



DIETITIANS: ADULT AND PAEDIATRIC SERVICES

1.1 ADULT SERVICES

Dietary management plays a key role in the care of people living with CKD. Specialist renal 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 renal 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 renal dietitians, with their unique knowledge and skills, are essential in all renal services to provide optimal care to people living with CKD stage 4,5 and RRT.

People living with CKD have multi-morbidities leading to complex dietary requirements which influence their nutritional status. Specialist renal 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 renal dietitian can be found in Table 1.

TABLE 1. ROLES OF THE SPECIALIST RENAL DIETITIANS.

Roles	Description of the role	Quality and cost effectiveness of renal dietetic intervention
Roles for all settings	<ul style="list-style-type: none"> Holistic patient assessment of nutritional status, fluid status, biochemistry, co-morbidities, current diet, social factors, motivation Develop, implement and monitor nutritional care plans; including salt, fluids, electrolytes, and associated symptoms Empower and educate people living with kidney disease, supporting them with self-management Education and training for staff Development of information & educational resources Service evaluation, quality improvement, audit, research Supporting a patient centred approach to improve the patient experience 	<ul style="list-style-type: none"> Manage under-nutrition (independent predictor of mortality) in CKD 4-5, dialysis, transplantation and AKI^{3,4} Ensure regular renal dietetic review in progressive CKD and pre-dialysis to improve nutritional status, quality of life, mortality and morbidity rates⁵⁻⁷
Inpatient settings	<ul style="list-style-type: none"> Assessment, treatment, and monitoring of those who are malnourished, or at risk of malnutrition, including: dietary modification, oral nutritional supplements, enteral/parenteral nutrition Work with nutrition and pharmacy teams to provide safe parenteral nutrition Provide dietary counselling to those who are newly diagnosed with CKD, new to dialysis, complex AKI or being conservatively managed⁶⁻⁸ Provide dietary advice to those who have received a kidney transplant Work with the MPT to manage renal complications including: hyperkalaemia, mineral bone disease (CKD-MBD), fluid overload and other electrolyte imbalances^{9,10,11} Liaise with catering departments and nursing colleagues to ensure appropriate food provision 	<ul style="list-style-type: none"> Improved muscle mass/nutritional status before commencing RRT Dietetic management has the potential to delay the initiation of dialysis as well as manage symptoms of patients with CKD Assess and review serum phosphate levels and recommend interventions. Use supplementary prescribing where possible/indicated
Outpatient settings	<ul style="list-style-type: none"> Prevent or delay onset of malnutrition and undesirable changes in body weight and lean body mass Assessment, treatment and monitoring of people with CKD who are at risk of malnutrition or malnourished Promote a healthy lifestyle and weight Delay the progression of CKD Provide timely dietary education to people receiving RRT Work in collaboration with other members of the MPT Support the management of: uraemia and related symptoms; salt and fluid management; hypertension, lipid abnormalities Assist the achievement of target levels of serum potassium (to avoid both hyperkalaemia and hypokalemia) Assist the achievement of target levels/trends of serum phosphate (to avoid both hyperphosphatemia and hypophosphatemia) Providing cost effective care in CKD-MBD by focusing on quality of life⁹⁻¹¹ Assist the achievement of optimal glycaemic control Promote regular exercise/physical activity Support self-management in people living with CKD and their family/carers 	<ul style="list-style-type: none"> Prevention of episodes of hyperkalaemia through appropriate education to avoid hospital admission and potentially the significant associated costs Appropriate fluid and salt assessment to help reduce co-morbidities and prevent hospital admission 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

Recommended staffing levels

Table 2 shows the current estimated renal dietetic workforce in the UK (based on a 2015 workforce survey with a 79% response rate).

TABLE 2. THE ESTIMATED RENAL DIETETIC WORKFORCE FOR ADULT PATIENTS IN 2015.

