UK Renal Registry 15th Annual Report: Chapter 2 UK RRT Prevalence in 2011: national and centre-specific analyses

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Key Words

Chronic kidney disease · Comorbidity · Diabetes · Dialysis · End stage renal disease · Established renal failure · Ethnicity · Haemodialysis · Peritoneal dialysis · Prevalence · Primary Care Trust · Renal replacement therapy · Transplantation · Treatment modality

Summary

- There were 53,207 adult patients receiving RRT in the UK on 31st December 2011, an increase of 4% from 2010. The UK prevalence of RRT was 842 pmp. The reported prevalence in 2000 was 523 pmp. Growth rate from 2010 to 2011 for prevalent patients was an increase of 1.7% for haemodialysis (HD), a fall of 2.2% for peritoneal dialysis (PD) and an increase of 4.7% with a functioning transplant.
- The number of patients receiving home HD increased by 23% from 736 patients in 2010 to 905 patients in 2011.
- The median age of prevalent patients was 58 years (HD 67 years, PD 63 years, transplant 52 years). In 2000 the median age was 55 years (HD 63 years, PD 58 years, transplant 48 years).
- For all ages, the prevalence rate in men exceeded that in women, peaking in age group 75–79 years at 2,918 pmp and for females in age group 65–69 years at 1,460 pmp.
- The most common identifiable renal diagnosis was glomerulonephritis (biopsy proven or not biopsy proven) (19%), followed by aetiology uncertain (17%).
- Transplantation continued as the most common treatment modality (48.6%), HD was used in 43.9% and PD in 7.6% of RRT patients.
- The length of time a patient survived on a given therapy (vintage) varied substantially reflecting age and comorbidity of patients. For instance the median time that prevalent patients were on haemodialysis was 3.3 years versus 10.3 years for those with a transplant.
- Prevalence rates in patients aged >85 years nearly doubled between 2006 and 2011 (524 pmp age related to 952 pmp). There was 17 fold variation in prevalence rates in patients aged >80 years suggesting there was uncertainty regarding the risks and benefits of RRT in the elderly.
- There were national, regional and dialysis centre level variations in prevalence rates. A significant factor in this variation was the ethnic mix of local populations, but a large amount of the variation remains unexplained. Assessment of conservatively managed stage 5 CKD patients might explain more of this variation.

Introduction

This chapter presents data on all adult patients on RRT in the UK at the end of 2011. The UK Renal Registry (UKRR) received data returns for 2011 from all five renal centres in Wales, all five in Northern Ireland and all 52 in England. Data from all nine centres in Scotland were obtained from the Scottish Renal Registry. Data on children and young adults can be found in chapter 4.

These analyses of prevalent RRT patients are performed annually to aid clinicians and policy makers in planning future RRT requirements in the UK. It is important to understand national, regional and centre level variation in numbers of prevalent patients as part of the planning process. In addition, knowledge about variation in case mix is also reported to improve understanding of where resources should be focussed to improve equity of provision of RRT in the UK.

The term established renal failure (ERF) used within this chapter is synonymous with the terms end stage renal failure and end stage renal disease, which are in more widespread international usage. Patients have disliked the term 'end stage' which reflects the inevitable outcome of this disease.

Methods

These analyses relate to the prevalent RRT cohort in the UK in 2011. The cohort was defined as all adult patients receiving RRT on the UKRR database on 31st December 2011. Population estimates were obtained from the UK Office of National Statistics (ONS) [1].

The number of adult prevalent RRT patients was calculated for the UK as a whole and for each UK country, using UKRR data from all renal centres. Crude prevalence rates were calculated per million population (pmp) and standardised prevalence ratios were calculated as detailed in appendix D: Methodology used for Analyses (www.renalreg.com) for Primary Care Trusts (PCT) in England, Health & Social Care Areas in Northern Ireland, Local Health Boards in Wales and Health Boards in Scotland. These areas will be referred to in this report as 'PCT/HBs'. Briefly, data from all areas were used to calculate overall age and gender specific prevalence rates. The age and gender breakdown of the population in each PCT/HB were obtained from the mid-2010 population estimate based on 2001 Census data from the ONS [1]. The population breakdown and the overall prevalence rates were used to calculate the expected age and gender specific prevalence numbers for each PCT/HB. The age and gender standardised prevalence ratio was the observed prevalence number divided by the expected prevalence number. A ratio below 1 indicated that the observed rate was less than expected given the area's population structure. This was statistically significant at the 5% level if the upper confidence limit was less than 1. Analyses were done for each of the last 6 years and as the prevalent numbers for one year can be small for smaller areas, a combined years' analysis was also done. To enable assessment of whether a centre was an outlier in this regard, funnel plots for smaller and larger populations have been included (appendix D: figures D3, D4) which show the 95% confidence intervals around the national average prevalence. The proportion of non-Whites in each PCT/HB was obtained from the ONS [1].

This year there are a total of 71 renal centres, whereas in previous reports there have been 72. This is due to a merging of the Derry and Tyrone renal centres in Northern Ireland. The prevalence rate per million population for each centre was calculated using a derived catchment population. This was calculated from the postcode of each prevalent patient in 2007 and the population within that postcode assigned to the renal centre where that patient was treated. For a full description of the methodology used to estimate the catchment populations see appendix E: Methodology for Estimating Catchment Populations Analyses (www.renalreg.com). In brief, the patient postcode for each prevalent dialysis patient in 2007 was used to create a series of overlapping areas corresponding to each renal centre. These small areas were then assigned to a Census Area Statistics ward using geographical information system technology and the population in each area assigned to its respective renal centre. These estimates will not be accurate for new centres and centres with changes in catchment populations since 2007 (e.g. Bristol, Cambridge and Ipswich, which have lost catchment population since 2007 and Dorset which gained catchment population); in addition the analysis used dialysis patients only and transplant patients may come from a different catchment population. Estimation of catchment populations therefore remains an inexact science and these figures should be regarded as indicative only. This methodology was used for England only. Estimates of the catchment populations in Wales and Northern Ireland were supplied by personal communication from Dr K Donovan, Dr A Williams and Dr D Fogarty.

Throughout this chapter, haemodialysis refers to all modes of HD treatment, including haemodiafiltration (HDF). Several centres reported significant numbers of patients on HDF, but other centres did not differentiate this treatment type in their UKRR returns. Where joint care of renal transplant recipients between the referring centre and the transplant centre occurred, the patient was allocated to the centre which saw the patient most frequently, usually the referring centre. Thus the number of patients allocated to a transplant centre is often lower than that recorded by the centre itself and as a converse pre-emptively transplanted patients are sometimes allocated to the transplanting centre rather than the referring centre if no transfer out code had been sent through. Queries and updated information are welcomed by the UKRR at any point during the year if this has occurred.

Prevalent patients on RRT in 2011 were examined by time on RRT, age group, gender, ethnic origin, primary renal disease, presence of diabetes and treatment modality (2009 Report appendix H: Coding (www.renalreg.com)). In this year's analysis of prevalence, only adult patients on RRT contributed to the numerator. In previous years, children had been included in the numerator also. Data on the paediatric population is presented in Chapter 4. Some centres electronically upload ethnicity coding to their renal information technology (IT) system from the hospital

Table 2.1. Prevalence of adult RRT in the UK on 31/12/2011

	England	N Ireland	Scotland	Wales	UK
All UK centres	44,665	1,510	4,324	2,708	53,207
Total estimated population, mid-2010 (millions)*	53.0	1.8	5.3	3.1	63.2
Prevalence rate HD (pmp)	365	400	355	361	365
Prevalence rate PD (pmp)	62	43	47	72	61
Prevalence rate dialysis (pmp)	427	443	402	433	426
Prevalence rate transplant (pmp)	415	390	415	451	416
Prevalence rate total (pmp)	843	834	817	884	842
95% confidence intervals total (pmp)	835–850	792–876	792–841	851–917	835–849

* estimates from ONS web site
pmp = per million population

Patient Administration System (PAS). Ethnicity coding in these PAS systems is based on self-reported ethnicity and uses a different coding system to those centres not linked to PAS [2]. For the remaining centres, ethnicity coding is performed by clinical staff and recorded directly into the renal IT system (using a variety of coding systems). For all these analyses, data on ethnic origin were grouped into Whites, South Asians, Blacks, Chinese and Others as described in appendix H: Coding (www.renalreg.com). This year, individuals with a primary renal diagnosis (PRD) 'glomerulonephritis biopsy unproven' were grouped within the 'glomerulonephritis' PRD group, rather than within 'uncertain' (as has been the case in previous reports) to reflect better coding and bringing the registry in line with coding methodology adopted in other renal registries. Time on RRT was defined as median time on treatment and was calculated from the most recent start date. Patients without an accurate start date were excluded from this calculation. Analyses were done for the UK as a whole, by UK country, at centre level and split by treatment modality when appropriate.

Chi-squared test, Fisher's exact test, linear regression and Kruskal Wallis tests were used as appropriate to test for significant differences between groups. The data were analysed using SAS 9.3.

Results

Prevalent patient numbers and changes in prevalence

The number of patients for each country (table 2.1) was calculated by adding the patient numbers in each renal centre and these differ marginally from those quoted elsewhere when patients are allocated to geographical areas by their individual postcodes, as some centres treat patients across national boundaries.

There were 53,207 adult patients receiving RRT in the UK at the end of 2011, giving an adult UK population prevalence of 842 pmp (table 2.1) compared with 832 pmp in 2010 [3]. Prevalence rates increased in all of the UK countries in 2011 except Scotland were there was a small decline from 829 pmp in 2010 to 817 pmp in 2011. PD prevalence increased in Northern Ireland but decreased in the other three countries compared with 2010. The overall decline in PD prevalence in the UK has been a consistent pattern observed since 1997. Once more, the prevalence of transplanted patients increased in the UK. Northern Ireland had a higher RRT prevalence rate for patients aged 65 and older compared with the other UK countries (figure 2.1). In the UK, the RRT prevalence rate in patients aged 80–84 continued to rise over time from 1,220 per million age related population (pmarp) in 2006 to 1,824 pmarp in 2011 and in patients aged >85 years from 524 pmarp in 2006 to 952 pmarp in 2011. It is likely that this ageing of the prevalent population was due to an increasing numbers of older patients starting RRT, although improving patient survival will also contribute.

Prevalent patients by RRT centre

The number of prevalent patients in each renal centre and the distribution of their treatment modalities varied widely (table 2.2). Many factors including geography, local population density, age distribution, ethnic

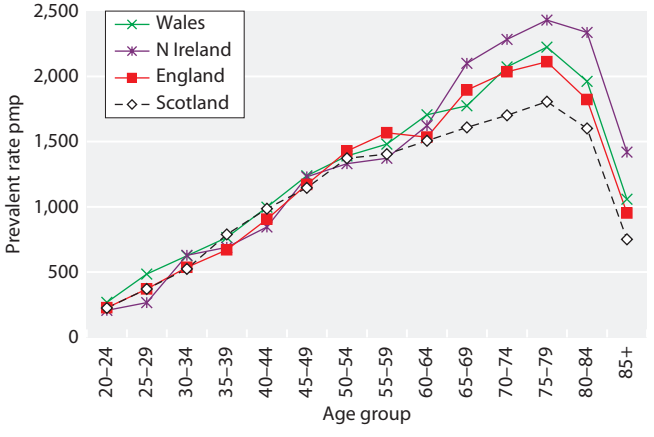

Fig. 2.1. Prevalence rates per million population by age group and UK country on 31/12/2011

Table 2.2. Number of prevalent RRT patients by treatment modality and centre on 31/12/2011

Centre	HD	PD	Dialysis	Transplant	RRT	Population (millions)	2011 crude rate pmp	(95% CI)
England								
B Heart	446	46	492	174	666	0.72	919	(849–989)
B QEH*	894	167	1,061	862	1,923	1.62	1,184	(1131–1237)
Basldn	155	26	181	57	238	0.41	583	(509–657)
Bradfd	196	32	228	244	472	0.58	815	(742–889)
Brightn	340	80	420	357	777	1.20	650	(604–696)
Bristol*	474	66	540	771	1,311	1.57	834	(789–880)
Camb*	371	41	412	674	1,086	1.27	858	(807–909)
Carlis	66	24	90	129	219	0.31	697	(604–789)
Carsh	753	103	856	554	1,410	1.92	736	(697–774)
Chelms	119	26	145	71	216	0.47	463	(401–525)
Colchr	120		120	.	120	**	**	**
Covnt*	362	90	452	434	886	0.87	1,019	(951–1086)
Derby	207	112	319	147	466	0.65	720	(655–785)
Donc[a]	162	26	188	60	248	**	**	**
Dorset	239	53	292	295	587	0.73	809	(744–875)
Dudley	146	53	199	88	287	0.42	691	(611–771)
Exeter	376	78	454	359	813	1.03	791	(736–845)
Glouc	194	39	233	157	390	0.58	678	(611–746)
Hull	323	89	412	352	764	0.99	774	(719–829)
Ipswi	125	31	156	184	340	0.56	605	(541–670)
Kent	376	68	444	421	865	1.16	744	(694–794)
L Barts*	899	171	1,070	830	1,900	1.68	1,131	(1080–1182)
L Guys*	607	33	640	1,040	1,680	1.15	1,456	(1386–1525)
L Kings	468	89	557	325	882	0.97	909	(849–969)
L Rfree*	711	94	805	968	1,773	1.50	1,179	(1124–1234)
L St.G*	294	55	349	370	719	0.59	1,228	(1138–1318)
L West*[b]	1,412	35	1,447	1,575	3,022	2.23	1,357	(1309–1405)
Leeds*	513	92	605	815	1,420	1.65	862	(818–907)
Leic*	854	159	1,013	913	1,926	2.32	831	(794–868)
Liv Ain[c]	179	15	194		194	0.51	383	(329–437)
Liv RI*	381	74	455	796	1,251	1.20	1,044	(986–1102)
M RI*	481	91	572	1,063	1,635	1.47	1,113	(1059–1167)
Middlbr	315	18	333	420	753	1.01	744	(691–797)
Newc*	265	48	313	603	916	1.11	828	(775–882)
Norwch	309	59	368	244	612	0.79	772	(710–833)
Nottm*	402	92	494	525	1,019	1.14	896	(841–950)
Oxford*[d]	419	92	511	933	1,444	1.68	859	(815–904)
Plymth*	132	47	179	286	465	0.48	978	(889–1066)
Ports*	524	95	619	775	1,394	2.00	696	(659–732)
Prestn	520	65	585	438	1,023	1.51	677	(635–718)
Redng	272	88	360	328	688	0.80	855	(791–919)
Salford[e]	363	113	476	370	846	1.42	596	(555–636)
Sheff*	591	62	653	607	1,260	1.49	846	(800–893)
Shrew	187	35	222	120	342	0.39	874	(781–966)
Stevng	412	30	442	196	638	1.09	586	(541–632)
Sthend	122	18	140	74	214	0.32	677	(587–768)
Stoke	318	82	400	295	695	0.90	775	(717–833)
Sund	178	17	195	195	390	0.59	662	(596–728)
Truro	152	26	178	179	357	0.41	867	(777–957)
Wirral	196	42	238	3	241	0.52	463	(404–521)
Wolve	307	71	378	138	516	0.61	851	(778–925)
York	144	25	169	197	366	0.51	724	(650–799)

