UKKA
UK Kidney Association

# A Multi-Professional Workforce Plan for Adults and Children with Kidney Disease

Updated in 2025 by the Professional Groups affiliated with the UK Kidney Association

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# CONTRIBUTORS

## Dietitians (Kidney Dietitian Specialist Group; Paediatric Renal Interest Nutrition Group; PRING) of the British Dietetic Association



**Fiona Graham**
**Bruno Mafrici**
**Sue Perry**

## Renal Technologists (Association of Renal Technologists; ART)

**Roger Moore**

## Nursing (Association of Nephrology Nurses UK; ANN UK)








**Karen Jenkins**

**Vicky Ashworth**
**Sandra Cruickshank**
**Michaela Dicks**
**Jennifer McDermott**
**Carol Rhodes**
**Helen Spooner**
**Helen Watts**

## Paediatric Nephrology Nurses Group (PNNG)


**Roy Connell**
**Robyn Parker**
**Lynsey Stronach**

## Adult and Paediatric Renal Pharmacists (UK Renal Pharmacy Group; UK RPG and Neonatal and Paediatric Pharmacists Group; NPPG)

**Rachel Crampton**
**Andrea Devaney**
**Andrew Wignell**

## Psychosocial Practitioners: Psychologists (Clinical, Counselling Health), Counsellors, Psychotherapists and Social Workers







**Rachel Barkman-Astles**
**Amanda Bevin**
**Rosalind Cooper**
**Emma Coyne**
**Margaret Eyre**
**Amanda Logan**
**Janette Moran**
**Sophie Velleman**

## Therapies: Physiotherapy, Occupational Therapy and Clinical Exercise Physiology










**Hannah Young**

**Lisa Ancliffe**
**Hannah Beckwith**
**Roseanne Billany**
**Ellen Castle**
**Matthew Graham-Brown**
**Sharlene Greenwood**
**Pelly Koufaki**
**Gemma Miller**
**Vicky Pursey**
**Zoe Saynor**
**Andrew Scott**
**Tom Wilkinson**

## Wellbeing, Research & Future Recommendations


**Hannah Beckwith**
**Matt Graham-Brown**

# Affiliates of the UK Kidney Association

BDA Kidney Dietitian Specialist Group

BDA Paediatric Specialist Group

PAWR Physical Activity, Wellbeing & Rehabilitation

The Association of Renal Technologists

UK Association of Nephrology Nurses

PNNG Paediatric Nephrology Nurses Group

**Transplant Society Nurses**

NPPG Neonatal & Paediatric Pharmacy Group

UKRPG UK Renal Pharmacy Group

**Renal Physicians Group**

BAPN British Association for Paediatric Nephrology

Psychology Network

RENAL SOCIAL WORK GROUP

KPT Kidney Psychological Therapists

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# Executive Summary

The Renal Getting It Right First Time (GIRFT) report and the NHSE Renal Services Transformation Programme (RSTP) provide both standards for care for people with kidney disease and the tools required to deliver this care.

However, to deliver on the aspirations of GIRFT and RSTP requires a clear workforce plan. All system leaders should be aware of the intense pressures on kidney healthcare professionals through a sustained rise in the number of adults and children being diagnosed with and treated for kidney disease. Furthermore, the complexity of care has increased and requires additional and specialist clinical skills and support across all care settings. Finally, there are major shortages in many services for the core workforce required to deliver care to patients with kidney disease. Ensuring the right staff numbers, with the right skills, in the right place, at the right time is challenging.

To provide clarity on the workforce requirements for renal service the recommendations in this report are based on the complex needs of people living with kidney disease, and the associated skills required to deliver specialist care. An efficient and effective kidney service requires integrated, multi-professional and multi-agency working. The recommendations provide guidance on the workforce requirements needed to care for adults and children living with kidney disease.

High-quality care and efficient use of resources throughout the patient journey from diagnosis to end of life requires a whole-systems, holistic approach. Patients require support and specialist care from a whole range of healthcare professionals including primary care practitioners. Involving people living with kidney disease, and those supporting them, is of paramount importance to the planning and delivery of their care. The delivery of kidney care should be in partnership with well-informed people who are empowered to play a central role in how their condition is managed. To achieve this requires a workforce with appropriate skills, knowledge, competencies and resources.

The roles and responsibilities of the professions that comprise the renal workforce are outlined in this document. The information collated reflects current workforce skills, competencies, recognised acuity tools, career frameworks, and innovative ways of working that can provide a basis for high-quality kidney care across the UK.

This document is intended to be used in conjunction with other current and future national workforce planning guidance to inform commissioners and providers of healthcare, in recognition of the diverse range of healthcare needs and systems that span the UK. The recommendations for workforce within the document are based upon the best available evidence. It is a 'living document' which will be reviewed and updated accordingly on a two-year cycle, to reflect innovations in practice, research and the changing demographic of the UK population.

On behalf of the UK Kidney Association, we would like to thank Karen Jenkins and Hannah Young for their leadership on this and all those who volunteered their time to contribute to this document.

**Clare Morlidge**
President
UK Kidney Association

**Paul Cockwell**
Past-President
UK Kidney Association

# Introduction

The multi-professional groups who contributed to the 2020 document have reviewed and revised their workforce planning recommendations.[4]

Each group recognises that different models of team working exist in practice and that there is a need to consider local demographics, equity of access to services and continuous quality improvement. Banding of posts and job descriptions varies nationally. It is the decision of each trust/service provider to locally determine the model of care and skill mix that is most appropriate for the delivery of high-quality kidney care. Therefore, this document reflects skill mix requirements and levels of practice, rather than absolute recommendations for job banding or staff-to-patient ratios.

The purpose of this document is to provide a robust workforce plan for kidney care to support the implementation of national workforce planning directives. It is intended to be of value to:

- Organisations involved in the development and management of kidney services based upon patient pathways including primary care trusts; care commissioning groups (CCG), specialist commissioning, secondary and tertiary care providers, the re-emerging kidney networks and commercial companies providing renal services;
- The Kidney Quality Improvement Partnership (KQIP)
- Sustainability and transformation planning;
- Applicable national guidelines groups/national standards
- People living with kidney disease, and those who support them
- Organisations that support people living with kidney disease.

This document should be considered alongside other national guidance, including The Renal Service Transformation Programme[4,10], National Institute for Health and Care Excellence (NICE) guidance;[5] the NHS Long Term Plan;[6] Renal Clinical Reference Group (CRG) recommendations; Renal service specifications,[7] Renal Getting It Right First Time (GIRFT),[7] Kidney Health Delivering Excellence ambitions.[9]

The ability to utilise data from the UK Renal Registry, particularly patient-reported experience measures (PREMs) and patient-reported outcome measures (PROMs) may lead to innovative service design and delivery, including the creation of new posts.

This is a 'living document' which will be reviewed and updated accordingly on a three-yearly cycle, to reflect innovations in practice, research, and the changing demographic of the UK population.

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## Abbreviations

ACEi – Angiotensin-converting enzyme inhibitors

ADL – Activities of daily living

AfC – Agenda for Change

AKCC – Acute Kidney Care Clinic

AKI – Acute kidney injury

ART – Association of Renal Technologists

AVF – Arteriovenous Fistula

AVG – Arteriovenous graft

ANN UK - Association of Nephrology Nurses UK

BACPR – British Association for Cardiovascular Prevention and Rehabilitation

BAPN – British Association for Paediatric Nephrology

BASES – British Association of Sport and Exercise Sciences

BASW – British Association of Social Workers

BDA – British Dietetic Association

BiPAP – Bilevel positive airway pressure

BMI – Body mass index

BRS – British Renal Society

BRS-RN – British Renal Society Rehabilitation Network

BTS – British Transplantation Society

CCG – Care Commissioning Group

CCT – Certificate of Completion of Training

CEP – Clinical Exercise Physiologist

CEP-UK – Clinical Exercise Physiology UK

CF – Cystic Fibrosis

CKD – Chronic Kidney Disease

CKD-MBD – Chronic Kidney Disease Mineral Bone Disease

CLODS – Clinical Leads in Organ Donation

CNS – Central nervous system

COPD – Chronic Obstructive Pulmonary Disease

CPAP – Continuous positive airway pressure

CPD – Continuing professional development

CRG – Clinical reference group

CKRT – Continuous kidney replacement therapy

CYP-CKD – Children and Young People with CKD

DCD - Donation after circulatory death

DFPP – Double Filtration Plasmapheresis

DHI – Digital Health Intervention

DNA – Did not attend

EBME – Electrical and biomedical engineering

ECG – Electrocardiogram

eGFR – Estimated glomerular filtration rate

EPR – Electronic prescribing systems

ESCA – Essential shared care agreement

ESKD – End stage kidney disease

GIM – General Internal Medicine

GIRFT – Getting It Right First Time

GNVQ – General National Vocational Qualification

GP – General Practitioner

GTN – Glyceryl trinitrate

HCPC – Health and Care Professions Council

HCP – Health Care Professionals

HD – Haemodialysis

HHD – Home haemodialysis

H&I – Histocompatibility and Immunogenetics

HIV – Human Immunodeficiency Virus

IA – Intra-arterial

IAPT – Improving Access to Psychological Therapies

INR – International normalised ratio

IR – Interventional Radiologist

ITU – Intensive Therapy Unit

## Abbreviations

IV – Intravenous

KDOQI – Kidney Disease Outcomes Quality Initiative

KQIP – The Kidney Quality Improvement Partnership

KRT – Kidney Replacement Therapy

LDC – Living donor coordinators

LDL – Low-density lipoprotein

MELAS – Mitochondrial Encephalopathy, Lactic Acidosis, and Stroke-like episodes

MMA – Methylmalonic Acidemia

MPT – Multi-Professional Team

NHS – National Health Service

NHSBT – National Health Service Blood and Transplant

NHSI – National Health Service Improvement

NICE – The National Institute for Health and Care Excellence

NPPG – Neonatal and Paediatric Pharmacist Group

NORS – National Organ Retrieval Service

NTNC – Non-training non-consultant

ODTF – Organ Donation Taskforce

ONS – Office for National Statistics

OOPE/R/T – Out of Programme for Experience, Research or Training

PA – Programmed activities

PCA – Patient controlled analgesia

PD – Peritoneal dialysis

PICU – Paediatric Intensive Care Unit

POD – Patients own drugs

PMP – Per million population

PNNG - Paediatric Nephrology Nurses Group

PREMS – Patient reported experience measures

PRiNG – Paediatric Renal interest Nutrition Group

PROMS – Patient reported outcome measures

PSA – Professional Standards Authority

QALY – Quality Adjusted Life Year

QI – Quality improvement

RA – Renal Association

RCPCH – Royal College of Paediatrics and Child Health

RCCP - Registration Council for Clinical Physiologists

RDPDC – Renal Dialysis Patient Dependency Classification

RNG – Renal Nutrition Group

ROATP – Register of Approved Training Providers

RPG – Renal Pharmacy Group

RPS – Royal Pharmaceutical Society

RPT – Renal Psychological Therapists

RSPWC – Royal Stoke Pharmacy Workforce Calculator

SIG – Special Interest Group

SNODS – Specialist Nurses in Organ Donation

SPIN – Special Interest training module

Tx – Transplant

UF – Ultrafiltration

UHNM – University Hospitals of North Midlands NHS Trust

UKLKSS – UK Living Kidney Sharing Scheme

UKKA – UK Kidney Association

UKRR – UK Renal Registry

VAC – vacuum assisted closure

WHO – World Health Organisation

WTE – Whole time equivalent

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# **Dietitians:** Adult and Paediatric Services

## 1.1 Adult Services

Dietary management plays a key role in the care of people living with Chronic Kidney Disease (CKD). Specialist kidney dietitians hold central responsibility for nutritional assessment and dietary therapy in the prevention and management of CKD and in more advanced stages of Acute Kidney Injury (AKI). Individualised dietary advice from specialist kidney dietitians working as an integral part of the multi-professional team (MPT) improves patient outcomes.[1,2] Dietary intervention employed in CKD relates specifically to the functions of the impaired kidneys and is therefore unique to the specialist management of this condition. Specialist kidney dietitians, with their unique knowledge and skills, are essential in all kidney services to provide optimal care to people living with CKD stage [4,5] and KRT.[6]

People living with CKD have multi-morbidities leading to complex dietary requirements which influence their nutritional status. Specialist kidney dietitians take a holistic approach, tailoring dietary advice and prioritising nutritional goals to the person's clinical, physical, social and psychological status. The specialist skills of a kidney dietitian can be found in Table 1.

**TABLE 1. ROLES OF THE SPECIALIST KIDNEY DIETITIANS.**

| Roles | Description of the role | Quality and cost effectiveness of kidney dietetic intervention |
|---|---|---|
| Roles for all settings | • Holistic patient assessment of nutritional status, fluid status, biochemistry, co-morbidities, current diet, social factors, motivation<br>• Develop, implement and monitor nutritional care plans; including salt, fluids, electrolytes, and associated symptoms<br>• Empower and educate people living with kidney disease, supporting them with self-management<br>• Education and training for staff<br>• Development of information & educational resources<br>• Service evaluation, quality improvement, audit, research<br>• Supporting a patient centred approach to improve the patient experience | • Manage under-nutrition (independent predictor of mortality) in CKD [4-5], dialysis, transplantation and AKI[3,4]<br>• Ensure regular kidney dietetic review in progressive CKD and pre-dialysis to improve nutritional status, quality of life, mortality and morbidity rates[5-8]<br>• Improved muscle mass/ nutritional status before commencing KRT<br>• Dietetic management has the potential to delay the initiation of dialysis as well as manage symptoms of patients with CKD<br>• Assess and review serum phosphate levels and recommend interventions. Use supplementary prescribing where possible/ indicated<br>• Prevention of episodes of hyperkalaemia through appropriate education to avoid hospital admission and potentially the significant associated costs<br>• Appropriate fluid and salt assessment to help reduce co-morbidities and prevent hospital admission<br>• Weight management to help reduce risk or manage comorbidities; increase suitability for transplant; reduce rejection of graft post-transplant; reduce risk of developing post transplant diabetes |
| Inpatient settings | • Assessment, treatment, and monitoring of those who are malnourished, or at risk of malnutrition, including: dietary modification, oral nutritional supplements, enteral/parenteral nutrition<br>• Work with nutrition and pharmacy teams to provide safe parenteral nutrition<br>• Provide dietary counselling to those who are newly diagnosed with CKD, new to dialysis, complex AKI or being conservatively managed[6-8]<br>• Provide dietary advice to those who have received a kidney transplant<br>• Work with the MPT to manage kidney complications including: hyperkalaemia, mineral bone disease (CKD-MBD), fluid overload and other electrolyte imbalances[10,11,12]<br>• Liaise with catering departments and nursing colleagues to ensure appropriate food provision | |
| Outpatient settings | • Prevent or delay onset of malnutrition and undesirable changes in body weight and lean body mass<br>• Assessment, treatment and monitoring of people with CKD who are at risk of malnutrition or malnourished<br>• Promote a healthy lifestyle and weight<br>• Delay the progression of CKD<br>• Provide timely dietary education to people receiving KRT<br>• Work in collaboration with other members of the MPT<br>• Support the management of: uraemia and related symptoms; salt and fluid management; hypertension, lipid abnormalities<br>• Assist the achievement of target levels of serum potassium (to avoid both hyperkalaemia and hypokalemia)<br>• Assist the achievement of target levels/trends of serum phosphate (to avoid both hyperphosphatemia and hypophosphatemia)<br>• Providing cost effective care in CKD-MBD by focusing on quality of life[10-12]<br>• Assist the achievement of optimal glycaemic control<br>• Promote regular exercise/physical activity<br>• Support self-management in people living with CKD and their family/ carers | |

## Recommended staffing levels

Table 2 shows the current estimated kidney dietetic workforce in the UK (based on a 2019 workforce survey with a 61% response rate).

**TABLE 2. THE ESTIMATED KIDNEY DIETETIC WORKFORCE FOR ADULT PATIENTS IN 2019.[6]**

| Kidney dietetic workforce | (WTE) | Percentage (%) |
|---|---|---|
| Consultant kidney dietitian (Band 8a) | 7.01 | 4 |
| Advanced kidney dietitian (Band 7) | 51.3 | 27 |
| Specialist kidney dietitian (Band 6) | 105.4 | 56 |
| Dietitian (Band 5) | 9.41 | 5 |
| Kidney dietetic assistant (Band 3) | 8.4 | 4 |
| Dietetic Assistant Practitioner (Band 4) | 5.87 | 3 |
| Dietetic Manager | 1.3 | 1 |
| Total | 188.69 | 100 |

All people with CKD stage 4-5, receiving kidney replacement therapy (KRT) and those with a declining kidney transplant function in the UK, should have access to a kidney dietitian. Individualized management of nutritional intake is a crucial aspect of care for individuals diagnosed with CKD, including those receiving maintenance dialysis and those who have received a kidney transplant.[6]

People with CKD are vulnerable for nutritional abnormalities, which are associated with higher risk for morbidity, mortality, and, if hospital admission is required, longer lengths of stay. Nutritional needs change throughout the disease course, from the earlier stages of CKD to the posttransplant period. The metabolic abnormalities and comorbid diseases that often accompany CKD further emphasize the need for specialized nutrition health care. Therefore, it is essential that such individuals receive tailored nutrition assessment and counselling[13].

Kidney dietetic business cases should consider the amount of time spent in MPT working and in additional workplace activities, such as education, training of other members of the MPT and any extended scope of clinical practice. Direct clinical care of patients should not exceed 75% of a kidney dietitian's time. Consideration should be given to appropriate use of dietetic staff skill mix to support prudent healthcare.

Advanced kidney dietetic practitioner roles within kidney practice need to be established to maximise the potential of the dietetic workforce.

A survey in 2019 showed that out of 211 kidney dietitians, 59% felt their current workload was either not safe or not ideal. A departmental survey undertaken at the same time showed that, out of 41 units, 59% of the units reported that they had safety concerns. As over half the departmental and individual respondents had some safety concerns, this should be considered when making recommendations, as current practice is not likely to reflect a 'gold standard'.

As well as time spent with individual patients, recorded as contacts, most kidney dietitians are involved in a wide range of workplace activities, many of which are not a recognised part of patient activity yet are essential in supporting patient care and enabling teams to practice safely. This includes work that is deemed to be an extended scope of practice. These additional activities should be considered in all kidney dietetic workforce and recruitment planning.

Due to difficulties with recruitment problems and high staff turnover, it is recommended that kidney rotations or attachments should be provided to enable training for short-term backfill.

When considering how many specialist kidney dietitians are required; the number of patients, their complexity, the frequency of reviews required for each patient group, and any additional specialist roles, are to be taken into account.

The British Dietetic Association (BDA) Safe Staffing and Safe Workload Guidance and NHS Improvement (NHSI) guidance on Job Planning have been used to make the recommendations in this document.[14]

On average, each specialist kidney dietitian working in clinical practice will be expected to spend approximately 75% of their time in face-to-face contact with patients, and 25% for other duties (e.g. audit, service development teaching, training).

Where there is a lack of evidence to support practice recommendations, the expert consensus of the BDA Kidney Nutrition Group (BDA RNG) has been provided. Their consensus recommendations were made by a workforce sub-group of the BDA RNG.

## Inpatient services

Dietary management by specialist kidney dietitians is an integral part of the care of people with kidney disease admitted to hospital. Kidney inpatient services usually provide access to dietetic expertise five days a week. The recommendations in Table 3 include face-to-face consultations, ward education, training, family meetings, documentation, audit, service development liaising with others (e.g. catering/pharmacy for nutritional products, enteral/parenteral nutrition) and attendance to ward rounds/MPT as relevant.[6]

We recommend that all people with a new kidney transplant be assessed and seen at least once prior to hospital discharge by a specialist kidney dietitian. Resources additional to those highlighted in Table 3 may also need to be considered (for example, a seven-day service to access kidney dietetic expertise).

**TABLE 3. RECOMMENDATIONS FOR SPECIALIST KIDNEY DIETITIANS IN THE ADULT INPATIENT SETTING [6, 15-17]**

| Setting | Recommendation WTE/ bed / year |
|---|---|
| Kidney wards (either with or without transplant) No High Dependency Unit (HDU) or Intensive Care Unit (ICU) | 0.05 - 0.06 WTE |
| Kidney HDU covered by kidney dietitian | 0.06 - 0.1 WTE |
| Kidney HDU/ITU | 0.15 WTE |

When estimating inpatient numbers consider kidney outliers and additional local requirements (for example parenteral nutrition, complexity of caseload, attendance at ward rounds, service development, local performance indicators, new patient to follow up ratio). All inpatients should be screened for nutritional risk; this may be done using a validated screening tool or triage by the kidney dietitian. For example, a kidney ward with 30 beds: 0.05 - 0.06 X 30 beds = 1.5 - 1.8 WTE.

### *Additional staffing considerations for inpatients*

- Specialist kidney dietitians may be responsible for seeing all patients with kidney disease (in many units kidney dietitians attend consultant ward rounds), or supporting other dietetic staff reviewing patients on outlying wards. Additional services may need to be considered when applying these guidelines at local level;
- Centres, where inpatients with Encapsulating Peritoneal Sclerosis are managed, may require an independent service in view of the need for higher kidney dietetic input;[18].
- Centres where specialist kidney dietitians directly manage all kidney inpatients requiring parenteral nutrition;
- Centres where specialist kidney dietitians manage all patients with AKI stage 3 requiring KRT in critical care settings.

## Outpatient settings

### *Pre-dialysis clinics*

All people with CKD stage 4-5 should have access to a dietitian specialising in kidney disease.[6]

An average of 60 minutes is required for a first dietetic appointment (this would allow for time with the patient and pre- and post-consultation work).

For people with CKD stage 4-5, if dietary intervention is agreed, this should be provided alongside education, detailed dietary assessment, and supervision to ensure malnutrition is prevented[19]. People with CKD should be seen for an initial assessment, plus at least one review to establish outcomes of dietetic intervention. Provide further review as clinically indicated (empower patients to contact the dietitian when they feel they require further input and promote self-management).

In order to deliver one CKD stage 4 or 5 clinic, with the aim to see between 6 to 10 patients (either new and review), 0.2 WTE specialist kidney dietitian will be needed when the dietitian run or attend a consultant/nurse-led clinic (this would include pre and post consultation work), Table 4.

Kidney dietitians should also be involved in the care of people who are managed conservatively. This may include symptom management and nutritional support. The time required to provide this service is difficult to quantify but should be considered within staffing requirements (Table 4)[17].

Kidney outpatient dietetic services should offer flexibility in providing an accessible service, this includes delivering evening and/or late clinics, either run as a consultant-led, MPT-led or kidney dietetic-led clinics.

Contact with people with kidney disease may include video consultations, patient education via websites, video and mobile applications as well as more traditional face-to-face or telephone consultations/group consultation where appropriate.

**TABLE 4. RECOMMENDATIONS FOR SPECIALIST KIDNEY DIETITIANS IN THE ADULT OUTPATIENTS SETTING.** [6, 18-22]

| CKD stage | Recommended frequency of kidney dietetic reviews | Referral | Time required |
|---|---|---|---|
| CKD 1-3 | As required | Referred by MPT | While CKD 1-3 should be managed in primary care, our survey showed that kidney dietitians are referred patients at this early stage of CKD. |
| CKD 4 | 3-6 months (depending on level of dietetic intervention required) | Referred by MPT<br>Self-referral by the patient<br>People with progressive CKD 4 should be seen by dietitian | 60 minutes first appointment<br>& 45 minutes review |
| CKD 5 | 1-3 months (depending on level of dietetic intervention required) | Aim to see all | |
| Active supportive care (conservative management) | 3-6 months (depending on level of dietetic intervention required) | Referral by MPT<br>Self-referral by the patient | |
| Group session | Group session<br>Telephone/video | Referral by MPT | This approach may be considered at any stage. |

## Dialysis

Recommendations for haemodialysis (HD), peritoneal dialysis (PD), and home haemodialysis (HHD), are shown in Table 5.[6]

The incidence and prevalence of people receiving dialysis are increasing and this population is more likely to be living with frailty and have more complex needs compared to the population prevalent at the time of the 2002 recommendations.[22-24]

Kidney dietetic services need to offer flexibility and provide an accessible service, including twilight shifts and working times adjusted accordingly as per local work patterns.

An average of 60 minutes is required for the first kidney dietetic appointment (this would allow for time with the patient and pre and post-consultation work). People on HD, PD and HHD should be reviewed as a minimum:

- The prioritisation and frequency of review will be decided by the specialist kidney dietitian (NHS England)[16-25]
- Once every 6 months, if clinically and nutritionally stable (min standard as per NHS England)[16-25]
- Once every 3 months or more often depending on the patient's clinical needs
- The frequency of monitoring/dietetic intervention may need to increase to monthly in a proportion of patients who have a reduced appetite, weight loss or complex electrolytes or bone biochemistry or fluid management issues.

Patients who are on assisted PD, or those known to be frail may require more frequent reviews. MPT meeting attendance is an important part of holistic care for people with CKD and must be taken into consideration when estimating workforce needs.

**TABLE 5. RECOMMENDATIONS FOR SPECIALIST KIDNEY DIETITIANS IN ADULT PATIENTS ON DIALYSIS.**[16,18,24-26]

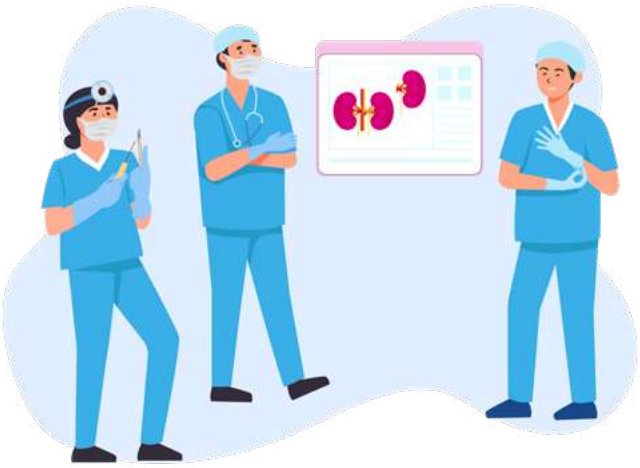
| Dialysis Modality | Average time/year/ per patient | Frequency of dietetic review | Average time for first appointment |
|---|---|---|---|
| HD including satellite units | 6-8 hours | Review min 6 monthly | New: aim to see within the first 4 weeks of starting<br>Average time first appointment: 30-60 mins |
| PD | 4hrs | Review min 6 monthly | |
| HHD | 4hrs | Review min 6 monthly | |

For example, in a HD unit with 140 patients (100 stable patients and 40 new patients)/year: (6-8 hours x 100 patients) + (1 hour x 40 new patients) = 640-840 hours per year (average = 740 hours/year).

Each specialist kidney dietitian will spend ~ 75% of their time in direct clinical patient care and 25% in additional workplace activities. Take into consideration 20% absence for annual leave/ sickness/study. Hours available would be 37.5 x 52 x (75/100) x (80/100) =1170 hours; 740 /1170 = 0.63 WTE specialist kidney dietitian.

## Kidney Transplantation

- People waiting for a kidney transplant (pre-transplant) should have access to a kidney dietitian according to their clinical needs (group education, seen in clinic and/or dialysis), Table 3 and Table 4.[6]
- People waiting for a kidney transplant with a BMI over 35kgm$^2$ should be provided advice including healthy eating and exercise.
- All new kidney transplant recipients should be seen by a kidney dietitian prior to discharge or at their earlier outpatient clinic.
- People with existing transplants should be seen according to clinical needs as identified by the MPT and ideally they should have an annual kidney dietetic review.



- People with a kidney transplant, whose kidney function is declining should have the same access to a kidney dietitian as those with CKD 4-5 (Table 4).

## Young people and transition services

Specialist kidney dietitians should be involved in the care of young people and transition services. The time required to provide this service is difficult to quantify and dependent on the stage of CKD but should be considered within staffing requirements. Children who transition to adult services will require more dietetic input (i.e. artificially fed) for the first 3-6 months of transition (for example two hours in the first month; one hour in the first six months).[6]

## MPT Attendance, CKD- MBD and kidney diabetes services

- Kidney dietitians form an integral part of the kidney multi-professional team (MPT). Provision for the time taken for this activity should be included in kidney dietetic business cases.
- Kidney dietitians should play an integral role in the management of CKD-MBD. A supplementary prescribing qualification is desirable for kidney dietitians undertaking this enhanced role.
- Kidney dietitians are important members of the kidney multi-professional team (MPT) kidney diabetes services. Business cases should therefore include for provision of dietetic care within these services.

