

Chapter 5: All Patients Receiving Renal Replacement Therapy in the United Kingdom in 2003

Summary

- The estimated prevalence of RRT in the UK at the end of 2003 was 632 pmp.
- The annual increase in prevalence in the 27 English and Welsh units participating in the Registry since 2000 is stable at around 5%.
- The Local Authority prevalence varies considerably from 227 to 950 pmp.
- In men the RRT prevalence peaked in the 80–85 year old population at 1,837 pmp and this contrasts with a peak prevalence for women in the 65–74 year age band of 985 pmp.
- Dialysis prevalence peaks in men at 1,755 pmp in the 80–85 year old population and for women at 699 pmp in the 65–74 year age band.
- The median age of all patients on RRT was 56 years: for HD, PD and transplant patients respectively it was 64, 58 and 49 years.
- From 1998–2003 the median age of prevalent patients on HD increased, the median age of those on PD decreased.
- In 2003, 46% of RRT patients in the UK had a functioning transplant, 40% were on HD and 14% on PD.
- The one year prevalent transplant patient and dialysis patient survival was 97.5% and 83.4% respectively.

Introduction

The UK Renal Registry in 2003 covered 73% of England and 100% of Wales. Data on incident and prevalent patients in Scotland were obtained from the Scottish Renal Registry and summary data for Northern Ireland were obtained from the renal unit in Royal Belfast

Hospital which coordinates the renal service provision.

Any assessment of the incidence and characteristics of patients receiving renal replacement therapy in the whole UK must be an extrapolation from data from the units participating in the Registry, which has inherent potential errors. The proportion of the population aged over 65 years was similar in the fully covered population (defined below, ie based on Local Authority (LA) areas whose population was thought to be fully covered by participating units). The proportion from an ethnic minority group was lower in the covered population at 6.7% compared with 8.7% in the total population. This is because the areas not reporting to the Registry include parts of London and Manchester where there are high ethnic minority populations. If an attempt is made to calculate the prevalence of RRT for the whole UK from the Registry data, the difference in ethnic mix between the populations served by the Registry and the whole population of the UK will inevitably lead to an underestimate, as the incidence of renal failure is high in the South Asian and African-Caribbean ethnic minority populations.

For comparisons between renal units and between local areas fully covered by the Renal Registry, the data from the Registry are fully valid.

Analyses of paediatric data, which are not included in this Chapter, can be found in Chapter 13.

All adult patients receiving Renal Replacement Therapy in the UK, 2003

It is estimated there were over 37,000 adult patients receiving RRT in the whole of the UK for the year 2003, a total population prevalence of 632 pmp (Table 5.1). The prevalence was calculated using an overall total for England

Table 5.1: Prevalence of renal replacement therapy in the UK 2002 and 2003**2003**

	England	Wales	Scotland	N. Ireland	UK
No of renal units	36/53	5	10	5	73
Total RRT patients	22,356 (30,640)*	2,087	3,459	1,202	37,388
Rate pmp (95% CI)	621 (614–628)	718 (688–748)	692 (669–715)	707 (669–746)	632 (626–639)
In Registry centres:					
Haemodialysis	8,971 (40%)	788 (38%)	1,471 (42%)	552 (46%)	11,782 (40%)
Peritoneal dialysis	3,135 (14%)	355 (17%)	387 (11%)	85 (7%)	3,962 (14%)
Transplants	10,379 (46%)	815 (45%)	1,604 (46%)	565 (47%)	13,363 (46%)
% dialysis pts on HD	74%	69%	79%	87%	75%

*Extrapolated – is an underestimate due to under-representation of ethnic minorities in the areas covered by the English units participating in the Registry compared with the population as a whole.

2002

	England	Wales	Scotland	N. Ireland	UK
No of renal units	52	5	10	4	71
Total RRT patients	30,498	2,006	3,418	1,117	37,039
Rate pmp (95% CI)	615 (608–622)	692 (652–722)	684 (661–707)	657 (619–696)	626 (620–633)

derived from the data available for the renal units in England participating in the Registry's activity which cover an estimated 36.2 million people. As indicated above this is an underestimate, probably by 3–5% and neither this nor the total UK figure can be compared with the 2002 figure which was the result of the national survey which had a 100% response.

The percentage increase in prevalence from 2002 to 2003 was 4.0% in Wales, 1.1% in Scotland and 7.6% in Northern Ireland.

Data returned directly to the UK Renal Registry – England and Wales

Prevalent patients on 31/12/2003

The number of units participating in the UK Renal Registry activity has increased to 41, providing data for 24,468 prevalent RRT patients in England and Wales. The number of prevalent patients and distribution of treatments used in each of these units is given in Table 5.2 and Figure 5.1. The wide variation in the proportion of transplanted patients in each unit is partly the result of different policies for follow up of

patients at transplant centres; some transplant centres continue to follow up the patients they transplant for other renal units, others transfer them back to their parent unit but at variable times post transplant and some renal units do not follow up any transplanted patients. Thus units with a transplant centre tend to have a higher proportion of transplant patients under follow up compared with units without a transplant centre. The Registry does not yet include two of the larger transplant centres, Queen Elizabeth Hospital in Birmingham (to be included in the next report) and the Manchester Royal Infirmary.

Changes in Prevalence 2000–2003

For the 27 units which have been participating in Registry activity since 2000, the prevalent number continues to increase year by year (Table 5.3). The increase averages 5% per year. For individual centres, the changes in total numbers are shown in Table 5.4.

Local Authority Prevalence

The prevalence of RRT in those Local Authorities with complete coverage in 2003 is shown in Table 5.5.

Table 5.2 Prevalent RRT patients in each unit, 31 December 2003

Centre	Total RRT	% HD	% PD	% transplant
Oxford*	1,398	28	11	62
Liverpool*	1,253	31	11	58
Leeds*	1,227	37	9	54
Guys*	1,200	30	11	59
Cardiff*	1,153	30	14	56
Leicester*	1,107	37	19	44
H&CX*	1,088	47	18	35
Sheffield*	1,087	45	16	39
Bristol*	1,060	36	7	57
Portsmouth*	1,059	31	10	59
Carshalton*	891	40	22	39
Nottm*	814	36	18	46
Newcastle*	783	27	6	67
Cambridge*	746	30	13	56
Preston	742	40	17	43
ManWst	605	35	23	42
Coventry*	581	40	14	46
Kings	574	41	16	43
Stevenage	568	63	10	27
Middlbr	552	43	4	53
Exeter	531	41	16	43
Hull	524	49	12	39
Heartlands	517	57	5	37
Swansea	438	50	23	27
Wolve	404	60	17	23
Plymouth*	390	34	14	52
Bradford	313	46	17	36
Derby	279	75	25	N/A
Sunderland	263	41	7	52
Gloucester	247	50	14	36
Wordsley	247	39	21	40
Ipswich	241	34	27	38
Truro	236	56	15	30
Reading	229	59	36	5
Wrexham	205	51	24	25
York	197	57	18	24
Southend	194	60	24	16
Carlisle	176	33	18	49
Wirral	162	88	12	N/A
Bangor	94	72	28	N/A
Clwyd	68	81	19	N/A

*Transplant centres

Table 5.4: Changes in number on RRT in each centre 2000–2003

Centre	Total number of RRT patients			
	2000	2001	2002	2003
Bangor			89	94
Bradford		252	280	313
Bristol	909	951	993	1,060
Cambridge		651	714	746
Carlisle	157	161	170	176
Carshalton	672	697	789	891
Clwyd			87	68
Coventry	519	552	571	581
Cardiff	970	1,047	1,113	1,153
Derby				279
Exeter	444	466	517	531
Gloucester	237	197	212	247
Guys	1,130	1,157	1,189	1,200
H&CX			1,081	1,089
Heartlands	455	477	484	517
Hull	437	459	519	524
Ipswich			239	241
Kings			572	577
Leeds	1,141	1,155	1,196	1,227
Leicester	976	1,030	1,071	1,107
Liverpool		970	1,162	1,253
ManWst				617
Middlbr	447	441	521	552
Newcastle			654	783
Nottm	787	831	812	814
Oxford	1,241	1,311	1,369	1,398
Plymouth	412	398	395	390
Portsmouth		1,016	1,037	1,059
Preston	529	550	594	742
Reading	179	206	202	229
Sheffield	868	944	1,026	1,087
Stevenage	459	462	528	572
Southend	160	165	176	194
Sunderland	245	237	255	263
Swansea	313	394	386	438
Truro		182	212	236
Wirral			140	162
Wolve	328	351	384	404
Wordsley	254	245	236	247
Wrexham	246	225	212	205
York	120	137	172	197
Total	14,635	18,317	22,359	24,463

Table 5.3: Number of patients in the same 27 centres on RRT, 2000–2003

End year	2000	2001	2002	2003
Total number of patients	14,635	15,246	16,092	16,946
% increase in year	N/A	5.5	4.2	5.5
Cumulative 3 year % increase				15.8

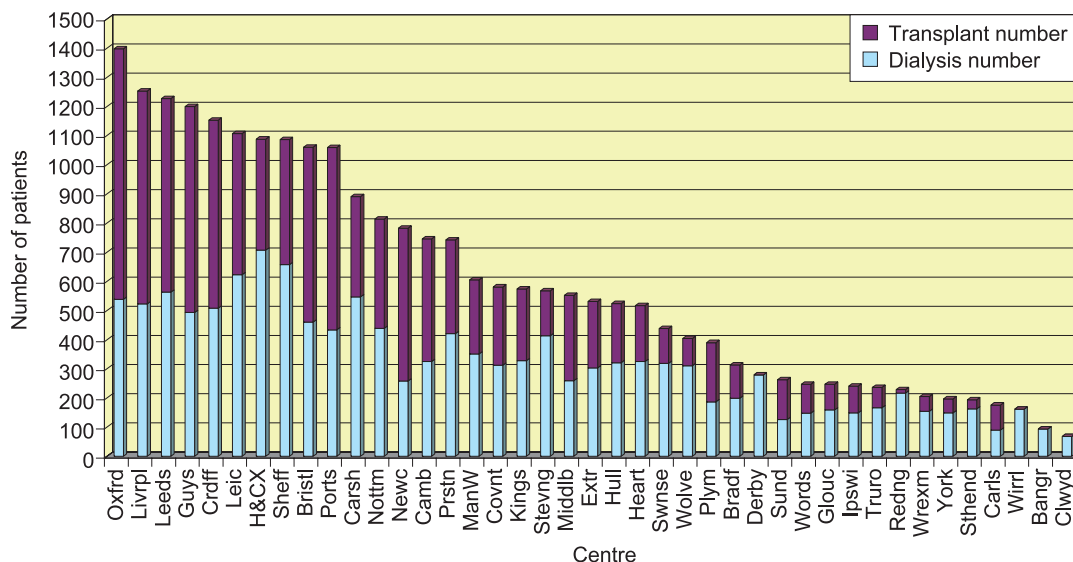


Figure 5.1: Distribution of dialysis and transplant patients in centres in England and Wales

Table 5.5: Local Authority prevalences and adjusted prevalence ratios 2003

Areas with a significantly high prevalence ratio have a grey infill.

