The European Core Curriculum for a Post-Basic Course in Nephrology Nursing

3rd Edition

Editors
John Sedgewick
Margaret McCann
Nicola Thomas

Third edition: May 2022

European Dialysis and Transplant Nurses Association/ European Renal Care Association (EDTNA/ERCA)

Seestrasse 91, CH 6052 Hergiswil, Switzerland

www.edtnaerca.org

ISBN: 978-84-09-33137-6

Layout, Binding and Printing: Imprenta Tomás Hermanos

Río Manzanares, 42-44 · E28970 Humanes de Madrid

Madrid - Spain

www.tomashermanos.com

The European Core Curriculum for a Post-Basic Course in Nephrology Nursing

Third Edition

Editors

John Sedgewick RN, RMN, Dip.N, Renal Cert, Cert.Ed, RNT, FETC, BSc.N, MSc.N, MSc.HSR, FFNM(RCSI), FInstLM, PhD
King Faisal Specialist Hospital & Research Center,
Jeddah, Saudi Arabia

Margaret McCann RGN, RNT, BNS (Hons), FFNMRCSI, PhD
Trinity College Dublin, Ireland

Nicola Thomas RN, BSc (Hons), MA, PhD,
London South Bank University, London, UK

Acknowledgments

This updated Post-basic Core Curriculum is an initiative of the EDTNA/ERCA that aims to support the development of specialist programmes in nephrology nursing in Europe and other countries globally. Within this third edition, we have enhanced various sections of the curriculum and highlight the use of innovative teaching & learning strategies within nephrology programs.

The EDTNA/ERCA would like to thank the editors and the authors for their considerable amount of work and dedication in the development of this book.

Authors

Reem S Alhameedi, MSc.ANP, BSN, RN, DClinP
King Abdulaziz University, University Hospital, Jeddah, Saudi Arabia

Marianna Eleftheroudi RN, Nephrology Nurse,
Specialist Nurse of Psychiatry, MSc, PhD(c)
General Hospital Papageorgiou, Thessaloniki, Greece

Debbie Fortnum RN, BSc Nursing,
Masters International Health Management
Sir Charles Gairdner Hospital, Nedlands,
Australia & University of Tasmania

Ana Grilo RN, BSN, MSc.NM, PhD(c)
Mediclinic Middle East Al Barsha Dialysis,
United Arab Emirates

Jen Lumsdaine RGN, BSc (Nursing), PhD
Royal Infirmary of Edinburgh, Scotland

Sarah Lundie RGN, Dip HE, Nursing Studies,
Royal Infirmary of Edinburgh, Scotland

Margaret McCann RGN, RNT, BNS (Hons), FFNMRCSI, PhD
Trinity College Dublin, Ireland

Hanadi Mezher RN, BSN, MPH-HMP
American University of Beirut-Medical Center, Beirut, Lebanon

Iain Morris RGN
Fresenius Medical Care

Maria Saraiva RN, MScN, PhD
ESEL - Escola Superior de Enfermagem de Lisboa. Portugal

John Sedgewick RN, RMN, Dip.N, Renal Cert, Cert.Ed, RNT,
FETC, BSc.N, MSc.N, MSc.HSR, FFNM(RCSI), FInstLM, PhD
King Faisal Specialist Hospital & Research Center,
Jeddah, Saudi Arabia

Maria Arminda Silva Tavares RN, MS
Diaverum, Portugal

Nicola Thomas RN, BSc (Hons), MA, PhD,
London South Bank University, London, UK

Table of Contents

PREFACE

The first edition of the EDTNA/ERCA European Post-Basic Core Curriculum (PBCC) for Nephrology Nursing was published in 1994 with the second edition published in 2004. Two of the authors of the second edition, Nicola Thomas (UK) and Margaret McCann (Ireland) have edited this third edition, along with John Sedgewick (UK) who was Chair of the 3rd edition working group.

The European Post-Basic Core Curriculum in Nephrology Nursing aims to:

- provide an educational framework for post-basic courses in nephrology nursing
- inform ongoing curriculum review and development of nephrology courses established in Europe and other countries globally.
- assure and improve the quality in post basic education in nephrology nursing
- enhance the provision of quality nursing care and promote excellence in nephrology nursing.

This third edition includes updates on some key features of the 2nd edition with extensive revisions made to the Scope of Practice section following publication of the EDTNA/ERCA (2018) Profile of the Nephrology Nurse. A new PBCC modular framework has been developed to reflect changes in patient care and nephrology nursing. This modular framework consists of seven modules which reflect the patient's journey following a diagnosis of chronic kidney disease. A module descriptor is provided for each module and includes suggested module hours, aim and learning outcomes, indicative content and suggested teaching and assessment strategies. Hours assigned to each module are the recommended minimal number of study hours based on the content and learning outcomes, recognising that these can be amended according to the type of course/programme being developed. Also provided are clinical learning scenarios and key learning resources that are linked to each module. This modular framework fits the needs of education providers who may wish to deliver some components of the PBCC or deliver a module that addresses the learning needs of their audience.

A new feature of this third edition is the addition of an implementation guideline for those designing their own PBCC. This guideline identifies key components that need to be included in the PBCC for either short or long programmes of education, considering the EDTNA/ERCA PBCC, and regional and local requirements/context. Other additional features included examples of Curriculum frameworks that can be used to support PBCC development and implementation.

INTRODUCTION TO THE EUROPEAN POST-BASIC CORE CURRICULUM IN NEPHROLOGY NURSING (THIRD EDITION)

Nephrology Nursing is concerned with the care of individuals who have chronic kidney disease (CKD) and Acute Kidney Injury (AKI). CKD affects between 11% - 13% of the world population while AKI is seen in up to 1 in 5 adults during a hospital episode of care. The significant global increases in non-communicable diseases such as diabetes, obesity and hypertension have all contributed to an increasing prevalence of CKD and End Stage Kidney Disease (ESKD). Furthermore, these diseases combined, cause a significant cardiovascular risk, which is the leading cause of mortality in CKD. Many patients with CKD and AKI present with multiple co-morbidities requiring the specialist care of an entire multidisciplinary team. This includes nephrologists, nurses, dieticians or nutritionists, social workers', and psychologists. However, many healthcare systems do not offer these specialist resources, and it is often the nephrology nurse who is required to act as care coordinator and advocate to ensure patients and their families get access to the services, information, and education that they require.

THE EDTNA/ERCA

The European Dialysis and Transplant Nurses Association (EDTNA), first formed in 1972 became the EDTNA/ERCA (European Dialysis and Transplantation Nurses Association/European Renal Care Association) in 1985. The aim of the Association is to promote a global interest in renal care by sharing knowledge and experience among its members. The mission of the Association focuses on 'achieving the best level of education, standards and research for all renal care professionals caring and supporting their patients and families around the world'. One of the primary functions of the EDTNA/ERCA is to provide opportunities for continuing professional development (CPD) by establishing both a Basic and a PBCC for nephrology nursing.

Philosophy

The philosophy underpinning this PBCC is that:

- every patient is an individual who has the right to live their life to the fullest extent possible and be informed about all possible treatment choices
- every patient with renal dysfunction has the right to be cared for by qualified nurses, who are experts in the field of nephrology care. Care should support the patient to regain and maintain their quality of life and physical and psychological well-being
- partnership in care is fundamentally between the patient, their family, and the nephrology nurse, and helps foster the patient's independence, self-care, and ongoing rehabilitation where possible
- health education is an integral component of the nephrology nurses' role, with an emphasis on prevention, education, and support
- educational opportunities provide nephrology nurses with a knowledge base and enhanced skills which enables them to assess, plan, implement and evaluate individualised care
- nursing research and evidenced-based practice are essential to contemporary nephrology nursing practice to update and evaluate clinical knowledge and skills. The research process provides a framework for critically reviewing and improving nephrology care
- specialist education enables nurses to fulfil their professional role. All nephrology nurses have the right to access and undertake continuing education
- the nephrology nurse is a professional, who is accountable for their actions
- the nephrology nurse is a member of the multi-professional team and acts as the patient's advocate within that team

Scope of practice

Since the 2nd edition of the PBCC, the EDTNA/ERCA has updated its Profile of the Nephrology Nurse (EDTNA/ERCA 2018). The following are key excerpts from this document. The profile of Nephrology

Nursing has developed to such an extent that it is almost an umbrella term for a number of selected specialties, all related but each clinical domain providing intervention and support at various stages of the patient's CKD journey. This can be described as a continuum of care. It does not mean that all patients will pass through each clinical domain, but many may experience at least two or three at specific CKD stages.

Whilst organisations may configure their services differently, the delivery of consistent nephrology care may be provided along the entire kidney disease continuum, from community to hospital settings.

Nephrology Nurse Profile across the Continuum of Care:

1. **Early CKD (stage 2-3):**

The focus is on raising awareness of kidney disease, early detection and delaying the progression of CKD. Usually managed in primary care by General Practitioners and Primary Care Nurses. Some service providers are now seeing the benefits of nephrology nurses or nurse practitioners working within this arena supporting and educating non- renal healthcare providers to recognise patients with, or at risk of CKD and emphasising the importance of following recommended management plans.

- **Examples of Role Titles/Locations:** renal community nurse, renal primary care nurse, nurse practitioner, patient, and community educator; primary care settings, community settings, nephrology clinics.

2. **Advanced CKD (stage 4-5):**

- The two focus points at this stage are managing the signs, symptoms, and complications of advanced CKD (collaboratively with the multidisciplinary team), and education about treatment options for ESKD. The nurse must be highly skilled at assessing individual patient's signs, symptoms, needs and suitability for different kidney replacement modalities, using a patient centered approach as they progress towards ESKD.
- This role requires advanced underpinning knowledge of treatment modalities and the expertise and confidence to

discuss with, and support patients who choose not to have treatment at all.

- **Examples of Role Titles/Location:** clinical nurse specialist, nurse practitioner, pre-dialysis educator, renal patient care coordinator; nephrology and advanced CKD clinics, pre-dialysis clinics, community settings including patients own home.

3. Vascular Access and Peritoneal Access

- Specialist access teams or access coordinators can facilitate a smooth and efficient transition to this stage and timely insertion of appropriate access. Access nurses provide a critical role in coordinating care between vascular surgeons, nephrologists, and nephrology nurses in both Peritoneal Dialysis (PD) and Haemodialysis (HD).
- **Examples of Role Titles/Location**: vascular and/or PD access nurse specialist, vascular and/or PD access co-coordinator, access nurses work across a variety of nephrology settings.

4. Kidney Transplant

- Patients with ESKD may undergo transplantation from a living or a deceased donor.
- Care provision requires an expert level of knowledge and skills to provide education and undertake a comprehensive assessment and preparation of both donors and recipients.
- Nephrology nurses in this field must have advanced knowledge of ethical clinical practice and decision-making, immunology, and immunosuppressive medications.
- Following transplantation, patients need to be carefully monitored for signs of complications such as infection or rejection and therefore expert skills in patient assessment, intervention and coordination with the multidisciplinary team are essential.
- **Examples of Role Titles/Location:** transplant staff nurse, charge nurse. Kidney transplant coordinator, kidney transplant nurse specialist, organ procurement coordinator; transplant

surgical wards, transplant clinics, ICU's, centers and clinics for follow up.

5. Home Dialysis Therapies

- Supporting patients and their carers to undertake either PD or Home Haemodialysis (HHD) requires an advanced level of knowledge, expertise in using the equipment, applications and technology and good education and training skills.
- On completion of patient training nurses provide follow-up with home and clinic visits, detecting and managing complications, ensuring ongoing care and effective self-management. They must have expert advanced health assessment skills so that they can identify any health problems or complications.
- **Examples of Role Titles/Location:** staff nurse, charge nurse, PD nurse specialist, HHD nurse specialist, home therapies manager; home therapies training centers, patient's homes.