## Career pathway guide

The 2019 BDA RNG workforce survey demonstrated the majority (93%) of the UK kidney dietetic workforce is formed of qualified roles and registered with the Health and Care Professions Council (HCPC) with a validated qualification as a registered dietitian.[6]

Registered kidney dietitians operate across levels 5-8 of the Skills for Health Career Framework (Table 7 at the end of this section, on page 7).[27] It is recommended that dietitians new to the specialty attend the UK Renal Nutrition Group post-registration course. Since April 2017, specialist kidney dietitians can train to become supplementary prescribers, managing the prescription of phosphate binders to support the MPT.

## 1.2 PAEDIATRIC SERVICES

Children with CKD stages 2 to 5, AKI, nephrotic syndromes, kidney tubular disorders and many other rare kidney disorders require the support of an experienced paediatric dietitian with specialist expertise in a range of childhood diseases affecting the kidney.

Nutrition is a cornerstone in kidney care management; it facilitates control of symptoms and blood biochemistry, delays progression of CKD and improves growth and mortality outcomes.[28-30]

The need to preserve growth, as well as treat the underlying kidney disease, results in complex dietary management, involving: the prescription of specialised feeds; care planning and monitoring; and maintenance of quality standards of nutritional care individualised for each child.[28]

Specialist paediatric kidney dietitians have the skills to plan and implement complex nutritional care plans based on an assessment of several factors which affect nutritional status, namely blood biochemistry, anaemia, fluid shifts, kidney replacement modality, symptoms, medications, family understanding, cooking skills, readiness to change and psychosocial functioning.[31]

Published dietary recommendations are evidence-based or are best-practice clinical guidelines that consider the phases of growth throughout childhood alongside variation in kidney function.[2,10, 32, 33]

Nutrition is the primary driver of growth in the first two years of life and the provision of optimal nutrition is one of the biggest challenges.[28, 30] This can be highly complex in this patient group and the correct interpretation of guidelines by an experienced specialist kidney dietitian is crucial to ensure safe practice.

Psychosocial and cultural factors have a significant influence on the way children with kidney diseases are managed, therefore a wider team approach is necessary to provide individualised support for children and their families. The paediatric kidney dietitian liaises with families, the kidney multi-professional team, the child's local hospital team, health visitors, other community healthcare staff, school staff/catering teams and general practitioners to involve them in dietary education and the delivery of treatment plans.

Specialist training takes investment and time and should be supported by a competency-based training package (as devised by Paediatric Renal interest Nutrition Group [PRiNG]) to provide training within each hospital region that has a specialist paediatric kidney unit. This is essential to ensure that every child has equitable access to dietetic expertise and quality care, irrespective of where they live.[34]

Figures 1-4 outline the aims, clinical management areas, roles and components of a paediatric kidney dietetic service.

**FIGURE 1. AIMS OF DIETETIC MANAGEMENT OF CKD**

- Optimise growth
- Optimise blood biochemistry
- Delay progression of disease
- Prevent nutritional deficiencies
- Reduce morbidity & mortality
- Support the child & family

**FIGURE 2. CLINICAL MANAGEMENT AREAS/TREATMENT STAGES**

- Acute presentation
- Supportive (dietetic) management of CKD to prevent deterioration
- Promotion of self-management
- Dialysis
- Transplantation
- Nephrotic syndromes, kidney tubular disorders and many other rare paediatric kidney disorders

**FIGURE 3. CLINICAL ROLES IN ASSESSMENT, MONITORING AND EDUCATION**

- Assessment of nutritional status and growth, with ongoing growth monitoring (weight, length/height, Body Mass Index [BMI], handgrip and mid upper arm circumference, occipital frontal circumference) throughout childhood
- Interpretation of complex blood biochemistry
- Identification of nutritional deficiency and excess
- Prevention of malnutrition (over and under nutrition)
- Nutritional support
- Electrolyte and fluid disturbances
- Mineral and bone disorder management
- Management of dietary related co-morbidities
- Dietary manipulations and allowances

**FIGURE 4. COMPONENTS OF KIDNEY DIETETIC SERVICE**

**Face-to-face patient activities**

- Individualised patient-centred care plans
- Specialised feed recipes and regimens
- Strategies to support adherence to diet and treatment interventions
- Ongoing monitoring plans

**Liaison**

- Catering services (both hospital and educational establishments)
- Multi-professional team including acute, community and respite care
- Networking with international, national and regional paediatric kidney dietitians and multi-professional teams

**Participation**

- Guideline development and expert panels
- Audit, quality improvement and research
- MPT working, clinical and non-clinical activities
- Duties to support and promote the specialty and profession e.g. members of professional bodies/ committee members of PRiNG/KQIP/British Association for Paediatric Nephrology (BAPN)

**Education**

- International, national and regional dietitians, paediatricians and nephrology specialists
- In-centre, all MPT staff (dietitians, doctors, nurses, play specialists, health care assistants, housekeepers)
- Supporting local hospitals
- Students

## Proposed staffing levels

The establishment of paediatric kidney dietitians necessary for the safe running of a kidney unit should take into account the number and complexity of patients; it is not relevant to simply compare staffing levels with those of other allied health professionals.

Considering CKD alone, the 2011 document 'Improving the standard of care of children with chronic kidney disease through paediatric nephrology networks' states that dietetics should be funded at 2.0 WTE for 3.5 million total population if the patient care is shared. Currently, the 2011 recommendation is not being met and nationally provision is inequitable. However, there is a risk that specific workforce recommendations based purely on population size do not take into account changes in prevalence, clinical complexities, age of population, kidney treatment modalities and their corresponding individual time-requirements for dietetic care.[34] The 2011 BAPN standard also does not take into account staffing levels needed to treat other childhood kidney diseases.

The International Paediatric Nutrition Renal-Taskforce supports the recommended minimum contact frequency for children with CKD suggested by Kidney Disease Outcomes Quality Initiative (KDOQI) and Coleman et al.[10,35] as outlined in Table 6.

**TABLE 6. RECOMMENDED MINIMUM CONTACT FREQUENCY FOR CHILDREN WITH CKD**

| Dietetic Contacts | CKD 2-3 | CKD 4-5 | CKD 5D |
|---|---|---|---|
| 0-6 months of age | 3 months | 1 month | weekly |
| 6-12 months of age | 3 months | 1 month | 1 month |
| Age 1 year and older | 1 year | 3 months | monthly |

"Contacts" includes in person, phone or secure digital communication

## Career pathway guide

Dietitians must be registered with the HCPC and have a validated qualification as a dietitian. There are no specific qualifications required to become a kidney paediatric dietitian. The title is reserved for those who have experience working with children with a range of paediatric kidney diseases.

The PRiNG (Paediatric Renal interest Nutrition Group) has developed a national competency-driven training package, and this should be undertaken by all dietitians starting a career in paediatric kidney dietetics. Introductory training can be gained from the University of Plymouth Masters module 'Clinical Dietetics for Infants and Children'; Module 3/ADV743. Kidney dietetics comprises approximately twenty percent of the syllabus. In addition, many tertiary kidney paediatric centres host their own kidney dietetic training packages.

Lead kidney paediatric dietitians at specialist centres should be at least a highly specialised paediatric dietitian (equivalent to level 7 in skills for health) and where there is more than one dietitian in post in a specialist centre it is recommended that there is a network and/or leadership role (clinical and/or academic) at a higher level (equivalent to level 8 in skills for health).

The NHS Skills for Health Career Framework[27] needs to be considered to standardise quality and level of practice for specialist healthcare professionals (see Table 7).

## TABLE 7. SKILLS FOR HEALTH CAREER FRAMEWORK FOR REGISTERED AND NON-REGISTERED ADULT AND PAEDIATRIC DIETETIC PRACTITIONERS

| Level | Explanation | Examples |
|---|---|---|
| **1** | • Require highly specialised knowledge, some of which is at the forefront of knowledge in a field of work<br>• Leaders with considerable responsibility, and the ability to research and analyse complex processes<br>• Have responsibility for service improvement or development<br>• May have considerable clinical and/or management responsibilities, be accountable for service delivery or have a leading education or commissioning role | **Consultant dietitian**<br>• Advance kidney dietetic practising at a senior level<br>• Leading research, service development, improvement and education<br>• Teaching at national and international level<br>• Directing and contributing to kidney dietetic service policy and commissioning |
| **7** | • Have a critical awareness of knowledge issues in the field and at the interface between different fields<br>• They are innovative and have a responsibility for developing and changing practice and/or services in a complex and unpredictable environment | **Manager/Lead kidney dietitian**<br>Highly specialised<br>• Assessment, management and treatment of adults and children with CKD (including rare paediatric kidney disorders for paediatric dietitians)<br>• Skills in behaviour change techniques<br>• Significant contribution to research, service delivery and management; leading and managing a team<br>Advanced practitioner or highly specialist kidney dietitian<br>In addition to level 6 skills<br>• Responsibility for service evaluation and development (e.g. supplementary prescribing)<br>• Specialist kidney dietetic assessment and treatment skills including behaviour change techniques<br>• Advise, guide and teach assistant, junior and less experienced staff |
| **6** | • Require a critical understanding of detailed theoretical and practical knowledge<br>• Specialists and/or have management and leadership responsibilities<br>• Demonstrate initiative and are creative in finding solutions to problems<br>• Some responsibility for team performance and service development and they consistently undertake self-development | **Specialist kidney dietitian**<br>Usually have a minimum of two years' experience as a registered dietitian<br>Able to:<br>Manage the dietary needs of a complex range of patients<br>Complete kidney dietetic assessments and treatment<br>Assist in audit and service development<br>Advise, guide and teach assistant, and junior staff<br>May require assistance for more complex patient management |

| Level | Explanation | Examples |
|---|---|---|
| **5** | • Have a comprehensive, specialised, factual and theoretical knowledge within a field of work and an awareness of the boundaries of that knowledge<br>• 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 | **Kidney dietitian**<br>Work within narrow areas of practice and specific tasks under close supervision from specialist kidney dietitians Able to:<br>Complete kidney dietetic assessments, care plan development and monitoring for straightforward adults and children with CKD and AKI<br>Advise, guide and teach assistants and students<br>Assist in audit and service development<br>Requires assistance for more complex patient management |
| **4** | • 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<br>• May have responsibility for supervision of some staff | **Experienced dietetic technician/assistant**<br>Able to:<br>• Undertake tasks delegated by the kidney dietitian but may have some independence (e.g. in addition to level 3 roles, they may be able to amend oral nutritional supplements in accordance with specific protocols)<br>• Complete basic dietetic reviews and collect limited basic dietetic information<br>• Contribute to audit, data collection and service development<br>In addition, an experienced paediatric dietetic technician/dietetic assistant is able to:<br>• Prepare and teach home feeding recipes to families<br>• Develop kidney specific recipes<br>• Order special meals utilising a good understanding of kidney biochemistry |
| **3** | • Require knowledge of facts, principles, processes and general concepts in a field of work<br>• 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<br>• Contribute to service development and are responsible for self-development | **Dietetic assistant**<br>Able to undertake tasks delegated by the kidney dietitian, following an assessment of competency, including:<br>• Completing basic assessment with supervision<br>• Liaising and booking more complex patients in with a kidney dietitian<br>• Completing routine anthropometric measurements<br>• Recording biochemistry results in dietetic records<br>• Administration<br>• In addition, a paediatric dietetic assistant/diet support worker is able to:<br>• Support with setting up home enteral tube feeding<br>• Contact GP for prescription requests for feeds |

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02

# **Nursing:** Adult and Paediatric

## 2.1 Adults

The Association of Nephrology Nurses (ANN UK) and the Paediatric Nephrology Nurses Group (PNNG) have worked collaboratively to update this section of the document.

It is recognised that there is historically a wide variety of roles and nomenclature within renal nursing consisting of both registered nurses and unregistered care givers. There is continued work to design a validated workforce assessment tool. The guidance in this section is therefore not exhaustive and will be updated as this work progresses.

Updates have been made but are not conclusive and further data will be added as evidence and resources become available.

## Adult Renal Nursing

***Registered nurses and non-registered healthcare staff***

Renal nursing involves a wide range of activities which support patients throughout various aspects of their care, 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 wider multi-professional team. The role involves patient and carer education, support and advocacy. In addition, nurses require clinical skills, specialist knowledge 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 are trained, either as a registered practitioner or health care support worker. 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, frailty, social burden, language barriers 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]
- Location of services in terms of locality, estate geography and local demographics

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, national on-line renal courses 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: Early CKD, Advanced kidney care, Dialysis access, Anaemia management, Transplantation, research participation and delivery. Titles can vary as can job descriptions and banding of posts depending on the skill set required. In addition, levels of practice, job descriptions and job plans vary and salary points are not always equitable across the UK. The needs and expectations of people with kidney disease and local demographics are constantly changing, with an increased frailty burden and predicted increase in people with CKD and those reaching ESKD in the next decade. It is essential that value for money is delivered when designing workforce and allocated establishment funds may vary between services The levels of practice at which such nurses deliver care will vary depending on local workforce structures and, to a degree, funding.

The Health Education England NHS career framework[3], highlights levels of practice from 1-9, 9 being the most senior level, See Table 1.

Each level details skills required and levels of responsibility, illustrates career opportunities, supports career movement and demonstrates career progression based on skills and competencies.
The Career Framework levels can be different to the NHS pay bands which describes how staff will work and how much they will be paid. Most roles above level 5 on the Careers Framework are subject to regulation and membership of a professional body.

In relation to nursing roles within kidney care definition of the role of a specialist lends itself to roles in areas such as anaemia management, dialysis access, advanced kidney care, bone management and aspects of transplantation.

An 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.[4]
Further work undertaken by Health Education England in 2019[5] demonstrates the workforce emerging into seven areas or levels of practice which overlap.

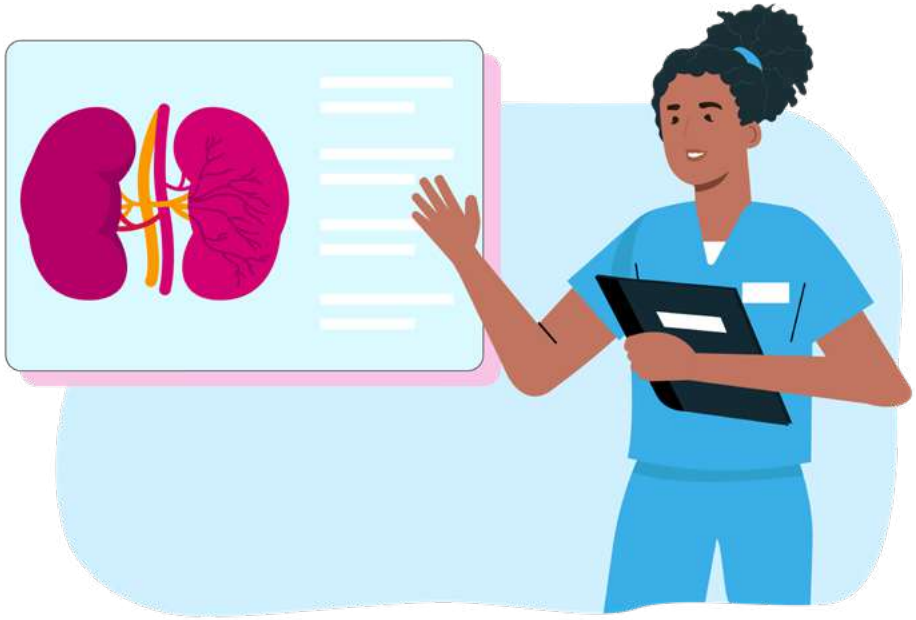


**Table 1 HEE NHS Career Framework Levels of Practice**

| Level 1 | Level 2 | Level 3 |
|---|---|---|
| Entry level<br>Require basic general knowledge<br>Undertake limited number of straightforward tasks under direct supervision<br><br>e.g. *Cadet* | Require basic factual knowledge of field work<br>Carry out clinical, technical. Scientific or admin duties according to protocol/ procedures<br><br>e.g. *support worker* | Knowledge of facts, principles, processes & general concepts in a field of work.<br>May carry out wider range of duties than those working at level 2<br>Have more responsibility, with guidance and supervision available when needed.<br>Contribute to service development, Responsible for self-development<br>e.g. *Senior HCA/technician* |
| **Level 4** | **Level 5** | **Level 6** |
| Factual and theoretical knowledge in broad contexts within a field of work.<br>Work 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.<br>May have responsibility for supervision of some staff.<br><br>e.g. *Associate Practitioner* | Comprehensive, specialised, factual and theoretical knowledge within a field of work<br>Awareness of the boundaries of that knowledge.<br>Able to use knowledge to solve problems creatively, make judgements which require analysis and interpretation, and actively contribute to service and self-development<br>May have responsibility for supervision of staff or training<br><br>e.g. *Practitioner* | Critical understanding of detailed theoretical and practical knowledge, are specialist and / or have management and leadership responsibilities.<br>Demonstrate initiative and are creative in finding solutions to problems<br>Some responsibility for team performance and service development and they consistently undertake self-development<br><br>e.g. *Specialist/Senior Practitioner* |
| **Level 7** | **Level 8** | **Level 9** |
| Critical awareness of knowledge issues in the field and at the interface between different fields<br>Innovative, and have a responsibility for developing and changing practice and/ or services in a complex and unpredictable environment.<br><br>e.g. *Advanced Practitioner* | Highly specialised knowledge, some of which is at the forefront of knowledge of work, which they use as the basis for original thinking and/or research.<br>Leaders with considerable responsibility, and the ability to research and analyse complex processes. Responsibility for service improvement or development.<br>May have considerable clinical and/or management responsibilities, be accountable for service delivery or have a leading education or commissioning role.<br><br>e.g. *Consultant* | Require knowledge at the most advanced frontier of the field of work and at the interface between fields.<br>Have responsibility for the development and delivery of a service to a population, at the highest level of the organisation<br><br>e.g. *Director* |

**Table 2 HEE Emerging levels of practice**

| Supportive | Associate/assistant | Novice | Intermediate |
|---|---|---|---|
| Tasks irrespective of situation<br>Co-ordination of non-complex work<br>Recording but little interpretation of data/ synthesis<br>Recognise deviation<br>Decision making in limited predetermined jurisdiction<br>Delegated work/tasks<br>Remembering, recognising & recalling<br>HEE levels 1&2 | Tasks in situational context<br>Decision making in predetermined jurisdiction<br>Recognise deviation<br>Developing technical knowledge & its application<br>Low risk low volume work<br>Understanding<br><br>HEE Levels 3&4 | Tasks in wider situational context with some transferability - able to manage rapidly changing situations<br>Decision making within protocols<br>First level professional registration<br>Applying & analysing<br>HEE level 5 | Able to manage a range of situations in different context<br>Uses clinical judgement but still defers some decision making, uses justifiable deviance<br>Care management skills<br>Post reg CPD<br>Applying & analysing<br><br>HEE level 6 |
| **Enhanced** | **Advanced** | **Consultant** | |
| Uses justifiable deviance able to function in unpredictable environment, manages risk, defers major decision making<br>Found in different settings across professionals with a specific body of knowledge<br>Complex decision making but defers to others for overall plan<br>Manages case load, highly developed skills<br>Post grad/grad qualifications/CPD occasionally Masters level<br>Evaluate & create<br>HEE level 6&7 | Uses justifiable deviance extensively, unpredictable environment, manages risk<br>Found in different settings but also had highly developed body of knowledge<br>High level complex clinical decision-making including complete management of episodes of care<br>Masters level<br>Create & evaluate<br>HEE levels 6&7 | Uses justifiable deviance across whole systems<br>Systems leadership<br>High level complex decision making<br>Masters/Doctoral<br>Evaluate and create<br><br>HEE levels 8&9 | |

These levels of practice can be applied to the numerous roles within renal nursing and perhaps support steps towards standardization of job titles in the future.

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[14]. 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 this tool in assessing acuity levels in renal ward areas. This tool uses a multiplier based on levels of care and care requirements.

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[15]. 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 taking into consideration the need for acute dialysis care.[16]

Finally, the NHS in Wales have mandatory staffing levels detailed within their Service Specifications for Haemodialysis Units, which have been utilised in the commissioning of services throughout Wales. These safe staffing levels are monitored under the ethos of the Nursing Staffing Levels Act (Wales) 2016, which legislates for safe staffing levels within acute surgical and medical wards in Wales. This monitoring also gives quality assurance from a commissioning perspective. It is possible that similar stipulations will be made within NHS England and / or Northern Ireland.

## Safer care and patient acuity tools

The Safer Nursing Care Tools (SNCT) and the Mental Health Optimal Staffing Tool (MHOST) calculate clinical staffing requirements based on patients' needs (acuity and dependency) which, together with professional judgement, guides chief nurses in their safe staffing decisions. The tools:

- Provide organisational level metrics to monitor impact on the quality of patient care and outcomes
- Give a defined measure of patient acuity and dependency
- Are able to support benchmarking activity in organisations when used across trusts
- Embrace all the principles that should be considered when evaluating decision support tools set out in the relevant NHSE/I 'Safe, sustainable and productive staffing' resources
- Include staffing multipliers to support professional judgement
- Provide accurate data collection methodology

These tools apply to adult inpatient care only, and use is subject to individual NHS Trusts having a licence. For further information from the Shelford group visit Shelford group: Safer Nursing Care Tool - Shelford Group or contact info@shelfordgroup.org

*Please note this tool cannot be adapted for use in other areas such as haemodialysis as it would invalidate the tool

**Figure 1 Acuity and Dependency**

## In Centre and Satellite Haemodialysis

Acuity tools for haemodialysis are less well developed and the inpatient tools available tend not to suit this type of outpatient treatment.

ANN UK with advice from NHS England have developed professional consensus guidance which focuses on the level and amount of care with appropriate skill set that can be provided by different members of staff, alongside the care required by the patient (acuity). The haemodialysis scoring (care and therapy episodes) was designed to align with the paediatric model and is based on professional judgment. The guidance has been piloted and evaluated by the North West Kidney Network.

## How to apply the guidance:

Patients' needs can be assessed as Therapy episodes and placed into four categories – see Figure 2.

The core skills of the staff are based on the HEE Career Framework levels of practice (Table 1) and the emerging roles of advanced clinical practice. (Table 2)

Figure 2 demonstrates the number of patient care episodes that can be provided by available staff.

Patients attending for haemodialysis should be scored in therapy episodes in accordance to their needs.

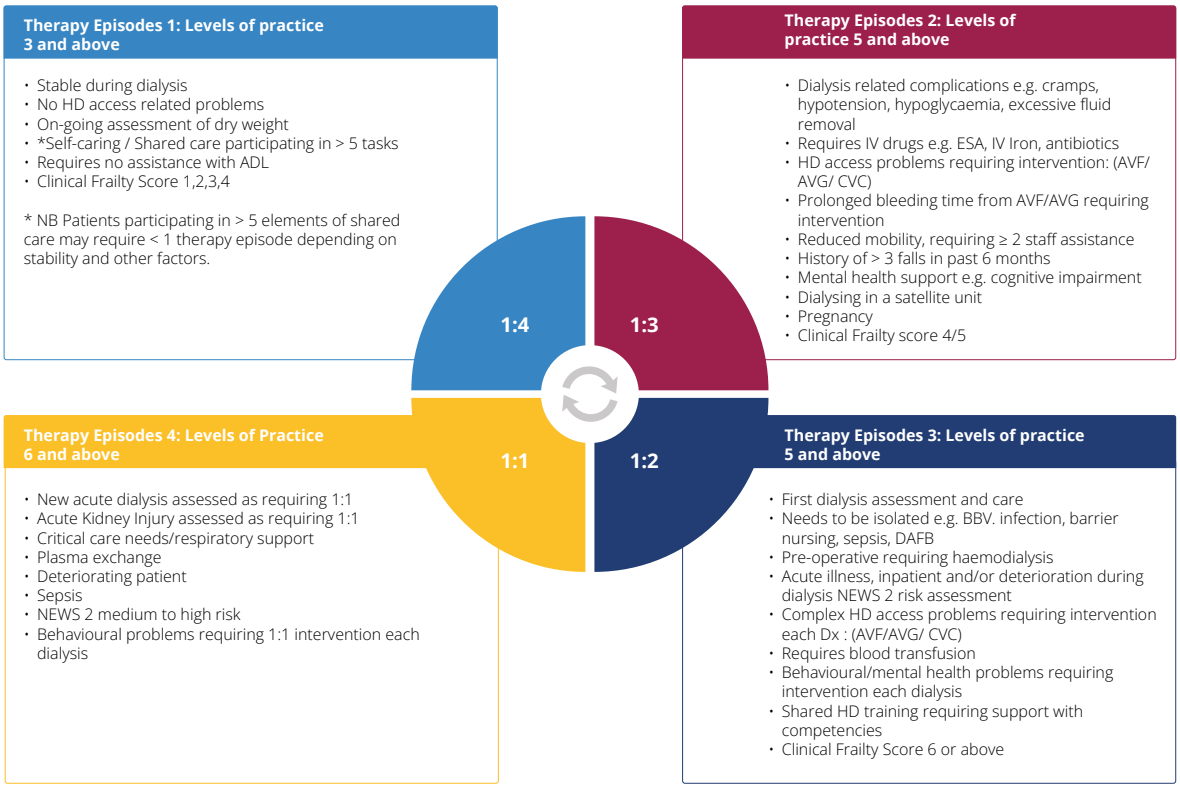
Matching patient needs with levels of practice of available staff and evaluating the unit's capacity in relation to this will allow a more detailed breakdown of patient acuity, staffing and space available.

Assessing patient therapy episodes in relation to staff skills/levels of practice may be used to predict the appropriate number and group of patients that can be dialysed per day/week.

The greater the needs of the patient the higher the level of practice needed to care for them. The number of episodes available should be based on staffing numbers and experience, not just the number of staff or HD spaces in the unit.

FIGURE 2 ASSESSING DIALYSIS TRAINED STAFFING NUMBERS

## Assessing Dialysis Trained Staffing Establishment In-Centre Adult Haemodialysis




**Staffing Ratio is WTE to patient caseload**
**Staffing ratio are guides only, local clinical judgment is required to ensure care needs are met and are safe**

## Estimating Care provision

When calculating total therapy episodes, take into consideration available HD spaces when assessing capacity. Increasing staffing number doesn't necessarily mean more available capacity.

| Therapy Episodes | Staff Examples |
|---|---|
| 1 | 1 dialysis trained staff member level 3 and above delivers 4 episodes |
| 2 | 1 dialysis trained staff member level 3 and above delivers 3 episodes |
| 3 | 1 dialysis trained staff member level 5 and above delivers 2 episodes |
| 4 | 1 dialysis trained staff member level 6 and above delivers 1 episode |

**NB** Dialysis trained staff includes registered and non-registered healthcare workers.

Skill mix decisions rely on consideration of the levels of experience and competency of nursing staff within areas and 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[11]. 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 kidney 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 needs in particular acuity, frailty, location, local demographics and geographical layout.

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.

## Categories of Staff

### *Registered nurses*

Consideration needs to be given to the experience and knowledge of nursing staff in the haemodialysis unit when allocating an appropriate workload.

For staff members with less experience/new to haemodialysis/undertaking competencies; it may be appropriate to score them as fewer care episodes and allocate patients totaling less therapy episodes (1 or 2 depending on group).

In addition to allocating an appropriate workload for individual members of staff, consideration should also be given to the number of staff on duty, the skill-mix of staff and need for support of less experienced staff. Flexibility in the allocation of episodes for staff members should be considered when viewing the staff on duty as a whole.

This will also be dependent on patient timing and schedules of shifts.

Due to variation in practice, consider the influence of support from other professions on staffing levels. e.g. medical input.

*May include nurse associates

### *Non- registered Health care workers*

Non-registered staff should be factored into the staffing ratios.

As the duties they undertake range from basic machine preparation, connecting and disconnecting patients to enhanced skills including cannulation of fistulas, management of central venous access, and administration of medicines, it is difficult to quantify the care episodes that non-registered staff should be scored at and this will depend on local policies.

### *Long days*

Units working long days need to assess care episodes allocated to staff in relation to working patterns. The number of care episodes staff can provide on a long day should be increased to reflect patient movement.

The pressure of staff workload and appropriate patient allocation needs to be considered.

## Home Therapies

The increase in people with CKD and ESKD is occurring at a time when the NHS is placing greater emphasis on independent living[19].

A significant implication for kidney care is the emphasis placed on home dialysis (peritoneal and haemodialysis).