Table 2.2. Continued

Centre	HD	PD	Dialysis	Transplant	RRT	Population (millions)	2011 crude rate pmp	(95% CI)
Northern Ireland								
Antrim	132	14	146	78	224	0.30	747	(649–844)
Belfast*	228	30	258	428	686	0.55	1,241	(1148–1333)
Newry	111	12	123	68	191	0.28	675	(579–771)
Ulster	105	3	108	29	137	0.30	457	(380–533)
West NI[f]	149	19	168	104	272	0.35	771	(679–862)
Scotland								
Abrdn	214	23	237	242	479	0.60	801	(729–873)
Airdrie	173	10	183	161	344	0.56	611	(546–675)
D & Gall	49	14	63	59	122	0.15	824	(678–970)
Dundee	183	22	205	195	400	0.41	986	(889–1083)
Dunfn	146	28	174	104	278	0.37	757	(668–846)
Edinb*	261	40	301	399	700	0.96	728	(674–782)
Glasgw*	622	49	671	806	1,477	1.51	981	(931–1031)
Inverns	83	18	101	123	224	0.34	663	(576–749)
Klmarnk	147	45	192	108	300	0.37	818	(725–910)
Wales								
Bangor	88	21	109		109	0.25	436	(354–518)
Cardff*	495	102	597	939	1,536	1.45	1,059	(1006–1112)
Clwyd	76	20	96	71	167	0.20	835	(708–962)
Swanse	358	58	416	243	659	0.80	824	(761–887)
Wrexm	88	20	108	129	237	0.30	790	(689–891)
England	**19,371**	**3,283**	**22,654**	**22,011**	**44,665**			
N Ireland	**725**	**78**	**803**	**707**	**1,510**			
Scotland[g]	**1,878**	**249**	**2,127**	**2,197**	**4,324**			
Wales	**1,105**	**221**	**1,326**	**1,382**	**2,708**			
UK	**23,079**	**3,831**	**26,910**	**26,297**	**53,207**			

Blank cells indicate no patients on that treatment attending that unit when data was collected
Centres prefixed 'L' are London centres
The numbers of patients calculated for each country quoted above differ marginally from those quoted elsewhere when patients are allocated to areas by their individual post codes, as some centres treat patients from across national boundaries
* Transplant centres
** Doncaster and Colchester were not established main renal centres when the catchment population work was undertaken
[a] Doncaster previously a satellite of Sheffield
[b] Hammersmith and Charing Cross amalgamated with St Mary's
[c] Liv Ain catchment population updated after correspondence with the centre
[d] Oxford transferred Northamptonshire local authority to Leicester
[e] Salford previously named Manchester Hope
[f] West NI is the amalgamation of Derry and Tyrone
[g] Scotland catchment populations correct as at 30 June 2011

composition, prevalence of diseases predisposing to kidney disease and the social deprivation index of that population may contribute to this.

Changes in prevalence

Overall growth in the prevalent UK RRT population from 2010 to 2011 was 4.3% (table 2.3), an annual growth rate which has been fairly consistent over the last 10–15 years (figure 2.2). Most of the growth in the prevalent RRT population was due to a continued increase in the size of the prevalent RRT population in England, Wales and Northern Ireland, with slower growth in the prevalent RRT population in Scotland. The most substantial changes in relative size of the prevalent population were in Northern Ireland, which increased from a 1.0% change in the size of the prevalent population in 2009–2010 to 4.4% in 2010–2011, and in Scotland, which saw a decline from an increase in the prevalent RRT population of 3.5% in 2009–2010 to 1.2% in the most recent analysis.

Table 2.3. Number of prevalent patients on RRT by centre at year end 2007–2011*

Centre	Date					% change 2010–2011	% annual change 2007–2011
	31/12/2007	31/12/2008	31/12/2009	31/12/2010	31/12/2011		
England							
B Heart	578	598	624	634	666	5.0	3.6
B QEH	1,626	1,714	1,821	1,832	1,923	5.0	4.3
Basldn	208	217	214	212	238	12.3	3.4
Bradfd	395	414	422	454	472	4.0	4.6
Brightn	686	722	737	759	777	2.4	3.2
Bristol	1,234	1,247	1,232	1,259	1,311	4.1	1.5
Camb	935	927	941	1,003	1,086	8.3	3.8
Carlis	202	205	205	207	219	5.8	2.0
Carsh	1,165	1,249	1,302	1,361	1,410	3.6	4.9
Chelms	195	207	225	235	216	−8.1	2.6
Colchr	100	118	116	115	120	4.3	4.7
Covnt	717	745	794	845	886	4.9	5.4
Derby	301	389	419	421	466	10.7	11.5
Donc[a]	109	154	196	221	248	12.2	22.8
Dorset	452	515	553	584	587	0.5	6.8
Dudley	259	275	292	297	287	−3.4	2.6
Exeter	664	708	731	770	813	5.6	5.2
Glouc	326	325	366	374	390	4.3	4.6
Hull	672	696	726	728	764	4.9	3.3
Ipswi	285	294	312	315	340	7.9	4.5
Kent	627	714	744	787	865	9.9	8.4
L Barts	1,473	1,526	1,638	1,779	1,900	6.8	6.6
L Guys	1,395	1,447	1,613	1,625	1,680	3.4	4.8
L Kings	712	784	786	820	882	7.6	5.5
L Rfree	1,437	1,510	1,546	1,642	1,773	8.0	5.4
L St.G	575	624	662	685	719	5.0	5.7
L West[b]	2,162	2,579	2,735	2,880	3,022	4.9	8.7
Leeds	1,379	1,342	1,348	1,389	1,420	2.2	0.7
Leic	1,594	1,660	1,739	1,809	1,926	6.5	4.8
Liv Ain	115	130	146	160	194	21.3	14.0
Liv RI	1,274	1,200	1,223	1,236	1,251	1.2	−0.5
M RI	1,402	1,424	1,452	1,553	1,635	5.3	3.9
Middlbr	687	682	707	711	753	5.9	2.3
Newc	902	901	898	902	916	1.6	0.4
Norwch	495	567	591	614	612	−0.3	5.4
Nottm	971	955	975	1,008	1,019	1.1	1.2
Oxford[c]	1,328	1,318	1,343	1,421	1,444	1.6	2.1
Plymth	421	443	456	461	465	0.9	2.5
Ports	1,182	1,268	1,301	1,333	1,394	4.6	4.2
Prestn	860	880	942	971	1,023	5.4	4.4
Redng	552	578	619	636	688	8.2	5.7
Salford[d]	759	758	786	822	846	2.9	2.8
Sheff	1,175	1,216	1,216	1,251	1,260	0.7	1.8
Shrew	285	325	337	343	342	−0.3	4.7
Stevng	548	580	583	608	638	4.9	3.9
Sthend	195	204	207	208	214	2.9	2.4
Stoke	590	603	643	658	695	5.6	4.2
Sund	344	343	368	366	390	6.6	3.2
Truro	288	297	320	335	357	6.6	5.5
Wirral	219	216	224	223	241	8.1	2.4
Wolve	452	491	492	533	516	−3.2	3.4
York	231	276	321	338	366	8.3	12.2

Table 2.3. Continued

Centre	Date					% change 2010–2011	% annual change 2007–2011
	31/12/2007	31/12/2008	31/12/2009	31/12/2010	31/12/2011		
N Ireland							
Antrim	200	220	215	214	224	4.7	2.9
Belfast	748	726	680	680	686	0.9	−2.1
Newry	148	163	171	179	191	6.7	6.6
Ulster	90	97	114	115	137	19.1	11.1
West NI[e]	216	236	258	258	272	5.4	5.9
Scotland							
Abrdn	452	456	452	463	479	3.5	1.5
Airdrie	231	245	310	309	344	11.3	10.5
D & Gall	77	113	118	115	122	6.1	12.2
Dundee	376	370	395	382	400	4.7	1.6
Dunfn	220	220	241	257	278	8.2	6.0
Edinb	720	695	721	731	700	−4.2	−0.7
Glasgw	1,605	1,568	1,469	1,505	1,477	−1.9	−2.1
Inverns	214	212	228	230	224	−2.6	1.1
Klmarnk	214	263	273	282	300	6.4	8.8
Wales							
Bangor	98	112	110	113	109	−3.5	2.7
Cardff	1,438	1,375	1,428	1,481	1,536	3.7	1.7
Clwyd	155	146	144	136	167	22.8	1.9
Swanse	545	602	598	630	659	4.6	4.9
Wrexm	213	223	219	221	237	7.2	2.7
England	**37,738**	**39,560**	**41,189**	**42,733**	**44,665**	**4.5**	**4.3**
N Ireland	**1,402**	**1,442**	**1,438**	**1,446**	**1,510**	**4.4**	**1.9**
Scotland	**4,109**	**4,142**	**4,207**	**4,274**	**4,324**	**1.2**	**1.3**
Wales	**2,449**	**2,458**	**2,499**	**2,581**	**2,708**	**4.9**	**2.5**
UK	**45,698**	**47,602**	**49,333**	**51,034**	**53,207**	**4.3**	**3.9**

[a] Doncaster previously a satellite of Sheffield
[b] Hammersmith and Charing Cross amalgamated with St Mary's
[c] Oxford transferred Northamptonshire local authority to Leicester
[d] Salford previously named Manchester Hope
[e] West NI is the amalgamation of Derry and Tyrone
* After confirmation of the numbers of patients with renal centres several inaccuracies were identified. In Kent 16 additional transplant patients and in York 27 additional transplant patients were identified. In Leeds the transplant population had been overestimated by 21. In Clwyd an additional 13 HD patients, 12 PD patients and 6 transplant patients were identified. These changes have been incorporated into tables 2.1, 2.2 and 2.3 but not any other analyses

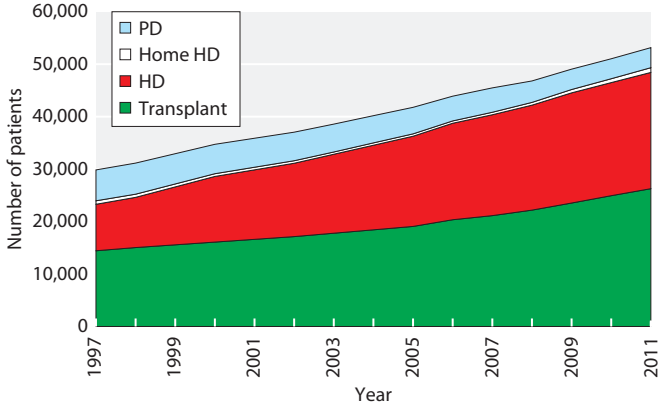

Fig. 2.2. Growth in prevalent patients by treatment modality at the end of each year 1997–2011

Across the different RRT modalities (HD, PD and transplant) there was heterogeneity in the prevalent growth per million population (pmp), as shown in table 2.4. From 2010 to 2011, there was a 1.7% growth in prevalent HD patients, a 4.7% growth in those with a functioning transplant and a 2.2% decline in patients on PD. Between 2006 and 2011 there was an average annual 3.3% pmp growth in HD, 4.9% pmp fall in PD, and 4.4% pmp growth in prevalent transplant patients in the UK (table 2.4). In the same period there was a 103% increase in the use of home haemodialysis (445 patients to 905 patients).

There were large variations in RRT prevalence between centres as well as countries. For example, from

Table 2.4. Change in RRT prevalence rates pmp 2006–2011 by modality*

	Prevalence					% growth in prevalence pmp				
Year	HD pmp	PD pmp	Dialysis pmp	Transplant pmp	RRT pmp	HD	PD	Dialysis	Tx	RRT
2006	311	78	389	336	724					
2007	323	76	399	346	746	3.9	−2.1	2.7	3.2	2.9
2008	342	69	411	363	774	5.8	−9.0	2.9	4.9	3.8
2009	354	64	417	377	794	3.5	−7.8	1.6	3.7	2.6
2010	359	62	421	397	818	1.5	−3.2	0.8	5.4	3.0
2011	365	60	426	416	841	1.7	−2.2	1.1	4.7	2.9
Average annual growth 2006–2011						3.3	−4.9	1.8	4.4	3.0

*Differences in the figures for dialysis and RRT prevalence and the sum of the separate modalities are due to rounding
pmp – per million population

2010 to 2011 the number of prevalent patients on RRT at Liverpool Aintree increased by 21.3%, whilst in Chelmsford the number decreased by 8.1% (table 2.3). These changes could be related to re-allocation of patients from and to other local renal centres. Centre prevalence rates showed marked variation; from 457 pmp in Ulster to 1,456 pmp at London Guy's (table 2.2). The long-term (1997–2010) UK prevalence pattern by treatment modality is shown in figure 2.2. The steady growth in transplant numbers was maintained in 2011. The increase in transplant prevalence and the increase in haemodialysis patient numbers has been associated with a slow contraction in home-based therapies, particularly PD, in more recent years.

Prevalence of RRT in Primary Care Trusts (PCT) in England, Health and Social Care Areas in Northern Ireland (HB), Local Health Boards in Wales (HB) and Health Boards in Scotland (HB)

The need for RRT depends on many factors such as predisposing conditions but also on social and demographic factors such as age, gender, social deprivation and ethnicity. Hence, comparison of crude prevalence rates by geographical area can be misleading. This section, as in previous reports, uses age and gender standardisation to compare RRT prevalence rates. The ethnic minority profile is also provided to help understand the differences in standardised prevalence ratios (SPR). The impact of social deprivation was reported in the 2003 UKRR Report [4].

There were substantial variations in the crude PCT/HB prevalence rate pmp, from 444 pmp (Shetland, population 22,500) to 1,904 pmp (Brent, population 256,300). There were similar variations in the standardised prevalence ratios (ratio of observed: expected prevalence rate given the age/gender breakdown of the PCT/HB) from 0.49 (Shetland) to 2.47 (Brent) (table 2.5). Confidence intervals are not presented for the rates per million population for 2011 but figures D3 and D4 in appendix D (www.renalreg.com) can be used to determine if a PCT/HB falls within the range representing the 95% confidence limit of the national average prevalence rate. The annual standardised prevalence ratios were inherently more stable than the annual standardised incidence ratios (chapter 1).

Factors associated with variation in standardised prevalence ratios (SPRs) in Primary Care Trusts (PCT) in England, Health and Social Care Areas (HB) in Northern Ireland, Local Health Boards in Wales (HB) and Health Boards in Scotland (HB)

Geographical considerations and ethnicity were major factors contributing to the variation in SPRs (table 2.5). In 2011, there were 61 PCT/HBs with a significantly low SPR, 70 with a 'normal' SPR and 46 with a significantly high SPR. The areas with high and low SPRs have been fairly consistent over the last few years. They tend to reflect the demographics of the regions in question such that urban, ethnically diverse populations in areas of high social deprivation have the highest prevalence rates of renal replacement therapy. Mean SPRs were significantly higher in the 58 PCT/HBs with an ethnic minority population greater than 10% than in those with lower ethnic minority populations ($p < 0.001$). The SPR (correlation coefficient $r = 0.89$ $p < 0.001$) was positively correlated with ethnicity. In 2011 for each 10% increase in ethnic minority population, the age standardised prevalence ratio increased by 0.24. In figure 2.3, the relationship between the ethnic composition of a PCT/HB and its SPR is demonstrated.

