

The Renal Association

UK Renal Registry

The Ninth Annual Report

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Executive summary for
Commissioners of Renal Services



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Renal Registry Annual Report 2006: Executive summary for Commissioners of Renal Services

Introduction

The UK Renal Registry produces an annual Report that contains detailed information on the provision and quality of Renal Replacement Therapy (RRT) for Established Renal Failure (ERF) in the UK. Copies of each Report are sent to all specialised commissioners; electronic copies can be downloaded from www.renalreg.org.

This Executive Summary of the 2006 UK Renal Registry Report is designed for commissioners of renal services. It has been developed because of an appreciation of commissioners' need for clear information to help drive up the quality and cost effectiveness of the renal services they commission. We also hope that it will be useful to patients and others without specialised knowledge of renal services. The appendix gives a description of renal services for non-renal physicians.

Data items included in the Report are those that are of 'headline' importance to commissioners but do not describe all aspects of the care of patients with Established Renal Failure; we hope that readers of this summary will turn to the full Report for further details.

The Scottish Renal Registry is funded and operated independently of the UK Renal Registry. It assembles a limited dataset with nearly complete data for each item, and publishes its own detailed analyses but also sends a dataset to the UK Renal Registry for inclusion in UK-wide analyses.

Paediatric renal units do not yet submit data electronically to the Registry, as many such renal units do not have suitable IT systems. Data on treatment of patients with established renal failure by paediatric renal units is collected by means of an annual paper-based survey, data from which are then analysed by the Paediatric Registry Committee. None of the analyses presented in this summary report include data from paediatric renal units, w.

Summary data from the UK Renal Registry is sent to other national and international Registries (including the European Dialysis and Transplantation Association – European Renal Association Registry (<http://www.era-edta-reg.org>), and the United States Renal Data System (www.usrds.org), to allow comparisons with other countries.

The purpose of the UK Renal Registry is described in full in Appendix A of the full Report, but may be summarised as follows:

- To improve the care of patients with renal disease
- To facilitate comparative audit of outcomes between Renal Units and to aid nephrologists in improving their practice and outcomes
- To aid Trust clinical governance departments and contracts managers
- To provide commissioners of renal services with information on the volume, quality, and equity of renal services

Caution

There are several dangers in providing the detailed analyses of the outcomes of RRT. Commissioners (and other users of these analyses) should therefore use the variations shown to inform discussions with their providers on the quality of the care provided, rather than draw direct conclusions from them. Several examples are given below.

1. Over-interpretation

Some of the analyses presented relate to performance against a 'standard' set by the Renal Association. It should be emphasised that failure to achieve this standard in 100% of patients is not necessarily a marker of inferior care. For example, case-mix can influence the achievement of these goals. Achievement of some standards depends on circumstances outside the clinicians' direct control, for instance because it is affected by patients' adherence to complex drug treatment regimens.

Many of the analyses are presented in the form of 'caterpillar plots', which are akin to league tables. These plots include a measure of Unit performance (e.g. the median haemoglobin concentration, or the percentage of patients whose haemoglobin concentration is within a certain range). The plots encourage comparisons between Renal Units and the conclusion that Renal Units whose figures lie at the 'good' end of the plot are performing better than those whose figures lie at the other end. However, some of these differences may occur by chance. Whenever two numbers are compared, it is inevitable that one will be larger than another.

The summary measures of unit performance are also presented with a measure of the statistical uncertainty – the 95% confidence interval. Confidence intervals are valuable ways of comparing two estimates of performance: if the confidence intervals do not overlap, the difference between the two estimates is unlikely to have occurred by chance. However, if 80 such comparisons are made, it is highly likely that an apparently 'significant' difference between two renal units will occur by chance. The 'funnel plots' presented here are a more statistically acceptable way of presenting differences between renal units, but have the disadvantage that it is more difficult to identify individual renal units.

2. Withdrawal of resources for over-performance

There is the possibility that commissioners might choose to reduce funding for a particular part of a service if their local Renal Unit is achieving higher than average standards in that service. In most instances this would be a retrograde step. The analyses presented here contain no analyses of the costs of care; however, it is likely that much of the variation in outcomes is due not to differences in funding but in differences in the efficiency of care processes. Withdrawing funding from high-performing Units risks penalising efficient services, where the correct approach would be to identify the underlying systems and processes that deliver better outcomes and to spread those practices to other areas. In some clinical areas, reduced investment in quality of care would undoubtedly lead to higher costs in other areas: for instance, reduction of expenditure on vascular access surgery in high-performing Units is highly likely to result in increased risk of hospitalisation for complications of failed vascular access, including catheter-related MRSA (and other) bacteraemia.

Renal Units contributing data to the Report

It is a requirement of the National Service Framework that all Units submit data to the Registry. All Registry data is obtained by electronic download from Information Systems in individual Trusts or Renal Units. There are only 3 Renal Units in England who are still not in a position to send data to

the Registry. In most cases this is due to the lack of a suitable Renal Unit Information System. Table 1 lists Renal Units submitting data that has been included in this year's Report. Table 2 lists Scottish Renal Units submitting data *via* the Scottish Renal Registry. Table 3 lists Renal Units not currently submitting data to the Registry, with details of the possible reasons for not submitting data.

Table 1: Renal Units in England, Wales, & Northern Ireland that submitted data for the 2006 Annual Report

	Hospital	Estimated population (Millions)
England & Wales		43.95
Basildon	Basildon Hospital	0.50
Birmingham	Heartlands Hospital	0.60
Birmingham	Queen Elizabeth Hospital	1.82
Bradford	St Luke's Hospital	0.60
Brighton	Royal Sussex County Hospital	0.98
Bristol	Southmead Hospital	1.50
Cambridge	Addenbrookes Hospital	1.42
Carlisle	Cumberland Infirmary	0.36
Carshalton	St Helier Hospital	1.80
Chelmsford	Broomfield Hospital	0.50
Coventry	Walsgrave Hospital	0.85
Derby	Derby City Hospital	0.48
Dorset	Dorchester Hospital	0.71
Dudley	Russell's Hall Hospital (previously Wordsley)	0.42
Exeter	Royal Devon and Exeter Hospital	0.75
Gloucester	Gloucester Royal Hospital	0.55
Hull	Hull Royal Infirmary	1.04
Ipswich	Ipswich Hospital	0.33
Leeds	St James's Hospital & Leeds General Infirmary	2.20
Leicester	Leicester General Hospital	1.80
Liverpool	Royal Infirmary	1.35
London	St Barts & The Royal London	1.79
London	Guys & St Thomas' Hospital	1.70
London	Hammersmith & Charing Cross Hospitals	1.30
London	Kings College Hospital	1.01
*London	Royal Free, Middlesex, UCL Hospitals	1.43
Manchester	Hope Hospital	0.94
Middlesbrough	James Cook University Hospital	1.00
Newcastle	Freeman Hospital	1.31
Norwich	James Paget Hospital	0.84
Nottingham	Nottingham City Hospital	1.16
Oxford	Churchill Hospital	1.80
Plymouth	Derriford Hospital	0.55
Portsmouth	Queen Alexandra Hospital	2.00
Preston	Royal Preston Hospital	1.48
Reading	Royal Berkshire Hospital	0.60
Sheffield	Northern General Hospital	1.75
Shrewsbury	Royal Shrewsbury Hospital	0.40
Southend	Southend Hospital	0.35
Stevenage	Lister Hospital	1.25
Sunderland	Sunderland Royal Hospital	0.34
Truro	Royal Cornwall Hospital	0.36
Wirral	Arrowe Park Hospital	0.53
Wolverhampton	New Cross Hospital	0.49
York	York District Hospital	0.39
Wales		2.65
Bangor	Ysbyty Gwynedd	0.18

	Hospital	Estimated population (Millions)
Cardiff	University of Wales Hospital	1.30
Clwyd	Ysbyty Clwyd	0.15
Swansea	Morrison Hospital	0.70
Wrexham	Maelor General Hospital	0.32
Northern Ireland		1.69
Antrim	Antrim Hospital	
Belfast	Belfast City Hospital	
Newry	Daisy Hill Hospital	
Tyrone	Tyrone County Hospital	
Ulster	Ulster Hospital	

*Renal unit included in the report for the first time.

Table 2: Renal Units in Scotland that submitted data for the 2006 Annual Report via the Scottish Renal Registry

Scotland	(via the Scottish Registry)	5.10
Aberdeen	Aberdeen Royal Infirmary	
Airdrie	Monklands District General Hospital	
Dunfermline	Queen Margaret Hospital	
Dumfries	Dumfries & Galloway Royal Infirmary	
Dundee	Ninewells Hospital	
Edinburgh	Royal Infirmary	
Glasgow	Glasgow Royal Infirmary & Stobhill General Hospital	
Glasgow	Western Infirmary	
Kilmarnock	Crosshouse Hospital	
Inverness	Raigmore Hospital	

Table 3: Renal Units not currently submitting data to the UK Renal Registry

	Hospital (Indicates IT system used by hospital)	Estimated population (millions)
a) Centres submitting data for 2006		
Stoke	North Staffs (Cybernius system)	0.70
Manchester	Royal Infirmary (CCL clinical vision)	2.51
b) Centres hoping to submit data for 2007		
Canterbury	Kent & Canterbury - Renalplus	0.91
London	St George's (CCL clinical vision)	
London	St Mary's Paddington (Proton)	0.81

Completeness of data returns

The submission of a complete dataset on each patient receiving RRT is a major quality requirement. For most data items, particularly those derived from the laboratory, this is relatively easy. Certain data items require the input of the clinicians caring for the patient. These include the patient's self-reported ethnic origin, the primary renal diagnosis (the type of disease causing established renal failure), the presence or absence of a number of different conditions ("co-morbidities") at the time of starting RRT; and the time of first referral to a nephrologist in a Unit providing RRT (to allow calculation of the time between first referral and the initiation of RRT). Table 4 shows the completeness of each of these data items for each Renal Unit in England, Wales, and Northern Ireland.

Table 4: Completeness of data items requiring clinicians' input from each Renal Unit submitting data to the Registry in England, Wales, and Northern Ireland

Centre	Ethnicity	Primary Diagnosis	Date 1st seen	Co-morbidity	Average completeness	Country
Dorset	100.0	100.0	100.0	98.0	99.5	England
Nottingham	99.3	100.0	98.6	98.6	99.1	England
Ulster	100.0	100.0	90.0	100.0	97.5	NI
Swansea	99.0	99.0	93.8	95.9	96.9	Wales
Bradford	93.8	95.4	100.0	95.4	96.2	England
Gloucester	100.0	95.2	91.9	96.8	96.0	England
Tyrone	100.0	91.7	91.7	100.0	95.8	NI
York	97.7	93.0	90.7	90.7	93.0	England
Wolverhampton	100.0	100.0	97.8	69.6	91.8	England
Basildon	93.3	90.0	90.0	93.3	91.7	England
Newry	100.0	92.9	32.1	100.0	81.2	NI
Portsmouth	96.1	94.1	91.5	28.8	77.6	England
Belfast	100.0	73.2	37.2	99.3	77.4	NI
Antrim	97.6	100.0	9.5	100.0	76.8	NI
Bangor	68.4	97.4	89.5	47.4	75.7	Wales
Sheffield	75.9	100.0	97.4	28.5	75.5	England
Leicester	93.3	83.9	58.9	61.2	74.3	England
Newcastle	96.8	98.9	97.8	2.2	73.9	England
L Hammesmith & Cx	100.0	93.9	0.0	100.0	73.5	England
L Kings	85.1	98.6	9.9	98.6	73.0	England
Middlesbrough	98.6	98.7	90.5	0.0	71.9	England
Ipswich	81.7	98.3	94.9	8.3	70.8	England
Bristol	86.3	76.6	60.0	57.1	70.0	England
Truro	43.8	81.3	65.6	84.4	68.7	England
L St Barts	95.0	100.0	0.0	79.4	68.6	England
Carlisle	100.0	100.0	0.0	70.0	67.5	England
Sunderland	89.7	100.0	0.0	75.9	66.4	England
Stevenage	100.0	100.0	59.6	1.0	65.2	England
Chelmsford	12.5	100.0	47.5	100.0	65.0	England
Leeds	45.1	61.6	88.3	59.1	63.5	England
Norwich	24.0	99.2	27.3	100.0	62.6	England
Derby	62.0	97.2	1.4	84.5	61.3	England
Cambridge	77.7	100.0	60.2	0.0	59.5	England
Manchester West	93.8	100.0	0.0	24.0	54.5	England
Liverpool	70.7	98.8	0.0	41.5	52.7	England
Hull	7.9	99.2	1.6	95.2	51.0	England
Dudley	100.0	100.0	0.0	0.0	50.0	England
Redding	100.0	100.0	0.0	0.0	50.0	England
Southend	57.1	85.7	0.0	57.1	50.0	England
Shrewsbury	97.7	100.0	0.0	0.0	49.4	England
Birm Heartlands	97.6	99.2	0.0	0.8	49.4	England
Oxford	84.6	95.5	1.3	14.7	49.0	England
Birm QEH	97.9	82.5	0.0	0.0	45.1	England
Preston	83.1	96.6	0.0	0.0	44.9	England
Coventry	75.3	100.0	0.0	0.0	43.8	England
Wirral	72.7	100.0	0.0	0.0	43.2	England
L Guys	56.8	100.0	0.0	2.7	39.9	England
Exeter	17.1	60.4	45.0	25.2	36.9	England
Plymouth	36.8	100.0	0.0	0.0	34.2	England
Cardiff	15.2	93.8	0.6	20.2	32.5	Wales

Centre	Ethnicity	Primary Diagnosis	Date 1st seen	Co-morbidity	Average completeness	Country
Clwyd	11.1	100.0	0.0	0.0	27.8	Wales
Brighton	22.2	88.0	0.0	0.0	27.5	England
Carshalton	30.6	75.6	0.6	3.3	27.5	England
L Royal Free	94.0	0.8	0.0	0.0	23.7	England
Wrexham	11.6	51.2	0.0	0.0	15.7	Wales

Incidence: new patients starting Renal Replacement Therapy

The number of new patients starting RRT per million population, often known as the ‘take-on rate’ is determined by the actual incidence of ERF in the population together with the referral and acceptance policies in place. For many years, the take-on rate across the UK has been lower than in comparator countries, with much of the discrepancy being due to restrictive referral and acceptance policies that led to covert ‘rationing’ of RRT. This was largely achieved by under-referral or under-acceptance of elderly patients and those with co-morbidities such as diabetes mellitus and vascular disease. Despite the NSF for England, marked regional variations in take-on rate are still observed. Patients who are transferred in to a renal unit having previously been at another renal unit are not included in these figures. Patients returning to dialysis after a failed transplant are also not included in this calculation.

