



Leicestershire, Northamptonshire and Rutland
Healthcare Workforce Deanery

Renal Evaluation: Renal knowledge and knowledge of provision of renal care across healthcare workers and organisations within LNR

Findings

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3rd Iteration

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Executive Summary

The East Midlands Renal Network (EMRN) is working to develop a greater understanding of the local renal workforce across the East Midlands area. An evaluation was undertaken of renal knowledge levels and knowledge of renal service provision among different groups of healthcare workers across the Leicestershire, Northamptonshire, Lincolnshire and Peterborough areas. A questionnaire was distributed to general practices, renal units, dialysis units, satellite units and general medical wards where some renal care is provided.

Although we cannot determine the actual response rate owing to the distribution methods, the questionnaire, with 238 responses, provided a significant amount of detailed information and useful data, which will evidence and inform an education and training strategy.

The questionnaire invited respondents to self-assess their knowledge of renal topics. These self-assessment ratings are not an objective measure of renal knowledge. Rather, they are respondents' subjective perceptions of their renal knowledge. However, research in other healthcare settings and in education settings has shown self-ratings of knowledge to often provide an accurate assessment of actual knowledge. The questionnaire also included items on service provision in primary care and education services/materials for patients. Background information was also collected from respondents.

Findings suggest a positive correlation between the grade of nursing staff and level of renal knowledge. It shows a lack of knowledge within certain topic areas across all staff groups and this information will provide the evidence to prioritise the training and education strategy.

A very small number of primary care workers and staff working with renal patients in non-nephrology departments have undertaken any form of renal courses/development programmes.

1. Background & Aims

The East Midlands Renal Network (EMRN) is working to develop a greater understanding of the local renal workforce across the East Midlands area. In order to do this, the Renal Workforce Training & Development Sub-group developed a questionnaire to explore levels of renal knowledge across the area as well as knowledge of renal care provision in primary care. *The National Service Framework (NSF) for Renal Services, part two; Chronic Kidney Disease (CKD), Acute Renal Failure and End of Life Care*, outlines a quality framework which focuses on prevention and early detection in primary care, minimising the progression and consequences of renal disease, and delivering high quality and clinically appropriate care in partnership with specialised teams (in terms of managing chronic kidney disease and end of life care). It is acknowledged that the NSF is now focussing on a patient centred approach, which means that knowledge and skills in renal care are needed right across the health community.

The aims of evaluation were to:

- a) explore levels of renal knowledge of the workforce providing renal care;
- b) assess knowledge of renal provision of the workforce in primary care;
- c) identify where there might be inappropriate gaps in renal knowledge among those involved in the provision of renal care;
- d) identify workforce development needs in line with the NSF and propose training and education interventions.

2. Method

The questionnaire drew on the *Diabetes Knowledge–Needs Assessment Measure*, produced and validated by the Centre for Primary Healthcare Studies at Warwick University. The framework for this measure was developed into a renal specific questionnaire by specialists in the field who are all part of the Renal Workforce Training & Development Sub-group.

The questionnaire invited respondents across different groups of healthcare workers in different organisations and settings (including primary care, nephrology satellite units, hospital nephrology wards and other hospital wards where there is some provision of renal care) to self-assess their knowledge of renal topics. It also asked respondents in primary care about aspects of renal service provision within their organisations. In addition, all respondents were asked to provide further background information (including details of any renal education/training courses they had undertaken). The questionnaire was divided into four sections:

2.1.1 Renal knowledge needs measure

This section comprised self-rating items on 62 renal topics. Each knowledge item could be rated on a scale of 0 to 4 (where 0 = no knowledge; 1 = limited knowledge; 2 = satisfactory level of knowledge; 3 = good knowledge; 4 = extensive knowledge). Total knowledge self-assessment scores could potentially range from 0 to 248. These were calculated for each group of respondents as were the median scores across all renal topics. The median was used as an indicator of average score rather than the mean since mean scores in this context were more likely to be skewed by responses clustered at either extreme of the rating scale. However, average scores are not the best way of showing where there might be gaps in perceived knowledge. Therefore frequencies of ratings (in percentage terms) were also calculated.

Caution must be exercised when interpreting renal knowledge scores since the responses to the questionnaires will reflect participants' *perceptions* of their knowledge levels *in relation to their own roles*. As such, the ratings are

not an objective measure of renal knowledge. Nevertheless, there is evidence from other healthcare and non-healthcare settings of self-ratings of knowledge often providing relatively accurate assessments of actual knowledge levels.

2.1.2 Renal service delivery in primary care

This section included a series of mainly closed items on the provision of renal services in the primary care sector (although there were opportunities to give further details).

2.1.3 Education for staff

This section comprised a single question relating to the undertaking of renal courses and training programmes. Where respondents indicated that they had taken part in such training, they were invited to give further details.

2.1.4 Education of patients

This section asked respondents to indicate which education services/materials their organisation offered to patients from a given list. There was also an option to tick 'none', 'don't know' or 'other'. Respondents who ticked 'other' were asked to provide further details. Included in this section was an open question asking respondents to explain what they do when patients do not understand English.

2.2 Questionnaire Pilot

The questionnaire was piloted during October and November 2005 with 10 individuals across the EMRN representing GP's, nurses, dieticians, pharmacists, technicians, secretaries and managers across primary and secondary care. Feedback was used to further develop and refine the questionnaire.

2.3 Distribution

The questionnaires were distributed across Leicestershire, Rutland, Northamptonshire, Peterborough and Lincolnshire to general practices, renal units, dialysis units, satellite units and general medical wards where some renal care is provided. Questionnaires were initially distributed by post and

email and, to maximise returns, recipients were invited to photocopy and distribute the questionnaire to colleagues and/or distribute further electronic copies by email. This makes it difficult to quantify exactly how many questionnaires were distributed, although we would estimate the final number to be approximately 600.

The questionnaires were sent out during January 2006 for return by the end of the month. However, the majority of questionnaires were returned during February and, owing to a technical hitch at one hospital site, some were not returned until March.

2.4 Workshops

Once the results of the questionnaires were analysed, a workshop was arranged to bring together a group of 'renal experts' including the renal network manager, renal education lead/senior lecturer, ward manager, renal service manager, head of nutrition and dietetics, and the renal workforce development lead at the Healthcare Workforce Deanery. This workshop determined what levels of renal knowledge were deemed by the 'expert group' to be the minimum levels required for each staff group.

A second workshop took place to map across the renal competencies within the Skills for Health Knowledge and Skills Framework (KSF) with the topic areas as defined in the questionnaire. This link with the national renal competency framework will help to focus the 'expert group' when determining the priorities in training and education. The details are shown as appendix IV on page 33.

3. Results

3.1 Response rate

238 questionnaires were returned. Due to the methods of questionnaire distribution outlined above, it is impossible to calculate a precise response rate since the exact number of individuals who received a questionnaire is unknown. Also as a result of this, while specific groups of healthcare workers and particular organisations were targeted, it was possible for other (unanticipated) groups to have received, and responded to, the questionnaire. For example, a number of clinical scientists completed and returned a questionnaire.

Not all who completed a questionnaire responded to every item.

Table 1 shows the number of responses obtained from each professional group within each place of work. Responses were obtained from nurses, nurse assistants / Renal Care Assistants (RCAs), GPs, practice nurses, administrative / clerical / management staff. In addition, the 'Other' category includes 2 physiotherapists, 1 academic (lecturer), 4 Senior House Officers (SHOs) and 3 dieticians. It had been hoped that hospital doctors and dieticians would comprise separate groups for analysis, but the numbers in each group are too small to make such analysis meaningful.

TABLE 1. Responses by profession and place of work

Profession	Place of work			Total
	<i>Nephrology</i>	<i>GP</i>	<i>Other hospital ward</i>	
<i>Nurse</i>	71	N/A	32	103
<i>Nurse Asst. / RCA</i>	30	N/A	6	36
<i>GP</i>	N/A	31	N/A	31
<i>Practice nurse</i>	N/A	30	N/A	30
<i>Admin./Clerical/Management</i>	17	1	2	20
<i>Clinical Scientist</i>	7	N/A	0	7
<i>Other</i>	4	0	6	10
<i>Unknown</i>	1	0	0	1
<i>Total</i>	130	62	46	238

3.2 Renal knowledge self-assessment scores by profession

Table 2 gives the median knowledge self-assessment rating for each renal topic and for the nursing and primary care professional groups (0 = no knowledge; 1 = limited knowledge; 2 = satisfactory level of knowledge; 3 = good knowledge; 4 = extensive knowledge). The Admin. / Clerical / Management and the Clinical Scientist groups are not included in this table due to small numbers and because this evaluation was more concerned with the renal knowledge of those directly involved in providing patient care. However, these groups are included in Figure 1 shown on page 11, which illustrates differences in total renal knowledge scores for each profession.