Only six of the 118 PCT/HBs with ethnic minority populations of less than 10% had high SPRs: Abertawe

Table 2.5. Prevalence of RRT and standardised prevalence ratios in PCT/HB areas

PCT/HB – PCT in England, Health and Social Care Areas in Northern Ireland, Local Health Boards in Wales and Health Boards in Scotland
O/E – standardised prevalence ratio. Ratio of observed:expected rate of RRT given the age and gender breakdown of the area
LCL – lower 95% confidence limit
UCL – upper 95% confidence limit
pmp – per million population
Blank cells – no data returned to the UKRR for that year
Areas with significantly low prevalence ratios in 2011 are italicised in greyed areas, those with significantly high prevalence ratios in 2011 are bold in greyed areas
% non-White-percentage of the PCT/HB population that is non-White, from 2001 census (revised by ONS to 2007 for England)
* O/E for combined years, 2006–2011

UK area	Name	Total population	2006 O/E	2007 O/E	2008 O/E	2009 O/E	2010 O/E	2011 O/E	95% LCL	95% UCL	Crude rate pmp	O/E*	% non-White
North East	*County Durham*	*510,800*	***0.91***	***0.90***	***0.86***	***0.85***	***0.85***	***0.85***	*0.77*	*0.94*	***764***	***0.87***	*2.5*
	Darlington	100,600	**0.79**	**0.86**	**0.90**	**0.92**	**0.86**	**0.80**	0.63	1.01	**706**	**0.86**	3.3
	Gateshead	*192,000*	***0.93***	***0.88***	***0.83***	***0.87***	***0.86***	***0.84***	*0.71*	*0.99*	***745***	***0.87***	*3.8*
	Hartlepool	91,400	**0.97**	**0.88**	**0.92**	**0.91**	**0.84**	**0.82**	0.65	1.05	**711**	**0.89**	2.6
	Middlesbrough	142,100	**1.06**	**1.04**	**1.06**	**1.07**	**1.07**	**1.08**	0.91	1.29	**866**	**1.06**	8.6
	Newcastle	*292,200*	***0.93***	***0.96***	***0.97***	***0.93***	***0.87***	***0.85***	*0.74*	*0.98*	***647***	***0.92***	*9.7*
	North Tyneside	198,400	**1.05**	**0.99**	**0.94**	**0.96**	**0.98**	**0.92**	0.78	1.07	**817**	**0.97**	3.6
	Northumberland	*312,100*	***0.86***	***0.85***	***0.82***	***0.78***	***0.74***	***0.74***	*0.65*	*0.85*	***718***	***0.79***	*2.2*
	Redcar and Cleveland	137,300	**1.02**	**1.01**	**1.00**	**0.99**	**0.94**	**0.99**	0.83	1.18	**903**	**0.99**	3.0
	South Tyneside	154,100	**1.01**	**1.00**	**0.94**	**1.00**	**0.91**	**0.93**	0.78	1.11	**824**	**0.96**	4.8
	Stockton-on-Tees Teaching	*192,600*	***0.87***	***0.81***	***0.81***	***0.79***	***0.78***	***0.83***	*0.70*	*0.98*	***706***	***0.81***	*4.7*
	Sunderland Teaching	283,400	**0.94**	**0.94**	**0.97**	**0.95**	**0.94**	**0.91**	0.80	1.03	**787**	**0.94**	3.3
North West	Ashton, Leigh and Wigan	307,200	**0.67**	**0.86**	**0.80**	**0.81**	**0.83**	**0.89**	0.79	1.01	**781**	**0.81**	2.9
	Blackburn with Darwen Teaching	**140,000**	**1.19**	**1.38**	**1.29**	**1.30**	**1.27**	**1.31**	**1.11**	**1.55**	**993**	**1.29**	**22.7**
	Blackpool	*140,200*	***0.59***	***0.76***	***0.79***	***0.84***	***0.80***	***0.82***	*0.68*	*0.99*	***742***	***0.77***	*3.7*
	Bolton Teaching	266,500	**0.81**	**1.07**	**1.04**	**0.96**	**1.05**	**1.09**	0.96	1.23	**904**	**1.01**	12.3
	Bury	183,500	**0.47**	**0.89**	**0.83**	**0.92**	**0.88**	**0.89**	0.75	1.05	**752**	**0.82**	8.5
	Central and Eastern Cheshire	*457,200*		***0.81***	***0.78***	***0.78***	***0.78***	***0.79***	*0.71*	*0.88*	***722***	***0.79***	*3.4*
	Central Lancashire	*459,200*	***0.73***	***0.81***	***0.83***	***0.87***	***0.85***	***0.85***	*0.76*	*0.94*	***738***	***0.83***	*6.7*
	Cumbria Teaching	*494,400*	***0.75***	***0.75***	***0.74***	***0.72***	***0.71***	***0.70***	*0.63*	*0.78*	***672***	***0.73***	*2.0*
	East Lancashire Teaching	381,200	**0.94**	**1.08**	**1.03**	**1.00**	**0.97**	**0.97**	0.87	1.09	**837**	**1.00**	9.4
	Halton and St Helens	296,700	**0.94**	**0.96**	**0.89**	**0.91**	**0.93**	**0.97**	0.85	1.10	**839**	**0.93**	2.1
	Heywood, Middleton and Rochdale	205,000		**1.01**	**1.02**	**1.06**	**0.99**	**1.03**	0.89	1.20	**844**	**1.02**	12.6
	Knowsley	149,200	**1.16**	**1.11**	**1.05**	**1.02**	**0.94**	**0.92**	0.77	1.11	**764**	**1.03**	2.8
	Liverpool	**445,300**	**1.16**	**1.12**	**1.13**	**1.13**	**1.10**	**1.11**	**1.00**	**1.22**	**874**	**1.12**	**8.3**
	Manchester Teaching	**498,800**		**1.04**	**1.11**	**1.14**	**1.17**	**1.16**	**1.05**	**1.28**	**766**	**1.13**	**23.4**
	North Lancashire Teaching	*329,100*	***0.66***	***0.75***	***0.72***	***0.73***	***0.71***	***0.72***	*0.63*	*0.82*	***672***	***0.72***	*4.2*
	Oldham	219,600	**0.61**	**0.94**	**0.95**	**0.94**	**0.92**	**0.91**	0.78	1.06	**733**	**0.88**	12.2
	Salford	*229,100*	***0.64***	***0.79***	***0.85***	***0.83***	***0.85***	***0.85***	*0.73*	*0.99*	***672***	***0.81***	*7.7*
	Sefton	272,800	**0.90**	**0.87**	**0.84**	**0.83**	**0.86**	**0.90**	0.79	1.03	**839**	**0.87**	2.6
	Stockport	*284,700*		***0.87***	***0.88***	***0.83***	***0.86***	***0.87***	*0.76*	*1.00*	***776***	***0.86***	*6.4*
	Tameside and Glossop	250,700		**1.03**	**0.99**	**0.98**	**0.99**	**0.99**	0.87	1.14	**842**	**1.00**	5.9
	Trafford	*217,100*		***0.78***	***0.74***	***0.76***	***0.87***	***0.82***	*0.70*	*0.96*	***700***	***0.80***	*11.2*
	Warrington	*199,100*	***0.81***	***0.89***	***0.87***	***0.94***	***0.85***	***0.84***	*0.71*	*0.99*	***728***	***0.87***	*3.5*
	Western Cheshire	234,300	**0.93**	**0.93**	**0.93**	**0.96**	**0.98**	**1.00**	0.88	1.15	**922**	**0.96**	3.1
	Wirral	*308,800*	***1.04***	***0.96***	***0.89***	***0.85***	***0.82***	***0.82***	*0.72*	*0.93*	***735***	***0.89***	*2.8*
Yorkshire and the Humber	Barnsley	227,500	**1.13**	**1.06**	**1.07**	**1.10**	**1.14**	**1.12**	0.98	1.27	**980**	**1.10**	2.7
	Bradford and Airedale Teaching	**512,700**	**1.13**	**1.15**	**1.13**	**1.10**	**1.17**	**1.15**	**1.05**	**1.27**	**874**	**1.14**	**25.0**
	Calderdale	202,800	**1.10**	**1.11**	**1.08**	**1.09**	**1.10**	**1.03**	0.89	1.19	**878**	**1.08**	9.8
	Doncaster	290,900	**1.05**	**0.97**	**0.97**	**0.98**	**0.95**	**0.99**	0.87	1.11	**866**	**0.98**	4.3
	East Riding of Yorkshire	*338,500*	***0.82***	***0.80***	***0.81***	***0.84***	***0.81***	***0.80***	*0.71*	*0.90*	***774***	***0.81***	*3.0*
	Hull Teaching	263,800	**0.99**	**1.04**	**0.96**	**1.01**	**0.98**	**0.96**	0.84	1.10	**758**	**0.99**	5.8
	Kirklees	409,900	**1.17**	**1.11**	**1.03**	**1.04**	**1.05**	**1.04**	0.94	1.16	**849**	**1.07**	16.0

Table 2.5. Continued

UK area	Name	Total population	2006 O/E	2007 O/E	2008 O/E	2009 O/E	2010 O/E	2011 O/E	95% LCL	95% UCL	Crude rate pmp	O/E	% non-White
Yorkshire and the Humber	*Leeds*	*798,700*	***0.98***	***0.93***	***0.88***	***0.86***	***0.88***	***0.87***	*0.79*	*0.94*	***666***	***0.90***	*11.8*
	North East Lincolnshire	158,800	**1.01**	**0.98**	**1.00**	**0.98**	**0.96**	**1.02**	0.86	1.20	**888**	**0.99**	3.1
	North Lincolnshire	*157,500*	***0.91***	***0.87***	***0.84***	***0.75***	***0.71***	***0.79***	*0.66*	*0.95*	***724***	***0.81***	*3.2*
	North Yorkshire and York	*802,100*	***0.79***	***0.79***	***0.79***	***0.80***	***0.80***	***0.80***	*0.74*	*0.87*	***733***	***0.80***	*3.7*
	Rotherham	254,300	**1.10**	**1.11**	**1.14**	**1.10**	**1.14**	**1.07**	0.94	1.22	**936**	**1.11**	5.2
	Sheffield	555,700	**1.09**	**1.08**	**1.07**	**1.07**	**1.10**	**1.07**	0.97	1.17	**853**	**1.08**	12.2
	Wakefield District	*325,500*	***0.88***	***0.84***	***0.81***	***0.81***	***0.82***	***0.84***	*0.74*	*0.96*	***740***	***0.83***	*4.3*
East Midlands	*Bassetlaw*	*112,100*	***0.83***	***0.97***	***0.90***	***0.81***	***0.78***	***0.77***	*0.62*	*0.96*	***714***	***0.84***	*3.1*
	Derby City	247,100	**1.07**	**1.01**	**1.07**	**1.15**	**1.14**	**1.12**	0.98	1.28	**902**	**1.10**	15.0
	Derbyshire County	*729,900*	***0.83***	***0.87***	***0.88***	***0.86***	***0.84***	***0.85***	*0.79*	*0.93*	***789***	***0.86***	*3.2*
	Leicester City	**306,800**	**1.73**	**1.73**	**1.76**	**1.77**	**1.80**	**1.82**	**1.65**	**2.01**	**1,304**	**1.77**	**38.2**
	Leicestershire County and Rutland	*687,200*	***0.91***	***0.90***	***0.89***	***0.87***	***0.88***	***0.87***	*0.80*	*0.94*	***776***	***0.88***	*7.7*
	Lincolnshire Teaching	*705,000*	***0.79***	***0.79***	***0.78***	***0.76***	***0.78***	***0.80***	*0.73*	*0.87*	***757***	***0.78***	*3.3*
	Northamptonshire Teaching	*687,600*	***0.90***	***0.91***	***0.91***	***0.91***	***0.90***	***0.91***	*0.83*	*0.99*	***774***	***0.91***	*7.4*
	Nottingham City	**306,300**	**1.21**	**1.15**	**1.17**	**1.20**	**1.28**	**1.22**	**1.08**	**1.37**	**836**	**1.20**	**18.7**
	Nottinghamshire County Teaching	668,000	**1.02**	**1.00**	**0.99**	**0.96**	**0.94**	**0.94**	0.87	1.02	**847**	**0.97**	5.1
West Midlands	**Birmingham East and North**	**409,300**	**1.63**	**1.54**	**1.58**	**1.56**	**1.50**	**1.53**	**1.40**	**1.68**	**1,165**	**1.56**	**23.8**
	Coventry Teaching	**315,700**	**1.18**	**1.17**	**1.19**	**1.23**	**1.28**	**1.31**	**1.18**	**1.46**	**1,014**	**1.23**	**19.6**
	Dudley	*307,500*	***0.91***	***0.92***	***0.88***	***0.93***	***0.90***	***0.85***	*0.74*	*0.96*	***758***	***0.89***	*8.5*
	Heart of Birmingham Teaching	**285,100**	**2.38**	**2.34**	**2.37**	**2.41**	**2.38**	**2.27**	**2.06**	**2.51**	**1,403**	**2.36**	**61.8**
	Herefordshire	*179,400*	***0.87***	***0.86***	***0.78***	***0.82***	***0.77***	***0.77***	*0.65*	*0.91*	***758***	***0.81***	*2.4*
	North Staffordshire	211,900		**0.89**	**0.89**	**0.92**	**0.88**	**0.91**	0.79	1.06	**845**	**0.90**	3.5
	Sandwell	**292,900**	**1.48**	**1.46**	**1.53**	**1.59**	**1.57**	**1.57**	**1.42**	**1.74**	**1,270**	**1.54**	**21.8**
	Shropshire County	*293,400*	***0.90***	***0.91***	***0.95***	***0.92***	***0.88***	***0.86***	*0.76*	*0.98*	***825***	***0.90***	*3.0*
	Solihull	206,300	**1.08**	**0.97**	**0.93**	**0.99**	**0.94**	**0.91**	0.79	1.06	**819**	**0.97**	9.0
	South Birmingham	**342,200**	**1.39**	**1.33**	**1.34**	**1.35**	**1.31**	**1.32**	**1.19**	**1.46**	**1,023**	**1.34**	**17.9**
	South Staffordshire	*611,300*		***0.92***	***0.92***	***0.89***	***0.89***	***0.92***	*0.84*	*1.00*	***836***	***0.91***	*4.7*
	Stoke on Trent	248,000		**1.11**	**1.07**	**1.11**	**1.11**	**1.12**	0.98	1.27	**944**	**1.10**	7.1
	Telford and Wrekin	162,400	**0.86**	**1.01**	**1.02**	**1.07**	**1.07**	**1.06**	0.90	1.25	**887**	**1.02**	6.6
	Walsall Teaching	**256,800**	**1.29**	**1.25**	**1.31**	**1.28**	**1.35**	**1.33**	**1.18**	**1.49**	**1,125**	**1.30**	**14.7**
	Warwickshire	536,200	**1.03**	**1.03**	**0.99**	**1.01**	**1.02**	**1.02**	0.93	1.11	**923**	**1.01**	6.7
	Wolverhampton City	239,300	**1.29**	**1.23**	**1.25**	**1.26**	**1.20**	**1.10**	0.97	1.26	**919**	**1.22**	23.8
	Worcestershire	*557,300*	***0.84***	***0.83***	***0.83***	***0.85***	***0.85***	***0.85***	*0.78*	*0.94*	***793***	***0.84***	*4.4*
East of England	*Bedfordshire*	*416,300*	***0.86***	***0.82***	***0.84***	***0.84***	***0.85***	***0.82***	*0.74*	*0.92*	***706***	***0.84***	*9.3*
	Cambridgeshire	*616,400*	***0.90***	***0.86***	***0.82***	***0.84***	***0.86***	***0.91***	*0.83*	*0.99*	***772***	***0.87***	*7.4*
	Hertfordshire	*1,107,500*	***0.80***	***0.81***	***0.91***	***0.91***	***0.92***	***0.92***	*0.86*	*0.98*	***772***	***0.88***	*9.9*
	Great Yarmouth and Waveney	214,700	**0.45**	**0.52**	**0.80**	**0.88**	**0.95**	**0.96**	0.83	1.10	**918**	**0.77**	3.5
	Luton	**198,900**	**1.18**	**1.22**	**1.28**	**1.26**	**1.28**	**1.35**	**1.17**	**1.55**	**990**	**1.26**	**31.5**
	Mid Essex	*374,500*	***0.83***	***0.86***	***0.84***	***0.84***	***0.82***	***0.82***	*0.73*	*0.92*	***721***	***0.83***	*5.1*
	Norfolk	*764,800*	***0.93***	***0.92***	***0.90***	***0.88***	***0.83***	***0.80***	*0.74*	*0.87*	***760***	***0.87***	*3.9*
	North East Essex	*329,500*			***0.82***	***0.82***	***0.82***	***0.84***	*0.74*	*0.95*	***762***	***0.82***	*6.4*
	Peterborough	173,600	**1.03**	**1.05**	**0.98**	**1.05**	**1.03**	**1.04**	0.89	1.23	**829**	**1.03**	13.0
	South East Essex	*338,200*	***0.95***	***0.93***	***0.92***	***0.91***	***0.88***	***0.85***	*0.75*	*0.96*	***766***	***0.90***	*5.7*
	South West Essex	410,000	**0.93**	**0.95**	**0.97**	**0.95**	**0.97**	**0.99**	0.89	1.11	**822**	**0.96**	7.6
	Suffolk	*601,900*	***0.84***	***0.84***	***0.82***	***0.83***	***0.82***	***0.82***	*0.75*	*0.90*	***748***	***0.83***	*5.7*
	West Essex	*286,400*	***0.81***	***0.76***	***0.70***	***0.72***	***0.76***	***0.76***	*0.66*	*0.88*	***663***	***0.75***	*7.9*
London	**Barking and Dagenham**	**179,700**	**1.12**	**1.17**	**1.16**	**1.22**	**1.31**	**1.44**	**1.24**	**1.66**	**991**	**1.25**	**23.7**
	Barnet	**348,000**	**1.20**	**1.39**	**1.43**	**1.40**	**1.46**	**1.46**	**1.32**	**1.61**	**1,152**	**1.40**	**29.4**
	Bexley	**228,300**	**1.15**	**1.15**	**1.16**	**1.20**	**1.23**	**1.23**	**1.08**	**1.40**	**1,029**	**1.19**	**13.0**
	Brent Teaching	**256,300**	**1.39**	**2.08**	**2.27**	**2.37**	**2.48**	**2.47**	**2.26**	**2.70**	**1,904**	**2.20**	**53.5**