Table 5: Number of new adult patients accepted in the UK in 2005

	England	Wales	Scotland	N. Ireland	UK
Centres contributing to RR (65)	4,598	383	624	242	5,847
All UK centres (65+5 = 70)	5,236	383	624	242	6,485
*Total estimated pop mid 2005 (millions)	50.4	3.0	5.1	1.7	60.2
Acceptance rate (pmp)	104	129	122	140	108
(95% CI)	(101–107)	(116-142)	(113-132)	(123-158)	(105-111)

* Data extrapolated by The Office for National Statistics -based on the 2001 census

Interpretation of take-on rates requires understanding that the incidence of ERF increases with increasing age and is also higher in patients of ethnic minority origin compared to the host ‘white’ population. Expected take-on rates are therefore higher in areas which have a high proportion of elderly patients and in those with a high proportion of ethnic minority patients. Table 5 takes these variations in population structure into account by comparing the observed take-on rate in each local authority area with the rate that would be expected in that population and expressing this comparison as a ratio (the Observed/Expected rate, O/E). The ‘expected’ rate is derived using data from the Census and UK-wide age- and gender-specific incidence rates.

An O/E of > 1 suggests a more than average incidence of ERF or acceptance rate, and an O/E of < 1 suggests a lower than average incidence or acceptance rate. Some variations in observed/expected incidence may be due to a higher incidence of established renal failure in ethnic minority populations: this possibility is discussed in depth in the full Report. Areas with greater social deprivation will also be expected to have a high O/E incidence of kidney failure, as people in these areas are more likely to have higher rates of comorbidities that lead to kidney failure (eg diabetes, cardiovascular disease). Figures in italics are those that are represent statistical outliers.

It is possible that some of the variation in incidence rates is caused by genuine variation in the incidence of established renal failure. For instance, exceptionally good medical care of patients with

early CKD might prevent some patients developing ERF. Indeed, the fact that incidence rates are lower in the UK (and in Norway) than in the USA in all age groups, even when restricted to white patients, is likely to be due to higher standards of pre-dialysis care in the two European countries. However, all previous research in the UK has suggested that a lower O/E is associated with under-referral. Low rates are clearly associated with under-provision of dialysis facilities.

Table 6. Incidence (“take-on”) rate of RRT in each local authority area compared with the rate that would be expected from the known age structure of the population in the area, expressed as the Observed/Expected ratio

Areas with significantly low acceptance ratios over 5 years are italicised in greyed areas, those with significantly high ratios are bold in greyed areas.

O/E \times Standardised acceptance rate ratio.

% non White \times sum of % South Asian and African–Caribbean from 2001 Census.

UK Area	LA name	Tot pop	2001	2002	2003	2004	2005	pmp	2001–2005				% non White
			O/E	O/E	O/E	O/E	O/E		O/E	LCL	UCL	pmp	
North East	Darlington	97,838	0.74	0.91	0.96	0.77	0.37	41	0.74	0.54	1.02	78	2.1
	Durham	493,469	0.56	1.04	0.81	0.88	0.83	93	0.83	0.72	0.95	87	1.0
	Hartlepool	88,610	1.07	0.57	1.30	0.99	0.62	68	0.91	0.67	1.23	93	1.2
	Middlesbrough	134,855	1.09	1.13	1.14	1.00	1.02	104	1.07	0.85	1.36	102	6.3
	Redcar & Cleveland	139,132	0.80	1.83	1.07	1.07	0.76	86	1.10	0.89	1.37	116	1.1
	Stockton-on-Tees	178,408	0.86	1.06	0.89	1.07	0.75	78	0.92	0.74	1.15	91	2.8
	Gateshead	191,151		1.27	0.96	0.92	0.69	78	0.95	0.76	1.19	103	1.6
	Newcastle upon Tyne	259,536		0.98	0.89	1.09	0.96	100	0.98	0.81	1.19	97	6.9
	North Tyneside	191,658		0.95	0.76	0.91	0.59	68	0.80	0.63	1.01	87	1.9
	Northumberland	307,190		0.76	0.98	0.87	0.52	62	0.78	0.65	0.95	88	1.0
	South Tyneside	152,785		0.88	0.66	0.97	0.86	98	0.84	0.65	1.09	92	2.7
Sunderland	280,807	0.80	0.99	1.29	0.60	0.77	82	0.89	0.75	1.06	89	1.9	
North West	Cheshire												1.6
	Halton	118,209	1.64	0.84	1.23	1.51	1.35	135	1.32	1.05	1.65	124	1.2
	Knowsley	150,459	0.75	0.94	1.30	0.97	0.92	93	0.98	0.78	1.24	93	1.6
	Liverpool	439,471	1.94	0.96	0.74	1.05	1.20	123	1.17	1.03	1.32	112	5.7
	Sefton	282,958	0.98	1.00	0.70	0.51	0.91	106	0.81	0.68	0.97	89	1.6
	St. Helens	176,843	1.20	0.98	0.55	0.50	1.15	124	0.87	0.70	1.09	88	1.2
	Warrington	191,080	0.81	1.06	0.63	0.95	0.76	79	0.84	0.67	1.05	82	2.1
	Wirral	312,293	0.55	0.81	1.00	1.18	1.09	125	0.94	0.80	1.10	100	1.7
	Blackburn with Darwen	137,470	0.89	1.37	1.29	0.98	1.39	131	1.19	0.94	1.50	105	22.1
	Blackpool	142,283	0.80	1.09	0.37	0.31	0.64	77	0.63	0.48	0.83	72	1.6
	Cumbria	487,607	0.87	0.76	0.76	0.62	0.86	103	0.78	0.68	0.89	86	0.7
	Lancashire	1,134,975	0.95	0.64	0.59	0.61	0.61	67	0.67	0.61	0.74	70	5.3
	Bolton	261,037			0.96	0.74	0.74	77	0.81	0.64	1.04	82	11.0
	Bury	180,607			0.56	0.62	0.75	78	0.64	0.46	0.89	65	6.1
	Manchester												19.0
	Oldham	217,276			0.72	0.67	0.59	60	0.66	0.49	0.89	64	13.9
	Rochdale	205,357			1.01	0.82	0.53	54	0.78	0.59	1.04	76	11.4
	Salford	216,105			1.22	0.50	0.35	37	0.69	0.51	0.92	71	3.9
	Stockport												4.3
	Tameside												5.4
Trafford												8.4	
Wigan	301,415			0.89	0.86	1.01	106	0.92	0.75	1.14	94	1.3	
Yorkshire and the Humber	East Riding of Yorkshire	314,113	0.85	0.91	1.06	0.75	1.14	137	0.95	0.81	1.10	106	1.2
	Kingston upon Hull	243,588	0.97	1.07	0.96	1.27	1.24	127	1.10	0.93	1.31	106	2.3
	North East Lincolnshire	157,981	0.27	1.15	0.67	1.10	1.22	133	0.89	0.71	1.13	91	1.4
	North Lincolnshire	152,848	0.80	0.95	0.66	1.28	0.98	111	0.94	0.75	1.17	99	2.5
	North Yorkshire	569,660	0.86	1.23	1.02	1.08	0.91	107	1.02	0.91	1.14	112	1.1
	York	181,096	0.86	1.44	1.62	0.95	0.90	99	1.15	0.95	1.39	119	2.2

UK Area	LA name	Tot pop	2001	2002	2003	2004	2005	pmp	2001–2005				% non White
			O/E	O/E	O/E	O/E	O/E		O/E	LCL	UCL	pmp	
	Barnsley	218,063	0.77	1.10	0.74	0.92	0.71	78	0.85	0.69	1.03	87	0.9
	Doncaster	286,865	0.94	0.94	0.96	0.90	0.69	77	0.88	0.74	1.05	91	2.3
	Rotherham	248,175	1.67	0.86	0.98	1.18	1.23	133	1.18	1.00	1.39	119	3.1
	Sheffield	513,234	1.00	0.98	0.97	1.16	1.03	111	1.03	0.91	1.16	104	8.8
	Bradford	467,664	1.60	1.32	1.52	1.31	1.32	130	1.41	1.26	1.58	130	21.7
	Calderdale	192,405	1.18	0.65	1.33	0.88	0.78	83	0.96	0.78	1.18	96	7.0
	Kirklees	388,567	0.98	1.23	1.26	1.30	0.78	80	1.11	0.97	1.27	106	14.4
	Leeds	715,403	1.08	0.87	1.03	1.00	1.19	123	1.04	0.94	1.15	100	8.2
	Wakefield	315,172	0.81	0.85	0.87	1.06	0.62	67	0.84	0.71	0.99	84	2.3
East Midlands	Leicester	279,920	1.27	1.57	1.67	1.41	1.41	132	1.47	1.27	1.70	129	36.1
	Leicestershire	609,578	1.22	0.84	0.81	0.74	0.82	90	0.88	0.78	0.99	91	5.3
	Northamptonshire	629,676	0.97	0.97	0.76	0.71	0.89	92	0.86	0.76	0.97	83	4.9
	Rutland	34,563	0.58	0.28	1.60	0.27	0.76	87	0.71	0.41	1.22	75	1.9
	Derby	221,709			0.97	1.03	1.27	135	1.09	0.87	1.37	113	12.6
	Derbyshire	734,585	0.90	0.45	0.83	0.71	0.69	79	0.71	0.64	0.80	76	1.5
	Lincolnshire	646,644	0.69	0.63	0.62	0.78	1.08	131	0.77	0.68	0.86	87	1.3
	Nottingham	266,988	1.73	0.69	0.88	1.10	1.31	127	1.14	0.96	1.34	103	15.1
	Nottinghamshire	748,508	0.93	0.84	1.05	0.95	1.23	138	1.01	0.91	1.11	106	2.6
West Midlands	Birmingham	977,085				1.70	1.66	163	1.68	1.51	1.88	160	29.6
	Dudley	305,153	0.60	0.61	0.82	1.16	0.96	108	0.84	0.71	0.99	88	6.3
	Sandwell	282,904				1.83	1.41	152	1.62	1.32	1.98	170	20.3
	Solihull	199,515	1.28	0.69	1.54	1.36	1.24	140	1.22	1.03	1.46	129	5.4
	Walsall	253,498	1.21	1.36	1.21	1.60	1.12	122	1.30	1.12	1.51	133	13.6
	Wolverhampton	236,582	1.24	1.70	1.65	1.54	1.58	173	1.55	1.34	1.79	159	22.2
	Coventry	300,849	1.68	1.50	1.25	0.85	0.90	93	1.22	1.06	1.42	118	16.0
	Herefordshire, County of	174,871				1.03	0.79	97	0.91	0.66	1.25	109	0.9
	Warwickshire	505,858	1.10	1.00	0.76	0.88	0.99	111	0.94	0.83	1.07	98	4.4
	Worcestershire	542,105				0.95	0.79	89	0.86	0.71	1.05	95	2.5
	Shropshire	283,173				1.16	0.89	106	1.03	0.81	1.30	118	1.2
	Staffordshire												2.4
	Stoke-on-Trent												5.2
Telford & Wrekin	158,325				1.38	0.85	82	1.11	0.79	1.56	104	5.2	
East of England	Bedfordshire	381,572	0.91	0.99	0.93	0.86	0.74	76	0.88	0.76	1.03	85	6.7
	Hertfordshire	1,033,978	0.88	0.58	0.64	0.55	0.62	65	0.65	0.58	0.73	64	6.3
	Luton	184,373	1.48	0.91	1.84	0.75	1.65	152	1.33	1.10	1.61	115	28.1
	Essex	1,310,837				1.01	0.74	83	0.87	0.77	0.99	95	2.9
	Southend-on-Sea	160,259	0.95	1.26	1.31	0.97	1.09	125	1.12	0.92	1.37	120	4.2
	Thurrock	143,128				1.52	1.15	112	1.33	0.96	1.84	126	4.7
	Cambridgeshire	552,659	0.93	0.69	0.85	1.00	1.01	107	0.90	0.79	1.02	88	4.1
	Norfolk	796,728				1.01	1.17	146	1.09	0.95	1.25	132	1.5
	Peterborough	156,061	1.03	1.20	1.20	1.01	1.15	115	1.12	0.90	1.39	105	10.3
	Suffolk	668,555				0.93	1.09	129	1.01	0.87	1.19	116	2.8
London	Barnet	314,561					0.61	60	0.61	0.39	0.96	60	26.0
	Camden	198,020					0.87	76	0.87	0.52	1.44	76	26.8
	Enfield	273,559					1.05	102	1.05	0.72	1.52	102	22.9
	Haringey	216,505					1.40	115	1.40	0.95	2.07	115	34.4
	Islington	175,797					1.66	142	1.66	1.12	2.46	142	24.6
	Barking & Dagenham	163,942				1.06	0.63	61	0.84	0.57	1.23	79	14.8
	City of London												15.4
	Hackney	202,824				1.65	1.62	128	1.63	1.24	2.15	126	40.6
	Havering												4.8
	Newham	243,889				1.94	2.10	160	2.02	1.61	2.54	150	60.6
	Redbridge	238,634				1.39	1.06	105	1.22	0.94	1.58	117	36.5
	Tower Hamlets	196,105				1.25	1.44	112	1.35	0.99	1.83	102	48.6
	Waltham Forest												35.5