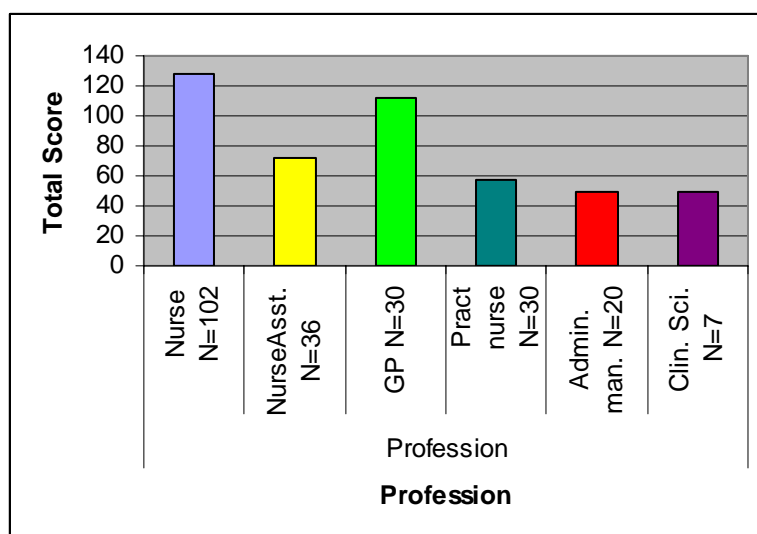
Figure 2 shown on page 11, provides a breakdown of total renal knowledge scores for the nursing groups in their secondary care settings. A similar comparison of GPs and practice nurses in primary care can be achieved by looking at Figure 1.

TABLE 2. Median renal knowledge self assessment scores by profession

Renal topic	Profession			
	Nurse N=102	Nurse Asst. / RCA N=36	GP N=30	Pract nurse N=30
Anaemia	2.0	1.0	2.0	1.5
Bone disease	2.0	1.0	2.0	1.0
Cardiovascular problems	2.0	1.0	2.0	2.0
Causes acute renal	3.0	1.5	2.0	1.0
Causes chronic renal	3.0	2.0	2.0	1.0
Complications	3.0	1.0	2.0	1.0
Complications dialysis	3.0	1.5	1.0	1.0
Complications renal	3.0	2.0	2.0	1.0
Danger signs	3.0	2.0	2.0	1.0
Diabetes	2.0	1.0	2.5	3.0
Dialysis access	3.0	2.0	1.0	1.0
Emergency chronic kidney	2.5	1.5	1.0	1.0
Fluid balance	3.0	3.0	1.0	1.0
Hypertension	3.0	2.0	3.0	2.0
Infection control	3.0	2.0	2.0	1.0
Interventions	3.0	1.0	2.0	1.0
Investigations	2.0	1.0	2.0	1.0
GFR	2.0	0.0	2.0	1.0
Palliative care	2.0	1.0	2.0	1.0
Physiology acute renal	2.0	1.0	2.0	1.0
Physiology chronic renal	2.0	1.0	2.0	1.0

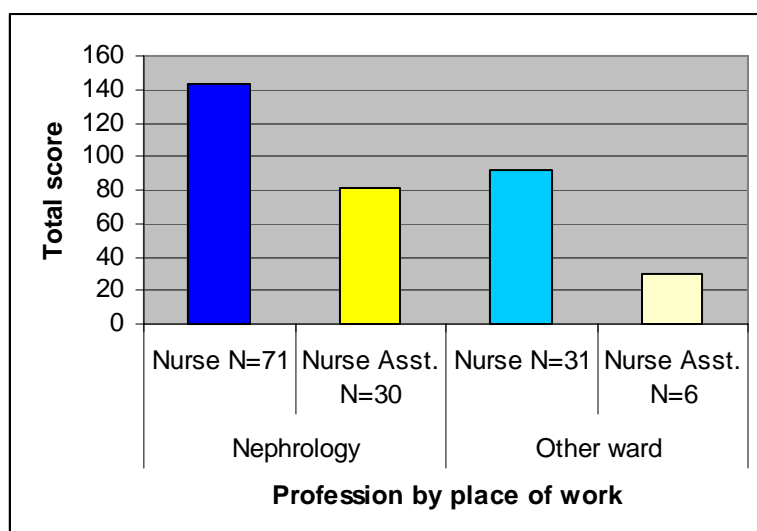
Psychological aspects	2.0	1.0	2.0	1.0
Related conditions	2.0	1.0	2.0	1.0
Management (of renal care)	3.0	1.0	2.0	1.0
New therapies	2.0	0.0	1.0	0.0
Patient medication	2.0	1.0	2.0	1.0
Alcohol	2.0	1.0	3.0	1.0
Care at home	2.0	1.0	2.0	1.0
Contraception	2.0	1.0	2.0	1.0
Diet	3.0	2.0	2.0	1.5
Disability legislation	1.0	0.5	1.0	0.0
Discharge manage access	2.0	0.0	1.0	0.0
Discharge manage coordinate	2.0	0.0	1.0	0.0
Driving	2.0	1.0	2.0	1.0
Eating out	2.0	1.5	1.5	1.0
Genetics	1.0	1.0	1.0	0.0
Holidays	2.0	1.0	1.0	1.0
HRT	1.0	0.0	2.0	1.0
Impotence	1.5	1.0	2.0	1.0
Symptoms acute renal	3.0	1.0	2.0	1.0
Symptoms chronic renal	3.0	1.5	2.0	1.0
Transplantation	2.0	1.0	1.0	1.0
Treat options peritoneal dialysis	2.0	1.0	1.0	1.0
Treat options haemodialysis	3.0	2.0	1.0	1.0
Treat options end of life care	2.0	1.0	2.0	0.0
Patient meds side-effects	2.0	0.0	2.0	1.0
Technical support dialysis	2.0	1.0	1.0	0.0
Infertility	1.0	1.0	2.0	1.0
Life Insurance	1.0	0.5	2.0	0.0
Medical insurance	1.0	0.0	2.0	0.0
Other illnesses	2.0	1.0	2.0	1.0
Patient transport	2.0	1.0	2.0	1.0
Pre-dialysis care	2.0	1.0	1.0	0.0
Pregnancy	1.0	1.0	1.5	1.0
Pre-pregnancy	1.0	1.0	1.5	1.0
Renal Patients Association	2.0	1.0	1.0	0.0
Renal problems adolescence	1.0	0.0	1.0	0.0
Smoking	2.0	1.0	2.0	2.0
Termination of pregnancy	1.0	0.0	2.0	0.0
Travel	2.0	1.0	2.0	1.0
Vision	2.0	1.0	2.0	1.0
Work	2.0	1.0	2.0	0.5

FIGURE 1. Total renal knowledge self-ratings by profession



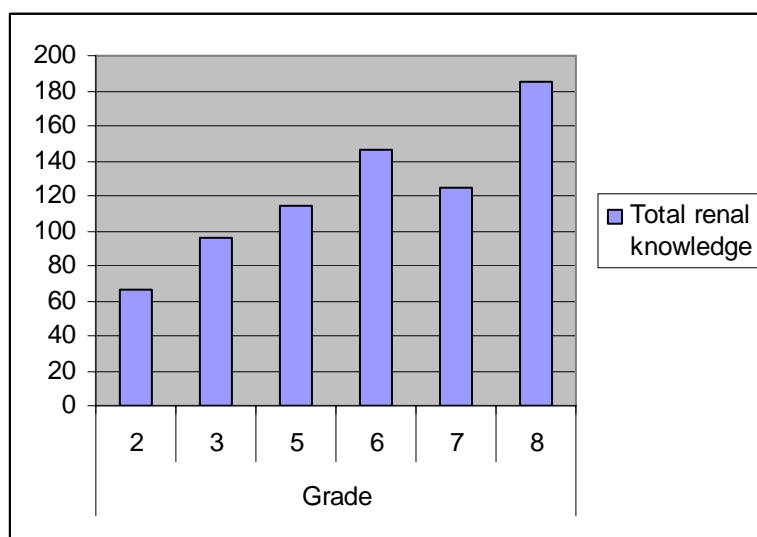
There are insufficient data to subdivide each profession by grade of post, however it is worth noting that for the nursing professionals (for whom the majority of grade information was obtained), there is a statistically significant positive correlation between grade of post and total renal knowledge score ($r=0.52$; $p<0.001$). Differences by grade among the nursing professionals are illustrated in Figure 3¹ shown on page 12.