Table 2.5. Continued

UK area	Name	Total population	2006 O/E	2007 O/E	2008 O/E	2009 O/E	2010 O/E	2011 O/E	95% LCL	95% UCL	Crude rate pmp	O/E	% non-White
London	Bromley	312,400	**1.01**	**0.97**	**1.02**	**0.98**	**1.02**	**1.01**	0.89	1.14	**861**	**1.00**	11.9
	Camden	**235,500**	**1.04**	**1.11**	**1.16**	**1.21**	**1.24**	**1.26**	**1.10**	**1.45**	**883**	**1.17**	**24.9**
	City and Hackney Teaching	**231,000**	**1.36**	**1.40**	**1.33**	**1.40**	**1.50**	**1.57**	**1.38**	**1.78**	**1,056**	**1.43**	**35.7**
	Croydon	**345,400**	**1.14**	**1.31**	**1.31**	**1.37**	**1.36**	**1.42**	**1.28**	**1.57**	**1,123**	**1.32**	**34.5**
	Ealing	**318,300**	**1.45**	**1.60**	**1.90**	**1.91**	**1.95**	**1.92**	**1.75**	**2.10**	**1,448**	**1.80**	**40.7**
	Enfield	**295,000**	**1.46**	**1.41**	**1.42**	**1.40**	**1.42**	**1.53**	**1.38**	**1.70**	**1,193**	**1.44**	**28.0**
	Greenwich Teaching	**228,100**	**1.10**	**1.14**	**1.23**	**1.26**	**1.40**	**1.43**	**1.26**	**1.63**	**1,035**	**1.27**	**26.1**
	Hammersmith and Fulham	**169,800**	**1.23**	**1.24**	**1.27**	**1.35**	**1.34**	**1.38**	**1.19**	**1.61**	**995**	**1.30**	**21.0**
	Haringey Teaching	**225,100**	**1.50**	**1.52**	**1.58**	**1.57**	**1.59**	**1.73**	**1.54**	**1.95**	**1,253**	**1.59**	**33.1**
	Harrow	**230,300**		**1.49**	**1.68**	**1.76**	**1.83**	**1.89**	**1.70**	**2.10**	**1,524**	**1.74**	**44.7**
	Havering	*236,100*		***0.80***	***0.81***	***0.82***	***0.80***	***0.85***	*0.73*	*0.98*	***737***	***0.82***	*8.8*
	Hillingdon	**266,200**	**1.08**	**0.94**	**1.31**	**1.32**	**1.33**	**1.41**	**1.25**	**1.58**	**1,082**	**1.24**	**25.9**
	Hounslow	**236,700**	**1.25**	**1.27**	**1.47**	**1.51**	**1.57**	**1.64**	**1.46**	**1.84**	**1,221**	**1.46**	**37.8**
	Islington	**193,900**	**1.45**	**1.36**	**1.29**	**1.31**	**1.41**	**1.47**	**1.28**	**1.69**	**1,016**	**1.38**	**22.9**
	Kensington and Chelsea	169,500		**0.80**	**0.98**	**0.97**	**1.00**	**0.99**	0.84	1.17	**814**	**0.95**	22.6
	Kingston	169,000		**1.04**	**1.15**	**1.12**	**1.10**	**1.11**	0.94	1.30	**846**	**1.11**	19.9
	Lambeth	**284,400**	**1.32**	**1.60**	**1.59**	**1.66**	**1.63**	**1.71**	**1.53**	**1.90**	**1,181**	**1.59**	**32.0**
	Lewisham	**266,400**	**1.62**	**1.66**	**1.63**	**1.71**	**1.66**	**1.72**	**1.55**	**1.92**	**1,239**	**1.67**	**34.4**
	Newham	**240,200**	**1.77**	**1.82**	**1.84**	**1.90**	**2.13**	**2.26**	**2.03**	**2.51**	**1,457**	**1.97**	**57.0**
	Redbridge	**270,300**	**1.18**	**1.18**	**1.31**	**1.37**	**1.45**	**1.42**	**1.27**	**1.60**	**1,080**	**1.33**	**40.9**
	Richmond and Twickenham	*190,800*		***0.62***	***0.69***	***0.74***	***0.76***	***0.76***	*0.64*	*0.91*	***618***	***0.72***	*11.7*
	Southwark	**287,100**	**1.46**	**1.58**	**1.61**	**1.63**	**1.68**	**1.78**	**1.61**	**1.98**	**1,247**	**1.63**	**34.1**
	Sutton and Merton	**403,000**		**1.13**	**1.16**	**1.21**	**1.23**	**1.23**	**1.12**	**1.36**	**965**	**1.20**	**20.8**
	Tower Hamlets	**238,100**	**1.13**	**1.22**	**1.27**	**1.40**	**1.46**	**1.51**	**1.33**	**1.73**	**932**	**1.34**	**22.8**
	Waltham Forest	**227,400**	**1.42**	**1.59**	**1.56**	**1.53**	**1.62**	**1.73**	**1.54**	**1.95**	**1,240**	**1.58**	**36.6**
	Wandsworth	**289,200**		**1.36**	**1.37**	**1.45**	**1.43**	**1.40**	**1.25**	**1.58**	**968**	**1.40**	**19.7**
	Westminster	**253,400**		**0.89**	**0.99**	**1.08**	**1.10**	**1.18**	**1.04**	**1.35**	**888**	**1.05**	**27.8**
South East Coast	*Brighton and Hove City*	*258,400*	***0.87***	***0.87***	***0.87***	***0.86***	***0.85***	***0.86***	*0.74*	*0.99*	***670***	***0.86***	*8.7*
	East Sussex Downs and Weald	*336,100*	***0.77***	***0.79***	***0.74***	***0.70***	***0.70***	***0.68***	*0.60*	*0.78*	***661***	***0.73***	*4.9*
	Eastern and Coastal Kent	742,200		**0.86**	**0.93**	**0.94**	**0.96**	**0.95**	0.88	1.03	**847**	**0.93**	5.3
	Hastings and Rother	*179,700*	***0.80***	***0.76***	***0.78***	***0.73***	***0.78***	***0.75***	*0.63*	*0.89*	***729***	***0.77***	*5.2*
	Medway	256,600		**0.85**	**0.90**	**0.91**	**0.88**	**0.91**	0.79	1.04	**740**	**0.89**	7.5
	Surrey	*1,114,400*	***0.77***	***0.85***	***0.87***	***0.88***	***0.89***	***0.88***	*0.82*	*0.94*	***767***	***0.86***	*8.3*
	West Kent	*685,100*		***0.85***	***0.88***	***0.89***	***0.86***	***0.85***	*0.78*	*0.93*	***744***	***0.87***	*6.8*
	West Sussex	*800,000*	***0.75***	***0.81***	***0.82***	***0.82***	***0.82***	***0.80***	*0.74*	*0.86*	***740***	***0.80***	*5.8*
South Central	**Berkshire East**	**406,500**	**1.01**	**1.14**	**1.13**	**1.16**	**1.21**	**1.22**	**1.11**	**1.35**	**962**	**1.15**	**18.9**
	Berkshire West	471,500	**1.01**	**1.09**	**1.09**	**1.10**	**1.04**	**1.03**	0.93	1.14	**829**	**1.06**	10.1
	Buckinghamshire	*512,100*	***0.97***	***0.95***	***0.94***	***0.93***	***0.91***	***0.87***	*0.79*	*0.96*	***760***	***0.93***	*10.4*
	Hampshire	*1,297,200*	***0.79***	***0.77***	***0.79***	***0.81***	***0.80***	***0.79***	*0.74*	*0.84*	***713***	***0.79***	*4.2*
	Isle of Wight National Health Service	*140,200*	***0.62***	***0.58***	***0.57***	***0.54***	***0.55***	***0.59***	*0.47*	*0.73*	***585***	***0.57***	*3.6*
	Milton Keynes	247,000	**0.84**	**0.91**	**0.92**	**0.90**	**0.92**	**0.94**	0.81	1.08	**737**	**0.91**	12.7
	Oxfordshire	624,200	**1.03**	**0.95**	**0.91**	**0.89**	**0.89**	**0.92**	0.84	1.01	**764**	**0.93**	8.1
	Portsmouth City Teaching	207,200	**0.98**	**0.97**	**0.96**	**0.92**	**0.90**	**0.95**	0.81	1.12	**709**	**0.94**	8.0
	Southampton City	239,800	**0.89**	**0.90**	**0.94**	**0.93**	**0.99**	**1.01**	0.87	1.17	**742**	**0.95**	11.4
South West	*Bath and North East Somerset*	*179,800*	***0.91***	***0.91***	***0.84***	***0.86***	***0.85***	***0.79***	*0.67*	*0.95*	***673***	***0.86***	*5.8*
	Bournemouth and Poole Teaching	*310,800*	***0.86***	***0.88***	***0.87***	***0.84***	***0.82***	***0.81***	*0.71*	*0.93*	***718***	***0.84***	*5.0*
	Bristol	**441,100**	**1.28**	**1.21**	**1.25**	**1.22**	**1.19**	**1.20**	**1.08**	**1.32**	**886**	**1.22**	**11.6**
	Cornwall and Isles of Scilly	537,900	**1.05**	**1.00**	**0.98**	**0.98**	**0.95**	**0.92**	0.84	1.00	**881**	**0.98**	2.8
	Devon	*749,700*	***0.82***	***0.83***	***0.85***	***0.87***	***0.86***	***0.85***	*0.79*	*0.92*	***823***	***0.85***	*3.3*
	Dorset	*404,900*	***0.81***	***0.83***	***0.85***	***0.85***	***0.83***	***0.79***	*0.70*	*0.88*	***800***	***0.83***	*3.5*

Table 2.5. Continued

UK area	Name	Total population	2006 O/E	2007 O/E	2008 O/E	2009 O/E	2010 O/E	2011 O/E	95% LCL	95% UCL	Crude rate pmp	O/E	% non-White
South West	*Gloucestershire*	*593,600*	***0.91***	***0.87***	***0.82***	***0.85***	***0.85***	***0.85***	*0.78*	*0.94*	***773***	***0.86***	*4.7*
	North Somerset	*212,100*	***0.97***	***0.91***	***0.91***	***0.86***	***0.84***	***0.84***	*0.72*	*0.98*	***787***	***0.89***	*3.6*
	Plymouth Teaching	**258,900**	**1.18**	**1.15**	**1.12**	**1.12**	**1.15**	**1.15**	**1.01**	**1.30**	**927**	**1.14**	**4.4**
	Somerset	*525,500*	***0.87***	***0.83***	***0.81***	***0.81***	***0.84***	***0.85***	*0.78*	*0.94*	***811***	***0.83***	*3.2*
	South Gloucestershire	264,900	**1.04**	**0.99**	**0.98**	**0.92**	**0.97**	**0.94**	0.82	1.08	**812**	**0.97**	5.0
	Swindon	206,900	**0.93**	**0.88**	**0.86**	**0.88**	**0.92**	**0.95**	0.81	1.10	**778**	**0.90**	7.1
	Torbay	134,400	**0.86**	**0.81**	**0.90**	**0.85**	**0.91**	**0.94**	0.79	1.12	**915**	**0.88**	3.1
	Wiltshire	*459,800*	***0.69***	***0.72***	***0.74***	***0.73***	***0.73***	***0.74***	*0.66*	*0.83*	***668***	***0.73***	*3.4*
Wales	*Betsi Cadwaladr University*	*678,500*	***1.00***	***0.95***	***0.94***	***0.91***	***0.88***	***0.85***	*0.78*	*0.93*	***789***	***0.92***	*1.0*
	Powys Teaching	131,100	**0.92**	**0.87**	**0.88**	**0.93**	**0.88**	**0.86**	0.71	1.03	**862**	**0.89**	0.9
	Hywel Dda	374,800	**1.02**	**0.95**	**1.00**	**0.95**	**0.90**	**0.92**	0.83	1.03	**872**	**0.95**	1.0
	Abertawe Bro Morgannwg University	**504,800**	**1.26**	**1.26**	**1.19**	**1.22**	**1.26**	**1.24**	**1.14**	**1.35**	**1,099**	**1.24**	**1.6**
	Cwm Taf	**290,600**	**1.46**	**1.52**	**1.43**	**1.40**	**1.31**	**1.35**	**1.22**	**1.51**	**1,163**	**1.41**	**1.1**
	Aneurin Bevan	**561,300**	**1.16**	**1.17**	**1.11**	**1.09**	**1.12**	**1.10**	**1.01**	**1.20**	**967**	**1.12**	**1.9**
	Cardiff and Vale University	466,100	**1.18**	**1.18**	**1.08**	**1.08**	**1.07**	**1.06**	0.96	1.17	**824**	**1.10**	6.7
Scotland	Ayrshire & Arran	366,900	**1.22**	**1.14**	**1.14**	**1.08**	**1.07**	**1.02**	0.92	1.13	**940**	**1.11**	0.7
	Borders	113,000	**0.86**	**0.96**	**0.99**	**1.02**	**1.06**	**0.95**	0.79	1.15	**920**	**0.98**	0.6
	Dumfries and Galloway	148,100	**1.03**	**0.95**	**0.96**	**0.93**	**0.89**	**0.86**	0.73	1.03	**858**	**0.93**	0.7
	Fife	364,800	**1.00**	**0.97**	**0.96**	**0.94**	**0.95**	**0.99**	0.89	1.10	**874**	**0.97**	1.3
	Forth Valley	293,100	**0.93**	**0.98**	**0.95**	**0.92**	**0.94**	**0.89**	0.78	1.01	**771**	**0.93**	1.1
	Grampian	550,500	**1.05**	**1.01**	**0.99**	**0.96**	**0.95**	**0.95**	0.86	1.04	**830**	**0.98**	1.6
	Greater Glasgow & Clyde	1,204,100	**1.21**	**1.17**	**1.13**	**1.09**	**1.06**	**1.05**	0.99	1.12	**879**	**1.11**	3.4
	Highland	310,700	**1.13**	**1.12**	**1.06**	**1.04**	**1.00**	**0.91**	0.81	1.03	**872**	**1.04**	0.8
	Lanarkshire	562,700	**1.07**	**0.99**	**0.97**	**0.96**	**0.96**	**0.93**	0.85	1.02	**803**	**0.98**	1.2
	Lothian	*837,000*	***0.98***	***0.95***	***0.92***	***0.89***	***0.85***	***0.81***	*0.74*	*0.88*	***668***	***0.90***	*2.8*
	Orkney	19,800	**1.15**	**0.95**	**1.14**	**1.09**	**0.99**	**0.84**	0.52	1.38	**808**	**1.02**	0.4
	Shetland	*22,500*	***0.50***	***0.71***	***0.50***	***0.54***	***0.57***	***0.49***	*0.27*	*0.92*	***444***	***0.55***	*1.1*
	Tayside	402,400	**1.22**	**1.14**	**1.06**	**1.07**	**1.04**	**1.02**	0.92	1.13	**924**	**1.09**	1.9
	Western Isles	26,500	**0.54**	**0.83**	**0.75**	**0.71**	**0.80**	**0.65**	0.41	1.05	**642**	**0.72**	0.6
Northern Ireland	**Belfast**	**335,700**	**1.38**	**1.37**	**1.31**	**1.22**	**1.21**	**1.17**	**1.05**	**1.31**	**923**	**1.27**	**1.1**
	Northern	458,600	**1.20**	**1.15**	**1.11**	**1.05**	**1.01**	**1.05**	0.95	1.16	**859**	**1.09**	0.6
	Southern	357,700	**1.05**	**0.99**	**1.00**	**0.98**	**1.00**	**1.04**	0.92	1.17	**788**	**1.01**	0.4
	South Eastern	347,100	**1.06**	**1.01**	**1.00**	**0.96**	**0.89**	**0.91**	0.81	1.03	**755**	**0.97**	0.7
	Western	299,900	**1.16**	**1.14**	**1.10**	**1.13**	**1.12**	**1.08**	0.95	1.22	**830**	**1.12**	0.5

