



NURSING: ADULT AND PAEDIATRIC

2.1 ADULTS

Registered and non-registered nurses

Renal nursing involves a wide range of activities which support patients throughout their various care pathways, providing continuity during their journey with chronic kidney disease. A nurse is often the key link professional for a patient to the system of care provided by the multi-professional team. The role involves patient and carer education, support and advocacy. In addition, nurses require clinical skills and competencies to care for people with kidney disease at different stages of their illness from diagnosis to death. The clinical role of the nurse will vary depending on the level at which they trained, either as a registered or non-registered practitioner. Optimal staffing in hospitals is fundamental for safe and high-quality patient care and has been an area of increased focus in helping to improve quality of care and the working environment for staff.

Nursing workload and the ability to provide quality care is influenced by many variables including patient acuity and dependency. Other issues are also known to influence nursing workload more locally, including:

- The clinical model;
- The labour market;
- Staff capacity and capability, seniority and confidence;
- Organisational factors; i.e. support roles, support external to the ward, ward layout and senior sister/charge nurse supervisory time and leadership capability (Shelford Group, Safer Nursing Care Tool).¹

As a health service we are constantly revising and developing the roles of nurses in response to patient and service need. To address the workforce gap, new routes into nursing are being introduced. This includes use of the apprenticeship levy to train nursing associates and in some areas this funding may be used to further develop nursing graduates and advanced care practitioners. The apprenticeship levy is a UK tax on employers, which can only be used to fund apprenticeship training. Trusts will pay a percentage of the total pay bill into the levy 'pot' and then draw down this funding for apprenticeship training. To provide apprenticeship training and be able to access levy funding the Trust has to be a registered training provider. Registered trusts can be found on the Government Register of Approved Training Providers register (ROATP).²

It is important that these new frameworks provide good quality education and skills development so people can have lifelong nursing careers. Within the renal setting we struggle to recruit ready-trained renal nurses. In order to address this we need to think of career pathways to creatively develop our workforce utilising resources available, such as in-house education programmes and apprenticeship funding. A strategic vision of skills, competency-based practice, flexible careers and a holistic approach to patient care is required.

Nursing roles in kidney care

The complex nursing needs of people with kidney disease has led to the development of numerous specialist nursing roles which are well established and embedded in renal nursing and include: advanced kidney care, dialysis access, anaemia management, and transplantation. Titles can vary as can job descriptions and banding of posts depending on the skill set required. The needs and expectations of people with kidney disease and local demographics are constantly changing. Implementation of competency-based frameworks for education and development for registered and unregistered nurses can help meet such needs and expectations.

The levels of practice at which such nurses deliver care will vary depending on local workforce structures and, to a degree, funding. In relation to the career framework, a specialist practitioner will have a critical understanding of detailed theoretical and practical knowledge, have specialist and/or have management and leadership responsibilities. They must demonstrate initiative and be creative in finding solutions to problems. They may have some responsibility for team performance and service development and they consistently undertake self-development. This definition lends itself to roles in areas such as anaemia management, dialysis access, advanced kidney care, bone management and aspects of transplantation.

The advance practitioner role **interfaces** between different fields and is likely to have a wider remit than the specialist practitioner who may focus on a **single** aspect of kidney care. There is often confusion between advanced practice and specialist nurse roles, but the focus should be on level of practice not job titles. The skills required to practice at an advanced level are guided by the multi-professional framework for advanced clinical practice in England (Health Education England) and include four pillars: clinical practice; leadership and management; education, and research.³

The consultant practitioner requires highly specialised knowledge, some of which is at the forefront of knowledge in a field of work, which they use as the basis for original thinking and/or research. They are leaders with considerable responsibility, and the ability to research and analyse complex processes. They have responsibility for service improvement or development. They may have considerable clinical and/or management responsibilities, be accountable for service delivery or have a leading education or commissioning role.

Organ donation and transplantation

Organ donation and transplantation is a rapidly changing landscape, which continues to increase in complexity and diversity. The implementation of the 2008 'Organ Donation Taskforce' (ODTF) recommendations and delivery of the UK 2020 Strategies for Organ Donation and Transplantation has led to a 98% increase in deceased organ donors.⁴ In the past 10 years, there has been a 67% increase in deceased donors, an overall increase of 33% in kidney transplantation and a 31% fall in the kidney transplant waiting list.⁵ The UK is a world leader in donation after circulatory death (DCD) and, in more recent years, there has also been an increase in donation after brain death.⁶ Although living donation has plateaued in recent years, it still accounts for 28% of kidney transplant activity and benefits more than 1,000 patients every year in the UK. The UK Living Kidney Sharing Scheme (UKLKSS) is the largest scheme in Europe and continues to expand. More than 1,000 patients have been transplanted through the scheme since 2007, significantly reducing the need for antibody incompatible transplantation. With the addition of non-directed altruistic kidney donors into the UKLKSS, the scheme has been effective in transplanting long-waiting patients with Black and Asian ethnicity, as well as immunologically complex recipients.⁶

As in all aspects of kidney care, nurses are embedded in every part of the organ donation to transplantation pathway and play a vital role in both donor care, living and deceased, and recipient care. Services are commissioned by different providers and roles and responsibilities may vary depending upon the clinical setting and model of care delivery. The diversity of job titles and roles, particularly in transplantation, reflects this.