6. In-Centre Haemodialysis

- The majority of patients with ESKD will be treated with HD on an outpatient basis. Patients often have multiple comorbidities. Haemodialysis clinics are high technology environments.
- Skills in supporting patients in behaviour change and advanced knowledge in suitable dietary and fluid alternatives to decrease complications is essential to optimize health outcomes.
- Nurses must have advanced skills in operating complicated equipment safely and efficiently.
- The nephrology nurse is a critical leader of the healthcare team in this environment by ensuring that all care is focused on patients, and not just on the machines.
- **Examples of Role Titles/Location**: registered nurse, staff nurse, charge nurse, unit manager, clinical or nephrology nurse specialist, advanced nurse practitioner; hospital dialysis units, outpatient haemodialysis clinics, minimal care centers.

7. Acute and Inpatient Care including Critical Care

- Patients with CKD have many comorbidities resulting in frequent hospital admissions. It is important that these patients' specific needs are addressed through expert nursing, clear planning, and coordination of care. Alternatively, patients may present with AKI because of damage to the kidney before or during hospitalization.
- Nephrology nurses need to work collaboratively with all members of the multidisciplinary team to ensure that the care and any dialysis treatment plan meets the overall goals of care.
- Within the intensive care setting, nurses deliver renal replacement therapy using modalities such as Continuous Renal Replacement Therapy (CRRT). If patients require standard dialysis (either PD or HD), nephrology nurses will usually deliver the treatment.
- **Examples of Role Titles/Location**: staff nurses and charge nurses, acute care coordinator, clinical and nephrology nurse specialist; In-patient wards, acute dialysis units, high dependency units, emergency departments and critical care (ICU).

8. Conservative Management and Care

- For patients who are elderly or who have significant comorbidities the prospect of a life with dialysis, or a transplant is unacceptable. This decision can be taken in the advanced CKD stage, or when deciding to withdraw from dialysis.
- Nurses need well developed shared decision-making skills. In collaboration with the multidisciplinary team, nephrology nurses may develop comprehensive care plans focusing on symptom management and enhancing quality of life where possible.
- Additional advanced skills may include nurse prescribing, symptom control, pain management, counselling, and psychological support.
- **Examples of Role Titles/Location**: staff nurses and charge nurses who have completed specialist training, clinical or

nephrology nurse specialist, nephrology community nurse: hospitals, nephrology centers, outpatient dialysis clinics, and community.

9. Palliative Care

- Palliative care is both end of life care and symptom management, depending on the health care system.
- Specialist palliative care teams may be involved in supporting or coordinating this care. However, many patients may have been cared for under nephrology for many years and it is important to the patients and their families that the nephrology team continues to support them ensuring a dignified and peaceful death.
- Nephrology nurses need high-level skills in assessing patients for pain and general comfort and working with them to complete their wishes.
- **Examples of Role Titles/Location**: All levels of nurses, clinical or nephrology nurse specialist with education in palliative care, care coordinator; hospitals, nephrology centers, outpatient dialysis clinics, community.

USE OF THE PBCC DOCUMENT

Promoting specialist education is an important goal of the EDTNA/ERCA. Significant differences exist in nephrology training programmes for post-basic courses in both Europe and globally. These differences are partly determined by social, political, and economic factors in each country. The aim of this PBCC is to provide a nephrology education framework which can be used across Europe and other countries as needed.

CURRICULUM RECOMMENDATIONS/SUGGESTIONS

Entry requirements

Each learner undertaking a course based upon the EDTNA/ERCA PBCC is a registered nurse. It is recommended that the nurse should have at least one year's post-registration experience in a general or nephrology setting.

Entry requirements for a post-basic course in nephrology nursing should be determined at a local level. The location where the course is offered (university, nursing school, hospital, private dialysis provider) and the hospital/clinic where the learner gains clinical experience in nephrology care, may vary from one region to another. In all settings it is recommended that the learner should be able to meet the learning outcomes of the PBCC as closely as possible.

Course structure and setting

The duration of the course should be decided according to the needs of the learners and may vary from a total of six weeks full-time study to two years part-time study. This could be achieved by a variety of methods: online learning, blended learning, face-to-face learning, distance-learning combined with direct contact time, the provision of a variety of course materials and the utilisation of examinations and assignments. There should be optimal integration of practical experience and theoretical knowledge. There should be opportunities for learners to gain experience in transplantation, home therapies, paediatrics, or extracorporeal therapies if they are not routinely available in the learner's place of work.

Assessment and evaluation

Written and oral assignments, examinations, presentation of care plans, and individual or group presentations can be considered. There should be practical assessments in clinical areas or practical self-assessment throughout the course. The course should be evaluated by learners and feedback to the course coordinator or teacher acted upon. Ideally, learners should ensure they are able to record and track their developing clinical skills. This could be in clinical practice logs, electronic portfolios or another medium which demonstrates evidence of clinical skills development. When learners are studying each module, it is important that the teacher links theory to practice, by coordinating theory with clinical activities. Teachers are recommended to develop learners critical thinking and reflective practice skills.

Strategies to facilitate the implementation of the Curriculum at national level

In some European countries a post-basic nursing education framework is well established with provision of specialist nursing education that is recognised by governments, health ministries or health departments. However, it is recognised that some countries may need guidance in implementation of this PBCC, so the following strategies are recommended:

- develop national working-groups, supported by EDTNA/ERCA volunteers
- establish contact with National Nurses' Associations
- inform and lobby authorities and key persons within the health-care system
- publish regular reports of progress.

Underpinning Clinical Competencies to Support Post Basic Nephrology Nursing Curriculum

Modules within the PBCC can be studied as part of a comprehensive programme where all modules are studied in succession. This approach is particularly important for learners pursuing a programme where their scope of practice requires them to have a well-developed knowledge of all key aspects of nephrology nursing.

Additionally, it is recognised that all nephrology programmes are an integration of specialist theory with applied clinical practice in areas that allow learners to apply their knowledge to the direct care of patients with renal dysfunction. It is not the intension of the PBCC to be prescriptive in terms of the actual clinical competencies required of learners completing programmes.

Clinical learning outcomes must be sufficiently broad in scope and depth to enable each learner to acquire the underpinning skills, knowledge, and attitudes to deliver safe quality person centered care within nephrology. Local policies and nursing scope of practice will also influence the nature of clinical competencies integrated into the nephrology programme. Each of the modules in the PBCC are nowoutlined, each contains learning outcomes, proposed content of the module (classroom teaching) and is linked to specific clinical learning scenarios and learning resources.

MODULES OF THE POST BASIC CORE CURRICULUM

Chronic Kidney Disease

Advanced Kidney Disease (stages 4-5)

Physical and Psychosocial Wellbeing

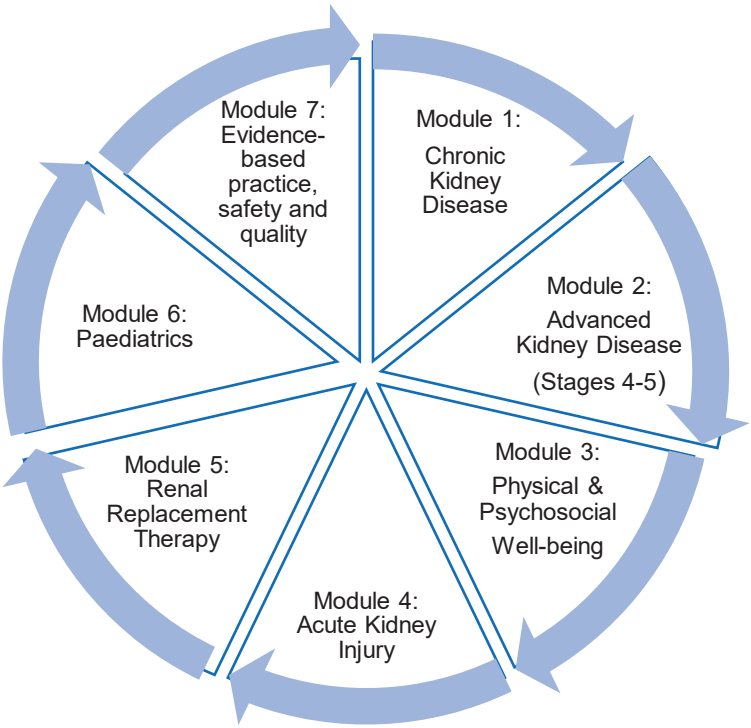
Acute Kidney Injury (AKI)

Renal Replacement Therapy

Paediatrics

Evidence-Based Practice, Safety and Quality

THE DYNAMIC COURSE STRUCTURE OF THE POST BASIC COURSE CURRICULUM



Module Descriptors:

Module Name	**Chronic Kidney Disease (CKD)**
Suggested Contact Hours	Direct Contact: Class and Online: minimum 10 hours Self-Directed Learning: To be determined locally
Learning Outcomes	On successful completion of this module, students should be able to: 1. Describe the anatomy and physiology of the renal system and be able to relate common signs and symptoms of CKD to disordered physiology. 2. Identify the best screening measures for CKD and be able to classify CKD according to international guidelines. 3. Understand the prevalence, risk factors and common causes of CKD, including diabetes, hypertension, glomerulonephritis, autoimmune diseases, polycystic kidney disease (PKD) and other hereditary renal diseases. 4. Explore the best strategies for preventing CKD, slowing the progression of CKD and managing the symptoms of CKD. 5. Understand how best to facilitate self-management of CKD. 6. Review the pharmacological interventions that are suitable in CKD stages 1-3. 7. Explore and identify the role of the nephrology nurse within the MDT for a person with CKD.

Potential Methods of Teaching and Student Learning Activities	Group work, student presentation, lecture, guest speakers, guided discussion, online learning platforms and self–directed learning.
Module Learning Aims	This module aims to provide the student with the theoretical and practical knowledge that will enable them to provide effective evidence-based patient centered care to those individuals with chronic kidney disease (stages 1-3). It also aims to enhance students understanding of how best to help people with mild-to-moderate CKD to help themselves. The module also aims to highlight effective strategies and interventions that can slow down the progression of CKD. The module emphasizes the importance of working with primary care and other specialties that care for people with CKD.
Module Content	• Anatomy and physiology of the renal system • Screening, diagnosis and classification of CKD • Renal disease epidemiology and aetiology (diabetes, hypertension, glomerulonephritis, autoimmune diseases, polycystic kidney disease (PKD), and other hereditary renal diseases) • Prevention and managing progression of CKD • Patient education and self-management of CKD Pharmacological interventions of CKD • Nursing management of CKD stages 1-3 • Collaboration with primary care teams

Module Name	**Advanced Kidney Disease**
Suggested Contact Hours	Direct Contact: Class and Online: minimum 30 Self-Directed Learning – To be determined locally
Learning Outcomes	On successful completion of this module, students should be able to: 1. Differentiate advanced kidney disease from the early stages of chronic kidney disease and explore its physical, emotional, social and cultural impact on patients and their families/carers. 2. Using the evidence-based literature, discuss the nursing assessment, diagnosis and management of patients with advanced kidney disease including multidisciplinary care delivery of pharmacological, nutritional, fluid and therapeutic interventions. 3. Examine the key management issues related to the care of the older person with advanced kidney disease. 4. Explore the use of ESKD life plans and integrated care pathways as aids in the management of patients with advanced kidney disease. 5. Discuss the challenges patients, families/ carers, nephrology nurses and members of the renal multidisciplinary team encounter during end-of-life conversations, and the care pathways that guide the nephrology nurse and the multidisciplinary team in providing palliative/end of life care that is patient centred.

6. Examine nurse-led CKD clinics (patient diagnosed with CKD but pre dialysis) in the management of patients with advanced kidney disease and the concept of shared decision-making and use of decision aids in assisting patients on modality choice.
7. Identify and critically explore advanced nephrology nurse roles within the management of patients with advanced kidney disease and their place within your own practice setting.

