

# Purposes and Learning Outcomes of the *Core Curriculum for Nephrology Nursing, 7th Edition*

As stated by Larry E. Lancaster in the 1st edition of the *Core Curriculum for Nephrology Nursing* (1986), the publication was to serve as a guide to those providing education in nephrology nursing and to those wishing to do self-study. Certainly, those purposes continue with the 7th edition. Over the years, the *Core* has become a reference book for student nurses, nurses new to nephrology, experienced nephrology nurses, and nurses working outside of the specialty. It has been heavily relied on as a study guide for qualified nurses who prepare for specialty certification. The *Core* is referred to when policies and procedures are developed in units or facilities. It has also been used in courts of law.

Distinct purposes for each chapter were submitted by the individual contributors and offer insight into the contents of that chapter. The chapters can be studied individually and in no particular order. These descriptive purposes can assist readers in deciding the chapters that may meet their needs. Learning outcomes and contact hours are included as well.

These offerings for contact hours are provided by the American Nephrology Nurses Association (ANNA).

ANNA is accredited with distinction as a provider of nursing continuing professional development by the American Nurses Credentialing Center's Commission on Accreditation.

These CNE offerings meet the continuing nursing education requirements for certification and recertification by the Nephrology Nursing Certification Commission (NNCC).

To be awarded contact hours for each chapter, read the chapter in its entirety. Then complete the CNE evaluation process found at [www.annanurse.org/corecne](http://www.annanurse.org/corecne). Contact hours are awarded when the evaluation for the activity is complete.

## PART 1. Foundations for Practice in Nephrology Nursing

### Chapter 1. Professional Issues in Nephrology Nursing

#### 2.3 contact hours

This chapter provides basic information critical for every nephrology nurse. While providing a broad overview of important issues that challenge nephrology nurses in their workplaces, this chapter includes details that promote understanding and growth as a professional.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to examine the array of professional issues facing nephrology nurses as they lead and manage units where patients with kidney disease are treated, including the regulatory and economic facets and the need for a culture of safety.

### Chapter 2. Research and Evidence-Based Practice in Nephrology Nursing

#### 1.6 contact hours

Using available evidence and research to make clinical decisions in nephrology nursing practice is essential for effective, efficient, and safe care delivery. This chapter begins with an introduction to research and evidence-based practice followed by comparisons between the two. The evolution of and existing standards for nephrology nursing practice and interprofessional collaboration initiatives are discussed. The chapter also provides an overview of nursing standards of care (ANA and ANNA) followed by a summary of KDOQI, KDIGO, DOPPS, USRD, CROWNWeb, and UNOS data, measures, and guidelines directing best practices.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to assess nursing research, evidence-based practice, and various outcome initiatives and practice guidelines, including standards of care specific to nephrology nursing.

### Chapter 3. Health Policy, Politics, and Influence in Nephrology Nursing

#### 1.5 contact hours

The chapter provides an overview of the legislative process, communicating with members of Congress and other policymakers, and ANNA's involvement in health policy. It is the responsibility of professional nurses to advocate for policies that support the provision of high-quality care. By engaging with federal and state legislators, government agencies, and other organizations, nephrology nurses can continue to influence policies critical to nephrology professionals, patients, and their families.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to summarize the importance of involvement in health policy and advocacy for nephrology patients and how that can be done on a personal level.

### Chapter 4. Essentials of Disaster and Emergency Preparedness in Nephrology Nursing

#### 1.8 contact hours

The purposes of this chapter are to review the different types of natural and man-made disasters, provide strategies for formulating a plan for individual facilities, provide a general outline for developing a facility Disaster Preparedness Plan, and provide guidance in coordinating drills. Any Disaster Preparedness Plan requires the collaboration of administration, clinical and technical staff, patients, families, and state, federal, and community resources.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to analyze the plan for various types of disasters at one's own personal workplace to determine the strengths and weaknesses of the plan in meeting federal, state, and local requirements.