Models of Care

NHS Blood and Transplant (NHSBT) is commissioned to deliver deceased organ donation retrieval, whilst living kidney donation is commissioned by the health Departments in each UK country and by NHS England as part of the transplantation pathway.

There are currently 23 adult kidney transplant centres across the UK each providing transplantation services, and most receive referrals from one or more non-transplanting centres. Preparation and follow-up of living donors and recipients is shared between 'linked' transplant and referring nephrology units within a 'transplant hub and non-transplanting spoke' model of care.

Deceased Organ Donation

The UK model for deceased organ donation is based upon a whole hospital approach to promote and maximise each donation opportunity. In each Trust/Board teams of Specialist Nurses in Organ Donation (SNODS) work collaboratively with Clinical Leads in Organ Donation (CLODS, senior intensive care doctors) and the Trust Organ Donation Committee.

The nursing workforce, employed directly by NHSBT, is organised into regional teams, each team varies in geographical size, the number of hospitals within each region and the donation potential and the workforce is distributed accordingly.

The current workforce comprises SNODs, team managers and regional managers, each of whom is responsible for two geographical regions.

The service is also supported by UK-wide lead nurse posts that provide leadership and support, including diversity and paediatric donation, plus a professional development team that is responsible for all specialist nurse training and education. The National Organ Retrieval Service (NORS) was established in 2010⁷ and NHSBT have introduced new nursing roles to support this, employing experts to meet the training and development needs of the new and existing workforce, oversee workforce transformation and provide appropriate professional leadership.

Living Kidney Donation

Living donor coordinators (LDCs) are employed within individual Trusts to co-ordinate donor evaluation and oversee continuity of care throughout the pathway.⁷ In 2019, every transplant centre and non-transplanting referring centre had at least one nurse supporting living donor kidney transplantation. In 2014 (updated 2015), NHSBT developed

an LDC workforce planner taking into account the key variables that impact on the role to provide an objective measure of workforce requirements by centre/unit for living donor kidney transplantation. It provides an objective measure of LDC workforce requirements.⁸

Recipient Co-ordinator

Recipient co-ordinators' responsibilities include maintaining transplant waiting lists, recipient preparation for transplantation and recipient post-transplant follow-up. To date, a bespoke workforce calculator has not been produced to assess workforce requirements, however, the LDC workforce calculator could be adapted for this purpose.

Post-transplant Nursing

Models of care vary from completely nurse-led to collaborative MPT-style and workforce requirements must be adjusted accordingly. As with other specialist nurse roles within kidney care there are no specific tools available to calculate care requirements or optimum nursing levels in the out-patient environment. A workforce calculator, similar to the LDC tool, would be helpful to support future developments. However patient self-reported outcomes measures (PREM, PROM) and Getting It Right First Time (GIRFT) may be helpful to influence future workforce development.

Looking ahead

The current strategies for organ donation and transplantation ended in March 2020 and a new UK strategy has been launched, combining both deceased and living donor transplantation and aiming to close the gap between supply of organs available for transplant and the demand for transplantation. Sustainability is at the heart of the next strategy; new ways of working and objective measures of workforce requirements, which accurately reflect centre differences in case-mix, size and complexity of programmes, are needed to underpin service delivery.

Table 2 (at the end of this section, on page 15) shows a suggested workforce and career framework using the non-medical clinical career framework produced by Skills for Health to describe levels of competence and provide a consistent language for each role.⁹

Safer care and patient acuity tools

Nursing workload and the ability to provide good care is influenced by many variables including patient acuity and dependency and other issues including quality indicators and professional judgement (Figure 1) as identified in the Nursing Staffing Levels (Wales) Act (2016).¹⁰

FIGURE 1. ACUITY AND DEPENDENCY



It is recognised that the acuity level of patients in both inpatient and outpatient areas has increased in recent years, and most projections suggest this trend will continue. Renal Registry data show an increase in prevalence and age of the dialysis population, which will inevitably have a significant impact on staffing levels both in terms of absolute numbers and skill mix of nursing staff.¹¹ Tools for measuring patient acuity levels in inpatient areas are well developed and validated. The Safer Nursing Care Tool developed by the Shelford Group is recommended for use within NHS inpatient areas and we would recommend the use of that tool in assessing acuity levels in renal ward areas (Table 1). This tool uses a multiplier based on levels of care and care requirements.¹

TABLE 1. SHELFORD SAFER NURSING CARE TOOL.

