
Chapter 4

ESRD prevalent rates in 2007 in the UK: national and centre-specific analyses

Ken Farrington^a, Alex Hodsman^b, Anna Casula^b, David Ansell^b and John Feehally^c

^aLister Hospital, Stevenage, UK; ^bUK Renal Registry, Bristol, UK; ^cLeicester General Hospital, Leicester, UK

Key Words

Comorbidity · Diabetes · Dialysis · End Stage Renal Disease · End Stage Renal Failure · Ethnicity · Haemodialysis · Peritoneal dialysis · Prevalence · Primary Care Trust · Renal replacement therapy · Transplantation · Treatment modality

Abstract

Introduction: This chapter describes the demographics of UK RRT patients in 2007. **Methods:** Complete data were electronically collected from 71 UK centres with the remaining 1 centre submitting summary data. A series of cross-sectional and longitudinal analyses were performed to describe the demographics of prevalent UK RRT patients in 2007 at a centre and a national level. **Results:** There were 45,484 adult patients receiving RRT on 31/12/2007. The population prevalence for adults was 746 per million population per year (pmp) with an annual increase in prevalence of approximately 5% per annum. There was substantial variation in standardised prevalence ratios between Primary Care Trust (PCT)/Health Authority (HA) areas which were associated with geographical factors and differences in ethnicity with mean standardised prevalence ratios (SPR) significantly higher in PCTs/HAs with a high proportion of ethnic minorities. The median age of prevalent RRT patients was 57 years (HD 65 years, PD 60 years, transplant 50 years). Median RRT vintage was 5.3 years (HD 2.8 years, PD 2.1 years, transplant 10.4 years). For all ages, crude prevalence rates in males exceeded

those in females, peaking in the 75–79 year age band for males at 2,506 pmp and in females in the 70–74 year age band at 1,314 pmp. The most common identifiable diagnosis was glomerulonephritis (15.3%) but in those over 65 it was diabetes (15.1%). The most common treatment modality was transplantation (46.6%), closely followed by centre-based HD (42.1%) in either the primary centre (25.2%) or the satellite unit (16.9%). The HD population has continued to expand, and the PD population to contract. HD was increasingly prominent with increasing age at the expense of transplantation. **Conclusions:** There were national, area and dialysis centre level variation in the prevalent UK RRT population. This has implications for service planning and ensuring equity of care for RRT patients.

Introduction

The UK Renal Registry collected data from 72 (100%) UK renal centres. Seventy one centres submitted an electronic dataset and one centre submitted summary data including prevalent patient numbers.

These analyses of prevalent RRT patients are performed annually in conjunction with a similar analysis of incident patients 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 this planning process. In addition, 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 of End Stage Renal Failure (ESRF) and End Stage Renal Disease (ESRD) which are in more widespread international usage. Within the UK, patient groups have disliked the term 'End Stage' which formerly reflected the inevitable outcome of this disease.

Methods

These analyses relate to the prevalent RRT cohort in the UK in 2007 (chapter 15 and appendix B). The cohort was defined as all adult patients prevalent on RRT on the UK Registry database on 31/12/2007. Population estimates were obtained from the UK Office of National Statistics (ONS) [1].

Total numbers of prevalent RRT patients were calculated for the UK as a whole and by UK countries using UK Renal Registry (UKRR) data where possible but also including summary data from the centre not currently submitting data electronically. This was analysed with ONS data to calculate the prevalence of RRT pmp with 95% confidence intervals. The numbers of prevalent patients split by dialysis modality was calculated for each centre and compared to previous years both for all centres (including percentage change from 2006 to 2007) and centres continuously reporting to the Registry since 2000 (including percentage change from 2000 to 2007). To explore the effect of centre size on modality distribution, centres were also divided into quartiles by total number of RRT patients and the proportion of patients for each modality was calculated for each quartile.

The prevalence of RRT by PCT and standardised prevalence ratios (SPR) were calculated (2008 Report appendix D www.renalreg.org). Age and gender specific prevalence was first calculated using the available Registry data on the number of prevalent patients for the covered area in England, Wales, Scotland and Northern Ireland. The data on the age and gender breakdown of the population of each PCT area was obtained from the ONS mid 2006 estimates which were derived from the 2001 census data. The age and gender specific prevalence was then used to calculate the expected prevalence for each PCT area. The age and gender standardised ratio is therefore equal to (observed prevalence)/(expected prevalence). A ratio of 1 indicates that the PCT area's prevalence was as expected if the age/gender rates found in the total covered population applied to the PCT area's population structure; a level above 1 indicates that the observed prevalence was greater than expected given the PCT area's population structure; if the lower confidence limit was above one this is statistically significant at the 5% level. The converse applies to standardised prevalence rate ratios under one. Prevalence estimates of RRT in relatively small populations such as those covered

by individual Primary Care Trusts incur wide confidence intervals for any observed frequency.

To enable assessment of whether a centre was an outlier, funnel plots for smaller and larger populations have been included which show the 95% confidence intervals around the national average prevalence. PCTs in each region were then classified as having a low (below 95% CI), normal or high (above 95% CI) SPR.

ONS data were used to calculate the mean proportion of non-White people in each region weighted by PCT size. Ethnicity data were also obtained from the ONS (2001 census).

A series of analyses were performed to explore case mix differences between prevalent RRT patients. These included RRT vintage, age, gender, ethnicity, primary renal diagnosis and diabetic status (2008 Report appendix G). Patients were excluded from these analyses if the treatment modality was not known. RRT vintage was defined as median time on treatment and was calculated from the most recent start date. Vintage was calculated for each modality and the whole RRT cohort. Patients were excluded from this analysis if an accurate start date was unknown e.g. patients transferring centres. The distribution of RRT patients was analysed by age, gender, ethnicity, primary renal disease and diabetes and where appropriate split by dialysis modality. Centre level differences in age and ethnicity were also calculated.

The distribution of prevalent patients by RRT treatment modality was analysed both by centre and country. A longitudinal analysis was performed to analyse changes in use of modality for prevalent patients over time.

The data were analysed using SAS 9.1.3. A number of statistical tests were used to test for significant differences between groups. Parametric data were analysed using t-tests and Pearson correlation coefficients. Non-parametric data were analysed using Wilcoxon rank sum test and Spearman correlation coefficients.

Results

Prevalent patients numbers and changes in prevalence

The numbers of patients calculated for each country (table 4.1) (by adding the patient numbers in each renal centre) differ marginally from those quoted elsewhere when patients are allocated to areas by their individual post codes, as some centres treat patients across national boundaries.

Prevalent patient numbers

The analysis includes summary statistics from the one centre not contributing data to the UKRR, and excludes those without a treatment modality code. There were 45,484 adult patients receiving RRT in the UK at the end of 2007, giving a UK population prevalence for adults of 746 pmp (table 4.1), an increase from 724 pmp in 2006 [2]. Prevalence increased in each of the four UK countries and remained lower in England (736 pmp) than in Wales (798 pmp), Scotland (797 pmp)

Table 4.1. Prevalence of RRT therapy in adults in the UK 31/12/07

	England	Wales	Scotland	N Ireland	UK
All UK centres	37,614	2,377	4,101	1,392	45,484
Total population, mid-2007(millions)*	51.1	3.0	5.1	1.8	61.0
Prevalence pmp HD	318	339	346	393	323
Prevalence pmp PD	74	109	77	60	76
Prevalence pmp dialysis	392	448	423	453	399
Prevalence pmp transplant	344	350	374	338	347
Prevalence pmp total	736	798	797	791	746
Confidence intervals total	729–744	766–830	773–822	750–833	739–753

* estimates from ONS web site

and Northern Ireland (791 pmp). Figure 4.1 shows the distribution of treatment modalities in relation to the number of prevalent RRT patients. The prevalence rate for each of the UK countries is shown in figure 4.2.

Prevalent patients by RRT centre

Both the number of prevalent patients in each renal centre and the distribution of their treatment modalities varied widely (table 4.2). Many factors contributed to this including geography, local population density, age distribution, ethnic composition and social deprivation index of that population. Local facilities, preferences and centre transplanting status also played a role in determining the modality distribution. The 23 transplant centres had higher median prevalent numbers in all modalities than non-transplanting centres ($p < 0.001$

for all modalities), and also had a higher transplant number/dialysis number ratio (1.26 vs. 0.53: $p < 0.001$). The wide variability in this ratio both in transplanting (0.78–2.03) and non-transplanting (0–1.08) centres suggests considerable variation in transplant follow-up policies.

The distribution of treatment modalities was also dependent on centre size, in terms of the number of RRT patients. As centre size increased the proportion of transplant patients increased at the expense of the proportion of haemodialysis patients. The proportion of transplanting centres increased through the size quartiles (Q1 = 0%, Q2 = 6%, Q3 = 28%, Q4 = 94%). The only transplanting centre in Q2 was Plymouth and the only non-transplanting centre in Q4 was Carshalton (which was a transplanting centre up to 2003).

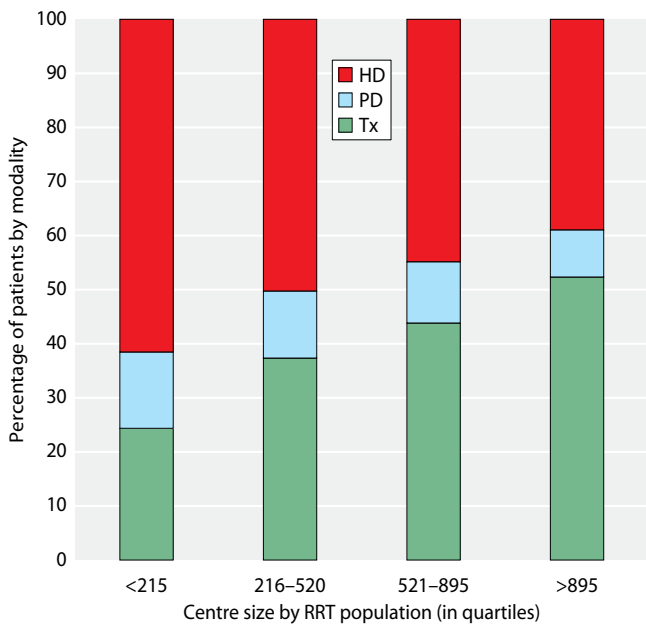


Fig. 4.1. Distribution of treatment modalities in relation to the number of prevalent RRT patients (displayed in quartiles)

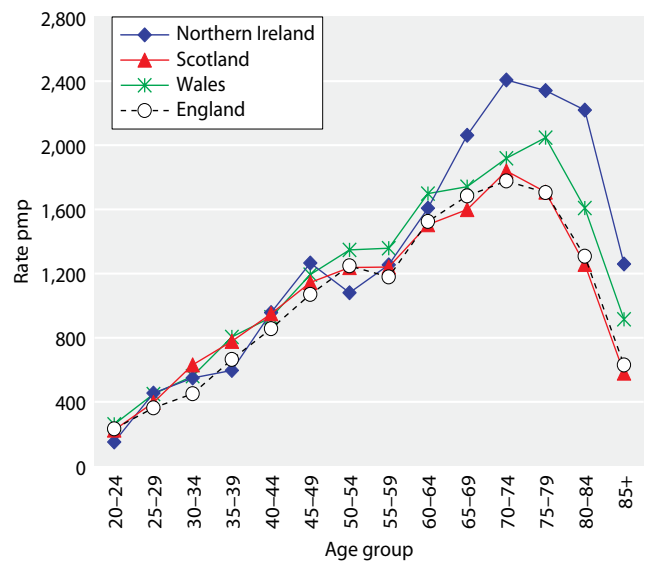


Fig. 4.2. Prevalent rate per million population by age band and UK country

Table 4.2. Number of prevalent patients per treatment modality by centre on 31/12/07

Country	Centre	HD	PD	Dialysis	Transplant	RRT
England	B Heart	387	34	421	157	578
	B QEH*	764	132	896	730	1,626
	Basldn	132	31	163	42	205
	Bradfd	178	43	221	174	395
	Brightn	333	87	420	265	685
	Bristol*	463	81	544	690	1,234
	Camb*	356	50	406	529	935
	Carlis	86	13	99	103	202
	Carsh	561	128	689	476	1,165
	Chelms	108	42	150	38	188
	Colchester	100	0	100	0	100
	Covnt*	308	77	385	332	717
	Derby	204	78	282	19	301
	Donc	58	38	96	11	107
	Dorset	159	55	214	238	452
	Dudley	114	61	175	80	255
	Exeter	300	82	382	282	664
	Glouc	176	34	210	116	326
	Hull	310	90	400	272	672
	Ipswi	101	50	151	132	283
	Kent	289	98	387	240	627
	L Barts*	583	240	823	650	1,473
	L Guys*	481	64	545	850	1,395
	L Kings	344	86	430	282	712
	L RFree*	610	125	735	702	1,437
	L St.G*	204	53	257	310	567
	L West*	1,056	67	1,123	1,039	2,162
	Leeds*	506	105	611	768	1,379
	Leic*	675	203	878	716	1,594
	Liv Ain	115	0	115	0	115
	Liv RI*	421	90	511	763	1,274
	M Hope	321	135	456	303	759
	Man RI*	402	123	525	877	1,402
	Middlbr	291	29	320	367	687
	Newc*	250	54	304	534	838
	Norwch	260	64	324	171	495
	Nottm*	369	147	516	455	971
	Oxford*	342	147	489	839	1,328
	Plymth*	131	44	175	246	421
	Ports*	403	102	505	677	1,182
	Prestn	418	82	500	355	855
	Redng	230	98	328	217	545
	Sheff*	566	93	659	513	1,172
	Shrew	162	41	203	82	285
Stevng	329	43	372	176	548	
Sthend	122	20	142	53	195	
Stoke	256	96	352	236	588	
Sund	165	15	180	164	344	
Truro	156	27	183	103	286	
Wirral	182	34	216	0	216	
Wolve	275	62	337	104	441	
York	115	26	141	90	231	
Wales	Bangor	65	33	98	0	98
	Cardff*	494	159	653	785	1,438
	Clwyd	71	19	90	65	155
	Swanse	301	82	383	161	544
	Wrexm	79	33	112	30	142

Table 4.2. Continued

Country	Centre	HD	PD	Dialysis	Transplant	RRT
Scotland	Abrdn	212	35	247	205	452
	Airdrie	148	23	171	59	230
	D & Gall	50	16	66	11	77
	Dundee	170	29	199	177	376
	Dunfn	112	25	137	83	220
	Edinb*	272	77	349	371	720
	Glasgw*	599	104	703	902	1,605
	Inverns	85	40	125	82	207
	Klmarnk	130	47	177	37	214
Northern Ireland	Antrim	129	16	145	55	200
	Belfast*	262	63	325	423	748
	Derry	52	4	56	6	62
	Newry	86	14	100	47	147
	Tyrone	83	5	88	61	149
	Ulster	79	3	82	4	86
Totals	England	16,227	3,819	20,046	17,568	37,614
	N Ireland	691	105	796	596	1,392
	Scotland	1,778	396	2,174	1,927	4,101
	Wales	1,010	326	1,336	1,041	2,377
	UK	19,706	4,646	24,352	21,132	45,484