The benefits of home dialysis are numerous with both types linked to increased patient autonomy and empowerment of managing their own therapy[20,21].

It is well recognised that training a renal nurse takes years of learning, advanced education and clinical practice[22]. One US study, reported only 24% of renal nurses stated they had the right amount of staff and skill mix all of the time and lack of staff was a significant health and safety issue[23]. Such increased workload often leads to burnout which, in turn, decreases staff levels further[24].

Within home therapies, the skill set involves further specialised clinical and technical competencies[25]. Recruiting nurses to home therapies with the required skills is difficult25 and the lack of appropriate staff can limit home dialysis provision[26].

The ANN UK home therapies group launched a workforce planning survey in September 2021, designed to gather information to support safe and adequate staffing across the UK.

The Survey targeted leads/managers from 64 Renal Units across the UK and achieved 46 responses.

Information in and around patient numbers, types of home dialysis, on call services and staff levels and banding was gathered and reviewed. Initial evidence indicates a varied approach to staffing home dialysis services with no reoccurring theme.

The ANN UK Home Dialysis community of practice (previously special interest group) has taken a snapshot of services with larger home dialysis cohorts to look for correlations between service size, staffing, skill mix and staff training/ education. Further work will be undertaken to analyse this.

In an attempt to address some of the current gaps concerning workforce planning within home dialysis, the ANN UK Home Therapies Group have developed a professional consensus guidance which has been piloted and evaluated by members of the PD Forum.

***See Figure 3.***

## How to apply the guidance:

Patients' needs can be assessed as Therapy episodes and placed in 4 categories - see Figure 3.

Figure 3 demonstrates the number of patient care episodes that can be provided by available staff.

Patients receiving home dialysis should be scored in therapy episodes in accordance to their needs.

Assessing patient therapy episodes in relation to staff/levels of practice may be used to predict the appropriate number and group of patients which can be managed in the community.

The greater the needs of the patient the higher the level of practice needed to care for them.

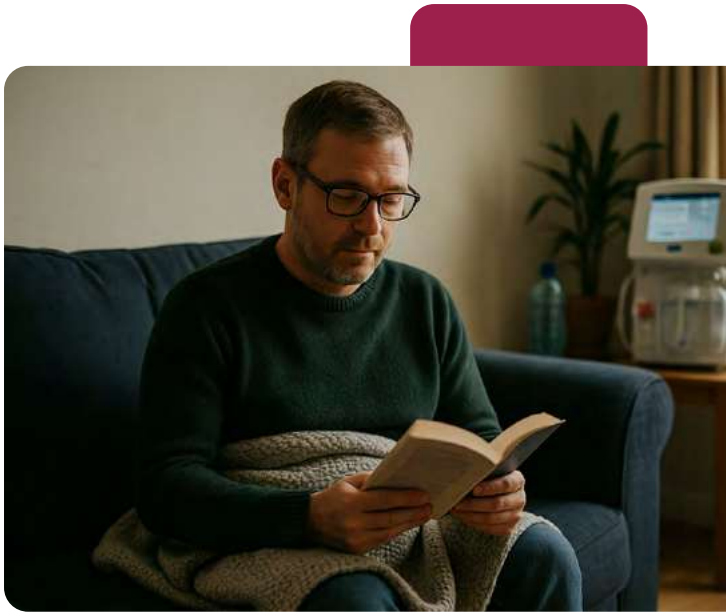
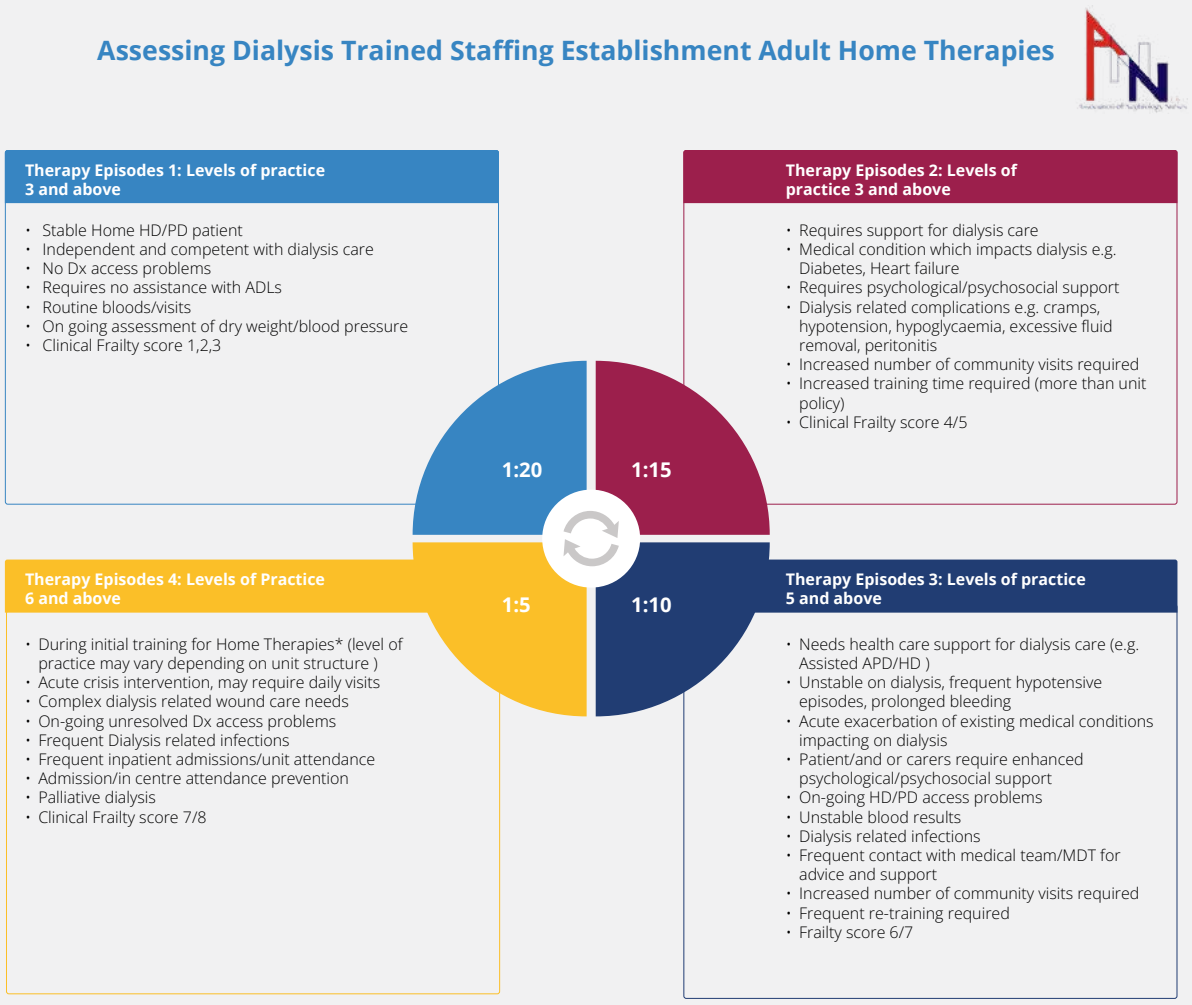


**Figure 3 Assessing Dialysis Trained Staffing Establishment Adult Home Therapies**




**Staffing Ratio is WTE staff to community patient caseload**
**Staffing ratio are guides only, local clinical judgment is required to ensure care needs are met and are safe**

We recognise there is a variation in the provision of assisted automated PD (AAPD) across the UK with some being provided in house and some with external providers.

Basic care can be provided by external services but the complexity of some of the patients means input from the hospital- based team is required. Patients are likely to need 3 Therapy episodes of care or more delivered by a practitioner at a higher level of practice.

Therapy episodes are based on the number of community visits or interventions required each month but also include MPT reviews, clinics, documentation and administrative tasks, training and in-centre cover in many units. Travel time, mileage and geographical location of visits also need to be factored in. Staff:patient ratios serve as guidance only and professional judgement should be applied to increase or reduce them accordingly where there are regional variations such as complex demographics, geographical challenges or digital models of care in place which enable remote monitoring.

| Therapy Episodes | Staff Examples |
|---|---|
| 1 | 1 dialysis trained staff member level 3 and above delivers 20 episodes |
| 2 | 1 dialysis trained staff member level 3 and above delivers 15episodes |
| 3 | 1 dialysis trained staff member level 5 and above delivers 10 episodes |
| 4 | 1 dialysis trained staff member level 6 and above delivers 5 episodes |

When planning the caseloads of home therapy teams, the availability of information technology also needs to be considered. Many new IT tools are available that may enable teams and individuals to save time and increase efficiency by reducing travel times and enabling proactive monitoring. Both home haemodialysis and automated peritoneal dialysis machines have systems that can enable remote monitoring to assess the patients' treatment. Patients are encouraged to self-manage and take measurements for blood pressure, weight etc. as well has blood samples being sent via courier for the specialist to then review. There are many secure ways of video calling patients to discuss changes in treatment plans, observe vascular access and general wellbeing.

We recommend that units utilise NHS Trust and local Healthcare board remote working policies when planning face to face visits either in a clinic or in the home. It is expected that remote monitoring will be an area of rapid development in kidney care and therefore will have an increasing influence on the management of home dialysis patients over the time.

## 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[6]. 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[7].

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[8]. 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.[8]

Further information is available via https://www.odt.nhs.uk/.

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 who are usually senior intensive care doctors) and the Trust Organ Donation Committee (ODC).

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, Lead Nurses in Organ Donation, who oversee the day to day operational activity in region and support the SNODs and Regional Heads of nursing, who support the Lead Nurses and are usually responsible for two 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 2017 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[9]. 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[10].

### *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.

Appendix I at the end of this section shows a suggested workforce and career framework using the non- medical clinical career framework produced by Skills for Health to describe level competence and provide a consistent language for each role.

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## Authors


Vicky Ashworth
Senior Network Manager NHS England – North west


Sandra Cruickshank
Deputy Divisional Director of Nursing & Quality for Renal Services, East & North Hertfordshire NHS Trust


Lucy Dames, Lead Nurse Organ Donation, London Organ Donation Services Team


Michaela Dicks
Programme Manager and Lead Nurse, South West Renal Operational Delivery Network


Karen Jenkins Nurse Consultant Renal Services, East Kent Hospitals University NHS Trust


Jennifer McDermott
Lead Nurse for Dialysis, CKD & AKI, University Hospitals Plymouth NHs Trust


Carol Rhodes
Senior Sister Home Therapies, University Hospitals, Derby & Burton NHS Trust


Helen Spooner
Nurse Consultant Renal Services, New Cross Hospital Wolverhampton


Helen Watts
Divisional Director of Nursing, South West Thames Renal & Transplantation Unit, Epsom and St Helier University Hospitals NHS Trust

## Paediatric Renal Nursing

There are 13 paediatric nephrology centres in the UK; all of which provide in-centre haemodialysis and home peritoneal dialysis services. Ten of the centres deliver renal transplantation and an increasing number have the facility to offer home haemodialysis as a therapy option. Apheresis is provided in the majority of centres either directly or through NHSBT. The model of service delivery provided by each centre varies across the country due to the geographical area, the number of hospitals from which the tertiary centre receives referrals and the population it covers. This variability means each unit has a different way of working with larger ones having dedicated haemodialysis staff and Nurse Specialists for each modality; and smaller ones having staff with multiple roles including HD, PD and Transplant follow-up. Many children live long distances from their tertiary renal centre and where appropriate, care is delivered by local services.[1]

Paediatric renal nursing is becoming increasingly more complex with a higher demand on technology and advances in renal replacement therapies to accommodate patients from neonates to young adults. An increase in the number of children surviving with co-morbidities has led to an overall rise in caseloads and acuity with kidney centres in the UK needing to adapt their resources and medical expertise to offer these choices.

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 RCN (2013).[2] 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, Haemodialysis and Specialist Paediatric renal nursing roles.[3] Many tertiary centres will cohabit their ward with other specialties creating further challenges when trying to decipher staffing levels and skill mix. Due to the varying configurations of children's in-patient renal units, some are required to offer an on call renal nursing service to provide dialysis or specialist advice outside of working hours.

**Fig 1 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) |

Defining nurse-staffing numbers for inpatients wards is difficult as impacts are often multifactorial. Paediatric nephrology units do not always have designated high dependency beds or recognised HDU status but most bridge the gap between standard level care and high dependency. Due to the nature of renal nursing and acuity of patients, most units will care for patients that require level 1 or level 2 critical care as defined in the PCC standards 2021.[4] Examples of this would be post-transplant patients returning to ward from theatre, acute dialysis, hypertension crisis requiring IV management and complex electrolyte management requiring multiple infusions. Staffing levels will of course be influenced by complexity of patients and most renal units deliver a higher-level care due to patient needs. It is important to recognise that other factors will influence nursing ratios; these include ward layout and nursing skill mix/expertise. It is essential that staffing level and patient acuity is audited and reviewed regularly to ensure safe staffing levels. It is also important that nephrology units share knowledge of patient care, staff development and staffing ratios to ensure we continue to learn for each other.

## Advanced Practice

An advanced nurse practitioner working with children and young people is a highly experienced knowledgeable nurse, educated to Master's level and able to use clinical judgement and autonomous decision making in relation to the assessment, diagnosis, management and evaluation of care (RCN, 2014).[5] Nurses working at advanced levels need to practise within the 4 pillars; advance clinical practice, leadership, facilitation of education and learning, evidence research and development, but it is primarily grounded in direct care provision[6].

The increasing number of children with end-stage renal disease has led to an ideal environment for the advanced practice roles to aid in meeting the capacity, demand and complex needs of patients. These advanced roles can be of benefit for paediatric renal centres to bridge the gap between nursing and medical, and ultimately improving patient experience and care. ANPs add consistency and expertise that is lost during junior doctor rotation, a time that impacts care in many centres. They also support junior doctors that are new to nephrology, sharing knowledge and experience. ANPs/NPs can help fill gaps in junior doctor rotas, support new consultants and provide nursing development. All this helps to ensure high quality patient care remains and research supports the overwhelming positive impact that ANPs make to practice and patient satisfaction[9].

Nephrology advanced nurse practitioner roles can be incorporated into all areas of renal nursing such as CKD/pre-transplantation, transplantation, AKI, Nephrotic Syndrome, Hypertension, home dialysis therapies, in-centre HD and acute in-patient care. The individual scope of clinical practice would cover a spectrum of nephrology care including nurse led clinics, patient cohort management, applied pharmacology and evidence-based prescribing decisions, physical assessments, history taking and clinical decision-making skills/clinical reasoning. ANP's in nephrology may also have additional financial benefits which may include increased nurse to patient ratios due to their all-encompassing skills allowing smoother flow along the patient pathway.

## Education and Training

ducation and the maintenance of competence in paediatric renal nursing is imperative for safe and sustainable care and therefore a practice educator is required to ensure the continuing education of nursing staff working in specialist areas to maintain high standards[2]. A registered Children's Nurse with a university accredited specialist Paediatric Renal Nursing course should ideally manage Paediatric Nephrology wards and dialysis units on a day-to-day basis. Renal educators play a pivotal role in helping to facilitate and in some centres, deliver specialised renal courses.

Renal Clinical Educators are available in some but not all paediatric renal centres in the UK. Where available, renal educators are required to teach a range of specialised and complex skills and theory which are resource intensive. These specialised skills include haemodialysis, peritoneal dialysis, access management (CVC/AV Fistula) and general nursing management of children with renal conditions. Some educators also support higher education courses in nephrology management. In units where these posts are not available, specialist nurses and senior staff provide the educational support.

Education and practical skills training are now supported via the National Paediatric Renal Nursing Competencies which were produced in affiliation with the PNNG and the UKKA, and supported by NHS England. This incorporates a Theory Workbook and a Practical Competencies document. Core renal principles, Peritoneal Dialysis and Haemodialysis are included for nursing staff including Healthcare support workers through to nurses working in Advanced Clinical Practice. They should be used to support the development of nurses working in inpatient wards in Tertiary Centres, Dialysis Units and Specialist Renal Nursing roles. The goal is to standardise and streamline training, promote consistent education standards, clarify career progression, centralise competency training and facilitate nurse transfers between units. Currently the documents are locally stored, but a digital platform for the practical competencies is in development.


## Transition

Increasing numbers of children with chronic kidney disease are now surviving into adult life and it is recognised that there are increased issues with concordance at the time of transfer from paediatric to adult care among this cohort of patients[7]. The CQC (2014),[8] highlighted the need for a key accountable individual responsible for supporting transition into adult health services but this provision differs greatly between Children's Renal Units. A dedicated paediatric renal transition nurse may be of benefit for larger renal centres where increasing caseloads will dictate the need, but smaller units may choose to incorporate the work into the role of the named CNS/specialist nurse.

Due to caseload sizes, different approaches to transition exist between children's kidney centres with some utilising youth workers and young adult workers, and other relying solely on the named nurses. With the complexities that exit around this period of upheaval for young people, it is imperative that support and guidance is given to provide as smooth a transition as possible. Recognised pathways and paperwork should be utilised where possible, with a named key person available for every young person.

## 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 modalities and in larger units they may just lead on one modality ie: PD, HHD, HD, transplant, CKD, pre-transplant. There are no specific tools available to calculate care requirements or optimum nursing levels in the out-patient environment. Again, patient self-reported outcomes measures (PREM, PROM), GIRFT and Peer Review initiatives may be helpful to influence future workforce development.

The table below shows an estimate of the number of patients a specialist nurse working directly with each modality should have as a maximum caseload. These figures represent an ongoing caseload taking into account the rise and fall of input required by patients such as training, relapses, home visits etc. Each unit in the UK works differently with not all having a CNS for every modality, so these figures need to be used subjectively, especially when assessing caseloads for nurses covering more than one modality. Alongside this, specialist nurses working as advanced practitioners may have extra responsibilities incorporated into their role resulting in a need for reduced caseloads.

Further work on acuity is required to ascertain a more accurate staff/patient ratio, especially for those on dialysis where co-morbidities, communication difficulties and increased complexities can result in more input requirements. A scoring system, similar to the one now used for haemodialysis (see below), is currently in production for PD patients and it is hoped that this will provide more clarity on nurse/patient ratios in this area.

The increase in the number of units offering Home HD has brought with it the familiar problem of adequate management of smaller patient caseloads (See HHD) and some units are revising their approach to HHD and PD to develop a Home therapies team. This gives more options for cross covering for each modality and avoids the reliance of one specialist nurse, even if the ratio is within the recommendations. A similar project to the one for PD, looking at scoring acuity for HHD patients, is currently in discussion and this will aid the units looking towards combined teams.

**Fig 2 Caseload management for modality specific Specialist Paediatric Renal Nurses**

| Patient Group | Caseload Ratio |
|---|---|
| Home Peritoneal Dialysis | 1:10 |
| Home Haemodialysis | 1:5 |
| CKD/Pre-transplant | 1:50 |
| CKD (Early intervention) | 1:100 |
| Transplantation | 1:50 |
| Nephrotic Nurse | 1:100 |

## Acute Kidney Injury

The area of Acute Kidney Injury is a developing service within paediatric nephrology units in the United Kingdom. A recent study across six centres identified that there was an AKI incidence of 10.8% of children admitted to hospital over a 6-month period[10]. The study identified the need for education and training for health professional to improve AKI recognition, and management to improve long-term renal outcomes in children and young people. Whilst these services are developing it is difficult to establish nurse to patient ratio, but it is important that this is taken into consideration into the workflows of each centre as services become established.

## Home Haemodialysis

Home haemodialysis is an ever-increasing service in paediatric renal units around the UK with the option for this modality becoming more popular amongst patients and families. Some larger units have had HHD as a treatment option for several years but others have been slower to get the service set up with staffing and economic difficulties contributing to the delays. Due to the differences in provision between units and the size of caseloads expected, the specialist nursing provision for HHD is variable. Larger, more established programmes may have two dedicated nurses and a named consultant for HHD, in comparison to newly formed services where only one nurse may be working independently. Due to these differences, the nurse/patient ratio for HHD is difficult to assess. Training families to undertake HHD can be time consuming and nurses working independently need to concentrate their focus on this whilst balancing other responsibilities (visits, clinics, patient assessments etc). The ratio of 1:5 is reflective of smaller/newer programmes establishing their caseloads, balanced against larger/more experienced units where the ratio may be higher.

As previously mentioned, acuity scoring for PD patients is already in development, with discussions about HHD patients being assessed in a similar way. Using the same criteria for both will enable closer and more accurate management for units with separate caseloads, as well as providing the potential for a combined score for home therapy teams.

## Haemodialysis

A national Directory of Services is now in place for paediatric haemodialysis units to allow monitoring of capacity throughout the UK. Developed in conjunction with NHS England and launched in November 2022, the database assesses the acuity of patients (in Therapy episodes – see Table 1) and experience of staff (in Care episodes – See Table 2) to produce comparable figures. Inputted weekly by each unit, the figures are based on staff/patient ratios and allow an easy assessment of appropriate caseload management (Care episodes available compared to Therapy episodes required). The report dashboard from this gives a local, regional and national breakdown of capacity and space, as well as providing numbers of PD, HHD and transplanted patients. Some units have chosen to incorporate the therapy and care episode assessments into their patient allocation to allow an even distribution of caseload management on each shift.

***Table 1. Assessing patient therapy episodes***

| Patient group | Examples of care required | Therapy episodes |
|---|---|---|
| 1 | • Chronic, stable HD patient<br>• Over 10 years of age<br>• No HD access problems<br>• Self-caring.<br>• Straightforward ultrafiltration plan/ Euvolaemic. | 1 episode |
| 2 | • Chronic, stable HD patient<br>• Over 5 years of age<br>• Minimal HD access problems<br>• Accompanied by carer.<br>• Varied ultrafiltration plan | 1 episode<br>(with appropriate caseload) |
| 3 | • First dialysis session<br>• 1 – 2 years (Euvolaemic/Chronic stable HD patient)<br>• 2 – 5 years (with a carer)<br>• At risk of frequent hypotensive episodes<br>• Challenging UF plan<br>• Challenging behaviour<br>• Complex medical condition/co-morbidities.<br>• HD access problems requiring frequent intervention<br>• Receiving blood transfusion | 2 episodes<br>(with appropriate caseload) |
| 4 | • Acutely unwell<br>• Behavioural issues requiring regular intervention<br>• Under 6kg<br>• 1 – 2 years (Anuric / complex UF plan)<br>• Unstable patient being dialysed in isolation<br>• Apheresis (Plasma exchange, Double Filtration Plasmapheresis, Immunoadsorption) | |

Some patients (even lower level ones) require a longer therapy time so can impact on the number of episodes available where am & pm sessions are being used. This should be factored in when calculating episodes taken by patients.

For example: 1episode patients may require longer therapy due to the amount of HD and UF but does not increase in care level (just time). If length of therapy prevents both am & pm sessions being available, the patient should be increased in care episode numbers to reflect the extended time requirement.

*Table 2 Staffing assessment of Care Episodes*

| |
|---|
| Experienced haemodialysis nurse = 3 care episodes (5 if working long day – see below)<br>Over 6 months experience but still completing competencies = 2 care episodes (4 if LD see below)<br>New to haemodialysis but initial competencies completed = 1 care episode (2 if LD see below)<br>Experienced unregistered staff = 1 - 2 care episodes (See below)<br>Nurse in charge – See below |
| **Registered staff**<br><br>Consideration needs to be given to the experience and knowledge of nursing staff in the haemodialysis unit when allocating an appropriate workload. As a general rule, an experienced member of staff should be assessed as 3 Care episodes and allocated patients totalling 3 therapy episodes.<br><br>For staff members with less experience/new to haemodialysis/undertaking competencies; it may be appropriate to score them as fewer care episodes and allocate patients totalling less therapy episodes (1 or 2 depending on level).<br><br>As well as allocating an appropriate workload for individual members of staff, consideration should also be given to the number of staff on duty, the skill-mix of staff and need for support of less experienced staff. Flexibility in the allocation of episodes for staff members should be considered when viewing the staff on duty as a whole. Experienced HD staff may be allocated up to 4 therapy episodes (i.e. 2 x level 2 patients) if appropriate support is available.<br><br>**Nurse in charge**<br><br>Due to the extra pressures and duties performed by the nurse in charge, it is suggested that a supervisory role or reduced number of episodes be allocated to them. In smaller units, this may not be possible or required but units with higher patient numbers and turnaround of HD spaces to accommodate, a supervisory role is essential.<br><br>**Unregistered staff**<br><br>Unregistered staff (such as Healthcare assistants/Clinical support workers/Haemodialysis assistants) should also be factored into the staffing ratios where appropriate. Although restricted in the duties they can undertake; support provided by experienced unregistered staff can improve the staffing ratios when assessing the overall therapy episodes. Due to the variation in the roles in different units, it is difficult to quantify the care episodes that unregistered staff should be scored at. Support will always be required by the haemodialysis nurses but some unregistered staff can access CVLs, connect and disconnect patients so will provide a greater number of care episodes. Where more than one experienced HD nurse is on duty, unregistered staff could be scored as 1 – 2 care episodes and have the appropriate therapy episodes allocated to them.<br><br>**Long days**<br><br>Units doing long days need to assess care episodes allocated to staff in relation to working patterns. The number of care episodes staff can provide on a long day should be increased to reflect patient movement (i.e. Experienced HD staff may total 5 care episodes rather than 3 if working a long day). Consideration needs to be given into workload pressures for staff and appropriate patient allocation. |

*Table 3 Allocating care episodes for appropriate management*

| Staff | Patient group 1 | Patient group 2 | Patient group 3 | Patient group 4 |
|---|---|---|---|---|
| 1 care episode | 1 | 0 | 0 | 0 |
| 1 care episode (with support) | 1 | 1 | 0 | 0 |
| 2 care episodes | 2 | 1 | 0 | 0 |
| 2 care episodes (with support) | 2 | 2 | 1 | 0 |
| 3 care episodes | 3 | 3 | 2 | 1 |
| 3 care episodes (with support) | 4 | 3 | 2 | 1 |

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## Authors


Lynsey Stronach – Advanced Nurse Practitioner, Great Ormond Street Hospital

Roy Connell – Lead Nurse - Paediatric Nephrology, Nottingham Children's Hospital

Robyn Parker – Ward Sister, Great Ormond Street Hospital


PNNG
Paediatric Nephrology Nurses Group

# 03

# **Pharmacy:** Adult and Paediatric Services

## 3.1 Adult Services

The fundamental objective of adult kidney pharmacy services is to provide effective pharmaceutical care (direct and indirect), to promote and deliver medicine optimisation, supporting people with CKD to get the best healthcare outcomes from their medicines. The pharmacist is an integral member of the kidney multi-professional team, who provides support to kidney services in addition to direct pharmaceutical patient care by:

- Writing, reviewing and implementing medicines-related clinical guidelines;
- Overseeing medicine expenditure analysis including management of high-cost medicines, compliance with regulatory authorities, medicines evaluation and horizon scanning;
- Providing patient/caregiver/staff education and training;
- Undertaking audit and clinical/practice research.

Experienced kidney pharmacists also contribute to and influence national medicines policies.

**Chronic kidney disease and medicine optimisation**

People with CKD are prescribed on average ten to twelve regular medications per day.[1] Drug dosing is frequently complex due to kidney impairment. Polypharmacy is commonplace for patients with CKD. It is well documented that around 1 in 20 admissions to hospital are related to adverse drug reactions.[2] Frequent medication changes, from different healthcare providers, also pose a risk of drug-related morbidity. One medication-related problem is reported to be identified within this population for every 6.5 medications prescribed. It is reported that in CKD, 20% of hospital admissions are directly related to medication-related problems and 5% of these hospital admissions are avoidable.[3] Dialysis patients see multiple prescribers which further increases the risk of errors in records.[3] Hospitalisation rates amongst haemodialysis patients in the United States are reported at 1.7 admissions per patient year, double that of transplant patients (0.8 admissions per patient year).[4] Improving the medicines reconciliation process decreased the length of hospital admission for kidney transplant patients, therefore regular pharmacist medication review and medicine optimisation is essential for these 'at risk' patients.[5]

Clinical pharmacists have an essential and enhanced role in management of kidney patients and can identify potential or actual medication problems.[6] Individualised medication regimens require frequent monitoring and evaluation to ensure optimal pharmacotherapy, adherence to medication together with control of co-morbidities and other risk factors to produce specific health outcomes.[7] Medicines reconciliation, medicine review and optimisation should be undertaken throughout the kidney patient pathway, especially during admission and discharge from hospital/transfer to another care setting; at each outpatient clinic visit; when a new medicine is commenced or there is a change in kidney function.[5,8]

As many medicines are excreted by the kidney and/or potentially nephrotoxic, kidney pharmacists have a key role to review and optimise medication regimens.[5] Therapeutic aims and recommendations include:

- Adjusting medicine/dose/dosage frequency in relation to kidney function to maximise therapeutic effect and minimise adverse effect;
- Change, initiate or discontinue medicines as appropriate;
- Additional monitoring e.g. drug levels or blood tests, especially when rapidly changing kidney function;
- Improve patients' knowledge and understanding of their medicines;
- Identify/manage medicine-associated side effects/allergies/contraindications;
- Identify and avoid potential interactions with other medicines, especially immunosuppressants, when initiating any new medicine;
- Detect potential medication errors;
- De-prescribe and reduce pill burden;
- Improve disease-orientated and person-centred outcomes by optimising medicines;
- Prevent disease progression by optimising medicines;
- Aid management of co-morbid conditions;
- Referral to a nephrologist when necessary.