Areas with a significantly low prevalence ratio are in italics.

UK Area	SHA	Name	Tot Pop	2003				Ethnicity %
				Ratio	L 95% CL	U 95% CL	Crude rate pmp	
North East	County Durham & Tees Valley	Darlington	97,838	0.81	0.61	1.07	490.61	2.1
		<i>Durham</i>	<i>493,469</i>	<i>0.77</i>	0.68	0.88	476.22	1.0
		Hartlepool	88,610	0.97	0.73	1.27	575.56	1.2
		<i>Middlesbrough</i>	<i>134,855</i>	<i>0.57</i>	0.42	0.76	318.86	6.3
		<i>Redcar and Cleveland</i>	<i>139,132</i>	<i>0.57</i>	0.43	0.76	352.18	1.1
		<i>Stockton-on-Tees</i>	<i>178,408</i>	<i>0.46</i>	0.34	0.61	269.05	2.8
	Northumberland, Tyne & Wear	Gateshead	191,151	1.08	0.91	1.29	669.63	1.6
		Newcastle upon Tyne	259,536	0.98	0.83	1.16	558.69	6.9
		North Tyneside	191,658	1.01	0.84	1.21	626.12	1.9
		Northumberland	307,190	0.94	0.82	1.09	605.49	1.0
		South Tyneside	152,785	0.93	0.75	1.15	569.43	2.7
Sunderland	280,807	1.03	0.89	1.19	608.96	1.9		
North West	Cheshire & Merseyside	Halton	118,209	1.02	0.80	1.29	583.71	1.2
		Knowsley	150,459	1.26	1.04	1.52	711.16	1.6
		Liverpool	439,471	1.21	1.08	1.35	680.36	5.7
		Sefton	282,958	0.91	0.78	1.06	565.45	1.6
		St. Helens	176,843	0.85	0.69	1.04	508.93	1.2
		Warrington	191,080	0.90	0.74	1.10	533.81	2.1
		Wirral	312,293	1.11	0.97	1.27	678.85	1.7
	Cumbria and Lancashire	Blackburn with Darwen	137,470	1.07	0.85	1.33	567.40	22.1
		Blackpool	142,283	0.80	0.64	1.01	513.06	1.6
		<i>Cumbria</i>	<i>487,607</i>	<i>0.83</i>	0.74	0.94	531.17	0.7
		<i>Lancashire</i>	<i>1,134,975</i>	<i>0.84</i>	0.77	0.91	505.74	5.3
	Greater Manchester	<i>Bolton</i>	<i>261,037</i>	<i>0.80</i>	0.67	0.96	463.54	11.0
		<i>Bury</i>	<i>180,607</i>	<i>0.39</i>	0.29	0.53	227.01	6.1
		<i>Oldham</i>	<i>217,276</i>	<i>0.55</i>	0.43	0.69	308.36	13.9
<i>Rochdale</i>		<i>205,357</i>	<i>0.64</i>	0.51	0.80	360.35	11.4	
<i>Salford</i>		<i>216,105</i>	<i>0.76</i>	0.63	0.93	444.23	3.9	
<i>Wigan</i>		<i>301,415</i>	<i>0.65</i>	0.54	0.78	388.17	1.3	

Table 5.5: (continued)

UK Area	SHA	Name	Tot Pop	2003				Ethnicity %
				Ratio	L 95% CL	U 95% CL	Crude rate pmp	
Yorkshire and the Humber	North and East Yorkshire and Northern Lincolnshire	East Riding of Yorkshire	314,113	0.91	0.78	1.05	585.78	1.2
		Kingston upon Hull, City of	243,588	1.00	0.84	1.18	562.43	2.3
		North East Lincolnshire	157,981	0.99	0.81	1.22	588.68	1.4
		North Lincolnshire	152,848	0.96	0.78	1.18	595.36	2.5
		<i>North Yorkshire</i>	569,660	0.74	0.66	0.84	470.46	1.1
		York	181,096	1.08	0.90	1.29	646.07	2.2
	South Yorkshire	Barnsley	218,063	1.22	1.04	1.42	738.32	0.9
		Doncaster	286,865	1.11	0.97	1.28	672.79	2.3
		Rotherham	248,175	1.20	1.03	1.39	717.24	3.1
		Sheffield	513,234	1.07	0.96	1.19	623.50	8.8
	West Yorkshire	Bradford	467,664	1.34	1.21	1.49	735.57	21.7
		Calderdale	192,405	1.14	0.96	1.35	670.46	7.0
		Kirklees	388,567	1.25	1.11	1.40	712.88	14.4
		Leeds	715,403	1.06	0.97	1.17	602.46	8.2
Wakefield		315,172	0.90	0.77	1.04	536.22	2.3	
East Midlands	Leicestershire, Northamptonshire and Rutland	Leicester	279,920	1.82	1.61	2.05	950.27	36.1
		Leicestershire	609,578	0.97	0.87	1.07	590.57	5.3
		Northamptonshire	629,676	0.93	0.83	1.03	541.55	4.9
		Rutland	34,563	1.02	0.67	1.55	636.52	1.9
	Trent	Derby	221,709	1.32	1.14	1.54	762.26	12.6
		<i>Derbyshire</i>	734,585	0.88	0.80	0.97	549.97	1.5
		<i>Lincolnshire</i>	646,644	0.81	0.72	0.90	518.06	1.3
		Nottingham	266,988	1.34	1.17	1.55	715.39	15.1
Nottinghamshire	748,508	1.01	0.92	1.11	623.91	2.6		
West Midlands	Birmingham and the Black Country	<i>Dudley</i>	305,153	0.80	0.68	0.94	494.83	6.3
		Solihull	199,515	0.91	0.76	1.10	561.36	5.4
		Walsall	253,498	0.84	0.71	1.00	500.99	13.6
		Wolverhampton	236,582	1.27	1.10	1.47	748.15	22.2
	Coventry, Warwickshire, Herefordshire & Worcestershire	Coventry	300,849	1.38	1.21	1.57	771.15	16.0
Warwickshire	505,858	1.08	0.97	1.20	666.19	4.4		
East of England	Bedfordshire and Hertfordshire	Bedfordshire	381,572	0.97	0.85	1.11	566.08	6.7
		<i>Hertfordshire</i>	1,033,978	0.61	0.56	0.68	361.71	6.3
		Luton	184,373	1.26	1.05	1.50	667.13	28.1
	Essex	Southend-on-Sea	160,259	0.94	0.77	1.15	567.83	4.2
	Norfolk, Suffolk & Cambridgeshire	Cambridgeshire	552,659	0.89	0.79	1.00	524.74	4.1
		Peterborough	156,061	1.01	0.82	1.25	570.29	10.3
	North West London	Ealing	300,948	1.55	1.37	1.76	830.71	41.3
		Hammersmith and Fulham	165,244	1.56	1.32	1.85	810.92	22.2
	South East London	Bexley	218,307	1.22	1.04	1.43	719.17	8.6
		Bromley	295,532	0.97	0.84	1.13	585.39	8.4
		Greenwich	214,404	1.04	0.87	1.25	550.36	22.9
		Lambeth	266,169	1.37	1.18	1.58	676.26	37.6
		Lewisham	248,923	1.64	1.44	1.88	843.63	34.1
Southwark		244,866	1.74	1.52	1.99	878.03	37.0	
South West London	Croydon	330,588	1.14	1.00	1.31	629.18	29.8	

Table 5.5: (continued)