FIGURE 2. Total renal knowledge self-ratings for the nursing groups



¹ Grade of post was sometimes given as a letter (a to h) and, following 'agenda for change', as a number by some respondents. Although one grading structure cannot be mapped precisely onto the other, for the purposes of this evaluation, letter grades were assumed to be roughly comparable to specific agenda for change grades as follows: a&b=2; c=4, d&e=5; f&g=6; h=7; i=8.

FIGURE 3. Total renal knowledge self-ratings by grade for nurse professionals



A more detailed analysis of responses for the nurse, nurse assistant / RCA, GP and nurse practitioner groups within their respective secondary and primary care settings is presented below.

3.3 Knowledge self-assessment scores in primary and secondary care

To show more clearly where there may be gaps in renal knowledge across the nursing groups in secondary care and the GPs and practice nurses in primary care, the percentage of respondents who rated their knowledge as 'no knowledge' or 'limited knowledge' for a limited range of the renal topics are presented in Table 3 shown on page 13. We focus solely on the figures for this selection of topics as they are regarded by the Renal Workforce Training & Development Sub-group as fundamental areas where all of the professionals in a multi-disciplinary team should have at least a basic level of knowledge. (However, please note that *all* percentages are presented in Appendix II).

TABLE 3. Self-perceived renal knowledge levels - % of nursing staff in nephrology and other medical wards, plus GPs and practice nurses in primary care, rating their knowledge as 'no knowledge' or 'limited knowledge' by renal topic.

Topic:	Knowledge level	Nephrology		Other medical ward		Primary care	
		% Nurse	% Nurse Assist.	% Nurse	% Nurse Assist.	% GPs	% Practice nurses
<i>Anaemia</i>	None	0	7	3	50	0	3
	Limited	7	60	10	33	10	47
<i>Cardio probs.</i>	None	0	17	0	67	0	3
	Limited	10	55	10	33	20	30
<i>Causes chronic renal</i>	None	0	0	0	83	0	3
	Limited	3	37	23	17	10	53
<i>Complications</i>	None	0	18	7	83	0	16
	Limited	6	25	24	17	27	63
<i>Diabetes</i>	None	0	7	0	0	0	3
	Limited	9	47	3	67	7	14
<i>Emergency chronic kidney</i>	None	0	13	7	83	10	47
	Limited	11	27	29	17	47	43
<i>GFR</i>	None	0	80	30	100	3	40
	Limited	23	16	35	0	31	40
<i>Palliative care</i>	None	3	27	17	60	24	33
	Limited	14	43	13	40	31	44
<i>Patient medication</i>	None	0	33	20	75	24	24
	Limited	9	41	37	25	45	62
<i>Symptoms acute renal</i>	None	0	10	0	83	0	11
	Limited	6	40	14	17	17	57
<i>Symptoms chronic renal</i>	None	0	7	0	83	0	11
	Limited	4	33	14	17	17	61
<i>Treat ops peritoneal dialysis</i>	None	3	10	27	100	3	32
	Limited	9	50	33	0	50	54
<i>Treat ops haemodialysis</i>	None	4	7	27	100	3	46
	Limited	17	23	30	0	60	43
<i>Treat ops end of life care</i>	None	0	14	35	83	0	54
	Limited	13	41	21	17	47	43

3.4 Knowledge Gap Analysis

The Knowledge gap has been determined by identifying the variance between the self-perceived renal knowledge levels and the minimum level required as recommended by the 'expert group' for each topic area.

It is not clear what the thought processes were behind the respondents self-ratings (e.g. does a score of 2 suggest that they regarded their knowledge as 'average' for their profession or that they felt they knew all they needed to know in that area to do their job?). Therefore, it is meaningless to look for differences between self-ratings and expert ratings when self-ratings are 2 or above. However, a self-rating of 0 or 1 in relation to an expert rating of 2 or more does reflect a problem (i.e. where a 'satisfactory', 'good' or 'extensive' level of knowledge is regarded as essential by the expert panel, but where self-ratings are of 'limited knowledge' or 'no knowledge'). It is these deficits that have been reported in this section.

All essential levels of knowledge of renal topics agreed by the expert panel compared to all median self-ratings of renal knowledge by nursing and GP groups within nephrology, non-nephrology and primary care contexts are presented below in Tables 4, 5 & 6.

TABLE 4.

Deficiencies in knowledge according to differences in expert and self-ratings for primary care workers (GPs & Practice Nurses)

Renal knowledge topic	GP ratings		Practice nurses ratings	
	Expert	Self	Expert	Self
Anatomy & physiology				
Anaemia			2	1.5
Causes acute renal			2	1
Causes chronic renal			2	1
Complications			2	1
Complications renal			2	1
Danger signs			2	1
Fluid balance			2	1
Infection control			3	1
Interventions			3	1
Investigations			2	1
GFR			3	1
Palliative care			2	1
Physiology acute renal			2	1
Physiology chronic renal			2	1
Psychological aspects			3	1

Related conditions			3	1
Symptoms chronic renal			2	1
Treat options end of life care			2	0
Pregnancy			2	1
Pre-pregnancy			2	1
Management				
Management (of renal care)			3	1
New therapies	3	1	3	0
Patient medication			3	1
Patient meds side-effects			3	1
Health Promotion				
Alcohol			3	1
Contraception			2	1
Diet			2	1.5
Disability legislation			2	0
Driving			3	1
Eating out	2	1.5		
Other illnesses			2	1
Pre-dialysis care			3	0

TABLE 5.

Deficiencies in knowledge according to differences in expert and self-ratings for renal secondary care workers (Nurses & RCAs)

Renal knowledge topic	Nurse ratings		Nurse assist. / RCA ratings	
	Expert	Self	Expert	Self
Anatomy & physiology				
Anaemia			2	1
Cardiovascular problems			3	1
Diabetes			3	1
Interventions			2	1
Investigations			2	1
Palliative care			2	1
Psychological aspects			2	1
Treat options peritoneal dialysis			2	1
Treat options end of life care			2	1
Smoking			2	1
Management				
Management (of renal care)			2	1
Health Promotion				
Disability legislation	2	1		
Patient transport			3	1

TABLE 6.

Deficiencies in knowledge according to differences in expert and self-ratings for non-renal secondary care workers (Nurses & Nurse Assistants)

Renal knowledge topic	Nurses		Nurse assistants	
	Expert	Self	Expert	Self
Anatomy & physiology				
Cardiovascular problems			2	0
Diabetes			2	1
Hypertension			2	0
Infection control			3	1

Palliative care			2	0
Treat options haemodialysis			2	0
Treat options end of life care			2	0
Smoking	3	1	3	0
Vision	2	1		
Work	2	1		
Management				
Patient medication	2	1		
Patient meds side-effects	3	1.5		
Health Promotion				
Alcohol			2	1
Contraception	2	1		
Diet			2	1
Disability legislation	2	1		
Discharge manage access	2	1		
Driving	2	1		
Other illnesses	2	1		
Patient transport	3	1	2	0
Pre-dialysis care			3	0

Note: where no deficit of skills has been identified the cells are coloured grey.

3.4.1 General Practitioners

The results for GPs show deficits in relation to just 2 renal topics – ‘new therapies’ and ‘eating out’. Moreover, for 40% of the renal topics, GPs self-ratings were higher than the knowledge levels considered essential by the expert panel.

3.4.2 Practice Nurses

The results for practice nurses show deficits in half of all knowledge areas (31 of the 62 renal topics), which is the highest proportion for any staff group. The majority of these deficits are in ‘anatomy & physiology’ topics. There are also deficits evident in some ‘management’ and several ‘health promotion’ topics. For the majority of the deficit areas, nurses rated their knowledge as ‘limited’, with the expert panel suggesting a ‘satisfactory’ or ‘good’ level of knowledge is essential.