Potential Methods of Teaching and Student Learning Activities

Group work, student presentation, lecture, guest speakers, guided discussion, practical demonstrations, simulation suites, on-site visits; online learning platforms, and self–directed learning.

Module Learning Aims

This module aims to provide the student with the theoretical and practical knowledge that will enable them to provide effective evidence-based patient centred care to those individuals with advanced kidney disease and those who have opted for conservative care management and require palliative/end of life care. It also aims to enhance students understanding of the physical, emotional, social and cultural impact advanced kidney disease and conservative care has on patients and their families/carers. The module also aims to highlight effective strategies, interventions that can assist patients in overcoming these challenges. The module emphasises to students the importance of CKD clinics, early conversations with patients on developing ESKD life plans including shared decision-making and its role in aiding patients when making decisions on modality choice.

Module Content

Module Content

- Advanced kidney disease and patient management: anaemia, hypertension, mineral bone disease, diabetes, phosphate/ calcium balance, assessment, diagnosis and management including relevant pharmacological interventions; involving all members of the multidisciplinary team
- Factors that influence patients emotional, social and cultural response to advanced kidney disease, conservative care and palliative/end of life care
- Advanced kidney disease and the older patient: frailty and functionality, polypharmacy, social prescribing, re-ablement, rehabilitation
- ESKD life plan/Integrative care pathway stages 4-5 (pre-dialysis) and ethical considerations
- Conservative management as a treatment option, shared care planning, transition from dialysis to conservative management, palliative and end of life care
- Nutritional wellbeing, assessment and assessment tools
- Nurse-led CKD clinics (patient diagnosed with CKD but pre-dialysis): aim, goal, dialysis modality choice, concept of shared decision-making, decision aids, development of pre-dialysis patient education programmes
- Advanced nephrology nurse roles within the care of patients with advanced kidney disease

Potential Assessment Strategies	Case study assignment, case study presentation, poster presentation, written examination, online assessment including tests for example multi-choice questions, short/long answer questions, presentation

Module Name	**Physical and Psychosocial Well-being**
Suggested Contact Hours	Direct Contact: Class and Online: minimum 30 Self-Directed Learning: To be determined locally
Learning Outcomes	On successful completion of this module, students should be able to: 1. Understand transition to Chronic Illness, as a status passage within the lifespan and its implications for physical and psychological well-being. 2. Discuss the psychological impact of a diagnosis and subsequent treatment of CKD upon an individual, their family and significant others. 3. Identify appropriate screening tools to assess patient psychological and physical well-being and their use in developing care. 4. Discuss patient self-management as an essential component of nephrology nursing practice and the factors needed to ensure patient self-management becomes a reality in nephrology practice. 5. Understand the application of ethical and culturally congruent care in supporting patients experiencing the physical and psychological impact of CKD.
Potential Methods of Teaching and Student Learning Activities	Group work, student presentation, lecture, guest speakers, guided discussion, practical demonstrations, online learning, and self–directed learning

Module Learning Aims

This module aims to provide the learner with theoretical and practical knowledge related to ensuring the psychological and physical well-being of patients. A key part of this module is understanding transition into chronic illness as a status passage and what this entails for the patient and all those closely connected to the patient. The module enables learners to gain an applied understanding of self-management in nephrology practice and what factors impact upon self-management becoming a key feature of patient care. The module highlights the importance of care being provided with an appreciation of the ethical and cultural needs of patients.

Module Content

- Chronic conditions, chronic care model & Status Passage into chronic illness
- Psychological impact of CKD diagnosis and treatment, and assessment tools, strategies used in management
- Carers, family and significant others in physical and psychosocial well-being
- Delirium, depression and dementia assessment tools and management
- HRQOL and assessment tools
- Symptom burden
    - Concept of symptom burden and symptom clusters
    - Assessment tools including Chronic Kidney Disease–Symptom Burden Index, Edmonton Symptom Assessment System (mESAS), Memorial Symptom Assessment Scale Short Form, Patient Outcome Scale symptom module, Pittsburgh Symptom Score, dialysis symptom index, Symptoms list of KDQOL-SF

- Fatigue, bone/joint pain, falls, itching, anxiety, depression
- Impact on HRQOL, mortality, morbidity etc

- Self-management: policy context, definition, process, self-efficacy
  - Concept of patient activation & education
  - Criteria for successful self-management
  - Role of patient and MDT in self-management process
  - Components of a self-management model & support needed
  - Health behaviour change support (linked to activation?)
  - Technological, telemedicine and virtual support
  - Provision of information, health literacy
- Adherence and concordance
- Sexuality and CKD
- Multi-ethnicity, multi culture care
- Ethical frameworks for renal care

Potential Methods Assessment Strategies

- Case study assignment, case study presentation, poster presentation, written examination, online assessment including tests for example multi-choice questions, short/long answer questions, presentation

Module Name	**Acute Kidney Injury (AKI)**
Suggested Contact Hours	Direct Contact: Class and Online: minimum 30 Self-Directed Learning: To be determined locally
Learning Outcomes	On successful completion of this module, students should be able to: 1. Demonstrate an understanding of altered renal pathophysiology in relation to AKI and the implications of this altered state related to treatment of AKI. 2. Identify the associated strategies which should be implemented in prevention of AKI both within primary, tertiary and secondary care settings. 3. Apply an evidenced-based approach to Identify the related nursing interventions and management of patients with AKI. 4. Demonstrate an understanding of role of the nephrology nurse within the multidisciplinary team in the care and management of a patient with AKI. 5. Discuss the long-term potential consequences of AKI and the possible patient journey following AKI.
Potential Methods of Teaching and Student Learning Activities	Group work, student presentation, lecture, guest speakers, guided discussion, practical demonstrations, online learning, and self–directed learning

Module Learning Aims	This module aims to provide the student with theoretical and practical knowledge related to AKI to enable the application of evidence-based practice in the management of patients. The module provides an opportunity for students to consider the role of the nephrology nurse as a key member of the nephrology care team in managing AKI.
Module Content	• AKI epidemiology (incidence, causes and long-term outcomes) • AKI Classification (Pre-Renal, Renal, Post Renal) • AKI Altered Pathophysiology • Staging of AKI (KDIGO), aetiology, • Prevention of AKI (3 'Rs' of AKI: Recognition, Response and Referral) • Primary care management • Identifying patients at risk in hospital • Patient education and avoiding exposure to risk factors • Medication prescribing/review/management • Identification of early signs and symptoms • Optimising fluid status • Treatment of sepsis

Management of established AKI

- Assessment-AKI guidelines/policies/care bundles
- Role of nephrology nurse in management of AKI
- Role of MDT in AKI
- Treatment approaches (from diagnosis to recovery)
- Managing fluid status
- Pharmacological management
- Ongoing investigations and monitoring
- Indications for renal replacement therapy
- Acute dialysis in ICU - CRRT, Hemofiltration
- Acute Haemodialysis
- Special considerations including COVID-19
- Education of patient & family in relation to AKI and ongoing CKD risk
- Shared decision making and psychosocial support

Potential Assessment Strategies

Case study assignment, case study presentation, poster presentation, written examination, online assessment including tests for example multi-choice questions, short/long answer questions, presentation.

Module Name	**Renal Replacement Therapies**
Suggested Contact Hours	Direct Contact: Class and Online: minimum 30 Self-Directed Learning: To be determined locally
Learning Outcomes	On successful completion of this module, students should be able to: 1. Discuss the different renal placement therapy approaches, differentiating their impact on the physical, emotional and social wellbeing of patients and their families/carers. 2. Explore living/deceased/non-heart beating organ donation and ethical and legal issues associated with organ donation 3. Discuss pre and post-operative transplant nursing care. 4. Examine home therapies as the preferred approach to dialysis treatment, the key components of a home therapies programme including the facilitators and barriers to developing such a programme and the strategies used to encourage patient, family/ carer and facility participation. 5. Using the evidence-based literature explore the acute and long-term complications associated with the different renal replacement therapy approaches including assessment, diagnosis and management. 6. Discuss the principles of self-management and patient education as they pertain to patients receiving renal placement therapy.

Potential Methods of Teaching and Student Learning Activities	Group work, student presentation, lecture, guest speakers, guided discussion, practical demonstrations, simulation suites, on-site visits; online learning platforms, and self–directed learning.
Module Learning Aims	This module aims to provide the student with the theoretical and practical knowledge that will enable them to provide effective evidence-based patient centred care to those individuals receiving renal replacement therapy. It also aims to enhance students understanding of the physical, emotional and social impact transplantation and dialysis therapy has on patients and their families/carers.
Module Content	**Unit 1 Transplant** • Organ procurement • Living related/non-related donor • Deceased and non-heart beating donor • Ethical and legal issues associated with transplantation • Pre-emptive transplant workup/Transplant workup • Transplant tissue typing • Pre and post-operative nursing care living/ deceased • Post-operative complications • Post-transplant medications • Acute transplant complications • Chronic transplant complications • Emotional well-being post-transplant

Unit 2 Home therapies (PD, HHD)

- Programme philosophy, aim, beliefs, values
- Programme components
- Facilitators and barriers
- Benefits and risks
- Patient selection
- PD
- HHD
- Training programme
- Self-care units
- Shared care
- Evaluation of service

Unit 3 Dialysis therapies

- Build environment, physical infrastructure, and human resources – HD/PD
- Principles underpinning dialysis therapies HD, HDF, PD (CAPD/APD)
- Dialysis water treatment (HD)
- Creation of dialysis access (vascular [AVF/AVG/CVC]) and peritoneal access), pre and post-operative care, acute and chronic complications, patient self-care
- AVF/AVG cannulation: principles, types of cannulation needling strategies, self-cannulation
- CVC nursing management
- HD/HDF/PD (CAPD/APD) dialysis processes, dialysis prescription
- Types of dialyser and biocompatibility

- PD solutions and equipment
- Target weight, use of technology to assess target weight in HD/PD
- HD profiling -sodium, UF, blood volume
- Dialysis adequacy in HD/PD
- Acute and chronic complications associated with dialysis treatment
- Infection prevention and control including virology screening, surveillance and root cause analysis (systems analysis)
- Pharmacology and dialysis treatment
- Ethic issues in dialysis treatment
- Green aspect of care and treatment including sustainability
- Evidence underpinning dialysis treatment

Potential Assessment Strategies

Case study assignment, case study presentation, poster presentation, written examination, online assessment including tests for example multi-choice questions, short/long answer questions, presentation.

Module Name	**Paediatric Nephrology**
Suggested Contact Hours	Direct Contact: Class and Online: minimum 30 Self-Directed Learning: To be determined locally
Learning Outcomes	On successful completion of this module, students should be able to: 1. Understand the role of the paediatric nephrology nurse in the care of paediatric patients with chronic kidney disease, acute kidney injury and the treatment modalities available. 2. Discuss the causes, challenges faced, and nursing care required for the paediatric patient with chronic kidney disease or acute kidney injury. 3. State the importance of family and patient centered care required in the care of paediatric patient with chronic kidney disease or acute kidney injury. 4. Outline the prevalence of kidney disease among paediatric patients, stages of CKD and common diagnosis leading to ESRD. 5. Discuss the care and management of children with renal disease. 6. Outline the available treatments options for the paediatric patient according to the stages of CKD and the treatment of choice for this age group patients. 7. Discuss the challenges inherit to transplantation for donor and recipient. 8. Understand the patient and family transition to chronic illness and impact on quality of life.

