



New Zealand Nephrology Nursing Knowledge and Skills Framework

Endorsed by the National Nursing Consortium
for Specialty Standards

9 October 2012

**Nursing Advisory Group
Renal Society of Australasia (NZ Branch)**
www.renalsociety.org

New Zealand Nephrology Nursing Knowledge and Skills Framework

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ISBN 978-0-473-23999-2 (PDF)

1. Foreword

1.1 Background

The 1999 Competency Standards for the New Zealand Renal Nurse (National Renal Qualification Working Party, 1999) first defined Nephrology nursing as a specialised area of nursing practice in New Zealand.

In 2006 a National Renal Advisory Board (NRAB) scoping paper identified that the training of "skilled nephrology nurse specialists/practitioners for the future" required an "agreed strategy" (National Renal Advisory Board, 2006, p18). However a workforce survey commissioned by the Renal Society of Australasia (RSA) reported that only 21% of Registered Nurses working within New Zealand Renal Units held any renal post graduate qualifications (Bennett, McNeill & Polaschek, 2009). This led the NRAB to highlight the importance of progressing work on specialty competencies for renal nursing to both ensure a skilled workforce and further develop the specialty (National Renal Advisory Board, 2009).

Thus, in 2008 the RSA New Zealand (NZ) Branch Nursing Advisory Group (NAG) responded to this need, commencing a project to draw up a professional development framework for nephrology nursing within New Zealand. The establishment of endorsement criteria and processes by the National Nursing Consortium in February 2009 (National Nursing Consortium, 2011) provided the platform upon which to complete the framework.

1.2 Renal Society of Australasia (NZ Branch)

Formed in 1972, the RSA is the professional body for nephrology nurses within Australia and New Zealand. The society currently has approximately 1400 members divided between branches in New Zealand and each of the Australian states. The purpose of the RSA is to achieve excellence in the dissemination of knowledge in renal replacement therapies throughout Australasia (Renal Society of Australasia, n.d.) This is achieved through provision or support of numerous educational activities including annual national and international conferences and an internationally peer reviewed scholarly journal (Bennett, 2012). Collaborative links (both formal and informal) exist between the RSA and equivalent international professional nephrology nursing bodies such as the European Dialysis and Transplant Nurses Association and the American Nephrology Nurses Association.

The New Zealand branch of the society has approximately 100 members and is an incorporated society under New Zealand law. The branch's Nursing Advisory Group (NAG) has provided professional nephrology nursing leadership to its members in New Zealand since 1995 with a primary focus on the establishment of national standards of practice and a professional development model for nephrology nursing in New Zealand.