* Transplanting centres

Italics, centre returned summary data

Changes in prevalence

Overall growth in the prevalent UK RRT population between 2006 and 2007 was 11.8% (table 4.3). The growth in England (13.1%) and Wales (10.8%)

outstripped that in Scotland (5.0%) and Northern Ireland (2.9%). There were large variations between centres. Growth increased by 96.2% in Clwyd, 82.4% in Derry and 30.6% in London West and decreased by

Table 4.3. Number of patients on RRT by centre 2004–2007

Centre	Date				% change 2006–2007
	31/12/2004	31/12/2005	31/12/2006	31/12/2007	
Abrdn	388	415	428	452	5.6
Airdrie	181	171	233	230	-1.3
Antrim		188	200	200	0.0
B Heart	503	538	578	578	0.0
B QEH	1,420	1,514	1,555	1,626	4.6
Bangor	93	101	103	98	-4.9
Basldn	161	168	186	205	10.2
Belfast		738	750	748	-0.3
Bradfd	324	361	365	395	8.2
Brightn	591	615	647	685	5.9
Bristol	1,089	1,158	1,200	1,234	2.8
Camb	766	816	905	935	3.3
Cardff	1,218	1,267	1,334	1,438	7.8
Carlis	179	183	188	202	7.4
Carsh	957	994	1,101	1,165	5.8
Chelms	138	134	155	188	21.3
Clwyd	70	83	79	155	96.2
Covnt	602	636	675	717	6.2
D & Gall	61	69	76	77	1.3
Derby	274	279	301	301	0.0
Derry			34	62	82.4

Table 4.3. Continued

Centre	Date				% change 2006–2007
	31/12/2004	31/12/2005	31/12/2006	31/12/2007	
Donc				107	0.0
Dorset	368	382	395	452	14.4
Dudley	254	257	261	255	-2.3
Dundee	319	355	362	376	3.9
Dunfn	136	150	156	220	41.0
Edinb	649	669	701	720	2.7
Exeter	570	580	621	664	6.9
Glasgw	1,517	1,583	1,541	1,605	4.2
Glouc	258	280	319	326	2.2
Hull	549	585	610	672	10.2
Inverns	178	198	199	207	4.0
Ipswi	281	290	283	283	0.0
Klmarnk	158	180	211	214	1.4
L Barts	1,293	1,332	1,415	1,473	4.1
L Guys	1,214	1,220	1,315	1,395	6.1
L Kings	593	633	669	712	6.4
L Rfree		1,310	1,382	1,437	4.0
L St.G				567	0.0
L West	1,142	1,145	1,656	2,162	30.6
Leeds	1,255	1,300	1,366	1,379	1.0
Leic	1,269	1,427	1,497	1,594	6.5
Liv Ain	34	81	98	115	17.3
Liv RI	1,251	1,293	1,360	1,274	-6.3
M Hope	575	612	714	759	6.3
M RI				1,402	0.0
Middlbr	577	589	639	687	7.5
Newc	800	863	898	838	-6.7
Newry		155	148	147	-0.7
Norwch	360	408	436	495	13.5
Nottm	830	887	922	971	5.3
Oxford	1,197	1,192	1,286	1,328	3.3
Plymth	349	367	411	421	2.4
Ports	1,051	1,085	1,144	1,182	3.3
Prestn	744	765	828	855	3.3
Redng	377	410	530	545	2.8
Sheff	1,146	1,164	1,230	1,172	-4.7
Shrew	225	235	260	285	9.6
Stevng	544	557	604	548	-9.3
Sthend	181	181	188	195	3.7
Stoke				588	0.0
Sund	267	277	269	344	27.9
Swanse	444	462	499	544	9.0
Truro	277	269	289	286	-1.0
Tyrone		165	160	149	-6.9
Ulster		44	61	86	41.0
Wirral	185	191	199	216	8.5
Wolve	422	438	448	441	-1.6
Wrexm	183	137	130	142	9.2
York	183	200	223	231	3.6
England	27,625	30,201	32,621	36,887	13.1
N Ireland		1,290	1,353	1,392	2.9
Scotland	3,587	3,790	3,907	4,101	5.0
Wales	2,008	2,050	2,145	2,377	10.8
UK	33,220	37,331	40,026	44,757	11.8

Table 4.4. Prevalent patient numbers in renal centres reporting continuously 2000–2007

Centre	2000	2001	2002	2003	2004	2005	2006	2007	% change 2000–2007
Abrdn	302	316	355	349	388	415	428	452	49.7
Airdrie	98	143	171	172	181	171	233	230	134.7
B Heart	422	452	444	497	503	538	578	578	37.0
Bristol	905	945	991	1,050	1,089	1,158	1,200	1,234	36.4
Cardff	1,028	1,055	1,092	1,156	1,218	1,267	1,334	1,438	39.9
Carlisle	156	159	161	170	179	183	188	202	29.5
Carsh	671	697	785	886	957	994	1,101	1,165	73.6
Covnt	514	545	563	575	602	636	675	717	39.5
D & Gall	54	72	73	79	61	69	76	77	42.6
Derby	121	160		259	274	279	301	301	148.8
Dudley	244	235	231	241	254	257	261	255	4.5
Dundee	236	244	288	299	319	355	362	376	59.3
Dunfn	90	112	119	127	136	150	156	162	80.0
Edinb	558	574	597	619	649	669	701	720	29.0
Exeter	407	433	509	520	570	580	621	664	63.1
Glasgw	1,393	1,414	1,430	1,487	1,517	1,583	1,541	1,605	15.2
Glouc	235	195	210	243	258	280	319	326	38.7
Hull	420	443	506	514	549	585	610	672	60.0
Inverns	92	120	147	159	178	198	199	207	125.0
Klmarnk	136	143	157	168	158	180	211	214	57.4
L Guys	1,124	1,145	1,185	1,183	1,214	1,220	1,315	1,395	24.1
Leeds	1,167	1,162	1,181	1,203	1,255	1,300	1,366	1,379	18.2
Leic	973	1,028	1,079	1,120	1,269	1,427	1,497	1,594	63.8
Middlbr	415	422	520	550	577	589	639	667	60.7
Nottm	760	817	789	809	830	887	922	971	27.8
Oxford	1,241	1,316	1,359	1,397	1,197	1,192	1,286	1,328	7.0
Plymth	408	393	385	345	349	367	411	421	3.2
Prestn	458	503	567	712	744	765	828	855	86.7
Redng	174	200	199	228	377	410	449	545	213.2
Sheff	866	943	1,022	1,083	1,146	1,164	1,230	1,172	35.3
Stevng	451	451	528	565	544	557	604	548	21.5
Sthend	141	142	151	168	181	181	188	195	38.3
Sund	228	218	236	236	267	277	269	282	23.7
Swanse	226	383	383	415	444	462	499	544	140.7
Wolve	316	335	366	399	422	438	448	441	39.6
Wrexm	221	202	201	199	183	137	130	142	−35.7
York	92	124	160	186	183	200	223	231	151.1
England	12,909	13,463	14,127	15,139	15,790	16,464	17,529	18,138	40.5
Scotland	2,959	3,138	3,337	3,459	3,587	3,790	3,907	4,043	36.6
Wales	1,475	1,640	1,676	1,770	1,845	1,866	1,963	2,124	44.0
UK	17,343	18,241	19,140	20,368	21,222	22,120	23,399	24,305	40.1

9.3% in Stevenage. In Clwyd, the major growth was in transplant numbers, due to transfer from Liverpool of a cohort of established post-transplant patients for local follow-up. This was also true for Dunfermline where patients were transferred from Glasgow. In Derry, a new growing centre, the major growth was in the haemodialysis population. The growth in London West reflected the recent amalgamation of centres and now includes data from the transplant patients previously at London St Mary's.

In the longer term, for those 37 centres contributing data to the Registry across the 8 years between 2000 and 2007, growth in the prevalent RRT population increased by 40.1% (table 4.4), giving an average annual growth rate of around 5%. This was fairly stable across the three UK countries whose centres submitted data over that period, ranging from 4.8% in Scotland, through 5.1% in England to 5.4% in Wales. The absolute increase of RRT patients was highest in those centres in the highest quartile (Q4) in terms of RRT

population at baseline in 2000 (median increase Q1 = 115, Q2 = 125, Q3 = 203, Q4 = 288 patients), whilst the growth in percentage terms was the inverse of this (median increase Q1 = 125%, Q2 = 50%, Q3 = 40%, Q4 = 32%).

The long-term (1982–2007) UK prevalence pattern in relation to RRT modality is shown in figure 4.3. The steady growth in transplant numbers was maintained but haemodialysis numbers continued to increase more rapidly. The slow contraction in home-based therapies, evident over the past decade, persisted.

Prevalence of RRT in Primary Care Trusts (PCT) in England and Health Authorities (HA) in N Ireland, Scotland and Wales

For the first time in 2007, prevalence rates were reported in relation to the catchment area populations of Primary Care Trusts in England. Data by HA for the other UK countries continued to be reported. There were substantial variations in the crude PCT/HA area prevalence from 399 pmp (Great Yarmouth and Waveney, population 210,600) to 1,487 pmp (Merthyr Tydfil, population 55,800). There were similar variations in SPR from 0.48 (Great Yarmouth and Waveney) to 2.44 (Heart of Birmingham) (table 4.5).

PCTs/HAs with small populations have wide confidence limits for SPR (figures 4.4 and 4.5), such that the interpretation of data from a single year may be difficult. The annual standardised prevalence rate was inherently more stable than the annual standardised acceptance rate (chapter 3), and there was a high degree of correlation between the SPR's obtained for 2007 and those calculated for the period 2002 to 2007 ($r^2 = 0.889$; $p < 0.001$).

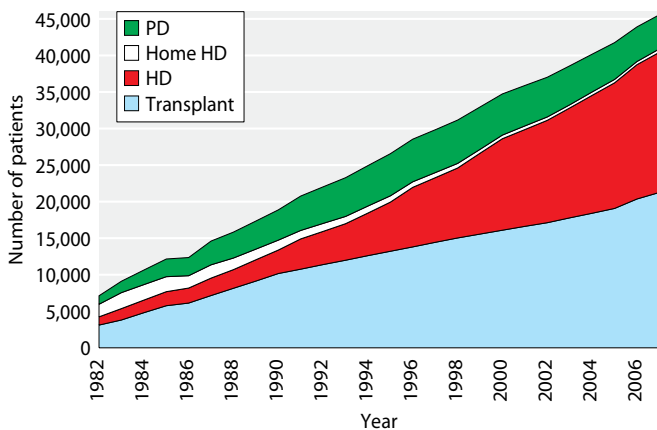


Fig. 4.3. Growth in prevalent patients, by treatment modality at the end of each year 1982–2007

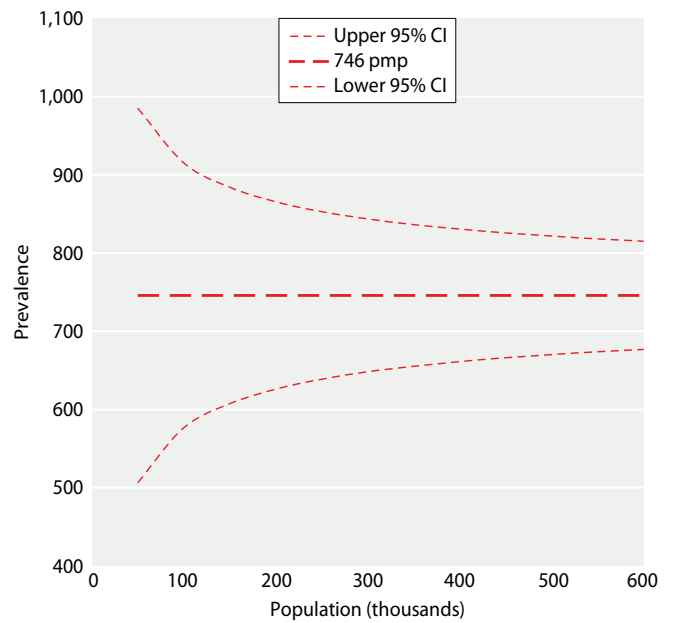


Fig. 4.4. 95% confidence limits for prevalence of 746 pmp for population sizes 50,000–600,000

Factors associated with variation in standardised prevalence ratios in PCTs in England and HAs in Northern Ireland, Scotland and Wales

Geographical considerations and ethnicity were the major factors underlying the variation in SPR (table 4.5). In 2007, for the PCTs/HAs with available data, there were 48 PCTs/HAs with a significantly low SPR, 129 with a normal SPR and 51 with a significantly high

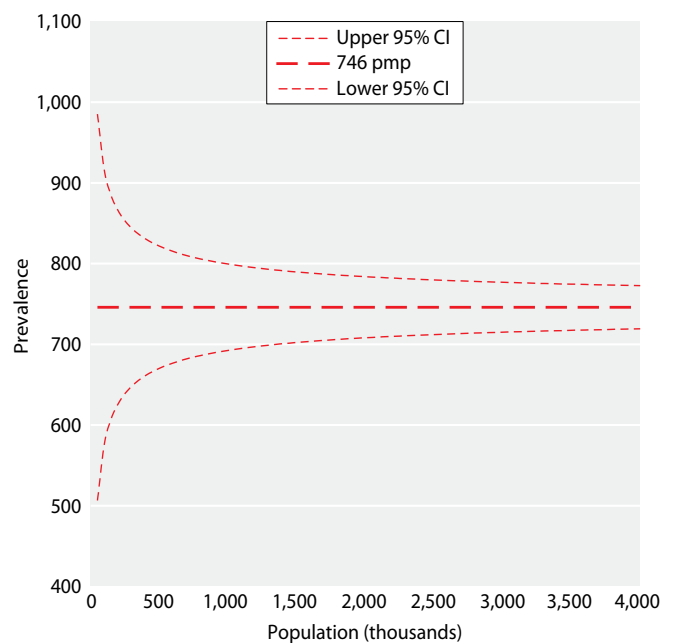


Fig. 4.5. 95% confidence limits for prevalence of 746 pmp for population sizes 50,000–4 million

Table 4.5. Prevalence of RRT and standardised prevalence ratios in Primary Care Trusts and Health Authorities with complete coverage^a per million population

O/E = standardised prevalence ratio

Blank cells – no data returned to the Registry for that year

Areas with significantly high prevalence ratios are bold in darker grey cells, areas with significantly low prevalence ratios are italicised in lighter grey cells