	9. Understand the transition of care from paediatric to adult life as well as the technical differences between dialysis in adults and children.
Potential Methods of Teaching and Student Learning Activities	Group work, student presentation, lecture, guest speakers, guided discussion, practical demonstrations, online learning, and self–directed learning.
Module Learning Aims	Provide the student with theoretical and practical knowledge related to understanding the specific childhood disorders which cause CKD and ESKD in children. The module addresses key aspects of nursing children with altered kidney function taking into consideration their development stage and their response to their illness. Specific treatment strategies are addressed.
Module Content	• Specific pathophysiology of childhood disorders • Technical aspects of peritoneal dialysis and haemodialysis • Dialysis requirements related to the weight and height of the child • Vascular and peritoneal access in children • Technical aspects of transplantation • Nutrition • Specific aspects of pharmacology related to children • Impact of acute/chronic illness on the child and parents/family

- Communication at the level of the child
- Prevention of short and long-term complications
- Liaison with the paediatric nephrology centre
- Stages of adaptation to illness
- Coping with death and dying
- Nursing care
- Observation and interpretation of vital signs
- Observation and interpretation of fluid and electrolyte balances
- Observation of nutritional status
- Observation and basic management of dialysis process
- Recognition of short and long-term complications
- Teaching skills (individualized pre-dialysis teaching is carried out in partnership with the child, parents and the multidisciplinary team)
- Assessment of the child's abilities and needs
- Assessment of the child's compliance to treatment and medication
- Co-ordination of all members of the multidisciplinary team in the planning of care
- Planning for home-dialysis

Potential Assessment Strategies

Case study assignment, case study presentation, poster presentation, written examination, online assessment including tests for example multi-choice questions, short/long answer questions, presentation.

Module Name	**Evidence-based practice, Safety and Quality**
Suggested Contact Hours	Direct Contact: Class and Online: 15 Self-Directed Learning: To be determined locally
Learning Outcomes	On successful completion of this module, students should be able to: 1. Discuss the nature of evidence-based practice. 2. Understand the research process and be able to critically review a research paper. 3. Define patient safety and explore the key elements of a patient safety culture. 4. Recognise and understand how to prevent the key safety risks in renal care. 5. Define and explore the definition of quality in healthcare. 6. Understand the steps involved in quality improvement.
Potential Methods of Teaching and Student Learning Activities	Group work, student presentation, lecture, guest speakers, guided discussion, online learning platforms and self–directed learning.
Module Learning Aims	This module aims to provide the student with the theoretical and practical knowledge that will enable them to develop and provide safe and effective evidence-based practice. The module will also explore the elements of a quality renal service and facilitate ways in which quality improvement initiatives can be undertaken and sustained. The module emphasises the importance of working with patients to ensure that quality improvement initiatives are person-centered.

Module Content	• Definition of evidence - based practice • Research methods: qualitative and quantitative • Understanding ethical processes for research • Skills needed to critically review research papers • Adapting evidence into guidelines and policies • Patient safety overview in a framework of local healthcare standards • Risks in kidney care and how to avoid/reduce them or how to identify local risks for patients and develop strategies to overcome them • Quality Improvement (QI) cycles and a framework to conduct a QI project • How to engage patients and their families meaningfully in quality improvement initiatives
Potential Assessment Strategies	Research paper evaluation, conduct a small quality project, poster presentation, written examination, online assessment including tests for example multi-choice questions, short/long answer questions, presentation.

IMPLEMENTATION GUIDELINES

Designing your own curriculum

The following are key components of a curriculum and should be considered when developing a curriculum for either short or long programmes of education, taking into account the EDTNA/ERCA PBCC and national, regional and local requirements/context.

Curriculum design

- Background to programme development
- Rationale/purpose

Curriculum development

- Discuss curriculum development/ framework e.g., EDTNA/ ERCA PBCC framework including teaching/learning process
- Detail on:
    - Context and input
    - Specific course output
    - Teaching strategies
- Detail on:
    - Clinical component – if applicable
    - Clinical placement support – if applicable

Curriculum philosophy

- Outline the education provider philosophy
- Course philosophy
    - Core concepts on the role of the nephrology nurse
    - Clinical focus – if applicable
    - Education and training
    - Audit and research

- Educational philosophy
- Nephrology nursing philosophy
    - Person, health, nephrology nursing

Programme Structure

- Aim
- Overall Programme Learning Outcomes
- Structure

Students

- Entry requirementsç
- Attendance
- Student support
    - Head of programme, course coordinator/course lead, module leader, lecturers, clinical allocation, counselling, disability services and students support including mentor/ preceptor

Learning resources

- Details on
    - Library
    - Computer/IT facilities
    - Online/Virtual Learning environment-platforms (if applicable)
    - Other learning resources

Programme administration

- European Credit Transfer (ECT) framework if applicable
- Awarding body if applicable
- Classification award

Programme evaluation, oversight, and quality

- Course approval – professional
- Course approval – academic (if applicable)
- Evaluation of programme to be completed by
    - Students including evaluation of clinical component if applicable
    - Clinical partners/mentors/preceptors where applicable
- Quality and Qualifications framework and internal quality assurance (if applicable)
- External examiners – if applicable

Programme review process

- Framework
- Clinical site audits (if applicable)
- Professional review if applicable

Curriculum Content

- Module framework

Assessments

- Assessment procedures
- Module assessments
- Written assessment procedures
- Pass standard for assessment
- Failure of assessment
- Online assessment
- Formative
- Summative
- Clinical competency assessment – if applicable
    - Framework, process, failure of assessment, feedback on student performance
- Plagiarism

EXAMPLES OF CURRICULUM FRAMEWORKS TO SUPPORT PBCC IMPLEMENTATION

Teachers who are developing their renal education programs are often required to develop their programs underpinned by an appropriate and relevant curriculum model or framework. The choice of the most appropriate curriculum model is at the discretion of the individual teacher, and this is often influenced by individual educational institutional policy. The examples offered below are illustrative only and whether it is appropriate or needed to have the renal programme underpinned by a curriculum framework is a matter of choice and not mandatory. There are numerous curriculum frameworks that can be used to underpin the PBCC including:

The Spiral Curriculum model builds on prior learning, the learner is given initial information on a subject and over the course of a programme revisits that subject whereby the complexity of the topic increases with each revisit. New learning is integrated with old learning, developing a deeper critical understanding of the topic.

Constructive Alignment Curriculum Model

This curriculum model aligns teaching and learning activities to the learning outcomes and is focused on what and how students learn. This model integrates constructivist learning theory with an outcomes-based approach to curriculum design, teaching and learning.

Constructivism as applied to student learning refers to the idea that students construct their own knowledge and develop their own understandings by building on what they already know through active engagement with new information culminating in conceptual change (Joseph and Juwah, 2012).

It facilitates this process by systematically aligning the teaching and learning activities and the assessment tasks to the required learning outcomes (Biggs and Tang, 2011).

It is a process of stating learning outcomes and choosing the teaching and learning methods most likely to encourage the attainment of these outcomes together with defining assessment tasks most likely to enable students to demonstrate their achievement of the learning outcomes.

Quality and Safety Education for Nurses (QSEN) as a Curriculum Framework

The QSEN project commenced in the USA in 2005 in response to the challenge of ensuring nurses have the necessary knowledge, skills and attitudes to provide care underpinned by a thorough understanding of quality and patient safety. QSEN comprises six key competencies each having their own sub-competencies (table 1). Increasingly the QSEN framework is being integrated into nursing education programmes globally both at undergraduate, post-graduate and Doctoral levels.

The value of this framework within Nephrology Nursing is easy to see as all QSEN elements are of direct relevance to nursing individuals at all stages of renal impairment. Using the QSEN element of Patient Centered Care, the descriptor states 'Recognize the patient or designee as the source of control and full partner in providing compassionate and coordinated care based on respect for patient's preferences, values, and needs.' This descriptor is foundational to nephrology nursing where patient and family involvement, shared-decision making and empowering patients to become active participants in their care is important. Further details regarding the specific sub-competencies associated with each QSEN element can be found at https://qsen.org/competencies/graduate-ksas/

The QSEN framework provides a valuable framework to develop and further extend the clinical competencies of nephrology nurses where appropriate. Each of the six QSEN elements highlights areas where quality and safety standards should be practiced. Each of the QSEN competencies involves important skills, knowledge and attitudes nurses require on the specific QSEN element. This helps those developing nephrology programmes to focus learning outcomes specifically related to clinical aspects of the training programmes.

QSEN Element	Descriptor
Patient-Centred Care	• Recognize the patient or designee as the source of control and full partner in providing compassionate and coordinated care based on respect for patient's preferences, values, and needs.
Teamwork and Collaboration	• Function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care.
Evidence-Based Practice	• Integrate best current evidence with clinical expertise and patient/family preferences and values for delivery of optimal health care.
Quality Improvement	• Use data to monitor the outcomes of care processes and use improvement methods to design and test changes to continuously improve the quality and safety of health care systems.
Safety	• Minimizes risk of harm to patients and providers through both system effectiveness and individual performance.
Informatics	• Use information and technology to communicate, manage knowledge, mitigate error, and support decision making.

Table 1: Six QSEN Elements and associated descriptors.

EDTNA/ERCA ACCREDITATION PROGRAMME

For more than 15 years, the EDTNA/ERCA has recognised excellence in education and training provided by hospitals, universities, schools of nursing as well as partners in renal Industry through its accreditation processes. Successful EDTNA/ERCA accreditation represents a standard of excellence with successful applicants demonstrating the best standards in teaching & learning. Accreditation can be offered for either study days, workshops, conferences or longer programmes of learning. Processes are also in place to award accreditation of web-based delivery of patient education materials offered by renal industry partners.

WHAT DOES ACCREDITATION INVOLVE?

- Applicants contact secretariat@edtnaerca.org to request information and an application pack.
- Evidence concerning the programme of learning is submitted by applicants against agreed accreditation standards. Evidence is assessed by the Accreditation Committee.
- The outcome of the assessment process may be either deferred (requiring resubmission), 1 or 3-year award. Applicants who demonstrate a higher level of excellence beyond the assessment standards may receive additional recognition of either 'commendable' or 'highly commendable' status.
- Applicants seeking accreditation are provided with access to personalised support throughout the entire accreditation process.

Step by step:

Step 1. Initial Application / Screening

Step 2. Submission Timeline

Step 3. Active Assessment Phase

Step 3 a. Notification of Outcome of Assessment

Step 4. Presentation of Accreditation Award

WHAT ARE THE BENEFITS OF ACCREDITATION?

- Accreditation enhances the credibility of education & learning offered to the external market
- Adds additional value to the education activity.
- The use of the EDTNA/ERCA logo by successful applicants signifies learning is high quality and helps applicants to 'stand out from the crowd'.
- EDTNA/ERCA accreditation is an assurance of quality to potential learners.
- Accreditation awards and certifications presented during annual EDTNA/ERCA conference providing additional marketing and exposure to the global renal community.

The accreditation project is international in its scope and reach, working with academic partners and educational trainers across Europe and beyond. Since the accreditation project commenced, a high number of applicants have successfully achieved the accreditation award. Past and present award holders include applicants from Portugal, Germany, England, Scotland, Ireland, Sweden, Finland, Middle East and Asia-Pacific. The accreditation project has helped to strengthen global partnerships between the EDTNA/ERCA and providers of renal education which is an important goal of the EDTNA/ERCA.