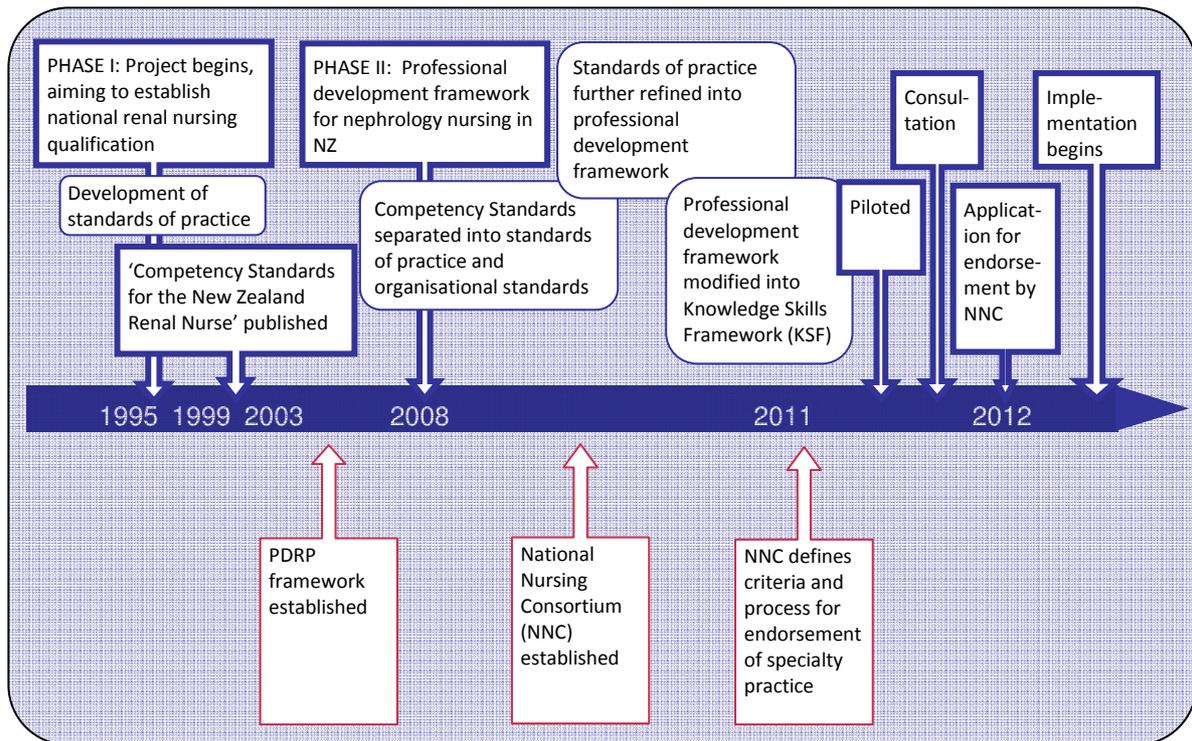
1.3 Development process

A review of the original 1999 Competency Standards for the New Zealand Renal Nurse by the NAG saw them initially modified into standards of practice. These were then separated into organisational standards (Nursing Advisory Group, 2012) and the knowledge skills framework. Following extensive consultation with and endorsement by professional nephrology nurses from across New Zealand District Health Boards, the New Zealand Nephrology Nursing Knowledge and Skills Framework was developed. The framework was underpinned by Dr Kathy Holloway's model for development of a specialist nursing framework (Holloway, 2011).

In December 2011 the New Zealand Nephrology Nursing Knowledge and Skills Framework (NZNNKSF) was piloted by nephrology nursing services in two District Health Boards. Feedback from this process was incorporated into the final framework. Further feedback was received during a formal consultation stage during April/May 2012.

Feedback has underlined the need for an implementation phase following endorsement. The NAG expects to produce and distribute resources to support and assist nephrology services and individual nurses to incorporate the framework into existing professional development processes, including Professional Development and Recognition Programmes.

Figure 1: Development of the NZNKSF



1.4 Development team

The RSA (NZ Branch) NAG members who have been involved in the development of the NZNKSF are:

Karin Norman (Chairperson)
Clinical Nurse Manager, Rotorua Satellite
Dialysis Service
Lakes District Health Board
(formerly Clinical Nurse Educator, Regional
Dialysis Service
Waikato District Health Board)

Kay McLaughlin (Secretary)
Clinical Nurse Co-ordinator
Renal Service
Capital and Coast District Health Board

Miranda Walker (Project Facilitator)
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Renal ward one
Counties Manakau District Health Board

Gillian Treloar
Nurse Manager, Renal Service
MidCentral District Health Board

Rachael Walker
Nurse Practitioner – Adult/Older Adult -
Renal
Hawkes Bay District Health Board

1.5 Future review and development

The NZNNKSF will be reviewed in 2017 in line with the process for recognition as a specialty outlined by the Nursing Consortium (National Nursing Consortium, 2011).

1.6 Acknowledgements

The development of the NZNNKSF has been made possible by support and funding from the RSA (NZ Branch).

The NAG acknowledges the valuable assistance received from Dr Kathy Holloway, whose model for specialist nursing recognition underpins this framework. She has guided and challenged the group's work over several years, providing mentorship, feedback, and critique.

Thanks to Nephrology Services at Hawkes Bay District Health Board and Canterbury District Health Board for piloting this framework.

The development team also thanks Janine Palmer and Noreen McCallan (Renal Service, Hawkes Bay District Health Board) for their contributions.

2. Using the New Zealand Nephrology Nursing Knowledge and Skills Framework

2.1 Purpose and use

The New Zealand Nephrology Nursing Knowledge and Skills Framework (NZNNKSF) published in this document (see page 9) describes the knowledge and skills required by nurses in order to practice in a specialty nephrology role. It will benefit nephrology patients, nurses and health providers by:

1. Informing best practice guidelines for optimal patient outcomes
2. Providing a tool that may be used in the development of career pathways, job descriptions and appraisals
3. Articulating expected behaviours and capabilities that may be used in the assessment and evaluation of the quality of individual and collective nephrology nursing practice
4. Providing a framework for nephrology nursing training programmes
5. Clarifying the nephrology nurse's role to administrators, consumers and other health care professionals
6. Providing a platform for nurse-led nephrology care
7. Promoting nephrology nursing as a career pathway, particularly for Maori and Pasifika nurses, in order to influence health promotion and prevention of kidney disease in Maori and Pacific people

2.2 Components

The NZNNKSF describes:

1. Aspects of care: the core concepts and interventions specific to nursing practice within nephrology specialty areas. These are identified within the NZNNKSF along with the nursing management aim as:
 - a) Chronic Kidney Disease (CKD) Stages 1-5
 - b) Complications of CKD
 - c) Self Management of CKD and RRT
 - d) Renal Palliative Care
 - e) Extracorporeal Therapies
 - f) Peritoneal Dialysis
 - g) Kidney Transplantation
2. Levels of practice, along with the knowledge and skills required to deliver nephrology nursing care at each level of practice.
 - a) All nurses - All RNs who care for patients with nephrology care needs. It is expected that nurses who meet the competency requirements set by the Nursing Council of New Zealand (NCNZ) for Registered Nurses will be capable of providing this level of care for all nephrology patients. For this reason the 'All nurses' level of care is not seen as specialty practice, and therefore is included in the NZNNKSF as a reference only. It is expected that competence at this level of practice will be assessed by the NCNZ competencies and not by the NZNNKSF.
 - b) Many nurses – Those RNs who provide routine, non-complex care for patients with specialised nephrology care needs. These are defined as Specialty¹ Nephrology Nurses. In addition to relevant clinical practice, these nurses will be working academically towards a minimum of Post Graduate Certificate. This level of practice is likely to be aligned with 'Proficient' level in a PDRP.

¹ New Zealand Nurses Organisations. (2009). *Glossary of Terms*. Wellington, New Zealand: Author

- c) Some nurses – Those RNs who provide care for patients with increasingly complex, unpredictable specialised nephrology care needs; providing expert support to other members of the healthcare team in managing nephrology patients and leading nephrology nursing practice and service development. These are defined as Specialist¹ Nephrology Nurses. In addition to relevant clinical practice, these nurses will be progressing academically through a Post Graduate Diploma towards Masters qualification. This level of practice is likely to be aligned with 'Expert' level in a PDRP.
3. NCNZ competency domains relevant to each piece of knowledge or skill. The four domains of competence for Registered Nurses are cross-referenced by the NZNNKSF in brackets after each statement of capability to demonstrate that specialty nephrology nursing practice remains within the Registered Nurse scope of practice, and to facilitate cross referencing with PDRP tools.

2.3 The framework as a tool for assessment using the PDRP

The NZNNKSF is a tool which can be used to express levels of practice for nephrology nurses across various clinical settings. The intention is that it be used as evidence of competency within currently existing Professional Development and Recognition Programme (PDRP) portfolio processes.

Aspects of the framework which are relevant to the particular area or level of nephrology nursing clinical practice being examined at that time will be used for assessment purposes, whilst those areas not currently relevant will be omitted. Table 1 shows an example of how the framework might be used as evidence within the PDRP process.

A toolkit will be developed to assist individual nurses use the framework to provide evidence for PDRP processes. Depending on individual PDRP processes, it is likely that the 'Specialty' level of practice will align with 'Proficient' and 'Specialist' will align with 'Expert'.

Table 1: Case study showing example of use of the NZNNKSF

A nephrology nurse has been practising for 5 years in a home haemodialysis training facility. Previous experience includes 2 years in a home peritoneal dialysis training facility and 1 year in a nephrology ward. In order to show evidence for a PDRP assessment this nurse might use the following sections of the NZNNKSF:

Level of practice	Aspect of care
Specialist Nephrology Nurses:	Extracorporeal therapies Self-management for CKD and RRT Complications of CKD
Specialty Nephrology Nurses:	Peritoneal Dialysis
All nurses:	Chronic Kidney Disease Renal Palliative Care Kidney Transplantation

2.4 Registered Nurse Prescribing

The NAG has considered RN prescribing as a potential development for the future, and expects that nephrology nurses who wish to be designated RN prescribers would be operating at specialist level and these skills would be augmented by specific prescribing education and experience (as determined by NCNZ).

3. **New Zealand Nephrology Nursing Knowledge Skills Framework**

The framework provides guidance for nurses in each of the defined levels of nursing practice against the delineated aspects of care (including desired patient outcomes).

ALL NURSES - *All* Registered Nurses who care for patients with nephrology care needs

MANY NURSES are *Specialty* Nephrology Nurses: Nurses who provide routine, non-complex care for patients with specialised nephrology care needs

SOME NURSES are *Specialist* Nephrology Nurses: Nurses who care for patients with increasingly complex, unpredictable specialised nephrology care needs; provide expert support to other members of the healthcare team in managing nephrology patients; lead nephrology nursing practice and service development

Aspects of Care

Chronic Kidney Disease (CKD) Stages 1-5

Complications of CKD

Self-management for CKD and RRT

Renal Palliative Care

Extracorporeal Therapies

Peritoneal Dialysis (PD)

Kidney Transplantation (recipient)

ALL NURSES - All Registered Nurses

Capability at this level of practice will be assessed by the NCNZ RN competencies (Nursing Council of New Zealand, 2007) and not by the NZNKSF. This section is included here for reference only.