Levels of Care	Descriptor
<p>Level 0 (Multiplier = 0.99*) Patient requires hospitalisation. Needs met by provision of normal ward cares</p>	<p>Care requirements may include the following:</p> <ul style="list-style-type: none"> • Elective medical or surgical admission • May have underlying medical condition requiring on-going treatment • Patients awaiting discharge • Post-operative/post-procedure care - observations recorded half hourly initially then 4-hourly • Regular observations 2-4 hourly • Early Warning Score is within normal threshold • Electrocardiogram (ECG) monitoring • Fluid management • Oxygen therapy less than 35% • Patient-controlled analgesia • Nerve block • Single chest drain • Confused patients not at risk • Patients requiring assistance with some activities of daily living, require the assistance of one person to mobilise, or experiences occasional incontinence
<p>Level 1a (Multiplier = 1.39*) Acutely ill patients requiring intervention or those who are UNSTABLE with a GREATER POTENTIAL to deteriorate.</p>	<p>Care requirements may include the following:</p> <ul style="list-style-type: none"> • Increased level of observations and therapeutic interventions • Early Warning Score - trigger point reached and requiring escalation • Post-operative care following complex surgery • Emergency admissions requiring immediate therapeutic intervention • Instability requiring continual observation/invasive monitoring • Oxygen therapy greater than 35% +/- chest physiotherapy 2-6 hourly • Arterial blood gas analysis – intermittent • Post 24 hours following insertion of tracheostomy, central lines, epidural or multiple chest or extra ventricular drains • Severe infection or sepsis
<p>Level 1b (Multiplier = 1.72*) Patients who are in a STABLE condition but are dependent on nursing care to meet most or all of the activities of daily living</p>	<p>Care requirements may include the following:</p> <ul style="list-style-type: none"> • Complex wound management requiring more than one nurse or takes more than one hour to complete • Vacuum assisted closure (VAC) therapy where ward-based nurses undertake the treatment • Patients with spinal instability/spinal cord injury • Mobility or repositioning difficulties requiring the assistance of two people • Complex intravenous drug regimens (including those requiring prolonged preparatory/administration/post-administration care) • Patient and/or carers requiring enhanced psychological support due to poor disease prognosis or clinical outcome • Patients on End of Life Care Pathway • Confused patients who are at risk or requiring constant supervision • Requires assistance with most or all activities of daily living • Potential for self-harm and requires constant observation • Facilitating a complex discharge where this is the responsibility of the ward-based nurse
<p>Level 2 (Multiplier = 1.97*) May be managed within clearly identified, designated beds, resources with the required expertise and staffing level OR may require transfer to a dedicated Level 2 facility/unit</p>	<p>Care requirements may include the following:</p> <ul style="list-style-type: none"> • Deteriorating/compromised single organ system • Post-operative optimisation (pre-op invasive monitoring)/extended post-op care • Patients requiring non-invasive ventilation/respiratory support; continuous positive airway pressure (CPAP)/Bilevel Positive Airway Pressure (BiPAP) in acute respiratory failure • First 24 hours following tracheostomy insertion <p>Requires a range of therapeutic interventions including:</p> <ul style="list-style-type: none"> • Greater than 50% oxygen continuously • Continuous cardiac monitoring and invasive pressure monitoring • Drug infusions requiring more intensive monitoring e.g. vasoactive drugs (amiodarone, inotropes, Glyceryl trinitrate [GTN]) or potassium, magnesium • Pain management intrathecal analgesia • Central nervous system (CNS) depression of airway and protective reflexes • Invasive neurological monitoring
<p>Level 3 (Multiplier = 5.96*) Patients needing advanced respiratory support and/or therapeutic support of multiple organs</p>	<p>Care requirements may include the following:</p> <ul style="list-style-type: none"> • Monitoring and supportive therapy for compromised/collapse of two or more organs/ systems • Respiratory or central nervous system (CNS) depression/compromise requires mechanical/invasive ventilation • Invasive monitoring, vasoactive drugs, treatment of hypovolaemia/sepsis or neuro-protection

The safer care model uses a multiplier allied to acuity and dependency measurements to calculate numbers of whole time equivalent for inpatient care as seen in Figure 2.

FIGURE 2. NUMBERS OF WHOLE TIME EQUIVALENT FOR INPATIENT CARE CALCULATED USING THE SAFER CARE MODEL

Level 0	0.99* WTE nurse per bed
Level 1a	1.39* WTE nurse per bed
Level 1b	1.72* WTE nurse per bed
Level 2	1.97* WTE nurse per bed
Level 3	5.96* WTE nurse per bed
* this includes a 22% uplift for annual leave, study leave etc.	
For example, if a 28-bedded ward has 12 patients at Level 0, 7 patients at Level 1a, 8 patients at Level 1b, and 1 patient at Level 2, a total of 37.34 WTE nursing staff would be required.	
Sum	
12 patients at Level 0	= 0.99 x 12 = 11.88
7 patients at Level 1a	= 1.39 x 7 = 9.73
8 patients at Level 1b	= 1.72 x 8 = 13.76
1 patient at Level 2	= 1.97 x 1 = 1.97
Total	= 37.34 WTE

This number is a baseline against which to set nurse staffing levels. Two 28-bedded wards may have different activity. One may have few admissions, discharges or ward attenders, whereas another may have many. Professional judgement is required to ensure that establishments are adjusted appropriately under these circumstances.