Renal dietetic workforce	(WTE)	Percentage (%)
Specialist renal dietitian (Band 6)	122.81	54
Advanced renal dietitian (Band 7)	71.78	32
Renal dietetic assistant (Band 3-4)	16.72	7
Dietitian (Band 5)	10.0	4
Consultant renal dietitian (Band 8a)	7.46	3
Total	228.77	100

When considering how many specialist renal dietitians are required; the number of patients, their complexity, the frequency of reviews required for each patient group, and any additional specialist roles, need 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.¹²

On average, each specialist renal 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 Renal Nutrition Group (BDA RNG) has been provided. The BDA RNG is led by a committee of eight Specialist & Advance Practice Renal Dietitians working across the UK. Their consensus recommendations were made available to the wider Renal Nutrition Group (>280 Dietitians with a special interest or working within the specialist field of renal nutrition) for consultation in September 2018. Where opinions were raised the document was amended and ratified as appropriate.

Inpatient services

Renal 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.

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

TABLE 3. RECOMMENDATIONS FOR SPECIALIST RENAL DIETITIANS IN THE ADULT INPATIENT SETTING.¹³⁻¹⁵

Setting	Recommendations (average)
Renal wards (either with or without a transplant centre)	60-78 hours (0.03 WTE – 0.04 WTE) of a renal dietitian per bed per year (Level 6/7)
Renal HDU/ITU	98-195 hours (0.05 – 0.1 WTE) specialist renal dietitian per bed per year. (Level 7) Higher level to meet the capabilities expected of advanced clinical practice

Examples:

Renal ward with 30 beds: 60–78 hours X 30 beds = 1800–2340 hours per year.

Each specialist renal dietitian will spend ~ 75% of their time in face-to-face contact with patients, 25% in indirect contact.

Take into consideration 20% absence for annual leave/ sickness/study. Hours available would be $37.5 \times 52 \times (75/100) \times (80/100) = 1170$ hours ¹²1800 hours required /1170 available = 1.5 whole time equivalent (WTE); 2340 hours required /1170 available = 2.0 WTE. Hence a renal ward with 30 renal beds should have a minimum 1.5 WTE specialist renal dietitian.

Additional staffing considerations for inpatients

- Specialist renal dietitians may be responsible for seeing all patients with kidney disease (in many units renal 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 renal dietetic input;¹⁶
- Centres where specialist renal dietitians directly manage all renal inpatients requiring parenteral nutrition;
- Centres where specialist renal dietitians manage all patients with AKI stage 3 requiring RRT in critical care settings.

Outpatient settings

Pre-dialysis clinics

People living with CKD stage 1-3a do not require specialist renal dietetic input, and we recommend that they should be managed within primary care dietetic services.

People living with progressive CKD stage 4 should be seen every 6-8 months. However, those with unstable CKD stage 4 will be seen more frequently according to clinical need. Those with stable renal function are likely to require less input (Table 4).¹⁵

Every person with stage 5 CKD approaching RRT should be regularly assessed and monitored every 2-3 months by a specialist renal dietitian. Renal 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).¹⁵ Renal 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 renal dietetic led clinics.

TABLE 4. RECOMMENDATIONS FOR SPECIALIST RENAL DIETITIANS IN THE ADULT OUTPATIENTS SETTING.¹⁷⁻²⁰

Setting	New appointment	Follow up (average time per year)	Comments
CKD stage 4	30 minutes first appointment	2 hours	Assess nutritional status needs to be assessed regularly in patients with eGFR <15ml/min
Pre-dialysis, AKC (CKD stage 5)	45 minutes first appointment	3 hours	

The following two calculations guide renal dietetic service provision.

Example 1

A pre-dialysis clinic a week which referred 20 new patients a year and 200 follow ups a year will equal to, on average hours per year:
 $(3 \text{ hours} \times 200 \text{ patients}) + (0.75 \times 20 \text{ new patients}) = 615 \text{ hours per year}$. Hours available are $37.5 \times 52 \times (75/100) \times (80/100) = 1170 \text{ hours}$.
 Therefore, $615 / 1170 = 0.5 \text{ WTE}$ Minimum requirement.

Example 2

A four hour clinic with 45 min appointments for new patients and 20 min appointments for follow up, specialist renal dietitian will be expected to see a minimum of five new patients or a maximum of 12 patients follow up.
 Time allocated for face-to-face contact (4hrs=0.11 WTE) plus clinic prep/monitoring, and possibly travel (3.5 hrs =0.09WTE) equivalent 0.2WTE to deliver one CKD stage 5 clinic/week.
 To deliver a CKD stage 4 clinic a week 0.2 WTE specialist renal dietitian will also be needed, but these patients may be monitored less frequently.