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			O/E	O/E	O/E	O/E	O/E		O/E	LCL	UCL	pmp	
London	Brent												54.7
	Ealing	300,948		1.78	1.52	1.81	1.28	116	1.59	1.37	1.85	138	41.3
	Hammersmith & Fulham	165,244		1.86	1.88	1.77	0.98	85	1.61	1.31	1.99	133	22.2
	Harrow												41.2
	Hillingdon	243,006				1.37	0.96	95	1.16	0.89	1.51	111	20.9
	Hounslow	212,342				2.20	1.46	132	1.82	1.43	2.31	160	35.1
	Kensington & Chelsea												21.4
	Westminster												26.8
London	Bexley	218,307	0.84	1.28	0.99	0.77	0.94	101	0.96	0.79	1.17	96	8.6
	Bromley	295,532	0.64	0.95	0.93	0.94	0.86	95	0.87	0.73	1.03	89	8.4
	Greenwich	214,404		1.51	1.37	0.58	2.11	196	1.40	1.16	1.69	124	22.9
	Lambeth	266,169	0.74	1.65	1.35	1.43	1.58	128	1.36	1.15	1.61	103	37.6
	Lewisham	248,923	0.96	1.86	1.02	1.82	1.68	145	1.48	1.26	1.73	119	34.1
	Southwark	244,866		1.67	1.51	1.33	1.84	155	1.59	1.34	1.90	128	37.0
	Croydon	330,588	0.76	1.54	1.29	1.20	1.64	157	1.30	1.13	1.49	116	29.8
	Kingston upon Thames												15.5
	Merton												25.0
	Richmond upon Thames												9.0
South East	Sutton												10.8
	Wandsworth												22.0
	Hampshire	1,240,102	0.68	0.74	0.74	0.61	0.70	77	0.70	0.63	0.76	72	2.2
	Isle of Wight	132,731	0.67	0.70	0.67	0.67	0.46	60	0.63	0.48	0.83	77	1.3
	Portsmouth	186,700	1.16	0.70	0.88	0.61	0.63	64	0.79	0.62	1.00	75	5.3
	Southampton	217,444	0.70	0.83	0.82	0.59	0.70	69	0.73	0.58	0.91	67	7.6
	Kent												3.1
	Medway												5.4
	Brighton & Hove	247,817				0.97	0.73	77	0.84	0.63	1.14	87	5.7
	East Sussex	492,326				1.11	0.68	87	0.89	0.74	1.07	112	2.3
	Surrey	1,059,017				0.78	0.61	67	0.69	0.59	0.81	74	5.0
	West Sussex	753,612				0.60	0.78	94	0.69	0.58	0.83	82	3.4
	Bracknell Forest	109,616				1.29	0.82	73	1.05	0.68	1.63	91	4.9
	Buckinghamshire	479,026	1.01	0.70	0.71	0.77	0.64	67	0.76	0.66	0.88	75	7.9
	Milton Keynes	207,057	0.76	1.04	1.37	1.22	0.88	77	1.06	0.86	1.30	87	9.3
	Oxfordshire	605,489	1.05	0.91	1.14	0.78	0.91	94	0.96	0.85	1.07	92	4.9
	Reading	143,096	1.04	0.84	1.34	1.04	1.06	98	1.06	0.84	1.35	92	13.2
Slough	119,064	1.39	1.24	1.66	2.07	1.96	176	1.68	1.35	2.08	141	36.3	
West Berkshire	144,485	1.02	0.68	0.93	1.30	1.16	118	1.02	0.81	1.29	97	2.6	
Windsor & Maidenhead												7.6	
Wokingham	150,231	1.10	0.53	1.14	1.08	0.96	93	0.97	0.76	1.23	88	6.1	
South West	Bath & NE Somerset	169,040	0.66	0.63	0.70	1.31	0.93	106	0.85	0.68	1.06	91	2.8
	Bristol, City of	380,616	1.59	1.01	1.34	1.26	1.20	121	1.28	1.12	1.45	120	8.2
	Gloucestershire	564,559	0.88	0.84	0.85	0.87	0.89	101	0.87	0.77	0.98	92	2.8
	North Somerset	188,564	1.11	0.92	1.38	1.24	1.13	138	1.16	0.97	1.38	132	1.4
	South Gloucestershire	245,641	0.98	1.29	1.06	1.02	1.32	138	1.14	0.96	1.34	112	2.4
	Swindon	180,051	0.63	1.04	0.98	1.28	0.66	67	0.92	0.74	1.15	87	4.8
	Wiltshire	432,972	0.74	0.51	0.63	0.57	0.83	92	0.66	0.56	0.77	68	1.6
	Bournemouth	163,444				0.59	0.76	92	0.68	0.46	1.00	80	3.3
	Dorset	390,980				0.74	0.59	79	0.66	0.52	0.84	87	1.3
	Poole	138,288				0.87	0.47	58	0.67	0.44	1.01	80	1.8
	Somerset	498,095	0.83	0.92	0.82	0.91	0.66	80	0.82	0.73	0.94	93	1.2
	Cornwall & Isles of Scilly	501,267	1.05	1.55	1.26	1.39	0.72	90	1.18	1.07	1.32	139	1.0
	Devon	704,491	0.88	0.83	0.89	1.08	1.07	135	0.95	0.86	1.05	112	1.1
	Plymouth	240,722	1.53	1.47	1.39	1.03	1.01	108	1.27	1.09	1.49	127	1.6
	Torbay	129,706	1.17	0.46	1.13	1.32	1.01	131	1.02	0.82	1.27	123	1.2
Wales	Cardiff	305,353	1.07	1.69	1.56	1.36	1.32	131	1.40	1.22	1.61	130	8.4

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	Merthyr Tydfil	55,979	0.76	1.82	1.72	2.26	1.65	179	1.65	1.24	2.20	168	1.0
	Rhondda, Cynon, Taff	231,947	1.14	1.53	1.08	1.63	1.31	142	1.34	1.14	1.56	136	1.2
	The Vale of Glamorgan	119,292	0.87	1.16	1.02	1.27	0.75	84	1.01	0.79	1.29	106	2.2
	Carmarthenshire	172,842	1.09	1.05	1.44	1.15	1.04	127	1.16	0.96	1.39	132	0.9
	Ceredigion	74,941	1.42	1.24	0.59	0.94	0.78	93	0.98	0.72	1.33	109	1.4
	Pembrokeshire	114,131	1.24	0.87	1.21	0.76	1.08	131	1.03	0.81	1.31	117	0.9
	Powys	126,353	0.73	0.69	0.26	0.86	1.32	166	0.78	0.60	1.01	92	0.9
Wales	Blaenau Gwent	70,064	1.33	1.27	0.13	1.08	1.28	143	1.01	0.73	1.40	106	0.8
	Caerphilly	169,519	0.96	1.47	1.05	1.05	1.56	165	1.22	1.01	1.48	122	0.9
	Monmouthshire	84,885	1.95	1.21	0.73	1.26	0.99	118	1.21	0.93	1.57	134	1.1
	Newport	137,012	1.25	1.05	1.43	0.93	1.02	109	1.14	0.91	1.42	114	4.8
	Torfaen	90,949	1.36	1.42	1.14	0.83	0.89	99	1.12	0.86	1.47	117	0.9
	Bridgend	128,645	1.21	1.16	1.68	1.40	1.12	124	1.31	1.07	1.62	137	1.4
	Neath Port Talbot	134,468	1.32	1.40	1.54	1.34	0.89	104	1.29	1.06	1.58	141	1.1
	Swansea	223,300	2.05	1.45	1.74	1.18	1.08	125	1.49	1.29	1.72	161	2.2
	Conwy	109,596		1.23	0.51	1.10	0.69	91	0.88	0.66	1.16	109	1.1
	Denbighshire	93,065	0.31	0.68	0.37	1.02	1.94	236	0.89	0.67	1.18	101	1.2
	Flintshire	148,594		1.32	1.19	1.13	1.39	148	1.26	1.00	1.57	128	0.8
	Gwynedd	116,843		1.68	1.52	1.22	1.52	180	1.48	1.19	1.85	167	1.2
	Isle of Anglesey	66,829		0.96	1.30	1.17	1.86	224	1.33	0.98	1.81	153	0.7
Wrexham	128,476	1.15	1.03	1.27	0.83	1.43	156	1.15	0.91	1.44	117	1.1	
Scotland	Aberdeen City	212,125	0.83	1.15	0.99	1.62	1.13	118	1.15	0.96	1.37	112	
	Aberdeenshire	226,871	1.01	1.11	0.70	0.88	1.05	110	0.95	0.79	1.15	93	
	Angus	108,400	1.55	2.18	0.91	1.33	1.10	129	1.40	1.13	1.74	153	
	Argyll & Bute	91,306	0.95	0.71	1.35	0.97	0.83	99	0.96	0.73	1.27	107	
	Scottish Borders	106,764	0.36	0.94	0.73	1.39	0.77	94	0.84	0.64	1.11	96	
	Clackmannanshire	48,077	0.91	1.10	1.46	1.05	1.19	125	1.15	0.79	1.67	112	
	West Dunbartonshire	93,378	1.74	0.56	0.63	1.38	0.40	43	0.93	0.69	1.25	92	
	Dumfries & Galloway	147,765	1.52	1.34	1.33	1.04	1.16	142	1.27	1.05	1.54	146	
	Dundee City	145,663	1.41	1.42	1.79	1.36	2.20	247	1.65	1.38	1.96	173	
	East Ayrshire	120,235	1.31	0.75	1.19	0.56	1.21	133	1.00	0.78	1.29	103	
	East Dunbartonshire	108,243	0.68	0.75	1.33	0.71	0.68	74	0.83	0.62	1.11	85	
	East Lothian	90,088	0.91	0.98	0.31	0.83	1.08	122	0.82	0.60	1.12	87	
	East Renfrewshire	89,311	0.60	0.46	0.98	0.77	1.05	112	0.78	0.56	1.09	78	
	Edinburgh, City of	448,624	0.87	0.81	1.03	1.07	1.01	105	0.96	0.84	1.10	93	
	Falkirk	145,191	1.03	0.57	0.67	0.68	1.15	124	0.82	0.64	1.06	83	
	Fife	349,429	1.20	1.10	0.90	1.02	1.46	160	1.14	0.99	1.31	117	
	Glasgow City	577,869	1.18	1.25	1.68	1.37	1.23	126	1.34	1.21	1.49	129	
	Highland	208,914	1.36	1.26	1.45	1.38	1.77	201	1.45	1.24	1.69	154	
	Inverclyde	84,203	1.61	2.14	1.13	1.02	0.97	107	1.36	1.05	1.76	140	
	Midlothian	80,941	0.80	1.02	1.70	1.71	1.04	111	1.26	0.96	1.66	126	
	Moray	86,940	0.72	0.92	1.31	1.10	1.36	150	1.09	0.83	1.45	113	
	North Ayrshire	135,817	0.46	1.34	1.20	1.06	1.21	133	1.06	0.85	1.33	109	
	North Lanarkshire	321,067	1.38	1.22	1.28	0.97	0.83	84	1.13	0.97	1.31	107	
	Orkney Islands	19,245	1.04	1.50	1.90	0.48	1.81	208	1.35	0.80	2.28	145	
	Perth & Kinross	134,949	0.79	1.24	1.24	1.31	0.87	104	1.09	0.88	1.36	123	
	Renfrewshire	172,867	1.05	1.79	1.13	1.14	1.24	133	1.27	1.05	1.53	127	
	Shetland Islands	21,988	0.00	0.00	0.46	1.40	0.44	45	0.47	0.20	1.14	45	
	South Ayrshire	112,097	0.85	0.65	1.16	0.54	0.96	116	0.84	0.64	1.09	95	
	South Lanarkshire	302,216	1.36	1.24	0.91	0.98	0.87	93	1.06	0.91	1.24	106	
	Stirling	86,212	0.75	0.72	0.68	0.68	0.32	35	0.62	0.43	0.91	63	
West Lothian	158,714	0.54	0.96	0.56	0.71	1.21	113	0.80	0.62	1.04	71		
Eilean Siar	26,502	0.35	0.68	0.97	1.29	0.00	0	0.66	0.35	1.22	75		
N Ireland	Antrim	48,366					2.58	227	2.58	1.43	4.66	227	
	Ards	73,244					1.33	137	1.33	0.72	2.48	137	

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	Armagh	54,262					2.00	184	2.00	1.08	3.73	184
	Ballymena	58,610					1.50	154	1.50	0.78	2.89	154
	Ballymoney	26,895					1.90	186	1.90	0.79	4.57	186
	Banbridge	41,389					1.03	97	1.03	0.39	2.74	97
	Belfast	277,391					1.31	130	1.31	0.95	1.82	130
	Carrickfergus	37,658					2.73	266	2.73	1.47	5.08	266
N Ireland	Castlereagh	66,488					2.50	271	2.50	1.58	3.97	271
	Coleraine	56,314					2.66	266	2.66	1.60	4.41	266
	Cookstown	32,581					2.76	246	2.76	1.38	5.53	246
	Craigavon	80,671					1.72	161	1.72	1.00	2.96	161
	Derry	105,066					1.30	105	1.30	0.72	2.35	105
	Down	63,828					1.85	172	1.85	1.02	3.34	172
	Dungannon	47,735					1.14	105	1.14	0.48	2.75	105
	Fermanagh	57,527					1.06	104	1.06	0.48	2.36	104
	Larne	30,833					0.93	97	0.93	0.30	2.89	97
	Limavady	32,422					1.48	123	1.48	0.56	3.95	123
	Lisburn	108,694					1.52	138	1.52	0.92	2.52	138
	Magherafelt	39,778					1.43	126	1.43	0.59	3.43	126
	Moyle	15,932					0.00	0	0.00			0
	Newry & Mourne	87,058					0.91	80	0.91	0.43	1.91	80
	Newtownabbey	79,996					1.12	113	1.12	0.58	2.15	113
	North Down	76,323					1.33	144	1.33	0.73	2.39	144
	Omagh	47,953					0.71	63	0.71	0.23	2.20	63
	Strabane	38,246					0.58	52	0.58	0.15	2.34	52

Prevalence: all patients receiving RRT and predicting growth

There were 41,776 adult patients receiving RRT in the UK at the end of 2005, giving a total population prevalence for adults of 694 pmp (Table 7). Addition of the 748 children under age 18 on RRT (see Chapter 13) gives a total prevalence of 706pmp

Figure 1: Trend in the total numbers of RRT patients 1982 – 2005 by modality

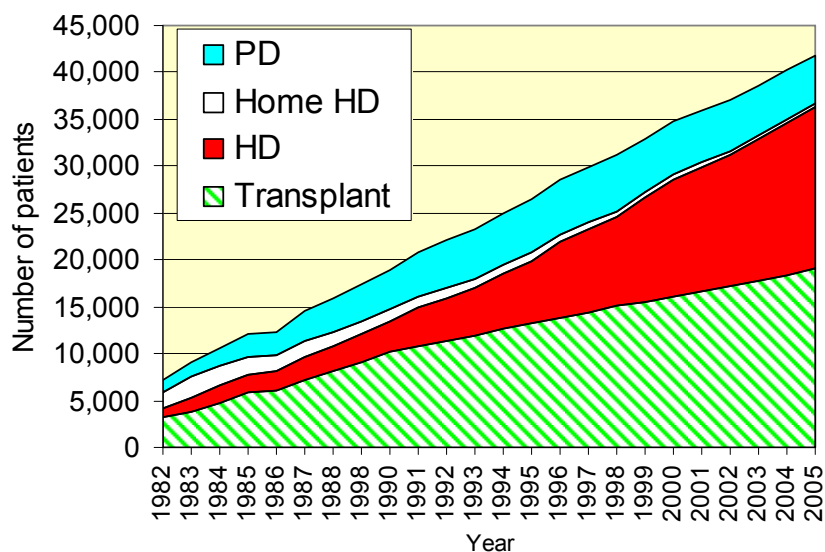


Table 7: Prevalence of renal replacement therapy in adults in the UK, 31/12/2005

	England	Wales	Scotland	N. Ireland	UK
Centres contributing to RR (65)	30,343	2,075	3,810	1,306	37,534
All UK centres (65+5 = 70)	34,585	2,075	3,810	1,306	41,776
Total population from mid-2005 estimates from ONS web site (millions)	50.4	3.0	5.1	1.7	60.2
Prevalence pmp	686	701	748	757	694
Confidence intervals	679-693	671-732	724-772	716-798	687-700

The total percentage increase in number of prevalent patients in the 38 renal units who have returned data continuously for 6 years from 2000 to 2005 was 27.8%. The rate of increase was similar in England (27.6%), Scotland (28.6%) and Wales (27.9%) and fairly uniform over the time span, averaging 4.6% per year.

All the considerations explained in the preceding section apply also to prevalence of RRT – sometimes referred to as the ‘stock’ of patients – all those currently receiving RRT, whether they started in 2005 or in a previous year. A high prevalence is associated with high acceptance rates in previous years, higher than expected survival, or both. Table 6 shows prevalence by local authority, expressed as the prevalence ratio (which is the same as the observed/expected ratio), calculated in the same way as for Table 6.