Nurse Sensitive Indicators¹² can also be used to ascertain the impact of acuity, dependency and activity on quality outcomes. These are quality indicators that can be linked to nurse staffing issues, including leadership, establishment levels, skill-mix and training and development of staff. Such information can be used to further support ward staffing requirements identified through acuity and dependency measurement.

Data collected by the Renal Registry and Kidney Care UK patient reported outcome measures (PROMS) and patient reported experience measures (PREMS) surveys and the GIRFT peer reviews highlight areas of exemplar practices and areas requiring improvement.¹³ These resources can be powerful in influencing future workforce development.

The National Institute for Health and Care Excellence (NICE) also have safe staffing guidelines for adult inpatient wards in acute hospitals which can reasonably be applied in renal inpatient areas.¹⁴

Finally, the NHS in Wales have mandatory safe staffing levels under the auspice of the Nurse Staffing Levels (Wales) Act 2016 which should be applied to all areas in Wales but may also provide guidance in other areas of the United Kingdom and it is possible that similar legislation may be passed for the NHS in England and/or Northern Ireland.¹⁵

Acuity tools for haemodialysis areas are less well developed, and the inpatient tools available do not tend to suit these areas very well. We believe that work still needs doing to test and validate tools for use in dialysis areas, although a Renal Dialysis Patient Dependency Classification Instrument (RDPDC) has been introduced and validated in the Republic of Ireland which does provide a useful tool for assessment of patient acuity levels in haemodialysis areas (Appendix I).¹⁶ Appendix II gives an example of how the Shelford acuity tool has been adapted for haemodialysis (Courtesy of Kent Kidney Care Centre).

Skill mix decisions rely on consideration of the levels of experience and competency of nursing staff within areas and this should be supported by renal-specific nurse education and professional development programmes including the use of nursing competencies, such as those developed by Skills for Health.⁹

Haemodialysis nursing requires the skills and competencies to manage both the technical aspect of the haemodialysis process and the holistic care of patients receiving this form of renal replacement therapy. The majority of patients wish to dialyse close to their homes often in satellite dialysis, such that the staffing levels and skill mix should reflect the patient case mix and the changing workforce. The staffing ratios and skill mix should be assessed locally in relation to both case mix and patient dependency/acuity and recruitment and retention in line with the national agenda for workforce planning and development.

Peritoneal dialysis (PD) nursing also requires the skills and competencies to manage both the technical aspect of the peritoneal dialysis process and the holistic care of patients receiving this form of renal replacement therapy. The National PD Forum have identified many ways of working for PD nurses from providing a standalone PD service, to those combined with Home therapies, or pre-dialysis. The way in which the services are designed will impact on the skills competencies and levels of practice within the workforce. Currently there are no specific acuity tools available that have been validated for use in this area.

2.2 PAEDIATRICS

There are 13 paediatric nephrology centres in the UK of which 10 provide renal transplantation. The model of service delivery provided by each centre varies across the country due to the geographical area cover, the number of hospitals from which the tertiary centre receives referrals and the populations served. Many children live long distances from their tertiary renal centre and, where appropriate, care is delivered by local services.¹⁷

Paediatric renal nursing is becoming increasingly complex due to parental expectations and the increased numbers of patients with co-morbidities opting for renal replacement therapies extending from neonates to adolescents and young people. There are now more renal units in the UK that have the resources and medical expertise to offer this choice. There is also the added dimension of growth and development and supporting the family and extended family which adds another layer of complexity in healthcare delivery. The Royal College of Nursing attempted to define staffing levels for children and young people's services in specialist children's wards and departments, however there was no direct reference to how this could be interpreted in an inpatient renal unit, or for haemodialysis and specialist paediatric renal nursing roles.¹⁸ Many tertiary centres will cohabit their ward with other specialties creating challenges when trying to decipher staffing levels and skill mix. Appendix II gives an example of an adapted Safer Nursing Care Tool¹ for Paediatric Haemodialysis. Figure 3 an example of inpatient staffing levels and Figure 4 specialist nurse caseload.

There are varying configurations of children's in-patient renal services and therefore some units are required to offer an on-call renal nursing service to offer dialysis or specialist advice outside of working hours. Staffing levels will be dependent on the on-call time period covered by the renal nursing team in each unit.