Bro Morgannwg University, Aneurin Bevan, Belfast, Cwm Taf, Plymouth and Liverpool. Forty (69.0%) of the 58 PCT/HBs with ethnic minority populations greater than 10% had high SPRs, whereas only 4 (6.9%) (Trafford, Leeds, Richmond & Twickenham, Buckinghamshire) had low SPRs. However, not all PCT/HBs with a high (>15%) ethnic minority population also had higher than expected RRT prevalence rates. For example Kingston and Kensington had rates similar to average (1.11 and 0.95 respectively 2006–2011), possibly explained by lower levels of social deprivation in these areas. The standardised prevalence ratios in each region of England and in Wales, Northern Ireland and Scotland are presented in table 2.6. North East England, North West England, Yorkshire and Humber, East Midlands, East of England, South East England, South Central and South West England had lower than expected prevalence rates of RRT given the age and gender of their populations and this pattern has been similar for the last five years. West Midlands, London and Wales had higher than expected prevalence rates of RRT given the age and gender of their populations and again this pattern has remained similar for the last five years. Scotland and Northern Ireland previously had higher than expected prevalence rates but in more recent years were similar to their expected rates. There was marked variation (17–fold) in prevalence rates in over 80 year olds between PCT/HBs (data not shown).

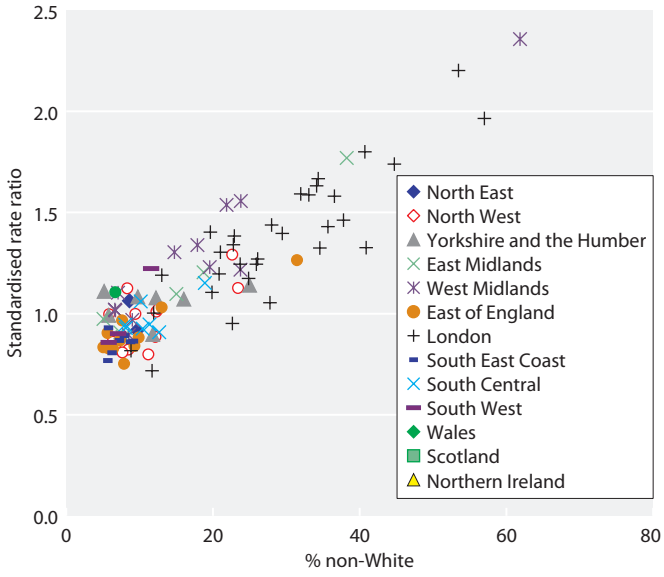

Fig. 2.3. Ethnicity and standardised prevalence ratios for all PCT/HB areas by percentage non-White on 31/12/2011 (excluding areas with <5% ethnic minorities)
SPR = standardised prevalence ratio

Case mix in prevalent RRT patients

Time on RRT (vintage)

Table 2.7 shows the median time, in years, since starting RRT of prevalent RRT patients on 31/12/2011. Median time on RRT for all prevalent patients remained static at 5.6 years (for patients who recovered for >90 days and then subsequently restarted RRT the median time from the start of RRT was calculated from the most recent start date). Patients with functioning transplants had survived a median of 10.3 years on RRT whilst the median time on RRT of HD and PD patients was significantly less (3.3 and 1.8 years respectively, $p < 0.001$).

Table 2.7. Median time on RRT of prevalent patients on 31/12/2011

Modality	N	Median time treated (years)
Haemodialysis	22,706	3.3
Peritoneal dialysis	3,768	1.8
Transplant	25,014	10.3
All RRT	**51,488**	**5.6**

All patients without a treatment modality were excluded
Median time on RRT was calculated from the most recent start date
Patients with an initial treatment modality of transferred in or transferred out were excluded from the calculation of median time on RRT, since their treatment start date was not accurately known

Age

The median age of prevalent UK patients on RRT at 31st December 2011 was slightly higher (58.2 years) compared with 2010 (57.9 years) (table 2.8) and significantly higher than in 2005 when it was 55 years. There were marked differences between modalities; the median age of HD patients (66.5 years) was greater than that of those on PD (62.7 years) and substantially higher than that of transplanted patients (51.7 years). About half (50.1%) of the UK prevalent RRT population was in the 40–64 years age group. Northern Ireland and Wales had a higher proportion of patients aged 75 years and older (16.9% and 17.2% respectively) compared with England (15.6%) and Scotland (13.6%) (table 2.9). Furthermore, there existed a wide range between centres

Table 2.6. Standardised rate ratio of RRT for each Strategic Health Authority in England and for Wales, Scotland and Northern Ireland in 2011

UK Area	Total population	O/E	95% LCL	95% UCL	Crude rate pmp
North East	2,607,000	0.87	0.83	0.91	758.3
North West	6,969,700	0.91	0.89	0.93	778.5
Yorkshire and the Humber	5,298,700	0.95	0.92	0.98	800.0
East Midlands	4,450,000	0.95	0.92	0.99	831.5
West Midlands	**5,455,000**	**1.12**	**1.09**	**1.15**	**955.6**
East of England	5,832,700	0.88	0.86	0.91	771.7
London	**7,824,900**	**1.48**	**1.45**	**1.51**	**1,108.4**
South East Coast	4,372,500	0.85	0.82	0.88	755.2
South Central	4,145,700	0.90	0.87	0.94	762.7
South West	5,280,300	0.89	0.86	0.91	804.5
Wales	**3,007,200**	**1.05**	**1.01**	**1.09**	**929.4**
Scotland	5,222,100	0.95	0.92	0.98	829.7
Northern Ireland	1,799,000	1.05	1.00	1.10	832.1

O/E – observed/expected prevalence rate ratio given the age/gender breakdown of each region
Bold – higher than expected prevalence rate ratio

Table 2.8. Median age of prevalent RRT patients by treatment modality in renal centres on 31/12/2011

	Median age			
Centre	HD	PD	Transplant	RRT
England				
B Heart	67.3	53.4	50.0	62.7
B QEH	64.0	58.0	50.5	56.5
Basldn	66.1	66.6	49.5	63.1
Bradfd	63.2	49.1	50.4	53.9
Brightn	69.6	68.2	52.9	62.2
Bristol	68.7	55.6	53.1	58.2
Camb	72.8	65.4	52.2	58.7
Carlis	69.3	67.4	51.3	58.5
Carsh	69.4	64.6	51.3	61.6
Chelms	67.4	66.1	57.9	63.3
Colchr	68.7			68.7
Covnt	66.2	65.1	49.8	57.2
Derby	70.0	64.8	54.6	63.3
Donc	66.9	62.3	56.9	63.4
Dorset	71.2	70.0	57.0	64.3
Dudley	66.7	62.2	58.9	62.2
Exeter	72.0	66.4	52.5	62.4
Glouc	72.4	67.4	53.7	64.5
Hull	67.1	62.7	51.0	58.0
Ipswi	66.1	66.8	53.2	58.9
Kent	70.0	65.1	52.3	60.7
L Barts	60.7	59.8	49.8	54.8
L Guys	61.6	61.8	49.6	53.6
L Kings	63.6	58.7	52.0	57.3
L Rfree	65.7	63.9	50.6	56.7
L St.G	66.5	65.1	52.9	59.3
L West	66.0	66.8	52.9	58.5
Leeds	67.3	59.4	51.5	56.9
Leic	66.7	66.4	51.7	59.4
Liv Ain	64.9	61.7		64.8
Liv RI	62.5	57.5	51.4	54.6
M RI	62.8	56.1	49.9	53.7
Middlbr	69.6	62.2	52.3	58.6
Newc	63.1	62.2	53.8	56.7
Norwch	71.6	64.0	52.8	63.0
Nottm	67.4	62.1	50.2	57.5
Oxford	67.2	62.6	50.7	55.0
Plymth	68.4	68.1	54.0	59.0
Ports	66.1	64.7	52.4	58.2
Prestn	63.6	61.4	52.1	57.9
Redng	69.4	58.9	55.7	60.0
Salford	61.7	58.4	51.3	56.7
Sheff	65.4	63.0	51.6	58.2
Shrew	68.7	63.1	53.4	62.3
Stevng	66.3	56.7	50.9	60.1
Sthend	70.5	63.0	55.5	64.6
Stoke	68.4	67.8	49.9	60.1
Sund	64.6	57.1	52.1	57.0
Truro	69.2	69.1	55.4	63.1
Wirral	67.2	59.8	49.6	65.5
Wolve	67.8	63.7	51.1	61.8
York	66.0	62.1	51.4	57.9
N Ireland				
Antrim	70.2	69.1	50.7	65.2
Belfast	64.3	54.9	50.1	52.8
Newry	67.7	65.2	54.6	62.6
Ulster	70.7	63.7	58.5	68.9
West NI	67.0	49.1	49.9	60.0
Scotland				
Abrdn	65.8	56.2	51.8	56.3
Airdrie	62.4	53.8	50.5	56.3
D & Gall	65.4	70.9	50.2	61.0
Dundee	69.0	64.5	52.3	60.9
Dunfn	65.7	64.7	51.5	60.0
Edinb	59.2	60.6	51.0	54.0
Glasgw	64.1	61.0	51.9	56.5
Inverns	70.8	65.4	46.8	55.0
Klmarnk	66.8	58.0	49.9	58.1
Wales				
Bangor	65.2	71.0		65.4
Cardff	68.7	65.1	51.4	57.2
Clwyd	64.1	57.0	56.3	60.1
Swanse	71.2	64.4	55.5	64.1
Wrexm	67.5	60.9	51.9	56.8
England	**66.5**	**62.7**	**51.7**	**58.2**
N Ireland	**67.7**	**58.6**	**50.8**	**58.8**
Scotland	**64.6**	**61.3**	**51.1**	**56.8**
Wales	**68.4**	**64.9**	**52.5**	**59.9**
UK	**66.5**	**62.7**	**51.7**	**58.2**
(min, max)	**(59.2, 72.8)**	**(49.1, 71.0)**	**(46.8, 58.9)**	**(52.8, 68.9)**

Blank cells indicate no patients on that treatment modality attending that centre when data were collected

in the proportion of patients aged over 75 (8.4% in Edinburgh to 32.8% in Ulster).

There was inter-centre variation in the median age of patients on RRT. Ulster had the highest median age (68.9 years), whilst Belfast had the lowest median age (52.8 years) (table 2.8). This likely reflects either ethnic make up of the catchment populations or follow up of younger transplant patients (as above in the case of Belfast). The median age of the non-White dialysis population was lower than the overall dialysis population (60.6 vs. 65.9 years, data not shown). The differing age distributions of the transplant and dialysis populations are illustrated in figure 2.4, demonstrating that the age peak for prevalent dialysis patients is 27 years later than for prevalent transplant patients.

In the UK on 31st December 2011, 62.7% of patients aged less than 65 years on RRT had a functioning transplant (table 2.15), compared with only 25.0% aged 65 years and over. There was a similar pattern in all four UK countries.