## PART 2. Physiologic and Psychosocial Basis for Nephrology Nursing Practice

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### Chapter 5. The Kidney in Health and Disease

#### 2.7 contact hours

This chapter delivers information that can assist the RN in understanding the connection between kidney disease and its effects on the individual. It begins with a review of genetics and genomics. Next, it guides the reader through the unique structures of the kidneys and examines their functions. The reader will gain an appreciation for how the kidneys promote homeostasis by excreting waste products within a wide range of urine concentrations. Understanding normal renal physiology leads to understanding the consequences that occur with disease and its pathophysiology, whether it is an acute or a chronic issue. This precedes an appreciation of why it is so incredibly difficult to artificially replace the kidneys. The chapter turns to presenting guidance in assessing patients with kidney disease and provides an overview of methods used to evaluate kidney structure and function. Related nursing interventions are summarized.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to describe how the nephrology nurse's understanding of kidney function begins with information addressing genetics and genomics and builds with topics encompassing kidney function, pathophysiology, and methods to assess the kidneys.

### Chapter 6. Chronic Kidney Disease

#### 2.2 contact hours • 1.0 pharmacology hours

As members of interprofessional teams, nephrology nurses play vital roles in focusing on health promotion, disease prevention, slowing the progression of CKD, and reducing cardiovascular mortality. This chapter provides the best available evidence at the time of publication to support interventions aimed at improving the health outcomes of patients with CKD.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to apply knowledge of pathophysiology and etiology of CKD to management strategies for CKD and its complications and comorbidities to promote the greatest quality of life for patients with CKD.

## Chapter 7. Individualizing the Care for Those with Kidney Disease

### 2.3 contact hours

The overall purpose of this chapter is to provide nephrology nurses with information that enables them to deliver individualized care to patients with kidney disease. It covers a variety of topics that can assist the nurse in addressing the unique needs of patients with kidney disease. Topics include spirituality, cultural diversity, education, engagement, veterans, financial impact, and physical rehabilitation — topics that can be used to assist the patient in living life to the fullest.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to determine a plan of patient care that is individualized based on the patient's specific personal history and needs.

## Chapter 8. Foundations in Nutrition and Clinical Applications in Nephrology Nursing

### 1.6 contact hours

The focus of this chapter is to examine nutritional issues related to CKD. Nutrition assessment and diagnosis are reviewed. Complications such as protein-energy wasting, bone disease, and anemia are discussed. The special nutritional needs and appropriate interventions are included for the following: CKD, different types of dialysis, various comorbidities, pregnancy, older adults, and special situations such as postbariatric surgery and culturally diverse populations. Patient adherence to nutrition intervention and improved patient outcomes rely on overcoming low health literacy and applying sound education strategies.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to use a nutritional assessment that addresses the specific needs of a patient with chronic kidney disease and the nutrition the patient requires.

## Chapter 9. Foundations in Pharmacology and Clinical Applications in Nephrology Nursing

### 1.9 contact hours • 1.9 pharmacology hours

Health care providers must be aware of the effects of kidney disease on medications to avoid adverse effects, provide education, and promote medication adherence. To assist with these tasks, the following topics are included: basic pharmacokinetic and pharmacodynamic principles, the effects of CKD, drugs commonly prescribed, an approach to drug dosing in patients with CKD, the impact of dialysis on drug therapy, and the clinical significance for nursing, including monitoring and administering medications, educating the patient, and fostering adherence.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to describe the clinical significance for nephrology nurses when caring for patients with CKD who are receiving pharmacologic agents.

## PART 3. The APRN's Approaches to Care in Nephrology

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### Chapter 10. Professional Issues for the APRN in Nephrology

#### 1.4 contact hours

The purpose of this chapter is to present an overview of advanced practice nursing and the professional issues related to advanced practice. Information about the roles and practice of advanced practice nurses, regulations, and licensures is addressed.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to interpret the scope of practice for the nephrology APRN and apply that knowledge to the professional practice issues that will be encountered in the APRN's personal practice area.

### Chapter 11. Overview of CKD for the APRN

#### 1.8 contact hours • 0.75 pharmacology hours

This chapter covers the definition and classification of CKD as well as its epidemiology and pathophysiology. It describes the workup, diagnosis, and management of the stages of CKD before requiring kidney replacement therapy. It reviews antihypertensive medications and the treatment of diabetes. Chapter 11 depicts the assessment and management of CKD complications, patient and family education, available resources for the APRN, and practice issues.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to describe the APRN's role in diagnosing and managing stages 1 to 5 CKD (not on dialysis), including pharmacologic considerations and patient education.