FIGURE 3. NURSE STAFFING REQUIREMENTS FOR CHILDREN'S INPATIENT RENAL SERVICES

Treatment	Staff Ratio
General paediatric nephrology beds	1:3 to 1:4
High dependency nephrology beds	1:1 to 1:2
Immediate post-operative care of transplants	1:1 (for 48 hours for > 5 year olds; for 72 hours for < 5 year olds)

FIGURE 4. CASELOAD MANAGEMENT FOR SPECIALIST PAEDIATRIC RENAL NURSES

Patient Group	Caseload Ratios
Home peritoneal dialysis	1:10
Home Haemodialysis	1:10
Pre-transplant	1:50
Transplantation	1:100
Nephrotic Nurse	1:300

Advanced practice

The increasing number of children with End-Stage Kidney Disease has led to an ideal environment for the advanced practice roles to help meet the capacity, demand and complex needs of patients. Advanced practice roles encompass aspects of education, research and management but are grounded in direct care provision.¹⁹ These advanced roles can help paediatric renal centres to bridge the gap between nursing and medical care, ultimately improving patient experience and care.

Education and training

Education and the maintenance of competence in paediatric renal nursing is imperative for safe and sustainable care. Consequently, a practice educator is required to ensure nursing staff working in specialist areas undertake continuing education to maintain high standards.¹⁸ Paediatric nephrology wards and dialysis units should ideally be managed on a day-to-day basis by a registered children's nurse with a university-accredited specialist paediatric renal nursing course.

Transition

Increasing numbers of children with chronic kidney disease are now surviving into adult life. It is recognised that there are substantial risks of non-adherence at the time of transfer from paediatric to adult care and amongst young people.²⁰ The Care Quality Commission highlighted the need for a key accountable individual responsible for supporting their move to adult health services.²¹ A dedicated paediatric renal transition nurse may be of benefit for larger renal centres.

Specialist paediatric renal nurses

Specialist paediatric renal nursing care varies from completely nurse-led to collaborative MPT-style and workforce requirements must be adjusted accordingly. In some units, the specialist nurse will manage a caseload of a combination of dialysis modalities, i.e. PD, HD and HHD. There are no specific tools available to calculate care requirements or optimum nursing levels in the outpatient environment. Again, patient self-reported outcomes measures (PREM, PROM) and GIRFT may be helpful to influence future workforce development.

TABLE 2. SKILLS FOR HEALTH CAREER FRAMEWORK FOR ADULT AND PAEDIATRIC NURSING

Level	Explanation	Career Level	Descriptor	Examples in practice
8	<ul style="list-style-type: none"> Require highly specialised knowledge, some of which is at the forefront of knowledge in a field of work Leaders with considerable responsibility, and the ability to research and analyse complex processes Have responsibility for service improvement or development May have considerable clinical and/or management responsibilities, be accountable for service delivery or have a leading education or commissioning role 	<ul style="list-style-type: none"> Consultant practitioner Independent practitioner MSc/PhD - Service development, lead educator and clinical supervisor 	<p>Job plan structured around 4 domains:</p> <ul style="list-style-type: none"> Expert practice (as below for advanced clinical practitioner) Professional leadership and consultancy Education, training and development Practice and service development, research and evaluation <p>Works independently within Trust/organisation and professional guidelines Accountable for own practice and patient care</p>	<ul style="list-style-type: none"> Chronic kidney disease Inpatient/day care Transplantation Ward care – inpatient/day care Peritoneal dialysis In centre haemodialysis (acute or chronic, satellite) Combined home therapies Research
7	<ul style="list-style-type: none"> Have a critical awareness of knowledge issues in the field and at the interface between different fields They are innovative and have a responsibility for developing and changing practice and/or services in a complex and unpredictable environment 	<ul style="list-style-type: none"> Advanced clinical practitioner Independent practitioner MSc - continually learning and facilitating learning for others 	<ul style="list-style-type: none"> Advanced patient assessment Independently prescribing treatments and medicines Patient pathway planning and implementation Refer and discharge patients Works independently within trust and professional guidelines Accountable for own practice and patient care 	<ul style="list-style-type: none"> Chronic kidney disease Advanced kidney care Transplantation Inpatient/day care Peritoneal dialysis Combined home therapies In centre haemodialysis (acute or chronic, satellite) Community CKD link/education Research
6	<ul style="list-style-type: none"> Require a critical understanding of detailed theoretical and practical knowledge Specialists and/or have management and leadership responsibilities Demonstrate initiative and are creative in finding solutions to problems Some responsibility for team performance and service development and they consistently undertake self-development 	<ul style="list-style-type: none"> Specialist/senior practitioner Works within a defined scope of practice Specialist/post graduate studies 	<ul style="list-style-type: none"> Specialist knowledge and skills in defined area May prescribe medicines Required to make judgments based on theoretical and practical knowledge Accountable for own practice and patient care 	<ul style="list-style-type: none"> Chronic kidney disease Advanced kidney care Transplantation Peritoneal dialysis Home haemodialysis management and training Dialysis access Anaemia management Bone management Research
5	<ul style="list-style-type: none"> Have a comprehensive, specialised, factual and theoretical knowledge within a field of work and an awareness of the boundaries of that knowledge Can use knowledge to solve problems creatively, make judgments which require analysis and interpretation, and actively contribute to service and self-development. May have responsibility for supervision of staff or training 	<ul style="list-style-type: none"> Practitioner/registered practitioner Degree studies 	<ul style="list-style-type: none"> Professional registration and continuous professional development (CPD) Comprehensive specialised, factual and theoretical knowledge Required to make judgments and recognise own boundaries of knowledge Accountable for own practice and patient care 	<ul style="list-style-type: none"> Chronic kidney disease Advanced kidney care Transplantation Peritoneal dialysis Home haemodialysis Inpatient ward Day care Outpatient areas
4	<ul style="list-style-type: none"> Require factual and theoretical knowledge in broad contexts within a field of work. Work is guided by standard operating procedures, protocols or systems of work, but the worker makes judgements, plans activities, contributes to service development and demonstrates self-development May have responsibility for supervision of some staff 	<ul style="list-style-type: none"> Associate Guidance and supervision available when needed Foundation degree studies 	<p>Associate practitioner:</p> <ul style="list-style-type: none"> Knowledge of facts, processes, principles and concepts within specified field of work Knowledge of facts, processes, principles and general concepts within nursing Carries out clinical/technical work to established protocols and procedures Responsible for personal development Accountable to registered practitioner in area of work 	<ul style="list-style-type: none"> Ward care – inpatient/day care Outpatient care Peritoneal dialysis Home therapies Haemodialysis (with additional training and assessment in intravenous administration of drugs)
3	<ul style="list-style-type: none"> Require knowledge of facts, principles, processes and general concepts in a field of work May carry out a wider range of duties than the person working at level 2, and will have more responsibility, with guidance and supervision available when needed Contribute to service development and are responsible for self-development 	<ul style="list-style-type: none"> Support worker Directly supervised A Level/NVQ/apprenticeship 	<ul style="list-style-type: none"> Responsible for personal development Works to established protocols and procedures Accountable to registered practitioner in area of work 	<ul style="list-style-type: none"> Ward care – inpatient/day care Outpatient care Peritoneal dialysis Haemodialysis