UK Area	SHA	Name	Tot Pop	2003				Ethnicity %
				Ratio	L 95% CL	U 95% CL	Crude rate pmp	
South East	Hampshire and Isle of Wight	<i>Hampshire</i>	1,240,102	0.79	0.73	0.86	480.61	2.2
		<i>Isle of Wight</i>	132,731	0.71	0.56	0.91	474.64	1.3
		Portsmouth	186,700	1.28	1.08	1.51	712.37	5.3
		Southampton	217,444	0.97	0.81	1.17	528.87	7.6
	Thames Valley	Buckinghamshire	479,026	1.00	0.89	1.12	592.87	7.9
		Milton Keynes	207,057	1.09	0.91	1.30	579.55	9.3
		Oxfordshire	605,489	1.13	1.02	1.25	654.02	4.9
		Reading	143,096	1.24	1.01	1.51	656.90	13.2
		Slough	119,064	1.76	1.46	2.13	923.87	36.3
		West Berkshire	144,485	0.93	0.75	1.16	546.77	2.6
Wokingham	150,231	0.92	0.74	1.15	532.51	6.1		
South West	Avon, Gloucestershire and Wiltshire	<i>Bath and North East Somerset</i>	169,040	0.74	0.60	0.93	455.51	2.8
		Bristol, City of	380,616	1.47	1.32	1.64	817.10	8.2
		Gloucestershire	564,559	0.89	0.80	1.00	549.10	2.8
		North Somerset	188,564	1.13	0.95	1.33	726.54	1.4
		South Gloucestershire	245,641	1.12	0.96	1.31	667.64	2.4
		Swindon	180,051	0.88	0.72	1.08	505.41	4.8
		<i>Wiltshire</i>	432,972	0.74	0.65	0.86	452.69	1.6
	Dorset & Somerset	Somerset	498,095	0.92	0.82	1.03	584.23	1.2
	South West Peninsula	Cornwall and Isles of Scilly	501,267	1.09	0.98	1.21	718.18	1.0
		<i>Devon</i>	704,491	0.87	0.79	0.96	569.21	1.1
Plymouth		240,722	1.11	0.95	1.30	652.20	1.6	
Torbay		129,706	0.98	0.79	1.22	647.62	1.2	
Wales	Bro Taf	Cardiff	305,353	1.27	1.11	1.46	694.28	8.4
		Merthyr Tydfil	55,979	1.59	1.22	2.09	946.78	1.0
		Rhondda, Cynon, Taff	231,947	1.27	1.10	1.48	754.48	1.2
		The Vale of Glamorgan	119,292	1.13	0.91	1.41	687.39	2.2
	Dyfed Powys	Carmarthenshire	172,842	1.20	1.01	1.42	769.49	0.9
		Ceredigion	74,941	1.00	0.75	1.33	627.16	1.4
		Pembrokeshire	114,131	0.89	0.70	1.13	569.52	0.9
		<i>Powys</i>	126,353	0.43	0.31	0.60	284.92	0.9
	Gwent	Blaenau Gwent	70,064	1.23	0.94	1.62	742.18	0.8
		Caerphilly	169,519	1.13	0.94	1.36	666.59	0.9
		Monmouthshire	84,885	1.18	0.92	1.50	753.96	1.1
		Newport	137,012	1.31	1.08	1.59	766.36	4.8
		Torfaen	90,949	1.29	1.02	1.63	780.66	0.9
	Morgannwg	Bridgend	128,645	1.18	0.96	1.44	715.15	1.4
		Neath Port Talbot	134,468	1.24	1.02	1.50	773.42	1.1
		Swansea	223,300	1.38	1.20	1.60	850.87	2.2
	North Wales	Conwy	109,596	1.02	0.81	1.28	675.21	1.1
		Denbighshire	93,065	0.95	0.73	1.23	601.73	1.2
Flintshire		148,594	1.22	1.01	1.48	733.54	0.8	
Gwynedd		116,843	1.35	1.11	1.64	838.73	1.2	
Isle of Anglesey		66,829	1.05	0.78	1.40	673.36	0.7	
Wrexham		128,476	1.44	1.20	1.74	863.97	1.1	

Standardised prevalence ratios

Methods

The methods of calculating the standardised rate ratio are described in detail in Appendix D.

In summary, age and gender specific prevalences were first calculated using the available registry data on the number of prevalent patients for the covered area in England and Wales and the data on the age and gender breakdown of the population of each Local Authority area obtained from the 2001 census data from the Office of National Statistics (ONS). These age and gender prevalences were then used to calculate the expected prevalence for each LA area. The age and gender standardised ratio is therefore equal to (observed prevalence)/(expected prevalence).

A ratio of 1 indicates that the LA area's prevalence was as expected if the age/gender rates found in the total covered population applied to the LA area's population structure; a level above 1 indicates that the observed prevalence is greater than expected given the LA area's population structure; if the lower confidence limit was above 1 this is statistically significant at the 5% level. The converse applies to standardised prevalence rate ratios under one.

Results

The standardised prevalence rate ratios for Local Authorities with complete coverage by the Registry for the year 2003 are shown in Table 5.5. The prevalence of RRT is low and authorities with small populations have wide confidence limits for the prevalence such that the interpretation of an individual year is extremely difficult. As the prevalence is progressively rising a combined three-year figure has not been shown, as this may be misleading.

Significance of results in small populations

There is substantial variation in the crude LA area prevalences from 227 to 950 pmp in 2003. Relatively small numbers of cases mean that the confidence limits are often quite wide for most areas so that the standardised prevalence ratios usually include one. Some areas have significantly high ratios. These are often areas with a

high ethnic minority population and/or a socially deprived population, factors which were shown to be important in the 2003 Registry report. Good examples where both these factors are likely to be important are Wolverhampton, Leicester and Lewisham. Ethnicity is probably a major factor in Slough, but is not a factor in Merthyr Tydfil or Liverpool where social deprivation may play a major role. However the high prevalence in places like Bristol and Oxfordshire cannot be related to either of these factors where the catchment areas are relatively affluent with a low proportion of ethnic minorities. There are still unexplained reasons why these areas have a high prevalence.

The ethnic influence on prevalence is increased by the relatively greater survival of patients from the African-Caribbean and South Asian groups.

Groups such as primary care trusts, which represent relatively small populations of 30,000 to 250,000, often wish to assess their performance. When assessing a relatively infrequent occurrence such as prevalence of RRT in such small populations there are wide confidence intervals for any observed frequency. To enable assessment of whether an observed prevalence is likely to be significantly different from the national average, Figures 5.2 and 5.3 have been included in the report. From these, for any size of population (X axis) the upper and lower 1 in 20 confidence intervals around the national average prevalence (dotted lines) can be read from the Y axis. Any observed prevalence for renal failure must be outside these limits for the given population to be statistically significantly different from the national average. Thus for a population of 50,000 the observed prevalence would have to be outside the limits of 400 per million population to 850 per million population. However for a population of 500,000 these limits are from 560 per million population to 690 per million population.

Age

The overall age profile for prevalent patients is shown in Figure 5.4.

The prevalence rates by age band have been calculated from the Local Authority populations covered by the Registry. As described

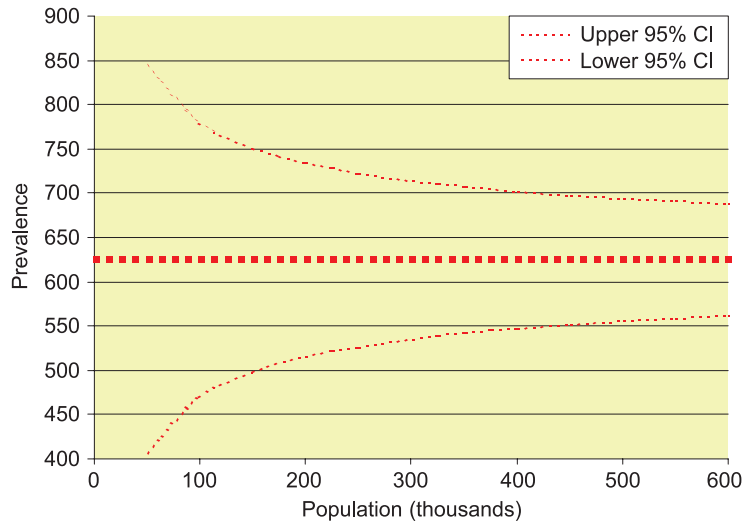


Figure 5.2: 95% confidence limits for prevalence of 625 pmp for population size 50,000–600,000

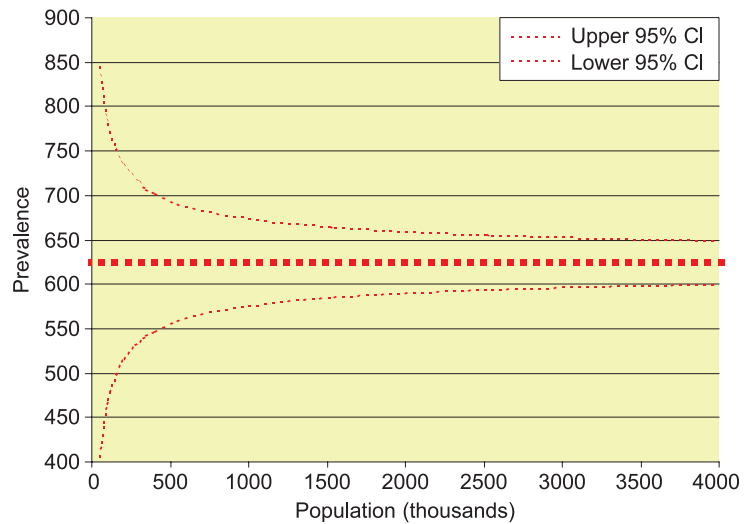


Figure 5.3: 95% confidence limits for prevalence of 625 pmp for population size 50,000–4,000,000

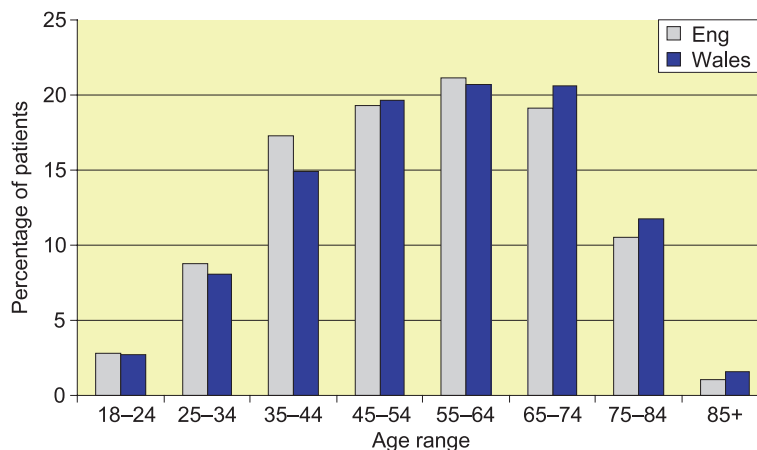


Figure 5.4: Age profile of prevalent patients

above, the age distribution for each LA has been derived from the 2001 census data. Figure 5.5 shows the prevalence rate pmp by age and gender on 31/12/2003 for all the renal replace-

ment therapy population. In men the RRT prevalence peaked in the 80–85 year old population at 1,837 pmp and this contrasts with a peak prevalence for women in the 65–74 year age band