Chronic Kidney Disease (CKD) – Stages 1-5

Prevention or delay of progression of kidney disease: There will be a delay or decrease in the rate of progression of CKD

- Explains biochemical assessment of kidney function
- Understands the difference between acute kidney injury and chronic kidney disease

Complications of CKD

Anaemia management: The patient will achieve and maintain haemoglobin and iron levels within the targeted range

- Describes medications used in CKD for anaemia management

Cardiovascular risk management: The patient will show a reduction in modifiable risk factors for CVD

- Understands the increased risk of CVD for patients with CKD
- Educates patients how to modify lifestyle-related risk factors for CVD

Bone and mineral disorder management: The patient will remain free from disability related to renal bone disease

- Describes medications used in CKD for management of mineral and bone disorder

Self-management for CKD and Renal Replacement Therapy (RRT)

Assessment for self-management capacity: The patient will achieve optimal level of self-care

- Assesses self-management capacity, with reference to their nephrology treatment regimen

On-going monitoring and support for self-management: The patient will successfully incorporate self-care treatment into their lifestyle

- Encourages and supports patients to self-manage specialised nephrology treatments

Extracorporeal Therapies

Assessment, planning and treatment: The patient will receive an individualised, safe, effective and appropriate dialysis treatment

- Documents accurate fluid balance data
- Prevents and treats symptoms and complications of extracorporeal therapies

Vascular access: The patient's vascular access will be free of complications and will provide a blood flow rate adequate to achieve the dialysis prescription

- Recognises vascular access for dialysis, and protects it from complications

Peritoneal Dialysis (PD)

Assessment, planning and treatment: The patient will receive a safe, effective and appropriate dialysis treatment

- Performs and reports accurate fluid balance assessment
- Prevents and treats symptoms and complications of peritoneal dialysis

PD access: The patient's PD access will be free of complications and will provide a flow rate adequate to achieve the dialysis prescription

- Protects peritoneal dialysis access from complications

Kidney transplantation (recipient)

Pre-operative care: The patient will be prepared to receive a kidney transplant

- Prepares patients pre-operatively for kidney transplant

Post-operative care: The patient will receive a successful kidney transplant

- Assesses and manages fluid balance post-operatively

On-going monitoring and support: The patient will be supported to achieve optimal self-management following kidney transplantation

- Promotes and supports self-management for patients following kidney transplantation

MANY NURSES are *Specialty Nephrology Nurses*
NZNNKSF for Nurses who provide routine, non-complex care for patients with specialised nephrology care needs

SOME NURSES are *Specialist Nephrology Nurses*
NZNNKSF for Nurses who care for patients with increasingly complex, unpredictable specialised nephrology care needs; provide expert support to other members of the healthcare team in managing nephrology patients; lead nephrology nursing practice and service development

NB The KSF builds across the levels of practice with specialist nurses encompassing the capabilities of the specialty nurses

Aspect of Care	Patient Outcome	Specialty Nephrology Nurse NZNNKSF (NCNZ Domain)	Specialist Nephrology Nurse NZNNKSF (NCNZ Domain)
Chronic Kidney Disease (CKD) Stages 1-5	<p>Prevention or delay of progression of kidney disease Patient outcome: There will be a delay or decrease in the rate of progression of CKD and associated risk factors/complications</p>	<ol style="list-style-type: none"> 1. Can identify and explain risk factors for the progression of kidney disease (2) 2. Monitors and reports markers for risk of progression of kidney disease (2) 3. Provides effective health education to improve understanding of kidney disease, risk factors and healthy lifestyle (2) 4. Encourages and supports patients and whanau to actively self-manage their kidney disease (2,3) 5. Identifies the factors that contribute to over-representation of Māori and Pacific people in CKD statistics (1,4) 6. Consults with diabetes services to optimise management of diabetes-related disease (2,3,4) 	<ol style="list-style-type: none"> 1. Monitor assess and manage progression of CKD, including pharmacologic therapy (2) 2. Establish a CKD care plan with the patient, which maximises self-management capacity to make lifestyle changes (2,3) 3. Request laboratory tests and diagnostic studies in collaboration with the MDT to enable comprehensive assessment and monitoring of progression of CKD (2) 4. Collaborates with primary health, diabetes, and other appropriate health care providers to improve early detection and treatment of CKD (2,3,4) 5. Provides education to patients, whanau and other health care providers about the risk factors, treatment and complications of CKD (2,3) 6. Addresses adherence issues and applies appropriate education and interventions to improve adherence (2,3) 7. Engages in and leads activities designed to reduce inequalities in CKD outcomes (1,3,4)
	<p>Preparation for CKD Stage 5 Patient outcome: The patient will be prepared to commence an appropriate renal replacement therapy, or conservative treatment, at the optimal time.</p>	<ol style="list-style-type: none"> 1. Assesses and identifies rate of progression to end stage kidney disease (2) 2. Assesses patient knowledge regarding RRT options (2) 3. Encourages and promotes transplantation (2,4) 4. Follows treatment plan to support patient and whanau to make choices about RRT options (2,3) 5. Identifies resources and refers on to others to assist patient with selection and adjustment to RRT or conservative treatment (4) 	<ol style="list-style-type: none"> 1. Assesses patient's suitability for specific RRT modalities (2,3) 2. Educates and supports patient and whanau to make appropriate choices about specific RRT or conservative modalities (2,3) 3. Collaborates with patient and multidisciplinary team to formulate a RRT treatment and teaching plan (2,3,4) 4. Monitors patient for signs and symptoms of progression to ESKD and need to initiate RRT (2) 5. Advocates on behalf of the patient regarding their chosen treatment (2,3) 6. Refers patient for timely dialysis access placement and dialysis initiation (2,4)