## Chapter 12. Overview of Treatment Options and the Vascular Access for the APRN

### 1.6 contact hours • 0.75 pharmacology hours

This chapter provides a foundation for the APRN in the area of kidney replacement therapy (KRT). All treatment modalities are addressed, as well as the option of no treatment. Information is offered on transplant, the treatment of choice for the majority of individuals with advanced CKD. The chapter discusses hemodialysis, the dialysis prescription, and ways to maintain optimal health for the patient on hemodialysis from the perspective of the APRN. An overview is presented regarding the APRN's role in the preparation for the creation, management, and maintenance of the vascular access. Additionally, the options of peritoneal dialysis and home hemodialysis and the role of the APRN are reviewed.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to outline the role of the APRN in caring for patients experiencing various kidney replacement therapies.

## Chapter 13. Overview of Acute Care for the APRN

### 1.9 contact hours • 1.5 pharmacology hours

The purpose of this chapter is to discuss the evaluation and management of hospitalized patients diagnosed with kidney disease from the perspective of the APRN.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to explain the role of the nephrology APRN in the care of a patient with acute kidney injury (AKI) including the differences that occur between the various treatment modalities.

## Chapter 14. Overview of Pediatric Nephrology for the APRN

### 1.9 contact hours • 0.8 pharmacology hours

This chapter outlines the scope of kidney disease as it relates to neonates and children through 18 years. It differentiates their assessment and treatment from the adult care guidelines and assists in preparing the APRN who treats children with CKD.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to explain the role of the pediatric nephrology APRN in the care of pediatric patients with chronic kidney disease or acute kidney injury and the treatment modalities available.

## PART 4. Foundations in Infection Prevention, Control, and Clinical Applications in Nephrology Nursing

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### Chapter 15. Infection Risks of Patients on Dialysis

#### 1.5 contact hours • 0.8 pharmacology hours

This chapter begins by describing the reasons individuals with stage 5 CKD are at risk for infection. It reviews bacteremia, vascular access infections, and antibiotic resistance.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to describe the risks that individual patients face for developing an infection, considering infection transmission and antibiotic resistance.

### Chapter 16. Specific Infectious Diseases

#### 1.4 contact hours

Hepatitis B, hepatitis C, hepatitis D, the human immunodeficiency virus, the Ebola virus, tuberculosis, and herpes zoster are covered in this chapter. The characteristics, epidemiology, risk factors, transmission, clinical features, and outcomes are reviewed. Specific information applicable to these diseases is presented.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to plan care for patients with CKD either at risk for, or actively infected with, a variety of infectious diseases as well as the management of and precautions to take when caring for equipment used in their care.

**Chapter 17. Environmental Risks Related to Infections in Hemodialysis Clinics****1.3 contact hours**

This chapter discusses airborne and droplet transmissible diseases and occupational exposure to bloodborne pathogens. It contains information regarding infections related to water, reuse, or machine contamination. There is also new content addressing bed bugs in the dialysis unit.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to describe risks in the environment that could lead to infections in nephrology patients or staff (aerosol, exposure, machine related, and bed bugs) and the transmission and precautions to take.

**Chapter 18. Infection Prevention: Processes and Interventions****1.4 contact hours • 1.4 pharmacology hours**

General considerations for hemodialysis precautions and specific steps to take are discussed and recommended. Safe injection practices and medication safety are reviewed from fundamentals to detailed recommendations for the dialysis unit. In addition, critical information regarding immunizations is presented.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to outline various methods to use to prevent, protect, or treat patients with CKD at risk for, or actively ill with, various infections.

**Chapter 19. Quality Management and Reporting for Infection Control in Dialysis****1.4 contact hours**

Facilities are required to meet specific regulatory criteria set by the Centers for Medicare & Medicaid Services and the Occupational Safety and Health Agency. In addition, awareness of recommendations and guidelines by professional associations, state, and federal agencies is needed. This chapter offers information in these areas to assist the reader in gaining clarification.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to outline the quality control and reporting mechanisms to be used that are required by CMS and CDC related to infections and infection control practices in dialysis.