3.4.3 Nephrology Nurses

Nephrology nurses do receive comprehensive renal training and education within UHL and so, as would be expected, a deficit in only one topic was evident (‘disability legislation’). In most instances (79% of all renal topics), the self-ratings match the expectations of the expert panel.

3.4.4 Nephrology Nurse Assistants

Figures for the nurse assistants/RCA's working within nephrology units show deficits in around one-fifth of renal topics (12 of the 62 topics). Two thirds of the deficits are in 'anatomy & physiology' topics.

3.4.5 Nurses – other wards (non-nephrology wards, treating renal patients)

Results for nurses working in other wards show deficits in 11 renal topics. A few of the deficits relate to 'anatomy & physiology' and to 'management' topics, with the rest relating to 'health promotion' topics.

3.4.6. Nurse Assistants (in other wards)

For nursing assistants working in non-nephrology wards, a similar number of deficits are apparent (12 of the 62 renal topics). However, unlike the registered nurses², most of these deficits are in 'anatomy & physiology' topics.

3.5 Renal care provision in primary care

As already indicated, completed questionnaires from primary care organisations were received from 31 GPs, 30 practice nurses and 1 clerical/admin worker. These represented 21 training practices (33.9%) and 19 practices that teach medical students (30.6%) (13 of the 21 training practices were also teaching practices).

Responses show that half of the practices had between 4 and 6 partners (mean = 5.3), with 2 to 3 practice nurses (mode = 3.0), and a patient list size ranging from 1500 to 17500 (mean = 9712.6; median = 10000). Responses suggest a relatively small percentage of the practices' patients as having renal disease/CKD (mean = 2.4%; median & mode = 1.0%).

² Where nurse is stated in Nephrology or other medical wards these are all registered nurses unless otherwise stated, for example; nurse assistant or renal care assistant as identified.

In response to the item, '*Would you describe your teaching practice as having a special interest in renal disease*', 56 respondents ticked 'no' and only 1 ticked 'yes' (the one positive response was from a GP working in the largest practice).

17 out of 54 respondents (27.4%) reported to have an active register of renal patients in their practice. Of these 17, 10 indicated use of the register for call/recall visits (including the one respondent to indicate a special interest in renal disease within the practice).

None of the respondents indicated that their practice ran 'renal only' clinics (of the 62 primary care respondents 59 ticked 'no' and there were 3 no-responses).

Only 2 respondents indicated that their practice had been audited for aspects of renal care since the publication of the renal NSF (48 ticked 'no' and 12 did not respond to this item). Of these two respondents, one indicated that the audit related to 'hypertension', while the other described the audit as having been 'For influenza campaigns – we searched for renal disease 2004 & 2005'.

3.6 Renal education

3.6.1 Education for staff

Only 8 primary care respondents had undertaken any renal courses/development programmes (6 practice nurses and 2 GPs).

In Nephrology, 81 from 130 respondents (62.3%) indicated that they had undertaken such a programme, including 55 (77.5%) of the nurses, 18 (60.0%) of the nurse assistants / RCAs, 4 from 10 admin. managerial employees, and 3 of the 7 clinical scientists.

Away from Nephrology, only 5 from 46 respondents (10.9%) had undertaken renal training, including just 3 out of 32 nurses, 1 out of the 2 admin. managerial professionals, and 1 'other' professional (in this case an SHO).

Across all groups, responses to an open question item revealed a wide range of courses, including BSc/BA programmes of study, NVQs and departmental courses. There are insufficient data to explore in detail what training opportunities are available to various groups of staff, whether they are aware of any opportunities, and whether they choose to take these up.

3.6.2 Education for patients

Table 4 shows the percentage of respondents in each workplace setting who indicated that the listed education services/materials *are* provided for patients.

It is important to note that the relatively high number of responses indicating no awareness of education services/materials provision in primary care is accounted for equally by GP and practice nurse respondents.

Also a high level of ‘don’t know’ responses from professionals working in other hospital wards was accounted for by the responses of the 4 SHOs who completed a questionnaire, 3 out of 6 nurse assistants, the 2 physiotherapists, and an admin./clerical/management professional. The majority of nurses in this setting did not tick the ‘don’t know’ option.

TABLE 4. Provision of education services/materials for patients by place of work

Service	Place of work (% of respondents indicating the service is available)		
	<i>Nephrology</i>	<i>Other hospital ward</i>	<i>Primary care</i>
<i>Self-help groups</i>	28.5	2.2	8.1
<i>Videos/tapes/CDs</i>	51.5	2.2	6.5
<i>Written material</i>	83.1	13.0	29.0
<i>Other</i>	15.4	4.3	6.5
<i>None</i>	2.3	17.4	43.5
<i>Don't know</i>	6.2	32.6	11.3

Further details of services given by those who ticked the ‘other’ option referred to either patient information days or written documentation/leaflets (arguably the latter is the same as ‘written materials’ in the given list).

An additional item in this section of the questionnaire asked respondents to explain what they do when patients do not understand English. A range of responses was provided, which included reference to 'language line', to the Ujala centre, to PALS/CALS services, to translation software, to written materials in other languages, to the use of interpreters, and to the help of staff in the organisation who are able to speak other languages. A large number of respondents indicated that they rely on family and friends of the patient to translate. A small number claimed to rely on using pictures and signs. In addition, one respondent wrote 'Panic!' and another responded with 'Pray!'

4. Conclusions and Recommendations

This study has yielded a large amount of detailed information, which will provide evidence to support new training programmes, which can be tailored to meet the needs of specific staff groups within secondary and primary care.

Perhaps not surprisingly, the perceived level of knowledge within Nephrology units is much higher than that within primary care and other hospital wards, although the level of knowledge is pertinent to each staff group and should not be used out of context. The comparison of perceived levels of knowledge and the recommended levels of knowledge within each of the topic areas is more meaningful.

Of all the staff groups, practice nurses show the highest proportion of knowledge gaps with the majority of these being in anatomy and physiology topic areas. The practice nurses rated themselves as having limited knowledge within a high proportion of topic areas, when the recommended level of knowledge is satisfactory to good. Renal care is part of the GP Quality Assurance Framework (QAF), which will help the drive for improvement and give impetus for training and development delivery within primary care.

Findings will be used to map 'deficit' topic areas for each professional group onto the competencies within the KSF. This will enable the expert group to determine and prioritise renal training and education requirements across the east midlands network. However, the scores identified in tables 5, 6 & 7 cannot in themselves provide the level of priority for training requirements for two reasons. Firstly, deficits in some topics will be more critical than in others for particular staff groups. Secondly, the significance of the 'size' of a deficit will vary across each topic (e.g. where the expert panel expectation is for a 'good level knowledge', a self-rating of 'no knowledge' might be more worrying than a self-rating of 'limited knowledge' for some topics). Due to these considerations, a level of professional judgement or expert advice will be required in order to establish the priorities for training and development. This further piece of work will need to be undertaken by the expert panel in order to complete the current renal training and education required across the patch.

To aid the process of determining and prioritising training and education requirements, a mapping exercise has recently taken place. A further short questionnaire has been distributed to managers at each hospital site and education providers across the East Midlands Renal Network to establish local renal education and training already being provided. The questionnaire has been designed to determine: course title, provider of the course, whether the course is validated or accredited, the cost of the course, duration of the course, how often the course is delivered, what the learning outcomes are and who the course is aimed at. Existing provision will be mapped onto the competency framework to identify any gaps.

The results of both the mapping exercise and expert consideration of the implications of identified knowledge deficits should be included in a future iteration of this report.

Further work should be undertaken to establish if there is a lack of education services/materials for patients within general practices or whether the provision is there but that the workforce are unaware of what is available.

The training and education sub-group recommend that a second skills audit is undertaken in March 2007 to establish whether the level of perceived knowledge has improved or deteriorated.

This project has produced a comprehensive study, which could be useful to other renal networks throughout the country and it is therefore recommended that this work is shared and used by any interested parties.

This study has been undertaken by the East Midlands Renal Network, Workforce, Education & Training Sub-group.

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Many other people contributed to this project of which we are very grateful and extend our thanks, especially:

Graham Warwick
Alison Stapleton
Carol Setford
Sarah Poole
Rose McKee
Helen McCreery
Ann Symon

and all those who contributed to the process by completing questionnaires.