### Medication adherence

It is estimated 30-50% of medicines prescribed for long-term conditions are not taken as intended.[9] Complex medicine regimens and pill burden are barriers to adherence. Adherence is well recognised as a significant modifiable factor that can affect treatment outcome and quality of life in chronic disease management.[7] No single intervention has proven decisive in improving adherence and clinicians should consider a variety of options to improve adherence with prescribed medicines. Regular structured patient review with a kidney pharmacist can support adherence, improve patient medication knowledge, and optimise medication regimens to align with patients' wishes and lifestyle.[7]

### Pharmacy homecare provision

As most kidney units are involved with supply of medicines via pharmacy homecare teams (e.g.immunosuppressants, eculizumab, ravulizumab, erythropoietin-stimulating agents, avacopan and IgA nephropathy treatments) the kidney pharmacist often prescribes and arranges homecare medication. Pharmacy homecare staffing (processing/invoicing prescriptions) is usually separate from clinical kidney pharmacy services and has not been included in this review. Further information on homecare staffing is detailed by the National Homecare Medicines Committee.[10]

### Hospital pharmacy standards

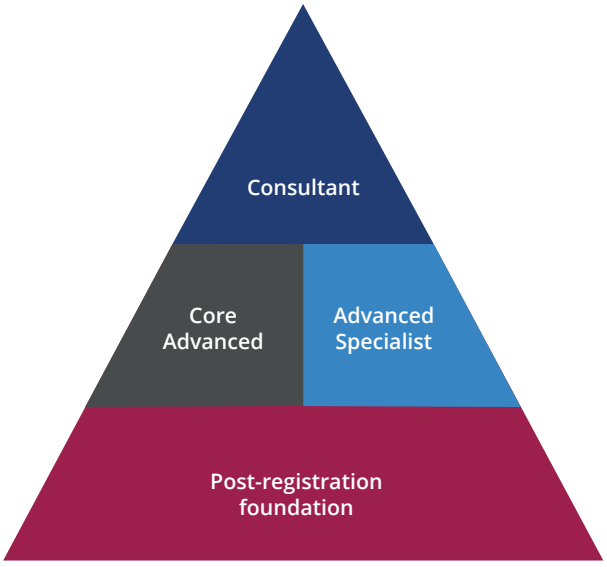
Kidney pharmacy services observe the Royal Pharmaceutical Society (RPS) Hospital Pharmacy Standards[11] to deliver person-centred care, medicines optimisation, with regular reviews to ensure safe, appropriate and cost-efficient prescribing. Robust medicines reconciliation processes are also key to prevent medication error at the time of hospital in-patient admission, on discharge and on transfer between care settings. Clinical pharmacy services should be available seven days a week, as per NHS England guidance.[12] However, as a minimum, kidney pharmacy services should be provided five days a week (Monday-Friday), with on-call pharmacy support outside of these hours.

### Advanced level practice and the kidney pharmacy team

Advanced-level pharmacists were previously independently assessed by the Royal Pharmaceutical Society (RPS) Faculty using the RPS Advanced Pharmacy Framework,[13] and were awarded post-nominals to demonstrate their level of advanced or specialised practice. Three levels of advanced practice were recognised: Advanced Stage I; Advanced Stage II; and Fellow (Mastery).[14]

Following the closure of the RPS Faculty, this programme has been reviewed and is being replaced by a new credentialing and curricula model as set out in Figure 1.

**Figure 1 RPS Post-registration credentialing model**



This updated model supports a structured continuum of practice also with three advanced levels of practice: Core Advanced (non-specialist) [15]; Advanced Specialist (previously Advanced Stage II); and Consultant Pharmacist (previously Mastery).

The Core Advanced Curriculum, developed by the RPS, is now available for pharmacists to complete. It demonstrates a pharmacist's capability to practise at an advanced level but does not credential them to the Advanced Specialist level required for the provision of pharmaceutical care to patients with kidney disease.

Independent provision and oversight of pharmaceutical care for people with kidney disease (due to their therapeutic complexity) requires a pharmacist practising at the Advanced Specialist or Consultant Pharmacist level. Core Advanced-level pharmacists may provide specialist kidney services if they have access - locally or via a regional network - to an Advanced Specialist or Consultant Pharmacist for mentorship, clinical advice, and referral as appropriate.

An Advanced Specialist Curriculum for kidney pharmacists is under development by the UKRPG following the revision of the curriculum by the RPS. Until this is available, the Renal Expert Professional Practice Curriculum[16], developed in 2014 by the RPS and UKRPG, remains the recommended resource for credentialling advanced level pharmacy practice. This curriculum is based on the previous RPS Advanced Pharmacy Framework. When using this curriculum:

- Advanced Stage II practice can be considered equivalent to Advanced Specialist level.
- Fellow (Mastery) level practice can be considered equivalent to Consultant Pharmacist level.

Where a kidney pharmacy team is in place, it should represent a structured spectrum of expertise, ranging from post-registration foundation pharmacists through to Advanced Specialist or Consultant pharmacist. This skill mix should be appropriate to ensure safe, effective, and patient-centred service delivery.

Accredited pharmacy technicians are integral to many kidney pharmacy teams, contributing to a wide range of support functions, including significant involvement in the management of homecare services.

The components of kidney pharmacy services are outlined in Table 1, with professional competencies described using the terminology from the Renal Expert Professional Practice Curriculum.[16]

Examples of enhanced and advanced models of kidney pharmacy practice are presented in Table 2.

*TABLE 1. COMPONENTS OF THE KIDNEY PHARMACY SERVICE, INCLUDING PROFESSIONAL COMPETENCIES.*

| Activity (direct and indirect pharmaceutical patient care) | Technician support | Pharmacist support & experience required to complete work | | |
|---|---|---|---|---|
| | | Advanced Stage I | Advanced Stage II | Mastery |
| Patient medicines optimisation clinics/specialist clinics/ prescribing | | | ● | ● |
| Homecare governance – assurance, technical/invoice reconciliation | ● | ● | | |
| Patient telephone consult service | | | ● | ● |
| Consultant/MPT medicine enquiries | | ● | ● | ● |
| GP/primary care pharmacist enquiries | | | ● | ● |
| Support writing evidence based clinical guidelines and attendance/ presentation at unit clinical guideline meetings | | | ● | ● |
| Writing/reviewing Essential Shared Agreements for wider health economy e.g. Mycophenolate | | | ● | ● |
| Support with implementing medicine guidelines (National & local) | | ● | ● | ● |
| Implementation and compliance with national patient safety alerts e.g. alfacalcidol, mycophenolate | | | ● | ● |
| Management (procurement, prescribing and funding +/- blueteq) of high cost medicines e.g. etelcalcetide, eculizumab | | | ● | ● |
| Management (reporting) of out-of-tariff medicines | ● | ● | ● | ● |
| Support with completion of individual funding requests for individual medicines | | | ● | ● |
| Inpatient support, including medicines reconciliation, use of patients' own medicines, self-medication training | ● | ● | ● | ● |
| Anti-microbial stewardship (in-patient & out-patient) | | ● | ● | ● |
| Review of medicine-related patient safety incidents, implement change as needed | | | ● | ● |
| Unit governance meetings – prepare/present pharmacy report, implement change as needed | | ● | ● | ● |
| Procurement of unlicensed drugs e.g. levamisole | | | ● | ● |
| Education and training: Undergraduate/postgraduate – medical, | ● | ● | ● | ● |
| Research, audit and service development | | | | |
| Horizon scanning | | | ● | ● |

Kidney Pharmacy Service provision detailed in Table 1 includes six principal areas of kidney care:

- Chronic Kidney Disease and Advanced Kidney Care;
- Acute Kidney Injury;
- Rare kidney diseases;
- Haemodialysis and home therapies;
- Transplantation;
- Young peoples' and transition services.

Conservative management, whilst not specifically reviewed, would include the same core service components.

Many kidney pharmacists are non-medical prescribers and use this advanced role in their daily clinical practice. They work as independent practitioners, often in outpatient clinics, providing pharmaceutical care to patients with complex medicine management and clinical needs, including:

- Hypertension;
- Glomerular disease (glomerulonephritis);
- Autosomal Dominant Polycystic Kidney Disease;
- Anaemia;
- Transplantation.

Some examples of extended/advanced kidney pharmacy practice roles are included in Table 2.

***TABLE 2. EXAMPLES OF ENHANCED KIDNEY PHARMACY PRACTICE ACROSS UK***

| Enhanced kidney pharmacy practice | Advanced level pharmacist activity |
|---|---|
| General nephrology:<br>Autosomal Dominant Polycystic Kidney Disease management:<br>Tolvaptan management | Undertake joint multi-professional clinics (including prescribing) or independent clinics to support the management of these patients, who require frequent monitoring and review. |
| Transplant:<br>Individualised immunosuppression dose finding/tolerability trial for transplant assessment | Pharmacist-led, individualised trials are an essential component of transplant workup, with the aim of maximising success of transplantation and minimising rejection and adverse effects.<br>Patients include:<br>Specific co-morbid states (e.g. HIV, MELAS) where complex drug-drug, pharmacodynamic drug interactions arise<br>Previous immunosuppression intolerance, adherence difficulties |
| Specialist/complex kidney disease:<br>Glomerular Disease Clinics | Pharmacists work autonomously and with the wider multi-professional team to:<br>Provide specialist and bespoke drug education to facilitate shared decision making<br>Initiate and monitor subsequent immunosuppressive therapy, including chemotherapy and monoclonal antibody therapies<br>Secure funding for individual patient; manage the clinical, governance and financial risks |
| Kidney anaemia | Example:<br>South West Wales has a dedicated regional anaemia service whereby kidney pharmacy technical staff co-ordinate all elements of the service, while pharmacists and anaemia nurses provide clinical management, electronically prescribe drug treatments and authorise blood transfusion |
| Acute Kidney Injury (AKI) | Involvement in AKI teams, including:<br>Review medications and their dosing in general hospitals and kidney centres<br>AKI prevention: setting up initiatives across secondary and primary care. e.g. a prescribing quality scheme which encourages primary care prescribers to give patients sick day guidance and supporting written information developed for patients prescribed ACEi and other medications |

### Pharmacy service staffing

There is countrywide variation in kidney pharmacy service skill mix and staffing levels ranging from a sole kidney pharmacist practitioner, possibly part time, to a multi-staffed and multi-skilled kidney pharmacy team (incorporating 8-10 WTE staff graded between band 3-8c Agenda for Change [AfC]).[17] In line with recent and updated guidance, some localities have and others may review and identify a need and opportunity to appoint a consultant pharmacist to deliver care and drive change across the healthcare system.[18]

The reason for this variation is multifactorial, often based on historical, local funding arrangements, kidney unit size, MPT skill mix and direct patient need. Transplanting centres generally are found to have the higher staffing levels.

The UK RPG staffing summary recommendation is derived from three principle sources:

1. Pharmaceutical kidney patient care (direct and indirect) – expert opinion;

2. Royal Stoke Pharmacy Workforce Calculator (RSPWC) – evidence based, single unit data;[19]

3. Shelford Group, Kidney Pharmacy team staffing levels –2018 real-time staffing levels.[20]

Service provision for kidney, as for other services, should be based upon local patient case-mix whilst considering acuity, dependency and patient complexity. Where electronic prescribing systems (EPR) are in place, pharmacy medicines reviews and prescribing are inherently more time-consuming and this should be borne in mind when reviewing the figures below. The time/activity data in Table 3 does not allow for use of EPR but will be revised in future as EPR becomes more commonplace across the country.

Consideration must also be given to kidney pharmacy service continuity during annual leave, sick leave and training leave. Additional resources will be required to provide this cover (20% minimum is recommended).

### Pharmaceutical patient care (direct and indirect)

Experienced kidney pharmacists (Advanced Specialist or Consultant level) have reviewed and agreed the time required to complete the following essential core pharmaceutical activities (direct patient care) (Table 3). This can be used to support local service development, as mentioned previously, where full electronic prescribing systems are in place, these activities are inherently more time consuming.

***TABLE 3. CORE PHARMACEUTICAL CARE (DIRECT PATIENT CARE) PRACTICE FOR KIDNEY PHARMACY SERVICES.***

| Essential Core Kidney Pharmacist Activity – direct patient care (Technician & Pharmacist) | Time/patient activity (excluding use of full EPR systems |
|---|---|
| Nephrology ward<br>• New inpatient admission pharmacist review, medicines reconciliation and checking patients own drugs (POD) on admission<br>• Existing in-patient daily pharmacy review<br>• Discharge planning<br>• Complex discharges – e.g. patients requiring multi-compartmental compliance aids (dosette boxes), care home referrals, district nurse/other healthcare professional referrals. This is set up time and does not include dispensing | 40 mins/patient<br>10 mins/patient<br>20 mins/patient<br>60 mins/patient |
| Transplant ward<br>• New transplant in-patient admission pharmacist review, medicines reconciliation and admission POD checking<br>• Existing in-patient daily pharmacy review<br>• New transplant discharge planning and health education<br>• Discharge planning (for any subsequent admission) | 45 mins/patient<br>10 mins/patient<br>60 mins/patient<br>20 mins/patient |
| AKI patient review (if not nephrology admission) | 15 mins/patient |
| Day case attenders e.g. IV cyclophosphamide, home IV therapy, medication teaching | 30 mins/patient |
| Haemodialysis (HD) patient out-patient medication review (on HD unit)<br>• New HD patient review<br>• 6monthly HD patient review | 50 mins/patient<br>35 mins/patient |
| Specialist clinic work (e.g. Tolvaptan, Medicine Optimisation clinics, Transition)<br>• New patient<br>• Follow up | 30-40 mins/patient<br>20 mins/patient |
| Transplant and autoimmune immunosuppression review clinics, including homecare prescribing | 10-20 mins/patient |
| Patients with multi-compartmental compliance aids (set up time, excludes dispensing time) | 20-30 mins/patient |

Indirect pharmaceutical patient care has not been formally evaluated but is integral to kidney pharmacy service provision. There is, again, variation across the country, and experienced kidney pharmacists have stated that between 10% and 50% of their time is involved with indirect pharmaceutical patient care. These activities are detailed in Table 1.

For example, using the time/patient activities for direct pharmaceutical patient care practice from Table 3, a 30 bed kidney ward (per day: 2 new admissions, 26 in-patient reviews, 2 discharges, of which one complex) would require 1.65WTE pharmacist. This calculation allowed for 70:30 direct versus indirect patient care, 5 day/week service and allowance for continued service during annual/training leave.

### Royal Stoke Pharmacy Workforce Calculator (RSPWC)

University Hospitals of North Midlands NHS Trust (UHNM) developed and validated a Pharmacy Workforce Calculator (RSPWC) on a range of medical and surgical wards in 2017.[18]

Using the RSPWC, preliminary data from a single centre, kidney inpatient 28 bedded ward, demonstrated pharmacy staffing for delivery of pharmaceutical patient care (direct and indirect) to be:

- 1.71 WTE pharmacist (band 8a)
- 1.12 WTE pharmacy technician (band 5)

where average length of stay was 5.1days, average 18 drug chart items (included regular, as required and injectable medicines) and a 365 day pharmacy service was provided.

A 2025 MSc study, supported by the UK RPG, adapted and applied the Royal Stoke Pharmacy Workforce Calculator (RSPWC) for inpatient nephrology services. The renal-adapted calculator recommended a 74.6% increase in pharmacist whole-time equivalents (WTEs) and a 22.6% increase in medicines management technician (MMT) support for nephrology inpatients compared with the original RSPWC, reflecting the greater complexity and multidisciplinary input required for patients with kidney disease.

### Shelford Group, kidney pharmacy team staffing levels

The Shelford Group is a collaboration between ten of the largest teaching and research NHS hospital trusts in England.[19] Nine out of these ten NHS Trusts have kidney units, and eight also have kidney transplant units. Kidney Pharmacy teams staffing levels from a 2018 data set are included below and support previous data for multi-staffed and multi-skilled kidney pharmacy team incorporating 8-10WTE staff.[16]

***TABLE 4. KIDNEY PHARMACY TEAM STAFFING LEVELS.[19]***

| Kidney pharmacy team WTE staffing | Mean | Median | Range |
|---|---|---|---|
| Pharmacist – Nephrology ward | 1.2 | 1 | 0.5-2 |
| Pharmacist – Kidney transplant ward | 1.19 | 1 | 0.2-2 |
| Pharmacist – Kidney dialysis unit | 0.41 | 0.05 | 0-1.3 |
| Pharmacist – Outpatient clinics | 0.7 | 0.4 | 0-2.5 |
| Pharmacy technicians | 0.8 | 1 | 0-2 |
| No. of pharmacist non-medical prescribers within team | 2 | 2 | 0-6 |

### Staffing summary

Whilst work is being undertaken to validate the specific requirements for kidney pharmacy staffing, based on the data outlined above, the UK RPG expert panel recommendations for minimum staffing complement to provide essential and core adult kidney pharmacy service (using average 70:30 direct versus indirect pharmaceutical patient care), as a five-day clinical service are presented within Figure 1. The WTE pharmacist range is indicative for kidney unit staffing at District General Hospitals and Teaching Hospitals and relates specifically to activities that can only be performed by the pharmacist.11 Enhanced and extended clinical pharmacy practice, examples of which were outlined earlier in this document, will require local business case submission as part of service development and MPT staff skill mix review. It is for this reason that a recommendation for pharmacist staffing in outpatient clinics and homecare medication-related activities has been excluded.

**FIGURE 1. UK RPG EXPERT PANEL RECOMMENDATIONS FOR MINIMUM STAFFING FOR ESSENTIAL AND CORE ADULT KIDNEY PHARMACY SERVICE (DIRECT AND INDIRECT PATIENT CARE)**

1-2 WTE pharmacist for nephrology ward
1-2 WTE pharmacists for transplant ward (transplant centres only)
0.5-1.5 WTE pharmacists for Kidney Dialysis Units
1-1.5 WTE pharmacy technician

### Career pathway, qualifications and competencies

Pharmacist professional registration is revalidated annually by the General Pharmaceutical Council, the regulatory body for pharmacists in England, Scotland and Wales, to ensure professional skills and knowledge are up to date.

Chief pharmacists (or equivalent) have a responsibility to ensure that pharmacists are competent for their role. The RPS + UKRPG Renal Expert Professional Practice Curriculum, identifies the key knowledge, skills, experience and behaviours required to be an Advanced Specialist kidney pharmacist.[16] The UK RPG developed this specialist curriculum and recommends and supports kidney pharmacists to be credentialled as an Advanced Specialist. More recently in Spring 2023, the RPS announced the introduction of a Core Advanced Pharmacist Curriculum. This is in line with other RPS post-registration curricula and although it demonstrates pharmacists have the capabilities to practice at an advanced level, it does not demonstrate the specialist kidney knowledge required to be an Advanced Specialist kidney pharmacist (see page 51 – Advanced Level Practice).

## 3.2 Paediatric Services

### Introduction

Clinical pharmacy is an integral part of the paediatric kidney multi-professional team, optimising medicine use for individual patients and on a service-wide strategic level. Due to their in-depth knowledge of the complexities of medicines, paediatric kidney pharmacists are pivotal to the delivery of effective and safe pharmaceutical care to children of all ages with a wide variety of acute and chronic kidney conditions.[20] When sufficiently resourced, paediatric kidney pharmacists provide all of the roles outlined in Table 1 of the adults section to children living with kidney disease, drawing on the support of other pharmacist colleagues working in procurement and finance, medicines information and medicines safety as required. These key roles are in line with the RPS Professional Standards for Hospital Pharmacy Services.[11] Further detail is provided within the Paediatric Kidney Pharmacy Standards document.[21]

**Medicines optimisation in children with Acute Kidney Injury (AKI) and Chronic Kidney Disease (CKD)**

The challenges associated with polypharmacy and medication adherence highlighted in the adult kidney pharmacy services section (see pages 20-21) are also commonplace in both paediatric AKI and CKD.[22,23] Additionally, children and young people with acute and chronic kidney disease have complex medication needs due to altered pharmacokinetics, over and above the normal variation seen with age and development.

Information on how medicine doses should be adjusted for children with kidney dysfunction and in those receiving different forms of kidney replacement therapy is often sparse. Paediatric kidney pharmacists are often required to consider conflicting information from a range of sources when making recommendations on dosing adjustments; frequently needing to extrapolate data from adult studies. Determining the current level of a patient's kidney function can also be complex, especially in AKI and in infants. All these factors mean that a high degree of clinical judgment and expertise are required to determine the optimal approach to an individual patient's treatment.

As well as the many complexities of caring for patients with acute or chronic kidney disease, there is a need for paediatric kidney pharmacists to consider and navigate the challenges inherent in prescribing and administering medicines to children more generally. These include a significant proportion of off-label medicines use, the need to use unlicensed medicines and in many patients administration of medicines via enteral feeding tubes. These challenges are exacerbated by a need to calculate drug doses according to age and body weight, and the need to manipulate medicine formulations that are only licensed for use in adults. Consequently, children are known to be at a higher risk of medication errors than adult patients[20] and pharmacists are in a prime position to maximise the safe and effective use of medicines in children and young people.[24] Internationally too, the World Health Organisation (WHO) recognises pharmacists as an essential resource for the safe and effective use of medicines.[25]

Pharmacists are central to the identification and prevention of potential medication errors in paediatric patients, both in centres using paper-based medication charts and those using electronic prescribing systems.[26] Minimising the harm from medication is the key aim in the latest WHO global patient safety challenge – medication without harm.[27] The National Kidney Foundation's KDOQI recommends medication reviews at all visits to hospital, to prevent problems such as inappropriate doses, drug interactions, inadequate monitoring, potential adverse drug effects and disease complications.[28]

**Person-centred care and improving outcomes**

Medicines reconciliation and medication review and optimisation should be undertaken throughout the paediatric kidney patient pathway, especially at admission and discharge from hospital or transfer to another care setting; at each out-patient clinic visit; when a new medicine is commenced or there is a change in kidney function.[5,8]

As with adult pharmacy services, a regular structured patient review with a paediatric kidney pharmacist can support adherence, improve knowledge, optimising medication regimens to align with the wishes and lifestyle of patients and their families.[7] The paediatric kidney pharmacist can help provide tailored information about medicines used for paediatric kidney diseases, maintaining confidence in both the therapy and the MPT.[24] Evidence suggests that a significantly greater proportion of patients adhere to their immunosuppressive medications 1 year after transplant when a pharmacist is involved in their care.[29]

### Repeat prescribing and shared care

Many of the medicines used for paediatric kidney patients are highly specialist, requiring repeat prescribing to remain within the hospital, either via Homecare or hospital pharmacy dispensing rather than being undertaken in primary care. Paediatric kidney pharmacists are often responsible for the clinical screening of these prescriptions, and in some cases will increasingly have a role in prescribing these medicines.

Due to the large geographical coverage of each paediatric kidney service in the UK, many tertiary centres provide outreach care in other hospitals within their region. This adds to the complexity regarding medicine prescribing and supply, and there is often variation in the availability of medicines within different regions. The paediatric kidney pharmacist has a key role in facilitating the supply of medicines across affiliated Trusts in their region, liaising with colleagues in primary and secondary care as required.

### Paediatric kidney pharmacy services and staffing

The full Paediatric Kidney Pharmacy Standards document can be downloaded from the Neonatal and Paediatric Pharmacists Group (NPPG) website.[21] As highlighted within the adult kidney pharmacy section (page 21), NHS England guidance on the availability of clinical pharmacy services over seven days a week also applies to paediatric pharmacy services.[12] As a minimum, specialist paediatric kidney pharmacy services should be provided daily Monday-Friday; it is recognised that outside of these hours, it will be necessary for non-specialists to provide ad-hoc support.

Lord Carter's 2016 report highlighted unwarranted variations in care between different NHS organisations.[30] Paediatric kidney pharmacists are key to standardising medication use both within and between centres, particularly given the hub and spoke nature of many of these services.

The following suggested staffing levels, based on expert consensus, describe the resource required solely within a single tertiary paediatric kidney centre: additional pharmacy staff resource is required to support significant pharmacist input into outreach centres and Operational Delivery Networks where they exist. Due to the higher proportion of paediatric repeat prescribing in secondary care, when compared to adults and the regional nature of services, describing workforce requirements relative to population size is more appropriate than basing resource on the number of inpatient beds.

1. Clinical pharmacists are essential practitioners within the paediatric kidney MPT and are vital to the routine delivery of medicines optimisation within the specialty. Every tertiary paediatric kidney service must have access to a senior pharmacist practising in this field.

2. The lead senior pharmacist must be practising at Advanced Stage II as a minimum. Clinical pharmacist cover can be provided by change to equivalant pharmacist at Advanced Stage I, with support from the more experienced lead pharmacist.

3. The paediatric kidney pharmacist must have sufficient time allocated to fulfil their specialist role. In practice, a team of individuals is usually required to deliver the clinical pharmacy service to paediatric kidney patients. There should be a minimum of 0.2 WTE pharmacist per million total (i.e. adult and children combined) population for the geographical area covered by the tertiary paediatric kidney service.

**For example:**

If the geographical area covered by the service has a total population of 5 million, the minimum pharmacist resource required is 5 x 0.2 WTE = 1 WTE.

This staffing resource is required to allow sufficient "non-patient-facing" time to support the full range of clinical pharmacist activities, including (but not limited to) guideline development, multidisciplinary education and training, supporting repeat prescribing and patient review, as well as audit and quality improvement work.

Where the staffing resource falls short of the recommended level, direct patient care will be prioritised over other activities. A team-based approach helps to ensure service resilience, succession planning and provide the necessary educational and professional support.

4. In addition to the above recommendations, consideration must also be given to service continuity during planned and unplanned leave; an uplift of 20% minimum is recommended.

5. The pharmacist must attend daily multidisciplinary inpatient ward rounds and other relevant meetings of the paediatric kidney MPT.

6. Paediatric kidney pharmacists should be encouraged to be active independent prescribers.

7. Alongside pharmacist provision, inpatient paediatric kidney wards need suitable levels of pharmacy assistant and technician time to ensure access to medicines seven days a week, with regular stock top ups in accordance with demand, but no less than once a week.

8. Ward-based pharmacy technicians also provide a valuable role, supporting medicines reconciliation, medicines management and expenditure reporting, releasing more time for medicines optimisation activities by clinical pharmacists. A 10-bedded inpatient paediatric kidney ward should have ward-based technician support to a level of 0.2 WTE as a minimum.

**Career pathway, qualifications and competencies**

In addition to the information provided in the corresponding section of the adult kidney pharmacy section (see page 21), the specialist competencies set out by the Royal Pharmaceutical Society Faculty and the NPPG in the Neonatal and Paediatric Care Expert Professional Practice Curriculum are also required.[31,32]

Paediatric kidney pharmacists should undergo an independent, recognised process to verify competence level. Specialist paediatric kidney pharmacists must be able to demonstrate competency at least to the level of advanced stage II, and should progress towards mastery level.

**Professional support**

A paediatric pharmacist in a district general hospital is likely to be a lone specialist, as is a paediatric kidney pharmacist working in a smaller unit. As such peer support, often from outside of the individual's own organization, is critical to ensuring competency. Senior kidney pharmacist support should preferably be provided within the organisation but may be provided through a professional network or on a regional basis.

Pharmacists practising in paediatrics should be members of the NPPG to enable shared working and provide peer support for lone paediatric pharmacists.33 Those specialising in paediatric kidney medicine should also consider being members of the UK RPG.34 Access to pharmacists practising in critical care is also available through professional bodies such as NPPG or the RPG.