% non-White = the sum of % South Asian and Black from the 2001 UK census

Region	PCT	Tot pop	2002	2003	2004	2005	2006	2007				All O/E	% non-White
			O/E	O/E	O/E	O/E	O/E	O/E	LCL	UCL	pmp ^a		
NE England	County Durham	500,400	1.02	0.95	0.97	0.99	0.95	0.91	0.82	1.01	715	0.96	1.0
	Darlington	99,100	0.95	0.97	0.98	0.96	0.83	0.83	0.64	1.06	636	0.91	2.1
	Redcar and Cleveland	139,200	1.07	1.03	1.03	0.97	0.98	0.98	0.81	1.19	776	1.01	1.1
	Hartlepool	91,100	0.94	0.97	1.02	0.93	1.00	0.89	0.69	1.14	670	0.96	1.1
	Middlesbrough	138,500	1.21	1.22	1.09	1.03	1.06	1.07	0.88	1.29	758	1.11	6.3
	North Tees	189,200	0.79	0.81	0.88	0.88	0.92	0.86	0.72	1.02	634	0.86	2.7
	Gateshead	190,500	1.15	1.07	1.04	1.00	0.95	0.90	0.76	1.06	698	1.01	1.6
	Newcastle	270,400	1.01	0.93	0.88	0.92	0.90	0.93	0.80	1.08	655	0.93	6.9
	North Tyneside	195,100	1.05	1.02	1.00	1.02	0.99	0.94	0.80	1.10	733	1.00	1.9
	<i>Northumberland</i>	<i>309,900</i>	<i>0.96</i>	<i>0.93</i>	<i>0.93</i>	<i>0.89</i>	<i>0.83</i>	<i>0.81</i>	<i>0.71</i>	<i>0.93</i>	<i>671</i>	<i>0.89</i>	<i>1.0</i>
	South Tyneside	151,000	0.88	0.90	0.92	0.95	0.96	0.94	0.78	1.13	728	0.93	2.7
Sunderland Teaching	280,600	1.01	1.03	1.03	0.97	0.90	0.89	0.77	1.03	677	0.97	1.9	
NW England	Wirral	311,100	1.09	1.09	1.07	1.04	1.00	0.93	0.82	1.06	726	1.03	1.7
	Liverpool	436,200	1.21	1.18	1.19	1.13	1.14	1.08	0.97	1.20	766	1.15	5.7
	<i>Central and Eastern Cheshire</i>	<i>451,200</i>						<i>0.78</i>	<i>0.69</i>	<i>0.88</i>	<i>618</i>	<i>0.78</i>	<i>1.6</i>
	Western Cheshire	235,100	0.99	0.96	1.01	0.94	0.91	0.91	0.78	1.06	723	0.95	1.6
	Knowsley	151,500	1.20	1.24	1.23	1.15	1.08	1.04	0.87	1.26	752	1.15	1.6
	<i>Sefton</i>	<i>277,500</i>	<i>0.93</i>	<i>0.92</i>	<i>0.86</i>	<i>0.88</i>	<i>0.87</i>	<i>0.83</i>	<i>0.72</i>	<i>0.96</i>	<i>663</i>	<i>0.88</i>	<i>1.6</i>
	Halton and St Helens	297,000	0.87	0.89	0.87	0.89	0.95	0.98	0.85	1.11	734	0.91	1.2
	Warrington	194,300	0.81	0.90	0.90	0.83	0.81	0.86	0.73	1.03	654	0.85	2.1
	Blackburn with Darwen	141,200	0.86	1.07	1.14	1.15	1.20	1.38	1.16	1.64	914	1.15	22.0
	<i>Blackpool</i>	<i>142,800</i>	<i>0.66</i>	<i>0.76</i>	<i>0.73</i>	<i>0.70</i>	<i>0.63</i>	<i>0.76</i>	<i>0.62</i>	<i>0.94</i>	<i>609</i>	<i>0.71</i>	<i>1.6</i>
	<i>North Lancashire</i>	<i>329,000</i>	<i>0.63</i>	<i>0.81</i>	<i>0.77</i>	<i>0.68</i>	<i>0.67</i>	<i>0.72</i>	<i>0.62</i>	<i>0.83</i>	<i>581</i>	<i>0.71</i>	<i>1.7</i>
	<i>Cumbria</i>	<i>496,000</i>	<i>0.77</i>	<i>0.81</i>	<i>0.78</i>	<i>0.76</i>	<i>0.76</i>	<i>0.75</i>	<i>0.67</i>	<i>0.84</i>	<i>619</i>	<i>0.77</i>	<i>0.7</i>
	<i>Central Lancashire</i>	<i>451,600</i>	<i>0.65</i>	<i>0.71</i>	<i>0.74</i>	<i>0.74</i>	<i>0.72</i>	<i>0.78</i>	<i>0.69</i>	<i>0.88</i>	<i>591</i>	<i>0.73</i>	<i>5.6</i>
	East Lancashire	384,500	0.67	0.88	0.94	0.89	0.93	1.05	0.94	1.18	783	0.90	8.1
	Ashton, Leigh and Wigan	305,500		0.61	0.64	0.66	0.69	0.91	0.80	1.05	694	0.71	1.3
	Bolton	262,500		0.75	0.75	0.81	0.83	1.08	0.94	1.23	789	0.85	11.0
	Bury	182,900		0.36	0.42	0.45	0.45	0.89	0.74	1.06	656	0.53	6.1
	Manchester	451,900						1.07	0.95	1.19	659	1.07	19.0
	Heywood, Middleton and Rochdale	206,400						0.99	0.84	1.16	707	0.99	11.4
	Oldham	219,800		0.49	0.54	0.50	0.60	0.91	0.77	1.07	641	0.62	13.9
<i>Salford</i>	<i>217,800</i>		<i>0.71</i>	<i>0.64</i>	<i>0.62</i>	<i>0.66</i>	<i>0.78</i>	<i>0.66</i>	<i>0.94</i>	<i>565</i>	<i>0.69</i>	<i>3.9</i>	
<i>Stockport</i>	<i>280,800</i>						<i>0.84</i>	<i>0.72</i>	<i>0.97</i>	<i>648</i>	<i>0.84</i>	<i>4.3</i>	
Tameside and Glossop	247,700						0.97	0.83	1.12	715	0.97	4.9	
<i>Trafford</i>	<i>212,100</i>						<i>0.78</i>	<i>0.65</i>	<i>0.93</i>	<i>585</i>	<i>0.78</i>	<i>8.4</i>	
Yorkshire & Humber	<i>East Riding of Yorkshire</i>	<i>331,100</i>	<i>0.84</i>	<i>0.84</i>	<i>0.81</i>	<i>0.82</i>	<i>0.78</i>	<i>0.78</i>	<i>0.68</i>	<i>0.89</i>	<i>649</i>	<i>0.81</i>	<i>1.2</i>
	Hull	256,200	1.04	0.98	1.02	1.02	0.97	1.00	0.86	1.16	703	1.00	2.3
	North East Lincolnshire	159,900	0.93	0.94	1.00	1.00	0.97	0.99	0.83	1.18	750	0.97	1.4
	North Lincolnshire	155,200	1.01	0.98	0.96	0.91	0.94	0.92	0.76	1.10	728	0.95	2.5
	<i>North Yorkshire and York</i>	<i>783,200</i>	<i>0.84</i>	<i>0.84</i>	<i>0.85</i>	<i>0.83</i>	<i>0.82</i>	<i>0.82</i>	<i>0.75</i>	<i>0.89</i>	<i>650</i>	<i>0.83</i>	<i>1.4</i>
	Barnsley	223,700	1.17	1.19	1.21	1.11	1.08	1.02	0.88	1.18	782	1.12	0.9
Doncaster	290,400	1.04	1.12	1.10	1.01	1.02	0.93	0.82	1.07	716	1.03	2.3	

Table 4.5. Continued

Region	PCT	Tot pop	2002	2003	2004	2005	2006	2007			All	% non-	
			O/E	O/E	O/E	O/E	O/E	O/E	LCL	UCL	pmp ^a	O/E	White
Yorkshire & Humber	Rotherham	253,000	1.19	1.19	1.23	1.16	1.07	1.06	0.92	1.21	806	1.14	3.1
	Sheffield	526,100	1.08	1.06	1.11	1.06	1.09	1.08	0.98	1.19	779	1.08	8.8
	Bradford and Airedale	493,000	1.22	1.28	1.27	1.27	1.17	1.18	1.07	1.30	799	1.23	21.7
	Calderdale	198,600	0.94	1.03	1.05	1.05	1.06	1.06	0.91	1.24	796	1.04	7.0
	<i>Wakefield District</i>	<i>321,000</i>	<i>0.88</i>	<i>0.85</i>	<i>0.86</i>	<i>0.86</i>	<i>0.88</i>	<i>0.85</i>	<i>0.74</i>	<i>0.97</i>	<i>648</i>	<i>0.86</i>	<i>2.3</i>
	Kirklees	398,400	1.16	1.21	1.21	1.15	1.18	1.11	1.00	1.24	803	1.17	14.4
	Leeds	750,300	1.06	1.02	1.00	1.01	1.02	0.96	0.88	1.05	668	1.01	8.1
East Midlands	Leicester City	289,700	1.84	1.81	1.80	1.76	1.71	1.73	1.55	1.93	1118	1.77	36.1
	<i>Leicestershire County and Rutland</i>	<i>673,600</i>	<i>0.92</i>	<i>0.93</i>	<i>0.95</i>	<i>0.90</i>	<i>0.90</i>	<i>0.89</i>	<i>0.81</i>	<i>0.97</i>	<i>692</i>	<i>0.91</i>	<i>5.1</i>
	<i>Northamptonshire</i>	<i>669,200</i>	<i>0.92</i>	<i>0.89</i>	<i>0.71</i>	<i>0.88</i>	<i>0.87</i>	<i>0.88</i>	<i>0.80</i>	<i>0.97</i>	<i>653</i>	<i>0.86</i>	<i>4.9</i>
	Nottinghamshire County	657,500	1.06	1.04	1.04	1.02	0.99	0.98	0.90	1.07	771	1.02	2.8
	Bassetlaw	111,000	0.70	0.74	0.78	0.81	0.79	0.94	0.76	1.16	748	0.80	1.4
	Derby City	236,400		1.18	1.20	1.12	1.11	1.03	0.89	1.19	740	1.12	12.6
	<i>Derbyshire County</i>	<i>720,800</i>	<i>0.67</i>	<i>0.90</i>	<i>0.86</i>	<i>0.84</i>	<i>0.84</i>	<i>0.85</i>	<i>0.78</i>	<i>0.93</i>	<i>681</i>	<i>0.83</i>	<i>1.5</i>
	<i>Lincolnshire</i>	<i>688,700</i>	<i>0.81</i>	<i>0.77</i>	<i>0.79</i>	<i>0.80</i>	<i>0.77</i>	<i>0.77</i>	<i>0.70</i>	<i>0.85</i>	<i>636</i>	<i>0.78</i>	<i>1.4</i>
	Nottingham City	286,400	1.37	1.29	1.29	1.24	1.21	1.16	1.01	1.32	733	1.25	15.1
West Midlands	<i>Dudley</i>	<i>305,200</i>	<i>0.78</i>	<i>0.78</i>	<i>0.99</i>	<i>0.96</i>	<i>0.92</i>	<i>0.87</i>	<i>0.76</i>	<i>1.00</i>	<i>682</i>	<i>0.89</i>	<i>6.4</i>
	Birmingham East and North	395,900			1.51	1.54	1.57	1.47	1.33	1.62	1003	1.52	22.3
	Heart of Birmingham Teaching	271,400			2.44	2.43	2.43	2.44	2.21	2.70	1389	2.43	59.9
	South Birmingham	339,400			1.42	1.40	1.32	1.26	1.13	1.41	872	1.34	15.1
	Sandwell	287,700			1.48	1.45	1.44	1.41	1.26	1.58	1018	1.44	20.3
	Solihull	203,000	0.76	0.88	1.04	0.99	1.04	0.94	0.80	1.10	729	0.94	5.4
	Walsall Teaching	254,700	0.88	0.86	1.33	1.32	1.28	1.26	1.11	1.43	942	1.17	13.6
	Wolverhampton City	236,900	1.24	1.28	1.37	1.35	1.29	1.23	1.07	1.40	908	1.29	22.2
	Coventry Teaching	306,600	1.37	1.38	1.32	1.23	1.19	1.18	1.05	1.34	822	1.27	16.0
	<i>Herefordshire</i>	<i>178,000</i>			<i>0.88</i>	<i>0.87</i>	<i>0.84</i>	<i>0.81</i>	<i>0.67</i>	<i>0.96</i>	<i>680</i>	<i>0.85</i>	<i>0.9</i>
	Warwickshire	522,300	1.06	1.03	1.10	1.08	1.03	1.02	0.93	1.13	806	1.05	4.4
	<i>Worcestershire</i>	<i>553,000</i>			<i>0.85</i>	<i>0.86</i>	<i>0.82</i>	<i>0.81</i>	<i>0.73</i>	<i>0.89</i>	<i>644</i>	<i>0.83</i>	<i>2.4</i>
	<i>North Staffordshire</i>	<i>211,400</i>						<i>0.83</i>	<i>0.71</i>	<i>0.98</i>	<i>667</i>	<i>0.83</i>	<i>1.5</i>
	<i>South Staffordshire</i>	<i>603,500</i>						<i>0.89</i>	<i>0.81</i>	<i>0.98</i>	<i>699</i>	<i>0.89</i>	<i>2.7</i>
	<i>Shropshire County</i>	<i>289,500</i>			<i>0.85</i>	<i>0.87</i>	<i>0.85</i>	<i>0.83</i>	<i>0.72</i>	<i>0.96</i>	<i>687</i>	<i>0.85</i>	<i>1.2</i>
	Stoke on Trent	247,600						1.10	0.96	1.26	820	1.10	5.1
Telford and Wrekin	161,800			0.88	0.82	0.86	1.02	0.85	1.22	735	0.90	5.2	
East of England	<i>Bedfordshire</i>	<i>403,600</i>	<i>0.88</i>	<i>0.88</i>	<i>0.89</i>	<i>0.86</i>	<i>0.89</i>	<i>0.84</i>	<i>0.74</i>	<i>0.95</i>	<i>627</i>	<i>0.87</i>	<i>6.7</i>
	Luton	187,200	1.16	1.21	1.16	1.27	1.30	1.29	1.10	1.50	860	1.24	28.1
	<i>West Hertfordshire</i>	<i>530,600</i>	<i>0.45</i>	<i>0.43</i>	<i>0.41</i>	<i>0.58</i>	<i>0.78</i>	<i>0.86</i>	<i>0.78</i>	<i>0.96</i>	<i>641</i>	<i>0.60</i>	<i>7.6</i>
	<i>East and North Hertfordshire</i>	<i>527,800</i>	<i>0.77</i>	<i>0.80</i>	<i>0.81</i>	<i>0.91</i>	<i>0.89</i>	<i>0.84</i>	<i>0.75</i>	<i>0.94</i>	<i>621</i>	<i>0.84</i>	<i>5.0</i>
	<i>Mid Essex</i>	<i>361,400</i>			<i>0.82</i>	<i>0.81</i>	<i>0.84</i>	<i>0.86</i>	<i>0.76</i>	<i>0.98</i>	<i>661</i>	<i>0.83</i>	<i>2.4</i>
	North East Essex												2.6
	South East Essex	329,900			0.98	0.94	0.96	0.95	0.84	1.08	752	0.96	3.0
	South West Essex	388,300			0.88	0.90	0.92	0.93	0.83	1.05	682	0.91	3.8
	<i>West Essex</i>	<i>274,700</i>			<i>0.80</i>	<i>0.84</i>	<i>0.80</i>	<i>0.74</i>	<i>0.64</i>	<i>0.87</i>	<i>568</i>	<i>0.79</i>	<i>4.2</i>
	<i>Cambridgeshire</i>	<i>589,600</i>	<i>0.85</i>	<i>0.84</i>	<i>0.88</i>	<i>0.90</i>	<i>0.90</i>	<i>0.87</i>	<i>0.79</i>	<i>0.96</i>	<i>650</i>	<i>0.87</i>	<i>4.1</i>
	Peterborough	163,400	0.84	0.93	0.98	0.98	1.03	1.01	0.84	1.21	716	0.97	10.3
	<i>Norfolk</i>	<i>738,900</i>			<i>0.90</i>	<i>0.91</i>	<i>0.92</i>	<i>0.91</i>	<i>0.84</i>	<i>0.99</i>	<i>754</i>	<i>0.91</i>	<i>1.5</i>
	<i>Suffolk</i>	<i>585,300</i>			<i>0.81</i>	<i>0.81</i>	<i>0.81</i>	<i>0.82</i>	<i>0.74</i>	<i>0.90</i>	<i>644</i>	<i>0.81</i>	<i>3.1</i>
	<i>Great Yarmouth and Waveney</i>	<i>210,600</i>			<i>0.39</i>	<i>0.37</i>	<i>0.40</i>	<i>0.48</i>	<i>0.39</i>	<i>0.59</i>	<i>399</i>	<i>0.41</i>	<i>1.3</i>
London	Barnet	328,400				1.13	1.24	1.43	1.29	1.60	996	1.27	26.0
	Camden	227,200				0.93	1.04	1.13	0.97	1.32	709	1.04	26.8