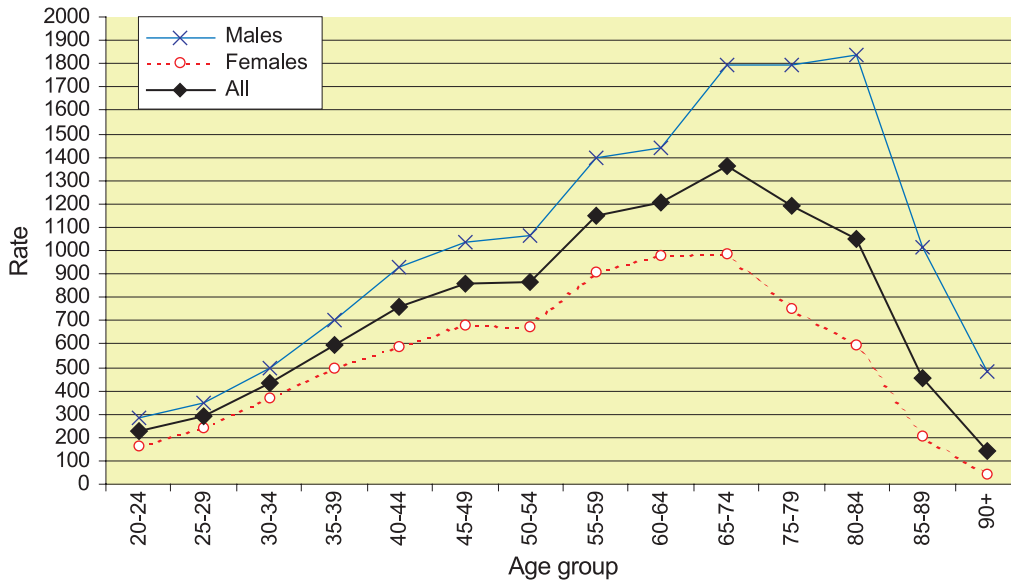


Figure 5.5: Prevalence rate pmp of RRT by age and gender on 31/12/2003

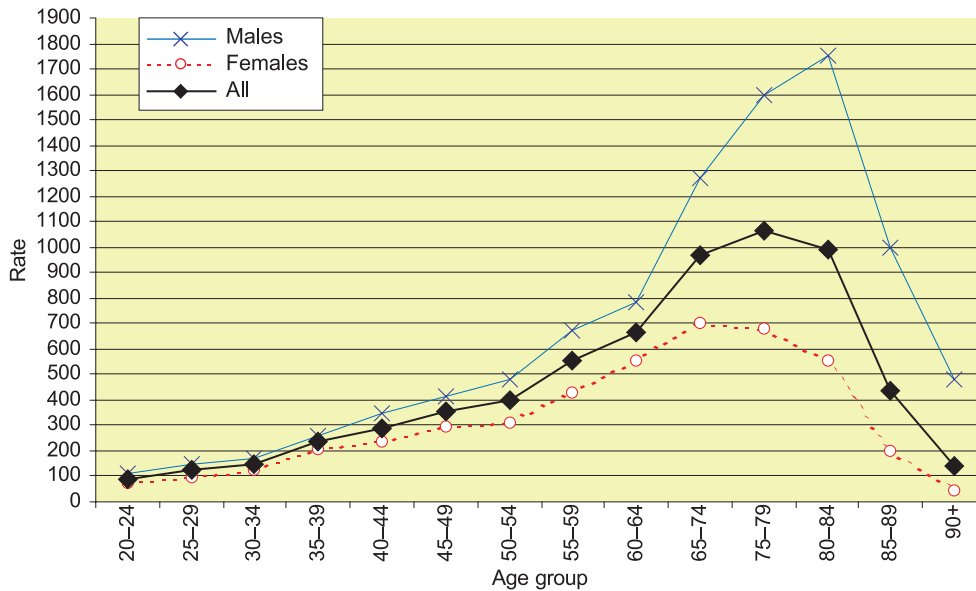


Figure 5.6: Prevalence rate pmp of dialysis patients by age and gender on 31/12/2003

of 985 pmp. Similarly dialysis prevalence peaks in men and women in these same age groups at 1,755 pmp and 699 pmp respectively (Figure 5.6).

Figure 5.7 shows the changes in renal replacement therapy prevalence rates during the period 2001–2003. Prevalence rates are increasing annually across all age bands with the largest increases in patient prevalence rates in the 65–85 year age bands.

The median age for all prevalent RRT patients has increased from 54.3 years in 1998 to 56.0 years in 2003. As expected, the median age is lowest for the transplant patients,

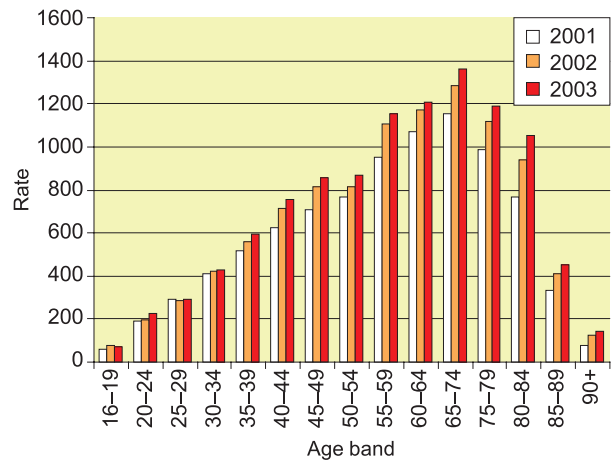


Figure 5.7: Change in prevalence rate pmp of RRT by age 2001–2003

Table 5.6: Median age of treatment modalities for England and Wales 1998–2003

	Transplants	PD	HD	All
Median age 2003	49.3	58.0	64.3	56.0
Interquartile range	39–60	45–69	50–74	43–68
Range between units	40–57	49–65	56–72	51–65
Median age 2002	49.6	58.3	64.5	55.9
Median age 2001	48.9	58.7	64.0	55.1
Median age 2000	48.9	58.6	63.5	54.9
Median age 1999	48.9	58.8	62.7	54.6
Median age 1998	49.0	58.9	62.6	54.3

followed by PD patients, with the HD patients having the highest median age. The median age for patients on PD has shown a trend to decrease whereas the median age for haemodialysis patients has increased from 62.6 years to 64.3 years (Table 5.6).

The wide variation in the median age of dialysis patients between each unit is shown in Figure 5.8. This may be due to differences in the demography of the local population, referral and acceptance policies, survival rates and facilities for service provision.

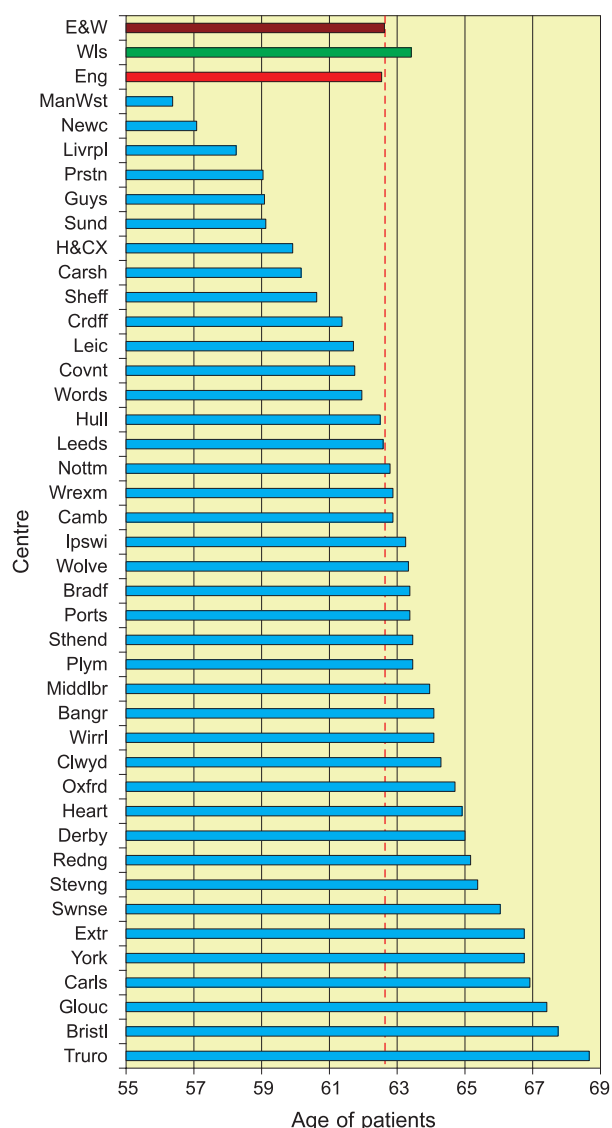


Figure 5.8 Median age of RRT patients on 31/12/2003 by centre

Gender

Of the prevalent patients 61% were male, this male preponderance was evident across all age groups (Figure 5.9). The difference in rates by gender per million population are shown above in Figure 5.5.