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

**The UK RPG workforce planning scope contributors (Autumn 2018):**

**Caroline Ashley** **Emily Horwill** **Maria Martinez** **Maire McManus** **Clare Morlidge** **Claire Oates**

**Cathy Pogson** **Nageena Rahman** **John Sexton** **Marc Vincent** **Kate Webb**

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04

# **Psychosocial Practitioners:** Psychologists, Counsellors, Psychotherapists, Social Workers: Adult and Paediatrics

This chapter is a partial update of the 2020 document and is a joint collaboration by the three psychosocial professional groups: British Association of Social Workers (BASW) Kidney Social Work Group; Kidney Psychologists' Network and Kidney Psychological Therapists (KPT) Group - counsellors, psychotherapists and psychologists.

## 4.1 Adult Services

### Introduction

The combination of complex psychological and physical health needs of people living with kidney disease means they are a group with high psychological vulnerability. Rates of clinical depression have been found to range from 20-40% across CKD, dialysis and transplant groups[1,2] and suicide rates in the kidney population are significantly higher than the general population[3], with a recent study finding a 140% increase in suicide for patients receiving haemodialysis.[4] In addition, psychological distress is reported in 30-60% in pre-dialysis, dialysis and transplant patients and is broader in definition than just clinical depression as it includes other psychological conditions such as anxiety disorders, phobias (including needle phobia), obsessive compulsive disorder, body image issues, eating disorders, post-traumatic stress disorder, adjustment disorder and neurological impairments.[5,6] There is increasing evidence to show the impact of psychological problems on morbidity, mortality and healthcare utilisation.[7] It is vital therefore, that specialist psychosocial provision is integrated within kidney units in order to provide the appropriate level of support for the complexity and chronicity of psychological needs. Evidence demonstrates that care delivered by a multi-professional team that includes psychosocial specialist professionals leads to improved medical outcomes, timely commencement of dialysis with working vascular access and reduced mortality for people living with kidney disease.[10] The Improving Access to Psychological Therapies report (IAPT)[11] for long term conditions has identified that people receiving kidney dialysis should have their psychological support and interventions delivered within the kidney care setting.

### Workforce planning recommendations

Core specialist kidney professionals available should include a psychologist (clinical, counselling or health), a counsellor or a psychotherapist, and a social worker. It is recommended that a youth worker (or similar) is employed as part of the multi-professional team to support transition and young peoples' needs.[7,8,9] Further information is provided in the paediatric section of this chapter.

### 2018 psychosocial workforce plan

An extensive mapping exercise was carried out to examine the current levels of psychosocial support across kidney units in the UK. Full details are available in the mapping exercise report.[7]

**Psychological support:** Evidence for proposed staffing levels is drawn from a number of sources, primarily research evidence and comparisons to other equivalent long-term conditions (Cystic Fibrosis and cancer care), which have established psychological support within the specialist multi-professional team.

Within Cystic Fibrosis (CF) Services, the recommended level for psychologists is 1.0 WTE per 150 CF patients. This is based upon a model that all CF patients require annual input from a psychologist.[12] Within cancer care, a different, stratified model for psychological provision has developed based on four levels of care.

Level 1 general support is provided by all staff and Level 2 support is provided by specialist nurses, who have received additional training and supervision (provided by Level 3/4). Recommended levels of trained mental health/ psychological support professionals (Level 3 counsellor/psychologist and level 4 psychologist/psychotherapist/ psychiatrist) are based on research that 15% of cancer patients will need Level 3 support and 10% will need Level 4 intervention.[13] This is equivalent to 1.0 WTE per 600 cancer patients.[14]

The UK Kidney Psychosocial Workforce Mapping Exercise[7] highlights a model for psychological support staffing levels based on a stratified acuity model of 1.0 WTE (0.6 WTE at Level 3/0.4 WTE at Level 4) for every 600 RRT patients (dialysis and transplant patients). This was based only on kidney replacement therapy patient numbers. It, therefore, does not include patients for whom specialist psychological input is also required in the following groups; low clearance, general nephrology and conservative management, acute kidney injury, live donor (including altruistic assessment) and support for families or carers. This should be considered when planning staffing levels for counsellors/psychotherapists/psychologists into kidney units (see recommended minimum and gold standard levels below).

The recommended minimum level of psychological provision for a kidney service is 1.0 WTE (0.6 WTE at Level 3/0.4 WTE at Level 4) for every 600 RRT and pre-dialysis patients. This would enable up to 25% of all CKD stage 4/5 patients to access support in any year.[7] This level of staffing would not extend to wider services such as living donor assessment (see below).

The gold standard level of psychological provision for a kidney service is 1.0 WTE (0.6 WTE at Level 3/0.4 WTE at Level 4) for every 375 RRT/pre-dialysis patients. This would enable up to 40% of all CKD stage 4/5 patients to access support in any year (consistent with research based rates of distress in CKD populations) and would enable the provision of a wider service to include general nephrology and conservative management, acute kidney injury, live donor (including altruistic assessment) and support for families or carers.

**Social work support:** Recommended levels of social work support staffing are considered separately to psychological support staffing. In line with the CF workforce recommendations for social workers, current practice recommends that all patients should be provided with routine input from a social worker.[10]

The recommended minimum levels for social work provision are a maximum yearly caseload of 150 patients per 1.0 WTE level 3/4 worker with a gold standard of 1.0 WTE per 140 RRT patients.[7]

**Smaller units:** In smaller units, where the population size would not warrant a specific psychosocial/psychological practitioner post, consideration should be given to the model that already exists in some areas of sharing of posts across chronic and long-term conditions.[7]

Levels of practice for all three psychosocial professional groups according to the NHS Skills for Health Career Framework are outlined in Table 4 (later in this section on page 49).

## 4.2 Adult Psychologists (Clinical, Health and Counselling)

### Introduction

Kidney psychologists (clinical, counselling and health psychologists) are highly trained doctoral-level professionals. They aim to reduce distress, promote optimal development, improve psychological well-being and improve health outcomes for patients. They apply psychological theory and models to the context of physical health, chronic illness and kidney disease across the lifespan. This specialist knowledge base is used to design, implement and evaluate psychological services in kidney care.[15,16] Kidney psychology developed within both adult and paediatric kidney teams from the early 1970s onwards.[17]

Kidney psychologists are not just clinical therapists and, therefore, work at several different levels:

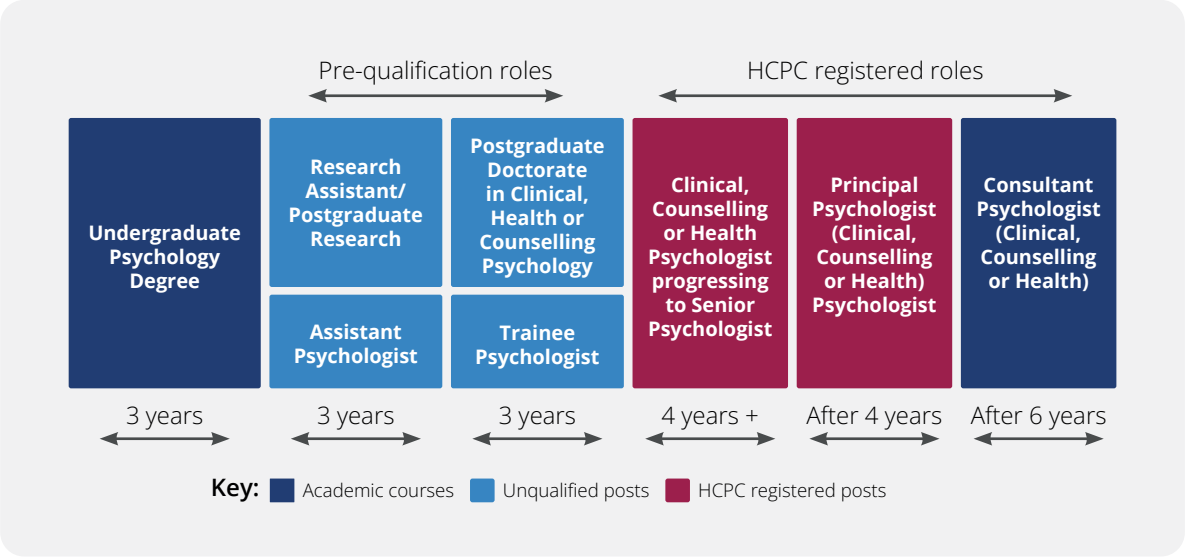
- Direct evidence-based clinical work with patients and their families referred because of identified concerns, or those who are considered at risk of developing psychological difficulties;

- Consultation, joint work and education with other members of the kidney multi-professional team involved in the patient's care to deliver psychological care;
- Undertaking a leadership role and participating at a strategic service, and policy level to promote psychologically informed care and health outcomes;[15]
- Conducting audit, research studies and evaluation to improve kidney patient care and outcomes.[15,16]

The New Frontier for integrated care report by The Kings Fund indicates that clinical psychologists should be embedded within physical health multi-professional teams to provide psychological support.[18] The need for kidney psychology is identified in the service specifications for both adult and paediatric kidney services.[19-23]

The majority of psychologists currently working in kidney units are clinical psychologists.[7] However, some services have health or counselling psychologists employed within their units. In order to establish and lead a kidney psychology service (where there are significant management, consultancy, research and service development responsibilities) a greater level of experience and post-qualification training would be required, and this should be provided by a consultant psychologist.[24] The career pathway (Figure 1) below outlines the different training and career progression involved for these three professions.

**FIGURE 1. CLINICAL, HEALTH AND COUNSELLING PSYCHOLOGY CAREER PATHWAY**




The recent kidney workforce mapping exercise (2017) reported 51 psychologists in post (27.2 WTE), an increase from the number reported in the 2002 Workforce Planning document (7=2.5 WTE) across adult kidney services. Alongside this increase in psychologists employed in kidney units, patient numbers have also increased. There is still significant variation across kidney units and the 2017 figures are significantly less than the 2010 projected need for 168 psychologists (60 WTE) and a minimum 102 WTE Level 3/4 psychological practitioners.[7] Among those units who have psychologist input, staffing levels are lower than those recommended in the 2017 mapping exercise report with only 4 units meeting the 2002 kidney psychology workforce requirement of 1.0 WTE per 600 RRT patients while five units have 1.0 WTE psychologist per <1,000 RRT patients.[7]

## Components of the role of adult psychologist

### Direct clinical work

#### *Assessment*

Kidney psychologists offer specialist assessment considering biopsychosocial and treatment factors in the development and maintenance of presenting problems, working in inpatient and outpatient settings, with individuals and families. A range of assessment methods are used, including:

- Interviews and direct observation;
- Psychometric tests;
- Neuropsychological assessment (health/counselling psychologists require further training to undertake this);
- Risk assessment and risk management plans;
- Assessment of mental capacity: particularly in relation to an individual's capacity to consent to medical treatment and to decide to withdraw from treatment;
- Assessing need for referral of patients to mental health services and/or other relevant agencies.

Following assessment, kidney psychologists develop a formulation, drawing on psychological theory and research, making sense of the interplay between psychological and physical well-being, providing several hypotheses and treatment options. Where appropriate, this can be shared with the multi-professional team to facilitate collaborative working, consistent team approaches and increased understanding.

#### *Transplant assessment*

- Specific assessments such as recipient suitability for transplantation (required pre-transplant for all children and young people and for adults where risk factors for poor outcomes have been identified as per NICE RRT Guideline);[25]
- Formal mental health assessment for all non-directed altruistic donors as per British Transplant Society/Renal Association Guidelines;[26]
- Assessments of live related donors where clinically indicated.

#### *Intervention*

Based on the assessment, kidney psychologists provide individually-tailored, evidence-based interventions/ management plans using a range of approaches[27-33] including:

- Behavioural and cognitive behavioural techniques;
- Mindfulness;
- Compassion-Focused Therapy;
- Acceptance and Commitment Therapy;
- Motivational Interviewing;
- Family Therapy;
- Eye Movement Desensitisation and Reprocessing.

***Examples of interventions include:***

- Supporting adjustment to diagnosis, management of distress and maximising quality of life;
- Helping patients cope with the challenges of treatment, e.g. anxiety about hospitals and/or invasive procedures, symptom-management techniques, improving engagement and adherence with complex treatment regimes, medication, dialysis, diet and fluid restrictions;
- Psychological intervention for difficulties such as anxiety, depression, trauma or body image issues, linked to CKD or treatment;
- Preparation and support for patients through transitions, e.g. child to adolescence to adult services, hospital to home, transition from one dialysis modality to another, transition to transplant and from transplant to dialysis;[34]
- Assisting patients and health care professionals in decision-making about treatment, including planning of palliative care, where appropriate;
- Intervention and support to those with identified psychological needs related to the transplantation process;
- Psychological support for living donors;
- Planned proactive/protocol-driven work based on preventing or reducing possible long-term sequelae of chronic kidney disease; treatment plans (e.g. dialysis and transplantation), monitoring outcomes and effects;
- Group-based interventions.

### *Patient education*

- Co-facilitate group patient education sessions or support other professionals in the development of the content;
- Assist with the development of written patient information.

Within their training, clinical psychologists specifically have experience and competencies of working across the lifespan, including people with learning disabilities and cognitive impairment. These skills can be applied in supporting the team where individuals in these groups require education.

### *Consultation and joint working*

Kidney psychologists can provide specialist psychological advice and guidance to kidney unit multi-professional teams through:

- Consultation (e.g. at ward rounds, kidney clinical and MPT meetings);
- Planned joint patient work with other MPT professionals;
- Clinical supervision (1:1 or group) to other kidney team professionals;
- Providing staff support and reflective practice opportunities on an on-going basis and in response to specific, difficult situations. This work helps to manage and reduce staff stress and promotes effective communication and teamwork amongst colleagues.

### *Education and support for kidney staff*

Kidney psychologists support the development of psychological skills and competencies within the kidney unit staff team via:

- Teaching, training, consultation, education, reflective practice groups and supervision;
- Supporting front-line clinicians in their role (via supervision and overseeing direct work), to deliver routine psychological care using appropriate strategies for managing common psychological difficulties.

### *Audit, research, service evaluation, and service and policy development*

As scientist practitioners, this area is a core role in practitioner psychologist job descriptions. The kidney psychologist has specialist skills and experience in conducting psychological research. This is applied to understanding psychosocial issues in kidney disease and improving psychological care in kidney services through developing individual projects or advising on/participating in research carried out by the MPT.

The kidney psychologist also brings specialist skills and experience in:

- Service evaluation;
- Audit and service development;
- Ensuring evidence-based and developmentally appropriate psychological approaches are embedded within policies, procedures and pathways in the kidney unit (e.g. consent to treatment, transition from paediatric to adult services, managing distressing behaviour, procedural anxiety and education and preparation for dialysis and surgery including transplantation).

### *Supervision/continuing professional development*

Kidney psychologists have a responsibility to engage in continuing professional development (CPD) and supervision of their practice to maintain their Health and Care Professions Council (HCPC) registration. The amount of supervision will vary depending on the grade of a particular psychologist, however, this should be at a minimum of one hour per month for more senior staff, with increased frequency for those newly qualified.[35]

## 4.3 Paediatric Psychologists

**Components of the role of paediatric kidney psychologist**

Children and young people who are seen within specialist paediatric kidney teams experience high levels of psychological distress and vulnerability. Children receiving dialysis have lower quality of life than their peers and are more likely to experience psychiatric conditions such as anxiety[36], depression and adjustment disorder.[36, 37] Paediatric clinical psychologists aim to reduce psychological distress, promote optimal development and improve health outcomes including psychological well-being, by the systematic application of knowledge derived from psychological theory and data.[18, 37]

Paediatric kidney psychologists working within specialist paediatric kidney teams help children, young people and their caregivers to:

- Develop the necessary skills and abilities to cope with their emotional needs and daily lives;
- Maximise their psychological and physical well-being whilst adapting to the impact of kidney disease;
- Develop and use their capacity to make informed choices about treatment options;
- Maximise developmentally appropriate independence and autonomy;
- Have a sense of self-understanding, self-respect and self-worth;
- Be able to enjoy good social and personal relationships and share valued social and environmental facilities.[38]

Paediatric kidney psychologists also

- Treat the emotional and psychological impact of kidney disease;
- Support concordance with treatment plans;
- Signpost patients, their families and caregivers to appropriate sources of support;
- Conduct liaison with other involved agencies e.g. school/college, community paediatrics, social services, CAMHS
- Ameliorate distress in relation to medical assessment and management.

The paediatric kidney psychologist's role is also to support treatment decisions by ensuring that children and young people's care plans take account of the broader psychosocial context and individual factors such as resilience and emotional/psychological needs. It is vital that kidney paediatric psychologists are embedded within the kidney team so that children and families can receive coordinated interdisciplinary care. The key roles and components of the paediatric kidney psychology service are similar to adult kidney psychology.

## Career pathway

Paediatric kidney psychologists must be registered with and regulated by the HCCP as a 'practitioner psychologist' which may include clinical, health or counselling psychologist.[39] All paediatric kidney psychologists are currently clinical psychologists. Paediatric kidney psychologists have an extended training to doctoral level prior to registration (a minimum of 6 years as per figure 1).

The undergraduate psychology degree provides theoretical knowledge in psychological models and research methodologies based on an understanding of normal child development. As part of clinical psychology doctorate training, paediatric kidney psychologists will have gained experience of working in a variety of interdisciplinary clinical settings with a variety of patient groups and presenting problems, including working with children/young people, adults, older adults and people with intellectual disabilities.

Given that paediatric kidney psychologists work with children and young people as well as their siblings and caregivers, they learn to apply evidence-based practice across the lifespan and to be proficient in complex assessment, using a variety of psychological techniques at an individual, group and systemic level. Along with research methodology, paediatric kidney psychologists possess the necessary skills to work with complex psychological difficulties, including co-morbid physical and mental health problems, drawing on a range of evidence-based therapeutic treatment approaches. They provide supervision and work in teams conducting research, audit and service evaluations, supporting service and organisational development.

## Continuing professional development

Paediatric kidney psychologists have a responsibility to engage in CPD and supervision of their practice to maintain their professional HCPC registration.[39] They are responsible for keeping themselves up to date with knowledge of medical and physical aspects of kidney disease as well as those relating to mental health. All kidney psychological practitioners should be a member of either the Kidney Psychologists Network Group or the RPT (Renal Psychological Therapist) group.[40, 41] CPD is maintained through regular attendance at study days and meetings such as national and international kidney, transplant or psychology conferences to maintain knowledge and awareness of scientific developments.

Clinical supervision is required to maintain clinical governance and quality and safety of patient care. The amount of supervision varies depending on the grade of the psychologist post. A minimum one hour per month for senior staff is required, with increased frequency for those at newly qualified bands.[35]

## Proposed staffing levels

A comparison between the British Renal Society (BRS) 2002 kidney workforce plan[24] and a recent mapping exercise of the UK Kidney Psychosocial Workforce revealed that marked variation in the provision of psychological resources to paediatric kidney units remains an issue.[7] The number and WTE of psychosocial staff working in UK paediatric units in 2017 are outlined in Table 1.[7]

**TABLE 1. NUMBER AND WTE OF PSYCHOSOCIAL STAFF WORKING IN UK PAEDIATRIC UNITS IN 2017.[7]**

| Profession | Number of staff | Whole Time Equivalent (WTE) |
|---|---|---|
| Psychologist | 14 | 5.7 |
| Social worker | 10 | 7.4 |
| Play therapist | 2 | 2 |
| Counsellor/psychotherapist | 1 | 0.5 |
| Music therapist | 1 | 0.2 |
| Youth worker | 1 | 0.25 |
| Play worker (unqualified) | 2 | 2 |

The UK kidney psychosocial workforce mapping exercise identified that psychological services are primarily provided by clinical psychologists in paediatric services.[7] In addition, social workers, play specialists, youth workers/young adult workers, teachers and nurses also contribute to the psychosocial support and management of children and their carers. However, it is evident that there remains a significant variation in service provision nationally, which has led to a crisis response intervention model of care in many units, rather than the proactive, integrated involvement of clinical psychologists as part of the MPT.

Within paediatrics, the suggested workforce recommendation is 1.0 WTE psychologist per 150 paediatric kidney patients seen by a specialist paediatric kidney service, based upon data from the UK kidney psychosocial workforce mapping exercise, and recommendations from CF services.[7,12]

## 4.4 Adult Counsellors and Psychotherapists

### Introduction

Data from the UK psychosocial mapping exercise indicates that a total of 29 recorded counsellors and psychotherapists are working in 17 of the 84 kidney units across the UK – this is representative of 16% of the total kidney psychosocial practitioners working in the NHS.[7]

Table 2 outlines the components of the counsellors and psychotherapist roles. For inpatient referrals we suggest practitioners aim to see all inpatient referrals for specialist psychological input within 1 week. Clients with AKI are a separate group that benefit from early intervention.[38] We recommend outpatient referrals are seen within 2-8 weeks for either assessment and/or initiation of therapy, as a gold standard.

Although training routes are different for clinical psychologists and psychotherapists, the levels of knowledge required are equivalent, therefore psychotherapist jobs may be matched to clinical psychology profiles on an equivalent basis when banding job descriptions as documented on NHS employers.[42] As psychological practitioner roles (levels 3 & 4) are similar, counsellors and psychotherapists would align themselves with psychologists working in the NHS regarding proposed staffing levels – minimum and gold standard.

**TABLE 2. COMPONENTS OF THE COUNSELLOR/PSYCHOTHERAPIST ROLE**

## Direct clinical work

**Assessment**

- Use knowledge and skills to provide specialist assessments for patients, parents and carers/relatives
- Clinical responsibility following assessment is to ensure that clients are referred to appropriate services when risks are identified e.g. mental health services, liaison psychiatry, safeguarding teams, social services or GP

**Transplant assessment**

- Provide specialist psychological assessments of donors, altruistic donors and recipients prior to surgery[25, 27]
- Report-writing regarding appropriateness of donation to the MPT
- Contracting for counselling as required post assessment

**Bariatric surgery assessment**

- All kidney bariatric surgery candidates prior to planned surgery planning
- Assessment report fed-back to the Bariatric MPT[44]
- Engaging and contracting for counselling may also be initiated following assessment

**Intervention**

- Short, medium or long-term counselling or psychotherapy using a range of evidenced based interventions/approaches tailored to the individual[27,28,29,30,31,33]
- Delivery of information/psycho-education; advocating and signposting to individuals, couples, families, carers and groups.
- Use of Psychometric outcome measures
- Preparation of young people transitioning from child health to adult services, as well as supporting existing young people with CKD and AKI within the adult service[34]
- Providing appropriate therapeutic interventions to support the potential donor or recipient, including post-surgery recipient adjusting to life with a transplant
- Inpatient referrals
- Outpatient referrals

## Patient Education

- Provision of age-appropriate information for children or young people regarding CKD
- Deliver pre-dialysis/transplantation educational seminars, individual or group psycho-education
- Provide advice and support that is sensitive to the psychological needs of the patient, young person or family
- Facilitate/co-facilitate support groups for kidney patients and their families

## Consultation and joint work

- Service development, ensuring equitable service offered across entire kidney patient pathway, informed by patient experience
- Contribute to MPT meetings/ward rounds
- Liaise with social services, schools/colleges/community agencies for psychological/social input

## Education and support for kidney staff

- Participation and delivery of training on psychological impact of CKD
- Support staff to manage anxiety and pain for patients receiving dialysis
- Emotional containment – clients and staff
- Provide clinical crisis support – debriefing sessions
- Supervision for other healthcare professionals
- Reflective practice groups, education, training and consultancy

| Audit, research, service evaluation, and service and policy development |
|---|
| • Provide yearly audit updates and undertaking patient experience surveys<br>• Contribute to research in all areas of kidney health, developing individual projects or participating in research carried out by the MPT |
| **Supervision** |
| • Recommended minimum criteria: 1.5 hours/month for individual and double for group supervision. – ratio of 1:6 individual supervision hours to overall client hours[45,46]<br>• Practitioners supervising students or colleagues, within the team, require additional supervision time<br>• An essential element of the job description funded by the trust/employer and delivered in worktime |

## 4.5 Adult Social Workers

### Introduction

Kidney social workers across the United Kingdom work to 'promote social change and development, social cohesion and the empowerment and liberation of people. Principles of social justice, human rights, collective responsibility and respect for diversities are central to social work. Underpinned by theories of social work, social sciences, humanities and indigenous knowledge, social work engages people and structures to address life challenges and enhance wellbeing'.[43] Kidney Renal social workers work holistically to improve the wellbeing of people living with kidney disease; alongside their families and carers, from diagnosis to the end of life, in collaboration with other members of the multi-professional team. Throughout the patient journey they are the primary point of contact for practical and social care issues.[47] In addition, they aim to improve patients' experience of the wider systems through research, development and advocacy.

The commissioning and funding arrangements for kidney renal social work services across the UK vary significantly, with posts being funded through: acute hospital services, local authorities or jointly funded between trusts and social services, or in some cases, charities.[7] The components of adult kidney renal social work roles are outlined in Table 3.

These vary depending on whether the worker has statutory duties, specifically under the Care Act 2014 and the Mental Capacity Act 2005 (England and Wales) or the Adults with Incapacity (Scotland) Act 2000.

### Career pathway guide

Social worker is a protected title, and each social worker is registered with a governing body; the Scottish Social Services Council; the Northern Ireland Social Care Council, Social Care Wales, or Social Work England.

To qualify as a social worker, a BA, BSc, MA or MSc in Social Work is required.[52] As standard practice, a social worker with a minimum of 2 years, post-qualifying experience is needed due to the complexity of kidney care. The equivalent level on the Skills for Care Career Framework is [7,10].

### Proposed staffing levels

If recommendations for psychosocial provision for CF services are applied, no kidney units currently meet the gold standard social work recommendations of 1.0 WTE social worker per 150 kidney patients.[12] The minimum standard for social work provision amongst CF patients is 1.0 WTE social worker per 140 patients. Within kidney services in 2017, there were 58 social workers in adult units with a total WTE of 44.6 social workers in post at the time of the review.[7]

## 4.6 Paediatric Social Workers

### Introduction

Paediatric kidney social workers respond to the psychosocial aspects of care relating to children with kidney problems, their carers' and family members.[53] Their role is to provide practical and emotional support to children (0-18 years of age) and their families to ensure they are able to effectively engage with, and consequently benefit from treatment for their kidney disease. Each paediatric kidney unit is unique, requiring the social worker to be flexible and adaptable in their approach, individualising support to whomever they are working with. The paediatric kidney social worker is a skilled and experienced practitioner who can offer tailored advice and support using an early intervention model to reduce the risk of situations progressing to crisis point.[54]

The bio-psychosocial model outlined by Beder (2006)[55], is a theoretical model which demonstrates that the paediatric kidney social worker works with the patient themselves, their family (including parents, carers and siblings) and their social and environmental contexts to address any factors which are negatively affecting their wellbeing. Paediatric kidney social workers work holistically and may provide support that does not directly focus on the child, but helps improve their situation.