Table 4.5. Continued

Region	PCT	Tot pop	2002	2003	2004	2005	2006	2007			All O/E	% non-White	
			O/E	O/E	O/E	O/E	O/E	O/E	LCL	UCL			pmp ^a
London	Enfield	285,400				1.46	1.46	1.41	1.25	1.58	978	1.44	22.9
	Haringey Teaching	225,600				1.50	1.53	1.54	1.35	1.76	971	1.52	34.4
	Islington	185,500				1.33	1.45	1.38	1.18	1.61	868	1.39	24.6
	Barking and Dagenham	165,400			1.11	1.14	1.14	1.12	0.93	1.34	719	1.13	14.8
	City and Hackney Teaching	216,200					1.44	1.44	1.25	1.66	874	1.44	39.7
	<i>Havering</i>	<i>227,500</i>						<i>0.77</i>	<i>0.65</i>	<i>0.92</i>	<i>598</i>	<i>0.77</i>	<i>4.8</i>
	Newham	248,300			1.41	1.60	1.74	1.78	1.57	2.01	1019	1.64	60.6
	Redbridge	251,800			1.16	1.25	1.22	1.23	1.07	1.41	838	1.22	36.5
	Tower Hamlets	212,500			1.12	1.14	1.22	1.29	1.10	1.51	729	1.20	48.6
	Waltham Forest	222,100					1.34	1.51	1.32	1.73	977	1.43	35.5
	Brent Teaching	271,400					1.37	2.03	1.83	2.24	1360	1.71	54.7
	Ealing	306,400	1.50	1.44	1.53	1.49	1.61	1.67	1.50	1.85	1119	1.55	41.3
	Hammersmith and Fulham	171,400	1.41	1.45	1.51	1.37	1.33	1.25	1.06	1.47	805	1.38	22.2
	Harrow	214,600						1.71	1.51	1.93	1216	1.71	41.2
	Hillingdon	250,100			0.89	0.99	1.07	0.95	0.82	1.11	660	0.98	20.9
	Hounslow	218,600			1.68	1.62	1.51	1.42	1.24	1.63	947	1.55	35.1
	<i>Kensington and Chelsea</i>	<i>178,000</i>						<i>0.75</i>	<i>0.61</i>	<i>0.92</i>	<i>528</i>	<i>0.75</i>	<i>21.4</i>
	Westminster	231,700						1.00	0.85	1.17	673	1.00	26.8
	Bexley	221,600	1.19	1.21	1.14	1.10	1.14	1.14	0.99	1.32	848	1.15	8.6
	Bromley	299,400	1.00	1.00	1.00	0.99	0.99	0.94	0.82	1.07	708	0.98	8.4
	Greenwich Teaching	222,600	1.06	1.03	0.92	1.12	1.12	1.17	1.01	1.36	764	1.08	22.9
	Lambeth	272,200	1.33	1.33	1.36	1.36	1.37	1.66	1.48	1.87	1032	1.41	37.6
	Lewisham	255,600	1.59	1.53	1.63	1.65	1.67	1.72	1.53	1.93	1103	1.64	34.1
Southwark	269,000	1.55	1.58	1.57	1.61	1.60	1.72	1.53	1.93	1078	1.61	37.0	
Croydon	337,000	1.00	1.09	1.13	1.18	1.17	1.32	1.18	1.48	920	1.16	29.8	
Kingston	156,000						1.06	0.89	1.28	731	1.06	15.5	
<i>Richmond and Twickenham</i>	<i>179,500</i>						<i>0.70</i>	<i>0.57</i>	<i>0.86</i>	<i>501</i>	<i>0.70</i>	<i>9.0</i>	
Sutton and Merton	382,000						1.20	1.07	1.34	832	1.20	18.1	
Wandsworth	279,200						1.38	1.22	1.57	867	1.38	22.0	
SE England	<i>Isle of Wight National Health Service</i>	<i>138,200</i>	<i>0.71</i>	<i>0.75</i>	<i>0.73</i>	<i>0.63</i>	<i>0.63</i>	<i>0.58</i>	<i>0.46</i>	<i>0.74</i>	<i>499</i>	<i>0.67</i>	<i>1.3</i>
	<i>Hampshire</i>	<i>1,265,900</i>	<i>0.76</i>	<i>0.78</i>	<i>0.78</i>	<i>0.76</i>	<i>0.78</i>	<i>0.76</i>	<i>0.71</i>	<i>0.82</i>	<i>593</i>	<i>0.77</i>	<i>2.2</i>
	Portsmouth City Teaching	196,300	1.16	1.12	1.09	1.05	0.99	0.98	0.83	1.17	667	1.06	5.3
	Southampton City	229,100	0.90	0.92	0.95	0.92	0.90	0.90	0.77	1.07	602	0.91	7.6
	West Kent												3.9
	Medway												5.4
	Eastern and Coastal Kent												2.4
	<i>Hastings and Rother</i>	<i>176,200</i>			<i>0.85</i>	<i>0.79</i>	<i>0.78</i>	<i>0.72</i>	<i>0.60</i>	<i>0.88</i>	<i>607</i>	<i>0.78</i>	<i>2.4</i>
	Brighton and Hove City	251,500			0.85	0.84	0.87	0.86	0.73	1.00	608	0.85	5.7
	<i>East Sussex Downs and Weald</i>	<i>330,200</i>			<i>0.84</i>	<i>0.81</i>	<i>0.77</i>	<i>0.80</i>	<i>0.70</i>	<i>0.91</i>	<i>666</i>	<i>0.80</i>	<i>2.3</i>
	<i>Surrey</i>	<i>1,073,400</i>			<i>0.76</i>	<i>0.76</i>	<i>0.78</i>	<i>0.86</i>	<i>0.80</i>	<i>0.93</i>	<i>661</i>	<i>0.79</i>	<i>4.9</i>
	<i>West Sussex</i>	<i>770,600</i>			<i>0.77</i>	<i>0.76</i>	<i>0.76</i>	<i>0.80</i>	<i>0.73</i>	<i>0.87</i>	<i>644</i>	<i>0.77</i>	<i>3.4</i>
	Milton Keynes	230,100	0.90	0.97	0.97	0.95	0.90	0.96	0.81	1.12	656	0.94	9.1
	Berkshire East	382,200	1.04	1.06	1.10	1.07	1.11	1.24	1.11	1.38	866	1.11	16.0
	Berkshire West	445,400	0.98	1.01	1.05	0.99	1.03	1.13	1.02	1.25	806	1.04	7.3
Oxfordshire	607,400	1.09	1.12	1.10	1.04	1.04	0.96	0.87	1.05	693	1.05	5.0	
Buckinghamshire	500,700	1.03	1.02	1.00	0.99	0.98	0.96	0.87	1.07	727	1.00	7.7	
SW England	Bath and North East Somerset	175,600	0.68	0.70	0.82	0.86	0.84	0.85	0.71	1.03	644	0.80	2.8
	Bristol	410,700	1.34	1.36	1.35	1.30	1.30	1.22	1.10	1.36	825	1.31	8.2

Table 4.5. Continued

Region	PCT	Tot pop	2002	2003	2004	2005	2006	2007			All O/E	% non-White	
			O/E	O/E	O/E	O/E	O/E	O/E	LCL	UCL			pmp ^a
England	<i>Gloucestershire</i>	578,500	0.86	0.88	0.91	0.91	0.93	0.90	0.81	0.99	705	0.90	2.9
	Swindon	192,600	0.90	0.91	0.99	0.95	0.96	0.90	0.75	1.07	649	0.93	4.8
	South Gloucestershire	254,200	1.13	1.07	1.07	1.03	1.03	0.96	0.84	1.11	732	1.04	2.4
	<i>Wiltshire</i>	448,600	0.69	0.68	0.64	0.68	0.69	0.70	0.62	0.80	548	0.68	1.6
	<i>Bournemouth and Poole</i>	297,900			0.86	0.82	0.82	0.83	0.72	0.96	658	0.83	2.6
	<i>Dorset</i>	403,100			0.82	0.81	0.76	0.77	0.68	0.87	672	0.79	1.2
	North Somerset	201,200	1.00	1.08	1.12	1.03	0.98	0.91	0.77	1.07	741	1.01	1.4
	<i>Somerset</i>	518,800	0.91	0.91	0.89	0.87	0.85	0.81	0.73	0.90	661	0.87	1.2
	<i>Devon</i>	740,600	0.86	0.86	0.88	0.84	0.85	0.84	0.77	0.92	701	0.85	1.1
	Plymouth Teaching	247,900	1.22	1.16	1.09	1.03	1.16	1.13	0.98	1.29	823	1.13	1.6
	Torbay	133,000	0.92	0.92	1.04	0.96	0.94	0.88	0.72	1.07	737	0.94	1.2
	Cornwall and Isles of Scilly	526,200	1.01	1.02	1.11	1.02	1.01	0.95	0.87	1.05	798	1.02	1.0
Wales	Cardiff	317,500	1.25	1.27	1.30	1.22	1.22	1.22	1.08	1.38	822	1.25	8.4
	Merthyr Tydfil	55,800	1.30	1.45	1.64	1.59	1.84	1.96	1.58	2.43	1487	1.65	1.0
	Rhondda, Cynon, Taff	234,100	1.38	1.25	1.37	1.34	1.34	1.38	1.21	1.56	1034	1.34	1.2
	Vale of Glamorgan	123,200	0.99	1.02	1.11	0.97	1.02	0.97	0.79	1.19	747	1.01	2.2
	Carmarthenshire	177,800	1.08	1.12	1.14	1.12	1.11	1.04	0.88	1.21	849	1.10	0.9
	Ceredigion	77,100	0.90	0.86	0.98	0.89	0.81	0.79	0.60	1.05	636	0.87	1.4
	Pembrokeshire	116,800	0.83	0.94	0.92	1.01	0.95	0.92	0.75	1.13	762	0.93	0.9
	Powys	130,900	0.47	0.45	0.88	0.91	0.88	0.86	0.70	1.05	733	0.76	0.9
	Blaenau Gwent	69,500	1.40	1.27	1.21	1.21	1.14	1.16	0.90	1.48	892	1.22	0.8
	Caerphilly	171,300	1.26	1.15	1.15	1.15	1.16	1.17	1.00	1.37	876	1.17	0.9
	Monmouthshire	87,800	1.27	1.19	1.17	1.20	1.06	0.99	0.79	1.25	820	1.14	1.1
	Newport	140,500	1.22	1.31	1.26	1.20	1.16	1.21	1.01	1.44	890	1.22	4.8
	Torfaen	91,000	1.24	1.26	1.24	1.17	1.13	1.18	0.95	1.46	912	1.20	0.9
	Bridgend	132,600	1.07	1.15	1.18	1.18	1.25	1.33	1.12	1.57	1026	1.20	1.4
	Neath Port Talbot	137,100	1.05	1.16	1.15	1.11	1.15	1.20	1.01	1.42	948	1.14	1.1
	Swansea	227,000	1.27	1.34	1.33	1.29	1.28	1.26	1.11	1.44	974	1.29	2.2
	Conwy	111,300	0.93	1.00	1.00	0.92	0.92	0.93	0.76	1.15	800	0.95	1.0
	Denbighshire	95,900	0.88	0.94	0.94	1.02	0.87	0.88	0.69	1.11	719	0.92	1.2
	Flintshire	150,000	1.04	1.09	1.07	1.02	1.02	1.01	0.84	1.20	780	1.04	0.8
	Gwynedd	118,200	1.16	1.21	1.02	1.00	0.97	0.98	0.80	1.20	778	1.05	1.2
Isle of Anglesey	68,800	0.85	0.95	0.93	1.03	1.00	0.90	0.68	1.18	741	0.94	0.7	
Wrexham	131,000	1.40	1.41	1.30	1.19	1.17	1.08	0.89	1.30	824	1.25	1.1	
Scotland	Aberdeen City	207,000	1.16	1.11	1.27	1.24	1.16	1.13	0.98	1.31	850	1.18	2.9
	Aberdeenshire	236,300	1.05	0.98	0.98	1.01	0.96	0.99	0.86	1.15	783	0.99	0.7
	Angus	109,500	1.35	1.20	1.30	1.25	1.14	1.10	0.90	1.34	904	1.22	0.8
	Argyll & Bute	91,200	1.01	1.00	0.99	0.89	0.92	0.93	0.74	1.18	789	0.95	0.8
	Scottish Borders	110,300	0.79	0.73	0.80	0.82	0.81	0.91	0.74	1.13	762	0.82	0.6
	Clackmannanshire	48,800	0.60	0.82	0.81	0.88	0.77	0.83	0.58	1.18	635	0.79	0.8
	West Dunbartonshire	91,100	1.09	0.96	0.97	0.91	0.93	0.86	0.66	1.10	648	0.95	0.7
	Dumfries & Galloway	148,000	1.15	1.17	1.04	1.04	0.98	0.90	0.75	1.08	777	1.03	0.7
	Dundee City	142,100	1.35	1.44	1.41	1.49	1.47	1.40	1.20	1.64	1063	1.43	3.7
	East Ayrshire	119,300	1.04	1.01	0.98	1.05	1.11	1.06	0.87	1.29	830	1.04	0.7
	East Dunbartonshire	105,700	1.19	1.29	1.18	1.07	1.07	0.99	0.80	1.22	785	1.12	3.1
	East Lothian	92,600	1.12	1.03	1.04	0.95	0.92	0.97	0.77	1.22	767	1.00	0.7
	East Renfrewshire	89,000	1.06	1.10	1.09	1.15	1.11	1.05	0.83	1.32	809	1.09	3.8
	Edinburgh, City of	463,300	1.01	1.02	1.04	0.99	0.97	0.94	0.84	1.05	673	0.99	4.1
	Falkirk	149,500	1.07	1.06	0.99	1.02	0.96	1.05	0.88	1.26	803	1.02	1.0