Renal Replacement Therapy

Recommendations for RRT (Haemodialysis HD, peritoneal dialysis PD, home haemodialysis HHD, transplantation) are shown in Table 5.

The incident and prevalent age of people receiving RRT is 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.²⁰⁻²²

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

TABLE 5. RECOMMENDATIONS FOR SPECIALIST RENAL DIETITIANS IN RRT.^{14-16,21-23}

Setting	New appointment	Follow up (average time per year)	Comments
HD main and satellite units	30-60 mins within first 4 weeks of starting treatment	6-8 hours (depending on complexity)	Renal dietetic assessment on a quarterly basis in patients with unstable diet-related electrolytes, or a consistent trend in flesh weight change. The frequency of monitoring may need to increase to monthly in a proportion of patients who have a reduced appetite, weight loss or complex electrolyte or fluid management issues.
HHD	30-45 mins (within first month of HHD training)	2 hours	As a minimum standard, those stable on dialysis (stable weight and stable diet-related electrolytes) should have a full renal dietetic review at least once every six months. The prioritisation and frequency of review will be decided by the specialist renal dietitian.
PD	1 hour first month	4 hours	Providers to supply a drink and an appropriate snack directed by dietetic advice during HD.
Transplantation	1 hour within the first 3 months	3 hours	People with a failing transplant will require the same access to the specialist renal dietitian as shown in Table 4.

Suggested calculation for workforce

Satellite unit HD: 100 patients; 40 new patients/ year ~720 hours/year (6-8 hours x 100 patients) + (1 hour x 40 new patients) = 640-840 hours per year (average 740 hours/year).
Each specialist renal dietitian will spend ~ 75% of their time in face-to-face contact with patients, 25% in indirect contact. 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 renal dietitian.

Young people and transitions services

Specialist renal dietitians should be involved in the care of young people and transitions services. The time required to provide this service is difficult to quantify and dependent on their 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 first six months).

Career pathway guide

The 2015 BDA RNG workforce survey demonstrated the majority (93%) of UK renal 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.

Registered renal dietitians operate across levels 5-8 of the Skills for Health Career Framework (Table 7 at the end of this section, on page 7).²⁴ It is recommended that dietitians new to the specialty attend the UK Renal Nutrition Group post-registration course. Since April 2017 specialist renal dietitians can train to become supplementary prescriber, managing the prescription of phosphate binders to support the MPT.

1.2 PAEDIATRIC SERVICES

Children with CKD stages 2 to 5, AKI, nephrotic syndromes, renal tubular disorders and many other rare renal 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.²⁵⁻²⁷

The need to preserve growth, as well as treating the underlying renal disease, results in complex dietary management, involving: prescription of specialised feeds; care planning and monitoring; and maintenance of quality standards of nutritional care individualised for each child.²⁵

Specialist paediatric renal dietitians have the skills to plan and implement complex nutritional care plans based on assessment of a number of factors which affect nutritional status, namely blood biochemistry, anaemia, fluid shifts, renal replacement modality, symptoms, medications, family understanding, cooking skills, readiness to change and psychosocial functioning.²⁸

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.^{2,9,29,30}

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.^{25,26,28} This can be highly complex in this patient group and the correct interpretation of guidelines by an experienced specialist renal dietitian is crucial to ensure safe practice.

Psychosocial and cultural factors have a significant influence on the way children with renal diseases are managed, therefore a wider team approach is necessary to provide individualised support for children and their families. The paediatric renal dietitian liaises with families, the renal 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 renal unit. This is essential to ensure that every child has equitable access to dietetic expertise and quality care, irrespective of where they live.³¹

Figures 1-4 outline the aims, clinical management areas, roles and components of a paediatric renal 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, renal tubular disorders and many other rare paediatric renal 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 RENAL 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 renal 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/KQuIP/British association of paediatric nephrologists (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 renal dietitians necessary for the safe running of a renal 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'⁹ 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, renal treatment modalities and their corresponding individual time-requirements for dietetic care.³¹ The 2011 BAPN standard also does not take into account staffing levels needed to treat other childhood renal 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.*^{9,32} 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 renal 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 renal dietetics. Introductory training can be gained from the University of Plymouth Masters module 'Clinical Dietetics for Infants and Children'; Module 3/ADV743. Renal dietetics comprises approximately twenty percent of the syllabus. In addition, many tertiary renal paediatric centres host their own renal dietetic training packages.