Aspect of Care	Patient Outcome	Specialty Nephrology Nurse NZNNKSF (NCNZ Domain)	Specialist Nephrology Nurse NZNNKSF (NCNZ Domain)
Complications of CKD	<p>Anaemia management Patient outcome: The patient will achieve and maintain haemoglobin and iron levels within the targeted range.</p>	<ol style="list-style-type: none"> 1. Explains the pathophysiology of renal anaemia (2) 2. Assesses patients with kidney disease for signs, symptoms and potential causes of anaemia (2) 3. Educates the patient to self-manage erythropoietin administration (2,3) 4. Monitors on-going status of renal anaemia and effectiveness of treatment (2,4) 5. Identifies instances and causes of non-responsiveness to treatment and refers appropriately (2) 	<ol style="list-style-type: none"> 1. Assesses patient's current knowledge level, self-management abilities, and anaemia management strategies (2) 2. Develops a plan in collaboration with the patient and health care team to achieve anaemia targets and improve functional ability (2,3,4) 3. Develops and implements anaemia management protocols (2) 4. Audits key indicators of quality of anaemia management for groups of patients over a range of time and compares to best practice guidelines (2,4) 5. Identifies researchable anaemia management practice issues (4)
	<p>Cardiovascular risk management Patient outcome: The patient will show a reduction in modifiable risk factors for CVD.</p>	<ol style="list-style-type: none"> 1. Describes the risk factors for CVD that are related to CKD (2) 2. Educates and reinforces chronic kidney disease self-management strategies to reduce modifiable risk factors for CVD (2,3) 	<ol style="list-style-type: none"> 1. Assesses cardiovascular risk factors associated with kidney disease, using a range of diagnostic tools (2) 2. Develops and implements a plan, in collaboration with the patient and MDT, to address risk factors associated with CKD-related cardiovascular disease (2,3,4) 3. Evaluates and modifies treatment for CKD-related risk factor reduction (2)
	<p>Bone and mineral disorder management Patient outcome: The patient will remain free from disability related to renal bone disease.</p>	<ol style="list-style-type: none"> 1. Describes common bone and mineral disorders associated with CKD and their management (2) 2. Assesses for signs and symptoms associated with bone and mineral metabolism disorders and refers appropriately (2) 3. Educates the patient self-management strategies to prevent and treat bone and mineral disorders associated with CKD (2,3) 	<ol style="list-style-type: none"> 1. Monitors and evaluates patient response to bone and mineral metabolism therapy and refers appropriately (2,3) 2. Request laboratory tests and diagnostic studies to assess patient's response to treatment for bone and mineral disorders (2)

Aspect of Care	Patient Outcome	Specialty Nephrology Nurse NZNNKSF (NCNZ Domain)	Specialist Nephrology Nurse NZNNKSF (NCNZ Domain)
Self-management for CKD and RRT	<p>Assessment for self-management capacity. Patient outcome: The patient will achieve optimal level of self-care.</p>	<ol style="list-style-type: none"> 1. Assesses nephrology patients' current and achievable level of self-care and communicates this to the nephrology multidisciplinary team (MDT) (2,4) 	<ol style="list-style-type: none"> 1. Develops, applies and evaluates evidence-based self-management strategies for people with kidney disease (2,3,4) 2. Maximises independence for every patient on RRT (2,3)
	<p>Education for self-management. Patient outcome: The patient will perform self-managed treatments safely.</p>	<ol style="list-style-type: none"> 1. Incorporates specialised teaching for CKD self-care into nephrology nursing care plan, using the principles of adult learning and chronic disease self-management (2,3) 2. Educates patient and whanau about specialised self-care treatments for CKD (2,3) 	<ol style="list-style-type: none"> 1. Creates evidence-based tools and programmes to teach specialised self-care treatments for CKD (2,4)
	<p>On-going monitoring and support for self-management. Patient outcome: The patient will successfully incorporate self-care treatment into their lifestyle.</p>	<ol style="list-style-type: none"> 1. Creates an environment that empowers patients and families to incorporate CKD and its therapies into their home situation and lifestyle (2,3) 2. Ensures the infrastructure required for return to community with on-going treatment for CKD is in place (2,3,4) 3. Ensures expert nephrology support is available to the patient at all times (2,3) 	<ol style="list-style-type: none"> 1. Develops systems to enhance on-going communication and interaction between the patient, whanau and nephrology health care team (3,4) 2. Promotes the advantages of home therapies (1,2,3,4) 3. Educates staff to optimise renal patients' self-care outcomes (2,3,4)
Renal Palliative Care	<p>Supportive care Patient outcome: The patient will receive appropriate symptom management and psychosocial support throughout their CKD experience.</p>	<ol style="list-style-type: none"> 1. Assesses the patient for signs and symptoms related to kidney disease and its complications (2) 2. Implements strategies to optimize comfort and quality of life, anticipating the likely impact of kidney disease (2,3,4) 3. Describes nephrology supportive care available and appropriate nephrology palliative care management and medications (4) 4. Confidently initiates, facilitates and participates in ACP conversations (2,3) 5. Initiates referral to palliative care or hospice in collaboration with the individual and/or whanau living with kidney disease (2,3,4) 	<ol style="list-style-type: none"> 1. Assesses readiness to participate in discussions about end-of life care and introduces concepts of advance care planning in CKD when appropriate (2,3) 2. Regularly reviews health status, treatments for kidney disease and progress ensuring informed decision-making regarding ongoing care (2) 3. Acts as advocate promoting and respecting the patient's autonomy regarding treatment choices for kidney disease, including the right to change decisions (1,2,3,4) 4. Assesses the palliative care needs of the patient and whanau throughout the continuum of kidney disease (2,3) 5. Supports the healthcare team with ethical decision-making regarding patient autonomy to make treatment choices (1,3,4)