Table 4.5. Continued

Region	PCT	Tot pop	2002	2003	2004	2005	2006	2007			All O/E	% non-White	
			O/E	O/E	O/E	O/E	O/E	O/E	LCL	UCL			pmp ^a
Scotland	Fife	359,200	1.02	0.98	0.99	1.01	0.98	0.94	0.83	1.06	727	0.98	1.3
	Glasgow City	580,600	1.44	1.44	1.37	1.34	1.30	1.26	1.16	1.38	890	1.35	5.5
	Highland	215,400	1.06	1.09	1.17	1.25	1.15	1.11	0.97	1.28	910	1.14	0.8
	Inverclyde	81,300	1.48	1.41	1.37	1.33	1.22	1.13	0.90	1.43	886	1.31	0.9
	Midlothian	79,000	1.10	1.18	1.29	1.20	1.29	1.17	0.92	1.47	899	1.21	0.9
	Moray	86,700	1.06	0.99	1.00	1.11	1.14	0.99	0.78	1.25	796	1.05	0.9
	North Ayrshire	135,300	1.25	1.25	1.29	1.24	1.34	1.24	1.04	1.47	976	1.27	0.7
	North Lanarkshire	323,700	1.28	1.25	1.21	1.13	1.08	1.03	0.91	1.16	757	1.15	1.3
	Orkney Islands	20,000	0.98	1.10	1.12	1.18	1.11	0.97	0.60	1.59	800	1.08	0.4
	Perth & Kinross	140,200	0.97	1.05	1.03	0.95	0.91	0.86	0.70	1.04	706	0.96	1.0
	Renfrewshire	169,300	1.25	1.23	1.21	1.21	1.14	1.07	0.91	1.26	827	1.18	1.2
	Shetland Islands	22,000	0.70	0.67	0.78	0.60	0.50	0.69	0.39	1.22	545	0.65	1.1
	South Ayrshire	111,900	1.05	1.14	1.00	1.06	1.03	0.98	0.80	1.20	822	1.04	0.7
	South Lanarkshire	307,700	1.25	1.22	1.20	1.10	1.03	0.97	0.85	1.10	744	1.12	1.1
	<i>Stirling</i>	<i>87,600</i>	<i>0.95</i>	<i>0.93</i>	<i>0.90</i>	<i>0.83</i>	<i>0.79</i>	<i>0.75</i>	<i>0.57</i>	<i>1.00</i>	<i>571</i>	<i>0.85</i>	<i>1.5</i>
	West Lothian	165,700	1.08	1.06	1.00	1.02	0.96	0.92	0.76	1.11	664	1.00	1.3
Eilean Siar	25,900	0.67	0.64	0.84	0.52	0.54	0.82	0.52	1.30	695	0.67	0.6	
N Ireland	Antrim	51,500				1.44	1.51	1.47	1.12	1.94	990	1.48	0.5
	Ards	76,000				1.35	1.27	0.98	0.75	1.27	737	1.19	0.9
	Armagh	56,400				1.40	1.28	1.12	0.83	1.51	762	1.26	0.5
	Ballymena	61,400				1.12	1.12	1.05	0.79	1.39	765	1.09	1.3
	Ballymoney	29,300				0.90	0.89	1.08	0.71	1.64	751	0.96	0.6
	Banbridge	45,400				0.95	1.09	1.06	0.75	1.49	727	1.03	0.4
	Belfast	267,600				1.22	1.22	1.25	1.10	1.42	848	1.23	0.4
	Carrickfergus	39,800				1.78	1.71	1.77	1.34	2.33	1281	1.75	0.3
	Castlereagh	65,600				1.46	1.50	1.30	1.02	1.66	991	1.42	0.4
	Coleraine	56,900				1.01	0.98	0.98	0.72	1.34	721	0.99	0.3
	Cookstown	34,600				0.81	0.81	0.76	0.47	1.22	491	0.79	1.3
	Craigavon	86,800				1.23	1.10	1.12	0.88	1.42	760	1.15	0.6
	Derry	107,800				1.20	1.31	1.27	1.03	1.56	798	1.26	0.8
	Down	68,400				1.11	1.16	1.17	0.90	1.52	804	1.15	0.7
	Dungannon	52,700				0.78	0.74	0.75	0.51	1.10	493	0.76	0.7
	Fermanagh	60,600				0.87	1.04	1.00	0.74	1.35	710	0.97	0.8
	Larne	31,400				1.57	1.43	1.33	0.94	1.89	1019	1.44	0.4
	Limavady	33,900				1.13	1.11	1.13	0.77	1.68	737	1.13	0.6
	Lisburn	113,300				1.14	1.08	1.05	0.85	1.31	715	1.09	0.7
	Magherafelt	42,900				1.29	1.37	1.07	0.75	1.53	699	1.24	0.7
	Moyle	17,000				0.82	0.94	0.80	0.43	1.48	588	0.85	0.3
	Newry & Mourne	93,600				1.34	1.16	1.00	0.78	1.28	652	1.16	0.4
	Newtownabbey	81,400				1.19	1.24	1.16	0.92	1.47	848	1.20	0.3
	North Down	79,000				1.11	1.04	1.09	0.85	1.38	835	1.08	1.0
	Omagh	51,200				1.27	1.20	1.15	0.84	1.58	762	1.21	0.4
	Strabane	39,200				1.07	1.12	1.16	0.82	1.66	791	1.12	0.8
Country	England	48,812,300	0.96	0.97	0.97	0.97	0.98	0.98			735	0.97	
	Scotland	5,115,200	1.14	1.13	1.12	1.10	1.07	1.03			793	1.10	
	Wales	2,965,200	1.12	1.14	1.16	1.13	1.12	1.12			866	1.13	
	N Ireland	1,743,700				1.20	1.18	1.14			787	1.17	
	Total	58,636,400	1.00	1.00	1.00	1.00	1.00	1.00			748	1.00	

Table 4.6. Summary regional distribution of PCTs and HAs with significantly low, normal or significantly high values of SPR and mean (weighted by PCT size) % non-Whites per region on 31/12/07

Region	Prevalence group			Total	Mean % non-White	Weighted mean % non-White
	Low	Normal	High			
NE England	1	11	0	12	2.5	2.4
NW England	9	14	1	24	5.9	5.6
Yorkshire & Humber	3	10	1	14	5.5	6.5
East Midlands	4	3	2	9	9.0	6.6
West Midlands	6	4	7	17	12.0	11.4
East of England	9	3	1	13	6.2	5.0
London	3	7	21	31	28.5	28.9
SE England	6	6	2	14	5.7	5.3
SW England	6	7	1	14	2.4	2.3
England	47	65	36	148	10.9	9.4
Wales	0	15	7	22	1.6	2.1
Scotland	1	28	3	32	1.4	2.0
N Ireland	0	21	5	26	0.6	0.6
UK	48	129	51	228	7.5	8.1

SPR. The geographical distribution of these is summarised in table 4.6. East of England ($p < 0.001$), the South East and South West of England ($p < 0.08$) had a higher proportion of areas with a low SPR compared with the UK as a whole, whilst in London ($p < 0.001$) there was a significantly higher proportion of areas with a high SPR. The West Midlands (41%) and Wales (32%) had a relatively higher percentage of PCTs/HAs with high SPRs compared to the rest of the UK (22%) but not significantly so. In Wales ($p < 0.01$), Scotland ($p < 0.001$) and Northern Ireland ($p < 0.01$) there were significantly fewer PCTs/HAs that had low values than in the rest of the UK.

PCTs/HAs with a high SPR had significantly higher ethnic minority populations than those with significantly low or normal SPRs ($p < 0.0001$) (figures 4.6, 4.7a and b). Mean SPR was significantly higher in the 47 PCTs/HAs with an ethnic minority population greater than 10% than in those with lower ethnic minority populations (1.33 vs. 0.97: $p < 0.001$). The SPR ($r = 0.257$, $p < 0.001$) was highly correlated with ethnicity. For each 10% increase in ethnic minority population the age standardised prevalence ratio increased by 0.2.

The relationship between the ethnic composition of a PCT/HA area and its SPR is further demonstrated in figure 4.7a, which shows the relationship for all PCTs/HAs and in figure 4.7b where those with <1% ethnic minority populations have been excluded.

Only 1 (Kensington & Chelsea, an area of low social deprivation) of the 47 PCT/HA areas with ethnic

minority populations greater than 10% had a low SPR, whereas 34 had high SPRs. In contrast only 17 of the 181 PCT/HA areas with ethnic minority populations less than 10% had high SPRs. Seven of these were in Wales (Cardiff, Methyr Tydfil, Rhondda-Cynon-Taff, Newport, Bridgend, Neath and Port Talbot), 3 in Scotland (Dundee City, Glasgow City, North Ayrshire) and 5 in Northern Ireland (Antrim, Belfast, Carrickfergus, Castlereagh and Derry). The only centres in England were Bristol and Berkshire West. The factors contributing to these regional disparities remained unclear but social deprivation was likely to be an important factor.

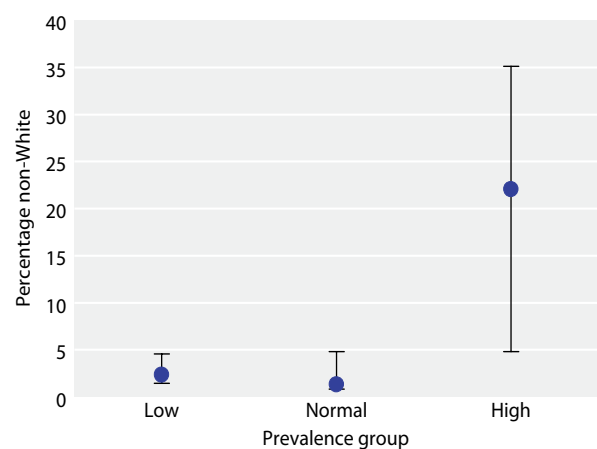


Fig. 4.6. Percentage non-Whites in PCTs and HAs with significantly low, normal and significantly high SPR values (median and quartiles)

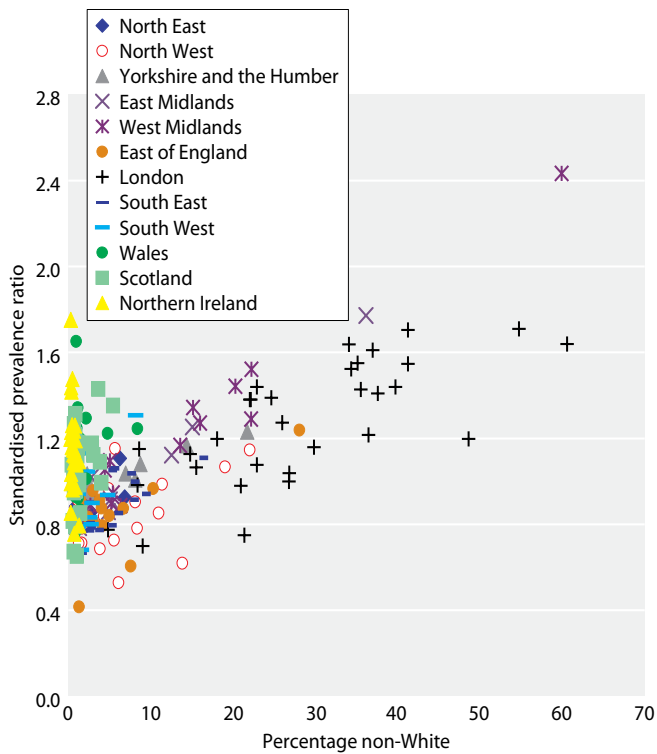


Fig. 4.7a. Ethnicity and standardised prevalence ratios for all PCTs and HAs by percentage non-White with available data

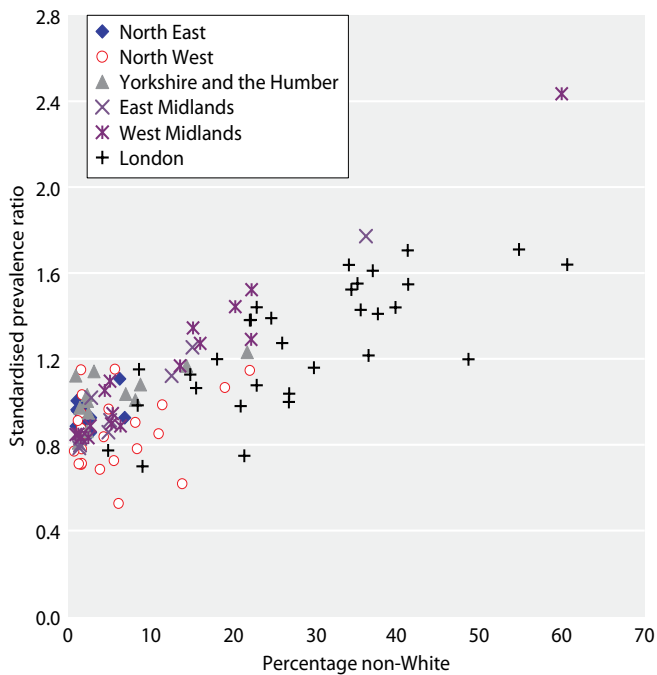


Fig. 4.7b. Ethnicity and standardised prevalence ratios for all PCTs and HAs by percentage non-White (excluding low percentage ethnic minority areas)

Case mix in prevalent RRT patients

Vintage

For patients who recover for >90 days and then restart RRT, median time from the start of RRT was calculated from the most recent start date. table 4.7 shows the median vintage (years since starting RRT) of prevalent RRT patients in 2007. Median vintage of the whole RRT cohort was 5.3 years. Patients with functioning transplants had survived a median 10.4 years on RRT whilst the median vintage of HD and PD patients was much less (2.8 and 2.1 years respectively). There was no significant change from 2006 [2].

Age

The median age of prevalent UK patients on RRT in 2007 was unchanged compared to 2006 at 57 years (table 4.8) [2]. The age profile varied markedly with modality. The median age of patients on HD (65.2 yrs) was greater than those on PD (60.3 yrs) and substantially higher than that of transplanted patients (50.2 yrs). These were all minimally higher than those reported in 2006. HD patients in Wales and Northern Ireland and PD patients in Wales were slightly older than in the rest of the UK.

There were however wide inter-centre variations in the median age of their RRT population (51.5 to 70.8 yrs), the median age being less in transplanting than in non-transplanting centres (55.5 vs. 60.8 yrs: $p < 0.001$). The median age of HD patients was slightly less in transplanting than in non-transplanting centres (62.2 vs. 64.2: $p < 0.05$), but there was no difference in the median ages of PD and transplant patients. This implies that the major factor accounting for the lower median age of RRT patients in transplanting centres was the higher number of transplant patients under follow-up in transplant centres. The differing age distributions of the transplant and dialysis populations are illustrated in figure 4.8, demonstrating that patient age at peak dialysis prevalence was around three decades higher than patient age at peak transplant prevalence.