Table 8. Prevalence (“stock”) of RRT in each local authority area compared with the rate that would be expected from the known age structure of the population in the area, expressed as the Observed/Expected ratio

Region	Local Authority	Total Pop	2001	2002	2003	2004	2005			pmp	ALL O/E	% non-White
			O/E	O/E	O/E	OE	O/E	LCL	UCL			
NE	Darlington	97,838	0.64	0.78	0.83	0.88	0.89	0.70	1.15	623	0.81	2.1
England	Durham	493,469	0.49	0.84	0.83	0.89	0.95	0.85	1.06	671	0.80	1.0
	Hartlepool	88,610	0.73	0.81	0.88	0.97	0.92	0.71	1.20	632	0.86	1.2
	Middlesbrough	134,855	0.86	1.02	1.08	1.02	1.01	0.82	1.25	653	1.00	6.3
	Redcar/Cleveland	139,132	0.67	0.89	0.90	0.97	0.97	0.79	1.18	683	0.88	1.1
	Stockton	178,408	0.52	0.69	0.74	0.82	0.87	0.71	1.05	583	0.73	2.8
	Gateshead	191,151		0.94	0.92	0.94	0.97	0.82	1.15	685	0.94	1.6
	Newcastle	259,536		0.87	0.84	0.84	0.93	0.79	1.08	605	0.87	6.9
	N Tyneside	191,658		0.86	0.88	0.90	0.97	0.82	1.15	694	0.90	1.9
	Northumberland	307,190		0.80	0.82	0.87	0.88	0.77	1.01	648	0.84	1.0
	S Tyneside	152,785		0.73	0.77	0.83	0.90	0.74	1.10	635	0.81	2.7
	Sunderland	280,807	0.62	0.86	0.92	0.95	0.96	0.83	1.11	652	0.86	1.9
NW	Cheshire											1.6
England	Halton	118,209	0.67	0.72	0.87	0.94	0.99	0.80	1.24	651	0.84	1.2
	Knowsley	150,459	0.96	1.01	1.10	1.12	1.12	0.93	1.35	724	1.06	1.6
	Liverpool	439,471	0.98	0.99	1.01	1.06	1.08	0.97	1.21	699	1.02	5.7
	Sefton	282,958	0.51	0.75	0.78	0.77	0.84	0.72	0.97	597	0.73	1.6
	St. Helens	176,843	0.60	0.73	0.73	0.72	0.80	0.66	0.98	554	0.72	1.2
	Warrington	191,080	0.59	0.69	0.80	0.84	0.82	0.68	0.99	555	0.75	2.1
	Wirral	312,293	0.52	0.92	0.96	0.98	1.00	0.88	1.14	704	0.88	1.7
	Blackburn/Darwen	137,470	0.48	0.59	0.81	0.97	1.08	0.88	1.32	655	0.78	22.1
	Blackpool	142,283	0.41	0.47	0.59	0.61	0.67	0.53	0.85	492	0.55	1.6
	Cumbria	487,607	0.58	0.62	0.68	0.71	0.75	0.67	0.85	552	0.67	0.7
	Lancashire	1,134,975	0.41	0.44	0.59	0.70	0.76	0.70	0.82	524	0.58	5.3
	Bolton	261,037			0.65	0.66	0.79	0.67	0.93	521	0.70	11.0
	Bury	180,607			0.29	0.35	0.45	0.34	0.58	299	0.36	6.1
	Manchester											

Region	Local Authority	Total Pop	2001	2002	2003	2004		2005			ALL	% non-
			O/E	O/E	O/E	OE	O/E	LCL	UCL	pmp	O/E	White
	<i>Oldham</i>	217,276			0.43	0.47	0.49	0.39	0.62	318	0.46	13.9
	<i>Rochdale</i>	205,357			0.44	0.47	0.48	0.38	0.61	312	0.47	11.4
	<i>Salford</i>	216,105			0.60	0.56	0.61	0.50	0.75	407	0.59	3.9
	Stockport											4.3
	Tameside											5.4
	Trafford											8.4
	<i>Wigan</i>	301,415			0.53	0.59	0.65	0.55	0.77	445	0.59	1.3
Yorkshire & Humber	<i>East Riding</i>	314,113	0.65	0.72	0.76	0.79	0.85	0.74	0.98	630	0.76	1.2
	Hull	243,588	0.87	0.90	0.90	0.99	1.06	0.91	1.23	681	0.94	2.3
	NE Lincolnshire	157,981	0.64	0.79	0.84	0.96	1.02	0.85	1.24	696	0.85	1.4
	N Lincolnshire	152,848	0.79	0.85	0.85	0.87	0.86	0.71	1.06	615	0.84	2.5
	<i>N Yorkshire</i>	569,660	0.60	0.69	0.72	0.78	0.82	0.73	0.91	595	0.72	1.1
	York	181,096	0.77	0.79	0.88	0.86	0.89	0.74	1.07	613	0.84	2.2
	Barnsley	218,063	0.91	1.01	1.07	1.14	1.11	0.95	1.29	770	1.05	0.9
	Doncaster	286,865	0.76	0.86	0.97	0.99	0.98	0.85	1.12	676	0.91	2.3
	Rotherham	248,175	0.96	1.01	1.06	1.15	1.16	1.01	1.33	794	1.07	3.1
	Sheffield	513,234	0.80	0.89	0.92	1.01	1.04	0.94	1.15	696	0.93	8.8
	Bradford	467,664	0.96	1.06	1.17	1.23	1.31	1.19	1.45	823	1.15	21.7
	Calderdale	192,405	0.84	0.91	1.01	1.05	1.09	0.92	1.29	738	0.98	7.0
	Kirklees	388,567	0.92	1.00	1.09	1.13	1.17	1.05	1.31	767	1.06	14.4
	Leeds	715,403	0.87	0.89	0.91	0.94	1.02	0.93	1.11	661	0.92	8.2
	Wakefield	315,172	0.76	0.76	0.78	0.82	0.87	0.75	1.00	593	0.80	2.3
East Midlands	Leicester	279,920	1.45	1.57	1.63	1.71	1.80	1.60	2.01	1075	1.63	36.1
	Leicestershire	609,578	0.79	0.81	0.85	0.91	0.93	0.84	1.03	650	0.86	5.3
	Northamptonshire	629,676	0.79	0.82	0.83	0.69	0.92	0.83	1.01	613	0.81	4.9
	Rutland	34,563	0.61	0.69	0.81	0.85	0.93	0.62	1.40	665	0.78	1.9
	Derby	221,709			1.08	1.15	1.16	1.00	1.35	767	1.13	12.6
	<i>Derbyshire</i>	734,585	0.64	0.54	0.76	0.77	0.80	0.73	0.88	570	0.70	1.5
	<i>Lincolnshire</i>	646,644	0.69	0.71	0.71	0.77	0.83	0.75	0.92	615	0.74	1.3
	Nottingham	266,988	1.30	1.19	1.17	1.21	1.25	1.09	1.43	760	1.22	15.1
	Nottinghamshire	748,508	0.84	0.85	0.88	0.93	0.99	0.91	1.08	703	0.90	2.6
West Midlands	Birmingham	977,085				1.55	1.67	1.57	1.77	1023	1.61	29.6
	Dudley	305,153	0.67	0.64	0.68	0.90	0.94	0.82	1.08	665	0.76	6.3
	Sandwell	282,904				1.33	1.40	1.25	1.58	937	1.37	20.3
	Solihull	199,515	0.66	0.64	0.75	0.95	0.98	0.83	1.16	697	0.80	5.4
	Walsall	253,498	0.63	0.72	.72	1.18	1.25	1.10	1.43	852	0.90	13.6
	Wolverhampton	236,582	0.98	1.01	1.11	1.26	1.33	1.16	1.52	896	1.14	22.2
	Coventry	300,849	1.12	1.13	1.20	1.20	1.20	1.05	1.36	768	1.17	16.0
	Herefordshire	174,871				0.81	0.87	0.72	1.04	646	0.84	0.9
	Warwickshire	505,858	0.87	0.91	0.92	1.03	1.08	0.98	1.19	765	0.96	4.4
	<i>Worcestershire</i>	542,105				0.80	0.86	0.77	0.96	612	0.83	2.5
	Shropshire	283,173				0.80	0.89	0.77	1.03	650	0.85	1.2
	Staffordshire											2.4
	Stoke-on-Trent											5.2
	Telford/Wrekin	158,325				0.86	0.85	0.69	1.05	543	0.85	5.2
East of England	Bedfordshire	381,572	0.71	0.78	0.81	0.86	0.90	0.80	1.03	605	0.81	6.7
	<i>Hertfordshire</i>	1,033,978	0.42	0.51	0.53	0.55	0.74	0.68	0.80	496	0.55	6.3
	Luton	184,373	0.89	0.95	1.06	1.09	1.29	1.10	1.52	781	1.06	28.1
	<i>Essex</i>	1,310,837				0.76	0.81	0.75	0.87	566	0.78	2.9
	Southend	160,259	0.66	0.76	0.85	0.95	1.01	0.84	1.22	705	0.85	4.2
	Thurrock	143,128				0.86	1.01	0.82	1.24	643	0.93	4.7
	Cambridgeshire	552,659	0.64	0.73	0.76	0.82	0.92	0.83	1.02	622	0.77	4.1
	Norfolk	796,728				0.79	0.85	0.78	0.93	639	0.82	1.5

Region	Local Authority	Total Pop	2001	2002	2003	2004		2005		ALL	% non-White		
			O/E	O/E	O/E	OE	O/E	LCL	UCL			pmp	O/E
London	Peterborough	156,061	0.62	0.75	0.86	0.95	1.01	0.84	1.23	654	0.84	10.3	
	<i>Suffolk</i>	<i>668,555</i>				<i>0.70</i>	<i>0.75</i>	<i>0.68</i>	<i>0.84</i>	<i>541</i>	<i>0.73</i>	<i>2.8</i>	
	Barnet	314,561					1.12	0.98	1.27	709	1.12	26.0	
	Camden	198,020					1.08	0.91	1.29	641	1.08	26.8	
	Enfield	273,559					1.49	1.32	1.68	943	1.49	22.9	
	Haringey	216,505					1.68	1.46	1.92	956	1.68	34.4	
	Islington	175,797					1.36	1.15	1.60	796	1.36	24.6	
	Barking/Dagenham	163,942				0.92	1.02	0.84	1.23	622	0.97	14.8	
	City of London											15.4	
	Hackney	202,824					1.15	1.53	1.32	1.78	838	1.34	40.6
	Havering												4.8
	Newham	243,889					1.34	1.58	1.37	1.81	824	1.46	60.6
	Redbridge	238,634					1.12	1.31	1.14	1.50	834	1.21	36.5
	Tower Hamlets	196,105					1.16	1.28	1.07	1.51	668	1.22	48.6
	Waltham Forest												35.5
	Brent												54.7
	Ealing	300,948		1.29	1.31	1.41	1.49	1.32	1.68	907	1.37	41.3	
	H/Smith/Fulham	165,244		1.27	1.35	1.45	1.40	1.18	1.65	823	1.37	22.2	
	Harrow												41.2
	Hillingdon	243,006				0.85	1.01	0.86	1.18	642	0.93	20.9	
Hounslow	212,342					1.60	1.63	1.42	1.86	984	1.61	35.1	
Kensington/C/Isle												21.4	
Westminster												26.8	
Bexley	218,307	0.61	1.00	1.05	1.04	1.09	0.93	1.27	733	0.96	8.6		
Bromley	295,532	0.57	0.80	0.83	0.86	0.92	0.80	1.06	636	0.80	8.4		
Greenwich	214,404		0.90	0.91	0.87	1.14	0.97	1.33	686	0.96	22.9		
Lambeth	266,169	0.72	1.17	1.23	1.31	1.39	1.21	1.59	778	1.16	37.6		
Lewisham	248,923	1.04	1.43	1.44	1.59	1.74	1.53	1.96	1012	1.45	34.1		
Southwark	244,866		1.45	1.53	1.57	1.73	1.53	1.96	992	1.57	37.0		
Croydon	330,588	0.70	0.88	1.00	1.09	1.21	1.07	1.37	762	.97	29.8		
Kingston												15.5	
Merton												25.0	
Richmond												9.0	
Sutton												10.8	
Wandsworth												22.0	
SE England	<i>Hampshire</i>	<i>1,240,102</i>	<i>0.62</i>	<i>0.64</i>	<i>0.69</i>	<i>0.72</i>	<i>0.75</i>	<i>0.69</i>	<i>0.81</i>	<i>522</i>	<i>0.68</i>	<i>2.2</i>	
	<i>Isle of Wight</i>	<i>132,731</i>	<i>0.54</i>	<i>0.59</i>	<i>0.65</i>	<i>0.66</i>	<i>0.65</i>	<i>0.51</i>	<i>0.82</i>	<i>497</i>	<i>0.62</i>	<i>1.3</i>	
	Portsmouth	186,700	0.98	1.01	1.03	1.06	1.07	0.90	1.28	686	1.03	5.3	
	Southampton	217,444	0.71	0.76	0.80	0.85	0.88	0.73	1.05	547	0.80	7.6	
	Kent											3.1	
	Medway											5.4	
	<i>Brighton/Hove</i>	<i>247,817</i>				<i>0.77</i>	<i>0.80</i>	<i>0.67</i>	<i>0.95</i>	<i>529</i>	<i>0.78</i>	<i>5.7</i>	
	<i>E Sussex</i>	<i>492,326</i>				<i>0.79</i>	<i>0.81</i>	<i>0.72</i>	<i>0.90</i>	<i>607</i>	<i>0.80</i>	<i>2.3</i>	
	<i>Surrey</i>	<i>1,059,017</i>				<i>0.71</i>	<i>0.76</i>	<i>0.70</i>	<i>0.83</i>	<i>533</i>	<i>0.74</i>	<i>5.0</i>	
	<i>W Sussex</i>	<i>753,612</i>				<i>0.71</i>	<i>0.75</i>	<i>0.68</i>	<i>0.83</i>	<i>545</i>	<i>0.73</i>	<i>3.4</i>	
	Bracknell Forest	109,616				0.85	0.83	0.64	1.08	511	0.84	4.9	
	Buckinghamshire	479,026	0.79	0.85	0.88	0.91	0.95	0.85	1.06	647	0.88	7.9	
	Milton Keynes	207,057	0.80	0.82	0.93	0.99	1.04	0.88	1.24	633	0.92	9.3	
	Oxfordshire	605,489	0.90	0.92	1.00	1.02	1.04	0.94	1.14	687	0.98	4.9	
	Reading	143,096	0.97	1.04	1.11	1.13	1.08	0.88	1.33	657	1.06	13.2	
	Slough	119,064	0.89	1.36	1.48	1.55	1.66	1.39	1.99	991	1.39	36.3	
West Berkshire	144,485	0.77	0.75	0.82	0.95	0.94	0.77	1.16	630	0.85	2.6		
Windsor/Maidenhd												7.6	