Lead renal 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 Framework²⁴ 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
8	<ul style="list-style-type: none"> Require highly specialised knowledge, some of which is at the forefront of knowledge in a field of work Leaders with considerable responsibility, and the ability to research and analyse complex processes Have responsibility for service improvement or development May have considerable clinical and/or management responsibilities, be accountable for service delivery or have a leading education or commissioning role 	<p>Consultant dietitian</p> <ul style="list-style-type: none"> Advance renal dietetic practising at a senior level Leading research, service development, improvement and education Teaching at national and international level Directing and contributing to renal dietetic service policy and commissioning
7	<ul style="list-style-type: none"> Have a critical awareness of knowledge issues in the field and at the interface between different fields They are innovative and have a responsibility for developing and changing practice and/or services in a complex and unpredictable environment 	<p>Manager/Lead renal dietitian Highly specialised</p> <ul style="list-style-type: none"> Assessment, management and treatment of adults and children with CKD (including rare paediatric renal disorders for paediatric dietitians) Skills in behaviour change techniques Significant contribution to research, service delivery and management; leading and managing a team <p>Advanced practitioner or highly specialist renal dietitian In addition to level 6 skills</p> <ul style="list-style-type: none"> Responsibility for service evaluation and development (e.g. supplementary prescribing) Specialist renal dietetic assessment and treatment skills including behaviour change techniques Advise, guide and teach assistant, junior and less experienced staff
6	<ul style="list-style-type: none"> Require a critical understanding of detailed theoretical and practical knowledge Specialists and/or have management and leadership responsibilities Demonstrate initiative and are creative in finding solutions to problems Some responsibility for team performance and service development and they consistently undertake self-development 	<p>Specialist renal dietitian Usually have a minimum of two years' experience as a registered dietitian Able to:</p> <ul style="list-style-type: none"> Manage the dietary needs of a complex range of patients Complete renal dietetic assessments and treatment Assist in audit and service development Advise, guide and teach assistant, and junior staff <p>May require assistance for more complex patient management</p>
5	<ul style="list-style-type: none"> Have a comprehensive, specialised, factual and theoretical knowledge within a field of work and an awareness of the boundaries of that knowledge Can use knowledge to solve problems creatively, make judgments which require analysis and interpretation, and actively contribute to service and self-development. May have responsibility for supervision of staff or training 	<p>Renal dietitian Work within narrow areas of practice and specific tasks under close supervision from specialist renal dietitians Able to:</p> <ul style="list-style-type: none"> Complete renal dietetic assessments, care plan development and monitoring for straightforward adults and children with CKD and AKI Advise, guide and teach assistants and students Assist in audit and service development <p>Requires assistance for more complex patient management</p>
4	<ul style="list-style-type: none"> Require factual and theoretical knowledge in broad contexts within a field of work. Work is guided by standard operating procedures, protocols or systems of work, but the worker makes judgements, plans activities, contributes to service development and demonstrates self-development May have responsibility for supervision of some staff 	<p>Experienced dietetic technician/assistant Able to:</p> <ul style="list-style-type: none"> Undertake tasks delegated by the renal 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) Complete basic dietetic reviews and collect limited basic dietetic information Contribute to audit, data collection and service development <p>In addition, an experienced paediatric dietetic technician/dietetic assistant is able to:</p> <ul style="list-style-type: none"> Prepare and teach home feeding recipes to families Develop renal specific recipes Order special meals utilising a good understanding of renal biochemistry
3	<ul style="list-style-type: none"> Require knowledge of facts, principles, processes and general concepts in a field of work May carry out a wider range of duties than the person working at level 2, and will have more responsibility, with guidance and supervision available when needed Contribute to service development and are responsible for self-development 	<p>Dietetic assistant Able to undertake tasks delegated by the renal dietitian, following an assessment of competency, including:</p> <ul style="list-style-type: none"> Completing basic assessment with supervision Liaising and booking more complex patients in with a renal dietitian Completing routine anthropometric measurements Recording biochemistry results in dietetic records Administration <p>In addition, a paediatric dietetic assistant/diet support worker is able to:</p> <ul style="list-style-type: none"> Support with setting up home enteral tube feeding Contact GP for prescription requests for feeds

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