### Components of paediatric social work

Paediatric kidney social workers undertake comprehensive psychosocial assessments of need with children and their parents, carers and siblings, which contribute to person-centred care planning.[53]

**TABLE 3. COMPONENTS OF THE ADULT KIDNEY SOCIAL WORK ROLE**

| General overview |
| --- |
| • To be an expert resource, providing specialist advice, information and support to adults with kidney conditions, carers and health professionals, in relation to their psychosocial support needs<br>• Make effective use of learning opportunities and evaluate and reflect on own knowledge/practice<br>• Contribute to the learning and development culture within the kidney unit<br>• Build good relationships with kidney patients and their carers, offering support that is holistic, proactive, and tailored to individual need<br>• Promote equality, diversity and rights<br>• Interpret the rights and responsibilities of people in a way that is consistent with the governing body's Professional Standards and British Association of Social Workers' Code of Ethics[48,49]<br>• Act in a way that acknowledges people's rights to make their own decisions and recognises their responsibilities, understanding the resultant dilemmas and developing appropriate solutions<br>• Support anti-discriminatory practice and proactively identify and take action to address discrimination and oppression in self and others |

## Tasks

- Assessment of need
- Carer support
- Welfare rights and debt support
- Applications to grant bodies on behalf of patients and families
- Advocacy
- Facilitating patient groups and forums
- End of life support and advance care planning
- Bereavement and pre-bereavement support
- Transitions work for young people moving to adult services
- Material help
- The use of counselling skills to engage and support patients and families from all backgrounds
- Support with housing issues
- Employment issues
- Completing Continuing Health Care paperwork in partnership with nursing colleagues and families
- Family support
- Promoting inclusion
- Hospital discharge
- Mental Capacity Assessment
- Carer assessment
- Safeguarding
- Engaging with those who are hard to reach through a traditional medical model, e.g. focusing on the social reasons for non-adherence[50]
- Referrals to community specialist teams
- Referrals for aids and adaptations
- Immigration matters
- Travel support

## Research and audit

- Commitment for kidney social workers to initiate and participate in multi-professional research/audit projects
- Participate in local, national and international dissemination of research

## Education

- Develop tools to support patients of all backgrounds – cultural, social, and educational – to understand their condition
- Contribute to the multi-professional approach to pre-dialysis education
- Formulate and implement bespoke in-house educational sessions to address identified needs
- Support the learning needs of colleagues
- Contribute towards the development and updating of information for kidney patients, their families and carers regarding services and support networks
- Attend relevant study days and educational programmes
- Attend and participate in clinical and audit meetings
- Support social work students undertaking placements in the kidney service

## Service development

- Work creatively within the MPT, using local and national evidence to promote enhanced ways of working
- In partnership with the MPT, review service needs through audit, research, observation and peer review
- Make recommendations on change and support the implementation and evaluation of new working practices using evidence-based practice

| Continuing professional development |
| --- |
| • All social workers must adhere to the standards of conduct, performance and ethics of their governing body in order to maintain their registration, including engaging in appropriate CPD<br>• Kidney social workers can be members of the British Association of Social Workers' Kidney Special Interest Group UK Renal Social Work Group[51]<br>• Social workers should commit to engaging in monthly clinical supervision |

The support provided will vary, in response to individual need. Support can include:

- Attending ward rounds, psychosocial meetings, multi-disciplinary meetings, assisting with complex discharge planning;
- Seeing patients, in outpatient clinics, dialysis units, in the community;
- Participating in shared decision-making in preparation for dialysis or transplantation;
- Supporting siblings and family members;
- Liaising with the local authority in respect of safeguarding issues, contributing to chronologies, child protection plans and attendance of child protection conferences, core groups and strategy meetings;
- Conflict resolution/mediation between medical team and families;
- Safeguarding: dealing with initial disclosures; making referrals; participating in strategy meetings; Child Protection Conferences; core group meetings and care team meetings; liaising with hospital safeguarding teams; advocacy for the child and family;
- Dealing with specialist needs e.g. Learning disabilities of child and/or parents; communication needs e.g. non-English speaking; limited reading abilities; mental health issues; substance misuse;
- Support with immigration issues, letters for employment, benefits, housing;
- Accessing care packages, either from children's social care or children's continuing care;
- Early help plans, and acting as lead professionals;
- Transition support;
- End-of-Life Care and bereavement support;
- Facilitating groups and coffee mornings, e.g. dialysis families weekly support groups;
- Helping with benefits and charity applications;
- Support MPT members as they provide psychosocial support;

**Career pathway guide**

Social workers in Britain have generic training which enables them to work with both adults and children, and they can then choose to specialise after qualifying. Paediatric kidney social workers must have a recognised social work qualification and be registered with the appropriate regulatory body for the part of the UK in which they practise (regulation of social work is devolved to the regional governments within the UK).[56] Paediatric kidney social work is a specialist post, and the standard practice would be to recruit a social worker with a minimum of 2 years post- qualifying experience. As with adult kidney renal social workers, there are several ways in which paediatric kidney social workers may be funded and employed. The job description will define the banding if employed under agenda for change.[53] Paediatric kidney social workers must engage in continuing professional development in order to maintain their registration. They are strongly encouraged to become members of the BASW Kidney Social Work Group, and maintain regular contact with the other paediatric kidney social workers for peer supervision.

**Proposed staffing Levels**

A workforce mapping exercise in 2018 revealed 10 paediatric kidney social workers in the UK, of which 7.4 were WTE.[7] This is a reduction from 10.4 WTE documented in 2002.[24] There is very little research focusing on paediatric kidney social workers, therefore evidence from other equivalent long-term health conditions (CF) have been used for benchmarking. The Cystic Fibrosis Trust[12] recommendations are 1.0 WTE per 150 patients.

It is important that the paediatric kidney social worker is embedded within the kidney MPT to allow them to provide the necessary specialist support and advice. To achieve this, it is necessary for them to have sufficient time each week to both support families and to establish good working relationships with the other members of the MPT. This balance should be considered when factoring minimum staffing levels: a role with less than 0.5 WTE would make it difficult to achieve this balance.

Access to specialist paediatric kidney social work is becoming more important as the thresholds for support from children's social care are becoming more focused on crisis management and responding to significant child protection concerns. Most children living with kidney disease and their families are not eligible for support from community-based social workers.

## TABLE 4. SKILLS FOR HEALTH CAREER FRAMEWORK FOR ADULT AND PAEDIATRIC PSYCHOSOCIAL PRACTITIONERS: PSYCHOLOGISTS, COUNSELLORS, PSYCHOTHERAPISTS, SOCIAL WORKERS.[58]

Note: Levels relate to Skills for Health Framework and not Agenda for Change banding.

| Level | Explanation | Psychologist | Counsellor/psychotherapist | Social Worker |
|---|---|---|---|---|
| 8 | • Require highly specialised knowledge, some of which is at the forefront of knowledge in a field of work<br>• Leaders with considerable responsibility, and the ability to research and analyse complex processes<br>• Have responsibility for service improvement or development<br>• May have considerable clinical and/ or management responsibilities, be accountable for service delivery or have a leading education or commissioning role | Consultant clinical/health/counselling psychologist<br>Provision of professional leadership and management of kidney psychological services including:<br>• Leading on strategy, policy and service development<br>• Managing resources & budgets<br>• Recruiting and managing kidney psychology services staff<br>These roles also retain significant components of providing direct clinical work, consultation, supervision, teaching/ training and research (as detailed in Levels 6 and 7 below) | Consultant kidney psychotherapist/ counsellor manager<br>Kidney-specific skills include:<br>• Leading a specialist kidney therapies team including line management & providing supervision<br>• Budget management<br>• Knowledge of all aspects of the kidney patient pathway and an understanding of kidney diseases<br>• Ability to differentiate between physical and psychological symptoms<br>• Overall risk management responsibility<br>• Leading kidney psychology/therapy research and carrying out complex service audits<br>• Leading service development, improvement & education locally and nationally<br>• Involvement in Kidney Policy development and commissioning | |

| Level | Explanation | Psychologist | Counsellor/psychotherapist | Social Worker |
|---|---|---|---|---|
| 7 | • Have a critical awarenesss of knowledge issues in the field and at the interface between different fields<br>• They are innovative and have a responsibility for developing and changing practice and/or services in a complex and unpredictable environment | Principal clinical/health/counselling psychologist<br>Skills include:<br>• Increased role in the leadership, organisation and management of the kidney psychology service<br>• Increased managerial role and responsibility for others within the psychological service<br><br>Senior/highly specialist kidney clinical psychologist<br>Skills include:<br>• Leading service development<br>• Managing assistant and graduate psychologists<br>• Advanced clinical supervision skills enabling provision of clinical supervision to other qualified clinical psychologists and psychology service staff at senior/highly specialist level and below | Specialist or kidney counselling manager<br>Skills include:<br>• Leading a specialist kidney therapeutic team, including line management and supervision<br>• Overseeing the running of support groups, young people or transition clinics and end-of-life care<br>• Education and training – in-house and locally<br>• Kidney service development and policy making (in-house)<br>• Kidney research, audit, client questionnaires<br>• Risk management, including signposting | Team leader<br>• Responsibility for supervising kidney renal social workers<br>• Attendance at management meetings |
| 6 | • Require a critical understanding of detailed theoretical and practical knowledge<br>• Specialists and/or have management and leadership responsibilities<br>• Demonstrate initiative and are creative in finding solutions to problems<br>• Some responsibility for team performance and service development and they consistently undertake self-development | Equivalent of clinical/health/counselling psychologist<br>Skills include:<br>• Providing evidence-based assessment, formulation and psychological intervention to individuals and group interventions<br>• Specialist psychological assessment for transplant and live donation<br>• Risk assessment /management plans for individuals particularly in relation to deliberate self-harm<br>• Highly developed skills in providing specialist advice, consultation, teaching/training and supervision to wider kidney team<br>• Post-doctoral level research, audit and service evaluation skills<br>• Contributing to service development | Specialist kidney counsellor<br>Skills include:<br>• Acquiring specialist knowledge of kidney patient pathway<br>• Working towards accreditation<br>• Supervision of trainee counsellors<br>• Running support groups; transition and end of life care clinics<br>• Involved in kidney research, audit and service evaluation | Renal social worker<br>• Acquiring specialist knowledge of issues affecting those with long-term conditions<br>• Carrying out complex assessments and statutory social work tasks e.g. safe- guarding, mental capacity assessments<br>• Carrying out research/audit presentations at local/regional/ national forums<br>• Engaging with MPT in delivering patient education<br>• Chairing relevant meetings<br>• Supervising student social workers |

| Level | Explanation | Psychologist | Counsellor/psychotherapist | Social Worker |
|---|---|---|---|---|
| 5 | • Have a comprehensive, specialised, factual and theoretical knowledge within a field of work and an awareness of the boundaries of that knowledge<br>• 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 | | | |
| 4 | • 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<br>• May have responsibility for supervision of some staff | Assistant psychologist<br>• Assists a qualified kidney psychologist to support individual and group interventions<br>• Assists research and audit activities | | Renal social work assistant<br>Assisting with:<br>• Support to patients<br>• Running of patient and carer groups<br>• Gathering of information for audit/ research<br>• Taking on a caseload of less complex work under the supervision of the kidney renal social worker |

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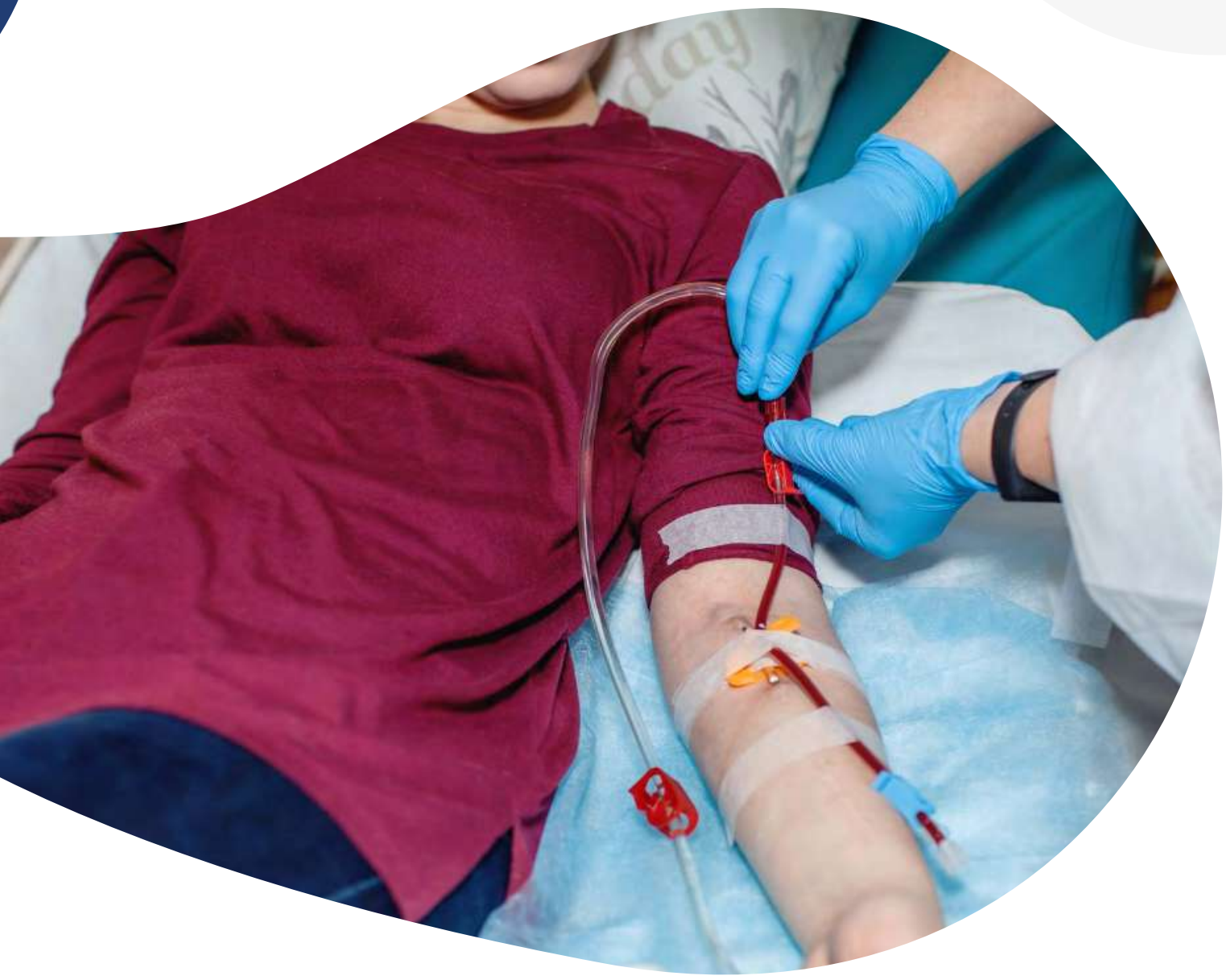
05



# Technologists

Haemodialysis is an advanced technology requiring high-specification dialysis and water treatment equipment. Renal technologists provide equipment management (maintenance, calibration and repair) and Quality Management and Controls Assurance services. The multi-professional role of the technologist includes:

- Education and operational support for people living with kidney disease and the staff who support them;
- Specialist advice on the design, installation and commissioning of new dialysis facilities;
- Administrative and/or IT support.

The range and extent of these services may ultimately be dependent upon which department the technologist is employed by – i.e. Renal Unit, Medical Physics and Clinical Engineering, Electrical and Biomedical Engineering (EBME) or Estates Departments.

Regardless of the employing department, the technologist is working for, there will most certainly be a standard or common core of renal-related activities and services that the technologist will be expected to provide.

The Association of Renal Technologists (ART) recommends that all renal clinical technologists are registered with The Register of Clinical Technologists. The Professional Standards Authority (PSA) recommends only the use of practitioners (technologists) who are registered on accredited registers such as The Register of Clinical Technologists.[1]

## 5.1 Role of the Renal Technologist

Technical support from suitably trained technologists is of critical importance in the provision of regular dialysis treatment. An important aspect of the role is carried out in the clinical area. Technologists provide advice and support during dialysis to nursing staff and people receiving dialysis at home.

The technical role of both the renal technologist and renal technical manager will be broadly similar, but the technical manager may only commit approximately 50-70% of their time to technical duties. The remainder of their time will be committed to managerial duties ranging from day-to-day management of staff; recruitment; asset management and equipment replacement programmes; local kidney unit clinical governance and possibly wider governance within their Trust/organisation; and, staff training and development.

As an overview of the role, the renal technologist is responsible for:

- Monitoring dialysis water quality, ensuring governance, quality control and maintenance issues are carried out and reported on;
- Management of risks and contingency plans for plant failures;
- Development and review of equipment, operational policy and practice;
- Asset management, particularly requirements for medical equipment from trial evaluation, procurement, installation, lifetime maintenance and end of life disposal;
- Understanding and adhering to legislation, standards and guidance relevant to a renal technical department;
- Maintaining professional standards required whilst performing their job roles.

**Staffing levels**

Adequate staffing levels need to be considered based on a range of local factors including but not limited to:

- Number of people receiving home haemodialysis;
- Total number of people receiving haemodialysis;
- Number of dialysis stations operating in main and satellite units;
- Level of service provision being delivered e.g. in-house maintenance and maintenance provided under service contract from external providers.

The contribution of renal technologists to other aspects of service delivery and development also needs to be considered.

Based on the analysis data collected and the potential variations in technical services ART recommend the following:

- Where an on-call service is required a minimum of three whole time equivalent renal technologists are required;

- For every thirty (30) haemodialysis machines a minimum of one whole time equivalent renal technologist is recommended.

However, it should be noted that other local factors will influence the whole-time equivalents required. The ratio detailed above (1:30) includes technical managers, where 30-50% of their time is likely to be committed to managerial duties. This therefore impacts on the ratio potentially taking it higher, with consideration given to a ratio being 1:35 being acceptable.

The ratio of 1:35 is therefore given as a recommendation where renal technical teams support only the kidney service and provide no support to other areas such as clinical engineering or endoscope washer-disinfector as examples. The ratio is also for whole-time equivalents. The number of spare machines and backup/redundancy of central water treatment plants will potentially impact on the workforce requirements and indeed whether an on-call service is required or not.

ART therefore recommend that where the number falls below three for services providing on-call or where the number of haemodialysis machines results in a ratio of 1:35+ that units consider adding this to their risk register with rationale and supporting control measures for moving away from the workforce recommendations.

**Education and training**

To support renal technologists' admission to the Register of Clinical Technologists accredited register, ART have developed the ART Training Scheme which meets the requirement for registration.

The scheme is a two-year post-graduate programme of in-post learning, designed to give a comprehensive understanding of the technology and underlying physics involved in KRT. It is open to all technologists who have gained General National Vocational Qualification (GNVQ) level 4 academic qualifications in an engineering or scientific subject as a minimum. The advent of modern apprenticeships may further define and shape the entry routes into this profession.

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06

**Therapies:** Physiotherapy, Occupational Therapy and Clinical Exercise Physiologists

## Introduction

The incidence and prevalence of people living with Chronic Kidney Disease (CKD) is increasing[1]. The physical and mental health burden of CKD for this growing population is significant throughout the life course. The Kidney Health Inequalities in the UK – An agenda for change[2], highlights that younger adults with CKD have the highest relative risk of poorer clinical outcomes. The onset of behaviours that may lead to ill health also occurs at younger ages and much of the morbidity and premature ageing effects may be preventable. Identifying ways to target early-life risk factors for reducing the progression of CKD and associated harms, and improving integration into societal roles later in life, are key recommendations. In addition, supporting adults and older people with CKD to live well with kidney disease is central to recent guidance documents.[3]

People with more advanced CKD are subject to increased risk of sarcopenia, defined as low muscle strength and mass.[4 5] Sarcopenia is a key factor in the development of falls and frailty, defined as a reduction in physiological reserve and multi-system imbalance when exposed to health stressors.[6] Frailty in the CKD population is not limited to those with advancing chronological age and was found in 75% of people with CKD.[7] Frailty in the CKD population is associated with a host of poor outcomes, including increased rates of all-cause and cardiovascular-related mortality.[7]

These issues may be compounded by malnutrition and prolonged periods of hospitalisation[8]. Recurrent episodes of illness and hospitalisation related to infection, surgery and cardiovascular disease contribute to muscle wasting, reduced physical functioning and deconditioning.[8] Levels of physical inactivity and sedentary behaviour are very high across the CKD trajectory.[9] In adults, physical inactivity has been identified as an independent risk factor for accelerated deterioration of kidney function, physical dysfunction, poor cardiovascular, respiratory and metabolic health, and lower levels of quality of life in people living with all stages of kidney disease[10-12]. For children and young people with CKD (CYP-CKD) limited data, mostly from cross-sectional studies, indicates lower levels of daily physical activity and time per week spent on exercise compared to healthy peers.[13 14] Only 13% of CYP-CKD meet current physical activity guidelines, with children with worse kidney function, older children and females engaging in significantly less physical activity than younger and male CKD peers.[13 14] Inevitably, low physical activity levels lead to lower levels of physical fitness and function with lower leg muscle mass and functional muscle-bone unit quality, compared to age-gender matched healthier peers.[15 16]

Whilst kidney transplant confers a significant survival advantage over remaining on dialysis, transplantation alone is insufficient to restore quality of life to levels seen in people without CKD.[17] The adult kidney transplant population continues to experience reduced physical function[18] and remains at significant risk of post-transplant diabetes,[19] hypertension,[20] and weight gain.[21] The incidence of cardiovascular disease remains 3 to 5 times higher post-transplant compared to the general population[22] and is a leading cause of morbidity, mortality and graft loss in this group.[1 23] For CYP-CKD receiving a kidney transplant, there is an increased risk of developing longer-term cardiovascular complications, insulin resistance and diabetes. Contributing factors such as visceral obesity, low lean mass and hyperglycaemia (metabolic syndrome), potentially influenced by immunosuppressive therapies, may deteriorate after kidney transplantation.[24] In addition, nutritional deficits and altered hormonal axes persist following kidney transplant and may result in irreversible stunted growth.[25] Bone quality for normal growth and function is crucial, as 90% of bone mass accrual takes place before 20 years of age.

Adults with CKD also often live with multiple long-term conditions which have a significant impact upon their health and wellbeing, as well as contributing to higher treatment burden[26]. It is also well-recognised that advanced CKD is associated with a range of symptoms, including fatigue, nausea, poor sleep, and loss of appetite.[27-31] Many of these symptoms are under-reported in this population but can have a major impact on a person's cognitive and physical ability to engage in daily occupations, negatively affecting their mental wellbeing.[32 33] The overall impact of all of these factors includes reduced physical activity and function,[9 34] increased risk of mortality and morbidity and higher rates of depression, anxiety and healthcare utilisation and poorer quality of life.[35] For those living with frailty, these outcomes are particularly poor and are linked with other geriatric syndromes such as falls.[36] The incidence of falls in CKD patients ranged between 1.18 and 1.60 falls/patient-year, compared to 0.6 to 0.8 falls/patient-year in the general older population,[37] leading to adverse health outcomes such as increased incidence of physical disability, fracture, particularly in light of kidney bone disease, functional impairment, and mortality.[37]

In light of this, rehabilitation, defined as 'a set of measures that assist individuals who experience, or are likely to experience, disability to achieve and maintain optimal functioning in interaction with their environment,[38] is a key component of CKD management. Access to timely, person-centred and multidisciplinary rehabilitation support that focuses on the impact that CKD, in addition to other conditions or impairments, improves physical function and exercise capacity; health-related quality of life; mental well-being; blood pressure; cardiovascular health; reduced rates of hospitalisation; muscular strength; dialysis efficiency; all cause and cardiovascular mortality and has the potential to reduce health inequalities and make significant cost savings across the health and care system.[18 39-41]

Rehabilitation for people living with CKD is complex, with goals shifting with changes in kidney function, treatment modality, and in response to additional inter-current health issues, multi-morbidity, medications, and symptomology. Effective rehabilitation requires a holistic and person-centred approach, which is shaped by the values, beliefs, aspirations and motivations of the person, as well as important cultural and socioeconomic factors.[41] Consequently, rehabilitation approaches are typically highly individualised, and tailored towards what matters most to the person.[41] Rehabilitation may be appropriate at any stage as a person's needs change through the course of their CKD journey. Key time points at which they may require support are outlined in Figure 1 and include:[36]

- Recovery from unexpected illness which required acute admission to hospital, particularly in those who are frail.

- Promoting healthy lifestyle changes and the development of self-management skills earlier on in the CKD journey. The focus here is on enabling people with CKD to manage their own health and reduce the risk of developing secondary problems affecting both their mental or physical health, and potentially the progression of their CKD.

- Supporting people with advanced CKD who are preparing for dialysis, or for transplantation, both of which represent significant health stressors that may trigger, or exacerbate, a decline in function. This 'prehabilitation' approach is associated with improvements in physical activity, characteristics of the frailty phenotype and decreased post-transplant length of stay in those listed for transplantation.[42 43] It may also help frailer people who opt for dialysis, who can experience a substantial and sustained deterioration in function following dialysis initiation.[44]

- Maintaining independence and participation for as long as possible, and anticipating the support needs, of those who have opted for conservative care.[45]

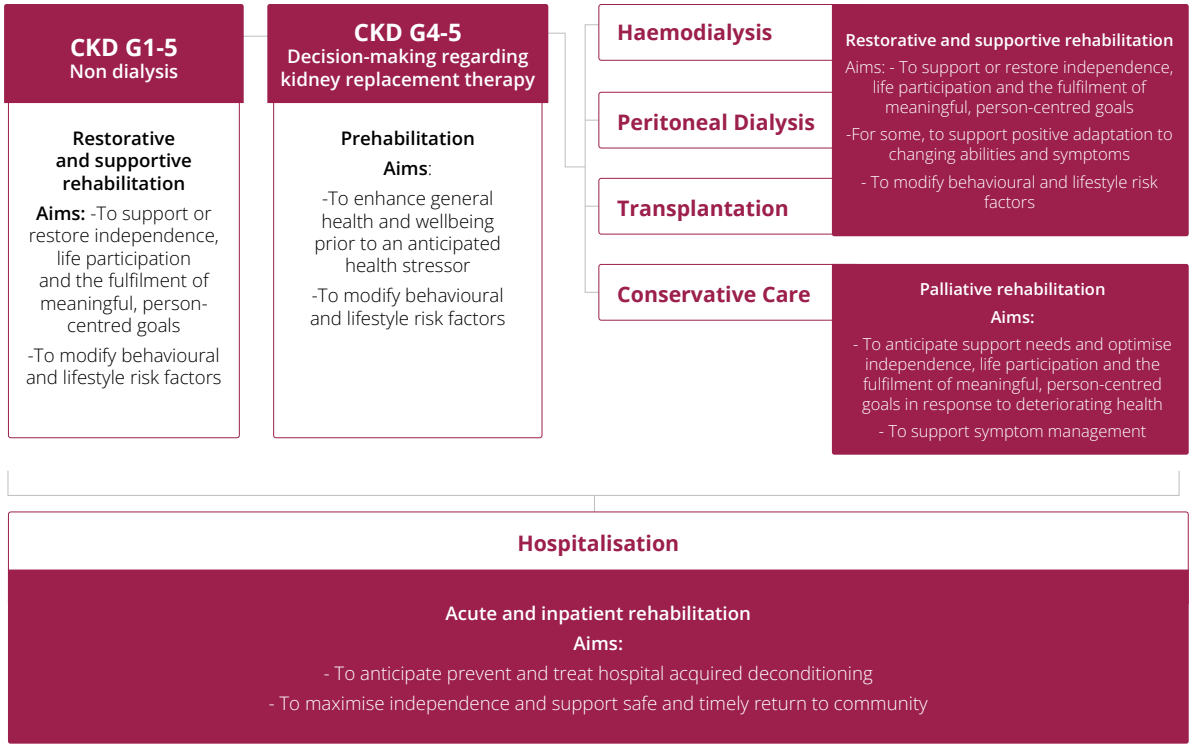


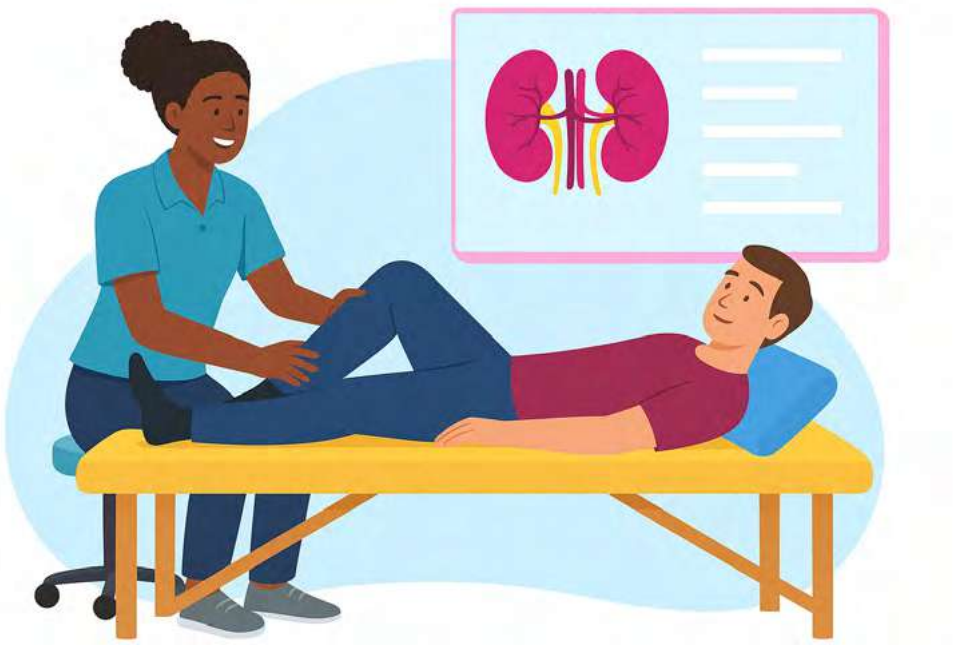

**Figure 1. Key timepoints and aims for the provision of physical activity, exercise, and rehabilitation interventions for people with CKD from Mayes 2022.[36]**

Across this trajectory and the life course, reduction of sedentary behaviour and increasing physical activity, including structured exercise, form a key component of rehabilitation. Recent UKKA guidance and The Chartered Association of Sport and Exercise Sciences (CASES - formerly The British Association of Sport and Exercise Sciences -BASES) expert statement on exercise therapy for people living with kidney disease recommends that all people across the CKD trajectory have access to structured rehabilitation programmes,[10 39] to support them to achieve at least 150 minutes/week (or 75 minutes vigorous activity) and undertake activities aimed at improving or maintaining muscle strength, balance and flexibility on at least 2 days a week in line with the recommendations of England's Chief Medical Officer.[39 46] Furthermore, these programmes should be tailored to individual needs and supervised by appropriately qualified, specialist, multi-professional teams who are experienced in the delivery of such programmes for people with CKD.[10 39]

Children and Young People with chronic kidney disease report physical activity, school, social activities and tiredness as the most important areas that they want to improve in their lives.[47] In general paediatric populations, it is well established that daily, multi-mode (aerobic, weight-bearing, strength promoting exercises), sufficient (at least 60 mins) and higher intensity physical activity (moderate and vigorous), is crucial for healthy growth, adequate skeletal system stimulation (to promote gains in bone tissue), prevention or delay of non-communicable conditions (i.e. obesity, hypertension, diabetes), positive self-image, physical fitness, and cognition in CYP. In the only pre-post-transplant study in CYP-CKD, no improvements were noted post-kidney transplantation in physical fitness/function, but there were significant increases in body weight and total body fat.[15] Potential interactions between CKD progression and physical activity/fitness may also have important implications for educational achievements, working memory, and social development. Although large improvements in intelligence and cognitive function levels are reported in this population post-kidney transplant, values remain in the lower end of the normal range.[48] CYP-CKD also report worse quality of life.[49] Post-kidney transplantation quality of life either does not improve,[15] or quality of life and psychosocial adjustment indices are similar to those of healthy peers,[50 51] hence there is an important role for rehabilitation to play within this group. Despite this, a survey conducted on behalf of the then British Renal Society Rehabilitation Network (BRS-RN) in 2014,[52] and recently updated for this workforce planning document,[53] highlights the continuing low levels of encouragement with, and opportunities to engage in physical activity, for people living with CKD across the UK, coupled with inconsistent access to rehabilitation programmes.