Table 2.9. Percentage of prevalent RRT patients in each age group by centre on 31/12/2011

		Percentage of patients			
Centre	N	18–39 years	40–64 years	65–74 years	75+ years
England					
B Heart	666	12.3	41.9	25.2	20.6
B QEH	1,923	16.3	51.7	16.7	15.3
Basldn	238	13.4	40.8	21.4	24.4
Bradfd	472	21.2	48.5	18.0	12.3
Brightn	777	12.1	44.8	21.5	21.6
Bristol	1,311	16.1	48.5	19.8	15.6
Camb	1,086	15.1	50.7	17.8	16.4
Carlis	219	13.7	51.1	22.8	12.3
Carsh	1,410	11.4	46.2	22.1	20.3
Chelms	216	8.8	46.8	20.8	23.6
Colchr	120	5.8	30.8	31.7	31.7
Covnt	886	14.9	50.6	19.2	15.3
Derby	466	11.8	41.2	26.8	20.2
Donc	248	12.1	44.0	19.4	24.6
Dorset	587	10.1	42.1	27.6	20.3
Dudley	287	8.4	48.1	24.4	19.2
Exeter	813	10.6	45.3	20.5	23.6
Glouc	390	9.2	42.1	24.4	24.4
Hull	764	13.9	51.2	19.6	15.3
Ipswi	340	13.2	53.5	20.3	12.9
Kent*	849	12.5	45.1	24.7	17.7
L Barts	1,900	17.7	54.5	16.4	11.3
L Guys	1,680	20.1	53.8	15.2	10.8
L Kings	882	13.4	51.9	20.0	14.7
L Rfree	1,773	18.2	49.6	17.7	14.5
L St.G	719	14.0	50.8	19.6	15.6
L West	3,022	12.2	53.4	20.4	14.0
Leeds*	1,441	18.0	49.0	19.8	13.2
Leic	1,926	13.1	49.8	21.8	15.4
Liv Ain	194	9.3	41.8	21.1	27.8
Liv RI	1,251	15.7	58.5	16.5	9.4
M RI	1,635	19.4	56.4	15.1	9.1
Middlbr	753	13.5	50.1	19.3	17.1
Newc	916	16.0	53.6	21.0	9.4
Norwch	612	12.9	40.4	23.0	23.7
Nottm	1,019	17.1	49.2	19.2	14.5
Oxford	1,444	17.5	52.0	17.2	13.4
Plymth	465	13.1	48.8	23.2	14.8
Ports	1,394	14.3	51.5	20.3	13.8
Prestn	1,023	13.5	52.1	21.0	13.4
Redng	688	11.6	49.9	20.3	18.2
Salford	846	14.8	54.1	18.7	12.4
Sheff	1,260	14.0	51.3	19.0	15.7
Shrew	342	11.4	44.2	21.1	23.4
Stevng	638	12.1	46.9	20.8	20.2
Sthend	214	13.6	39.3	22.4	24.8
Stoke	695	15.1	45.2	20.0	19.7
Sund	390	14.9	53.6	19.0	12.6
Truro	357	12.0	44.3	21.3	22.4
Wirral	241	9.1	39.8	23.7	27.4
Wolve	516	10.7	46.3	23.1	20.0
York*	339	18.9	44.5	19.8	16.8

Table 2.9. Continued

Centre	N	Percentage of patients			
		18–39 years	40–64 years	65–74 years	75+ years
N Ireland					
Antrim	224	9.8	39.7	27.7	22.8
Belfast	686	19.4	53.8	15.3	11.5
Newry	191	12.6	43.5	23.6	20.4
Ulster	137	7.3	31.4	28.5	32.8
West NI	272	15.8	46.0	23.2	15.1
Scotland					
Abrdn	479	19.8	49.7	18.4	12.1
Airdrie	344	17.2	54.1	14.5	14.2
D & Gall	122	13.1	50.8	18.9	17.2
Dundee	400	12.8	46.8	21.3	19.3
Dunfn	278	12.9	46.4	22.7	18.0
Edinb	700	15.7	58.4	17.4	8.4
Glasgw	1,477	15.0	54.6	17.9	12.5
Inverns	224	15.6	54.0	13.4	17.0
Klmarnk	300	10.7	53.0	18.7	17.7
Wales					
Bangor	109	9.2	37.6	27.5	25.7
Cardff	1,536	15.4	52.1	18.4	14.2
Clwyd*	136	11.0	52.2	22.1	14.7
Swanse	659	10.9	41.7	24.1	23.2
Wrexm	237	16.9	48.5	16.9	17.7
England	**44,643**	**14.7**	**50.0**	**19.8**	**15.6**
N Ireland	**1,510**	**15.4**	**47.0**	**20.8**	**16.9**
Scotland	**4,324**	**15.1**	**53.1**	**18.1**	**13.6**
Wales	**2,677**	**13.9**	**48.6**	**20.2**	**17.2**
UK	**53,154**	**14.7**	**50.1**	**19.7**	**15.6**
(min, max)		**(5.8, 21.2)**	**(30.8, 58.5)**	**(13.4, 31.7)**	**(8.4, 32.8)**

* 16 transplant patients from Kent, 21 transplant patients from Leeds, 27 transplant patients from York, were not included in this analysis. 6 transplant patients, 13 HD patients and 12 PD patients from Clwyd were not included in this analysis

Gender

Standardising the age of the UK RRT prevalent patients, by using the age and gender distribution of the UK population by PCT/HB (from ONS mid-2010 population estimates), allowed estimation of crude prevalence rates by age and gender (figure 2.5). This shows a progressive increase in prevalence rate with age, peaking at 2,099 pmp (a slight increase from

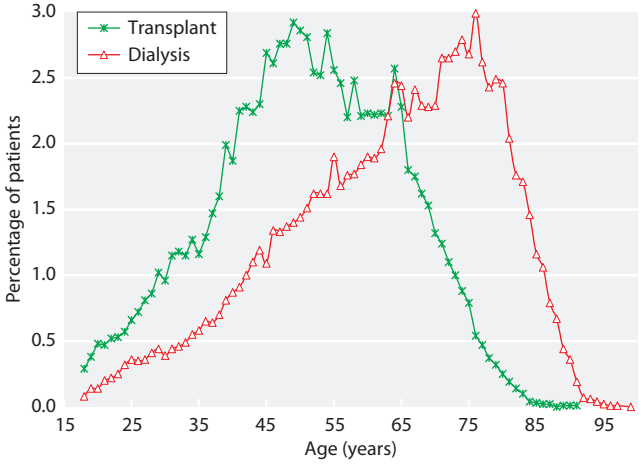

Fig. 2.4. Age profile of prevalent RRT patients by modality on 31/12/2011

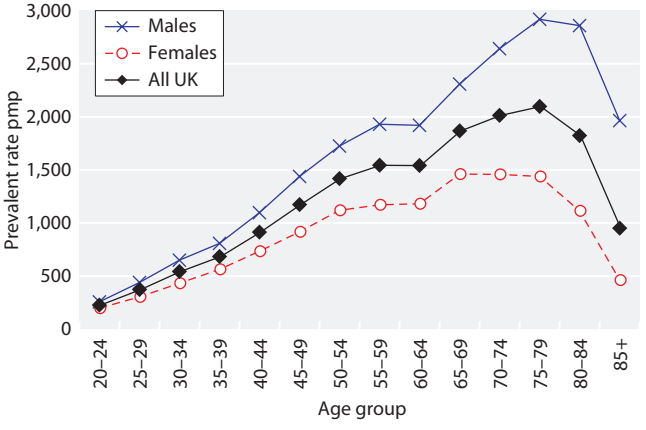

Fig. 2.5. Prevalence rate of RRT patients per million population by age and gender on 31/12/2011

Table 2.10. Ethnicity of prevalent RRT patients by centre on 31/12/2011

Centre	Data not available	N with data	Percentage in each ethnic group				
			White	Black	S Asian	Chinese	Other
England							
B Heart	0.2	665	62.3	6.3	29.8	0.6	1.1
B QEH	0.1	1,921	64.1	9.3	23.1	1.0	2.5
Basldn	0.0	238	88.7	7.1	3.4	0.0	0.8
Bradfd	3.0	458	57.0	2.4	39.5	0.0	1.1
Brightn	52.9	366					
Bristol	1.3	1,294	90.2	4.6	3.6	0.3	1.3
Camb	1.5	1,070	93.7	1.8	3.6	0.2	0.7
Carlis	1.4	216	99.5	0.0	0.5	0.0	0.0
Carsh	6.8	1,314	73.5	9.7	12.2	1.5	3.0
Chelms	2.8	210	91.4	2.9	1.9	1.4	2.4
Colchr	30.0	84	91.7	2.4	1.2	1.2	3.6
Covnt	2.6	863	82.3	3.8	13.1	0.5	0.3
Derby	3.4	450	84.9	3.8	10.4	0.4	0.4
Donc	0.0	248	98.0	0.4	0.8	0.4	0.4
Dorset	0.0	587	97.6	0.2	0.9	0.5	0.9
Dudley	0.0	287	88.2	2.4	7.7	0.7	1.0
Exeter	4.2	779	98.7	0.5	0.4	0.3	0.1
Glouc	0.0	390	94.1	2.3	2.3	0.3	1.0
Hull	42.5	439	97.7	0.5	0.9	0.2	0.7
Ipswi	2.6	331	93.7	2.4	3.0	0.3	0.6
Kent	5.3	804	95.8	0.7	2.5	0.1	0.9
L Barts	0.3	1,895	40.5	31.7	25.8	1.7	0.3
L Guys	18.9	1,362	65.7	29.0	3.1	1.3	0.9
L Kings	2.5	860	51.6	35.1	10.6	1.7	0.9
L Rfree	2.2	1,734	49.9	21.8	18.7	1.6	7.9
L St.G	11.7	635	56.9	22.7	11.5	2.4	6.6
L West	0.1	3,020	45.0	18.0	32.5	1.1	3.4
Leeds	6.6	1,346	80.8	3.9	13.8	0.0	1.5
Leic	4.0	1,849	77.3	3.5	17.7	0.3	1.1
Liv Ain	8.2	178	95.5	0.6	1.1	1.7	1.1
Liv RI	17.2	1,036	94.4	2.4	1.2	1.4	0.7
M RI	2.4	1,595	80.2	7.1	11.5	1.0	0.2
Middlbr	0.9	746	95.0	0.3	4.4	0.1	0.1
Newc	0.4	912	94.5	0.3	3.5	0.5	1.1
Norwch	9.3	555	97.3	0.5	1.1	0.7	0.4
Nottm	0.1	1,018	87.7	5.1	5.9	0.0	1.3
Oxford	5.2	1,369	85.8	3.6	7.9	0.7	2.0
Plymth	2.2	455	97.6	0.4	0.4	0.4	1.1
Ports	0.9	1,382	94.4	0.9	3.0	0.0	1.7
Prestn	0.0	1,023	84.8	1.0	13.6	0.0	0.7
Redng	10.9	613	70.1	6.5	20.1	0.7	2.6
Salford	0.2	844	82.2	1.5	14.6	0.5	1.2
Sheff	0.2	1,258	92.7	1.7	3.6	0.4	1.6
Shrew	0.0	342	95.0	1.2	2.9	0.3	0.6
Stevng	0.5	635	70.4	8.5	18.3	0.6	2.2
Sthend	0.0	214	83.6	5.6	3.3	1.9	5.6
Stoke	17.4	574	93.2	0.3	4.2	0.3	1.9
Sund	0.8	387	96.9	1.0	1.8	0.3	0.0
Truro	0.6	355	99.4	0.0	0.3	0.3	0.0
Wirral	2.5	235	94.9	0.0	2.6	1.3	1.3
Wolve	1.2	510	72.9	9.4	17.5	0.2	0.0
York	10.6	303	97.7	0.7	1.0	0.0	0.7

Table 2.10. Continued

Centre	Data not available	N with data	Percentage in each ethnic group				
			White	Black	S Asian	Chinese	Other
N Ireland							
Antrim	0.0	224	99.1	0.0	0.9	0.0	0.0
Belfast	1.3	677	99.0	0.1	0.7	0.1	0.0
Newry	0.0	191	99.5	0.0	0.0	0.5	0.0
Ulster	0.0	137	97.1	0.0	2.2	0.7	0.0
West NI	0.0	272	98.9	0.4	0.4	0.4	0.0
Scotland							
Abrdn	57.4	204					
Airdrie	67.4	112					
D & Gall	90.2	12					
Dundee	53.5	186					
Dunfn	80.9	53					
Edinb	92.9	50					
Glasgw	91.9	119					
Inverns	8.9	204	99.0	0.0	1.0	0.0	0.0
Klmarnk	55.0	135					
Wales							
Bangor	31.2	75	97.3	1.3	0.0	1.3	0.0
Cardff	21.5	1,205	93.6	1.1	4.0	0.6	0.7
Clwyd	22.8	105	99.0	0.0	0.0	1.0	0.0
Swanse	1.2	651	98.3	0.3	1.2	0.0	0.2
Wrexm	0.0	237	99.2	0.4	0.4	0.0	0.0
England	**5.4**	**42,254**	**77.4**	**8.3**	**11.9**	**0.7**	**1.7**
N Ireland	**0.6**	**1,501**	**98.9**	**0.1**	**0.7**	**0.3**	**0.0**
Scotland	**75.1**	**1,075**					
Wales	**15.1**	**2,273**	**95.9**	**0.7**	**2.5**	**0.4**	**0.4**
UK	**11.4**	**47,103**	**79.4**	**7.5**	**10.8**	**0.7**	**1.5**

Percentage breakdown is not shown for centres with less than 50% data completeness, but these centres are included in national averages
Blank cells – less than 50% data completeness
Appendix H ethnicity coding

2,007 pmp in 2010) in the age-group 75–79 years before showing a reducing prevalence rate in age groups over 80 years. Crude prevalence rates in males exceeded those of females for all age groups, peaking in age group 75–79 years at 2,918 pmp and for females in age group 65–69 years at 1,460 pmp. Survival of males and females on RRT is described in chapter 5.

Ethnicity

Fifty-one of the 71 centres (71.8%) provided ethnicity data that were at least 90% complete (table 2.10) and this was an improvement compared with 49 of 72 (68.1%) in 2010 and with 36 centres in 2006. Ethnicity completeness for prevalent RRT patients improved in the UK from 87.4% in 2010 to 88.6% in 2011 with 94.6% ethnicity completeness in England in 2011 and 99.4% in Northern Ireland. Completeness of ethnicity data was highest in prevalent transplant patients. This may relate to the fact that the intensive work-up for transplantation may increase the recording of data.

In 2011, 20.6% of the prevalent UK RRT population (with ethnicity assigned) were from ethnic minorities (22.6% in England). The proportion of the prevalent UK RRT population (with ethnicity assigned) from ethnic minorities in Wales, Scotland and Northern Ireland were very small, although it should be noted that there was a high level of missing ethnicity data in Scotland. The ONS estimates that approximately 12% of the UK general population are designated as belonging to an ethnic minority [1]. The number of patients reported to the UKRR as receiving RRT and belonging to an ethnic minority has doubled in the last 5 years which may be due to improvements in coding of ethnicity data as well as an increasing incidence of ERF and increased referral rates in these populations.

Amongst the centres with more than 50% returns there was wide variation in the proportion of patients

Table 2.11. Primary renal diagnosis in prevalent RRT patients by age and gender on 31/12/2011

Primary diagnosis[a]	N	% all patients	Inter-centre range %	Age <65 N	Age <65 %	Age ⩾65 N	Age ⩾65 %	M:F ratio
Aetiology uncertain	9,080	17.7	6.2–38.1	5,043	15.2	4,037	22.3	1.6
GN (biopsy proven)/GN (not biopsy proven)	9,744	19.0	1.1–22.8	7,218	21.8	2,526	14.0	2.1
Pyelonephritis	5,875	11.5	6.3–18.8	4,423	13.3	1,452	8.0	1.1
Diabetes	7,798	15.2	8.2–25.4	4,731	14.3	3,067	17.0	1.6
Polycystic kidney	5,033	9.8	1.7–16.8	3,382	10.2	1,651	9.1	1.1
Hypertension	2,946	5.8	0.5–14.9	1,644	5.0	1,302	7.2	2.5
Renal vascular disease	1,728	3.4	0.3–12.9	361	1.1	1,367	7.6	2.0
Other	7,775	15.2	5.0–39.4	5,550	16.7	2,225	12.3	1.3
Not sent	1,282	2.5	0.1–48.8	823	2.5	459	2.5	1.7

[a] Appendix H: ERA-EDTA coding
GN = glomerulonephritis
Excluded centres: ⩾40% primary renal diagnosis aetiology uncertain (Colchr), ⩾50% primary renal diagnosis not sent (L RFree)

from ethnic minorities, ranging from 0.5% in one centre (Carlisle) to over 50% in 3 centres: London Barts (59.5%), London West (55.0%) and London Royal Free (50.1%). Three additional centres had over 40% of prevalent patients from ethnic minorities: Bradford (43.0%), London Kings (48.4%) and London St Georges (43.1%). Thirteen of twenty-three (56.5%) transplanting centres had an ethnic minority population greater than 10% compared with 27.1% (13/48) of non-transplanting centres.