Aspect of Care	Patient Outcome	Specialty Nephrology Nurse NZNNKSF (NCNZ Domain)	Specialist Nephrology Nurse NZNNKSF (NCNZ Domain)
Extracorporeal Therapies	<p>Assessment, planning and treatment. Patient outcome: The patient will receive an individualised, safe, effective and appropriate dialysis treatment.</p>	<ol style="list-style-type: none"> 1. Explains the properties of dialyser membranes and the difference between convective and diffusional therapies (2) 2. Describes the theory and principles of solute and water transport across membranes (2) 3. Performs and documents a holistic and comprehensive pre-treatment assessment to identify the patient's current health status with specific regard to fluid balance and metabolic/biochemical function (2) 4. Interprets pre-treatment assessment findings and reports to appropriate person if outside the expected range or if unsure about interpretation (2) 5. Describes infection control principles which are specific to extracorporeal therapies (2) 6. Assesses machine safety prior to beginning treatment (1,2) 7. Confirms and adjusts treatment parameters to achieve prescription (1,2) 8. Monitors patient during treatment for signs of complications (2) 9. Describes appropriate management of emergencies during treatment (2) 10. Performs and documents a post-treatment assessment and evaluates outcomes (2) 11. Uses assessment data to identify aspects of treatment that need adjustment to improve future outcomes, and refers appropriately (2) 12. Administers medications safely during extracorporeal treatments (2) 13. Assesses quality of treatment using a range of evidence-based quality indicators to achieve an optimal outcome from the patient's perspective (2,4) 	<ol style="list-style-type: none"> 1. Assesses needs of complex patients requiring extracorporeal therapies (2) 2. Provides a timely and comprehensive clinical assessment of patient fluid status (2,4) 3. Monitors and adjusts treatment parameters according to on-going patient assessment to prevent/treat complications, or to improve treatment outcome (2,4) 4. Request laboratory tests and diagnostic studies to assess treatment adequacy in collaboration with the MDT (2,4) 5. Sets and audits key indicators of good quality extracorporeal therapy and compares to best practice guidelines (2,4) 6. Identifies researchable extracorporeal therapy practice issues (4) 7. Leads on-going evaluation of patients and groups of patients to ensure adequacy of extracorporeal therapies (2,4) 8. Safely and effectively manages more complex, unpredictable, or less common intradialytic complications (2,4) 9. Acts as a consultant regarding extracorporeal therapies for other healthcare providers (2,4) 10. Leads the development and review of extracorporeal treatment policy and procedure, maintaining currency and evidence base (2,3,4)