Ethnicity

There has been no marked change in the provision of ethnicity data in 2003 compared to 2002. Overall data return improved slightly from 77.5% in 2002 to 79.7% in 2003 whilst the number of centres returning at least 90% of ethnicity data has decreased from 22 to 21 (Table 5.7). This is disappointing as it was hoped that units would devise systems to

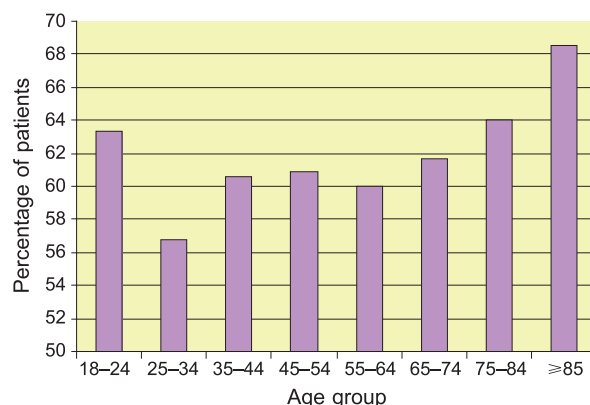


Figure 5.9: Percentage of male patients according to age

Table 5.7: Ethnicity of prevalent patients in each centre, 2003

Centre	% Return	% White	% Black	% Asian	% Chinese	% Other
Gloucester	100.0	98.4	0.8	0.0	0.8	0.0
Sheffield	100.0	93.4	1.7	3.5	0.8	0.6
H&CX	100.0	34.1	11.9	20.1	0.9	33.1
Stevenage	99.8	82.1	4.3	13.2	0.4	0.0
Heartlands	99.6	72.0	6.4	19.2	0.6	1.7
Wordsley	99.6	90.7	1.2	7.3	0.8	0.0
Newcastle	99.5	96.7	0.3	2.6	0.5	0.0
Wolve	99.0	78.1	6.3	15.1	0.5	0.0
Swansea	98.4	99.1	0.0	0.7	0.0	0.2
Bristol	98.2	93.9	2.9	2.0	0.3	0.9
Reading	97.4	69.5	12.6	16.1	0.4	1.3
Leicester	97.1	80.3	2.4	16.0	0.3	1.0
Carlisle	96.0	99.4	0.0	0.6	0.0	0.0
Nottm	95.7	88.4	4.7	5.8	0.0	1.0
Ports	95.7	96.9	0.5	2.1	0.3	0.2
Plymouth	95.6	96.0	2.7	0.5	0.3	0.5
Sunderland	94.7	98.4	0.4	0.4	0.4	0.4
Preston	94.6	86.7	1.1	11.4	0.0	0.7
Liverpool	92.9	97.0	1.2	0.5	0.9	0.4
York	91.9	98.3	0.0	1.1	0.0	0.6
Middlbr	90.2	96.0	0.0	3.2	0.8	0.0
Coventry	89.8	82.0	3.1	14.8	0.2	0.0
Guys	88.7	79.9	14.8	3.9	1.3	0.1
Derby	85.3	89.5	3.0	6.3	0.4	0.8
Hull	82.8	98.6	0.2	0.2	0.5	0.5
ManWst	81.4	89.7	1.0	8.7	0.0	0.6
Carshalton	79.0	72.3	9.2	9.4	1.0	8.1
Exeter	77.2	98.5	0.7	0.2	0.2	0.2
Bradford	71.9	64.0	1.8	33.3	0.0	0.9
Leeds	70.7	83.2	3.7	12.6	0.0	0.6
Southend	70.6	94.1	3.7	2.2	0.0	0.0
Wrexham	57.1	99.1	0.0	0.0	0.9	0.0
Bangor	56.4	100.0	0.0	0.0	0.0	0.0
Wirral	51.2	95.2	1.2	1.2	–	2.4
Truro	44.5	99.0	1.0	0.0	0.0	0.0
Clwyd	41.2	92.9	3.6	0.0	3.6	0.0
Cambridge	40.6	96.0	0.7	3.0	0.0	0.3
Oxford	34.9	91.7	1.7	5.6	0.8	0.2
Cardiff	30.4	96.0	1.1	2.0	0.3	0.6
Ipswich	6.2	92.9	0.0	0.0	0.0	7.1
Kings	4.5	69.6	17.4	13.0	0.0	0.0
E&W	79.7	86.3	3.6	7.2	0.5	2.5

provide this information, at least for new patients, in which case there should be a steady improvement in prevalent patient data. The available data are unlikely to be truly represen-

tative but they do indicate the wide variation across the country. Those units with a high local ethnic minority population will have an expansion rate much higher than average.

Table 5.8: Primary renal disease in all prevalent patients, with age and gender

Primary Diagnosis	% all patients	Inter unit range %	% age <65	% age >65	M:F ratio
Aetiology unc./ glomer. NP*	23.1	5.5–74.1	21.3	29.0	1.6
Glomerulonephritis**	15.5	4.4–21.6	17.8	7.6	2.3
Pyelonephritis	12.9	4.3–19.5	13.8	9.8	1.1
Diabetes	11.8	4.1–23.2	11.5	13.3	1.6
Polycystic kidney	9.1	3.2–13.2	10.4	4.7	1.1
Hypertension	6.1	0.7–16.3	5.7	7.8	2.3
Renal vascular disease	3.6	0.5–10.3	1.7	10.9	2.0
Other	13.7	4.9–24.7	14.4	10.7	1.4
Not sent	4.2	0.2–37.3	3.5	6.2	1.8

*Includes patients listed as 'glomerulonephritis not biopsy proven'.

**Biopsy proven.

Primary Renal Disease

Table 5.8 shows detail of the primary renal disease based on the original EDTA coding. Data completion ranged from 62.7% to 99.8%. There has been no difference in the pattern of diagnoses compared with last year. The most common identifiable diagnosis for those under 65 was glomerulonephritis (17.8%) and for those 65 and over diabetes (13.3%). Overall 11.8% of the prevalent patients had a primary diagnosis of diabetic nephropathy in contrast to the 18% of the incident patients, although a significant proportion of patients also have diabetes mellitus as a co-morbid disease.

Diabetes

Tables 5.9a and 5.9b show the median age and modalities of treatment for diabetic patients compared with other patients. The data are similar to previous years' data. For patients under 65 years old, only 18% of those with Type II diabetes has a functioning transplant compared to 43% in those with Type I diabetes and 60% in non-diabetics. For those over 65 years old, Type II diabetics again have the lowest percentage with functioning transplants at 7% compared to 9% in Type I diabetics and 24% in non-diabetics.

Table 5.9a: Type of diabetes—median age, gender ratio and treatment modality

	Type I	Type II	All diabetes	Non-diabetics
Number	1,866	1,019	2,885	20,562
M:F ratio	1.52	1.60	1.55	1.55
Median age on 31.12.03	51	66	57	56
Median age started ESRF	46	63	53	47
Median years on RRT	3.2	2.0	2.7	5.7
% HD	43	67	51	38
% PD	20	22	21	13
% transplant	37	12	28	49

Table 5.9b: Age relationships of type of diabetes and modality

	Age less than 65			Age 65 or more		
	Type I	Type II	Non-diabetics	Type I	Type II	Non-diabetics
Total number	1,493	459	14,313	372	559	6,231
% HD	36	61	28	73	71	61
% PD	21	21	12	17	22	15
% transplant	43	18	60	9	7	24

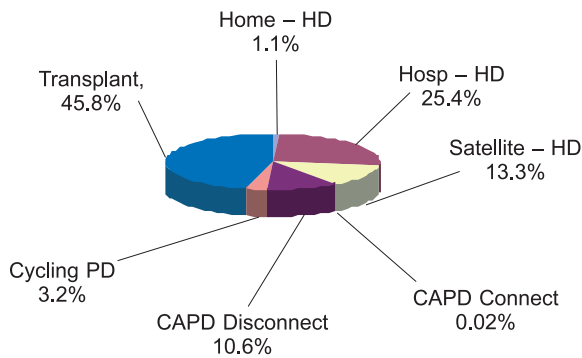


Figure 5.10: Percentage of patients on each treatment modality, 31 December 2003

Modalities of Treatment

Figure 5.10 shows the breakdown according to treatment modalities. Overall the most common treatment modality is transplantation (46%). The variations in patterns of treatment with age are shown in Figure 5.11. Transplantation is the predominant treatment modality in patients less than 65 years old whilst haemodialysis is in those 65 or older.

Of dialysis patients, haemodialysis is the main modality across all age groups, ranging from 65% in the 18–24 age group to 89% in the 85+ age group (Table 5.10).

Haemodialysis

The proportion of dialysis patients treated by haemodialysis varied widely between the units (Figure 5.12) and in almost every unit was higher in the elderly (Figure 5.13). The overall proportion of patients on HD in satellite units

Table 5.10: Dialysis modality percentages in different age groups

Age group	HD%	PD%
18–24	65	35
25–34	67	33
35–44	66	34
45–54	70	30
55–64	71	29
65–74	76	24
75–84	84	16
85+	89	11
All	74	26

was 33.6% (Figure 5.14) with wide variations between units. Despite recent NICE advice¹, very few units had significant home HD programmes (Figure 5.14).

Peritoneal dialysis

For units in the Registry, the percentages of patients on each of the main types of PD are shown in Figure 5.15. In a few units, over 50% of PD patients are using the automated PD technique.