Region	Local Authority	Total Pop	2001	2002	2003	2004	2005			ALL	% non-	
			O/E	O/E	O/E	OE	O/E	LCL	UCL	pmp	O/E	White
SW	Wokingham	150,231	0.71	0.72	0.80	0.85	0.90	0.73	1.11	592	0.80	6.1
	Bath/NE Somerset	169,040	0.60	0.60	0.64	0.79	0.88	0.72	1.06	615	0.70	2.8
England	Bristol	380,616	1.11	1.17	1.25	1.28	1.33	1.19	1.48	846	1.23	8.2
	Gloucestershire	564,559	0.69	0.74	0.79	0.85	0.91	0.82	1.01	643	0.80	2.8
	N Somerset	188,564	0.84	0.87	0.99	1.07	1.06	0.90	1.24	785	0.97	1.4
	S Gloucestershire	245,641	0.89	0.99	0.99	1.04	1.09	0.94	1.26	741	1.00	2.4
	Swindon	180,051	0.74	0.75	0.78	0.91	0.90	0.74	1.09	589	0.81	4.8
	<i>Wiltshire</i>	<i>432,972</i>	<i>0.61</i>	<i>0.62</i>	<i>0.63</i>	<i>0.63</i>	<i>0.71</i>	<i>0.62</i>	<i>0.81</i>	<i>494</i>	<i>0.64</i>	<i>1.6</i>
	<i>Bournemouth</i>	<i>163,444</i>				<i>0.73</i>	<i>0.69</i>	<i>0.55</i>	<i>0.86</i>	<i>489</i>	<i>0.71</i>	<i>3.3</i>
	<i>Dorset</i>	<i>390,980</i>				<i>0.77</i>	<i>0.82</i>	<i>0.72</i>	<i>0.93</i>	<i>642</i>	<i>0.79</i>	<i>1.3</i>
	<i>Poole</i>	<i>138,288</i>				<i>0.79</i>	<i>0.87</i>	<i>0.70</i>	<i>1.07</i>	<i>636</i>	<i>0.83</i>	<i>1.8</i>
	<i>Somerset</i>	<i>498,095</i>	<i>0.69</i>	<i>0.78</i>	<i>0.81</i>	<i>0.84</i>	0.88	<i>0.79</i>	<i>0.98</i>	<i>644</i>	<i>0.80</i>	<i>1.2</i>
	<i>Cornwall/Scilly</i>	<i>501,267</i>	<i>0.79</i>	<i>0.87</i>	<i>0.93</i>	<i>1.06</i>	1.05	<i>0.95</i>	<i>1.15</i>	<i>792</i>	<i>0.94</i>	<i>1.0</i>
	<i>Devon</i>	<i>704,491</i>	<i>0.66</i>	<i>0.72</i>	<i>0.76</i>	<i>0.82</i>	0.85	<i>0.77</i>	<i>0.93</i>	<i>639</i>	<i>0.76</i>	<i>1.1</i>
	Plymouth	240,722	1.02	1.02	1.03	1.00	1.02	0.87	1.18	681	1.02	1.6
	Torbay	129,706	0.75	0.77	0.81	0.97	0.97	0.80	1.19	740	0.86	1.2
Wales	Cardiff	305,353	1.04	1.09	1.15	1.23	1.24	1.10	1.41	776	1.15	8.4
	Merthyr Tydfil	55,979	1.05	1.08	1.26	1.50	1.55	1.20	2.00	1054	1.29	1.0
	Rhondda/Cynon/Taff	231,947	1.09	1.13	1.08	1.24	1.29	1.12	1.48	875	1.17	1.2
	Vale of Glamorgan	119,292	0.82	0.87	0.93	1.06	0.99	0.80	1.23	687	0.93	2.2
	Carmarthenshire	172,842	0.93	0.89	0.99	1.05	1.11	0.94	1.30	816	0.99	0.9
	Ceredigion	74,941	0.66	0.77	0.76	0.88	0.88	0.67	1.17	641	0.79	1.4
	Pembrokeshire	114,131	0.72	0.65	0.79	0.82	0.95	0.76	1.18	701	0.79	0.9
	Powys	126,353	0.38	0.39	0.40	0.80	0.91	0.74	1.12	689	0.57	0.9
	Blaenau Gwent	70,064	1.03	1.14	1.07	1.07	1.18	0.91	1.53	814	1.10	0.8
	Caerphilly	169,519	0.94	1.04	1.01	1.05	1.12	0.94	1.33	755	1.03	0.9
	Monmouthshire	84,885	0.98	1.07	1.06	1.12	1.20	0.96	1.51	884	1.09	1.1
	Newport	137,012	0.94	1.02	1.15	1.16	1.20	0.99	1.44	803	1.09	4.8
	Torfaen	90,949	1.03	1.05	1.11	1.13	1.16	0.92	1.46	803	1.09	0.9
	Bridgend	128,645	0.84	0.88	0.99	1.08	1.16	0.96	1.40	808	0.99	1.4
	Neath/Port Talbot	134,468	0.96	0.89	1.04	1.12	1.15	0.95	1.38	825	1.03	1.1
	Swansea	223,300	1.10	1.06	1.18	1.26	1.30	1.13	1.49	918	1.18	2.2
	Conwy	109,596		0.79	0.83	0.87	0.83	0.66	1.06	639	0.83	1.1
	Denbighshire	93,065	0.34	0.75	0.82	0.88	1.03	0.81	1.30	752	0.77	1.2
	Flintshire	148,594		0.94	0.98	1.02	1.06	0.88	1.28	727	1.00	0.8
	Gwynedd	116,843		0.99	1.09	1.02	1.05	0.85	1.30	753	1.04	1.2
Anglesey	66,829		0.75	0.85	0.87	1.05	0.80	1.38	778	0.88	0.7	
Wrexham	128,476	1.17	1.14	1.21	1.21	1.21	1.00	1.46	833	1.19	1.1	
Scotland	Aberdeen City	212,125	0.88	0.94	0.96	1.14	1.19	1.02	1.38	797	1.02	
	Aberdeenshire	226,871	0.85	0.88	0.86	0.90	0.99	0.85	1.16	683	0.90	
	Angus	108,400	0.88	1.13	1.05	1.19	1.24	1.02	1.51	904	1.10	
	Argyll & Bute	91,306	0.84	0.83	0.84	0.89	0.86	0.66	1.11	635	0.85	
	Scottish Borders	106,764	0.60	0.69	0.67	0.75	0.83	0.65	1.06	618	0.71	
	Clackmannanshire	48,077	0.40	0.55	0.77	0.80	0.92	0.64	1.31	624	0.69	
	Dunbartonshire	93,378	0.87	0.84	0.78	0.82	0.82	0.63	1.08	557	0.83	
	Dumfries/Galloway	147,765	0.97	0.97	1.04	0.97	1.05	0.88	1.26	792	1.00	
	Dundee City	145,663	0.97	1.07	1.18	1.24	1.40	1.19	1.66	968	1.17	
	E Ayrshire	120,235	0.86	0.86	0.87	0.87	0.99	0.80	1.23	690	0.89	
	E Dunbartonshire	108,243	0.96	0.99	1.12	1.08	1.06	0.85	1.31	739	1.04	
	E Lothian	90,088	0.93	0.96	0.93	0.99	0.97	0.76	1.25	688	0.96	
	E Renfrewshire	89,311	0.86	0.85	0.93	0.96	1.08	0.85	1.37	739	0.94	
	Edinburgh	448,624	0.88	0.87	0.91	0.97	0.99	0.88	1.11	653	0.92	
Falkirk	145,191	0.92	0.89	0.92	0.91	1.00	0.82	1.22	689	0.93		

Region	Local Authority	Total Pop	2001	2002	2003	2004	2005			ALL	% non-
			O/E	O/E	O/E	OE	O/E	LCL	UCL	pmp	O/E
N Ireland	Fife	349,429	0.78	0.86	0.86	0.91	1.01	0.89	1.15	701	0.89
	Glasgow	577,869	1.16	1.21	1.26	1.26	1.31	1.20	1.43	857	1.24
	Highland	208,914	0.78	0.89	0.97	1.09	1.25	1.09	1.45	905	1.00
	Inverclyde	84,203	1.14	1.18	1.18	1.19	1.28	1.02	1.60	891	1.19
	Midlothian	80,941	0.88	0.90	1.01	1.11	1.13	0.88	1.45	778	1.01
	Moray	86,940	0.86	0.91	0.89	0.96	1.14	0.90	1.44	794	0.95
	N Ayrshire	135,817	0.98	1.06	1.10	1.19	1.23	1.02	1.47	854	1.11
	N Lanarkshire	321,067	1.01	1.08	1.12	1.13	1.13	1.00	1.28	748	1.09
	Orkney Isles	19,245	0.57	0.86	1.00	1.07	1.22	0.76	1.96	883	0.94
	Perth/Kinross	134,949	0.75	0.84	0.93	0.98	0.99	0.81	1.21	726	0.90
	Renfrewshire	172,867	0.91	1.04	1.07	1.10	1.18	1.00	1.39	816	1.06
	Shetland Isles	21,988	0.61	0.61	0.61	0.74	0.61	0.32	1.17	409	0.64
	S Ayrshire	112,097	0.83	0.85	0.96	0.90	1.02	0.82	1.26	758	0.91
	S Lanarkshire	302,216	1.02	1.06	1.08	1.11	1.08	0.95	1.23	741	1.07
	Stirling	86,212	0.76	0.76	0.80	0.80	0.81	0.61	1.08	557	0.79
	West Lothian	158,714	0.95	0.96	0.99	0.98	1.07	0.88	1.29	680	0.99
	<i>Eilean Siar</i>	<i>26,502</i>	<i>0.50</i>	<i>0.55</i>	<i>0.55</i>	<i>0.75</i>	<i>0.50</i>	0.27	<i>0.93</i>	<i>377</i>	<i>0.57</i>
	Antrim	48,366					1.45	1.07	1.96	868	1.45
	Ards	73,244					1.29	1.01	1.66	860	1.29
	Armagh	54,262					1.47	1.11	1.95	885	1.47
Ballymena	58,610					1.17	0.87	1.57	768	1.17	
Ballymoney	26,895					0.89	0.54	1.47	558	0.89	
Banbridge	41,389					1.05	0.72	1.54	652	1.05	
Belfast	277,391					1.17	1.02	1.34	721	1.17	
Carrickfergus	37,658					2.00	1.51	2.66	1275	2.00	
Castlereagh	66,488					1.58	1.25	1.99	1068	1.58	
Coleraine	56,314					1.03	0.74	1.42	657	1.03	
Cookstown	32,581					0.84	0.51	1.37	491	0.84	
Craigavon	80,671					1.30	1.01	1.66	793	1.30	
Derry	105,066					1.30	1.04	1.63	714	1.30	
Down	63,828					1.18	0.89	1.58	721	1.18	
Dungannon	47,735					0.85	0.57	1.26	503	0.85	
Fermanagh	57,527					0.99	0.72	1.38	626	0.99	
Larne	30,833					1.79	1.30	2.47	1200	1.79	
Limavady	32,422					1.03	0.66	1.62	586	1.03	
Lisburn	108,694					1.22	0.98	1.52	736	1.22	
Magherafelt	39,778					1.57	1.13	2.17	905	1.57	
Moyle	15,932					0.87	0.45	1.68	565	0.87	
Newry/Mourne	87,058					1.42	1.13	1.79	827	1.42	
Newtownabbey	79,996					1.16	0.90	1.49	750	1.16	
North Down	76,323					1.05	0.81	1.37	721	1.05	
Omagh	47,953					1.36	0.99	1.87	792	1.36	
Strabane	38,246					1.20	0.82	1.75	706	1.20	
England	42,396,371	0.47	0.57	0.63	0.88	0.97			660	0.87	
Scotland	5,062,011										
Wales	2,903,083	0.77	0.94	1.00	1.08	1.13			791	1.02	
N Ireland	1,685,260					1.24			765		
Total	52,046,725	0.52	0.61	0.67	0.88	1.00			680	0.90	

Areas with significantly high prevalence ratios in 2005 are shown highlighted and bold, those with significantly low prevalence ratios are highlighted and italic.

Proportions of patients on peritoneal dialysis, hospital haemodialysis, and with functioning kidney transplants

The most common treatment modality is transplantation (45.0%), closely followed by the proportion on centre-based HD (41.7%). The proportion of patients on home HD remains very small (1.2% of RRT) in spite of the recent NICE guidelines

The proportion of dialysis patients on HD in the UK was 78% and higher in those over 65 years old than in younger patients (83% vs 74%).

The proportion receiving HD in satellite units varied. Twenty-nine units had no satellite haemodialysis whilst 12 units dialysed more than 50% of their haemodialysis patients in satellites (2006 Report Figure 4.12). Satellite HD amounted to 34.5% of total HD activity. Twenty-one units had no home HD programme. In the 44 units which did offer home HD, the proportion of HD patients treated by this modality ranged from 0.6% to 11.1%. Overall only 2.7% were on home HD. Twelve units had home

There is a wide variation in the number of prevalent patients in each unit and in the distribution of these patients in the different treatment modality categories. This is due to many factors including geography, local population density, age distribution, ethnic composition and social deprivation index of that population. Local facilities and preferences also play a role in determining the modality distribution. However another major factor is whether or not the renal unit is also a transplant centre. 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 transplant patients.

Table 9: Distribution of prevalent patients and modalities 31/12/2005

	Unit	HD	PD	Dialysis	Transplant	RRT
England	B Heart	334	43	377	164	541
	B QEH*	716	143	859	659	1518
	Basldn	112	31	143	26	169
	Bradfd	168	44	212	155	367
	Brightn	297	90	387	231	618
	Bristol*	434	71	505	660	1165
	Camb*	286	79	365	454	819
	Carlis	78	21	99	86	185
	Carsh	478	170	648	354	1002
	Chelms	88	37	125	9	134
	Covnt*	277	65	342	296	638
	Derby	201	71	272	5	277
	Dorset	125	74	199	182	381
	Dudley	119	54	173	85	258
	Exeter	243	94	337	246	583
	Glouc	144	37	181	101	282
	Hull	298	68	366	222	588
	Ipswi	110	68	178	111	289
	<i>Kent & Canterbury</i>	<i>194</i>	<i>191</i>	<i>385</i>	<i>184</i>	<i>569</i>
	<i>L St George's*</i>	<i>187</i>	<i>50</i>	<i>237</i>	<i>307</i>	<i>544</i>
L Barts*	497	219	716	621	1337	
L Guys*	404	87	491	734	1225	
L H&Cx	574	147	721	416	1137	

	Unit	HD	PD	Dialysis	Transplant	RRT
	L Kings	294	79	373	263	636
	L RFree*	550	149	699	647	1346
	<i>L St Mary's*</i>	<i>613</i>	<i>0</i>	<i>613</i>	<i>536</i>	<i>1149</i>
	Leeds*	472	128	600	741	1341
	Leic*	543	227	770	660	1430
	Livrpl*	456	91	547	814	1361
	ManWst	237	141	378	253	631
	<i>Man RI*</i>	<i>333</i>	<i>167</i>	<i>500</i>	<i>920</i>	<i>1420</i>
	Middlbr	237	23	260	313	573
	Newc*	232	47	279	588	867
	Norwch	232	49	281	128	409
	Nottm*	323	143	466	428	894
	Oxford*	389	119	508	688	1196
	Plymth*	122	38	160	209	369
	Ports*	342	104	446	639	1085
	Prestn	333	112	445	327	772
	Redng	185	105	290	119	409
	Sheff*	549	158	707	459	1166
	Shrew	124	51	175	61	236
	Stevng	318	53	371	196	567
	Sthend	119	21	140	41	181
	<i>Stoke</i>	<i>233</i>	<i>99</i>	<i>332</i>	<i>228</i>	<i>560</i>
	Sund	153	15	168	110	278
	Truro	141	40	181	88	269
	Wirral	161	31	192	.	192
	Wolve	290	57	347	93	440
	York	93	26	119	63	182
Wales	Bangor	73	27	100	1	101
	Cardff*	417	137	554	718	1272
	Clwyd	64	12	76	7	83
	Swanse	267	79	346	127	473
	Wrexm	102	44	146	.	146
Scotland	Abrdn	179	48	227	190	417
	Airdrie	145	26	171	.	171
	D&Gall	49	13	62	7	69
	Dundee	148	50	198	161	359
	Dunfn	97	26	123	27	150
	Edinb*	237	61	298	372	670
	GlasRI	321	25	346	4	350
	GlasWI*	262	79	341	902	1243
	Inverns	86	41	127	73	200
	Klmarnk	104	51	155	26	181
Northern Ireland	Antrim	106	21	127	62	189
	Belfast*	315	68	383	366	749
	Newry	90	15	105	50	155
	Tyrone	104	6	110	59	169
	Ulster	41	1	42	2	44
	Eng	14438	4227	18665	15920	34585
	NI	656	111	767	539	1306
	Sct	1628	420	2048	1762	3810
	Wls	923	299	1222	853	2075
	UK	17645	5057	22702	19074	41776

Units in italics provided summary data only.