**PART 5. Treatment Options for Patients with Chronic Kidney Failure and the Vascular Access**

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**Chapter 20. Advance Care Planning, Palliative Care, and End-of-Life Care****1.4 contact hours**

This chapter provides an overview of palliative care and strategies to implement palliative care practices. It also suggests many facets of communication, assessment, implementation, and resources that support shared decision making about treatment choices, advance care planning (ACP), palliative care, and end-of-life care as they relate to individuals with advanced CKD. Both pediatric care and adult care are addressed.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to express the importance of informing patients about and, when necessary, assisting patients during the course of palliative or hospice care as a part of CKD treatment.

**Chapter 21. Transplantation****2.5 contact hours • 1.25 pharmacology hours**

The purpose of this chapter is to describe concepts and care during each phase of kidney transplantation (before, during, and after), complications (technical, infectious, and chronic), immunosuppression therapy, and implications of multiorgan transplant (simultaneous pancreas-kidney, heart, liver, and lung).

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to summarize the various issues involved in planning, preparing for, and managing after a transplant, including the various challenges and pharmacologic needs patients may face.

## Chapter 22. Hemodialysis

### 2.6 contact hours

This chapter describes the principles used during hemodialysis (HD) and current technologies available. It focuses on providing HD treatments that are safe, accurate, and customized for the individual patient. Strategies are addressed that can be used to reach desired patient outcomes, while avoiding adverse events. Complications associated with the dialysis procedure are explained, including assessment and interventions. Additionally, it discusses how to establish and reach the estimated dry weight of the patient on HD while minimizing untoward effects. An overview is provided on hematocrit-based blood volume monitoring. Technical aspects for HD are addressed for water treatment and dialyzer reprocessing, regulatory requirements, and safe practices. The provision of a safe, individualized HD treatment is an essential component of this chapter. The strong emphasis on patient safety starts with a list of safety considerations related to treatments and spreads throughout the chapter with safety alerts.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to discuss the principles of hemodialysis, water treatment, and the associated potential complications as components of the nursing care required by patients dependent upon this modality.

## Chapter 23. Vascular Access for Hemodialysis

### 1.9 contact hours

The vascular access provides an established pathway through which the blood can leave the body, enter the extracorporeal circuit, and return to the body. It requires observation and care by both the nursing staff and the patient to prevent or limit potential complications. This chapter provides a comprehensive overview of the various types of vascular access used for hemodialysis and information related to each type — evidence-based practice recommendations for optimal care, management, and more.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to explain the various types of access devices used for dialysis, including the benefits and challenges of each, the monitoring required, and the practice guidelines for the vascular access.

## Chapter 24. Peritoneal Dialysis

### 1.9 contact hours

Peritoneal dialysis (PD) is experiencing a significant resurgence as a kidney replacement therapy modality. Many nurses now practicing in PD programs are relatively new to the therapy. This chapter was developed to meet the basic educational needs of all nurses working in PD, especially those with limited experience.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to describe peritoneal dialysis, the access, the benefits and challenges of the various methods of PD, and the nursing implications in caring for patients using this modality.

## Chapter 25. Home Dialysis

### 1.5 contact hours

The purpose of this chapter is to allow the learner to gain a full concept of all aspects of home dialysis therapies including history, benefits, options, education, transitions of care, components of successful home programs, and finally, the role of the nurse and patient in training, managing, and monitoring care.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to provide an overview of home dialysis as to the benefits, the patient evaluation and teaching required, and the nursing roles and responsibilities involved in patients on home therapy using hemodialysis or peritoneal dialysis.

## PART 6. Acute Kidney Injury

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### Chapter 26. Program Management in the Acute Care Setting

#### 1.6 contact hours

This chapter outlines structural components and details associated with program management of a nephrology nursing program in the acute care setting. It defines the acute care nephrology nursing setting and differentiates it from other nephrology nursing environments with respect to clinical, regulatory, and organizational design. The information is specific to the acute care environment and will direct the learner to external resources when necessary. In-hospital hemodialysis is the primary kidney replacement modality addressed. Peritoneal dialysis, transplant, and water system management are addressed but discussed in greater detail in other chapters.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to describe the various nephrology nursing roles and responsibilities involved in acute care that are necessary in various types of facilities and with varying patient and community challenges that may occur.