CLINICAL SCENARIOS

Module Name	**Chronic Kidney Disease**
Clinical Scenario	Chronic Kidney Disease
Aim of Clinical Scenario:	The aim of this clinical scenario is to enable the student to apply relevant theoretical knowledge that will assist patients with chronic kidney disease to understand how they can self-manage their condition to slow down its progression.
Demographics and Social History	Mr. M is a 45-year-old man, who is being cared for by his primary care (community) team. The community team has contacted the renal team for advice. Mr Miah has autosomal dominant polycystic kidney disease (ADPKD) and stage 3b CKD (eGFR 38). He lives with his extended family and is a restaurant worker. His mum died of 'kidney disease' when she was 50 years old.
Past Medical History and Medications	• ADPKD • Hypertension managed with an ACE inhibitor (ramipril 5mg) • Repeat urinary tract infections (UTI) - managed with trimethoprim/sulfamethoxazole • Pain managed with over-the-counter paracetamol or ibuprofen
Current presentation and relevant results	• eGFR 38ml/min, but progressive eGFR was 42ml/min one year ago • Urine ACR 35 mg/mmol • Blood pressure 165/100 mmHg • Body mass index 33 • Haematuria and a recent urinary tract infection (UTI)

- He has little insight into his condition, especially the worsening kidney function
- He can speak his native language (Urdu) but has poor understanding of the language in his country of residence

Questions:

- What is the pathophysiology of ADPKD?
- What is the importance of the ACR in the progression of CKD?
- How could you advise Mr. M about his blood pressure, and what could he do to self-manage it so reducing the need for further medication?
- What additional care/treatment needs to be considered with regards to slowing the progression of his ADPKD and ongoing pain/UTIs?
- When does he need to be referred to the renal team?

Module Name	**Advanced Kidney Disease**
Clinical Scenario	Advanced Kidney Disease
Aim of Clinical Scenario:	The aim of this clinical scenario is to enable the student to apply relevant theoretical knowledge that will assist patients with Advanced Kidney Disease in self-managing their condition and actively participate in shared decision making when opting for renal replacement therapy.
Demographics and Social History	Mrs. S is 60-year-old African woman of muslin faith, admitted to the ward with the diagnosis of progressive kidney failure (eGFR 30, stage 4 CKD). In the last month she had a renal biopsy which confirmed this diagnosis. She works as a secretary for a big international company 5 days a week, 10 hours a day. Mrs. S has concerns regarding the potential impact her dialysis therapy will have on her ability to maintain a) her current working hours and b) her current employment status once she commences her modality treatment of choice.
Past Medical History and Medications	• Hypertension managed with an ACE inhibitor • History of frequency tonsilitis, which were not treated with antibiotics

Current presentation and relevant results	• Peripheral oedema • Pruritus, dyspnoea (especially when laying down to sleep) • Nausea, vomiting and lethargy • Urea– 100 mg/dL • Creatinine 3.8 mg/dL • pH 7.35, Calcium 2.22 mmol/L, Phosphorus 1.79 mmol/L
Questions:	• What is the normal eGFR and how can it be calculated? • Mrs. S has altered skin integrity due to pruritus. What are the possible causes of pruritus in patients with CKD stage 4? • Mrs. S presents with nausea, vomiting and poor appetite. Explain why these symptoms may occur? • What are the implications of a calcium-phosphate imbalance? • Explain the pathophysiology of renal anaemia, its assessment and management? • What are the underlying principles in shared decision making? • What are the key barriers and facilitators that inform modality choice? • What social, culture and religious considerations should the nurse take into account when discussing modality choice?

Module Name	**Advanced Kidney Disease**
Clinical Scenario	Conservative management
Aim of Clinical Scenario:	To enable the student to apply the module theoretical knowledge when caring for patients with Advanced Kidney Disease who have chosen conservative management of their condition instead of opting for renal replacement therapy.
Demographics and Social History	Ms. M is 64 years old and a Roman Catholic who has worked as a social worker all her life. She is very active in her local Community. She was diagnosed with CKD when she was 45 years old and has managed her disease through diet and medication adherence and engaging in moderate physical exercise. Ms. M was recently informed by her nephrologist that she requires renal replacement therapy. She received education and information on transplantation and the different modality choices, related procedures, and their impact on future daily activities. Ms. M, through a shared decision-making process, decided to opt for conservative management.
Past Medical History and Medications	• Hypertension, treated with anti-hypertensive medication • Low salt and protein diet

Current presentation and relevant results	• Pruritus • Nausea • Fatigue • BUN – 31.6 mmol/l • Creatinine - 486.3 umol/l • Blood Pressure – 180/100 mmHg • Moderate back pain, assessed using numerical rating scale
Questions	• Regarding palliative care what is the main communication goal between the renal nurse and the patient? • In terms of palliative support for this patient, what are the main concerns for the renal nurse? • What self-care advice would you give the patient? • What support services, clinical specialties etc., would you, as a renal nurse, advise Ms. M to visit as part of her conservative management? • As a renal nurse, what challenges might arise in caring for this patient and seeking advice from other multidisciplinary healthcare professionals? • To maintain the patient's quality of life, the management of which symptoms take priority in the nursing care plan? • When engaging in end-of-life decision-making, what ethical issues should the renal nurse consider when guiding Ms. M and her loved ones?

Module Name	**Physical & Psychological Well-being**
Clinical Scenario	Physical & Psychological Well-being
Aim of Clinical Scenario:	This clinical scenario aims to provide the student with an opportunity to apply theoretical knowledge from this module to the practical care and management related to the physical and psychological well-being of the patient. There is a focus on the role of the nephrology nurse as a key member of the nephrology care team in meeting the physical and psychological well-being needs of the patient.
Demographics and Social History	G.S. is a 57-year-old male, diabetic with hypertension and recently diagnosed with end-stage kidney disease. G.S. is divorced with 3 adult children aged 27, 25 and 21 years old. He is living in his own apartment receiving a full pension after 30 years of working as a public employee. He has several hobbies and a fulfilling social life.
Past Medical History and Medications	• High blood pressure • Coronary disease • Diabetic • Medications: ACE I (inhibitor), B – blockers, Diuretics, Insulin
Current presentation and relevant results	• Nausea • Sleepiness • Fatigue • Oedema

Blood Results

Urea: 38.2 mmol/l

Creatinine:468.6 umol/l

Potassium: 5.5 mmol/l

Glycosylated hemoglobin: 7%

Main concerns

- The impact of time-consuming treatment on his everyday life.
- The impact of treatment on his sexual life and future relationships.

Physical

"Would I feel continuously tired with no energy?"….."Would I gain weight?"

Psychological

"I am going to be depressed if I have to come here 3 days a week for the rest of my life"

"First the diabetes and now this. I am going to live like an old man"

"I have a cousin in dialysis, and he is always forgetting things. Am I going to lose my memory?"

"Am I going to die in the near future?"

Social

"Would I be able to travel abroad?"

"What about dating, how I am going to disclose this information?"

Questions:

- How does dialysis affect the body?
- What are the side effects of haemodialysis?
- What can you tell your patient about his sexual health?
- How would you advise your patient to disclose information about his health status?
- How can you address the patient's concerns about the changes in his life?
- What coping styles are needed to better adjust in dialysis treatment?
- Do you believe a pre-dialysis psychoeducational intervention could help this patient's adjustment?
- What is most challenging about dialysis patient care?

Module Name	**Physical and Psychological well-being**
Clinical Scenario	Physical and Psychological well-being
Aim of Clinical Scenario:	This clinical scenario aims to provide the student with an opportunity to apply theoretical knowledge from this module to the practical care and management related to the physical and psychological well-being of the patient. There is a focus on the role of the nephrology nurse as a key member of the nephrology care team in meeting the physical and psychological well-being needs of the patient.
Demographics and Social History	Jenny is 32 years old and is married with one daughter aged 9. She currently works as a legal secretary and has only been in her current job for 2 -months. She has been complaining of intermittent headaches and blurred vision. On a visit to her primary care general practitioner (GP) she is found to have high blood pressure. Her GP refers her to hospital. Her consultant wants her to remain in hospital for further tests. As she has just started a new job, she is reluctant to take time off. The Consultant and she agree that further tests can be carried out on an out-patient basis, provided all tests are completed within a week. At her subsequent appointment her consultant insists she be admitted to hospital for further tests. Two days later while she is alone in her ward, her consultant informs her she has end stage kidney failure, will need to commence dialysis and be assessed for a transplant. Having given this information, the Consultant leaves.

Past Medical History and Medications	• ADPKD • Not prescribed any medication
Current presentation and relevant results	Admission presentation: Headache, Hypertension Relevant blood results: • Creatinine 0.27 mmol/l • Urea 11.1mmol/l • Potassium 5.5 mmol/L • Hb 10.5g/dL
Questions:	• What do you think her priorities are right now? • How do you imagine she reacted to this information? • What support do you think she will require? • How can the renal multidisciplinary support the patient?

Module Name	**Acute Kidney Injury**
Clinical Scenario	Acute Kidney Injury
Aim of Clinical Scenario:	This clinical scenario aims to provide the student with an opportunity to apply the theoretical knowledge from this module to the practical care and management of a patient with AKI. There is a focus on the role of the nephrology nurse as a key member of the nephrology care team in managing AKI.
Demographics and Social History	Mr. S is a 75-year-old Italian gentleman who was recently widowed. He lives alone with his dog and occasionally has visits from his busy son who lives at the opposite side of town. He has suffered depression since his wife died and has lost 5kg of weight due to his reluctance to cook. He is not really concerned with housework and his own hygiene. He has refused home support.
Past Medical History and Medications	• Diabetes mellitus (type 2) controlled on metformin • Hypertension managed with ACE inhibitor Ramipril 10mg • Elevated cholesterol managed with atorvastatin • Stage three CKD (eGFR 52ml/min, 2 months ago, 56ml/min 4 months ago) • Knee replacement two years ago • Prostate cancer 7 years ago (surgical prostatectomy)

Current presentation and relevant results

- Found by son at home confused and dishevelled.
- Transferred to Emergency Department.
- Temp 38.50C, BP 90/45 mmHg, pulse 98, regular but thready, respirations 32 per min
- As his nurse you note he has not passed urine in the first 2 hours since his admission to the Emergency Department
- Blood screen shows Urea 21mmol/l and creatinine 200umol/l, eGFR 27, C-Reactive Protein – 80mg/l (normal <5mg/l), WCC elevated

Questions:

- What other tests, treatments and investigations are necessary to evaluate his kidney function and determine his underlying diagnosis?
- What results/diagnosis would you expect to find (stage of AKI)?
- What pathophysiological changes to the kidney are likely to have caused Mr. S to develop his AKI?
- What are the priorities of medical/nursing treatment in the next 24 hours?
- What are the priorities of nursing treatment (exclude renal replacement therapies) over the next 7 days and once Mr. S starts to regain renal function?
- What education and social supports are needed to get Mr. S safely out of hospital?
- What ongoing monitoring is recommended post discharge and why?

Module Name	**Acute Kidney Injury**
Clinical Scenario	Acute Kidney Injury
Aim of Clinical Scenario:	This clinical scenario aims to provide the student with an opportunity to apply the theoretical knowledge from this module to the practical care and management of a patient with AKI. There is a focus on the role of the nephrology nurse as a key member of the nephrology care team in managing AKI.
Demographics and Social History	Mrs P. is a 47-year-old lady of African descent. Who came to Australia in 1995, English is her second language? She lives with her husband and four children, aged 12-17 years old. She has a part-time casual job as a cleaner at night. She prioritises her family over her health.
Past Medical History and Medications	• Obesity (BMI 35) with weight of 110kg • Hypertension 15 years, managed with Losartan 50mg twice daily • Hysterectomy 3 years ago • Asthma managed with Ventolin inhalers PRN
Current presentation and relevant results	• Recently had an upper respiratory viral infection • Admitted to hospital via GP 72 hrs ago with a Klebsiella pneumonia • Currently being treated with Gentamycin 500mg IV daily • Febrile since admission, BP 150/90, pulse 86 bpm, respirations 30 • Blood results on admission showed a mild renal impairment with eGFR at 75ml/min • Today her urine output has diminished to 150ml in the last 12 hours

Questions:

- What other tests, treatments and investigations are necessary to evaluate her kidney function and determine the underlying diagnosis?
- What results/diagnosis would you expect to find (stage of AKI)?
- What pathophysiological changes to the kidney are likely to have caused Mrs P. to develop her AKI?
- What are the priorities of medical/nursing treatment in the next 24 hours?
- What are the priorities of nursing treatment (exclude renal replacement therapies) over the next 7 days and once Mrs P. starts to regain renal function?
- What education and social supports are needed to get Mrs P. out of hospital?
- What ongoing monitoring is recommended post discharge and why?