Since the 2020 workforce planning document, the COVID-19 pandemic has brought the importance of an adequately trained and resourced rehabilitation workforce to the fore, and yet it has also had a negative impact upon the provision of these services. People with CKD have not been unaffected by this, and a 2023 survey into kidney therapy provision revealed that many outpatient-based therapy services were halted as prioritisation moved to in-patient wards.[53] Many staff were redeployed. Upon restarting face-to-face provision, numbers within classes were reduced to allow for social distancing. Inpatient services appear to have been less affected, with some sites reporting limited impact as therapy was deemed a priority during this time. Nevertheless, staff and equipment shortages led to stretched services, and increasing patient acuity and complexity resulted in longer and more complex discharge planning.[53] The direct impacts of COVID-19, and its indirect consequences (including deconditioning, further reduced physical activity, balance and increased incidence of falls, social isolation and poorer mental health), coupled with the impacts of the cost-of-living crisis and ongoing health inequalities have had an ongoing and disproportionate impact on older people and people with CKD, making the need for access to timely rehabilitation ever more urgent.[54-57] The anticipated increase in demand for rehabilitation means that capacity to deliver rehabilitation and the means to deliver it must both be scaled up exponentially and be designed in such a way to ensure resilience in the face of future pandemics.[54] This must be achieved using several means, including training more specialist practitioners, retaining existing staff and embracing the skills of a workforce from outside the healthcare sector, and expanding access to digital health interventions and telemedicine.[54-57]

Digital solutions can be a cost-effective way of delivering aspects of healthcare, including the detection and screening of disease as well as treatment and prevention. A well-designed digital health intervention (DHI) should be tailored to the needs of the end-user and have broad reach, reducing inequality of access. Given the highly variable availability and quality of current rehabilitation offers for people living with kidney disease, DHIs may be an attractive solution for delivery of patient education and lifestyle-related behaviours.[58] They may be used, in conjunction with face-to-face support, to facilitate rehabilitation where there are workforce gaps. The COVID-19 pandemic saw a dramatic increase in DHIs to support people living with kidney disease who were shielding at home.[59 60] Exemplars of DHI's across CKD can be found within the Renal Digital Playbook.[61] Kidney Beam[61 62] and My Kidneys and Me[63] are examples of DHIs designed to support people living with kidney disease with their physical and emotional wellbeing, as well as potentially improve their self-efficacy and ability to self-manage their condition. Furthermore, the MOVE programme from Bangor University offers dialysis-specific exercise guidance.[64]



In addition, two national drivers have provided kidney services with an unparalleled opportunity to improve care, address variation and inequality, and to increase efficiency via the redesign of services. In September 2021, Getting it Right First Time (GIRFT) published its national speciality report for Renal Medicine.[65] GIRFT is a national programme designed to improve National Health Service (NHS) care by identifying unwarranted variations and sharing best practice between trusts. GIRFT identifies changes that will help improve care and patient outcomes, as well as delivering efficiencies. Several recommendations set out in the Renal GIRFT report relate to multi-professional kidney rehabilitation teams, including:

- Ensuring there is adequate workforce to support psychosocial and physical enablement needs in all outpatient settings, to improve equity and timelines of access, and patient experience (recommendation 9)

- Ensuring that patient experience and shared decision making are central to the planning and delivery of kidney services (recommendation 10)

- Reconfiguring the multi-professional kidney workforce to reflect service requirements and provide optimal care, as defined throughout this GIRFT report, to deliver the best outcomes and best patient experience (recommendation 11)

- Reducing variation and co-ordinating improved provision of holistic care for patients with diabetes and ESKD (recommendation 12)

The completion of this Renal GIRFT cycle coincided with the initiation of an ambitious Renal Service Transformation Programme (RSTP) by NHS England and NHS Improvement. This multi-agency programme aims to transform delivery of specialised services for kidney disease across England. The RSTP has five workstreams. Four are clinical and the fifth, Systems Working, is focused upon cross-cutting themes that will enable commissioning on the principles of whole person, whole care pathway approach.[66] One of the cross-cutting themes within the programme addresses living well with kidney disease. This workstream, entitled 'Psychosocial and Renal Rehabilitation', has been jointly led by the UK Renal Psychosocial Group and the UKKA Living Well with Kidney Disease Special Interest Group (SIG). A modified Delphi process and consensus day, hosted by NHS England, resulted in several recommendations for the commissioning of wellbeing services for people living with kidney disease[67]. The key kidney rehabilitation priorities, which will be included in the NHS England commissioning for kidney services toolkit, include the following:

- All people expecting or on dialysis, or at listing for transplantation, should receive a holistic physical health review at diagnosis or annually, that includes a physical function, nutritional and frailty assessment (Clinical Frailty Score).[68] Care plans must include physical rehabilitation, linking to primary care social prescribing.

- All patients expecting or on dialysis, or at listing for transplantation, should be assessed with the validated 'Sit to Stand 5 (STS5) functional assessment measure' and the single item score physical activity measure. This should be recorded annually as the physical function and physical activity measures that allow for identification of those in need of physical rehabilitation assessment and intervention.

- DHIs should be used to equip people living with CKD and the staff caring for them to maximise access to care. Services should support patients to overcome barriers to accessing new technology and improve digital literacy. Free NHS-developed web-based self-management programmes (that offer live and on-demand movement classes, and behaviour change support tools to increase physical activity) for people with kidney disease exist and should be adopted wherever possible.

- Staff working within kidney care must receive training in recognising frailty and kidney-informed physical rehabilitation care. They should link to integrated community rehabilitation teams and, where needed, to specialist physiotherapists and occupational therapists for kidney-specific care.

The inclusion of realistic and pragmatic kidney rehabilitation recommendations in the RSTP commissioning toolkit, including two simple measures to identify the need for kidney rehabilitation, brings a unique opportunity for kidney services to redress the inequity in physical wellbeing services provided routinely for people living with kidney disease.

This chapter aims to inform how the therapy and clinical exercise physiology workforce should adapt to match service needs and to support the delivery of a comprehensive and specialist multi-professional kidney workforce, by outlining the:

- Roles of key professions who provide this care (i.e. physiotherapists, occupational therapists, clinical exercise physiologists, including support staff);
- Key components of a kidney rehabilitation service and;
- Recommendations for staffing levels and skill mix amongst these professions.

## 6.1 Physiotherapy

Physiotherapy is a degree-based healthcare profession and is regulated by the Health and Care Professions Council. It is evidence-based, and takes a 'whole person' approach to health and wellbeing.[69] [70] Physiotherapists use their knowledge and skills to enable people of all ages with a wide range chronic conditions to live well with their condition, or to improve acute conditions. The persons involvement in their own care is at the core of their approach, which the physiotherapist supports through education, awareness, empowerment and participation in their treatment. The profession helps to encourage development and facilitate recovery, enabling people to remain independent for as long as possible.

Physiotherapists specialising in kidney care are ideally placed across a range of NHS settings to assist people with chronic kidney disease with mobility, balance, strengthening, and physical activity interventions, including structured exercise. They are also well-placed to support non-pharmacological symptom management. Individualised physical activity advice, from specialist physiotherapists working as part of the kidney multi-professional team, is essential for person-centred care and to optimise each individual's functional capacity and independence.

In an inpatient setting, the kidney physiotherapist role involves the assessment of mobility and rehabilitation needs, the prevention of iatrogenic deconditionng, the treatment of hospital acquired pneumonia and facilitating a safe and effective discharge. This includes a comprehensive social and physical assessment to determine person-centred goals, individual home circumstances, symptom burden, falls history, mobility, strength, function and balance, followed by an individualised treatment plan to ensure optimal recovery, maximise function and independence and to facilitate discharge to an appropriate setting with follow-on care and/or rehabilitation as indicated.

In the outpatient setting, kidney physiotherapists should design and deliver kidney rehabilitation services, kidney-specific weight management clinics, kidney transplant clinics, and advanced kidney care clinics, alongside colleagues from the multi-professional team. The provision of outpatient rehabilitation programmes for other long-term conditions has proven to be cost-effective, including falls prevention programmes for older people at risk[71], and cardiac rehabilitation.[72] [73] Kidney Beam, as an example of an evidenced-based CKD-specific DHI, led to a clinically and statistically significant increase in mental-health related quality of life and showed a 93% and 98% chance of being cost-effective at a willingness-to-pay threshold of £20,000 and £30,000 per quality-adjusted life year gained.

Specialist kidney physiotherapist involvement is also key to the implementation and delivery of intradialytic exercise programmes for people who are receiving haemodialysis. Intradialytic exercise is an 'umbrella' term which comprises any type of exercise programme delivered during haemodialysis treatment.[75] In practice, it is typically delivered by means of a bespoke static exercise bike, resistance training, or a combination of these two forms of training[75]. Several systematic reviews suggest that aerobic or resistance programmes, delivered in isolation, can improve field test outcomes of exercise capacity quality of life and reductions in levels of depression.[39 75 76] Intradialytic exercise programmes of six months duration have been shown to be cost-effective, primarily due to a reduction in hospitalisations, even when implementation costs are included.[77] Every increment in quality-adjusted life year (QALY) as a result of a 6-month program of IDC was associated with a £106,538 reduction in health care costs.[77] Based on current available evidence, the UK Kidney Association Guidance recommends that regular and sustained intradialytic exercise should be available in all haemodialysis units, to enhance physical functioning, promote wellbeing and encourage adoption of long-term exercise habits both within and without the in-centre settings.[39 78]

## 6.2 Occupational Therapy

Occupational therapists are specialists in enabling people to achieve or maintain optimum functional levels for daily activities (occupations) by modifying the physical and social environment to overcome impairments.[79] Through the provision of self-management strategies and employing enabling approaches, occupational therapists can help people to take control of their own health and wellbeing across all stages of their disease.[80]

NICE guidelines recommend regular occupational therapy sessions to improve and maintain the overall health and well-being of people.[81] Increasing physical and functional activities can lead to increased life expectancy, reduce the risk of depression and dementia, reduce falls risk, maintain independence and engagement in social activities for the general population, and is beneficial for those with CKD.[39 46]

Guidance from the Royal College of Occupational Therapists highlights that targeted occupational therapy interventions can reduce avoidable hospital admissions and length of stay, and improve wellbeing, facilitate self-management and enable adults to obtain or retain employment and social inclusion.[82] Indeed, life participation has been identified by the SONG initiative as a priority for people who have received a transplant,[83] those receiving peritoneal dialysis[84] and children and young people,[85] making access to occupational therapy of critical importance.

People living with kidney disease can experience very rapid changes in their health, and in the level of symptom burden they experience.[86-88] Occupational therapy intervention for this population therefore focuses upon minimising the implications of these multifactorial, shifting circumstances on occupational performance and wellbeing. Proactive and timely access to occupational therapy and ongoing monitoring and re-assessment is essential throughout the patient pathway to anticipate functional problems and proactively managing the fluctuating needs of people with kidney disease in a flexible, person-centred and timely fashion. Consideration of the needs of informal and formal carers are also implicit to occupational therapy care planning throughout.

Occupational therapists support people to remain at home and are therefore ideally placed to significantly contribute to preventing hospital admissions and reducing length of stay which in turn impacts on health and social care costs. The Royal College of Occupational Therapists have reported that by having occupational therapists on acute medical wards, length of stay can be cut from 9.5 days to one day.[79 89] Investment in occupational therapy is also directly linked with improved patient experience, quality of life and efficiency of working. The Royal College of Physicians[90] and the Faculty of Intensive Care Medicine[91] both recommend patients receive occupational therapy as part of multidisciplinary team input five days a week for adequate rehabilitation with aspirations to move towards seven-day services.

## 6.3 Clinical Exercise Physiologists

Although physiotherapists have primarily been responsible for kidney rehabilitation services, the demand for exercise rehabilitation services is growing rapidly.[92] Clinical exercise physiologists (CEPs) provide a complementary role and additional specialised training in exercise physiology, prescription and behaviour change.[93] CEPs specialise in the prescription and delivery of evidence-based exercise interventions to optimise the prevention, treatment and long-term management of acute, sub-acute, chronic and complex conditions, within primary, secondary and tertiary care settings as part of a multidisciplinary team of health care and rehabilitation providers. CEP services aim to optimise physical function and health and promote long-term wellness through lifestyle modification and behaviour change across the lifespan.[94]

CEPs are appropriately trained and qualified exercise professionals who may be included in the clinical kidney multi-professional team, to assist with the development and delivery of effective exercise training interventions/services and to support the sustainability of physical activity behaviour change[95] across the range of in-centre, outpatient, community and home-based settings.[10] Long-term engagement in physical activity is important for patients with CKD to enhance their quality of life and physical function whilst reducing cardiovascular disease risk factors and other comorbidities which may then decrease the risk of secondary diseases, such as cardiovascular disease and heart failure.[96]

Professional recognition of CEPs in the UK has advanced over recent years.[97] CASES has recently worked in partnership with Clinical Exercise Physiology UK (CEP-UK) to establish and promote the role of CEPs in the treatment and management of chronic and complex health conditions within the UK healthcare system[98] with clinical exercise physiologist professional registration now open with the The Academy For Healthcare Science (AHCS).

These newly registered CEPs, working as part of a multi-disciplinary team of healthcare and rehabilitation providers, offer an additional workforce of qualified health professionals, who are proficient in exercise testing, exercise prescription and delivery of evidence-based interventions for the prevention, treatment, and long-term management of acute, sub-acute, chronic, and complex conditions such as CKD.[10, 94-99] CEPs work according to appropriate educational, professional, and regulatory standards that are crucial for the delivery of safe, high-quality kidney rehabilitation alongside physiotherapy and occupational therapy colleagues.

CEPs require a minimum of 4 years of equivalent study with a relevant undergraduate degree and Master's degree in the area of clinical exercise physiology.[94] This training results in an excellent understanding of acute and chronic responses and adaptations to exercise in healthy and unhealthy individuals, as well as special considerations such as the influence of comorbid conditions and medications.[94 100]

CEPs working in NHS settings will often be responsible for conducting exercise tolerance tests, designing exercise programmes, and formulating individualised exercise prescriptions for patients with chronic diseases. Additional competencies include patient counselling and education regarding risk factor management, including addressing barriers to maintaining exercise compliance.[93] The recently published Scope of Practice for a UK clinical exercise physiologist[94] clearly outlines the role of a clinical exercise physiologist, as well as key rules and regulations they must practice in accordance with the AHCS standards of Professional Conduct & Ethical Practice.

Trained clinical exercise physiologists working as part of the multi-professional team can prescribe, deliver and monitor physical activity programmes to provide referral pathways for physical activity as part of NHS services, in the community or external services. Multimodal exercise should be provided to maintain or improve functional capacity, aerobic capacity, body composition and quality of life through personalised exercise programmes or group exercise to enhance social interaction. These exercise approaches are recommended by the BASES (now known as CASES) expert statement on exercise therapy for people with CKD.[10]

Kidney rehabilitation services should include clinical exercise physiologists alongside physiotherapists to support the development and evaluation of individualised, effective and sustainable physical activity and exercise plans. The role of these individuals and their activities will be central to the transition from acute rehabilitation services towards community-based pre-dialysis (stages 2-4) and post-transplantation services (akin to Phase IV cardiac rehabilitation) involving, where appropriate, self-managed physical activity plans to support sustained participation.[10]

Referral networks should be formed between healthcare professionals, such as physiotherapists, and appropriately trained clinical exercise physiologists to develop integrated referral pathways to exercise in the community to enhance access to long-term safe and effective exercise services. CEPs holding additional qualifications such as the British Association for Cardiovascular Prevention and Rehabilitation (BACPR) cardiac phase IV exercise specialist certification, or the Later Life Training Postural Stability Instructor certification, are able to manage the transition and implement community exercise services that are responsive to the changing needs of all people with CKD, such as cardiovascular dysfunction and/ or frailty.

**TABLE 1. COMPONENTS OF THE KIDNEY THERAPY SERVICE**

| Role of specialist kidney physiotherapist | Role of the specialist kidney occupational therapist | Role of the clinical exercise physiologist |
|---|---|---|
| **General overview** | | |
| Assessment of mobility, physical function, balance, exercise capacity, muscle strength, physical functional and symptoms related to CKD and associated co-morbidities | Assessment and interventions for people experiencing difficulties performing meaningful occupations e.g. personal care, meal preparation, vocational roles | Deliver and evaluate safe exercise-based programmes for individuals and within group settings, using appropriate evidence-based monitoring methods. |
| Development, prescription and monitoring of person-centred treatment plans for physical activity, exercise and/or holistic rehabilitation based on individual need(s) | Goal setting | Understand the effect of disease, disorder and dysfunction and their prescribed medicines, on acute exercise response and chronic adaptation to exercise and physical activity interventions. |
| Provision of staff education on rehabilitation, physical activity and exercise training for people living with CKD | Recommendations for adaptations to home environment | Undertake and record a thorough, appropriate and detailed assessment of health status and history to guide exercise risk stratification using evidence-based methods |
| Developing educational materials and provision of education on physical activity and exercise, self-management and symptom management for people with CKD | Provision of manual handling or adaptive equipment | Select, conduct and interpret appropriate evidence-based tools for the assessment and monitoring of clinical status and functional capacity. |
| Signposting and support to access alternative physical activity opportunities delivered in the community by trusted partners. | Seating and postural assessments | Apply problem solving and clinical reasoning to assessment findings to plan and prioritise appropriate exercise and physical activity goal-setting and support methods |
| Leading and contributing to audit, service evaluation and research | Supporting optimal end of life care | Plan, design, prescribe and deliver personalised evidence-based exercise and physical activity interventions based on health status, functional capacity and aetiology. |

| Role of specialist kidney physiotherapist | Role of the specialist kidney occupational therapist | Role of the clinical exercise physiologist |
|---|---|---|
| | Cognitive assessments and stimulation | Understand the physiological, psychological, social, behavioural and cultural factors that influence health status, including its management using exercise and physical activity interventions. |
| | Onwards referrals for rehabilitation and supportive care | Provide evidence-based education and advice to support behaviour change including self-management of long-term exercise and physical activity engagement. |
| | Audits and research | Provide education, advice and support to enhance health and well-being including basic nutritional information in-line with national guidelines. |
| **Inpatient settings** | | |
| Providing comprehensive individualised assessment and treatment to prevent deconditioning, manage hospital acquired pneumonias, optimise mobility and function, and facilitate safe and effective discharge planning | Assessment and interventions to prevent and manage deconditioning and loss of function and life roles. | |
| Referral to inpatient rehabilitation centres if applicable | Comprehensive discharge planning including identification of care and equipment needs. | |
| Identifying participants suitable for kidney rehabilitation outpatient services and other community-based rehabilitation or support services | Assessment of cognition and capacity where appropriate to aid decision making. | |
| Undertaking home visits to support safe, effective and timely discharges where indicated in liaison with occupational therapy colleagues | Undertaking home visits to support safe, effective and timely discharges where indicated | |
| | Liaison with next of kin and family members to support safe and efficient discharges and long-term management at home. | |

| Role of specialist kidney physiotherapist | Role of the specialist kidney occupational therapist | Role of the clinical exercise physiologist |
|---|---|---|
| **Outpatient specific roles** | | |
| Undertaking a holistic, person-centred assessment of mobility, balance, function, strength and physical activity levels to inform subsequent treatment and management | Assessment for transport needs | Perform detailed pre-transplant physiological assessments (including cardiopulmonary exercise testing) to aid assessment of surgical risk and recovery |
| Devising and providing tailored exercise prescription and/ or kidney rehabilitation via a variety of formats (e.g.Face-to-face, digitally or home based, or a combination thereof) | Vocational rehabilitation | Design and deliver appropriately tailored pre-habilitation programmes for those awaiting transplantation |
| Supporting physical activity behaviour change through use of recognised behaviour change techniques and motivational interviewing principles | Application of fatigue and sleep management strategies | Support behaviour change including self-management of long-term exercise and physical activity engagement post-transplantation including understanding the effects and interactions of newly prescribed medications |
| Working closely with dietitian colleagues for kidney specific weight management MPT-led clinics (to include assessment, prescription of physical activity and progression of treatment plan) | Energy conservation education and techniques, and other non-pharmacological symptom management support | Plan, design, prescribe and deliver personalised evidence-based exercise and physical activity interventions that support long-term management and prevention of CKD progression |
| Providing physiotherapy assessment, prescription of exercise and physical activity interventions for people receiving care in the pre- and post-transplant setting | Anxiety management – coping strategies | Conduct detailed assessments to support the safe delivery of intradialytic exercise programmes (including but not limited to the monitoring of haemodynamic changes) |
| Providing assessment, exercise prescription and progression of exercise training plan for intradialytic exercise | Relaxation sessions | |

| Role of specialist kidney physiotherapist | Role of the specialist kidney occupational therapist | Role of the clinical exercise physiologist |
|---|---|---|
| providing personalised, holistic assessment to all who are cared for in the advanced kidney care clinic to address modifiable risk factors and support physical activity, proactively identify those who are frail and may find the transition to kidney replacement therapy more challenging and to provide high quality physiotherapeutic supportive care to all. | Baseline cognitive and functional assessments | |
| | Support tolerance of dialysis treatment e.g., positioning, relaxation/distraction | |
| | Supporting home dialysis through environmental assessments and task analysis | |
| | Promotion of meaningful occupations (losing ~12 hours per week on dialysis) | |
| | Upper limb rehabilitation | |
| | Facilitation of education and group therapy sessions | |
| | Personalised and group assessments and interventions on the dialysis unit. | |
| | Baseline physical and cognitive assessments in an AKCC clinic. | |
| | Quality of life support in supportive care clinics. | |
| | Stand-alone occupational therapy clinics within kidney clinics for patients with a kidney diagnosis. | |
| | Occupational therapy screening in new started dialysis programmes. | |
| | Creative arts/ meaningful activity facilitation on dialysis units | |

## 6.4 Therapy Staffing Levels

### Physiotherapy

A 2014 survey conducted on behalf of the then BRS-RN, highlighted a shortage of physiotherapists, lack of funding and lack of time for rehabilitation as the main barriers to implementing physical activity and exercise counselling within UK kidney units.[52] In 2023, the BRS RN became the UKKA Physical Activity, Wellbeing and Rehabilitation Group. Members of this group surveyed the current physiotherapy workforce, which highlighted an ongoing lack of physiotherapy provision, underlining an urgent need for an increase in physiotherapy capacity, including specialists within the field of kidney physiotherapy, to address this.[53] In the updated 2023 survey, of the 87 kidney units the UK; 28 (62%) responded saying they provided physiotherapy services to people with CKD; 17 (19 %) of which had a majority kidney caseload.[53] Agenda for change bands across all physiotherapy services who responded are presented in Figure 2 below.

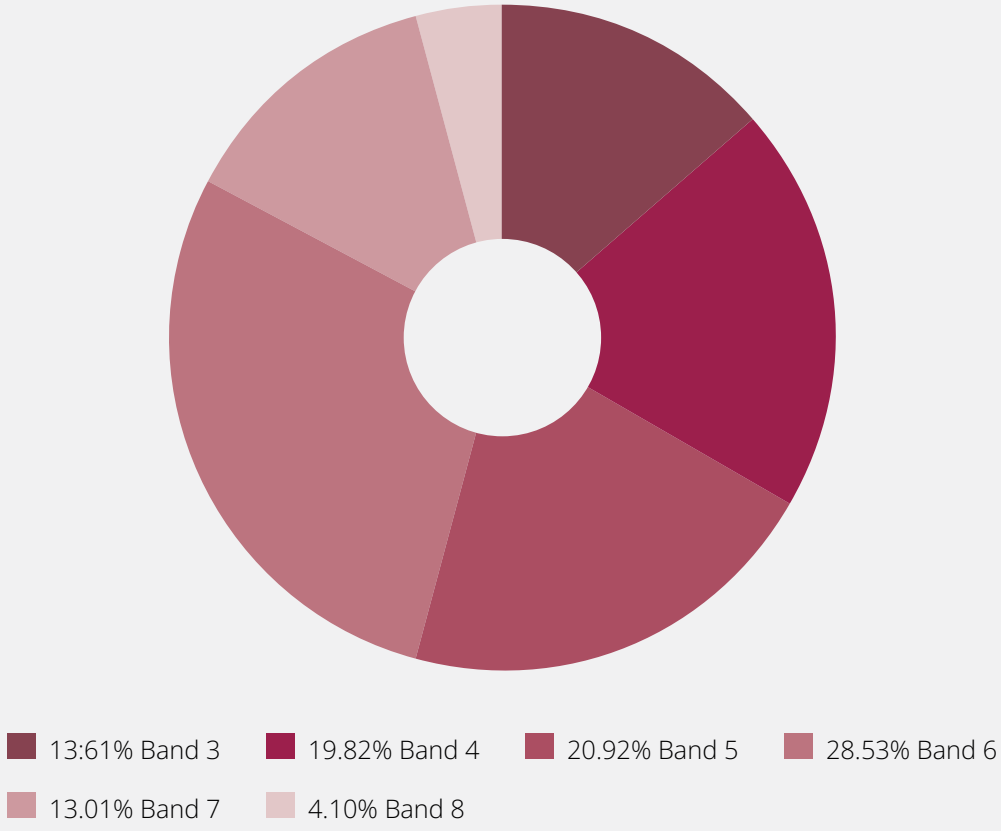



**Figure 2. Physiotherapy workforce for kidney services by Agenda for change bands in the UK.**

In addition, only a few sites (6/45, 13%) referred patients to general hospital or community programmes. Some also referred to cardiac/pulmonary rehabilitation services (2/45 4%) indicating that existing routes for rehabilitation that may be appropriate for this population are currently being underutilised.

The current recommendations for both the inpatient, and outpatient kidney settings presented within this document are guided by the results of this survey and informed by recommendations in other chronic disease populations and best practice from national centres of excellence in kidney rehabilitation. The skill levels described are outlined in detail within Table 2 at the end of this chapter.