### Chapter 27. Acute Kidney Injury

#### 1.7 contact hours

The purpose of this chapter is to describe acute kidney injury, its etiology, and pathology. The chapter delves into the assessment, treatment, and nursing care specific to this group of patients.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to assess patients at risk for AKI or at various stages of AKI and determine a plan of care, including the required collaborative treatment.

### Chapter 28. Hemodialysis in the Acute Care Setting

#### 1.5 contact hours

The purpose of this chapter is to describe the care of patients undergoing hemodialysis in the acute care setting.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to describe the care of the patient throughout the process of receiving hemodialysis in the acute care setting (before, during, and after hemodialysis assessments and interventions).

### Chapter 29. Water Treatment in the Acute Care Setting

#### 1.4 contact hours

This chapter provides basic information regarding water treatment for nurses who provide acute hemodialysis.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to explain the water treatment plan being used in an acute care setting.

### Chapter 30. Peritoneal Dialysis in the Acute Care Setting

#### 1.2 contact hours

This chapter describes the care of patients undergoing PD in the acute care setting.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to describe the care of a patient in an acute care setting who requires peritoneal dialysis or who has an emergent need for treatment, including the management of the treatment.

### Chapter 31. Heart Failure and Left Ventricular Assist Devices

#### 1.3 contact hours

This chapter provides an overview of heart failure (HF) in the United States. It attempts to define HF, HF etiologies, patient symptoms, patient assessment, and medical therapies used in the treatment of HF. It also focuses on one therapy for those with advanced HF: mechanical circulatory support with a left ventricular assist device (LVAD). Indications for LVAD support, patient selection criteria, and an overview of pump components are discussed. The chapter reviews outpatient management, medical therapy, device management, and pump troubleshooting, along with special considerations for patients with LVADs during hemodialysis.

Discussion includes monitoring during procedures, emergency care, and safety issues specific to patients with LVADs.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to describe the risk factors that increase a patient's need for an LVAD and the nursing care required when that patient needs hemodialysis or plasmapheresis.

### **Chapter 32. Continuous Renal Replacement Therapies in the Acute Care Setting**

#### **1.7 contact hours • 0.25 pharmacology hours**

This chapter defines various forms of intermittent and continuous therapies available for hemodynamically unstable patients with acute kidney injury, medical conditions requiring solute or fluid removal, or CKD. The chapter also describes the nursing care necessary to ensure safe, effective therapy. Most of these modalities are administered in a critical care unit.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to discuss the nursing management (assessment, interventions, challenges to be met) for the acute care patient being treated with continuous renal replacement therapy.

### **Chapter 33. Therapeutic Apheresis**

#### **1.3 contact hours**

The purposes of this chapter are to present the history of apheresis technology; to facilitate cognitive understanding of the concepts, principles, and clinical applications of therapeutic apheresis (TA); to explain therapeutic plasma exchange (TPE); and to present information for nephrology nurses to help them provide effective care for patients receiving TPE treatment.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to outline the nursing care of patients requiring the use of plasmapheresis, including the devices used, the procedure, and the nursing implications throughout.

## **PART 7. Kidney Disease in Patient Populations Across the Life Span**

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### **Chapter 34. Care of the Neonate to Adolescent with Kidney Disease**

#### **2.2 contact hours • 0.75 pharmacology hours**

This chapter outlines the necessary care for neonates to adolescents and can assist those who provide their care. Their needs differ a great deal from the needs of an adult. This chapter covers stages 1 to 5 CKD and AKI, acute therapies, nutrition, pharmacology, and psychosocial needs.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to summarize the causes, challenges faced, and nursing care required for the pediatric patient with chronic kidney disease or acute kidney injury.

### **Chapter 35. Care of the Older Adult with Kidney Disease**

#### **1.3 contact hours • 0.5 pharmacology hours**

This chapter provides epidemiologic information, health conditions common to older adults with kidney disease, care issues, and treatment recommendations for older adults living with CKD or experiencing AKI.

**Learning Outcome:** After reading this chapter, the learner will state an increased ability to describe the requirements of older adults with chronic kidney disease or acute kidney injury, including the management of medications, the findings from assessments, and the impact of other geriatric considerations.