APPENDIX I. Median renal knowledge self assessment scores for the nursing groups in secondary care by type of ward

<i>Renal topic</i>	Nephrology		Other ward	
	<i>Nurse N=71</i>	<i>Nurse Asst. N=30</i>	<i>Nurse N=31</i>	<i>Nurse Asst. N=6</i>
Anaemia	3.0	1.0	2.0	0.5
Bone disease	2.0	1.0	1.0	0.0
Cardiovascular problems	2.0	1.0	3.0	0.0
Causes acute renal	3.0	2.0	2.0	0.5
Causes chronic renal	3.0	2.0	2.0	0.0
Complications	3.0	2.0	2.0	0.0
Complications dialysis	3.0	2.0	1.0	0.0
Complications renal	3.0	2.0	2.0	0.0
Danger signs	3.0	2.0	2.0	1.0
Diabetes	2.0	1.0	2.0	1.0
Dialysis access	3.0	3.0	1.0	0.0
Emergency chronic kidney	3.0	2.0	2.0	0.0
Fluid balance	3.0	3.0	3.0	2.0
Hypertension	3.0	2.0	2.0	0.0
Infection control	3.0	2.0	2.0	1.0
Interventions	3.0	1.0	2.0	0.0
Investigations	3.0	1.0	2.0	0.0
GFR	2.0	0.0	1.0	0.0
Palliative care	2.0	1.0	2.0	0.0
Physiology acute renal	2.0	1.0	2.0	0.0
Physiology chronic renal	3.0	1.0	2.0	0.0
Psychological aspects	3.0	1.0	2.0	0.0
Related conditions	2.0	1.0	2.0	0.0
Management (of renal care)	3.0	1.0	2.0	0.0
New therapies	2.0	0.0	1.0	0.0
Patient medication	3.0	1.0	1.0	0.0
Alcohol	2.0	1.0	2.0	1.0
Care at home	2.0	1.0	1.0	1.0
Contraception	2.0	1.5	1.0	1.0
Diet	3.0	2.0	2.0	1.0
Disability legislation	1.0	1.0	1.0	0.0
Discharge manage access	2.0	0.0	1.0	0.0
Discharge manage coordinate	2.0	0.0	1.0	0.0
Driving	2.0	1.0	1.0	0.0
Eating out	2.0	1.5	1.0	1.0
Genetics	1.0	1.0	1.0	0.0
Holidays	2.0	1.0	1.0	0.5
HRT	1.0	1.0	1.0	0.0
Impotence	2.0	1.0	1.0	0.0
Symptoms acute renal	3.0	1.5	2.0	0.0
Symptoms chronic renal	3.0	2.0	2.0	0.0
Transplantation	2.0	1.0	1.0	0.0
Treat options peritoneal dialysis	3.0	1.0	1.0	0.0
Treat options haemodialysis	3.0	2.0	1.0	0.0
Treat options end of life care	3.0	1.0	1.0	0.0
Patient meds side-effects	3.0	0.0	1.5	0.0
Technical support dialysis	2.0	1.0	1.0	0.0
Infertility	2.0	1.0	1.0	0.0
Life Insurance	1.0	0.5	1.0	0.5
Medical insurance	1.0	0.0	1.0	0.0
Other illnesses	2.0	1.0	1.0	0.0
Patient transport	2.0	1.0	1.0	0.0

Renal topic	Nephrology		Other ward	
	Nurse N=71	Nurse Asst. N=30	Nurse N=31	Nurse Asst. N=6
Pre-dialysis care	2.0	1.0	1.0	0.0
Pregnancy	2.0	1.0	1.0	0.0
Pre-pregnancy	2.0	1.0	1.0	0.0
Renal Patients Association	2.0	1.0	1.0	0.0
Renal problems adolescence	2.0	0.0	1.0	0.0
Smoking	2.0	1.0	1.0	0.0
Termination of pregnancy	1.0	0.5	1.0	0.0
Travel	2.0	1.0	1.0	0.0
Vision	2.0	1.0	1.0	0.0
Work	2.0	1.0	1.0	0.0

APPENDIX II. Self-perceived renal knowledge levels - % of nursing staff in nephrology and other medical wards, plus GPs and practice nurses in primary care, rating their knowledge as 'no knowledge' or 'limited knowledge' by renal topic.

Topic:	Knowledge level	Nephrology		Other medical ward		Primary care	
		% Nurse	% Nurse Assist.	% Nurse	% Nurse Assist.	% GPs	% Practice nurses
<i>Anaemia</i>	None	0	7	3	50	0	3
	Limited	7	60	10	33	10	47
<i>Bone disease</i>	None	1	23	23	100	3	27
	Limited	20	57	39	0	33	63
<i>Cardio probs.</i>	None	0	17	0	67	0	3
	Limited	10	55	10	33	20	30
<i>Causes acute renal</i>	None	0	3	0	50	0	3
	Limited	3	37	29	50	23	53
<i>Causes chronic renal</i>	None	0	0	0	83	0	3
	Limited	3	37	23	17	10	53
<i>Complications</i>	None	0	18	7	83	0	16
	Limited	6	25	24	17	27	63
<i>Complications dialysis</i>	None	0	7	10	100	7	43
	Limited	6	33	48	0	50	40
<i>Complications renal</i>	None	0	3	13	100	0	27
	Limited	4	33	29	0	40	53
<i>Danger signs</i>	None	0	10	3	33	0	17
	Limited	9	31	13	33	41	60
<i>Diabetes</i>	None	0	7	0	0	0	3
	Limited	9	47	3	67	7	14
<i>Dialysis access</i>	None	0	3	19	83	3	41
	Limited	4	10	32	17	57	45
<i>Emergency chronic kidney</i>	None	0	13	7	83	10	47
	Limited	11	27	29	17	47	43
<i>Fluid balance</i>	None	0	7	0	33	13	17
	Limited	6	3	3	0	47	40
<i>Hypertension</i>	None	0	3	0	60	3	3
	Limited	4	10	3	0	37	17

Topic:	Knowledge level	Nephrology		Other medical ward		Primary care	
		% Nurse	% Nurse Assist.	% Nurse	% Nurse Assist.	% GPs	% Practice nurses
<i>Infection control</i>	None	0	0	0	33	3	10
	Limited	6	23	19	50	27	41
<i>Interventions</i>	None	2	21	3	67	10	32
	Limited	9	32	24	33	31	39
<i>Investigations</i>	None	0	23	0	80	0	12
	Limited	8	50	28	20	23	50
<i>GFR</i>	None	0	80	30	100	3	40
	Limited	23	16	35	0	31	40
<i>Palliative care</i>	None	3	27	17	60	24	33
	Limited	14	43	13	40	31	44
<i>Physiology acute renal</i>	None	0	20	10	80	0	25
	Limited	10	50	36	20	43	43
<i>Physiology chronic renal</i>	None	0	17	10	100	29	21
	Limited	10	57	36	0	46	46
<i>Psychological aspects</i>	None	0	21	13	80	0	29
	Limited	10	41	23	20	20	46
<i>Related conditions</i>	None	0	18	14	80	7	25
	Limited	13	50	21	20	24	57
<i>Management (of renal care)</i>	None	0	29	16	75	7	43
	Limited	6	29	32	25	33	39
<i>New therapies</i>	None	1	52	27	100	13	59
	Limited	25	37	53	0	60	38
<i>Patient medication</i>	None	0	33	20	75	24	24
	Limited	9	41	37	25	45	62
<i>Alcohol</i>	None	1	21	17	17	0	10
	Limited	17	31	30	67	10	41
<i>Care at home</i>	None	1	21	13	33	0	33
	Limited	16	45	40	67	27	48