### Inpatient physiotherapy service

We suggest each 25-bed inpatient ward should have at least 1.0 WTE specialist kidney physiotherapist at minimum skill level six (see skills for health Table 3 at the end of this chapter) and 1.0 WTE physiotherapy assistant at a minimum skills level 3. This will ensure timely and comprehensive assessments and inpatient rehabilitation, resulting in efficient discharge planning and positively influencing both length of stay and patient outcomes. Staffing levels may vary depending on the number of beds, patient complexity and acuity (for example, high dependency beds which may require a further increase in staffing levels). Additionally, access to adequate dedicated space, facilities and resources for appropriate inpatient rehabilitation to be delivered in an effective manner is essential.[101]

### Outpatient physiotherapy services

#### *Physiotherapy-led kidney rehabilitation classes*

Physiotherapy-led kidney rehabilitation classes are suitable for people across the CKD trajectory and are offered in either a hospital, the community setting or through digital platforms. The classes offer individualised exercise assessment, prescription and progression of exercise training plans. Kidney rehabilitation is modelled on pulmonary and cardiac rehabilitation, where exercise is combined with disease-specific education. The UK Pulmonary Rehabilitation guidelines recommend one staff member per eight patients in a face-to-face exercise class, and one staff member per sixteen patients for education sessions.[102] The skill set of physiotherapists, and the setting where rehabilitation is taking place must be considered.[103] Current cardiac rehabilitation guidelines suggest consideration of patient safety and risk stratification,[104] the intensity of exercise, and the stage of rehabilitation[105] remain important considerations when determining staffing levels.

Based on these guidelines, and evidence from existing NHS-commissioned kidney rehabilitation services[106] the UKKA Physical Activity, Rehabilitation and Wellbeing Group recommends one specialist kidney physiotherapist (skill level 6-7), and one physiotherapy assistant/non-qualified member (skill level 3-4) of staff per class of 12 patients. However, staffing to patient ratios may vary depending on acuity and complexity of the kidney rehabilitation case load. Live online kidney rehabilitation sessions can be provided with the same level of staffing skill as per face-to-face classes and have the potential to reach a larger audience who can participate from home. It should be acknowledged that some staffing time is required (at skill level 4) to support people with technical difficulties and to provide support and motivation for continued engagement with the programme.

In line with guidance from the Chartered Society of Physiotherapy, access to properly resourced and funded seven-day services are recommended to enable the same quality of care to be delivered every day of the week while ensuring that additional provision does not undermine the existing Monday to Friday physiotherapy establishment.[107] Seven day services have been shown to improve patient experience, facilitate safe discharge and ensure the best possible clinical outcomes.[107] Service redesign should ensure sufficient staffing to maintain clinical standards and safety, whilst also using use innovative approaches to skill mix. Access to the advanced knowledge and skills of senior clinicians, including supervision of less experienced colleagues, is important within this model of provision.[107] Service redesign should also consider the impact of staff wellbeing, work/life balance and undertake an appropriate consultation process.[107]

### *Physiotherapy kidney transplant clinics*

Physiotherapy assessment and management should be routinely available as part of the care delivered by the wider multi-professional team within the kidney transplant clinic. In this setting, specialist kidney physiotherapists (skill levels 7-8) assess and prescribe post-surgical exercise, physical activity and lifestyle interventions for people who have received a kidney transplant, and review these on an annual basis. Similarly, The Cystic Fibrosis (CF) Standards of Care and Good Clinical Practice for the Physiotherapy Management of Cystic Fibrosis (2020) recommend that people with CF are reviewed by specialist physiotherapists in an outpatient clinic on annual basis.[108] These reviews include sufficient time to assess habitual physical activity behaviours, undertake appropriate exercise testing and address exercise plans. This is in line with the recommendations of the Living well RSTP and the UKKA Physical Activity, Rehabilitation and Wellbeing Group recommends that a specialist kidney physiotherapist (skill level 7-8) is present during kidney transplant clinics to provide a holistic assessment.

### *Kidney weight management clinics*

Kidney weight management clinics are delivered jointly by a kidney specialist dietitian and a kidney specialist kidney physiotherapist (skill level 7-8) in an outpatient setting. Patients are assessed and reviewed on an individual basis monthly for six months, and three-monthly after this.[109 110] For successful weight loss treatment that initiates changes to both food and physical activity behaviours, specific skills such as motivational interviewing to support behaviour change interventions, and an understanding of the evidence-base regarding physical activity and weight loss interventions for people living with CKD are required for kidney therapies staff.

### *Acute Kidney Care Clinic (AKCC)*

There is an important role for physiotherapy and occupational therapy within the AKCC where there is opportunity to prepare people living with CKD for subsequent pathways of care, whether this is dialysis therapy, a kidney transplant or conservative management. Successful pilot programmes have utilised kidney physiotherapist and occupational therapists (at skill level 7/8) to identify people who would benefit from rehabilitation, and either prescribe individualised home exercise programmes or make appropriate onward referrals to kidney rehabilitation or other community programmes.

### *Intradialytic exercise*

Intradialytic exercise programmes are delivered during haemodialysis treatment. Various formats may be implemented, including aerobic only training (typically delivered by means of a bespoke static exercise bike), strength training, or a combination of both.[75 76] Programmes may also include exercise counselling and behaviour change support to increase physical activity outside of the haemodialysis unit. Given the range of programmes available, a variety of staffing models may be utilised, with more input potentially required for combination training programmes. All types of programme should be supervised by an appropriately trained individual.[39] The level and type of support required will also be dependent upon the size of the unit and the level of patient dependency.

The optimum length of programme is currently unknown, but available guidance suggests that programmes of at least 4 months duration, which progressively increase exercise volume from at least 30 minutes, and are available at least three times per week, will confer benefit [39].It is important to acknowledge that many people with CKD may not initially be able to manage this level of exercise, and therefore an incremental and progressive approach is valuable in this particular population. Intradialytic programmes should also support and encourage additional 'interdialytic' physical activity, outside of the dialysis unit, which is tailored to the individual's needs.

Where intradialytic exercise is delivered by physiotherapists, the programme should be overseen, and new patients assessed, by a specialist physiotherapist (skill level 6-7), with support from a therapy assistant (level 3-4) to provide the intervention and progress the programme as directed by the qualified therapist.

Based on existing NHS-commissioned kidney physiotherapy services, the UKKA Physical Activity, Rehabilitation and Wellbeing Group suggest a minimum provision of 1.0 WTE skill level 7-8 and 1.0 WTE level 6 physiotherapists and 1.0 WTE skill level 4 therapy assistant, to allow for delivery of:

- Four kidney rehabilitation classes per week;
- Six new kidney rehabilitation patient assessments per week;
- Provision for oversight and implementation of two sessions (Monday to Friday) of intradialytic (based on a programme which comprises aerobic training delivered by means of a static exercise bike) (up to 120 patient contacts). This estimate is based on two 12 bedded dialysis units;
- 1x 0.5 day kidney weight management clinic per week;
- 3x 0.5 day kidney transplant clinics.

**Occupational therapy**

The 2023 UKKA Physical Activity, Rehabilitation and Wellbeing Group survey also captured data relating to occupational therapy services across the UK kidney units.[53] Out of the 87 sites the UK; 28 (62%) responded saying they had access to occupational therapy; 17 (19%) of these reported having an occupational therapy service with a majority kidney caseload. Agenda for change bands across all occupational therapy services who responded are presented in Figure 3 below.

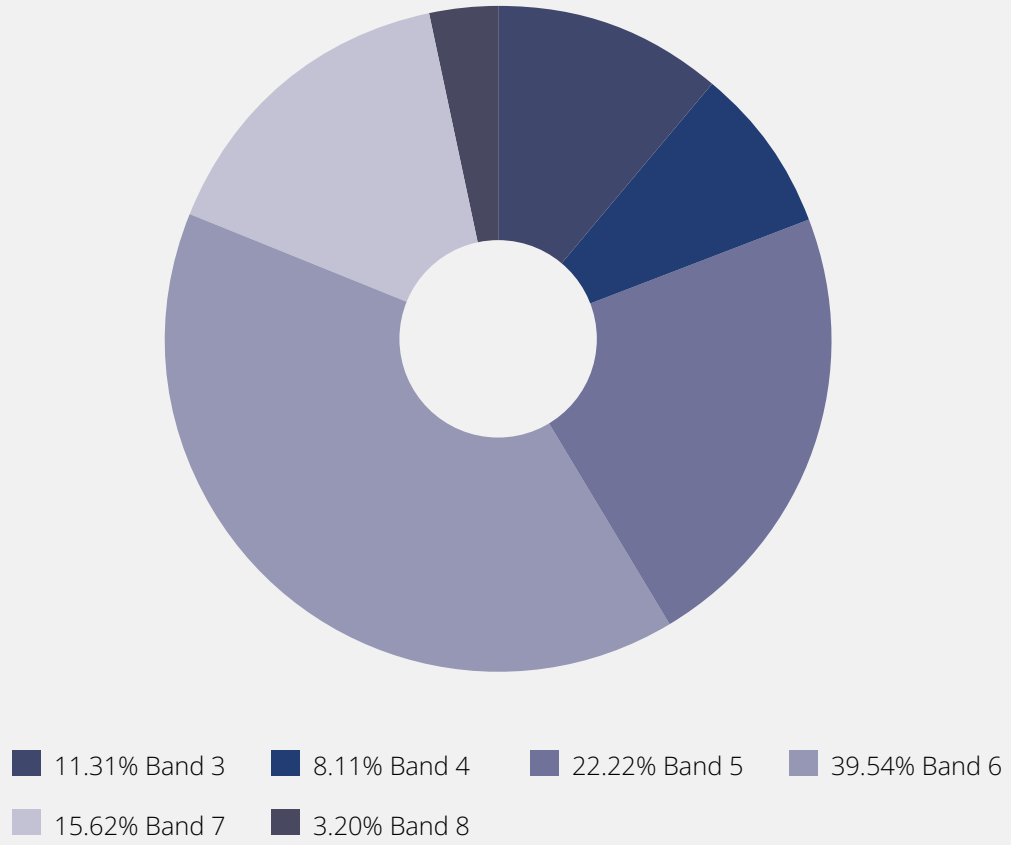



**Figure 3. Occupational therapy workforce for kidney services by Agenda for change bands in the UK.**

For an inpatient setting, we suggest that every unit should have access to specialist kidney occupational therapists to ensure people living with kidney disease receive interventions tailored to their specific needs. We suggest minimum staffing of 1.0 WTE registered occupational therapist minimum skill level 6-7 per 25 bed wards and 0.5 WTE occupational therapy assistant minimum skill level 3. This will ensure adequate staffing to allow the provision of effective rehabilitation. The skill levels described are outlined in detail within Table 2 at the end of this chapter.

For outpatient services, we suggest minimum staffing of 1.0 WTE registered occupational therapist minimum level 6 and 0.5 WTE minimum level 4 occupational therapist assistant. Numbers will vary depending on size of unit and additional services offered. This staffing level will allow occupational therapists to support with symptom management and provide interventions on the dialysis unit and in outpatient clinics.

### Clinical exercise physiologists

The 2023 UKKA Physical Activity, Rehabilitation and Wellbeing Group survey[53] revealed that only three (3/45, 7%) sites reported that their patients accessed any form of 'Exercise practitioner' (e.g., Clinical Exercise Scientists / Accredited Exercise Referral Scheme / Accredited Personal Trainer). These included diet and exercise assistant practitioners or exercise referral schemes. No sites reported the use of clinical exercise scientists or exercise physiologists. The UKKA Physical Activity, Rehabilitation and Wellbeing Group recommends registered clinical exercise physiologists develop and maintain coherent exercise referral pathways from inpatient and outpatient care to community exercise services led by qualified exercise practitioners. This will ensure that all patients have access to individualised and monitored exercise prescriptions relating to their care and that kidney care pathways are in line with the NHS 10 Year Health Plan.[111] The workforce changes in the UK offer an exciting opportunity to create capacity and professional standards that will help integrate the fitness sector into healthcare pathways, ensuring that rehabilitation is accessible to all who need it and must be effectively utilised. [93 112]

## TABLE 2. SKILLS FOR HEALTH CAREER FRAMEWORK FOR PHYSIOTHERAPY AND OCCUPATIONAL THERAPY[31]

| Level | Explanation | Physiotherapy | Occupational Therapy | Clinical Exercise Physiologists |
|---|---|---|---|---|
| 8 | • Require highly specialised knowledge, some of which is at the forefront of knowledge in a field of work<br>• Leaders with considerable responsibility, and the ability to research and analyse complex processes<br>• Have responsibility for service improvement or development<br>• May have considerable clinical and/or management responsibilities, be accountable for service delivery or have a leading education or commissioning role | Equivalent to consultant physiotherapist<br>Experience<br>• Further study at an advanced level (Masters, PhD/Doctorate)<br>• Substantial experience in specialty at an advanced level<br>• Commitment to own ongoing professional development and learning<br>Clinical<br>• Leading clinical services and working autonomously at an advanced level, to synthesise complex information and make sound decisions in difficult and unpredictable situations, or supervise and support others in this capacity<br>• Incorporate patient centred, expert, evidence based practice across services<br>• Engage with local, regional, national and international groups to influence and advance clinical practice and strategy<br><br>Leadership<br>• Undertake mentorship/coaching work<br>• Lead the review and evaluation of clinical services<br>• Involvement in policy and protocol review and writing<br>• Leadership of National Specialist Groups<br>• Participation in, or leadership of, international specialist groups<br><br>Education and development<br>• Lead the development and delivery of education initiatives locally, creating a culture of continuous learning and development locally<br>• Influence and contribute to national education programmes<br>• Demonstrate collaboration with an academic provider, including leadership of academic collaborations and supervision of research projects and PhDs<br><br>Research & Improvement<br>• Lead quality improvement and audit work<br>• Participate in research, including initiating and leading research projects<br>• Actively seek research grants and develop research portfolio<br>• Publish work in peer reviewed clinical and academic journals, including as first author<br>• Support others to participate in research and improvement work | Clinical specialist - consultant occupational therapist<br>• Advanced use of screening and assessment tools, goal-setting and psychological interventions to facilitate occupational engagement and meaningful activity<br>• Uses complex clinical reasoning and dual training across physical and mental health to facilitate highly specialist, innovative interventions<br>• Harnesses knowledge to drive service development<br>• Leads on renal-specific training and development<br>• Active in professional networks and national service development<br>• Actively engages in quality improvement (QI) and research | |

| Level | Explanation | Physiotherapy | Occupational Therapy | Clinical Exercise Physiologists |
|---|---|---|---|---|
| 7 | • Have a critical awarenesss of knowledge issues in the field and at the interface between different fields<br>• They are innovative and have a responsibility for developing and changing practice and/or services in a complex and unpredictable environment | Advanced practitioner/highly specialised renal physiotherapist<br>Renal-specific skills in this area include:<br>• Highly specialised assessment and management and treatment of patients across the CKD trajectory including specialised outpatient therapy clinics e.g. weight and symptom management<br>• Highly specialised skills in behaviour change techniques<br>• Significant contribution to research, service delivery and management<br>• Leading a team of specialist renal therapists | Senior specialist occupational therapist<br>• Advanced use of screening and assessment tools, goal-setting and psychological interventions to facilitate occupational engagement and meaningful activity<br>• Uses highly specialist clinical reasoning and dual training to facilitate highly specialist interventions<br>• Uses theoretical and practical knowledge to implement service development and QI<br>• Actively involved in training and development<br>• Takes clinical and operational responsibility for the specialist work of their team<br>• Involved in professional networks and national service development | Highly Specialist Clinical Exercise Physiologist/Clinical Exercise Physiology Team Member – Provides highly specialist, high standard clinical leadership to multi-professional team<br>• Training, education and mentoring of junior members of clinical exercise staff.<br>• Ability to deliver spontaneous and planned advice, teaching and instruction to relatives, carers and other professionals.<br>• Oversee/supervise caseloads of more junior staff to ensure patients safety.<br>• Uses theoretical and practical knowledge to implement service development<br>• Liaise with professional networks and national services<br>• Advanced knowledge and skills to undertake comprehensive clinical assessments (including appropriate submaximal/maximal fitness assessments) and risk stratification of patients with complex presentation of kidney disease and co-morbidities.<br>• Knowledge and skills to analyse and interpret highly complex clinical information to appropriately advise, plan and deliver physical activity and exercise plans and behaviour change.<br>• Ability to competently supervise, lead and deliver safe and effective fitness instruction to patients within individual and group exercise and education sessions.<br>• Manages own clinical case workload and supervision of more junior staff workload to ensure patients safety.<br>• Engages with continuous professional development. |

| Level | Explanation | Physiotherapy | Occupational Therapy | Clinical Exercise Physiologists |
|---|---|---|---|---|
| 6 | • Require a critical understanding of detailed theoretical and practical knowledge<br>• Specialists and/or have management and leadership responsibilities<br>• Demonstrate initiative and are creative in finding solutions to problems<br>• Some responsibility for team performance and service development and they consistently undertake self-development | Specialist/senior renal physiotherapist<br>• Specialist renal assessment and treatment skills including rehabilitation, individualised exercise prescription, mobility progression, symptom management, cognitive strategies and behaviour change techniques<br>• Prioritise work efficiently taking into account clinical and service priorities<br>• Advise, guide and teach assistant, junior staff, assessment and management of patients<br>• Significant contribution to research and service development | Specialist occupational therapist<br>• Competent using clinical reasoning and dual training across physical and mental health to facilitate delivery of specialist interventions<br>• Engagement in service development and QI projects with support<br>• Awareness of professional networks and context of national policies<br>• Use of screening and assessment tools, goal-setting and psychological interventions to facilitate occupational engagement and meaningful activity | Specialist Clinical Exercise Physiologist - Skilled, knowledgeable and experienced individual in exercise science applied to kidney and other long-term conditions.<br>• Managing and coordinating the day to day running of the rehabilitation programme, research and service development projects.<br>• Mentorship of more junior Clinical Exercise Physiologists and exercise staff.<br>• Ability to support senior colleagues in designing and implementing training programmes, research and audit activities.<br>• Knowledge and skills to undertake comprehensive clinical assessments (including appropriate submaximal/maximal fitness assessments) and risk stratification of patients with complex presentation of kidney disease and co-morbidities.<br>• Knowledge and skills to analyse and interpret highly complex clinical information to appropriately advise, plan or implement physical activity and exercise plans and behaviour change.<br>• Ability to competently supervise, lead and deliver safe and effective fitness instruction to patients within individual and group exercise and education sessions.<br>• Manages own clinical case workload within scope of practice with support.<br>• Engages with continuous professional development. |
| 5 | • Have a comprehensive, specialised, factual and theoretical knowledge within a field of work and an awareness of the boundaries of that knowledge<br>• 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 | Basic grade/junior physiotherapist<br>• Knowledge and skills to complete renal assessments and treatment<br>• May require assistance from senior staff for more complex patient management<br>• Assist in research and service development projects<br>• Advise, guide and teach assistant, junior staff, assessment and management of patients | Occupational therapist<br>• Uses standard screening and assessment tools and goal-setting to facilitate occupational engagement and meaningful activity<br>• Uses basic clinical reasoning and dual training across to facilitate delivery of interventions with support<br>• Support seniors with service development and QI<br>• Manages a designated workload within scope of practice with support<br>• Contributes to discussion about professional practice | Registered Clinical Exercise Physiologist (also including those working towards registration) - Skilled and knowledgeable in exercise science applied to kidney disease and other long term conditions.<br>• Assist in the day to day running of the rehabilitation programme, research and service development projects.<br>• Knowledge and skills to competently undertake clinical assessments (including appropriate submaximal fitness assessments) and risk stratification of patients with kidney disease and co-morbidities.<br>• Ability to assist in the design and delivery safe and effective fitness instruction to patients within individual and group exercise sessions.<br>• May require assistance from senior staff for more complex patient management.<br>• Manages own clinical case workload within scope of practice with support.<br>• Engages with continuous professional development. |

| Level | Explanation | Physiotherapy | Occupational Therapy | Clinical Exercise Physiologists |
|---|---|---|---|---|
| 4 | • 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<br>• May have responsibility for supervision of some staff | Therapy technical instructor (experienced)<br>• Knowledge and skills to complete renal assessments and treatment in straightforward circumstances<br>• Requires assistance from senior OT/PT for more complex patient management<br>• Advise, guide and teach assistants and students<br>• Assisting in research and service development | Exercise Technicians – Skilled and knowledgeable in exercise delivery (e.g. specialist exercise instructors or newly employed non-registered exercise physiologists)<br>• Knowledge and skills in assisting the delivery of structured and graded exercise sessions.<br>• Ability to deliver safe and effective fitness instruction to patients within individual and group exercise sessions.<br>• Able to working effectively as part of a team and follow direction from more senior staff. | Assistant Exercise Practitioner - To assist in providing physical activity and exercise advice, including physiological assessment prior to commencing exercise, prescription of exercise to service users in the clinical setting.<br>• To support the cardiovascular rehabilitation service in developing and delivering lifestyle behaviour change and exercise services on a one-to-one basis and in a group setting.<br>• To support and contribute to safe and effective service delivery e.g. equipment checks, cleaning, appointment reminders etc |
| 3 | • Require knowledge of facts, principles, processes and general concepts in a field of work<br>• 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<br>• Contribute to service development and are responsible for self-development | Therapy technical instructor<br>• Able to complete basic renal rehabilitation assessments<br>• Administration<br>• Assisting with patients requiring the assistance of two therapists for rehabilitation (inpatient services)<br>• Providing exercises and therapy interventions (including relaxation and meaningful activities) from PT and OT plans | | |
| 2 | • Require basic factual knowledge of a field of work<br>• Carry out clinical, and administrative duties according to established protocols | Therapy assistant<br>• Able to complete basic renal rehabilitation assessment with supervision<br>• Liaison and booking more complex patients with a PT/OT<br>• Providing interventions from PT/OT plans<br>• Assisting with patients requiring the assistance of two therapists for rehabilitation | | |

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# Workforce Wellbeing, Research and Future Recommendations

## Workforce wellbeing

Even before COVID-19 hit, the influence of the workplace on employee wellbeing, productivity, and resilience was well recognised[1,2]. Positive workplaces promote enthused and energised individuals who find meaning and purpose in their work, influencing both job performance and satisfaction, resulting in better quality of care for patients[3,4].

During and after the pandemic, front-line healthcare staff were subjected to a rapid increase in volume and intensity of work, with additional challenges including redeployment, rapidly changing protocols and unprecedented exposure to trauma[5]. Furthermore, concerns about lack of personal protective equipment, staffing shortages and risks of acquiring and potentially transmitting infection to patients, co-workers and families/friends added additional stress to already exhausted healthcare professionals (HCP)[6,7]. A need to focus on improving workforce wellbeing was promptly identified, with many workplaces and national bodies developing resources to promote team and organisational support[8].

The kidney workforce was at the forefront of care delivery during the pandemic, and studies from the United Kingdom[4,9,10], North America[11], India[12] and Europe[13-15],highlight the significant impact that COVID-19 has had on kidney HCP globally. Concerningly, high levels of emotional exhaustion and burnout have been reported, as well as long term health effects including long-Covid10. Post-pandemic recovery has highlighted several further challenges, primarily recruitment and retention of the wider kidney workforce[10]. Promotion of a healthy working environment is an ongoing priority and supporting kidney HCP wellbeing a key component of this.

### Recommendations

Fostering a culture where staff wellbeing is prioritised will support workforce recruitment and retention as well as productivity and (ultimately) patient care. The 'Do OD TEAM toolkit' can be used to influence team cultures and leadership styles within organisations[19]. Departments have a responsibility to highlight the needs of all staff to help and support people to feel healthy and well at work in ways that are inclusive and responsive.

#### *Promoting staff wellbeing*

We recommend that:

- Departments use the 'NHS staff wellbeing needs' poster to promote a better understanding of the importance of staff mental health and wellbeing. This includes understanding their: basic needs; psychological needs; and self-fulfilment needs[20].
- Departments promote the NHS employers 'Back to basics for a healthy working environment infographic' as an appropriate way to remind staff how to meet their basic well-being needs in the work place, which includes practical advice about hydration, nutrition, sleep and regular breaks[21].

#### *Providing staff support*

We recommend that:

- Departments should consider whether their facilities are suitable to meet the basic needs of their staff. This includes access to rest areas, kitchen areas and hydration/nutrition during shifts. An example of how improvements to a staff rest area revitalised a department can be found here. Departments should consider ways they can influence organisations to develop infrastructure and facilities to promote physical health and wellbeing (eg cycle parking facilities, shower facilities or exercise spaces).
- Staff surveys should be conducted to understand what facilities are needed or how facilities can be improved to meet basic staff needs. Staff should be involved in both the consultative and action phases when addressing ways to improve facilities. Plans should be deliverable and sustainable with the aims of 'bridging gaps' within specific timeframes.
- Evaluating the impact of changes that are made to staff wellbeing and productivity to demonstrate the impact of initiatives. This will support the allocation of budget for further wellbeing initiatives.

- It is incumbent on departments to establish the best ways of providing support for staff mental health and well-being locally. This may be through locally developed departmental resources, local Trust-wise resources, or through regional NHS staff mental health and well-being hubs[22].

- The appointment of local wellbeing guardians to champion the importance of staff mental health and wellbeing to colleagues, managers and local health leaders. These individuals should highlight local needs, initiatives and successes to managers and local health leaders .

### *Engaging organisations*

To implement sustainable changes to staff wellbeing requires commitment from organisations and leaders. The NHS Employers guide to getting organisational support can be used to engage local health leaders in supporting departmental wellbeing agendas and demonstrating the potential wider benefit to the organisation[23].

Changes take time and consistency. Over time, departments and organisations should consider how best to upskill managers in understanding and implementing wellbeing initiatives iteratively. The development and delivery of educational activities relating to staff health and wellbeing are highly aspirational and are part of broader ambitions within the health service to promote a transformational leadership approach to embed honest conversations into organisational culture[24].

## Research

Multi-professional research is of paramount importance to enhancing and improving all aspects of patient care and is a key commitment within the NHS long term plan[16]. Correspondingly, involvement in research should be considered as a key component within the roles of all healthcare professionals working in kidney care.

Basic research to identify new therapeutic targets, collaborative clinical trials of new therapeutic agents and interventions, clinical application of new molecular genetic techniques and use of information technologies in patient care are all needed to advance care of adults and children with kidney conditions. In addition, epidemiological and qualitative research to understand the impact of disease on patients and families, and research to guide optimal service delivery are all essential. UK nephrology centres have an excellent track record for collaborative working to deliver multi-centre clinical research. We direct readers to the UK Kidney Research Consortium[2] where the UK Kidney Research Strategy can be accessed.

**FUTURE RECOMMENDATIONS**

These workforce planning recommendations are to be reviewed and revised as appropriate on a three-yearly cycle.

It is recognised that the implementation of the NHS Long Term Plan will have an impact upon workforce planning, and any future recommendations will need to reflect this.[17]

The future of healthcare in the NHS will depend on us doing things differently, accelerating partnership working through integrated care systems (ICSs) to make the most effective use of the resources available to us across health and social care, and ensure reducing inequalities in access is embedded in our approach[25].

A continued focus on the health, wellbeing and safety of our staff will help sustain the workforce. ICSs need to look beyond the immediate operational priorities and drive the shift to managing the health of populations by targeting interventions at those groups most at risk and focusing on prevention as well as treatment. This is key in the prevention and slowing the progression of kidney disease.

Lessons have been learnt during the pandemic and different ways of working are now being embraced.

The development of new roles such as associate practitioners, and advanced clinical practitioners are emerging in kidney centres across the UK. These roles can help transform service delivery, enhance

capability, productivity and efficiency within multi-professional teams as highlighted in the NHS long-term plan.

Growing and sustaining the workforce for the future will be a challenge and we need to be creative in how we can widen participation and create training and employment opportunities.

Initiatives from Health Education England (HEE) and NHS England aim to support and deliver workforce plans using NHS Improvement regional teams. Kidney services may benefit from the planned investment to expand the national nursing international recruitment programme and the national healthcare support worker (HCSW) recruitment and retention programme.

The use of technology is also likely to drive innovation and changes in practice, which support the workforce, enhancing the productivity, efficacy and efficiency of high-quality kidney care. Recommendations from The Renal Transformation Programme, clinical research and Kidney Quality Improvement Partnership (KQIP) projects[18], will undoubtedly help inform and shape service provision, ways of working, and ultimately the future workforce.

Involving people living with kidney disease and those supporting them in future workforce planning and service design also continues to remain key.

**Thank you to the authors of this chapter for their contributions:**

**Hannah Beckwith**

**Matthew Graham-Brown**

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