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The authors of this chapter wish to acknowledge the contributions of:

Marissa Dainton
Breeda McManus
Sarah Owen
Jo Van Ree
Helen Watts

APPENDIX I - IRISH HEALTH SERVICE EXECUTIVE RENAL DIALYSIS PATIENT DEPENDENCY CLASSIFICATION INSTRUMENT



1. Age	Score
18-64	1
65-74	2
75 +	3

2. Co-morbidity	Score
Intervention not required	0
Intervention required -1	3
Intervention required -2	6
Intervention required -3	9
Intervention required -4	12

3. Physical	Score
Nutrition	
Self Care	1
Requires minimal assistance at mealtime	2
Requires significant assistance at mealtime	3
Mobilisation	
Requires no assistance	0
Requires assistance at intervals	2
Requires assistance with walking	3
Depends on carers for mobilisation	4
Waterlow	
Not at risk	0
10+ at risk	1
15+ high risk	2
20+ very high risk	3
Wound care	
No wound	0
Simple wound	2
Vascular access site requiring intervention (infected)	3
Complex wound	4
Vital signs - requirement for intervention	
Hourly assessment & recording	1
30 minute interval assessment and recording	2
15 minute interval assessment and recording	3
15 minute or more frequent interval assessment, recording requiring interventions	4
Contenance	
Continent	0
Urinary incontinence	1
Faecal incontinence (including ileostomy/colostomy requiring care)	2
Total	

Hospital details

Patient details

Nurse Assessor: _____
Date: _____

4. Psycho-social	Score
Orientation	
Orientated	0
Occasional forgetfulness / requires re-orientation	1
Disorientated to time and place. Requires re-orientation regularly	3
Confused / disorientated requiring constant supervision	6
Behaviour	
Relaxed, no behavioural problems/challenges	0
Restless / irritable at times	2
Challenging - Verbal or physical	3
Un-predictable challenging, requiring intervention	4
Communication	
No communication challenges (verbal & non-verbal)	0
Some difficulty understanding what is said	1
Often unresponsive to verbal commands, interaction and suggestions	2
Lack of comprehension / understanding	3
Language	
Fluent in English	0
Difficulty with English	1
Social support	
Good social support	0
Poor support	4
Total	

Sections	Score
1. Age	
2. Co-morbidity	
3. Physical	
4. Psycho-social	
5. Dialysis	
Total score	

Additional category	Language
Requires interpreter	High Care - 3

Patient dependency category	Score	
Standard care	0-12	1
Intermediate care	13-18	2
High care	19+	3