Topic:	Knowledge level	Nephrology		Other medical ward		Primary care	
		% Nurse	% Nurse Assist.	% Nurse	% Nurse Assist.	% GPs	% Practice nurses
<i>Contraception</i>	None	7	13	27	33	0	21
	Limited	18	37	33	50	17	45
<i>Diet</i>	None	7	7	17	17	0	14
	Limited	23	10	17	50	27	36
<i>Disability legislation</i>	None	18	45	37	80	10	55
	Limited	34	28	40	20	47	45
<i>Discharge manage access</i>	None	6	61	29	83	18	59
	Limited	21	32	23	17	36	38
<i>Discharge manage coordinate</i>	None	7	63	31	83	18	57
	Limited	24	30	21	17	46	43
<i>Driving</i>	None	7	27	35	83	7	35
	Limited	21	50	17	0	28	55
<i>Eating out</i>	None	6	10	23	50	7	31
	Limited	11	40	30	0	43	52
<i>Genetics</i>	None	13	40	33	83	7	54
	Limited	41	47	40	0	53	46
<i>Holidays</i>	None	3	20	27	50	10	32
	Limited	21	53	27	17	50	61
<i>HRT</i>	None	19	48	41	67	0	39
	Limited	37	41	35	0	43	39
<i>Impotence</i>	None	14	24	43	80	0	29
	Limited	24	55	33	20	37	46
<i>Symptoms acute renal</i>	None	0	10	0	83	0	11
	Limited	6	40	14	17	17	57
<i>Symptoms chronic renal</i>	None	0	7	0	83	0	11
	Limited	4	33	14	17	17	61
<i>Transplantation</i>	None	4	20	17	100	3	46
	Limited	24	43	50	0	50	46
<i>Treat ops peritoneal dialysis</i>	None	3	10	27	100	3	32
	Limited	9	50	33	0	50	54

Topic:	Knowledge level	Nephrology		Other medical ward		Primary care	
		% Nurse	% Nurse Assist.	% Nurse	% Nurse Assist.	% GPs	% Practice nurses
<i>Treat ops haemodialysis</i>	None	4	7	27	100	3	46
	Limited	17	23	30	0	60	43
<i>Treat ops end of life care</i>	None	0	14	35	83	0	54
	Limited	13	41	21	17	47	43
<i>Patient meds side effects</i>	None	1	52	20	100	0	39
	Limited	10	35	30	0	24	43
<i>Technical support dialysis</i>	None	3	21	30	100	10	62
	Limited	13	55	50	0	66	38
<i>Infertility</i>	None	17	30	39	83	0	43
	Limited	32	60	42	17	33	46
<i>Life insurance</i>	None	25	50	36	50	7	68
	Limited	34	43	36	17	33	25
<i>Medical insurance</i>	None	23	53	29	67	7	68
	Limited	32	37	42	33	37	25
<i>Other illnesses</i>	None	7	20	21	83	3	37
	Limited	26	60	38	17	31	52
<i>Patient transport</i>	None	3	7	29	83	10	46
	Limited	16	50	26	17	33	50
<i>Pre-dialysis care</i>	None	1	23	32	100	17	61
	Limited	24	50	39	0	37	32
<i>Pregnancy</i>	None	20	30	39	67	7	46
	Limited	24	40	36	0	43	43
<i>Pre-pregnancy</i>	None	20	43	39	67	7	46
	Limited	30	30	36	0	43	43
<i>Renal Patients Association</i>	None	10	23	36	83	10	68
	Limited	24	57	45	17	63	29
<i>Renal problems adolescence</i>	None	18	57	36	100	13	68
	Limited	28	23	39	0	53	32
<i>Smoking</i>	None	1	20	19	67	3	21
	Limited	23	53	36	17	13	25

Topic:	Knowledge level	Nephrology		Other medical ward		Primary care	
		% Nurse	% Nurse Assist.	% Nurse	% Nurse Assist.	% GPs	% Practice nurses
<i>Termination of pregnancy</i>	None	24	50	29	100	3	56
	Limited	37	37	45	0	30	33
<i>Travel</i>	None	9	23	23	83	3	32
	Limited	25	57	52	17	43	50
<i>Vision</i>	None	9	17	26	83	3	48
	Limited	31	60	39	17	30	41
<i>Work</i>	None	6	23	19	100	3	50
	Limited	17	57	42	0	40	46

APPENDIX III. Essential level of knowledge of renal topics agreed by expert panel compared to median self-ratings of renal knowledge by nursing and GP groups within nephrology, non-nephrology and primary care contexts.

Renal knowledge topic	Nephrology				Other medical ward				Primary Care			
	Nurse		RCA / Nurse Assist.		Nurse		Nurse Assist.		GP		Practice Nurse	
	Expert	Self	Expert	Self	Expert	Self	Expert	Self	Expert	Self	Expert	Self
Anaemia	3	3	2	1	2	2	1	0.5	3	2	2	1.5
Bone disease	2	2	1	1	0	1	1	0	1	2	1	1
Cardio probs.	3	2	3	1	2	3	2	0	4	2	3	2
Causes acute renal	3	3	3	2	2	2	1	0.5	3	2	2	1
Causes chronic renal	3	3	3	2	3	2	1	0	3	2	2	1
Complications	3	3	3	2	2	2	1	0	3	2	2	1
Complications dialysis	3	3	3	2	1	1	0	0	1	1	1	1
Complications renal	3	3	3	2	1	2	0	0	2	2	2	1
Danger signs	3	3	3	2	2	2	1	1	3	2	2	1
Diabetes	2	2	3	1	2	2	2	1	4	2.5	4	3
Dialysis access	3	3	2	3	1	1	0	0	1	1	1	1
Emergency chronic kidney	3	3	2	2	2	2	0	0	1	1	1	1
Fluid balance	3	3	3	3	3	3	2	2	1	1	2	1
Hypertension	3	3	2	2	3	2	2	0	4	3	4	2
Infection control	3	3	3	2	3	2	3	1	2	2	3	1
Interventions	3	3	2	1	3	2	1	0	3	2	3	1
Investigations	3	3	2	1	2	2	1	0	3	2	2	1
GFR	2	2	0	0	1	1	0	0	3	2	3	1
Palliative Care	3	2	2	1	3	2	2	0	3	2	2	1
Physiology acute renal	3	2	1	1	2	2	1	0	3	2	2	1
Physiology chronic renal	3	3	1	1	2	2	1	0	3	2	2	1
Psychological aspects	3	3	2	1	2	2	1	0	2	2	3	1
Related conditions	2	2	1	1	1	2	1	0	3	2	3	1
Management (of renal care)	3	3	2	1	2	2	1	0	3	2	3	1
New therapies	2	2	1	0	1	1	0	0	3	1	3	0
Patient medication	3	3	0	1	2	1	0	0	4	2	3	1
Alcohol	2	2	2	2	2	2	2	1	3	3	3	1
Care at home	2	2	1	1	1	1	1	1	1	2	1	1

Renal knowledge topic	Nephrology				Other medical ward				Primary Care			
	Nurse		RCA / Nurse Assist.		Nurse		Nurse Assist.		GP		Practice Nurse	
Contraception	2	2	0	1	2	1	0	1	2	2	2	1
Diet	3	3	2	2	2	2	2	1	2	2	2	1.5
Disability legislation	2	1	0	1	2	1	0	0	1	1	2	0
Discharge manage access	3	2	1	1	2	1	1	0	1	1	1	0
Discharge manage coordinate	3	2	1	1	2	1	1	0	1	1	1	0
Driving	2	2	1	1	2	1	1	0	2	2	3	1
Eating out	3	2	1	1	1	1	1	1	2	1.5	1	1
Genetics	1	1	0	1	0	1	0	0	1	1	1	0
Holidays	3	2	1	1	1	1	0	0.5	0	1	1	1
HRT	1	1	0	1	1	1	0	0	2	2	1	1
Impotence	2	2	1	1	1	1	0	0	2	2	1	1
Symptoms acute renal		3		1.5		2		0		2		1
Symptoms chronic renal	3	3	2	2	2	2	1	0	3	2	2	1
Transplantation	2	2	1	1	1	1	0	0	1	1	1	1
Treat options peritoneal dialysis	3	3	2	1	1	1	1	0	1	1	1	1
Treat options haemodialysis	3	3	2	2	1	1	2	0	1	1	1	1
Treat options end of life care	3	3	2	1	1	1	2	0	3	2	2	0
Patient meds side-effects	3	3	0	0	3	1.5	0	0	0	2	3	1
Technical support dialysis	2	2	1	1	0	1	0	0	0	1	0	0
Infertility	2	2	1	1	1	1	0	0	2	2	1	1
Life Insurance	1	1	0	1	1	0.5	0	0.5	1	2	1	0
Medical insurance	1	1	0	1	1	0	0	0	1	2	1	0
Other illnesses	2	2	1	1	2	1	0	0	3	2	2	1
Patient transport	3	2	3	1	3	1	2	0	2	2	0	1
Pre-dialysis care	2	2	1	1	1	1	3	0	0	1	3	0
Pregnancy	2	2	0	1	1	1	0	0	1	1.5	2	1
Pre-pregnancy	2	2	0	1	1	1	1	0	0	1.5	2	1
Renal Patients Association	1	2	1	1	1	1	1	0	0	1	1	0
Renal problems adolescence	1	2	0	0	0	1	0	0	1	1	0	0

Renal knowledge topic	Nephrology				Other medical ward				Primary Care			
	Nurse		RCA / Nurse Assist.		Nurse		Nurse Assist.		GP		Practice Nurse	
Smoking	3	2	2	1	3	1	3	0	3	2	3	2
Termination of pregnancy	1	1	0	0.5	0	1	0	0	2	2	1	0
Travel	3	2	1	1	1	1	0	0	1	2	1	1
Vision	2	2	1	1	2	1	1	0	1	2	1	1
Work	3	2	1	1	2	1	1	0	1	2	1	0.5

APPENDIX IV. Cross matching of renal topic areas as defined in the questionnaire with the renal KSF (Knowledge and Skills Framework), as defined by Skills for Health.