Table 4.7. Median vintage of prevalent RRT patients on 31/12/07

Modality	N	Median time treated (years)
Haemodialysis	18,825	2.8
Peritoneal dialysis	4,495	2.1
Transplant	19,443	10.4
All RRT	42,763	5.3

Table 4.8. Median age of prevalent RRT patients by treatment modality by renal centre on 31/12/07

Centre	Median age HD	Median age PD	Median age transplant	Median age all	Centre	Median age HD	Median age PD	Median age transplant	Median age all
Abrdn	65.6	52.9	51.6	56.7	L St.G	67.2	63.3	52.4	57.7
Airdrie	59.9	48.3	44.8	54.3	L West	64.0	63.0	51.9	56.9
Antrim	70.9	67.4	47.9	65.5	Leeds	65.9	59.2	50.2	54.9
B Heart	66.2	64.5	50.6	62.6	Leic	63.4	62.9	50.0	57.4
B QEH	65.3	56.5	49.7	56.2	Liv Ain	61.4	n/a	n/a	61.4
Bangor	67.7	64.0	n/a	67.5	Liv RI	60.0	54.9	49.7	52.8
Basldn	65.4	67.7	47.3	62.7	M Hope	60.9	57.7	47.1	54.7
Belfast	63.7	53.7	48.4	53.4	M RI	58.9	57.2	49.4	51.5
Bradfd	66.0	50.5	48.8	55.7	Middlbr	67.0	56.1	49.4	57.7
Brightn	69.0	62.5	51.7	61.7	Newc	63.1	56.2	51.6	55.5
Bristol	69.0	60.8	51.6	58.5	Newry	65.5	54.3	55.2	62.7
Camb	65.3	60.0	49.4	55.0	Norwch	67.8	63.2	50.3	61.9
Cardff	67.3	62.7	50.1	57.0	Nottm	65.2	59.9	48.1	55.7
Carlisle	66.8	59.8	51.4	58.6	Oxford	64.7	59.7	50.1	54.9
Carsh	68.0	61.9	49.0	59.9	Plymth	71.0	68.2	51.0	59.3
Chelms	70.0	65.3	57.0	65.6	Ports	66.6	60.0	50.1	56.1
Clwyd	64.2	56.0	52.4	58.6	Prestn	62.9	58.1	50.6	57.2
Covnt	64.6	63.9	48.2	55.7	Redng	69.9	59.4	53.7	60.2
D & Gall	69.1	63.8	46.2	65.3	Sheff	64.6	59.9	50.0	57.3
Derby	63.9	62.9	54.2	62.8	Shrew	65.3	57.8	50.7	59.9
Derry	67.2	60.7	50.0	63.2	Stevng	65.4	62.1	50.9	59.7
Donc	64.9	61.0	55.8	61.5	Sthend	67.1	60.8	56.8	63.0
Dorset	66.1	70.3	56.3	60.3	Stoke	62.3	60.0	48.7	56.0
Dudley	62.0	63.1	57.4	59.6	Sund	63.3	60.2	51.0	56.9
Dundee	68.8	59.4	55.1	60.0	Swanse	69.6	63.7	54.7	63.1
Dunfn	64.5	57.9	54.3	61.4	Truro	71.6	63.6	53.8	64.3
Edinb	60.5	53.9	52.2	54.8	Tyrone	64.3	62.4	45.9	59.5
Exeter	71.2	67.6	49.8	60.9	Ulster	71.7	49.4	43.4	70.8
Glasgw	64.1	57.2	49.5	54.6	Wirral	65.9	61.1	n/a	65.3
Glouc	72.5	63.2	51.9	63.3	Wolve	65.6	58.1	45.0	60.5
Hull	66.0	55.0	49.1	58.1	Wrexm	67.4	65.6	47.3	64.3
Inverns	64.6	65.0	47.4	56.6	York	69.1	64.0	45.8	60.8
Ipswi	60.7	61.5	51.8	56.8	England	65.0	60.4	50.2	56.9
Klmarnk	65.1	60.6	48.7	61.4	N Ireland	67.1	57.4	48.6	58.6
L Barts	57.0	58.1	49.9	53.8	Scotland	64.5	57.7	50.0	56.2
L Guys	62.3	57.2	49.0	52.2	Wales	67.9	63.0	50.6	59.2
L Kings	61.1	59.2	50.1	55.8	UK	65.2	60.3	50.1	57.0
L Rfree	64.1	57.4	48.4	55.0					

n/a not applicable

Gender

In the UK in 2007, age at peak absolute RRT prevalence was in the 55–65 year age-band in males and females (figure 4.9).

Correcting this for the age and gender distribution of the UK population calculated from PCT/ HA populations covered by the Registry using 2001 census data allowed estimation of crude prevalence rates by age and gender (figure 4.10).

The overall UK peak crude prevalence rate occurred in the age band 70–74 at 1,808 pmp. For all ages, crude prevalence rates in males exceeded those in females, peaking in the 75–79 year age band for males at 2,506 pmp and in females in the 70–74 year age band at 1,314 pmp.

The male:female ratio of the crude prevalence rate remained stable at around 1.5 until the 60–65 age band, then increased markedly to 1.8 in the 65–74 age

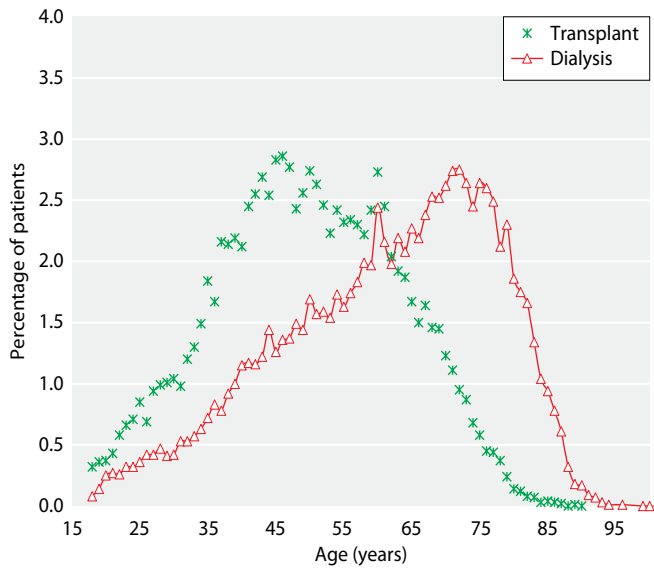


Fig. 4.8. Age profile of prevalent RRT patients on 31/12/07

band, 2.2 at 75–79 years, 2.7 at 80–84 years and 4.7 in those over 85 years (figure 4.11).

Ethnicity

Thirty-seven of the 71 centres submitting electronic data to the UKRR in 2007 provided ethnicity data that were at least 90% complete (table 4.9), slightly worse than in 2006 [2]. Data from 60 centres had greater than 50% returns. In the whole UK, 18.6% of the prevalent RRT population were from an ethnic minority, similar to the proportion in England. The proportions in Wales, Scotland and Northern Ireland were very small,

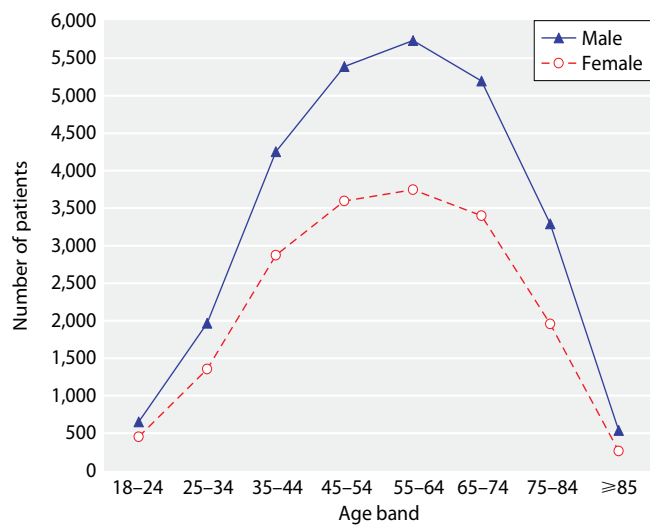


Fig. 4.9. Age profile of prevalent RRT patients by gender on 31/12/07

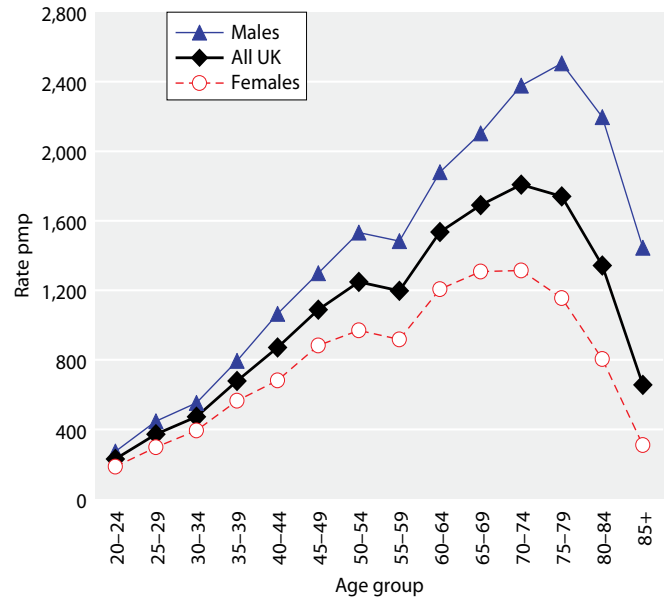


Fig. 4.10. Prevalence rate of RRT patients per million population by age and gender on 31/12/07

though there was a high level of missing data in Scotland (where ethnicity is not a mandated item).

Among the centres with more than 50% returns, there was wide variation between centres with respect to the proportion of patients from ethnic minorities, ranging from 0 in 4 centres (Antrim, Newry, Tyrone and Ulster) to over 50% in London West and London

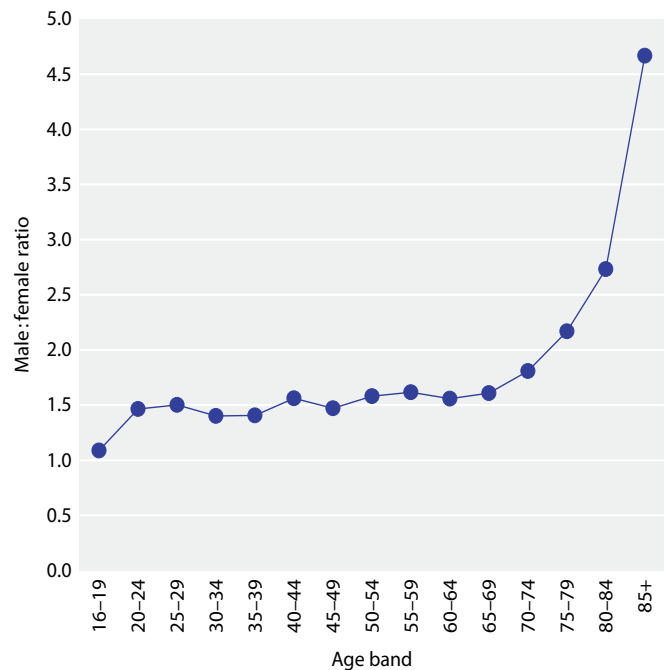


Fig. 4.11. Male:female ratio in UK RRT patients by age-band on 31/12/07

Table 4.9. Ethnicity* of prevalent RRT patients by renal centre on 31/12/07

Centre	% White	% Black	% Asian	% Chinese	% Other	% Missing
Abrdn	61.5	0.0	0.0	0.4	0.2	37.8
Airdrie	57.4	0.0	0.9	0.0	0.0	41.7
Antrim	100.0	0.0	0.0	0.0	0.0	0.0
B Heart	64.4	7.8	26.0	0.3	0.9	0.7
B QEH	68.2	9.7	19.2	1.0	1.7	0.2
Bangor	99.0	1.0	0.0	0.0	0.0	0.0
Basldn	91.7	2.9	3.9	0.5	0.5	0.5
Belfast	99.3	0.0	0.3	0.3	0.1	0.0
Bradfd	45.6	2.5	31.6	0.0	1.0	19.2
Brightn	45.1	1.0	0.4	0.0	0.6	52.8
Bristol	91.3	3.2	2.7	0.2	0.6	1.9
Camb	82.8	1.2	3.6	0.5	0.6	11.2
Cardff	44.2	0.4	1.2	0.0	0.0	54.2
Carlisle	96.5	0.0	0.5	0.0	0.0	3.0
Carsh	66.6	8.2	10.4	1.4	3.1	10.3
Chelms	59.0	1.6	1.1	0.5	0.0	37.8
Clwyd	48.4	0.0	0.0	0.6	0.0	51.0
Covnt	80.3	2.6	13.4	0.6	0.1	2.9
D & Gall	11.7	0.0	0.0	0.0	0.0	88.3
Derby	65.8	1.3	5.6	1.0	1.3	24.9
Derry	95.2	0.0	0.0	0.0	0.0	3.2
Donc	93.5	0.0	0.9	0.0	0.0	5.6
Dorset	95.5	0.9	0.9	0.9	0.9	0.9
Dudley	85.1	2.7	10.6	0.8	0.0	0.8
Dundee	71.0	0.0	0.8	0.0	0.5	27.7
Dunfn	24.1	0.0	0.6	0.0	0.0	75.3
Edinb	9.3	0.0	0.8	0.1	0.0	89.7
Exeter	57.8	0.5	0.2	0.2	0.2	41.3
Glasgw	8.7	0.0	1.3	0.2	0.0	89.7
Glouc	90.2	0.3	0.3	0.0	0.0	9.2
Hull	47.2	0.1	0.1	0.3	0.4	51.8
Inverns	57.0	0.0	0.5	0.0	0.0	42.5
Ipswi	87.3	2.1	2.1	0.0	0.4	8.1
Klmarnk	5.6	0.0	0.0	0.0	0.0	94.4
L Barts	45.1	11.9	23.2	1.6	14.5	3.6
L Guys	56.7	20.6	2.6	1.2	0.1	18.9
L Kings	52.9	30.6	11.4	2.1	0.0	2.9
L Rfree	52.4	18.9	18.0	2.0	7.9	0.8
L St.G	38.8	18.9	8.6	1.1	5.6	27.0
L West	36.7	12.3	19.7	0.6	11.2	19.5
Leeds	61.3	3.0	10.3	0.0	0.8	24.6
Leic	74.8	2.7	15.7	0.1	0.9	5.7
Liv Ain	67.0	0.0	0.9	0.9	0.9	30.4
Liv RI	82.9	1.0	0.9	0.9	0.6	13.8
M Hope	81.3	1.1	12.9	0.4	0.9	3.4
M RI	78.0	4.5	9.2	0.6	0.1	7.7
Middlbr	88.3	0.0	3.0	0.4	0.1	8.1
Newc	95.1	0.3	2.9	0.5	0.7	0.4
Newry	87.8	0.0	0.0	0.0	0.0	12.2
Norwch	69.9	0.6	1.0	0.2	0.2	28.1
Nottm	86.8	4.7	5.6	0.0	0.7	2.2
Oxford	49.4	2.2	4.7	0.4	0.8	42.5
Plymth	65.8	1.7	0.0	0.7	0.5	31.4
Ports	91.6	0.8	2.4	0.4	0.5	4.3
Prestn	82.5	1.1	12.3	0.0	0.6	3.6
Redng	76.5	5.1	14.1	1.3	2.9	0.0

Table 4.9. Continued

Centre	% White	% Black	% Asian	% Chinese	% Other	% Missing
Sheff	83.4	1.8	3.7	0.7	0.7	9.8
Shrew	95.4	1.4	3.2	0.0	0.0	0.0
Stevng	71.0	6.2	11.7	0.4	1.1	9.7
Sthend	58.5	1.0	0.5	1.5	0.0	38.5
Stoke	39.6	0.2	2.2	0.3	0.5	57.1
Sund	86.9	0.7	0.4	0.7	0.7	10.6
Swanse	96.9	0.9	0.7	0.0	0.2	1.3
Truro	60.1	2.1	0.0	0.0	0.0	37.8
Tyrone	98.0	0.0	0.0	0.0	0.0	2.0
Ulster	98.8	0.0	0.0	0.0	0.0	1.2
Wirral	90.3	0.5	0.9	1.4	1.9	5.1
Wolve	74.6	7.7	15.4	0.7	0.5	1.1
Wrexm	95.8	0.0	1.4	0.0	0.7	2.1
York	89.2	0.0	0.4	0.0	0.9	9.5
England	68.6	5.8	9.1	0.7	2.3	13.6
N Ireland	97.8	0.0	0.1	0.2	0.1	1.7
Scotland	26.3	0.0	0.8	0.2	0.1	72.6
Wales	61.9	0.5	1.0	0.0	0.1	36.5
UK	65.3	4.8	7.6	0.6	1.9	19.8

* appendix G ethnicity coding

Barts. Larger centres (quartiles by RRT population) had a larger proportion of patients from ethnic minorities (Q1 1.0%, Q2 3.7%, Q3 14.4%, Q4 18.7%). In addition centres with an ethnic minority population greater than 10% had higher numbers of patients on RRT (median 855 vs. 285: $p < 0.001$), on dialysis (489 vs. 180: $p < 0.001$), and with functioning transplants (839 vs. 116: $p < 0.001$). Sixty percent of transplanting centres had an ethnic minority population greater than 10% compared with 28% of non-transplanting centres ($p = 0.015$).