5. Dialysis	Score
Access	
Good functioning CVC, includes standard access site dressing	1
Poor functioning CVC < 300ml/min	2
Good functioning AVF/AVG	2
Poor functioning AVF/AVG < 350 mls/min	3
Poor functioning AVF/AVG < 350 mls/min multiple interventions	6
Poor functioning CVC multiple interventions	6
Stability on dialysis	
Stable on dialysis	0
Decrease in B/P. Min intervention. Full recovery	1
Decrease in B/P + muscle cramps. Min intervention. Full recovery	2
Recurring episodes of decrease BP +/- Some recovery. Monitoring required	4
Decrease BP +/- no recovery. Requiring treatment stop. Monitoring + investigation	5
Renal Diet Adherence	
No referrals to dietetics for dietary non-compliance	0
Occasional referral to dietetics	4
Fluid restriction adherence	
Intradialytic fluid gain typically < 1.5 litres	0
Intradialytic fluid gain typically 1.5-2 litres	1
Intradialytic fluid gain typically 2-2.5 litres	2
Intradialytic fluid gain typically 2.5-3.5 litres	2
Intradialytic fluid gain typically > 3.5 litres	5
Medication regime adherence	
Awareness and demonstrates adherence and/or knowledge of routine medications	1
May need occasional educational input to improve knowledge and/or adherence	2
On regular basis demonstrates a lack of knowledge and/or adherence (at each routine check)	3
On going issues with knowledge deficits and/or adherence with routine medications	4
Total	

APPENDIX II - EXAMPLE OF ADAPTED SAFER NURSING CARE TOOL FOR ADULT HAEMODIALYSIS

Levels of care	Inclusion criteria	Care required	Staffing ratio
<p>Level 0 Patients whose needs can be met through normal haemodialysis care</p>	<ul style="list-style-type: none"> Chronic, stable HD patient May have other co-morbidity: diabetes, COPD, hypertension, stable ischaemic heart disease, focal deficit/Neuromuscular disease, chronic pain Pre-operative patient requiring haemodialysis No HD access problems On-going assessment of dry weight Self-care patients Patients requiring 1 person assistance with some ADL or experiences occasional incontinence DNA patient requiring follow-up appointments 	<ul style="list-style-type: none"> Routine HD assessment & observations incl. fluid assessment, blood sugar monitoring Monthly bloods Intravenous iron administration Erythropoietin administration Health advice and promotion of self-care Routine antibiotic treatment (incl. level monitoring) INR screening for Warfarin prescription Routine referral to MPT Rearrangements of haemodialysis appointment, hospital transport etc. 	<p>1:4</p>
<p>Level 1 Patients – appropriately managed on a dialysis unit but requires or more than baseline resources</p>	<p>Level 1A Increased acuity patients have become acutely ill requiring intervention Those who are unstable with a greater potential to deteriorate</p> <ul style="list-style-type: none"> Acute exacerbation of existing medical condition and/or deteriorating while on dialysis At risk of frequent hypotensive episodes Post-operative/invasive investigation incl. post parathyroidectomy At risk of bleeding Requires blood transfusions Symptomatic fluid overload requiring regular monitoring Sepsis Unstable patient being dialysed in isolation 	<ul style="list-style-type: none"> ½ hourly observation Frequent blood testing and monitoring Blood transfusion Sepsis, on vancomycin and/or gentamicin Oxygen therapy requiring oxygen saturation monitoring Sliding scale of insulin Monitoring actual clotting times Requiring urgent consultation from medical team and/or arranging transport 	<p>1:3</p>
<p>Level 1B Increased dependence – Patients who are in a stable condition but have an increased dependence on nursing support</p>	<ul style="list-style-type: none"> HD access problems requiring intervention: on-going needle repositioning (AVF/AVG); poor line flows Clotting blood circuits during HD First dialysis and assessment Patient with prolonged bleeding time from AVF/AVG requiring intervention Reduced mobility – requires 2 staff assistance with ADL or repositioning Patient known to be violent and aggressive Confused patient Patients requiring mental health intervention Isolated patient 	<ul style="list-style-type: none"> Frequent nursing intervention due to access problems Frequent intervention to resolve clotted blood circuits Thrombolytic lock post HD Intervention required for prolonged bleeding time e.g. Applying extended pressure to access ≥ 15 minutes Two person assistance with ADL due to reduced mobility Intervention required for psychological or psychiatric problems Isolation procedure Complicated referrals to MPT 	<p>1:3</p>
<p>Level 2 Patients who are unstable and at risk or deteriorating with uncorrected major physiological abnormalities whose needs cannot be met through normal haemodialysis care</p>	<ul style="list-style-type: none"> New acute dialysis patient ≤ 10 days on dialysis Patients with acute kidney injury Patients requires plasma exchange/filtration Patients requires ‘on call’ dialysis 	<ul style="list-style-type: none"> Haemodynamic instability Continual observation ¼ to ½ hourly observations Requiring vasoactive drug infusion Requiring non-invasive ventilation/respiratory support – CPAP/BiPAP in acute respiratory failure Care of chest tube, tracheostomy, epidural or PCA Continuous cardiac monitoring and invasive pressure monitoring 	<p>1:2</p>
<p>Level 3 Patients needing advanced respiratory support and/or therapeutic support of multiple organs</p>	<ul style="list-style-type: none"> Patients requiring dialysis in ITU Patients transferred from ITU with unstable cardiac condition, who are haemorrhaging or respiratory instability Patients requiring dialysis in an ITU environment/requiring ventilation 	<ul style="list-style-type: none"> Respiratory or CNS depression/compromise requires mechanical/ invasive ventilation Invasive monitoring 	<p>1:1</p>