Code	Topic Area	KSF Code	KSF Descriptor
Anatomy & Physiology			
1	Anaemia	RM8	Help to understand and self-manage renal anaemia
2	Bone Disease	RM3	Diagnose co-morbid disease in a patient with established renal failure
3	Cardiovascular problems	RM3	Diagnose co-morbid disease in a patient with established renal failure
4	Causes of acute renal disease		
5	Causes of chronic renal disease		
6	Complications	RM3 TP9 TP20 RM8	Diagnose co-morbid disease in a patient with established renal failure Enable patient and families to understand the post-transplant condition, its impact and its treatment Diagnose and treat co-morbid disease post-transplant Help to understand and self-manage renal anaemia
7	Complications - Dialysis therapy	RM7	Recognise, assess and manage acute episodes of illness in a renal patient
8	Complications - Renal disease	RM3 RM4 RM5 RM6 RM7 TP9	Diagnose co-morbid disease in a patient with established renal failure Agree and monitor a plan to manage a renal patient's co-morbid disease Assess physical complications of established renal failure Agree and monitor a plan to manage complications of established renal failure Recognise, assess and manage acute episodes of illness in a renal patient Enable patient and families to understand the post-transplant condition, its impact and its treatment
9	Danger Signs	TP14 RM5 RM6 RM7	Help the patient develop approaches to lifestyle and health management Assess physical complications of established renal failure Agree and monitor a plan to manage complications of established renal failure Recognise, assess and manage acute episodes of illness in a renal patient
10	Diabetes	RM3	Diagnose co-morbid disease in a patient with established renal failure
11	Dialysis Access	RR4 RR5 RR6 RR7	Enable a renal patient to make an informed choice about vascular access Enable renal patients and carers to look after and cope with different types of access for dialysis Obtain immediate access for haemodialysis by inserting a central venous catheter Care for a renal patient after the insertion of a central venous catheter

Code	Topic Area	KSF Code	KSF Descriptor
		RR8	Support a patient in transferring from peritoneal dialysis to haemodialysis
12	Emergency treatment of CKD		
13	Fluid balance		
14	Hypertension	RM3	Diagnose co-morbid disease in a patient with established renal failure
15	Infection control & blood borne infection	TP12 TP19	Help the patient to recognise and respond to symptoms of infections Access and treat infections post-transplant
16	Interventions	RM4 RM7	Agree and monitor a plan to manage a renal patient's co-morbid disease Recognise, assess and manage acute episodes of illness in a renal patient
17	Investigations	RM1 TP17 TP18 TP21	Review and examine a patient with chronic kidney disease and arrange investigations Investigate patients' enquiries about their health Monitor and assess the kidney function and health of the transplanted patient Plan care for a patient with deteriorating renal function post-transplant
18	GFR	TP21	Plan care for a patient with deteriorating renal function post-transplant
19	Palliative Care	RR9 RR10	Assess a patient's decision to withdraw from Renal Replacement Therapy Organise a programme of care support following withdrawal from renal replacement therapy
20	Physiology of acute renal disease	RM6 RM7	Agree and monitor a plan to manage complications of established renal failure Recognise, assess and manage acute episodes of illness in a renal patient
21	Physiology of chronic renal disease	RM6 RM7	Agree and monitor a plan to manage complications of established renal failure Recognise, assess and manage acute episodes of illness in a renal patient
22	Psychological aspects	RR9 TP9 TP10 TP15 TP16 TP17 TP20	Assess a patient's decision to withdraw from Renal Replacement Therapy Enable patient and families to understand the post-transplant condition, its impact and its treatment Identify and influence patients who are not adhering to their medication regime Provide emotional and psychological support for transplanted patients Provide specialist clinical psychology intervention for transplanted patients Investigate patients' enquiries about their health Diagnose and treat co-morbid disease post-transplant
23	Related conditions	RM3 RM4 TP14 TP17	Diagnose co-morbid disease in a patient with established renal failure Agree and monitor a plan to manage a renal patient's co-morbid disease Help the patient develop approaches to lifestyle and health management Investigate patients' enquiries about their health
24	Symptoms of acute renal disease	RM6 RM7	Agree and monitor a plan to manage complications of established renal failure Recognise, assess and manage acute episodes of illness in a renal patient

Code	Topic Area	KSF Code	KSF Descriptor
25	Symptoms of chronic renal disease		
26	Transplantation	AT1 AT2 AT3 AT4 AT5 AT6 AT7 AT8 AT9 AT10 AT11 AT12 AT13 AT14 AT15 DD1 DD2 DD3 DD4 DD5 DD6 DD7 DD8 DD9 DD10 DD11 DD12 DD13 DD14 DD15 DD16	Discuss transplantation as an option Assess and review the patient's suitability for transplantation Help the patient investigate possible living donors Prepare pre- and post-transplant care and arrangements with the patient Prepare with the patient how immuno suppression will be tailored Add a patient to the National Transplant Register Help the patient recognise when they should be suspended from the National Transplant Register Withdraw or suspend a patient from the National Transplant Register Provide emotional and psychological support regarding transplantation Enable the patient to optimise pre-transplant health Notify the patient that an organ is available Assess if recipient is well enough for the transplant operation and carry out tests Enable the patient to assess the risks and benefits of the organ available and obtain their consent Help a patient resolve last-minute doubts about transplantation Care for and support the patient before transplant surgery Identify potential donors among patients Evaluate the reported potential for donation Explain to the family the patient's brain stem death Explain to the family the patient's condition and likely death Get to know the potential donor's family Request donation and determine lack of objection Explain the procedures and benefits of donation and transplantation Take the potential donor's medical and social history Assess the infection risks of the potential deceased donor Resolve legal obstacles to donation Call in the retrieval team(s) and schedule procedures Confirm a patient's death by brain stem testing Enable relatives to part from donor Manage the care of a heart beating donor Manage the care of a potential non heart beating donor Care for organs after their removal from donor

Code	Topic Area	KSF Code	KSF Descriptor
		DD17	Conduct last offices for the deceased donor after surgery
		DD18	Follow up the donor's family
		DD19	Offer psychological and emotional support to the family of the donor
		DD20	Inform participants of the outcomes of donation
		DD21	Withdraw treatment from a potential non heart beating donor
		LD1	Promote the benefits and experience of living donation
		LD2	Enable potential living donors to understand the donation process and the possible implications for them
		LD3	
		LD4	Introduce the prospective living donor and their family to the assessment programme
		LD5	Enable a potential living donor to consider their decision whether or not to donate
		LD6	Help the potential living donor and recipient to plan the transplantation
		LD7	Identify and obtain test and other information required for medical screening
		LD8	Obtain test data on potential living donors from long distance or overseas
		LD9	Evaluate the motivation and the psychosocial readiness of the prospective living donor
		LD10	Review and evaluate results with colleagues and the prospective living donor
		LD11	Act as advocate for the prospective living donor
		LD12	Provide emotional support to a potential living donor
		LD13	Obtain support funding for a living donor
		LD14	Provide follow-up support for living donors who do not donate
		LD15	Provide specialist psychological intervention and therapy to a living donor
		LD16	Schedule theatre and staff time for living organ donation
		LD17	Prepare the living organ donor for admission to the ward
		LD18	Transfer the living donor to the ward
		LD19	Obtain the living donor's valid consent
		LD20	Care for and support the living donor prior to surgery
		LD21	Monitor and care for the living donor after surgery
		LD22	Identify the need for emotional and psychological support for a living donor
		LD23	Enable donors to understand the process of recovery and care of their future health
		LD24	Plan continuing long-term care for overseas and long-distance living donors
		TP1	Monitor and assess the living donor long-term
		TP2	Prepare with the patient their care and monitoring
		TP3	Plan immunosuppressive drugs, other medications and treatments
		TP4	Review and adapt the patient's medication and treatments