Aspect of Care	Patient Outcome	Specialty Nephrology Nurse NZNNKSF (NCNZ Domain)	Specialist Nephrology Nurse NZNNKSF (NCNZ Domain)
Extracorporeal Therapies	<p>Vascular access Patient outcome: The patient's vascular access will be complication-free and provide a blood flow rate adequate to achieve the dialysis prescription.</p>	<ol style="list-style-type: none"> 1. Describes the anatomy and physiology of the different forms of vascular access for extracorporeal therapies (2) 2. Educates the patient on the care of their vascular access (2) 3. Assesses vascular access and demonstrates good cannulation technique (2) 4. Identifies and manages (or refers) complications associated with arteriovenous fistula and grafts (2) 5. Assesses and uses central venous access for extracorporeal treatments (2) 6. Identifies, prevents and or manages complications associated with central venous dialysis catheters (2) 7. Describes perioperative care of vascular access for extracorporeal therapies (2) 	<ol style="list-style-type: none"> 1. Intervenes to protect vascular access from potential complications (2) 2. Initiates and monitors pre-emptive interventions and screening to prevent or reduce vascular access complications (2) 3. Provides support and education to patients, whanau and healthcare providers for complex vascular access issues (2,3) 4. Assesses, monitors and cannulates complex vascular access (2) 5. Diagnoses actual or potential vascular access complications (2)
	<p>Anticoagulation Patient outcome: Safe use of anticoagulation during treatment to prevent blood loss.</p>	<ol style="list-style-type: none"> 1. Administers routine anticoagulation during extracorporeal treatment (2) 2. Monitors and manages clotting and/or bleeding during extracorporeal therapies (2) 	<ol style="list-style-type: none"> 1. Describes complex anticoagulation regimens and identifies when and why they would each be used (2)

Aspect of Care	Patient Outcome	Specialty Level Nurse NZNKSF (NCNZ Domain)	Specialist Level Nurse NZNKSF (NCNZ Domain)
Peritoneal Dialysis (PD)	<p>Assessment, planning and treatment. Patient outcome: The patient will receive a safe, effective and appropriate PD treatment.</p>	<ol style="list-style-type: none"> 1. Describes the anatomy of the peritoneal membrane and explains how it functions as a dialysis membrane (2) 2. Describes the differences and indications for the various types of PD fluid (2) 3. Describes the different modes of PD therapy (2) 4. Describes and manages common complications associated with PD (2) 5. Performs and documents regular patient assessment to identify the patient's current health status with specific regard to fluid balance and metabolic/biochemical function (2) 6. Interprets assessment findings and reports to appropriate person if outside the expected range or if unsure about interpretation (2) 7. Performs peritoneal dialysis procedures safely and effectively (2) 8. Monitors patient and PD fluid for signs of complications (2) 9. Performs specialised interventions or procedures to treat or prevent PD complications 10. Uses assessment data to identify aspects of treatment that need adjustment to improve future outcomes and refers appropriately (2) 11. Assesses quality of treatment using a range of evidence-based quality indicators (2,4) 	<ol style="list-style-type: none"> 1. Assesses needs of complex patients requiring PD therapies (2) 2. Provides a timely and comprehensive clinical assessment of patient fluid status (2,4) 3. Monitors and adjusts PD treatment parameters according to on-going patient assessment to prevent/treat complications, or to improve treatment outcome (2,4) 4. Request laboratory tests and diagnostic studies to assess PD treatment adequacy in collaboration with the MDT (2,4) 5. Sets and audits key indicators of good quality PD treatments and compares to best practice guidelines (2,4) 6. Identifies researchable PD therapy practice issues (4) 7. Leads on-going evaluation of patients and groups of patients to ensure adequacy of PD treatments (2,4) 8. Safely and effectively manages more complex, unpredictable, or less common PD complications (2,4) 9. Acts as a consultant regarding PD for other healthcare providers (2,4) 10. Leads the development and review of PD treatment policy and procedure, maintaining currency and evidence base (2,3,4)
	<p>PD access. Patient outcome: The patient's PD access will be free of complications and will provide a flow rate adequate to achieve the dialysis prescription.</p>	<ol style="list-style-type: none"> 1. Describes perioperative care for patients with newly implanted PD catheters (2) 2. Assesses PD catheter exit site using a recognised assessment tool (2) 3. Performs appropriate catheter exit site dressing and associated care according to assessment findings (2) 4. Educates the patient on the care of their PD access (2,3) 	<ol style="list-style-type: none"> 1. Intervenes to protect PD catheter and exit site from anticipated complications (2) 2. Performs specialised procedures to assess, manage or prevent PD access complications (2) 3. Identifies and manages actual or potential PD access complications (2) 4. Initiates pre-emptive interventions to prevent or reduce PD access complications (2)