Primary renal disease

Biopsy-proven glomerulonephritis (15.3% of patients) remained the most common specific primary

renal diagnosis in the 2007 prevalent cohort (table 4.10). The proportion with diabetes (13.2%) was similar to 2006 [2]. The pattern was similar when the analysis was restricted to younger patients (age <65 years). However, in older patients the order was reversed (diabetes 15.1% vs. glomerulonephritis 8.3%). There were other age-related differences, notably higher prevalence of the aetiology uncertain/glomerulonephritis – not biopsy proven category (26.6% vs. 19.2%) and renovascular disease (8.2 vs. 1.1%) in the older age group.

The male:female ratio was significantly greater than unity for most primary renal diseases. The gender imbalance may be influenced by the presence of factors, such as hypertension, atheroma and renovascular disease, which were more common in males, more

Table 4.10. Primary renal disease in prevalent RRT patients by age and gender on 31/12/07

Primary diagnosis*	% all patients	Inter-centre range %	% age <65	% age ≥65	M:F ratio
Aetiology uncertain/GN (not biopsy proven)**	21.6	2.1–84.3	19.2	26.6	1.6
GN (biopsy proven)**	15.3	2.3–22.4	17.8	10.0	2.2
Pyelonephritis	11.9	3.2–19.4	13.6	8.3	1.1
Diabetes	13.2	2.8–26.0	12.3	15.1	1.6
Polycystic kidney	9.2	2.0–15.8	9.6	8.3	1.1
Hypertension	5.4	1.0–16.0	4.6	6.9	2.4
Renal vascular disease	3.5	0.3–16.1	1.1	8.2	2.0
Other	14.5	1.9–36.1	16.0	11.3	1.3
Not sent	5.5	0.1–46.2	5.7	5.2	1.5

* appendix G ERA-EDTA coding

** GN = Glomerulonephritis

Table 4.11. Transplant:dialysis ratios by age and primary renal disease in the prevalent RRT population on 31/12/07

Primary diagnosis	Transplant:dialysis ratio	
	<65	≥65
Aetiology uncertain/GN (not biopsy proven)*	1.4	0.3
GN (biopsy proven)*	1.8	0.5
Pyelonephritis	2.1	0.3
Diabetes	0.7	0.1
Polycystic kidney	1.7	1.1
Hypertension	1.1	0.3
Renal vascular disease	0.6	0.1
Other	1.4	0.3
Not sent	1.6	0.3

* GN = Glomerulonephritis

common with increasing age and which may increase the rate of progression of kidney failure. As would be expected from the mode of inheritance, adult polycystic kidney disease (APKD) was a major exception, the ratio approximating unity in this condition. In pyelonephritis the ratio also approximated to unity, but whilst in APKD, the ratio also approximated unity in the incident cohort, in pyelonephritis the ratio was somewhat lower in the prevalent cohort than in the incident cohort (1.5). This possibly reflects poorer survival on RRT of males with this diagnosis.

Primary renal diagnosis also influenced the distribution of patients between the modalities (table 4.11), particularly the likelihood of having a functioning renal transplant. In younger patients (aged less than 65), the ratios of prevalent patients with functioning transplants to those on dialysis were higher in the groups with pyelonephritis (2.1), polycystic kidney disease (1.7) and glomerulonephritis (1.8) than in the groups with diabetes (0.7) and renovascular disease (0.6), suggesting a much higher transplant rate in the former groups. In older patients the transplant rate was generally much lower. This was reflected in the lower transplant:dialysis ratios in this group, especially those for diabetes (0.1)

Table 4.12. Median age, gender ratio and treatment modality in diabetic and non-diabetic prevalent RRT patients

	All diabetes	Non-diabetics
Number	5,906	36,279
M:F ratio	1.58	1.52
Median age on 31/12/07	60	57
Median age at start of RRT	55	47
Median years on RRT	2.8	6.1
% HD	59	41
% PD	13	10
% transplant	28	49

and renovascular disease (0.1). The exception was APKD with a ratio of 1.1.

Diabetes

Again in 2007 there was no differentiation between Type 1 and Type 2 diabetes, since the distinction was not made in data submitted by centres in Scotland and some in Northern Ireland. The number of patients with diabetes in the 2007 prevalent cohort has increased to 5,906, representing 14% of all patients (table 4.12). The median age at dialysis initiation was much higher in diabetics (55 vs. 47 years), though the disparity was much less in the prevalent diabetic population (60 vs. 57 years), suggestive of reduced survival in patients with diabetes. Consistent with this, the RRT vintage of prevalent patients with diabetes (2.8 years) was much less than that of prevalent without (6.1 years). The percentage of patients with a functioning transplant was much lower in prevalent diabetics than in prevalent non-diabetics (28.1% vs. 49.4%). The contrasts were even more stark in older age patients (table 4.13), with only 6.6% of prevalent patients with diabetes having a functioning transplant compared to 24.5% of non-diabetic peers.

Modalities of treatment

The most common treatment modality in the 2007 UK prevalent cohort was transplantation (46.6%),

Table 4.13. Age relationships by type of diabetes and modality in prevalent RRT patients 31/12/07

	<65		≥65	
	Diabetics	Non-diabetics	Diabetics	Non-diabetics
Number	3,694	24,615	2,212	11,664
% HD	46.4	29.8	81.0	63.6
% PD	12.6	8.9	12.4	11.9
% transplant	41.0	61.3	6.6	24.5

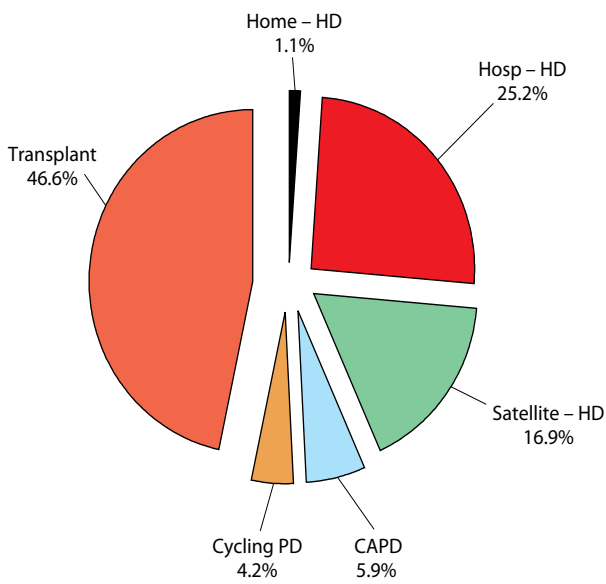


Fig. 4.12. Treatment modality in prevalent RRT patients on 31/12/07

closely followed by centre-based HD (42.1%) in either primary centre (25.2%) or satellite centre (16.9%) as depicted in figure 4.11. PD modalities made up 10.1% of the prevalent cohort, with CAPD accounting for 5.9% and cycling PD (automated PD) for 4.2%. The proportion of patients recorded as receiving CAPD using non-disconnect systems was very small, so in this analysis, has not been distinguished from those using disconnect systems. The term CAPD has been used to cover both.

Figure 4.12 shows the treatment modality in prevalent RRT patients on 31/12/2007. Transplantation (58.8%) was also the principal modality in patients aged less than 65, though HD (66.4%) predominated in older patients (tables 4.14 and 4.15). A slightly higher proportion of prevalent patients over 65 were on PD compared with the younger cohort (11.9% vs. 9.4%). There were differences among the 4 UK countries with respect to the proportion of patients on PD according to age

Table 4.15. Percentage of prevalent dialysis patients on haemodialysis by age and UK country on 31/12/07

	<65 years	≥65 years	All
England	78	84	81
N Ireland	80	93	87
Scotland	77	88	82
Wales	70	81	76
UK	77	85	81

group. In England and Wales, PD prevalence was higher in older patients, whilst in Northern Ireland, the reverse was the case. PD prevalence in both age groups was higher in Wales.

In general in the prevalent RRT population, age was a major factor in modality distribution (figure 4.13). With increasing age, transplant prevalence reduced, certainly beyond the age of 60 or so, whilst HD prevalence increased. The proportion of each age group treated by PD remained fairly stable across the age spectrum.

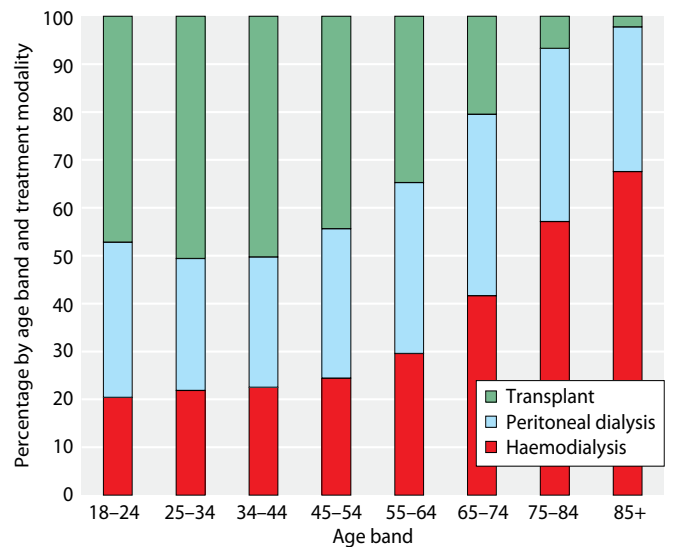


Fig. 4.13. Treatment modality distribution by age in prevalent RRT patients on 31/12/07

Table 4.14. Treatment modalities by age in UK countries on 31/12/07

UK country	<65 years			≥65 years		
	% HD	% PD	% transplant	% HD	% PD	% transplant
England	31.7	9.2	59.1	65.9	12.2	21.9
N Ireland	35.0	8.7	56.3	74.5	5.6	19.9
Scotland	32.8	9.9	57.3	68.4	9.6	21.9
Wales	29.1	12.5	58.4	65.9	15.9	18.2
UK	31.8	9.4	58.8	66.4	11.9	21.6

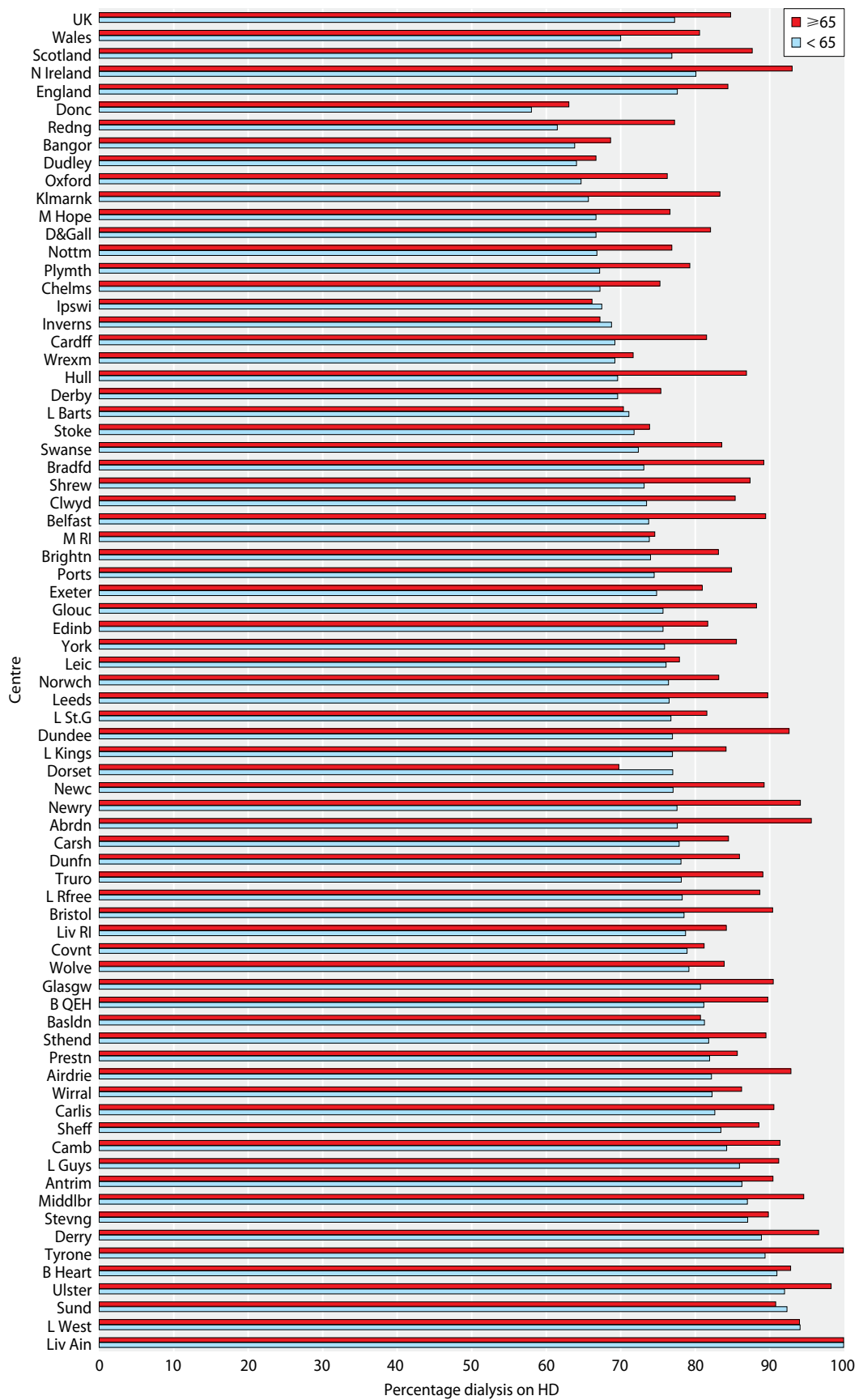


Fig. 4.14. Percentage of prevalent dialysis patients on haemodialysis by age and centre 31/12/07

The proportion of prevalent dialysis patients on HD in the UK in the 2007 cohort was 81%, and continued to increase having been 71% in 2002. The proportion was higher still in those aged over 65 years than in younger patients (85% vs. 77%). There was some variation among the 4 home countries with Wales tending to have a slightly lower percentage of patients on HD and Northern Ireland slightly higher.