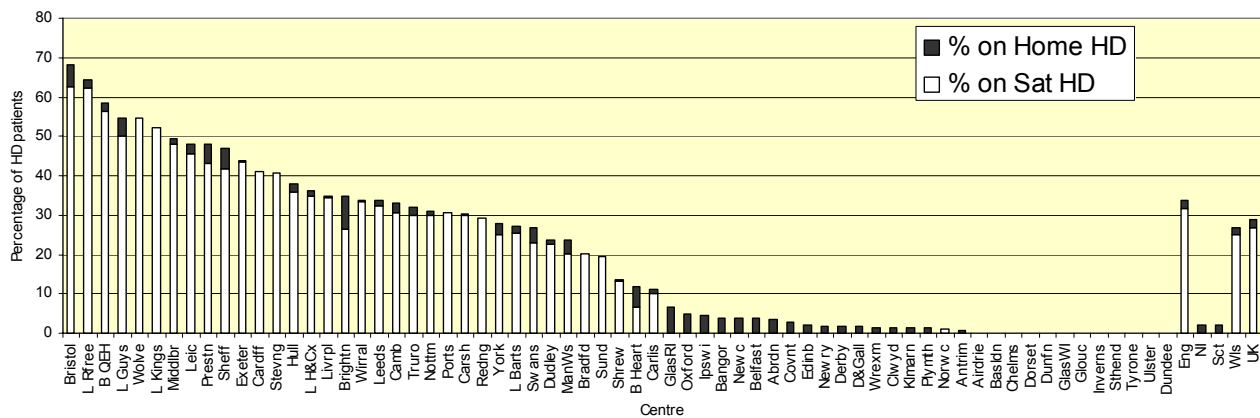
* - transplant centres Those prefixed with “L” are London units

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

Proportions of haemodialysis patients on home haemodialysis

For patients able to take responsibility for their own treatment without support from nursing staff, home haemodialysis presents major advantages, with reduced travelling time and greater autonomy and control over the timing of treatment. There are also major cost benefits. Survival is high amongst home haemodialysis patients, although this is largely due to selection of younger, fitter patients. Home treatment also opens up the possibility of daily or nightly dialysis (or at least 6 days a week). These forms of treatment that are associated with greatly increased quality of life, better control of blood pressure, anaemia, and biochemistry, and possibly extended survival.

Figure 2: Percentage of HD patients treated at home and in satellite units



However, despite recommendations from NICE, not all Renal Units are able to offer home haemodialysis. Support of a home HD programme requires considerable investment, particularly in a community-based nursing team. Some renal units that do not themselves directly provide support for Home HD are able to refer patients wishing to pursue this option to a neighbouring Unit that does support this form of treatment.

Percentage of all dialysis patients on the UK Transplant active transplant waiting list

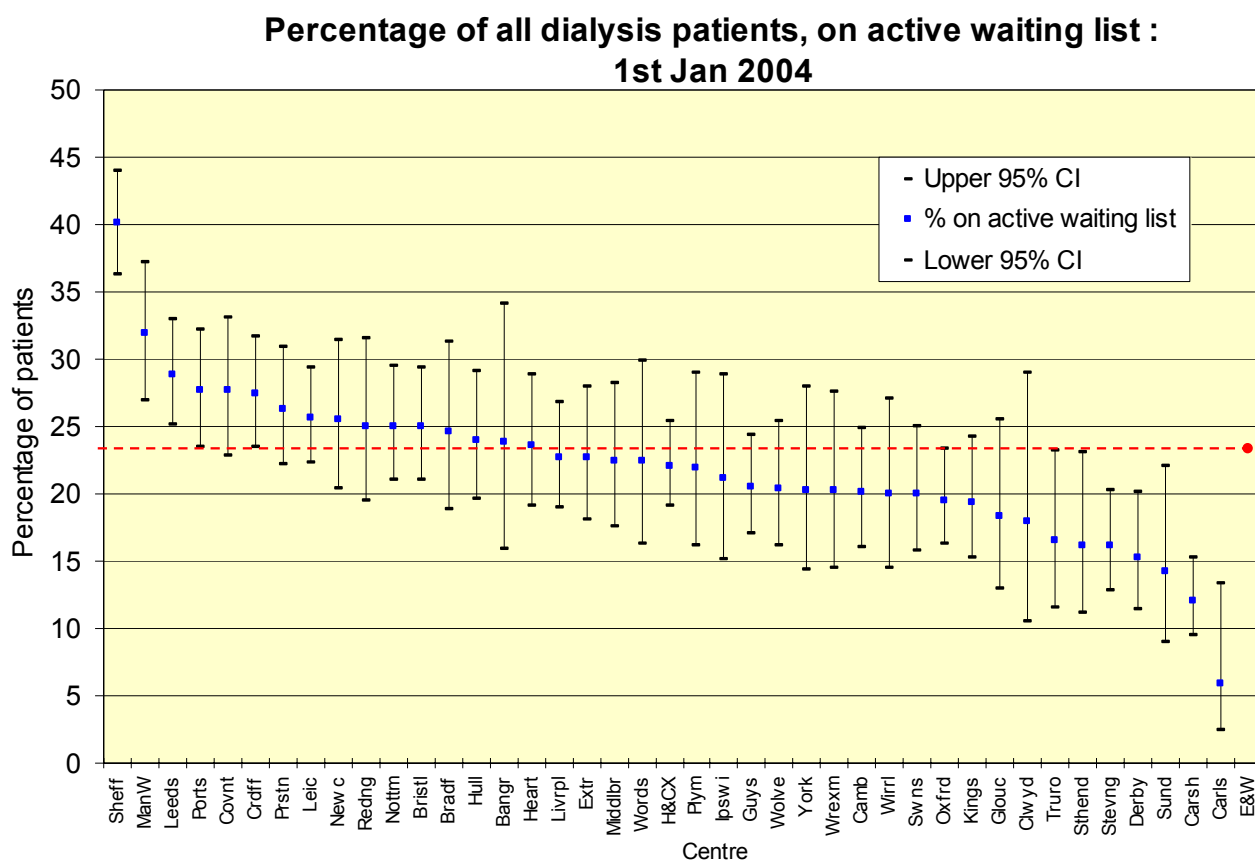
Kidney transplantation is the most cost-effective form of RRT, and provides a better quality of life than haemodialysis or peritoneal dialysis. Most kidney transplants come from deceased donors and are allocated by UK Transplant according to a nationally agreed algorithm. UKT hold a list of all patients awaiting an offer of a kidney transplant from a deceased donor. A centre with a low percentage of patients on this waiting list could therefore be held to be denying patients the opportunity to undergo this form of treatment; variations in the percentage of dialysis patients on the waiting list is therefore a marker of inequity.

However, there is an increased risk of death for at least the first year after kidney transplantation compared to the risk of death amongst patients on the waiting list who remain on dialysis. Because kidneys from deceased donors are a limited resource, there is an ethical obligation to ensure that these kidneys are allocated to recipients likely to benefit. All kidney transplant units therefore operate some degree of selection, based on an objective assessment of fitness for transplantation. This assessment includes an assessment of the risk of death from cardiovascular disease during or after the operation, as well as the risk of recurrence of the primary kidney disease and the risk of malignant disease and serious infectious disease. No Unit, therefore, lists all their dialysis patients – and nor is there a nationally agreed “optimum” percentage of dialysis patients who should be on the list, as this will vary according to case-mix. Some Units also make more use of living donor kidney transplantation, and may not include potential recipients of living donor transplants on the waiting list for deceased donor kidneys.

Despite these difficulties in interpretation, the Registry publishes these analyses because there is evidence that a low percentage of patients on the list may partly be caused by delays in inclusion of patients who are fit for transplantation, due to slower than normal processes of assessment of fitness for transplantation. A low percentage of patients on the list in a particular Unit is therefore a possible marker of inefficient processes and should examination of the policies governing inclusion on the waiting list in that Unit.

The analysis presented here is from the 2005 Report, on patients receiving RRT in 2004; the analysis was not repeated for the 2006 Report, but will be included in subsequent annual reports.

Figure 3 Percentage of all dialysis patients, on active waiting list on 1st Jan 2004



Between individual renal units there was variation in the proportion of patients on the active transplant list from 5.9% to 40.1% (Figure 3). Part of this variation may be due to the variation in the practice of suspension of patients and that some renal units do not list patients being worked up to receive a live donation. About 20% of transplant waiting list patients were suspended at the time point of this analysis. Carshalton has a 56% of wait-listed patients suspended which is due to the practice of listing all patients being worked up and then suspending them till they are worked up. This practice has changed since being highlighted by this analysis. The low rate of actively listed patients at this centre (6%) has also improved dramatically since being highlighted in this audit.

Prevalent patients with functioning kidney transplants

The proportion of all patients under the care of a given Unit with a functioning kidney transplant is another marker of how readily patients in that Unit are offered a kidney transplant (see table 9 above). A low percentage of patients with a functioning kidney transplant could be caused by several factors, including

1. case-mix: more patients with contraindications to inclusion on the list
2. inequity: selection bias in favour of ‘fitter’ patients, denying less fit patients the survival benefit of kidney transplantation
3. local variations in policies on follow-up of successfully transplanted patients: some transplant Units continue to provide outpatient follow-up of transplanted patients long-term, rather than returning patients to the care of their local Renal Unit. This would result in a lower percentage of patients with functioning kidney transplants in Units served by that Transplant Unit. The analysis below uses the patient’s postcode to allocate them to a local authority area (which is independent of the renal unit providing care).

Table 10: The prevalence (pmp) of patients with renal transplant recipients by UK local authorities on 31/12/05

UK Area	Region	Local authority	Population covered 2005	Rate pmp 2003	Rate pmp 2004	Rate pmp 2005
North East	County Durham and Tees Valley	Darlington	97,838	296	307	327
		Durham	493,469	338	355	373
		Hartlepool	88,610	372	418	406
		Middlesbrough	134,855	400	408	408
		Redcar & Cleveland	139,132	403	446	446
		Stockton-on-Tees	178,408	280	314	331
	Northumberland, Tyne & Wear	Gateshead	191,151	413	408	445
		Newcastle upon Tyne	259,536	328	335	362
		North Tyneside	191,658	417	407	444
		Northumberland	307,190	352	381	381
		South Tyneside	152,785	347	347	367
		Sunderland	280,807	370	385	370
		North West	Cheshire & Merseyside	Halton	118,209	254
Knowsley	150,459			312	299	292
Liverpool	439,471			296	289	305
Sefton	282,958			240	247	258
St. Helens	176,843			204	221	238
Warrington	191,080			262	277	272
Wirral	312,293			295	298	301
Cumbria & Lancashire	Blackburn with Darwen		137,470	138	196	175
	Blackpool		142,283	218	239	225

UK Area	Region	Local authority	Population covered 2005	Rate pmp 2003	Rate pmp 2004	Rate pmp 2005	
Yorkshire & Humber	Greater Manchester	Cumbria	487,607	258	277	271	
		Lancashire	1,134,975	249	269	255	
		Bolton	261,037	164	180	226	
		Bury	180,607	39	61	100	
		Oldham	217,276	87	101	110	
		Rochdale	205,357	63	73	112	
		Salford	216,105	139	148	171	
		Wigan	301,415	133	146	169	
	N & E Yorkshire & N Lincolnshire	East Riding of Yorkshire	314,113	226	248	264	
		Kingston upon Hull, City of	243,588	263	275	291	
		North East Lincolnshire	157,981	234	260	241	
		North Lincolnshire	152,848	229	236	249	
		North Yorkshire	569,660	246	277	286	
		York	181,096	248	271	293	
		South Yorkshire	Barnsley	218,063	335	349	339
			Doncaster	286,865	251	272	279
			Rotherham	248,175	262	286	266
			Sheffield	513,234	234	249	261
		West Yorkshire	Bradford	467,664	325	353	376
			Calderdale	192,405	353	395	421
			Kirklees	388,567	358	386	425
Leeds	715,403		260	292	302		
Wakefield	315,172		261	279	305		
East Midlands	Leicestershire, Northamptonshire & Rutland	Leicester	279,920	411	439	464	
		Leicestershire	609,578	282	322	348	
		Northamptonshire	629,676	268	192	292	
		Rutland	34,563	434	463	492	
	Trent	Derby	221,709	194	203	226	
		Derbyshire	734,585	206	212	223	
		Lincolnshire	646,644	249	288	298	
		Nottingham	266,988	258	273	281	
		Nottinghamshire	748,508	259	281	289	
West Midlands	Birmingham & the Black Country	Birmingham	977,085		330	339	
		Dudley	305,153		249	246	
		Sandwell	282,904		315	339	
		Solihull	199,515		226	251	
		Walsall	253,498		276	288	
		Wolverhampton	236,582		262	262	
	Coventry, Warwickshire	Coventry	300,849	293	316	332	
		Herefordshire, Worcestershire	174,871		263	274	
	Warwickshire	Warwickshire	505,858	322	358	356	
		Worcestershire	542,105		234	260	
		Shropshire & Staffordshire	283,173		205	237	
	Shropshire & Staffordshire	Shropshire	283,173		205	237	
		Telford and Wrekin	158,325		133	139	
	East of England	Bedfordshire & Hertfordshire	Bedfordshire	381,572	223	259	296
Hertfordshire			1,033,978		143	229	
Luton		Luton	184,373	222	244	325	
		Essex	1,310,837		224	258	
Essex		Southend-on-Sea	160,259	94	150	206	
		Thurrock	143,128		196	252	
		Norfolk, Suffolk & Cambridgeshire	552,659	219	239	279	
Norfolk, Suffolk & Cambridgeshire		Cambridgeshire	552,659	219	239	279	
	Norfolk	796,728		222	235		