Change in treatment modality 1997–2003

Although the figures from each year are not strictly comparable as the number of units contributing to the Registry has gradually increased year on year, Table 5.11 and Figure 5.16 suggest a trend from 1997 to 2003 towards an increasing number and proportion of patients

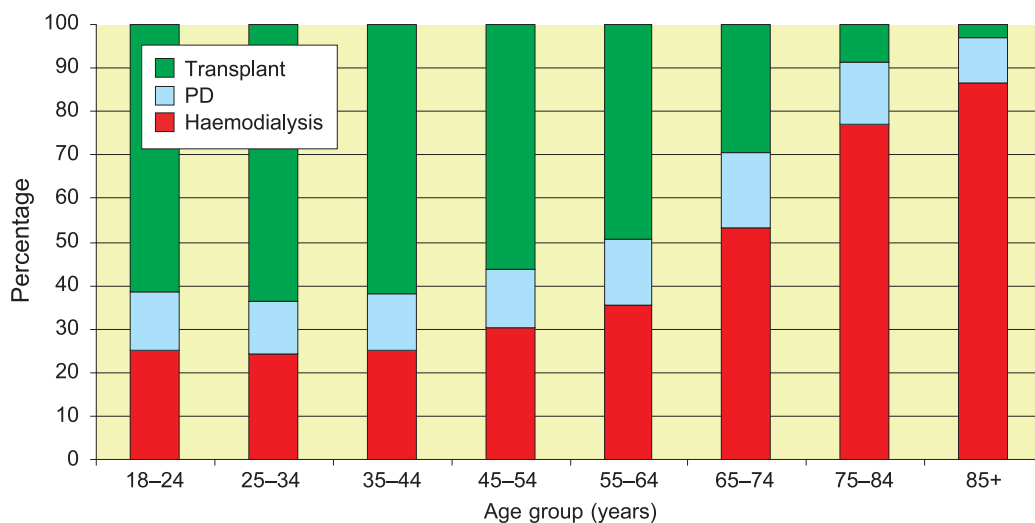


Figure 5.11: Patients on each modality in different age groups

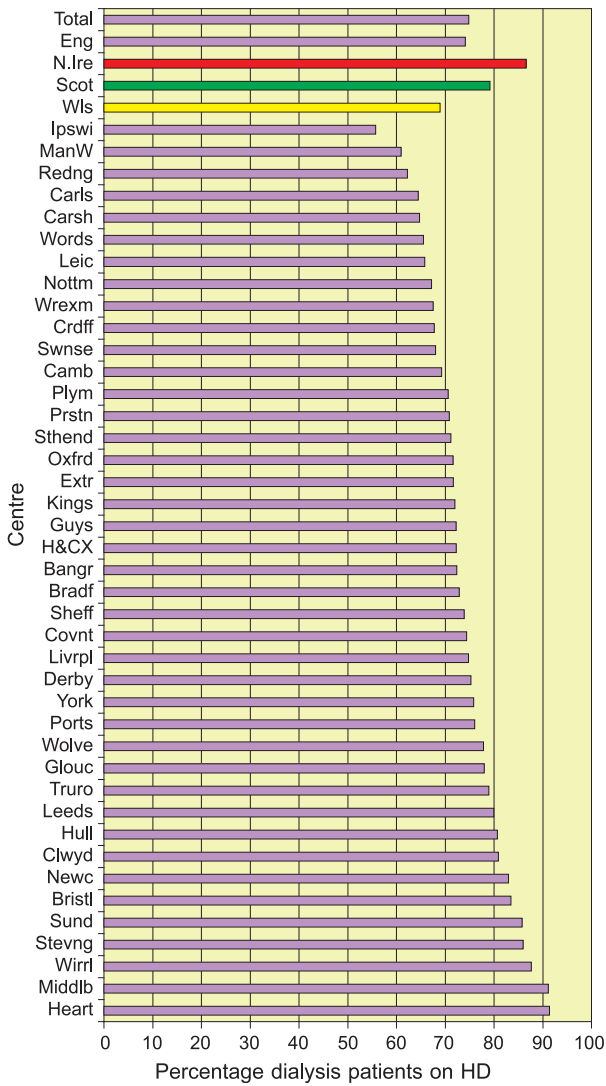


Figure 5.12: Proportion of patients on haemodialysis in each centre

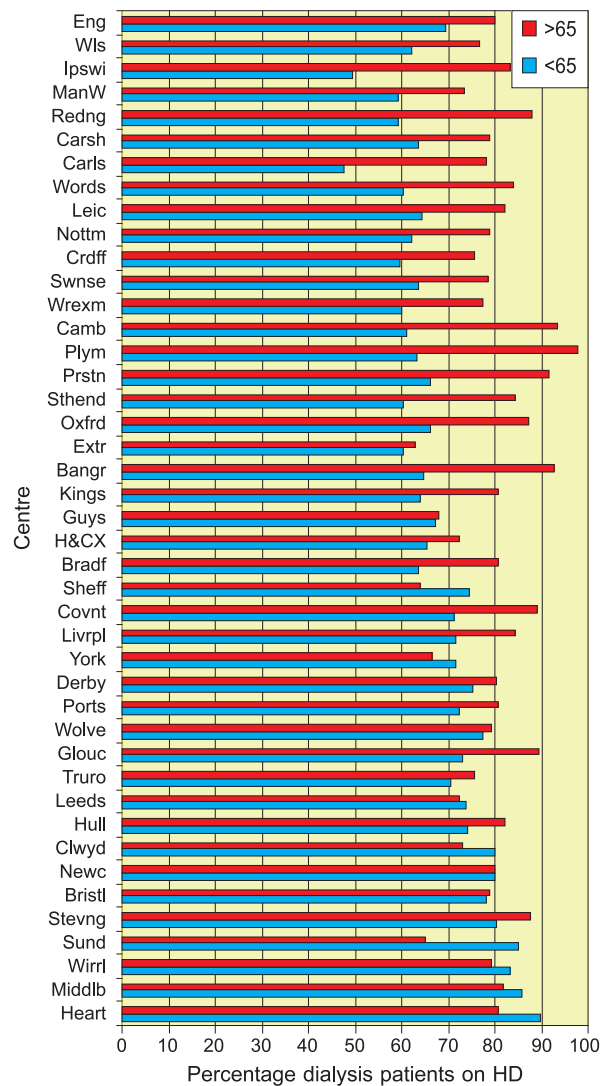


Figure 5.13: Proportion of older and younger patients on haemodialysis in each centre

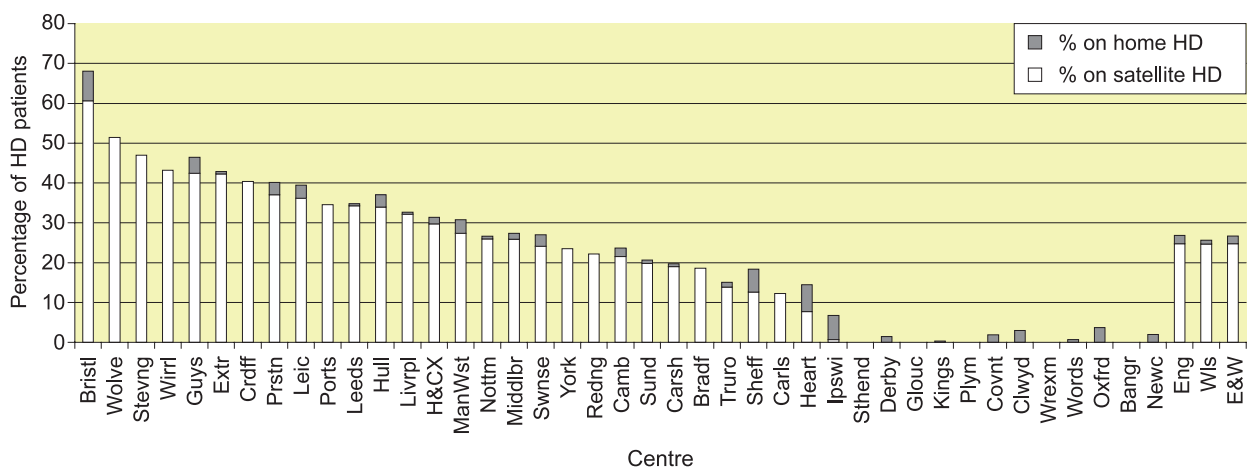


Figure 5.14: Percentage of HD patients treated at home and in satellite units

on haemodialysis (especially in satellite units). Whilst absolute numbers may not be falling, there is a decreasing proportion of peritoneal dialysis and transplant patients. The proportion

of patients using home haemodialysis remains very low and shows no recent rise despite the NICE guidance¹ (Table 5.11, Figure 5.17): the proportion on automated PD is fairly static.