Aspect of Care	Patient Outcome	Specialty Level Nurse NZNNKSF (NCNZ Domain)	Specialist Level Nurse NZNNKSF (NCNZ Domain)
Kidney Transplantation (recipient)	<p>Pre-operative care Patient outcome: The patient will be prepared to receive a kidney transplant.</p>	<ol style="list-style-type: none"> 1. Educates about and prepares patient for the process of kidney transplant surgery (2,3) 2. Describes the therapeutic and adverse-effects and precautions of immunosuppressant medications for kidney transplantation (2) 	<ol style="list-style-type: none"> 1. Co-ordinates the MDT's pre-transplant suitability assessment process (2,3,4) 2. Develops a pre and post-transplant education plan (2,3) 3. Requests and co-ordinates tissue typing studies according to local policy (2) 4. Promotes a team approach to transplant-related ethical issues (1,2,3,4) 5. Directs and monitors pre-operative nursing care to ensure CKD and transplant-specific needs are met (2,4)
	<p>Post-operative care Patient outcome: The patient will receive a successful kidney transplant.</p>	<ol style="list-style-type: none"> 1. Explains the significance of optimal graft perfusion in the post-operative period (2) 2. Assesses and interprets fluid balance, cardiovascular, and biochemical status, and promptly reports to appropriate person if outside expected range or if unsure regarding interpretation (2) 3. Administers and monitors immunosuppressive therapy (2) 	<ol style="list-style-type: none"> 1. Initiates pre-emptive interventions in anticipation of unfamiliar, complex or unpredictable post-operative complications (2) 2. Accurately assesses and interprets sudden, complex or unpredictable changes in post-operative patient condition and intervenes appropriately (2) 3. Collaborates and co-ordinates MDT and community services to optimise patient's transition to self-care after discharge (2,4) 4. Co-ordinates post-operative education plan to prepare patient for self-management (2,4)
	<p>On-going monitoring and support. Patient outcome: The patient will be supported to achieve optimal self-management following kidney transplantation.</p>	<ol style="list-style-type: none"> 1. Educates patients about self-management following kidney transplantation, including medications, complications and psychological adjustment and importance of regular follow up with nephrology MDT (2,3) 	<ol style="list-style-type: none"> 1. Monitors for and identifies complications related to kidney transplantation and intervenes appropriately (2) 2. Develops a plan in collaboration with the patient to address knowledge deficits, concerns and barriers regarding self-management following kidney transplantation (2,3) 3. Manages transplant monitoring regimens for groups of patients, over a range of time (2) 4. Sets and audits key indicators of good quality kidney transplant care and compares to best practice guidelines (2,4) 5. Identifies researchable transplantation practice issues 6. Leads the development and review of kidney transplantation policy and procedure, maintaining currency and evidence base. (2,3,4)

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5. Appendix – Glossary and Abbreviations

CKD	Chronic Kidney Disease																		
	<table border="1"> <thead> <tr> <th>GFR (mL per minute per 1.73 m²)</th> <th>Stage</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>≥ 90</td> <td>1</td> <td>Kidney damage with normal kidney function</td> </tr> <tr> <td>60 to 89</td> <td>2</td> <td>Kidney damage with mildly decreased kidney function</td> </tr> <tr> <td>30 to 59</td> <td>3</td> <td>Moderately decreased kidney function</td> </tr> <tr> <td>15 to 29</td> <td>4</td> <td>Severely decreased kidney function</td> </tr> <tr> <td>< 15 (or dialysis)</td> <td>5</td> <td>End stage kidney failure</td> </tr> </tbody> </table> <p style="text-align: right; font-size: small;">(Kidney Health New Zealand, 2009).</p>	GFR (mL per minute per 1.73 m ²)	Stage	Description	≥ 90	1	Kidney damage with normal kidney function	60 to 89	2	Kidney damage with mildly decreased kidney function	30 to 59	3	Moderately decreased kidney function	15 to 29	4	Severely decreased kidney function	< 15 (or dialysis)	5	End stage kidney failure
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ESKD	End Stage Kidney Disease																		
Extra-corporeal therapies	A group of procedures in which blood is taken from a patient's circulation for wastes and excess water removal before it is returned to the circulation. Examples include haemodialysis, haemodiafiltration and haemofiltration																		
MDT	Multi-disciplinary Team																		
NAG	Nursing Advisory Group																		
NCNZ	Nursing Council of New Zealand																		
NEN	Nephrology Educators Network																		
Nephrology specialist nurse	Nurses who have specialised in nephrology nursing, caring for patients with increasingly complex, unpredictable specialised nephrology care needs; provide expert support to other members of the healthcare team in managing nephrology patients; lead nephrology nursing practice and service development																		
Nephrology specialty nurse	Nurses who work within a nephrology specialty practice setting, providing routine, non-complex care for patients with specialised nephrology care needs																		
NRAB	National Renal Advisory Board																		
NZNNKSF	New Zealand Nephrology Nursing Knowledge and Skills Framework																		
PD	Peritoneal dialysis																		
PDRP	Professional Development and Recognition Programme																		
RRT	Renal replacement therapies. Encompasses life-supporting treatments for kidney failure, including extracorporeal therapies, peritoneal dialysis, and kidney transplantation																		
RSA	Renal Society of Australasia																		
Self care	Personal health maintenance. Activities of an individual, family or community, with the intention of improving or restoring health, or treating or preventing disease																		
Self management	Interventions, training, and skills by which patients with CKD can effectively take care of themselves and learn how to do so																		

ISBN 978-0-473-23999-2 (PDF)