UK Area	Region	Local authority	Population covered 2005	Rate pmp 2003	Rate pmp 2004	Rate pmp 2005	
London	North Central London	Peterborough	156,061	179	224	224	
		Suffolk	668,555		220	229	
		Barnet	314,561			315	
		Camden	198,020			288	
		Enfield	273,559			391	
		Haringey	216,505			323	
		Islington	175,797			336	
		North East London	Barking & Dagenham	163,942		226	256
			Hackney	202,824		232	306
			Newham	243,889		221	250
	Redbridge		238,634		289	327	
	Tower Hamlets		196,105		189	235	
	South East London	Ealing	300,948	243	266	292	
		Hammersmith & Fulham	165,244	224	242	248	
		Hillingdon	243,006		189	263	
		Hounslow	212,342		226	264	
		Bexley	Bexley	218,307	362	380	403
			Bromley	295,532	281	298	328
			Greenwich	214,404	219	233	266
			Lambeth	266,169	195	222	237
Lewisham			248,923	329	378	386	
South West London		Southwark	244,866	400	429	466	
	Croydon	330,588	215	224	248		
	Hampshire & I of Wight	Hampshire	1,240,102	278	296	294	
		Isle of Wight	132,731	286	301	309	
		Portsmouth	186,700	375	380	359	
Southampton		217,444	308	308	322		
Surrey & Sussex		Brighton and Hove	247,817		206	206	
	East Sussex	492,326		244	250		
	Surrey	1,059,017		240	252		
	West Sussex	753,612		244	259		
	Thames Valley	Bracknell Forest	109,616		283	255	
Buckinghamshire		479,026	340	328	342		
Milton Keynes		207,057	270	275	309		
Oxfordshire		605,489	348	363	380		
Reading		143,096	370	356	217		
Slough		119,064	319	336	353		
West Berkshire		144,485	360	360	325		
Wokingham		150,231	273	266	273		
Avon, Gloucestershire & Wiltshire		Bath & N.E Somerset	169,040	207	266	284	
		Bristol, City of	380,616	397	415	418	
	Gloucestershire	564,559	287	319	338		
	North Somerset	188,564	414	435	419		
	South Gloucestershire	245,641	379	383	399		
	Swindon	180,051	289	294	311		
	Wiltshire	432,972	245	254	270		
	Dorset & Somerset	Bournemouth	163,444		269	257	
		Dorset	390,980		312	333	
		Poole	138,288		275	333	
Somerset		498,095	293	303	329		
South West Peninsula		Cornwall & Scilly	501,267	277	297	333	
	Devon	704,491	265	275	285		
	Plymouth	240,722	366	366	420		

UK Area	Region	Local authority	Population covered 2005	Rate pmp 2003	Rate pmp 2004	Rate pmp 2005
Wales	Bro Taf	Torbay	129,706	285	301	332
		Cardiff	305,353	373	386	406
		Merthyr Tydfil	55,979	393	464	518
		Rhondda, Cynon, Taff	231,947	349	392	435
		Vale of Glamorgan	119,292	327	360	344
	Dyfed Powys	Carmarthenshire	172,842	324	324	353
		Ceredigion	74,941	294	374	347
		Pembrokeshire	114,131	280	289	333
		Powys	126,353		230	222
		Gwent	Blaenau Gwent	70,064	442	400
	Morgannwg	Caerphilly	169,519	354	354	366
		Monmouthshire	84,885	436	495	530
		Newport	137,012	365	380	350
		Torfaen	90,949	429	451	451
		Bridgend	128,645	342	365	396
	North Wales	Neath Port Talbot	134,468	312	335	357
		Swansea	223,300	367	412	416
		Conwy	109,596	301	328	319
		Denbighshire	93,065	247	247	301
		Flintshire	148,594	262	283	303
	Gwynedd	116,843	274	274	300	
	Isle of Anglesey	66,829	180	209	224	
	Wrexham	128,476	325	311	311	

Late referral

The majority of patients who develop established renal failure (ERF) have chronic, slowly progressive kidney disease; in only a small minority does kidney failure come ‘out of the blue’. Most patients starting RRT have a history of diabetes, hypertension, or cardiovascular disease, and are therefore, to some extent at least, ‘engaged’ with the health service. The National Service Framework recommends that all patients likely to develop ERF are referred **at least one year** prior to the anticipated start date of RRT, to allow adequate time for preparation for RRT; preparation includes

- counselling and education about kidney transplantation, peritoneal dialysis and haemodialysis, and non-RRT care (also termed ‘conservative’, ‘supportive’, ‘palliative’, or ‘residual’ renal care)
- treatment of anaemia, acidosis and phosphate retention
- continued treatment designed to slow the rate of deterioration of kidney function
- planning for pre-emptive kidney transplantation, including assessment of fitness for transplantation and the identification and evaluation of potential living kidney donors
- establishment of vascular access for those patients opting to start RRT on haemodialysis

There is no agreed national or international definition of the term ‘late referral’ although one year is required to adequately provide optimum patient care prior to starting RRT. Many published papers have defined late referral as within 3 months of the start of RRT, and there is good evidence that this is associated, , with poorer outcomes (even after adjustment for case-mix), including

- higher risk of death
- higher risk of hospitalisation

- greater risk of starting haemodialysis with a catheter rather than a graft or fistula (with an associated increased risk of bacteraemia, including MRSA bacteraemia)
- lower chance of receiving pre-emptive kidney transplantation
- lower chance of receiving peritoneal dialysis.

Late referral is therefore an important marker of the organisation of pre-dialysis care – both in Renal Units and in primary and secondary care.

Not all renal units are returning data on the date first seen by a nephrologist (so late referral cannot be calculated), although all Units should be encouraged to complete this data. The Registry returns show marked variation between Renal Units in the proportion of incident patients referred late.

Some Units might argue that late referral is outside their control, but it is likely that efforts to establish referral criteria and to educate potential referrers on identification of patients likely to require RRT in future play an important part in reducing the rate of late referral. The recent introduction of automated reporting of estimated GFR alongside measurements of serum creatinine concentration, together with the introduction of points within the Quality and Outcomes Framework of the GP contract, is hoped to result in better recognition of progressive chronic kidney disease and a reduction in late referral rates.

Table 11: Percentage of patients referred to a nephrologist less than 90 days before dialysis initiation

Centre	Year					
	2000	2001	2002	2003	2004	2005
Bangor					34.3	41.2
Basildon				39.2	36.4	18.5
Bradford					16.9	32.3
Bristol	30.4	25.7				
Dorset				23.2	19.4	37.3
Exeter		32.5	17.5			
Gloucester						21.1
Ipswich			39.5			48.2
Leeds				36.4	28.7	32.6
Leicester		21.1	28.8	19.1	22.0	
Middlesbrough		17.4	32.7	26.0	31.5	13.4
Nottingham	39.3	31.6	38.2	28.8	33.3	31.3
Portsmouth		42.6	33.6	24.6	30.9	26.4
Preston		20.2				
Sheffield	21.1	25.5	20.8	27.2	20.2	20.7
Stevenage				30.5	19.2	
Swansea						44.0
Truro				15.0		
Tyrone						22.7
Ulster						33.3
Wolverhampton				24.6	30.7	29.9
York			21.8	22.9	27.3	
Total	29.9	27.3	28.6	26.9	26.4	29.8

Haemoglobin concentration

Established renal failure nearly always causes severe anaemia (a low haemoglobin concentration), which has a marked negative impact on quality of life and functional status. Partial correction of anaemia with iron and erythropoiesis stimulating agents ameliorates these symptoms and improves functional status. Severe anaemia also increases the demand on the heart, although it is not yet known whether correction of anaemia reduces cardiac endpoints. Full correction of anaemia is more costly, and recent evidence suggests that further improvement in quality of life is balanced by an increased risk of cardiovascular complications. For that reason, the most recent Renal Association recommendations, in line with those from NICE, state that haemoglobin concentration should be maintained between 10.5 and 12.5 g/dl. These recommendations have only recently been published, however: at the time period covering the data in this Report, the UK recommendation was to maintain Hb > 10 g/dl, with no stated upper limit. For that reason, data using both these audit standards are presented here. The full Report contains details of factors that affect haemoglobin concentration, including dose of ESA and ferritin concentration (a marker of iron availability).