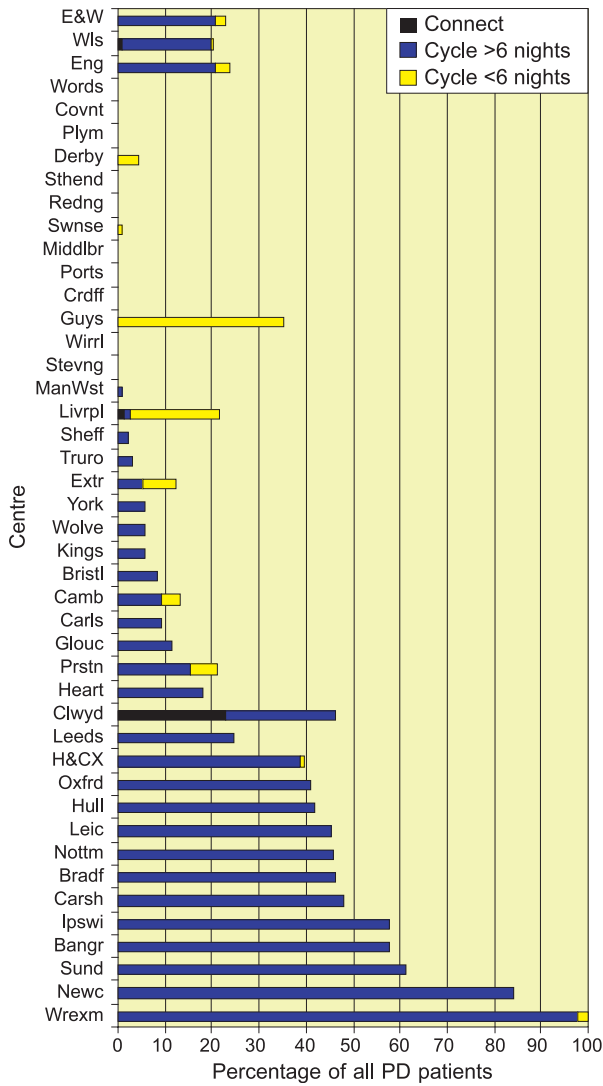


Figure 5.15: Use of connect and automated PD as a percentage of total PD

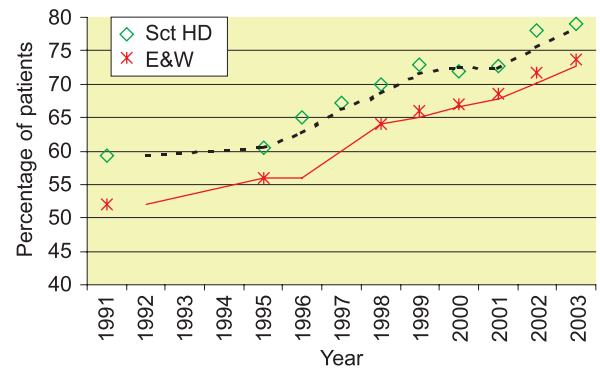


Figure 5.16: Proportion of patients on HD 1991–2003

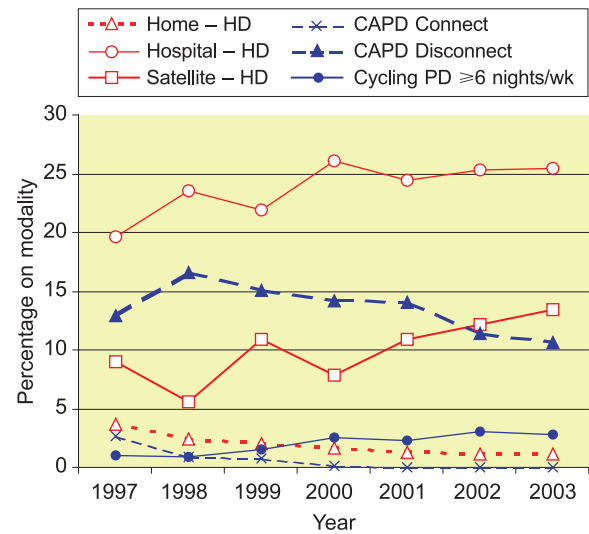


Figure 5.17: Changes in proportion of patients on different dialysis modalities 1997–2003

Table 5.11: Proportion of patients on different modalities of RRT, 1999–2003

	% HD home	% HD hospital	% HD satellite	% CAPD connect	% CAPD disconnect	% cycling PD ≥6 nights/wk	% cycling PD <6 nights/wk	% transplant
1997	3.7	19.7	9.0	2.7	12.9	1.0	0.0	51.0
1998	2.4	23.6	5.6	0.9	16.6	0.9	0.1	49.9
1999	2.0	21.9	10.9	0.7	15.0	1.6	0.5	47.3
2000	1.7	26.1	7.8	0.1	14.2	2.5	0.6	46.9
2001	1.3	24.5	10.9	0.0	14.0	2.3	0.4	46.6
2002	1.2	25.3	12.2	0.0	11.4	3.1	0.3	46.0
2003	1.1	25.4	13.4	0.0	10.6	2.8	0.4	45.8

Table 5.12: One year Kaplan–Meier survival of dialysis patients with and without censoring at transplantation (adjusted for age = 60)

Centre	Censoring transplant			Not censoring transplant			Difference (censoring – not censoring)
	Unadjusted 1 year survival	Lower 95% CI	Upper 95% CI	Unadjusted 1 year survival	Lower 95% CI	Upper 95% CI	
M0	88.5	85.8	91.3	87.9	85.1	90.9	0.6
M1	85.2	81.2	89.4	85.0	80.9	89.2	0.2
M2	89.6	87.0	92.4	89.3	86.5	92.1	0.4
M3	84.3	79.1	89.8	83.6	78.3	89.4	0.6
M4	89.1	85.7	92.6	88.8	85.4	92.4	0.3
M5	90.5	88.2	92.9	90.3	87.9	92.7	0.3
M6	75.9	68.8	83.7	75.1	67.8	83.1	0.8
M7	84.8	81.5	88.2	84.4	81.0	87.9	0.4
M8	93.3	87.8	99.1	92.9	87.2	99.0	0.4
M9	81.6	76.2	87.3	80.8	75.2	86.8	0.8
N0	82.1	77.9	86.5	82.0	77.7	86.5	0.1
N1	83.5	78.4	88.9	82.9	77.7	88.5	0.5
N2	81.7	78.2	85.5	80.6	77.2	84.1	1.1
N3	86.1	83.1	89.1	85.6	82.7	88.7	0.4
N4	84.2	79.2	89.6	84.3	79.0	90.0	−0.1
N5	83.2	76.7	90.2	82.6	75.9	89.8	0.6
N6	85.9	83.1	88.8	85.3	82.4	88.3	0.6
N7	90.9	86.7	95.2	90.5	86.1	95.0	0.4
N8	87.6	84.1	91.2	87.1	83.6	90.9	0.5
N9	85.8	80.4	91.6	85.6	80.1	91.5	0.2
O0	85.9	82.3	89.7	85.3	81.6	89.2	0.6
O1	87.9	85.4	90.6	87.6	84.9	90.3	0.4
O2	81.8	76.3	87.7	81.4	75.7	87.5	0.4
O3	84.2	80.0	88.5	83.4	79.1	87.9	0.8
O4	86.3	81.2	91.7	85.9	80.8	91.4	0.4
O6	79.2	75.0	83.7	78.5	74.1	83.1	0.7
O7	84.9	81.4	88.5	84.3	80.7	88.0	0.6
O8	87.2	83.8	90.7	86.6	83.1	90.3	0.6
O9	82.9	79.4	86.6	82.2	78.6	86.1	0.7
P0	85.6	80.8	90.8	85.0	80.0	90.4	0.6
P1	85.9	83.1	88.8	85.1	82.2	88.1	0.7
P2	83.6	80.7	86.5	83.1	80.2	86.1	0.4
P3	92.3	90.1	94.6	92.0	89.7	94.4	0.3
P5	78.3	70.2	87.4	77.2	68.8	86.7	1.1
P6	85.6	78.7	93.1	84.8	77.5	92.7	0.9
P7	89.1	86.8	91.5	88.7	86.3	91.2	0.4
P8	85.1	81.7	88.6	84.8	81.4	88.4	0.2
P9	81.6	77.1	86.3	80.6	75.9	85.5	1.0
Q0	85.5	81.9	89.4	84.9	81.2	88.9	0.6
Q1	87.0	83.4	90.8	86.7	83.0	90.5	0.3
Q2	87.1	82.2	92.4	86.7	81.6	92.2	0.4
Eng	86.1	85.4	86.8	85.7	84.9	86.4	0.5
Wales	84.2	82.1	86.3	83.2	81.1	85.3	1.0
E&W	86.0	85.3	86.7	85.4	84.7	86.2	0.5

Survival of Patients Established on RRT

This section analyses the one-year survival of all patients who had been established on RRT for at least 90 days on 1 January 2003. The patients in the transplant cohort have all been established with a transplant for at least 6 months.

Comparison of survival of prevalent dialysis patients between centres is complex. Survival of prevalent dialysis patients can be studied with or without censoring at transplant. When a patient is censored at transplantation, the patient is considered as alive up to the point of transplantation, but the patient's status post-transplant is not considered. Therefore a death following transplantation is not taken into account in calculating the survival figure. It could induce differences between those units with a high transplant rate and those with a low transplant rate, especially in younger patients where the transplant rate is highest. The differences are likely to be small due to the low post-transplantation mortality rate and the relatively small proportion of patients being

transplanted in a given year compared to the whole dialysis population (usually less than 15% of the total dialysis population). To estimate the potential differences the results for individual renal units were compared with or without censoring at transplant. The results are shown in Table 5.12. There is never more than a 2% difference in one year survival and the higher survival is usually in the censored data. With such small differences only the censored results have been quoted throughout the rest of this Chapter.

Another potential source of error in comparing survival in different renal centres of dialysis patients, especially younger patients is the differing transplant rates between centres. Those with a high transplant rate have removed more of the fitter patients from dialysis and are left with a higher risk population on dialysis.

There were no significant differences between England and Wales so the combined data are presented. Transplanted patients had better survival than even the younger non-diabetic patients on dialysis and the data are shown in Table 5.13. The one year death rate for preva-

Table 5.13: One-year survival of established prevalent RRT patients in England and Wales (unadjusted unless stated otherwise)

Patient group	No. of patients	No. of deaths	KM survival	KM 95% CI
Transplant patients 2003				
Censored at dialysis	9,752	237	97.5	97.2–97.8
Not censored at dialysis	9,752	255	97.4	97.1–97.7
Dialysis patients 2003				
All 2003	12,103	1,934	83.4	82.7–84.1
All 2003 adjusted age = 60	12,103	1,934	86.0	85.3–86.7
2 year survival – Dialysis patients 2002				
All 1/1/2002 (2 year)	10,381	2,495	74.6	73.7–75.4
Dialysis patients 2003				
All age <65	6,633	610	90.2	89.4–90.9
All age 65+	5,470	1,324	75.6	74.4–76.7
Non-diabetic <55	3,429	176	94.4	93.6–95.2
Non-diabetic 55–64	1,814	223	87.1	85.5–88.7
Non-diabetic 65–74	2,315	441	80.6	79.0–82.3
Non-diabetic 75+	1,980	566	71.3	69.3–73.3
Non-Diabetic <65	5,243	399	91.8	91.1–92.6
Diabetic <65	1,078	179	82.6	80.3–84.9
Non-Diabetic 65+	4,295	1,007	76.3	75.0–77.6
Diabetic 65+	770	216	71.9	68.7–75.0

KM = Kaplan-Meier survival.

Cohorts of patients alive 1/1/2003 unless indicated otherwise.

