprostadil.
3. Assess which patient symptomatology would benefit from closure of patients' patent ductus arteriosus and the preferred method for closure on the basis of patient signs, symptoms, and laboratories.
4. Evaluate the pathophysiology and diagnosis for low cardiac output syndrome and the appropriate pharmacologic management.
5. Classify which interventions can be evaluated at the bedside as surrogates of cardiac output.

**Chapter: Pediatric Cardiomyopathies and Heart Failure Management**

**Learning Objectives**

1. Distinguish pediatric CM by phenotype and common presentations.
2. Devise a pharmacotherapeutic treatment plan for a patient in acute decompensated and a patient with chronic heart failure.
3. Design a stroke prevention treatment plan for pediatric patients with heart failure palliated with a durable ventricular assist device (VAD).
4. Develop strategies for the acute treatment and long-term management for patients with complications of CM, heart failure, and inflammatory heart disease such as myocarditis

**Module II (6.0 CPE): UAN 0217-0000-20-045-H01-P**

## **Chapter: Arrhythmias**

### **Learning Objectives**

1. Evaluate cardiac conduction on the basis of physiologic events and ECG waveforms.
2. Distinguish normal heart rate values by age in the pediatric population.
3. Design a treatment plan for the pediatric patient with arrhythmia.
4. Distinguish between the classes of antiarrhythmics, including primary mechanism of action and therapeutic rationale.
5. Assess and interpret monitoring parameters for common antiarrhythmic medications used in the pediatric population.
6. Distinguish pharmacologic treatment options for management of fetal SVT.

## **Chapter: Anticoagulation in the Pediatric Cardiac Patient**

### **Learning Objectives**

1. Assess the maturation of coagulation factors and how it affects the response to therapy as a patient ages.
2. Differentiate the risk-benefit of different anticoagulant and antiplatelet agents. Identify their ideal place in practice for primary and secondary prevention as well as treatment of thromboses.
3. Assess the different methods of monitoring of anticoagulation for various agents and describe their place in practice.
4. Evaluate how various surgical procedures and defects have thrombotic risks and describe how to manage primary prevention of thromboses.
5. Analyze the role of mechanical circulatory support and analyze the role of anticoagulation for each modality.
6. Evaluate the management of anticoagulation therapy for acquired cardiac disease in the pediatric population, including Kawasaki's Disease, arrhythmias and cardiomyopathy.
7. Analyze the role of reversal agents and their therapeutic targets for anticoagulants.
8. Design reversal plans of anticoagulant therapy according to the urgency of reversal and the associated bleeding risk.
9. Assess the role of factor replacement in the management of various anticoagulants.

## **Module III (5.0 CPE): UAN 0217-0000-20-046-H01-P**

### **Chapter: Renal Dysfunction/Failure/Replacement Therapies in the Cardiac Patient**

#### **Learning Objectives**

1. Evaluate the impact of cardiac risk factors on normal kidney physiology leading to the development of acute kidney injury.
2. Assess the risk for the development of complications of acute kidney injury in pediatric patients following cardiac bypass surgery.
3. Design a therapeutic plan for management and monitoring a pediatric patient with acute kidney injury following cardiac surgery.

### **Chapter: Kidney Transplantation**

### **Learning Objectives**

1. Distinguish the differences between the transplant indications, treatment recommendations, and timelines for pediatric versus adult patients with end stage renal disease.
2. Analyze the prospective recipient's immunologic risk before kidney transplantation.
3. Develop an appropriate immunosuppression plan for a pediatric kidney transplant recipient considering immunologic risk, underlying disease, and planned maintenance immunosuppressive regimen.
4. Devise a plan for monitoring and managing a pediatric kidney transplant recipient in the immediate postoperative period.
5. Design preventative treatment strategies for both infectious and non-infectious pediatric kidney transplant complications.
6. Compose a plan for management of hypertension in a postoperative pediatric kidney transplant recipient.

### **Module IV (5.0 CPE): UAN 0217-0000-20-047-H01-P**

#### **Interactive Case: QTc Prolongation and Post-Cardiac Surgery Arrhythmias**

##### **Learning Objectives**

1. Distinguish risk factors that contribute to development of postoperative arrhythmias in pediatric patients with congenital heart disease
2. Distinguish risk factors that contribute to development of QTc Prolongation/Torsade de Pointes (TdP)
3. Given a pediatric patient case, compose the most appropriate therapeutic plan to treat an arrhythmia developed in the postoperative cardiac patient
4. Given a pediatric patient case, compose the most appropriate therapeutic plan to treat Torsade de Pointes (TdP)
5. Justify the need for supportive care to reduce the risk of an arrhythmia in a pediatric patient.

#### **Interactive Case: Coagulation Controversies**

##### **Learning Objectives**

1. Analyze factors that can affect PTT and anti-factor Xa (anti-Xa) assays.
2. Demonstrate clinical decision-making strategies for concurrent PTT and anti-Xa values when discordant or clinically inconsistent.
3. Apply the results of the phase III EINSTEIN-Jr trial, and review the value of monitoring direct-acting oral anticoagulant concentrations as well as analysis of reference ranges and application of results.
4. Assess current pediatric evidence supporting the use of 4-factor prothrombin complex concentrate (PCC4) (Kcentra).
5. Evaluate situational risk-benefit to determine the most appropriate therapeutic indications for PCC4 (Kcentra).