The proportion of prevalent dialysis patients receiving HD, ranged from 60% in Doncaster to 100% in Liverpool Aintree. In only 6 centres was the national pattern of a higher percentage of older dialysis patients receiving

HD reversed, and then only marginally. The centres were (figure 4.14), Dorset, Inverness, Ipswich, Sunderland, London Barts and Basildon.

Home haemodialysis

The percentage of dialysis patients receiving home HD varied from 0 in 20 centres, to greater than 5% of all dialysis activity in 6 centres, Sheffield (5.2%), London Guys (5.1%), Brighton (5.5%), Bangor (5.1%), Bristol (5.5%) and Manchester Royal Infirmary (8.6%) (table 4.16).

There was a peak in home haemodialysis use in 1982, when 60% of HD patients were on home HD

Table 4.16. Percentage of prevalent dialysis patients by dialysis modality by centre on 31/12/07

Centre	Haemodialysis				Peritoneal dialysis			
	Total	Home	Hospital	Satellite	Standard	Disconnect	Cycled ≥6 nights	Cycled <6 nights
Liv Ain	100.0	1.7	62.6	35.7	0.0	0.0	0.0	0.0
Ulster	96.3	1.2	95.1	0.0	0.0	0.0	3.7	0.0
Tyrone	94.3	1.1	93.2	0.0	0.0	1.1	3.4	0.0
L West	94.0	1.0	20.0	73.0	0.0	2.7	3.3	0.0
Derry	92.9	0.0	91.1	1.8	1.8	1.8	3.6	0.0
B Heart	91.9	3.6	81.5	6.9	0.0	7.4	0.7	0.0
Sund	91.7	1.1	72.8	17.8	0.0	4.4	3.9	0.0
Middlbr	91.0	0.6	34.7	55.6	0.0	8.1	0.9	0.0
Antrim	89.0	2.1	86.9	0.0	0.0	2.8	8.3	0.0
Stevng	88.4	0.0	28.0	60.5	0.0	11.6	0.0	0.0
L Guys	88.3	5.1	21.8	61.3	0.0	4.6	0.0	7.2
Camb	87.7	1.0	50.0	36.7	0.0	0.0	0.0	0.0
Carlisle	86.9	0.0	60.6	26.3	0.0	3.0	10.1	0.0
Airdrie	86.6	0.0	86.6	0.0	0.0	5.9	7.6	0.0
Newry	86.0	0.0	86.0	0.0	0.0	0.0	14.0	0.0
Sthend	85.9	0.0	85.9	0.0	0.0	14.1	0.0	0.0
Sheff	85.9	5.2	42.2	38.5	0.0	14.0	0.2	0.0
Abrdn	85.8	2.8	83.0	0.0	0.0	8.1	6.1	0.0
Dundee	85.4	0.0	85.4	0.0	0.0	2.0	10.6	2.0
B QEH	85.3	2.0	19.6	63.6	0.0	8.9	5.8	0.0
Truro	85.2	2.7	44.3	38.3	0.0	10.4	4.4	0.0
Glasgw	85.2	3.8	81.4	0.0	0.0	7.7	5.7	1.4
Bristol	85.1	5.5	13.1	66.5	0.0	11.2	3.5	0.2
Wirral	84.3	0.5	46.8	37.0	6.5	2.3	6.9	0.0
Glouc	83.8	0.0	83.8	0.0	0.0	7.1	9.1	0.0
Prestn	83.6	3.6	23.8	56.2	0.0	6.8	9.6	0.0
L Rfree	83.0	1.6	35.1	46.3	0.1	5.3	11.4	0.1
Leeds	82.8	2.8	46.5	33.6	0.0	7.2	10.0	0.0
Newc	82.2	2.6	79.6	0.0	0.0	3.0	14.8	0.0
Dunfn	81.8	0.0	81.8	0.0	0.0	1.5	16.8	0.0
Wolve	81.6	0.0	26.4	55.2	0.0	18.4	0.0	0.0
York	81.6	0.7	53.2	27.7	0.0	18.4	0.0	0.0
Carsh	81.4	0.0	27.4	54.0	0.0	9.1	9.4	0.0
Basldn	81.0	0.0	81.0	0.0	0.0	7.4	11.0	0.6
Liv RI	80.8	1.0	46.3	33.6	0.0	7.9	10.2	1.0

Table 4.16. Continued

Centre	Haemodialysis				Peritoneal dialysis			
	Total	Home	Hospital	Satellite	Standard	Disconnect	Cycled >6 nights	Cycled <6 nights
Belfast	80.6	2.2	78.5	0.0	0.0	4.3	14.2	0.0
Bradfd	80.5	0.0	64.3	16.3	0.0	6.3	13.1	0.0
Norwch	80.3	2.2	54.3	23.8	0.0	17.6	0.9	1.2
Covnt	80.0	2.1	77.9	0.0	0.0	20.0	0.0	0.0
L Kings	80.0	0.0	28.6	51.4	0.0	5.8	14.2	0.0
Shrew	79.8	0.5	53.2	26.1	0.5	19.7	0.0	0.0
Ports	79.8	0.0	37.8	42.0	0.0	20.2	0.0	0.0
L St.G	79.4	2.7	75.9	0.8	14.8	1.6	4.3	0.0
Brightn	79.3	5.5	44.1	29.8	0.0	10.5	10.2	0.0
Clwyd	78.9	1.1	77.8	0.0	12.2	0.0	8.9	0.0
Swanse	78.6	3.7	53.0	21.9	0.0	21.4	0.0	0.0
Exeter	78.5	0.5	36.9	41.1	0.0	13.6	7.6	0.3
Edinb	77.9	1.7	76.2	0.0	0.0	10.3	11.8	0.0
Hull	77.5	2.8	43.0	31.8	0.0	9.8	12.8	0.0
Leic	76.9	2.3	20.2	54.4	0.0	12.1	11.1	0.0
D & Gall	75.8	0.0	75.8	0.0	0.0	4.6	13.6	6.1
Cardff	75.7	0.0	35.4	40.3	0.0	24.4	0.0	0.0
Plymth	74.9	0.6	74.3	0.0	0.0	19.4	5.7	0.0
M RI	74.1	8.6	27.8	37.7	0.4	5.3	20.2	0.0
Klmarnk	73.4	0.6	72.9	0.0	0.0	10.2	13.0	3.4
Dorset	73.1	0.9	31.5	40.6	0.0	17.8	9.1	0.0
Stoke	72.7	1.4	58.8	12.5	8.2	0.0	19.0	0.0
Derby	72.3	3.6	68.8	0.0	0.0	24.1	3.6	0.0
Chelms	72.0	0.0	72.0	0.0	0.7	15.3	12.0	0.0
Nottm	71.5	1.7	51.9	17.8	0.0	12.8	15.7	0.0
L Barts	70.8	1.2	39.5	30.1	0.0	11.3	17.9	0.0
Wrexm	70.5	0.0	70.5	0.0	0.0	25.9	0.9	1.8
M Hope	70.4	1.3	29.4	39.7	0.0	19.7	9.0	0.0
Redng	70.1	0.3	45.4	24.4	0.0	29.9	0.0	0.0
Oxford	69.9	4.1	64.6	1.2	0.0	15.8	14.3	0.0
Inverns	68.0	1.6	66.4	0.0	0.0	14.4	17.6	0.0
Ipswi	66.9	2.7	64.2	0.0	0.0	19.2	12.6	0.7
Bangor	66.3	5.1	61.2	0.0	0.0	10.2	23.5	0.0
Dudley	65.1	1.1	46.3	17.7	0.0	34.9	0.0	0.0
Donc	60.4	0.0	59.4	1.0	1.0	25.0	13.5	0.0
England	80.9	2.1	41.9	36.9	0.5	10.6	7.5	0.3
N Ireland	86.8	1.5	85.2	0.1	0.1	2.5	10.1	0.0
Scotland	81.8	2.0	79.8	0.0	0.0	7.6	9.5	1.1
Wales	75.6	1.5	48.1	26.0	0.8	21.0	2.4	0.2
UK	80.9	2.0	47.2	31.7	0.4	10.7	7.5	0.3

(about 2,200 patients). With an increase in the HD programme size, number of renal centres and provision of satellite HD there has been a continued fall in numbers of patients on home HD until 2003 when numbers plateaued. By 2003 only 430 patients were on home HD, about 450 from 2004 to 2006 and in 2007 this had risen slightly to 478, which accounted for 2.4% of the HD patient population. The recent increase in pre-emptive transplantation and live donation rates will also have had an impact on the numbers of

patients who would be suitable for a home HD programme.

Apart from the Manchester centre (which reported to the UKRR for the first time), there was little evidence of any substantial increase in home HD activity despite NICE guidance, particularly among centres starting from zero activity in this area. Of those centres with a zero return for home haemodialysis in 2006, only Liverpool Aintree and Reading submitted non-zero returns in 2007 [2].

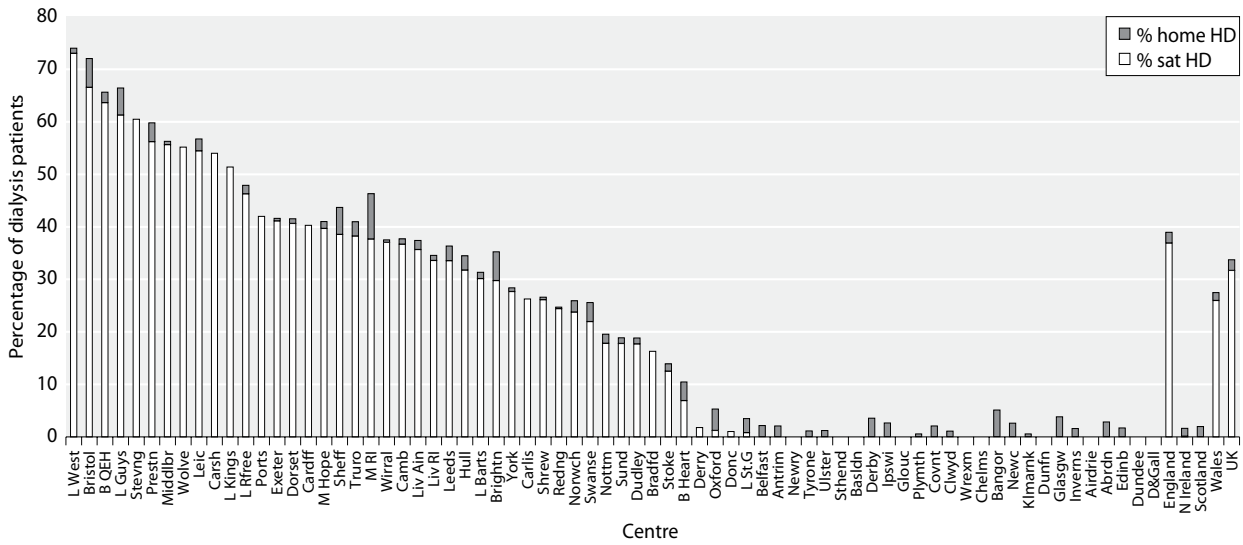


Fig. 4.15. Percentage of prevalent haemodialysis patients treated with satellite or home haemodialysis by centre in 2007

Satellite Dialysis

Twenty-six centres had no satellite haemodialysis whilst in 11 centres more than 50% of their dialysis activity took place in satellites (table 4.16). These variations with respect to home and satellite haemodialysis are depicted in figure 4.15. There was also much diversity between centres in the proportion of PD patients on cycling treatments, ranging from 0 to 100% (table 4.16). Eleven of the 68 centres with a PD programme, had no patients on cycling PD, whilst in two centres (Ulster and Newry) all PD patients were on this form of the modality.

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 4.16, which describes a sustained decrease in the proportion of patients treated by PD. By way of compensation there has been a continuous rise in the proportion of patients treated by HD. The proportion with a functioning transplant has fallen slightly over the same period.

Figure 4.17 depicts in more detail the changes in the prevalent dialysis population during this time and highlights a sustained reduction in the proportion of these patients treated by PD. This change was almost

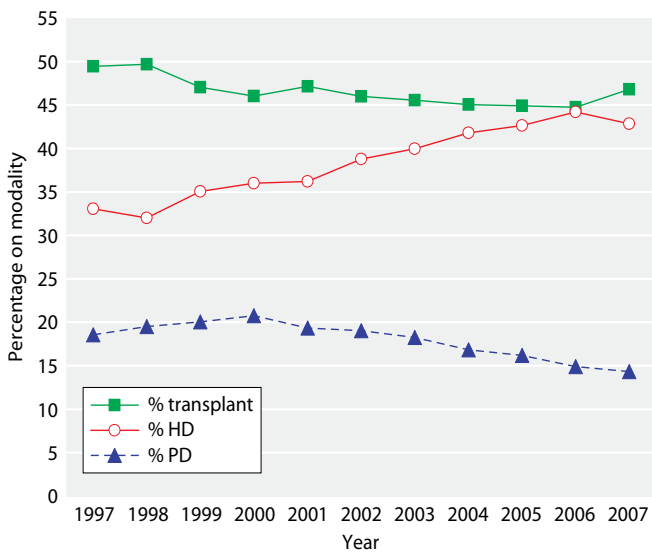


Fig. 4.16. Modality changes in prevalent RRT patients from 1997–2007 (England and Wales)

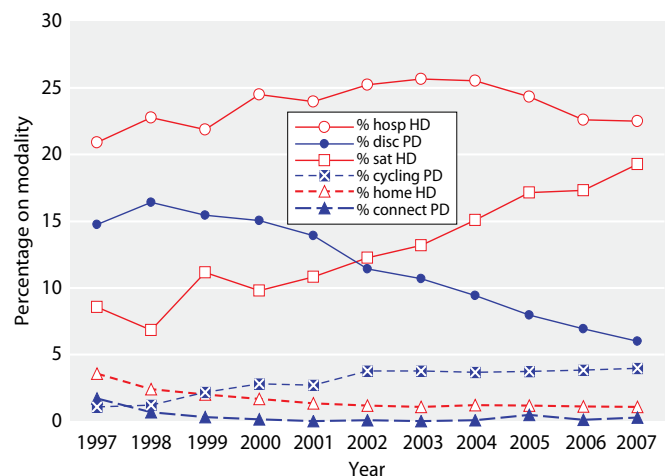


Fig. 4.17. Detailed dialysis modality changes in prevalent RRT patients from 1997–2007 (England and Wales)

completely counterbalanced by growth in the proportion of prevalent HD patients treated at satellite centres. The hospital haemodialysis population, other than the proportion dialysing in satellite centres has remained fairly constant.

Conflict of interest: none

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