Module Name	**Acute Kidney Injury**
Clinical Scenario	Acute Kidney Injury
Aim of Clinical Scenario:	This clinical scenario aims to provide the student with an opportunity to apply the theoretical knowledge from this module to the practical care and management of a patient with AKI. There is a focus on the role of the nephrology nurse as a key member of the nephrology care team in managing AKI.
Demographics and Social History	Mr T. is a 28-year-old construction worker born in Spain. He works up to 12-hour days. He is single and likes to party at the weekend consuming up to 10 standard drinks in one night. He smokes 30 cigarettes a day. He often eats takeaway style food.
Past Medical History and Medications	• Never attends a doctor. On no medications. • Occasional childhood urine tract infections
Current presentation and relevant results	• Presented to Emergency Department with severe right sided sharp pain in his side and back. Recent similar pain on the left. • Haematuria in his urine over the last two days • Reduced urine output since yesterday • Blood results on admission showed a serum creatinine 400mmol/l

Questions:

- What other tests, treatments and investigations are necessary to evaluate his kidney function and determine the underlying diagnosis?
- What results/diagnosis would you expect to find (stage of AKI)?
- What pathophysiological changes to the kidney are likely to have caused Mr T. to develop his AKI?
- What are the priorities of medical/nursing treatment in the next 24 hours?
- What are the priorities of nursing treatment (exclude renal replacement therapies) over the next 7 days and once Mr T. starts to regain renal function?
- What education and social supports are needed to get Mr T. out of hospital?
- What ongoing monitoring is recommended post discharge and why?

Module Name	**Renal Replacement Therapy**
Clinical Scenario	Renal Replacement Therapy
Aim of Clinical Scenario:	The aim of this scenario is to provide the student with an opportunity to apply the theoretical knowledge from this module to the practical care and management of haemodialysis patients. This includes the preparation and planning for the creation of a vascular access/AV fistula, the management of this access as well as its associated complications, and the role of the nurse as a key member of the nephrology team.
Demographics and Social history	Mr. S is a 75-year-old gentleman, widowed, who lives alone with his dog and is occasionally visited by his busy son who lives on the opposite side of town. He has had episodes of depression since his wife died and lost 5kg of weight due to his reluctance to cook. He is not concerned with housework or his own hygiene and refuses home support.
Past Medical History and Medications	• Prostate cancer 7 years ago (surgical prostatectomy). • Knee replacement two years ago • Diabetes mellitus (type2) controlled on metformin • CKD • Hypertension managed with ACE inhibitor • High cholesterol level managed with atorvastatin • Multivitamin one tab daily

Current presentation and relevant results

- Mr. S presented today with pruritis, lethargy, lower extremities oedema and nausea and vomiting.
- On physical examination, his blood pressure is 170/100, pulse 80, respirations 24 and he is afebrile.
- Body weight is 76.5 kg.
- He was found to have 2+ lower extremity oedema and superficial excoriations of his skin from scratching.
- Mr. S was admitted for management of his condition and a central venous catheter (CVC) inserted.
- He is scheduled for vascular access/AVF creation in 2 weeks.

Laboratory findings:

- Potassium: 6.4 mmols/L
- Urea: 28.3 mmols/L
- Creatinine: 1414 umol/L
- Chloride: 100 mEq/L
- Phosphorus: 2.26mmol/L

Questions

- What do Mr. S presenting symptoms indicate?
- Should this patient be started on dialysis? What are the indications for dialysis?
- What is the “target weight”? How is this weight calculated?
- What should be included in his dialysis prescription?
- When is the best time to create a patients vascular access /AV fistula? What should be done prior to and after its creation?

- Mr. S will commence dialysis using a CVC, what nursing safety checks should be undertaken prior to the first use of a CVC?
- What nursing interventions are used to prevent CVC-related infections?
- What are the advantages of an AV fistula over a CVC (Temporary/permanent)?
- How should Mr. S be involved in his dialysis management and how can self-care be promoted?

Module Name	**Renal Replacement Therapy**
Clinical Scenario	Peritoneal Dialysis
Aim of Clinical Scenario	This clinical scenario aims to provide the student with an opportunity to apply the theoretical knowledge from this module to the practical care and management of a patient receiving Peritoneal Dialysis (PD) therapy. There is a focus on the role of the nephrology nurse as a key member of the nephrology care team in facilitating patient self-management of their PD therapy.
Demographics and Social History	Mrs L is a 49-year-old, school teacher. She lives with her husband and three children in an apartment in the city centre. She enjoys walking and gardening. She was diagnosed with CKD 5 years ago and is attending the nephrology outpatient clinic where she decided last year to opt for PD. She has received pre catheter insertion introductory education, and training on peritoneal dialysis.
Past Medical History and Medications	• Diabetes mellitus (type 2), insulin dependent, BMI 29kg/m^2 • Hypertension managed with an ACE inhibitor • Elevated cholesterol managed with atorvastatin • No peripheral oedema, with a urinary residual diuresis of 1000cc/24H • Peritoneal dialysis catheter was inserted using the Moncrief-Popovich technique. • Due to commence PD and advanced training including management of acute and chronic complications.

Current presentation and relevant results	• Blood pressure 150-90mmHg • eGFR 7ml/min • Creatinine 995 umol/L • Albumin 4.2 g/dl
Questions	• What are the next steps when commencing PD? • What should the first PD prescription include? • What education and training should Mrs L receive to perform peritoneal dialysis in her home? • What test does the nephrology nurse perform to assess the peritoneal membrane transport function? • How is Mrs L PD dialysis adequacy assessed?

Module Name	**Renal Replacement Therapies**
Clinical Scenario	Haemodiafiltration
Aim of Clinical Scenario:	The aim of this clinical scenario is to provide the student with an opportunity to apply theoretical knowledge from this module to the practical care and management of a patient receiving haemodiafiltration. This includes assessment, evaluation and searching the literature.
Demographics and Social history	Mr. C, a patient with End Stage Kidney Disease secondary to reflux nephropathy experienced four bouts of Interdialytic hypotension during the previous 3 weeks. He noticed that his blood pressure (BP) was significantly lower during the last 6 months than during the previous 7.5 years. At the time of his initial diagnosis Mr C's BP was 182/102 mm Hg.
Past Medical History and Medications	• Reflux nephropathy • Hypertension • Atenolol at 100 mg/day • Clonidine at 0.2 mg TID • Furosemide at 160 mg BID • Capoten at 25 mg TID
Current presentation and relevant results	The monthly laboratory results: Haematocrit = 27.6%, albumin = 3.1 g/dL, Urea 7 mmol/L, creatinine 7521 umols/L, iron saturation = 14%, ferritin = 510 mg/dL with an average interdialytic weight gain of 4 kg. A decision has been made to transfer Mr C from haemodialysis to haemodiafiltration dialysis treatment.

Questions:

- What are the prerequisites for using haemodiafiltration?
- Referring to evidence-based practice what are the benefits to using haemodiafiltration over standard haemodialysis?
- What are the patient factors influencing haemodiafiltration?
- What are the practical factors influencing haemodiafiltration?

Module Name	**Renal Replacement Therapy**
Clinical Scenario	Transplant
Aim of Clinical Scenario:	The aim of this scenario is to provide the student with an opportunity to apply the theoretical knowledge from this module to the practical care and management of patients' pre and post a renal transplant. This includes the assessment and preparation of patients prior to admission to the deceased donor transplant list, the preparation and planning for a living donor transplant, the long-term management of patients' post-transplant, and the role of the nurse as a key member of the nephrology team.
Demographics and Social History	Mr. B is a 55-year-old gentleman, who is married to Helen and together they have three grown up children. Mr. B's family have a strong history of Autosomal Dominant Polycystic Kidney Disease (ADPKD) and he was diagnosed in his mid-30's. He works full time in an office and enjoys playing golf and walking. The family are aware that Mr. B's kidneys are failing and have offered to be living donors. However, none of the grown-up children have been screened for ADPKD.
Past Medical History and Medications	• ADPKD • Hypertension managed with an ACE Inhibitor • Medication includes Tolvaptan, Vitamin D (alphacalcidol), Phosphate binder (calcichew or renagel), Bicarbonate (sodium bicarbonate) and iron supplements.

Current presentation and relevant results

- Mr. B and his wife attended the transplant assessment clinic to meet the surgeon and the transplant co-ordinator. His most recent eGFR was 20mls/min but otherwise he is clinically well.
- On examination the surgeon finds that Mr. B's polycystic kidneys are enlarged and to create space for a kidney transplant he is advised that he will require a right nephrectomy. He is informed that he will likely be dialysis dependent following surgery due to the loss of kidney function. His wife asks if she could be assessed as a living donor so the transplant could happen as soon as Mr. B recovers from his nephrectomy.

Questions

- What tests would the patient require before being deemed suitable for a kidney transplant?
- What tests would his wife Helen require whilst being assessed as a living donor?
- What additional implications are there for Helen to consider when offering to be a living donor?
- If Mr. B and Helen are found to be blood group incompatible, what options do they have?
- What are the implications if one of his grown-up children volunteered to donate?
- If there are no suitable living donors and Mr. B was to be activated on the deceased donor list, would that change the timing of his nephrectomy?
- What are the implications of both husband and wife undergoing surgery at the same time – how will this impact upon their aftercare?

- How will Mr. B's post-transplant function be assessed?
- What are the implications of low or high serum immunosuppressive therapeutic levels?
- What clinical indicators would prompt a transplant biopsy?
- What are the health implications of long-term immunosuppressive therapy?

Module Name	**Paediatric**
Clinical Scenario	Nephrotic Syndrome
Aim of Clinical Scenario:	The aim of this clinical scenario is to provide the student with an opportunity to apply theoretical knowledge from this module to the practical care and management of a child with nephrotic syndrome. This includes assessment, evaluation and searching the literature.
Demographics and Social history	A paediatric 5-year-old male patient comes to the Emergency Department after a restless night. He presents with vomiting, diarrhoea, fatigue, rhinitis and reduced oral intake, pallor and puffy feet.
Past Medical History	• Diagnosed with atypical Haemolytic Uremic Syndrome • ESKD on dialysis
Current presentation and relevant results	• Vital signs: O2 Sats 93%, HR 120, BP 120/80, RR 33, Afebrile, weight today 17.9 kg (dry weight 14,8kg) • Auscultation: crackles • Initial Assessment: A- Lethargic; V- Voice; P – Pupils 3+; U – Responsive • Work of breathing – increased, looks tired and decreased interaction • Appearance – rapid, shallow breathing, intercostal retractions and mild grunting • Circulation – skin pale • Bilateral pitting oedema

Questions:

- What is your initial assessment?
- How much urine is the child passing?
- Has their weight significantly increased?
- How much is their proteinuria?
- What is the serum albumin level?
- What are the immediate orders?

Module Name	**Paediatric**
Clinical Scenario	Neonatal Peritoneal Dialysis Prescription
Aim of Clinical Scenario	The aim of this clinical scenario is to provide the student with an understanding of the PD prescription and the nursing care for neonatal patients on PD. This includes assessment, evaluation and literature review.
Demographics and Social History	Seven-day old male baby, birth weight of 2.5 kg, current weight: 3.0 kg
Past Medical History	• Respiratory distress syndrome, on mechanical ventilation • Sepsis with septic shock, on dopamine 10 ug/kg/min
Current presentation and relevant results	• Initially oliguric for 2 days (urine <1 ml/kg/hr), now anuric since past 2 days • Labs: Urea: 5.3 mmol/L, Creatinine: 158 umol/L, Hyponatremia: 118 mmol/L, Hyperkalemia: K - 7 mmol/l (on treatment), metabolic acidosis: arterial pH 7.1, HC03 :10mEq/L (on treatment), lactate: 1.5 mmol/ • Anuria • Hyperkalemia refractory to treatment • Metabolic acidosis refractory to treatment • Fluid overload • Refractory hyponatremia
Questions:	• What is the most common complication of PD in neonatal paediatrics? • What would be the PD prescription? • What would be the nurse's care and management for this patient?