ADL, activities of daily living; AVF, arteriovenous fistula; AVG, arteriovenous graft; BiPAP, bilevel positive airway pressure; CNS, central nervous system; COPD, chronic obstructive pulmonary disease; CPAP, continuous positive airway pressure; DNA, did not attend; HD, haemodialysis; INR, international normalised ratio; ITU, intensive therapy unit; MPT, multi-professional team; PCA, patient controlled analgesia.

APPENDIX III - EXAMPLE OF ADAPTED SAFER NURSING CARE TOOL FOR PAEDIATRIC HAEMODIALYSIS

Levels of care	Inclusion criteria	Care required	Staffing ratio
<p>Level 1 Patients whose needs can be met through basic haemodialysis care</p>	<ul style="list-style-type: none"> Chronic, stable HD patient No HD access problems Pre-operative patient requiring HD Ongoing assessment of dry weight Competent self-care patients Over 5 years of age 	<ul style="list-style-type: none"> Routine HD assessment & observations including fluid assessment Hourly observations Monthly bloods Intravenous iron administration Erythropoietin administration Routine chronic renal failure medication administration INR screening for Warfarin prescription Health advice and promotion of self-care Routine referral to MPT Rearrangements of HD appointment, hospital transport etc. 	1:3
<p>Level 2 Patients appropriately managed on a dialysis unit but requires more than baseline resources</p>	<ul style="list-style-type: none"> First dialysis session and assessment Under 5 years of age with a carer At risk of frequent hypotensive episodes Post-operative At risk of bleeding Requires blood transfusions Unstable patient being dialysed in isolation Challenging ultrafiltration Challenging behaviour Needle phobias with AVF cannulation Tracheostomy and/or chronic ventilation cared for by additional carer/parent Complex medical conditions e.g. MMA HD access problems requiring intervention Patient with bleeding over needle sites and/or prolonged bleeding time requiring intervention 	<ul style="list-style-type: none"> Half hourly observation Frequent blood testing and monitoring Blood transfusion Albumin infusions/primers IV antibiotic treatment (incl. level monitoring) Frequent nursing intervention with dialysis vascular access Frequent referral to psychosocial team and/or escalation using acceptable behaviour policy Intervention required for bleeding around needle sites during the HD session and/or prolonged bleeding time at needle removal from AVF e.g. Applying extended pressure to access ≥ 20 minutes 	1:2
<p>Level 3 Increased dependence - patients who are acutely unwell or have a greater potential to deteriorate on a HD unit</p>	<ul style="list-style-type: none"> Acutely unwell e.g. sepsis; pulmonary oedema, hypertension, AKI Acute behavioural issues, aggression, confusion Under 6kg Tracheostomy and/or chronic ventilation cared for by nursing staff Extracorporeal therapies i.e. LDL apheresis, IA, DFPP 	<ul style="list-style-type: none"> Intervention required for psychological or psychiatric problems Continuous cardiac monitoring Single needle dialysis due to patient weight Blood circuit prime Albumin infusions Frequent/urgent medical reviews in a deteriorating child – e.g. sepsis Frequent fluid assessment due to UF discrepancy on machine in low weight children 	<p>1:1 *</p> <p>* In patients who are unstable it may be necessary to provide additional nursing support at ratio of 2:1 Most haemodialysis units are not staffed to manage unstable patients and may need staffing support</p>
<p>Level 4 Patients in intensive care who require RRT</p>	<ul style="list-style-type: none"> AKI due to multi-organ failure or other medical complication** Known renal patient on PICU 	<ul style="list-style-type: none"> CRRT from intensive care team due to instability of patient Some renal teams will provide dialysis and apheresis to PICU environments Renal team may choose to provide dialysis in children with AVF's to preserve vascular access 	<p>2:1</p> <p>**many patients requiring CRRT on PICU are not referred to renal team due to transient nature of condition</p>

AKI, acute kidney injury; AV, arteriovenous fistula; CRRT, continuous renal replacement therapy; DFPP, Double Filtration Plasmapheresis; HD, haemodialysis; IA, intra-arterial; INR, international normalised ratio; LDL, low density lipoprotein; MPT, multi-professional team; MMA, Methylmalonic Acidemia; PICU, paediatric intensive care; UF, ultrafiltration.