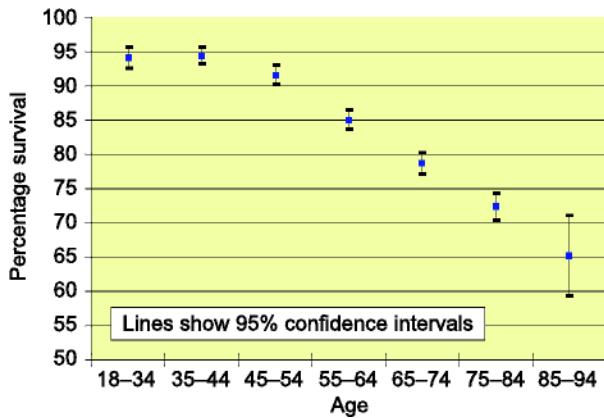


Figure 5.18: 1 year survival of prevalent dialysis patients in different age groups – 2003

lent dialysis patients is 15.0 per 100 patient years (95% CI 14.3–17.8). In Figure 5.18 the survival of prevalent dialysis patients for each age band is shown.

The one year survival of prevalent dialysis patients in each centre

The one year survival of dialysis patients in each centre is shown in Table 5.12 and is illustrated in Figures 5.19 and 5.20, dividing the data into those <65 years old and those 65 years old and over. There appeared to be significant differences in the survival rate between the centres, after adjusting for the differences in median age of patients at each centre (Figure 5.21). These findings require more detailed investigation by the Registry.

The one year survival of prevalent dialysis patients in England and Wales from 1997–2003

The one-year survival of prevalent dialysis patients in England and in Wales increased

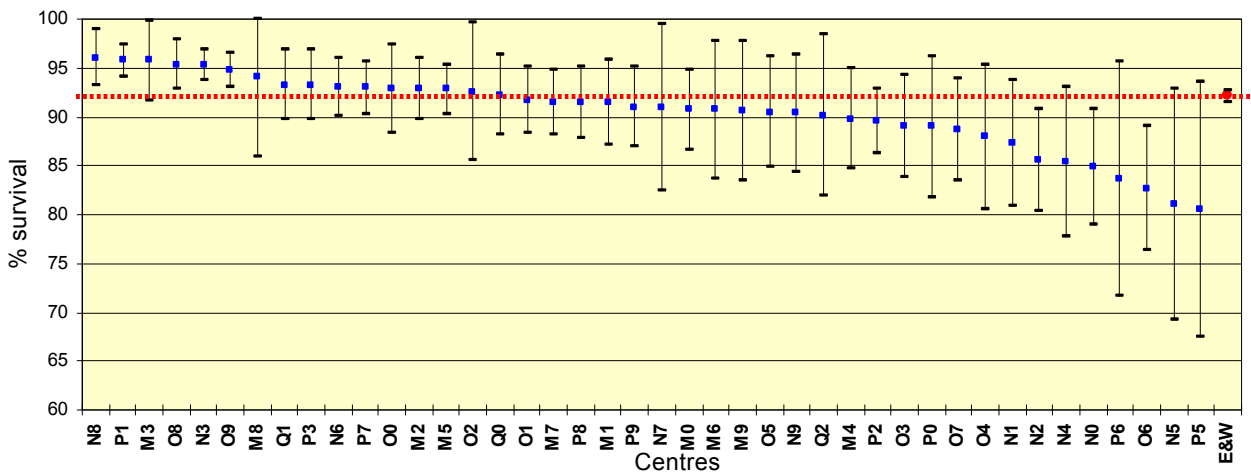


Figure 5.19: One year survival of prevalent dialysis patients aged under 65 in each centre

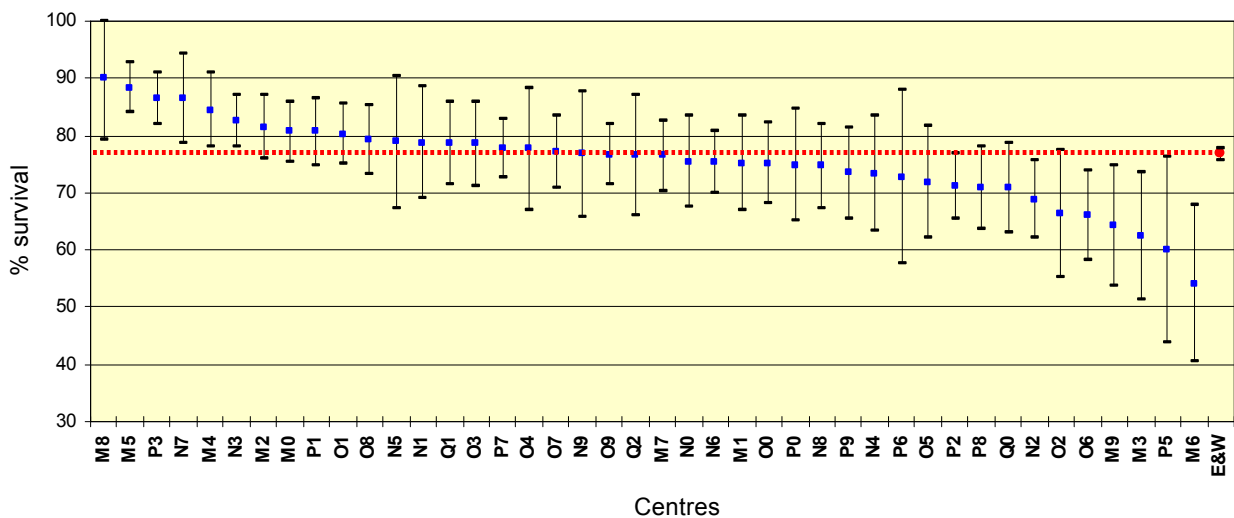


Figure 5.20: One year survival of prevalent dialysis patients aged 65 and over in each centre

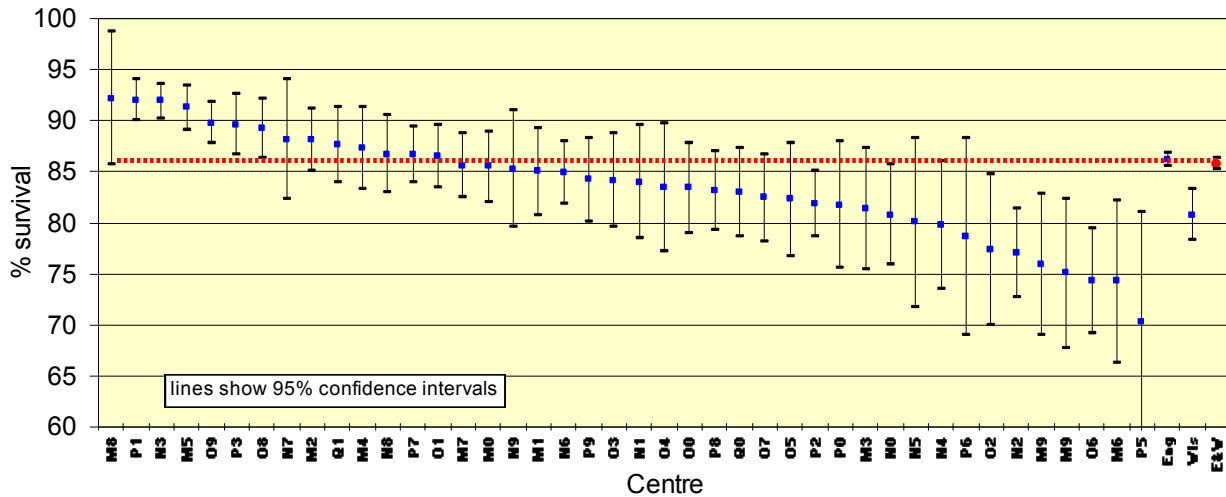


Figure 5.21: One year survival of prevalent dialysis patients in each centre adjusted to age 60

Table 5.14: Serial one year survival for dialysis patients in England and Wales from 1997–2003

Year	England		Wales	
	1 year survival %	95% CI	1 year survival %	95% CI
1997	83.3	81.7–84.8	N/A	
1998	84.2	83.0–85.5	78.2	73.4–83.2
1999	84.1	83.0–85.2	83.4	80.5–86.3
2000	85.3	84.4–86.3	85.4	82.9–88.0
2001	86.1	85.3–86.9	88.0	85.9–90.2
2002	87.5	86.9–88.1	87.4	85.5–89.3
2003	86.1	85.4–86.8	84.2	82.1–86.3

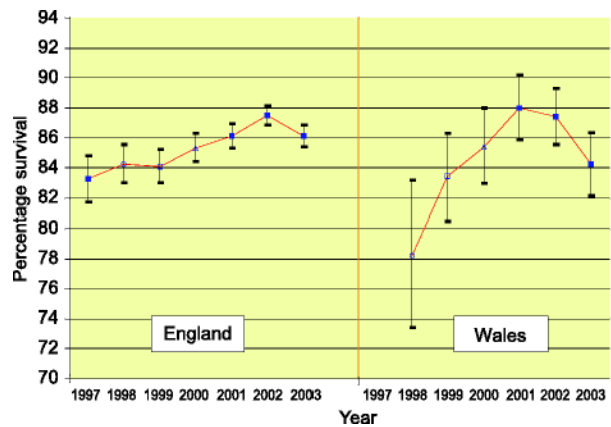


Figure 5.22: Serial one year survival for dialysis patients in England and Wales from 1997–2003

significantly from 1997 (83.3% and 78.2% respectively) to 2002 (87.5% and 87.4%), but has fallen marginally in 2003 (Table 5.14, Figure 5.22). The difference between England and Wales is not significant.

Reference

1. National Institute of Clinical Excellence. Full guidance on home compared with hospital haemodialysis for patients with end-stage renal failure. October 2002. www.nice.org.uk