Code	Topic Area	KSF Code	KSF Descriptor
		TP5 TP6 TP9 TP15 TP16 TP17 TP18 TP19 TP20 TP21	Assess and plan care for a patient with potentially reversible renal rejection Exchange information and negotiate services and support with other health care providers Dispense medication after transplantation Enable the patient and families to understand the post-transplant condition, its impact and its treatment Provide emotional and psychological support for transplanted patients Provide specialist clinical psychology intervention for transplanted patients Investigate patients' enquiries about their health Monitor and assess the kidney function and health of the transplanted patient Assess and treat infections post-transplant Diagnose and treat co-morbid disease post-transplant Plan care for a patient with deteriorating renal function post-transplant
27	Treatment options - Peritoneal Dialysis	RR1 RR3 RR4 RR5 RR6 RR7 RR8	Help the patient to evaluate the different renal replacement therapy options Agree plans for the patient's renal replacement therapy Enable a renal patient to make an informed choice about vascular access Enable renal patients and carers to look after and cope with different types of access for dialysis Obtain immediate access for haemodialysis by inserted a central venous catheter Care for a renal patient after the insertion of a central venous catheter Support a patient in transferring from peritoneal dialysis to haemodialysis
28	Treatment options - Haemodialysis	RR1 RR2 RR3 RR4 RR5 RR6 RR7 RL3 RL5 RL4	Help the patient to evaluate the different renal replacement therapy options Evaluate the patient's capabilities regarding their proposed renal replacement therapy Agree plans for the patient's renal replacement therapy Enable a renal patient to make an informed choice about vascular access Enable renal patients and carers to look after and cope with different types of access for dialysis Obtain immediate access for haemodialysis by inserted a central venous catheter Care for a renal patient after the insertion of a central venous catheter Assess whether home haemodialysis is feasible for a patient Help patients to transfer between satellite and hospital dialysis units Review with patients whether dialysis arrangements are working
29	Treatment options - End of Life Care	RR1 RR9 RR10 RR2 RR3	Help the patient to evaluate the different renal replacement therapy options Assess a patient's decision to withdraw from Renal Replacement Therapy Organise a programme of care support following withdrawal from renal replacement therapy Evaluate the patient's capabilities regarding their proposed renal replacement therapy Agree plans for the patient's renal replacement therapy

Code	Topic Area	KSF Code	KSF Descriptor
	Management		
30	Management (or renal care)	OP1 OP2 OP3 OP4 OP5 OP6 OP7 OP8 OP9 TP1 TP2 TP3 TP4 TP5 TP21 RM4 RM5 RM2 RM6 RL5 RL6	Identify the roles of patients, carers and the multidisciplinary renal team Hand over aspects of renal care and treatment to patients and carers Enable patients and their families to understand established renal failure and its treatment Contribute to effective multidisciplinary renal team working Contribute to the development of the multidisciplinary renal team and its members Influence critical care staff to identify potential donors Identify renal team members; 'need for psychological support Provide psychological support for renal team members Enable renal patients to access psychological support Prepare with the patient their care and monitoring Plan immunosuppressive drugs, other medications and treatments Review and adapt the patient's medication and treatments Assess and plan care for a patient with potentially reversible renal rejection Exchange information and negotiate services and support with other health care providers Plan care for a patient with deteriorating renal function post-transplant Agree and monitor a plan to manage a renal patient's co-morbid disease Assess physical complications of established renal failure Agree a care plan with a patient with chronic kidney disease Agree and monitor a plan to manage complications of established renal failure Help patients to transfer between satellite and hospital dialysis units Liaise between primary, secondary, community and renal multidisciplinary teams
31	New therapies		
32	Patient Medication	TP2 TP7 TP10 TP11	Plan immunosuppressive drugs, other medications and treatments Help the patient develop competence in self-administering medication Identify and influence patients who are not adhering to their medication regime Plan with the patient how to minimise and manage side effects of immunosuppressive therapy
33	Patient Medication - side effects	TP11 TP12 TP10	Plan with the patient how to minimise and manage side effects of immunosuppressive therapy Help the patient to recognise and respond to symptoms of infections Identify and influence patients who are not adhering to their medication regime
34	Technical support for		

Code	Topic Area	KSF Code	KSF Descriptor
	dialysis		
Health Promotion			
35	Alcohol	G7	Health and wellbeing of the population
36	Care at home	RR1 RR2 RR3 RR4 RR5 RR6 RR7 RR8 RL3 RL4 RL5 RR9 RR10	Help the patient to evaluate the different renal replacement therapy options Evaluate the patient's capabilities regarding their proposed renal replacement therapy Agree plans for the patient's renal replacement therapy Enable a renal patient to make an informed choice about vascular access Enable renal patients and carers to look after and cope with different types of access for dialysis Obtain immediate access for haemodialysis by inserted a central venous catheter Care for a renal patient after the insertion of a central venous catheter Support a patient in transferring from peritoneal dialysis to haemodialysis Assess whether home haemodialysis is feasible for a patient Review with patients whether dialysis arrangements are working Help patients to transfer between satellite and hospital dialysis units Assess a patient's decision to withdraw from Renal Replacement Therapy Organise a programme of care support following withdrawal from renal replacement therapy
37	Contraception	TP8 TP13	Help young adults learn to manage medication and monitoring of symptoms Advise patients on conception and contraception health issues
38	Diet	RL1	Review and monitor a renal patient's nutritional wellbeing
39	Disability legislation		
40	Discharge Management - access to care package	RL6	Liaise between primary, secondary, community and renal multidisciplinary teams
41	Discharge management - co-ord Discharge	RL6	Liaise between primary, secondary, community and renal multidisciplinary teams
42	Driving		
43	Eating out	RL1	Review and monitor a renal patient's nutritional wellbeing
44	Genetics	TP13	Advise patients on conception and contraception health issues
45	Holidays	TP14	Help the patient develop approaches to lifestyle and health management
46	HRT	TP2 TP7 TP10	Plan immunosuppressive drugs, other medications and treatments Help the patient develop competence in self-administering medication Identify and influence patients who are not adhering to their medication regime

Code	Topic Area	KSF Code	KSF Descriptor
		TP11	Plan with the patient how to minimise and manage side effects of immunosuppressive therapy
47	Impotence	TP10 TP11	Identify and influence patients who are not adhering to their medication regime Plan with the patient how to minimise and manage side effects of immunosuppressive therapy
48	Infertility	TP13	Advise patients on conception and contraception health issues
49	Life insurance	TP14	Help the patient develop approaches to lifestyle and health management
50	Medical insurance	TP14	Help the patient develop approaches to lifestyle and health management
51	Other illnesses	RM3	Diagnose co-morbid disease in a patient with established renal failure
52	Patient transport	RM5	Assess physical complications of established renal failure
53	Pre-dialysis care		
Anatomy & Physiology			
54	Pregnancy	TP13	Advise patients on conception and contraception health issues
55	Pre-pregnancy	TP13	Advise patients on conception and contraception health issues
56	Renal Patients Association		
57	Renal problems in adolescence	TP8 TP9 TP10	Help young adults learn to manage medication and monitoring of symptoms Enable the patients and families to understand the post-transplant condition, its impact and its treatment Identify and influence patients who are not adhering to their medication regime
58	Smoking	TP14	Help the patient develop approaches to lifestyle and health management
59	Termination of pregnancy	TP13	Advise patients on conception and contraception health issues
60	Travel	TP14	Help the patient develop approaches to lifestyle and health management
61	Vision	TP9 TP20 RM8 RM3	Enable the patients and families to understand the post-transplant condition, its impact and its treatment Diagnose and treat co-morbid disease post-transplant Help the patient to understand and self-manage renal anaemia Diagnose co-morbid disease in a patient with established renal failure
62	Work	TP14	Help the patient develop approaches to lifestyle and health management