Ethnicity also impacted the median age of the prevalent cohort. Those centres with an ethnic minority population of >10% had a slightly lower median age (57 years vs. 59 years).

Primary renal diagnosis

Data for primary renal diagnosis (PRD) were not complete for 2.5% of patients and there remained a marked inter-centre difference in completeness of data returns (table 2.11). London Royal Free was excluded from the following analyses as it had ⩾50% primary renal diagnosis data missing. The UKRR remains concerned that some centres have very high rates of primary renal diagnosis coded as 'uncertain' (EDTA codes 00 and 10). It is accepted that inevitably there will be a number of patients with uncertain aetiology and that the proportion of these patients will vary as the definitions of renal vascular disease, hypertensive nephropathy and chronic glomerulonephritis (GN) without tissue diagnosis remain relatively subjective. However, some centres with very high rates of 'uncertain' as the primary renal diagnosis appear to also have fewer patients with the more objective diagnoses such as polycystic kidney disease or biopsy-proven GN. It is believed that the software in these centres defaults any missing data to 'uncertain' (EDTA code 00).

One centre with ⩾40% 'uncertain' primary renal diagnosis (Colchester, 47%) has been excluded from the inter-centre analysis and the UK and national totals have been adjusted. These centres with either a high proportion of primary renal diagnosis 'uncertain' or a high proportion of missing data have also been excluded from other analyses where PRD is included in the case-mix adjustment. There was wide inter-centre variation in the proportion of primary renal diagnoses in the RRT prevalent population not submitted, but this is improving in most centres. There were 4 centres with >15% not sent (Wirral 27.0%, Brighton 22.7%, Salford 17.4%, London Royal Free 50.2%). Uncertain primary renal diagnosis also ranged widely between centres and 3 centres had >30% uncertain diagnosis (Ipswich 30.6%, Liverpool RI 37.2%, Colchester 46.7%).

Glomerulonephritis remained the most common primary renal diagnosis in the 2011 prevalent cohort at 19.0% (table 2.11). The change in coding in this year's analysis from glomerulonephritis that is biopsy proven to including those that are not biopsy proven is reflected in an increase in prevalence from 16% in 2010 to 19% in 2011. Diabetes accounted for 15.2% of renal disease in the prevalent patients on RRT, although it was more common in the ⩾65 year age group compared to the younger group (17.0% vs. 14.3%). This contrasted with the pattern seen in incident patients where diabetes was the predominant specific diagnostic code in 25.0% of new RRT patients. This reflects the different ages and survival of patients with these diagnoses; it is the younger fitter patients who survive longest and contribute highly to the prevalent numbers. Younger

Table 2.12. Transplant:dialysis ratios by age and primary renal disease in the prevalent RRT population on 31/12/2011

	Transplant:dialysis ratio	
Primary diagnosis[a]	<65	⩾65
Aetiology uncertain	1.8	0.3
GN (biopsy proven)/GN (not biopsy proven)	2.2	0.7
Pyelonephritis	2.4	0.4
Diabetes	0.8	0.1
Polycystic kidney	2.2	1.3
Hypertension	1.1	0.3
Renal vascular disease	0.9	0.1
Other	1.8	0.3
Not sent	1.4	0.2

[a] Appendix H ERA-EDTA coding
GN = glomerulonephritis
Excluded centres: ⩾40% primary renal diagnosis aetiology uncertain (Colchr), ⩾50% primary renal diagnosis not sent (L RFree)

patients (age <65 years) are more likely to have GN or pyelonephritis and less likely to have renal vascular disease or hypertension as the cause of their renal failure.

The male:female ratio was greater than unity for all primary renal diagnoses (table 2.11). The gender imbalance may be influenced by the presence of factors such as hypertension, atheroma and renal vascular disease, which are more common in males, more common with increasing age and which may increase the rate of progression of kidney disease.

In individuals aged less than 65 years, renal transplantation to dialysis ratio was greater than 1 in all PRD groups except diabetes and renovascular disease. In those aged >65 years, dialysis was more prevalent than renal transplantation in all PRD groups except PKD (table 2.12).

Diabetes

Diabetes included all prevalent patients with type 1 or type 2 diabetes as primary renal diagnosis (ERA-EDTA coding) and did not include patients with diabetes as a comorbidity. This analysis did not differentiate between type 1 and type 2 diabetes as this distinction was not made in the data submitted by most centres.

The number of prevalent patients with diabetes as a primary renal diagnosis increased 7% to 7,798 in 2011, from 7,282 in 2010, representing 14.7% of all prevalent patients (compared with 13.5% in 2006) (table 2.13). The median age at start of RRT for patients with diabetes (56 years) was 9 years higher compared with patients without diabetes (47 years), although the median age at the end of 2011 for prevalent diabetic patients was only 3.5 years higher than for individuals without diabetes. This reflects

Table 2.13. Age relationships in diabetic and non-diabetic patients and modality in prevalent RRT patients on 31/12/2011

	Diabetic patients	Non-diabetic patients
Number	7,798	42,181
M:F ratio	1.60	1.54
Median age on 31/12/2011	61	58
Median age at start of RRT	56	47
Median years on RRT	3.4	6.5
% HD	61	40
% PD	9	7
% transplant	30	53

Excluded centres: ⩾40% primary renal diagnosis aetiology uncertain (Colchr), ⩾50% primary renal diagnosis not sent (L RFree)
Diabetic patients: patients with a primary renal disease code of diabetes
Non-diabetic patients: all patients excluding diabetic patients and patients with a missing primary renal disease code
Median age at start of RRT was calculated from the most recent RRT start date
Patients with an initial treatment modality of transferred in or transferred out were excluded from the calculation of median age at start of RRT and median years on RRT, since their treatment start date was not accurately known
Patients without a treatment modality code were excluded from calculating the % per treatment modality

reduced survival for patients with diabetes compared with patients without diabetes on RRT. Median time on RRT for patients with diabetes was less when compared with patients without diabetes (3.4 years vs. 6.5 years) and this difference in survival between diabetic patients and non-diabetic patients has not changed over the last 5 years. Patients with diabetes starting RRT in Scotland were 3 years younger and in Northern Ireland 3 years older compared with the UK average age of patients with diabetes starting RRT (data not shown).

Diabetes as the primary renal diagnosis also influenced the modality distribution. The predominant mode of treatment for patients with diabetes was HD (61%) compared with 40% in individuals who had a different primary renal diagnosis (table 2.13). The percentage of patients with a functioning transplant was much lower in prevalent patients with diabetes than in prevalent patients without diabetes (30% vs. 53%). However, the proportion of patients with diabetes as PRD with a functioning transplant has increased since 2004 when only 26% of patients with diabetes had a functioning transplant. For older patients with diabetes (age ⩾65 years), 9.0% had a functioning transplant compared with 28.8% of their peers without diabetes (table 2.14). In Northern Ireland, 23.4% of prevalent patients with diabetes had a functioning transplant compared with the UK average of 30.2%

Table 2.14. Treatment modalities by age and diabetes status in UK countries on 31/12/2011

	<65 years		⩾65 years	
	Diabetes	Non-diabetic	Diabetes	Non-diabetic
Number	4,731	27,621	3,067	14,560
% HD	47.9	28.4	81.1	62.2
% PD	8.1	5.7	9.9	9.0
% transplant	44.0	65.9	9.0	28.8

Excluded centres: ⩾40% primary renal diagnosis aetiology uncertain (Colchr), ⩾50% primary renal diagnosis not sent (L RFree)
Diabetic patients: patients with a primary renal disease code of diabetes
Non-diabetic patients: all patients excluding diabetic patients and patients with a missing primary renal disease code
Excludes all patients without a treatment modality code

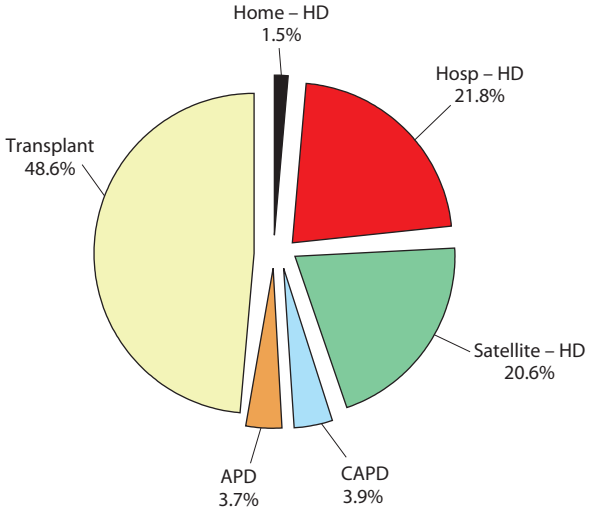

Fig. 2.6. Treatment modality in prevalent RRT patients on 31/12/2011

although on average the Northern Ireland patients with diabetes were older by three years (data not shown). A higher proportion of prevalent patients without diabetes (18.0%) were on home dialysis therapies (home HD and PD) compared with prevalent patients with diabetes (14.0%).

Modalities of treatment

Transplantation was the most common treatment modality (48.6%) for prevalent RRT patients in 2011, followed closely by centre-based HD (42.4%) in either hospital centre (21.8%) or satellite unit (20.6%) (figure 2.6). Home therapies made up the remaining 9.1% of treatment therapies, largely PD in its different formats (7.6%) which was similar to 2010. The proportion on continuous ambulatory peritoneal dialysis (CAPD) and automated PD (APD) was 3.9% and 3.7% respectively, though the proportion on APD may be an under-estimate due to centre level coding issues which mean the UKRR cannot always distinguish between these therapies. The term CAPD has been used for patients receiving non-disconnect as well as disconnect CAPD systems, because the proportion of patients using non-disconnect systems was very small.

As mentioned earlier, treatment modality was related to patient age. Younger patients (age <65 years), were more likely to have a functioning transplant (62.7%) when compared with patients aged over 65 years (25.0%) (table 2.15). HD was the principal modality in the older patients (65.7%). In the elderly using the proportion of renal replacement therapy patients transplanted can be misleading as this depends on approaches to dialysis and conservative care in this age group.

Figure 2.7 shows the association between age and RRT modality. Beyond 54 years of age, transplant prevalence declined, whilst HD prevalence increased. The proportion of each age group treated by PD remained more stable across the age spectrum.

The proportion of prevalent dialysis patients receiving HD, ranged from 64.9% in Derby to 100% in Colchester (table 2.16).

Table 2.15. Percentage of prevalent RRT patients by dialysis and transplant modality by centre on 31/12/2011

	<65 years				⩾65 years			
Country	N	% HD	% PD	% transplant	N	% HD	% PD	% transplant
England	28,854	31.3	6.2	62.5	15,789	65.5	9.4	25.1
N Ireland	941	32.7	4.8	62.5	569	73.3	5.8	20.9
Scotland	2,952	32.6	4.9	62.6	1,372	66.8	7.7	25.5
Wales	1,675	27.0	6.4	66.5	1,002	63.8	10.1	26.1
UK	**34,422**	**31.2**	**6.1**	**62.7**	**18,732**	**65.7**	**9.2**	**25.0**

All patients without a treatment modality code were excluded

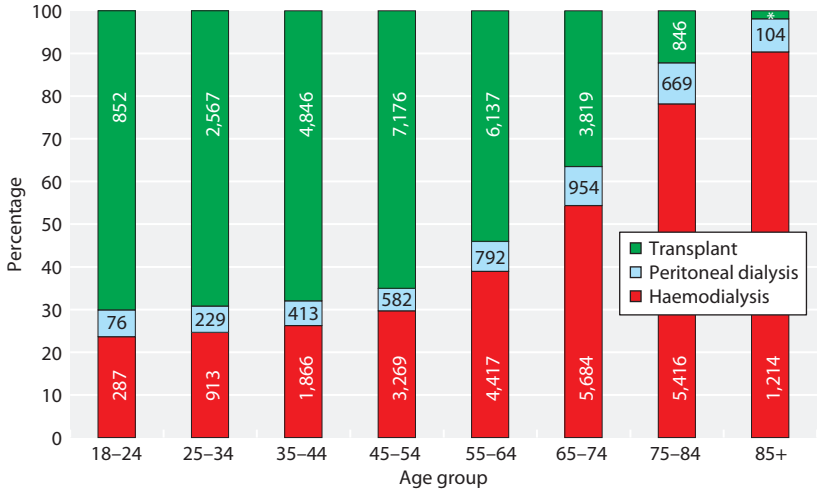

Fig. 2.7. Treatment modality distribution by age in prevalent RRT patients on 31/12/2011

Overall, the proportion of dialysis patients treated in a satellite haemodialysis unit has increased to 41.5% this year compared to 39.9% in 2010, and 36% in 2009. Although there are satellite units in Scotland, the data provided for 2011 did not distinguish between main centre and satellite unit haemodialysis. In 2011, the number of centres that had more than 50% of their haemodialysis activity taking place in satellite units was 25, a slight decline from 2010 (table 2.16 and figure 2.8). There was also wide variation between centres in the proportion of dialysis patients on APD treatment, ranging from 0% to 21.4% (table 2.16). Ten of the 70 centres with a PD programme had no patients on APD, whilst in four Northern Ireland centres almost all PD patients were on this form of the modality.

Home haemodialysis

The use of home HD as a RRT peaked in 1982 when almost 2,200 patients were estimated to be on this therapy, representing 61% of HD patients reported to the ERA-EDTA registry at that time. The fall in the use of this modality to just 445 patients (2.4% of HD patients) in 2006 was probably due to an increase in availability and uptake of renal transplantation, and also the similar expansion of hospital HD provision with the introduction of satellite units. In the last seven years there has been renewed interest in home HD and a target of 15% of HD patients on this modality has been suggested [5]. Equipment changes and patient choice has helped drive this change. Since 2006 there has been a gradual increase in the proportion of prevalent patients receiving haemodialysis in their own homes so that in 2011 it reached 3.9% of HD patients (n = 905, figure 2.2 and table 2.16). These numbers may be an under-estimate as some centres have been unable to submit data for patients coded as home HD and work is on-going to address this.

In 2011, the percentage of dialysis patients receiving home HD varied from 0% in 9 centres, to greater than 5% in 16 centres (table 2.16). In the UK, the overall prevalence of home haemodialysis has increased from 2.9% in 2010 to 3.4% in 2011.

The proportion of patients receiving home haemodialysis was greatest in Wales at 5.9%, compared with 3.7% in N.Ireland, 3.3% in England and 2.6% in Scotland (figure 2.8, table 2.16). These proportions are similar to 2010. Forty-three renal centres in England had an increase in the proportion of individuals on home haemodialysis compared with 2010.

In 2007, for comparison, the proportion of patients receiving home haemodialysis was 2% in each of the four UK countries.