Module Name	**Renal Replacement Therapy**
Clinical Scenario	Transplant - Paediatric Recipient
Aim of Clinical Scenario	The aim of this scenario is to provide the student with an opportunity to apply the theoretical knowledge from this module to the practical care and management of patients pre and post a renal transplant. This includes the assessment and preparation of patients prior to admission to the deceased donor transplant list, the preparation and planning for a living donor transplant, the long term management of patients' post-transplant, and the role of the nurse as a key member of the nephrology team.
Demographics and Social History	Julian is 5 years old boy with ESKD secondary to peirson syndrome (confirmed by genetic testing), he is on HD 3 times a week via a right Perm Catheter. He started dialysis in May,2017. His mother is willing to donate her kidney to him, and she has undergone the pre kidney donation work up and found to be compatible. She is medically and psychologically fit to donate. Julian has one healthy elder brother and younger healthy sister. Julian was admitted electively for a renal transplant from a living related donor, and he came into hospital accompanied by his father and grandmother (the mother is for admission too).
Past Medical History	• Hypertension • Poor eyesight (followed by ophthalmology) • Bronchial asthma (controlled by medication) • Anaemia • Medication: Salbutamol nebulizer inhalation / alfacalcidol / Epoetin alfa / calcium carbonate/ amlodipine

Current presentation and relevant results

- Physical exam: Generally, looks well, hydrated, active, and playful. His chest is clear, abdomen is soft and lax.
- Temp: 36.5 Pulse: 112 RR: 24
  BP: 117/77mmHg SPO2: 99%
- Plan:

  Lab investigation to be sent as per the renal transplant protocol (ABORh, CBC, RENAL PROFILE, Liver profile, Coagulation profile, renal electrolyte) to make sure serology and virology are all negative within the last 3 months including (HIV / CMV IgG,IgM / EBV / HSV / VZV / Syphilis / quantifern TB / Hepatitis profile Hbs Ag, Hbs Ab, Hbc AB, HbC Ab./ Bk VIRUS / Sickle c ell screen, Malaria screen.)

  Stand by 1 unit of RBCs, Anaesthesia to re-evaluate Continue home medication, Chest X-ray, ECG

- Transplant surgeon for Consent
- Patient was seen and examined by the transplant surgeon, anaesthesia and nephrologist.
- Pre-kidney transplant work up was reviewed, including Cardiology clearance, Dental clearance, ENT clearance, psychological and social clearance.
- COVID-19 testing and precaution was done as per infection control protocol.

Questions

- What tests would the patient require before being deemed suitable for a kidney transplant?
- What tests would the donor require whilst being assessed as a living donor?
- What additional implications are there for the donor to consider when offering to be a living donor?
- If the donor and recipient are found to be blood group incompatible what options do they have?
- If there are no suitable living donors and Julian was to be activated on the deceased donor list, would that change the timing of his nephrectomy?
- How will Julian's post-transplant function be assessed?
- What are the implications of low or high serum immunosuppressive therapeutic levels?
- What clinical indicators would prompt a transplant biopsy?
- What are the health implications of long-term immunosuppressive therapy?

Module Name	**Evidence-based practice, safety and quality**
Clinical Scenario	Venous needle dislodgement
Aim of Clinical Scenario:	The aim of this clinical scenario is to provide the student with an opportunity to apply theoretical knowledge from this module to the practical care and management of haemodialysis patients focusing on safety and quality care. This includes assessment, evaluation, searching the literature and developing a quality improvement project to prevent and correct any adverse events.
Demographics and Social history	Mrs. M. L is a 75-year-old female patient, widowed, who lives with her helper. Her daughter and son live away from her, at the other side of the city. Mrs. L is living with dementia and cannot mobilize around alone without the assistance of her walker. She is often anxious and irritable. She is currently receiving haemodialysis in your unit via a brachiocephalic fistula created over one year ago.
Past Medical History and Medications	Type 2 diabetes mellitus controlled with metformin • Hypertension managed with ACE inhibitor • Multivitamin (Diamin)1 tab daily
Current presentation and relevant results	Haemodialysis three times per week x 4 hours • EPO 4000IU 2 times per week during dialysis session • One month after her first dialysis session Mrs. L had an incident of needle dislodgement resulting in loss of around 200ml of blood. She is the second patient in a month to have a similar incident.

Questions:

- How should you manage the venous needle dislodgement at the time it happens?
- Referring to evidence-based practice, what are the patient and staff interventions needed to prevent a recurrence of such an incident?
- Over the next year what should be done to monitor the situation and how could a quality improvement project prevent the occurrence of this incident again?

Resources to Support Modules:

Module 1. Chronic Kidney Disease
Key Textbooks
Daugirdas JT. (ed.). *Handbook of Chronic Kidney Disease Management*. 2nd edn. Philadelphia: LWW; 2018. Lewis R. *Understanding chronic kidney disease: a guide for the non-specialist* Milton Keynes: M&K Update; 2012. O'Callaghan C. *The Renal System at a Glance*. Oxford: Wiley; 2016. Thomas N. (ed.). *Renal Nursing: Care and Management of People with Kidney Disease, 5th* edn. Oxford: Wiley Blackwell; 2019 (Chapter 6).
Key Websites
NICE Chronic kidney disease in adults: assessment and management | Guidance | NICE https://www.nice.org.uk/guidance/cg182 Chronic kidney disease | Health topics A to Z | CKS | NICE (https://cks.nice.org.uk/topics/chronic-kidney-disease/ CKD Stages | The Renal Association https://ukkidney.org/health-professionals/information-resources/uk-eckd-guide/ckd-stages CKD Evaluation and Management – KDIGO https://kdigo.org/guidelines/ckd-evaluation-and-management/

Module 2. Advanced Kidney Disease
Key Textbooks
Ashley C. & Dunleavy A. *The Renal Drug Handbook: The Ultimate Prescribing Guide for Renal Practitioners*. 5h edn. Boca Raton: Taylor & Frances Group; 2018. Avrami C. & Savvidou S. *Management of Diabetic Foot in Renal Care. A guide to clinical practice*. Hergiswil: EDTNA/ERCA; 2020. Bodin SM. (ed.). *Contemporary Nephrology Nursing: Principles and Practice*. 3rd edn. New Jersey: American Nephrology Nursing Association (ANNA); 2017.

Drahne A. & Eichler N. *Case Management for Patients with Advanced Kidney Disease, A guide for nurses*. Hergiswil: EDTNA/ERCA; 2020.

Daugirdas JT. (ed.). *Handbook of Chronic Kidney Disease Management*. 2nd edn. Philadelphia: LWW; 2018.

Gomez N. (ed.). *Nephrology Nursing Scope and Standards of Practice*, 8th edn. Pitman, NJ: ANNA; 2017.

Ho TM. & Kumar N. (ed.). *Oral Care Guideline for Adult Patients with CKD*. Hergiswil: EDTNA/ERCA; 2018.

Kelly M. (ed) S*upporting Patients Who Opt Not to Have Dialysis or Stop Dialysis, Guidelines for nurses*. Hergiswil: EDTNA/ERCA; 2021.

Liossatou A. & Casal MC. (ed.). *Caring for Patients with Polycystic Kidney Disease, A guide for nurses*. Hergiswil: EDTNA/ERCA; 2019.

Mitch WE. & Ikizler TA. *Handbook of Nutrition and the Kidney*. 7th edn. Philadelphia: Wolters Kluwer/ LWW; 2017.

Moinuddin IK. & Leehey DJ. (2020) *Handbook of Nephrology*. 2nd edn, Philadelphia: Wolters Kluwer; 2020.

Pagana KD., Pagana TJ. & Pagana T. *Mosby's Diagnostic and Laboratory Test Reference*, 14th edn. St Louis: Elsevier; 2019.

Ronco C., Bellomo R., Kellum J. & Zaccaria R. *Critical Care Nephrology*, 3rd edn, Philadelphia: Elsevie; 2019.

Thomas N. (ed.). Renal Nursing: *Care and Management of People with Kidney Disease, 5th* edn. Oxford: Wiley Blackwell; 2019.

Key Websites

https://www.cariguidelines.org/ (Australia and New Zealand guideline, accessed 03 June, 2021)

https://www.dopps.org/ (Dialysis Outcomes Practice Patterns Study website, accessed 03 June 2021)

https://www.era-edta.org/en/erbp/ (European Best Practice Guidelines, accessed 03 June, 2021)

www.ispd.org (International Society for Peritoneal Dialysis, accessed 03 June, 2021) https://kdigo.org/guidelines/ (KDIGO guidelines, accessed 03 June, 2021) www.kidney.org (National Kidney Foundation, accessed 03 June, 2021) https://www.nice.org.uk/guidance (NICE guidelines, accessed 03 June 2021) https://renal.org/health-professionals/guidelines/guidelines-commentaries (UK Renal Association Guidelines, accessed 03 June, 2021) https://www.nursing.upenn.edu/live/files/552-transitions-theory (Transition theory, accessed 03 une, 2021) www.uptodate.com (Wolters Kluwer Uptodate: Evidence Based Clinical Decision Support, accessed 03 June 2021)
Any other resource of value (Advanced Kidney Disease)
KDIGO AKI guidelines Key Journals American Journal of Kidney Disease Clinical Journal of the American Society of Nephrology - CJASN ERA-EDTA, NDT Clinical Kidney Journal European Medical Journal Pubmed Journal of Renal Care Kidney International Nephrology - European Medical Journal Nephrology, Dialysis & Transplantation Nephrology Nursing Journal

Module 3. AKI
Key Textbooks
Fallone S. & Cotton AB. Acute kidney injury. In C.S. Counts (ed.)., *Core curriculum for nephrology nursing: Module 4. Acute kidney injury* (6th ed., p. 22). Pitman, NJ: American Nephrology Nurses Association; 2015.

Thomas N. (ed.). Renal Nursing: *Care and Management of People with Kidney Disease, 5th* edn. Oxford: Wiley Blackwell; 2019.

Waikar SS., Murray P., Singh AK. (ed.). *Core Concepts in Acute Kidney Injury*. New York: Springer; 2018.

Key Websites

https://www.kidneyfund.org/kidney-disease/kidney-problems/acute-kidney-injury.html (accessed 06 May, 2021)

https://www.nhs.uk/conditions/acute-kidney-injury/(accessed 06 May 2021)

https://kdigo.org/guidelines/acute-kidney-injury/(accessed 06 May 2021)

National Confidential Enquiry into Patient Outcomes and Death Adding insult to injury – a review of care of patients who died in hospital with a primary diagnosis of acute kidney injury (acute renal failure). London: NCEPOD, 2009.www.ncepod.org.uk/2009aki.htm (accessed 06 May 2021)

https://renal.org/sites/renal.org/files/FINAL-AKI-Guideline.pdf (accessed 06 May 2021)

https://www.nice.org.uk/guidance/ng148 (accessed 06 May 2021)

Module 4. Psychological & Physical Well-being

Key Textbooks

Awan AAY., Anumudu SJ., Alghafir EB. & Navaneethan SD. Integrative Approach in Chronic Kidney Disease. *In Nutrition, Fitness, and Mindfulness* (pp. 253-264). New Jersey: Cham: Humana; 2020.

Brown MM. Transitions of care. In *Chronic illness care* (pp. 369-373). New Jersey: Cham: Springer; 2018.

Charmaz, K. Good days, bad days: *The self in chronic illness and time*. New Jersey: Rutgers University Press. (whilst a little dated, this is a fascinating text of how individuals manage and cope with chronic illness), 1991.