Change in modality

The relative proportion of RRT modalities in prevalent patients has changed dramatically over the past decade. The main features are depicted in figure 2.9, which describes a sustained decrease in the proportion of patients treated by PD after 2000. Possible explanations for this change include recently published evidence indicating that the equivalent survival demonstrated between HD and PD was only maintained for the first 2–3 years [6] and recent concerns regarding the risk of encapsulating peritoneal sclerosis which might result in patients being switched from PD to HD after a fixed time interval. Analysis of UKRR data has not supported this explanation however as the vintage of PD patients has not changed substantially over the last 8 years. The

Table 2.16. Percentage of prevalent dialysis patients by dialysis modality by centre on 31/12/2011

		Haemodialysis				Peritoneal dialysis	
Centre	N	Total	Home	Hospital	Satellite	CAPD	APD
England							
B Heart	492	90.6	4.7	78.9	7.1	6.3	3.1
B QEH	1,061	84.3	4.4	10.7	69.2	8.0	7.7
Basldn	181	85.6	0.0	85.1	0.6	6.1	8.3
Bradfd	228	86.0	0.0	71.9	14.0	1.3	12.7
Brightn	420	81.0	6.2	41.0	33.8	9.1	10.0
Bristol	540	87.8	6.3	14.4	67.0	6.1	6.1
Camb	412	90.1	2.7	38.4	49.0	0.0	0.5
Carlis	90	73.3	0.0	54.4	18.9	14.4	12.2
Carsh	856	88.0	1.8	31.0	55.3	3.2	8.9
Chelms	145	82.1	0.0	82.1	0.0	9.7	7.6
Colchr	120	100.0	0.0	100.0	0.0	0.0	0.0
Covnt	452	80.1	3.1	77.0	0.0	19.9	0.0
Derby[a]	319	64.9	5.6	59.3	0.0	26.7	8.5
Donc	188	86.2	0.5	47.9	37.8	0.5	13.3
Dorset	292	81.9	0.7	20.6	60.6	5.8	12.0
Dudley	199	73.4	2.0	48.2	23.1	16.6	10.1
Exeter	454	82.8	0.7	9.3	72.9	8.6	8.6
Glouc	233	83.3	0.4	82.8	0.0	4.3	12.5
Hull	412	78.4	1.9	35.9	40.5	8.5	13.1
Ipswi	156	80.1	3.2	65.4	11.5	10.9	9.0
Kent	444	84.7	4.3	31.1	49.3	15.3	0.0
L Barts	1,070	84.0	1.1	32.4	50.5	6.4	9.6
L Guys	640	94.9	5.8	24.4	64.7	2.3	2.8
L Kings	557	84.0	1.1	19.4	63.6	5.9	10.1
L Rfree	805	88.3	1.7	2.6	84.0	2.7	8.9
L St.G	349	84.2	1.7	41.6	41.0	3.7	11.8
L West	1,447	97.6	0.8	24.3	72.4	1.2	1.2
Leeds	605	84.8	2.0	19.2	63.6	4.1	11.1
Leic	1,013	84.3	3.9	17.3	63.2	5.7	10.0
Liv Ain	194	92.3	2.6	17.5	72.2	1.0	6.7
Liv RI	455	83.7	5.7	37.1	40.9	7.5	8.8
M RI	572	84.1	11.5	31.1	41.4	3.3	12.6
Middlbr	333	94.6	3.6	32.1	58.9	5.1	0.3
Newc	313	84.7	6.4	78.3	0.0	2.9	12.5
Norwch	368	84.0	4.4	47.3	32.3	12.5	3.5
Nottm	494	81.4	6.3	38.7	36.4	9.7	8.9
Oxford	511	82.0	3.7	37.6	40.7	5.5	12.5
Plymth	179	73.7	2.8	71.0	0.0	21.2	4.5
Ports	619	84.7	0.7	21.2	62.8	15.4	0.0
Prestn	585	88.9	6.0	16.9	66.0	3.4	7.7
Redng	360	75.6	0.3	36.9	38.3	23.9	0.6
Salford	476	76.3	4.2	31.1	41.0	15.3	8.4
Sheff	653	90.5	6.6	36.6	47.3	9.5	0.0
Shrew	222	84.2	4.5	49.6	30.2	15.8	0.0
Stevng	442	93.2	5.0	48.2	40.1	6.8	0.0
Sthend	140	87.1	2.1	85.0	0.0	12.9	0.0
Stoke	400	79.5	3.8	54.5	21.3	4.3	16.3
Sund	195	91.3	1.0	67.2	23.1	4.6	4.1
Truro	178	85.4	0.6	49.4	35.4	4.5	10.1
Wirral	238	82.4	0.0	65.1	17.2	2.9	14.7
Wolve	378	81.2	2.7	23.0	55.6	18.8	0.0
York	169	85.2	4.1	53.3	27.8	14.8	0.0

Table 2.16. Continued

Centre	N	Haemodialysis				Peritoneal dialysis	
		Total	Home	Hospital	Satellite	CAPD	APD
N Ireland[b]							
Antrim	146	90.4	2.7	87.7	0.0	2.7	6.9
Belfast	258	88.4	5.8	82.6	0.0	1.2	10.1
Newry	123	90.2	2.4	87.8	0.0	0.0	9.8
Ulster	108	97.2	3.7	93.5	0.0	0.0	2.8
West NI	168	88.7	2.4	86.3	0.0	0.6	10.7
Scotland[c]							
Abrdn	237	90.3	1.7	88.6	0.0	4.6	5.1
Airdrie	183	94.5	0.0	94.5	0.0	1.6	3.8
D & Gall	63	77.8	1.6	76.2	0.0	6.4	15.9
Dundee	205	89.3	0.0	89.3	0.0	2.0	8.8
Dunfn	174	83.9	0.0	83.9	0.0	0.0	16.1
Edinb	301	86.7	2.0	84.7	0.0	4.0	9.3
Glasgw	671	92.7	4.9	87.8	0.0	2.1	5.2
Inverns	101	82.2	5.0	77.2	0.0	6.9	10.9
Klmarnk	192	76.6	3.7	72.9	0.0	2.1	21.4
Wales							
Bangor	109	80.7	11.9	52.3	16.5	5.5	13.8
Cardff	597	82.9	5.4	16.8	60.8	12.4	4.7
Clwyd[d]	71	88.7	5.6	83.1	0.0	9.9	1.4
Swanse	416	86.1	6.5	50.0	29.6	10.6	3.4
Wrexm	108	81.5	0.9	75.9	4.6	18.5	0.0
England	**22,654**	**85.5**	**3.3**	**35.2**	**47.0**	**7.5**	**6.8**
N Ireland[b]	**803**	**90.3**	**3.7**	**86.6**	**0.0**	**1.0**	**8.6**
Scotland[c]	**2,127**	**88.3**	**2.6**	**85.7**	**0.0**	**2.8**	**8.9**
Wales	**1,301**	**83.9**	**5.9**	**38.9**	**39.1**	**11.6**	**4.5**
UK	**26,885**	**85.8**	**3.4**	**40.9**	**41.5**	**7.1**	**6.9**

[a] In 2010 it was reported that Derby had a home haemodialysis prevalence of 14.3%. This was inaccurate due to a data error. The actual prevalence was 2.8%
[b] There are no satellite centres in Northern Ireland
[c] All haemodialysis patients in Scotland are shown as receiving treatment at home or in centre as no data is available regarding satellite dialysis
[d] 13 HD and 12 PD patients from Clwyd were not included in this analysis

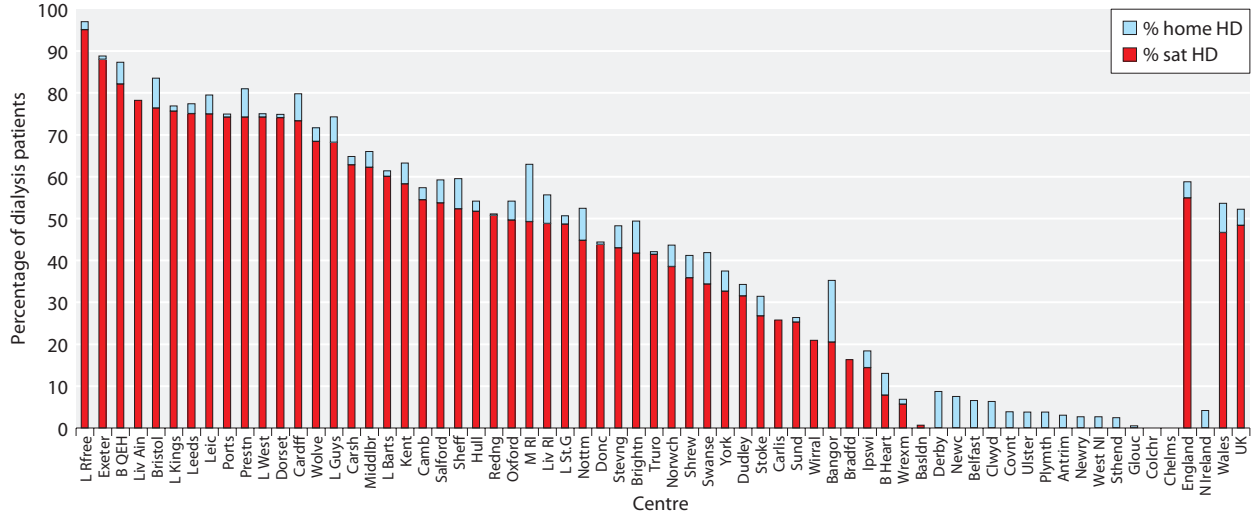

Fig. 2.8. Percentage of prevalent haemodialysis patients treated with satellite or home haemodialysis by centre on 31/12/2011
* Scottish centres excluded as information on satellite HD was not available. No centres in Northern Ireland have satellite dialysis units

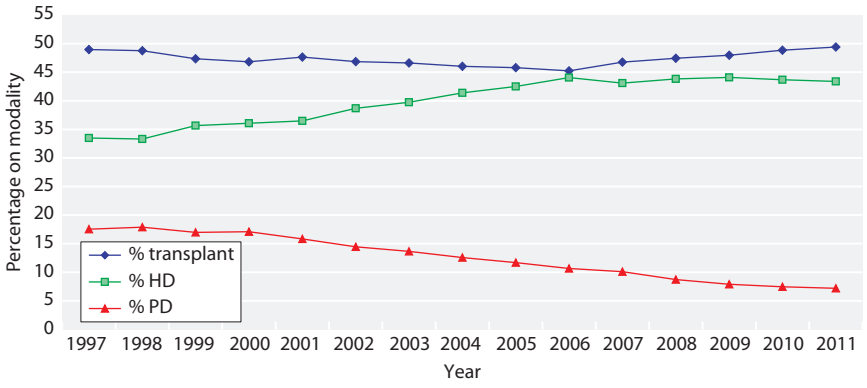

Fig. 2.9. Modality changes in prevalent RRT patients from 1997–2011

reduction in prevalent PD patients can be explained due to a decrease in the number of new patients who were started on peritoneal dialysis in 2010 and 2011 and also to the declining proportion of patients starting RRT on peritoneal dialysis since 2001. The determinants of this pattern may be multi-factorial and include: an increase in HD capacity with the proliferation of satellite units (figure 2.10), the effect of patient or physician choice regarding the treatment modality at start of RRT, the general health and fitness of patients starting RRT, some of whom may be deemed less capable of undertaking PD independently, and the rise in the number of patients receiving a live related transplant who may otherwise have gone onto PD. With the advent of assisted PD (more commonly used in France) [7] in conjunction with the increasing age of PD patients, there may be potential for some reversal or slowing in this decline. The proposed introduction of dialysis tariffs in England may well result in further changes to the types of treatment patients receive in England.

The proportion of patients treated with HD has plateaued in the last three years. The proportion of patients with a functioning transplant had been on a slight downward trend but this has reversed since 2007, probably due to continued increases in living organ and non-heart beating donation [8].

Figure 2.10 depicts in more detail the modality changes in the prevalent dialysis population during this time and highlights a sustained reduction in the proportion of patients treated by CAPD. There was a sustained increase in the proportion of prevalent HD patients treated at satellite units with a steady decline in hospital centre haemodialysis since 2004.

International comparisons

For international comparisons 2010 prevalence rates are given as 2011 data were not available from the other

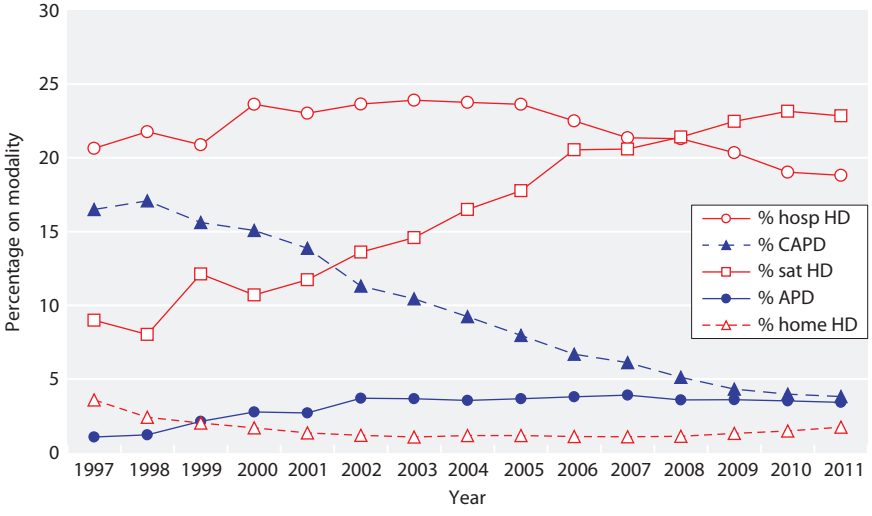

Fig. 2.10. Detailed dialysis modality changes in prevalent RRT patients from 1997–2011
* Scottish centres excluded as information on satellite HD was not available

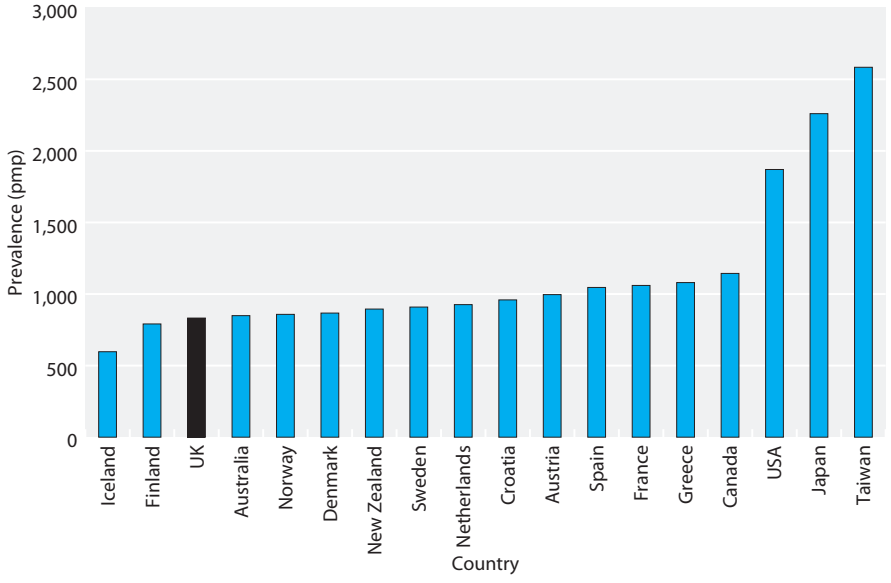

Fig. 2.11. RRT prevalence rates (pmp) by country in 2010
Non UK data from USRDS

countries. Prevalence rates in the UK were similar to those in most other Northern European countries but lower than in Southern Europe and Belgium and far lower than in the USA (figure 2.11). This will in part reflect differences in incidence rates and also conservative management practices between countries in addition to other individual level and health care system differences.

Summary

There continues to be growth across the UK in prevalent patients on RRT with regional and centre level variation. There was no real difference in prevalence rates between the four nations of the UK once adjusted for background population characteristics. In general, areas with large ethnic minority populations had higher standardised prevalence ratios. There were increasing numbers of patients on HD and those with a functioning transplant and falling numbers on PD. The prevalence rate in the over 80 year olds has doubled since 2005. There have been substantial increases in home HD use in some areas although several centres are still unable to offer this modality.

Conflicts of interest: none

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