Cukor D., Cohen S. & Kimmel P. *Psychosocial Aspects of Chronic Kidney Disease*. London: Academic Press; 2020.

Daaleman TP. & Helton MR. (ed.). *Chronic Illness Care: Principles and Practice*.New York: Springer; 2019.

Glaser BG. & Strauss AL. *Status Passage*. New Jersey: Transaction Publishers; 2011.

Karczewski SA., Keane M. & Berla, NA. Psychological Aspects and Challenges of Living with Chronic Kidney Disease for Adolescents. In *Adolescents with Chronic Kidney Disease* (pp. 17-42). New Jersey: Cham: Springer; 2019.

Lubkin IM. & Larsen PD. (ed.). *Chronic illness: Impact and interventions*. Massachusetts : Jones & Bartlett Learning; 2006.

Martz, E. (ed.). *Promoting self-Management of chronic health conditions: theories and practice*. Oxford: Oxford University Press; 2017.

Module 5. Renal Replacement Therapies

Key Textbooks

Ashley C. & Dunleavy A. *The Renal Drug Handbook: The Ultimate Prescribing Guide for Renal Practitioners*. 5h edn. Boca Raton: Taylor & Frances Group; 2018.

Avrami C. & Savvidou S. *Management of Diabetic Foot in Renal Care. A guide to clinical practice*. Hergiswil: EDTNA/ERCA; 2020.

Bodin SM. (ed.). *Contemporary Nephrology Nursing: Principles and Practice*. 3rd edn. New Jersey: American Nephrology Nursing Association (ANNA); 2017.

Danovitch GM. (ed.). *Handbook of Kidney Transplantation*. 6thedn. Philadelphia: LWW; 2017.

Daugirdas JT., Blake PG. & Ing TS. (ed.). *Handbook of Dialysis*, 5th edn. Philadelphia: Wolters Klumer Health; 2015.

Fortnum D. (ed.). *Home Haemodialysis - A Nurse Guide to Implementing Best Practice in Home Haemodialysis*. Hergiswil: EDTNA/ERCA; 2017.

Gomez N. (ed.). *Nephrology Nursing Scope and Standards of Practice*, 8th edn. Pitman, New Jersey: ANNA; 2017.

Iglesia R., Vallespin J. & Ibeas J. (ed.). *Handbook on Ultrasound for Vascular Access Examination, from the Specialists to the Nurse*. Hergiswil: EDTNA/ERCA; 2018.

Kallenbach J.Z. *Review of hemodialysis for Nurses and Dialysis Personnel*, 9th edn. St. Louis, MO: Elsevier/Mosby; 2016.

Krediet RT., Struijk DG. & van Esch S. *Peritoneal Dialysis Manual: A Guide for Understanding the Treatment*. , Basel: Karger; 2018.

Lerma E. & Weir MR. (ed.). *Henrick's Principles and Practice of Dialysis*. 5th edn. Philadelphia: Wolters Klumer: 2017.

Levy J., Brown E., & Lawrence A. *Oxford Handbook of Dialysis*. 4th edn, Oxford: Oxford University Press; 2016.

Mitch WE. & Ikizler TA. *Handbook of Nutrition and the Kidney*. 7th edn. Philadelphia: Wolters Kluwer/ LWW; 2017.

Nissenson AR. & Fine RN. *Handbook of Dialysis Therapy*. 5th edn, Philadelphia: Elsevier; 2017.

Parisotto MT. & Pancirova J. (ed.). *Vascular Access Cannulation and Care, A Nursing Best Practice Guide for Arteriovenous Fistula*. 3rd edn, Hergiswil: EDTNA/ERCA; 2018.

Parisotto MT. (ed.).V*ascular Access Cannulation and Care, A Nursing Best Practice Guide for Arteriovenous Graft*. Hergiswil: EDTNA/ERCA; 2018.

Parisotto MT. (ed.). *Vascular Access Management and Care, A Nursing Best Practice Guide for Central Venous Catheters*. Hergiswil: EDTNA/ERCA; 2018.

Provan D. (ed.). *Oxford Handbook of Clinical and Laboratory Investigation*. 4th edn. Oxford: Oxford University Press; 2018.

Riemann A. & Fortnum D. (eds.). 500 *Questions and Answers about Peritoneal Dialysis, A Guide for Nurses*. Hergiswil: EDTNA/ERCA; 2016.

Ronco C., Bellomo R., Kellum J. & Zaccaria R. *Critical Care Nephrology*, 3rd edn, Philadelphia: Elsevie; 2019.

Thomas N. (ed.). *Renal Nursing: Care and Management of People with Kidney Disease, 5th* edn. Oxford: Wiley Blackwell; 2019.

Key Websites

https://www.cariguidelines.org/ (Australia and New Zealand guideline, accessed 03 June, 2021)

https://www.dopps.org/ (Dialysis Outcomes Practice Patterns Study website, accessed 03 June 2021)

https://www.era-edta.org/en/erbp/ (European Best Practice Guidelines, accessed 03 June, 2021)

https://www.esvs.org/journal/guidelines/ (European Society for Vascular Surgery, Guidelines on Dialysis Vascular Access, accessed 03 June, 2021)

www.ispd.org (International Society for Peritoneal Dialysis, accessed 03 June, 2021)

https://kdigo.org/guidelines/ (KDIGO guidelines, accessed 03 June, 2021)

www.kidney.org (National Kidney Foundation, accessed 03 June, 2021)

https://www.nice.org.uk/guidance (NICE guidelines, accessed 03 June 2021)

https://renal.org/health-professionals/guidelines/guidelines-commentaries (UK Renal Association Guidelines, accessed 03 June, 2021)

https://www.nursing.upenn.edu/live/files/552-transitions-theory (Transition theory, accessed 03 une, 2021) www.uptodate.com (Wolters Kluwer Uptodate: Evidence Based Clinical Decision Support, accessed 03 June 2021) www.edtnaerca.org (accessed, 03 June, 2021)
Any other resource of value (Renal Replacement Therapies)
Key Journals American Journal of Kidney Disease Blood Purification Clinical Journal of the American Society of Nephrology - CJASN European Medical Journal Pubmed ERA-EDTA, NDT Clinical Kidney Journal Hemodialysis International Journal of Renal Care Kidney International Nephrology - European Medical Journal Nephrology, Dialysis & Transplantation Nephrology Nursing Journal Peritoneal Dialysis International Seminar of Dialysis

Module 6. Pediatrics
Key Textbooks
Bodin SM. (ed.). *Contemporary Nephrology Nursing: Principles and Practice*. 3rd edn. New Jersey: American Nephrology Nursing Association (ANNA); 2017.

Gomez N. (ed.). *Nephrology Nursing Scope and Standards of Practice*, 8th edn. Pitman, NJ: ANNA; 2017.

Kallenbach J.Z. *Review of hemodialysis for Nurses and Dialysis Personnel*, 9th edn. St. Louis, MO: Elsevier/Mosby; 2016.

Kher, Kanwal; Schnaper, H. William; Greenbaum, Larry A. *Clinical Pediatric Nephrology, Third Edition*. CRC Press. p. 307; 2016. ISBN 9781482214635.

Krediet RT., Struijk DG. & van Esch S. *Peritoneal Dialysis Manual: A Guide for Understanding the Treatment*. , Basel: Karger; 2018.

McCall G, Lennon R, et al. *Paediatric acute kidney injury service (AKI): improving recognition and reducing incidence*. UKKW 2019.

Nissenson AR. & Fine RN. *Handbook of Dialysis Therapy*. 5th edn, Philadelphia: Elsevier; 2017.

Parisotto MT. & Pancirova J. (ed.). *Vascular Access Cannulation and Care, A Nursing Best Practice Guide for Arteriovenous Fistula*. 3rd edn, Hergiswil: EDTNA/ERCA; 2018.

Parisotto MT. (ed.).*Vascular Access Cannulation and Care, A Nursing Best Practice Guide for Arteriovenous Graft*. Hergiswil: EDTNA/ERCA; 2018.

Parisotto MT. (ed.). *Vascular Access Management and Care, A Nursing Best Practice Guide for Central Venous Catheters*. Hergiswil: EDTNA/ERCA; 2018.

Provan D. (ed.). *Oxford Handbook of Clinical and Laboratory Investigation. 4th edn*. Oxford: Oxford University Press; 2018.

Riemann A. & Fortnum D. (eds.). *500 Questions and Answers about Peritoneal Dialysis, A Guide for Nurses*. Hergiswil: EDTNA/ERCA; 2016.

Sethi S., Raina R., McCulloch M., et al. *Critical care paediatric nephrology and dialysis; a practical handbook*. Springer; 2019.

Thomas N. (ed.). *Renal Nursing: Care and Management of People with Kidney Disease, 5th* edn. Oxford: Wiley Blackwell; 2019.

Key Websites (Pediatrics)
www.edtnaerca.org www.uptodate.com www.kidney.org https://kdigo.org/guidelines/www.ispd.org https://www.era-edta.org https://www.era-edta.org https://aakp.org/center-for-patient-engagement-and-advocacy/support-groups/ https://aakp.org/center-for-patient-research-and-education/pediatric-kidney-pals/ https://www.rsnhope.org/for-kids-and-parents/ https://www.myast.org/sites/default/files/Pediatric%20Kidney%20Transplantation%20BrochureAST%20%20-%20final%20copy%202015-06-27_0.pdf https://www.freseniusmedicalcare.com/en/healthcare-professionals/pediatric-dialysis/pediatric-dialysis-overview/ https://childrensnational.org/visit/conditions-and-treatments/kidney-diseases/hemodialysis https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1766474/ https://www.niddk.nih.gov/health-information/kidney-disease/children/treatment-kidney-failure https://pubmed.ncbi.nlm.nih.gov/20559665/ https://www.seattlechildrens.org/clinics/dialysis/patient-family-resources/

Module 7. Evidenced Based-Practice, Safety and Quality Care
Key Textbooks
Aveyard H. *A Beginner's Guide to Evidence Based Practice in Health and Social Care*. 3rd edn. Oxford: Oxford University Press; 2017.

Ledema R. *Communicating Quality and Safety in Health Care*, Cambridge: Cambridge Press; 2015.

Shah RK. & Godambe, SA. *Patient Safety and Quality Improvement in Healthcare A Case-Based Approach*. Oxford: Springer; 2021.

Thomas N. (ed.) Renal Nursing: *Care and Management of People with Kidney Disease, 5th* edn. Oxford: Wiley Blackwell; 2019 (Chapter 14).

Key Websites

Principles for putting evidence-based guidance into practice (nice.org.uk)

Improving Health and Health Care Worldwide | IHI - Institute for Healthcare Improvement

Patient Safety Movement Foundation • Global Non-profit focused on ZERO

Quality improvement | The Health Foundation

EUROPEAN DIALYSIS AND TRANSPLANT NURSES ASSOCIATION
EUROPEAN RENAL CARE ASSOCIATION

EDTNA/ERCA
Caring Together

JOIN EDTNA/ERCA NOW

INDIVIDUAL AND CORPORATE MEMBERSHIP

BE PART OF AN ASSOCIATION THAT

Specializes in Renal Care
Cares about the Environment
Translates Strategy into Action
Fosters Team Success
Welcomes Transformation & Innovation

TAKE THE OPPORTUNITY TO

Enhance Profesional and Personal Growth
Learn Valuable Leadership Skills
Gain an Evidence-Based Education
Share Knowledge and Experience
Make Your Daily Work Visible

JOIN OUR COMMUNITY TO NETWORKING
WITH RENAL CARE PROFESSIONALS AROUND THE GLOBE
WWW.EDTNAERCA.ORG

EDTNA/ERCA Seestrasse 91 CH 6052 Hergiswil, Switzerland


EDTNA/ERCA
Caring Together