Figure 4: Percentage of HD patients with Hb ≥ 10 g/dl

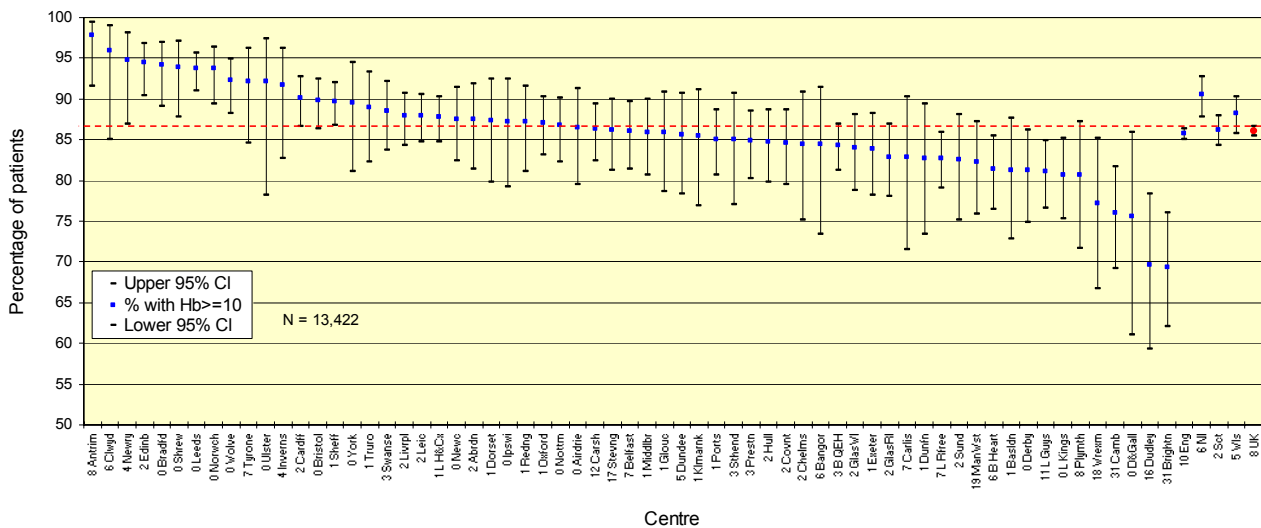


Figure 5: Percentage of HD patients with Hb 10.5-12.5g/dl

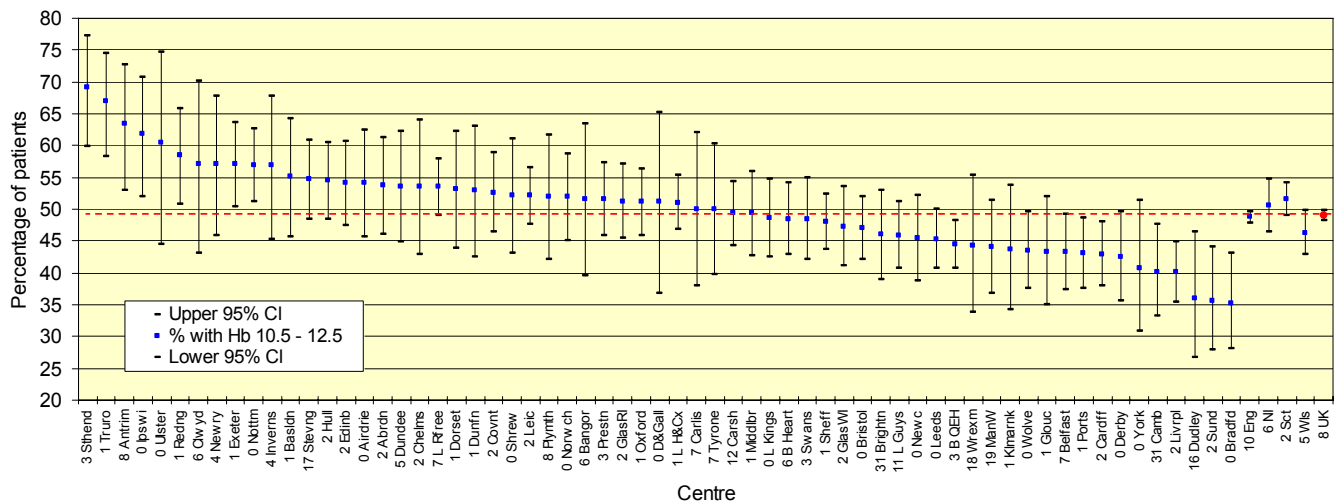


Figure 6: Percentage of PD patients with Hb > 10 g/dl

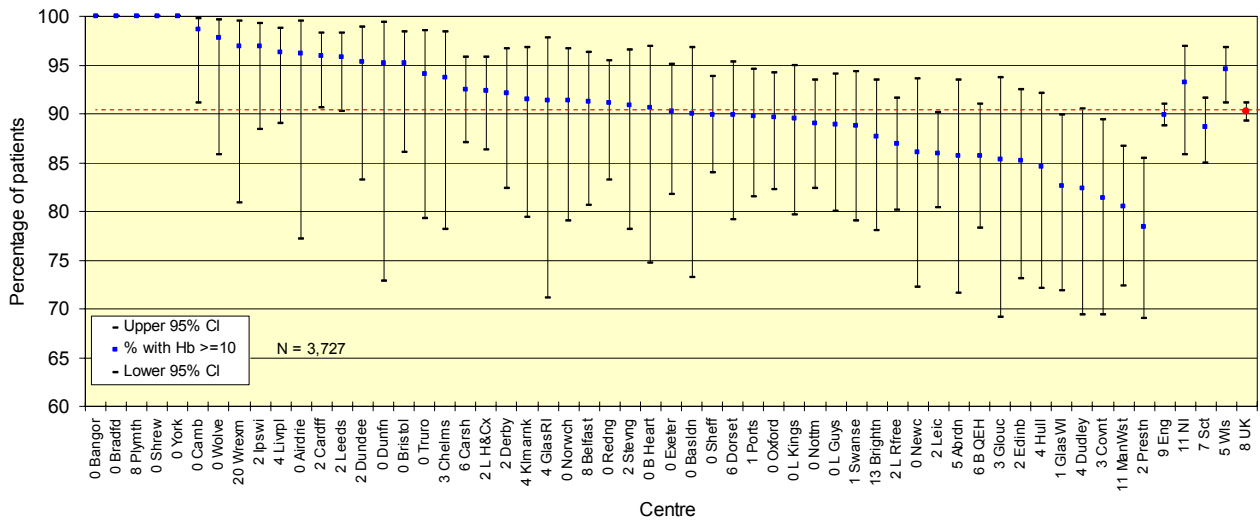
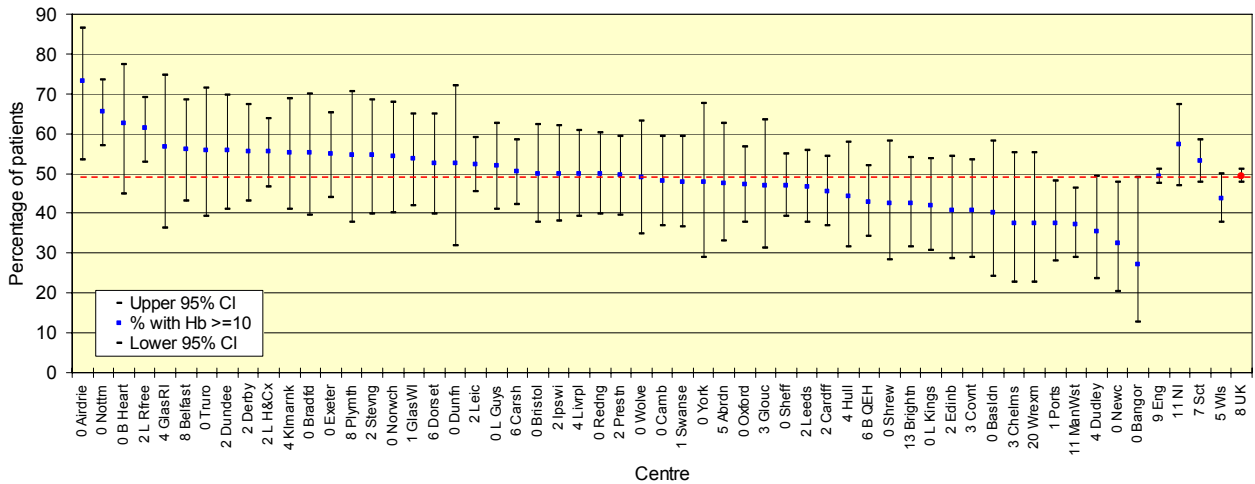
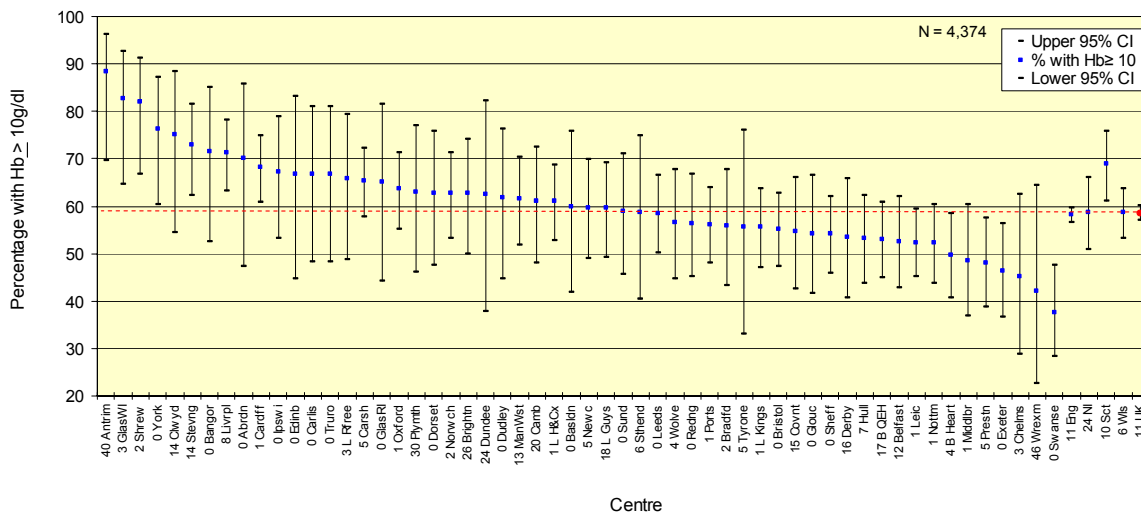


Figure 7: Percentage of PD patients with Hb 10.5-12.5g/dl



The percentage of patients starting RRT with a haemoglobin > 10 g/dl reflects the availability and use of erythropoiesis stimulating agents in patients with chronic kidney disease and also the percentage of patients who are referred early.

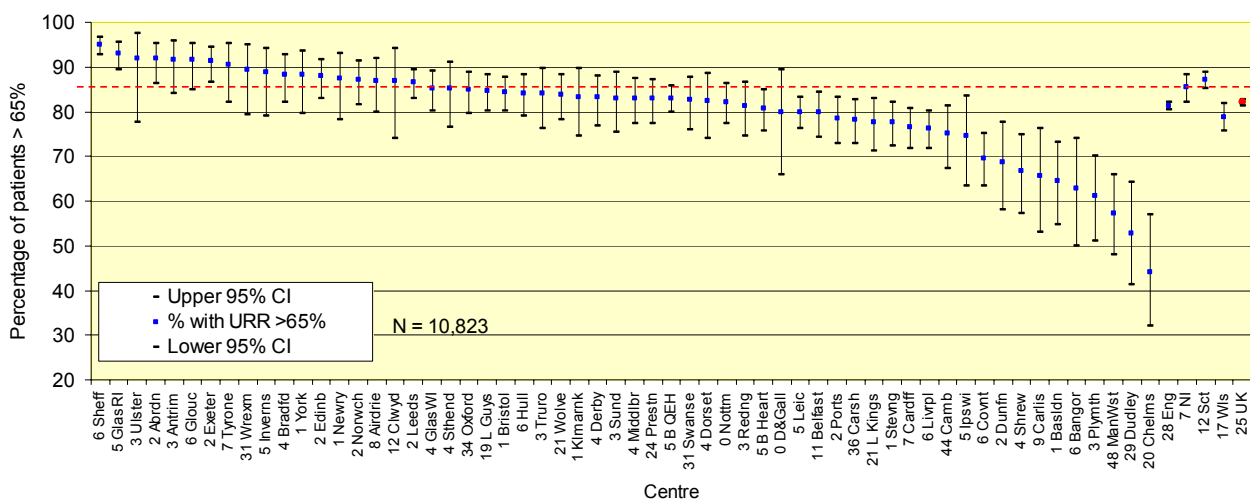
Figure 8: New patients 2005: percentage Hb >= 10 g/dl



Urea reduction ratio

The Urea Reduction Ratio (URR) is the simplest and most widely used measure of the ‘dose’ of dialysis, also known as the ‘adequacy’ of dialysis. Although it only measures one aspect of dialysis – the removal of urea – and neglects others, such as control of salt and water balance, and removal of larger molecules – the URR has been shown to be an important predictor of outcome. Low URRs are associated with an increased risk of hospitalisation and death. The URR of an individual patient is determined largely by the length of the dialysis session, the efficiency of the dialyser (‘artificial kidney’) used for the dialysis, and the blood flow – all parameters which can be altered in order to achieve an ‘adequate’ dose.

Figure 9: Percentage of patients achieving a URR > 65% by centre



Whether or not the Renal Association audit standard is met in all patients undergoing dialysis depends on the purpose of dialysis. If the purpose is to improve quality of life and life expectancy and to reduce the risk of hospitalisation, a URR consistently below 65% is an indicator of poor quality treatment. In contrast, if death is anticipated, and continued dialysis is considered as part of palliative care, these considerations do not apply. There are unlikely to be significant variations in the numbers of patients in the latter category between Renal Units, however, so the proportion of patients meeting the standard for URR is a reliable marker of the quality of haemodialysis care. Unfortunately, the Registry is not at this time able to collect data on the dose of peritoneal dialysis.

Vascular access for haemodialysis

Survey from 2005 and follow-up. Access used at the start of haemodialysis

The 2006 survey reinforced many of the messages of the original survey. A third of patients arrive late, most of whom require venous catheters at the start of dialysis. Many patients, known well in advance to nephrology clinics, still commence on venous catheters. Few patients are transplant listed prior to renal support. For every 100 haemodialysis patients there will be 8 episodes of *Staph. Aureus* bacteraemia per year: these episodes are indicative of the potential scale of infection amongst the dialysis population. Infection and access issues are a major contributor to in-patient bed days – 1 in 25 haemodialysis patients are an in-patient at any one time.

Follow up of the incident data has demonstrated that many patients over a year achieve either definitive access or transplantation but the rate appears to be slow. There is no evidence that there are fast track processes for patients for whom dialysis commences with a venous catheter. Also, the data are too small in number to judge whether late or early presentation has any bearing upon the subsequent formation of a robust dialysis plan.

At 6 months and at 12 months, many patients are still utilising venous catheters. In some, this appears to be related to AVF failure, but many come from the cohort who commenced renal replacement therapy with a catheter. The current data collection does not allow one to assess the number of different access procedures an individual is exposed to in any time period. This may of course be relevant to outcome – a high number of access procedures may exhaust conventional access rapidly and increase morbidity and mortality. This terminal failure of access may not be apparent in a one year time frame, but clearly is relevant.

Prevalent Modality and access data

A total of 17,409 prevalent dialysis patients are included in this report, 11,999 patients in main renal units and 5,338 in satellite HD units, from 62 main renal units and 119 satellite HD units throughout the UK. The detailed data are shown in Table 12

Table 12: Prevalent patients; summary

	N	%	Range (N)
Main renal units			
Total HD pts	7,966	66.0	14 - 303
HD (AVF)	4,800	60.8	9 – 202
HD (Graft)	331	4.2	0 - 42
HD (Tunnel)	2,535	32.1	2 - 119
HD (Non Tunnel)	201	2.5	0 - 28
HD (Other)	27	0.3	0 - 8
Satellite renal units			
Total satellite units	119		
Total HD pts	5,294		2 - 131
HD (AVF)	3,831	72.8	1 - 102
HD (Graft)	241	4.6	0 - 15
HD (Tunnel)	1,078	20.5	0 - 46
HD (Non Tunnel)	57	1.1	0 - 8
HD (Other)	53	1.0	0 - 22
Total			
Total renal units	62		
Total HD pts	13,260	76.4	
HD (AVF)	8,631	65.6	
HD (Graft)	572	4.3	
HD (Tunnel)	3,613	27.5	
HD (Non Tunnel)	258	2.0	
HD (Other)	80	0.6	

Including PD patients, 13,343 (77%) of prevalent patients were having dialysis therapy delivered by definitive access (HD definitive access defined as AVF or AVG). Raw data are given in Table 13. Of all HD patients, 66% had an arteriovenous fistula (AVF) and 4% arteriovenous graft (AVG);

28% used tunnelled and 2% venous catheters. Not surprisingly satellite units, which tend to treat more stable patients, had a lower proportion of haemodialysis patients using catheters (22%) than main units (35%).

Table 13: Prevalent dialysis patient numbers, by centre and access type (1st April 2005)

Hospital name	Total PD	Total HD	Total HD (native AVF)	Total HD (graft)	Total HD (tunnelled line)	Total HD (temporary line)	Total HD (other access)	% PD	% HD	% definitive access	% *HD definitive access
Aberdeen	43	168	139	19	6	4	0	20.4	79.6	95.3	94.1
Swansea	77	262	226	9	4	23	0	22.7	77.3	92.0	89.7
Inverness	39	73	47	16	8	2	0	34.8	65.2	91.1	86.3
Bangor	23	67	56	2	7	2	0	25.6	74.4	90.0	86.6
St Georges	58	132	90	22	13	7	0	30.5	69.5	89.5	84.9
Cambridge	75	147	123	0	24	0	0	33.8	66.2	89.2	83.7
Gloucester	34	127	101	7	19	0	0	21.1	78.9	88.2	85.0
Bristol	70	382	272	53	51	6	0	15.5	84.5	87.4	85.1
LGI	98	156	121	2	31	2	0	38.6	61.4	87.0	78.9
Kent	101	189	142	9	38	0	0	34.8	65.2	86.9	79.9
Sheffield	158	547	412	33	100	2	0	22.4	77.6	85.5	81.4
Birmingham Childrens	17	14	9	0	5	0	0	54.8	45.2	83.9	64.3
Aintree	0	42	33	2	1	6	0	0.0	100.0	83.3	83.3
Oxford	142	312	228	6	71	0	7	31.3	68.7	82.8	75.0
Preston	111	307	228	6	60	1	12	26.6	73.4	82.5	76.2
Truro	46	148	110	4	34	0	0	23.7	76.3	82.5	77.0
Coventry	65	243	185	2	54	2	0	21.1	78.9	81.8	77.0
Glasgow RI	31	286	223	5	47	11	0	9.8	90.2	81.7	79.7
Guys	99	399	281	24	93	1	0	19.9	80.1	81.1	76.4
Southend	22	124	96	0	26	2	0	15.1	84.9	80.8	77.4
Wrexham	41	84	49	11	22	2	0	32.8	67.2	80.8	71.4
York	29	116	81	7	27	1	0	20.0	80.0	80.7	75.9
Derby	58	198	147	1	49	1	0	22.7	77.3	80.5	74.8
Reading	95	168	112	4	52	0	0	36.1	63.9	80.2	69.0
Ipswich	68	103	68	1	34	0	0	39.8	60.2	80.1	67.0
ManWst	150	248	163	4	81	0	0	37.7	62.3	79.6	67.3
Glasgow WI	73	277	196	8	68	4	1	20.9	79.1	79.1	73.7
Kings	85	262	172	17	67	6	0	24.5	75.5	79.0	72.1
Liverpool	112	335	225	14	75	16	5	25.1	74.9	78.5	71.3
Leicester	210	487	333	4	122	7	21	30.1	69.9	78.5	69.2
QEH	140	674	475	17	178	4	0	17.2	82.8	77.6	73.0
Middlesbrough	25	237	174	4	57	2	0	9.5	90.5	77.5	75.1
St James	146	435	296	8	127	4	0	25.1	74.9	77.5	69.9
Edinburgh	51	222	155	5	58	4	0	18.7	81.3	77.3	72.1
Bradford	49	157	109	0	48	0	0	23.8	76.2	76.7	69.4
Chelmsford	38	97	58	7	30	2	0	28.1	71.9	76.3	67.0
Heartlands	29	308	213	15	80	0	0	8.6	91.4	76.3	74.0
Plymouth	42	109	58	14	37	0	0	27.8	72.2	75.5	66.1
Basildon	30	122	84	0	36	2	0	19.7	80.3	75.0	68.9
Dundee	45	130	84	1	43	2	0	25.7	74.3	74.3	65.4
Barts	214	455	218	58	144	35	0	32.0	68.0	73.2	60.7
Clwyd	13	60	40	0	20	0	0	17.8	82.2	72.6	66.7
Nottingham	132	307	160	25	121	1	0	30.1	69.9	72.2	60.3
Brighton	91	289	147	28	112	2	0	23.9	76.1	70.0	60.6
Wirral	28	161	98	6	56	1	0	14.8	85.2	69.8	64.6
Stevenage	53	324	204	4	116	0	0	14.1	85.9	69.2	64.2
Airdrie	36	139	85	0	53	1	0	20.6	79.4	69.1	61.2

Hospital name	Total PD	Total HD	Total HD (native AVF)	Total HD (graft)	Total HD (tunnelled line)	Total HD (temporary line)	Total HD (other access)	% PD	% HD	% definitive access	% *HD definitive access
Hull	43	274	166	10	80	18	0	13.6	86.4	69.1	64.2
Kilmarnock	50	108	56	3	48	1	0	31.6	68.4	69.0	54.6
Dunfermline	21	86	51	1	34	0	0	19.6	80.4	68.2	60.5
Wolverhampton	54	279	156	15	106	2	0	16.2	83.8	67.6	61.3
Carlisle	15	77	47	0	30	0	0	16.3	83.7	67.4	61.0
Stoke	107	206	97	6	103	0	0	34.2	65.8	67.1	50.0
Carshalton	139	386	181	28	103	40	34	26.5	73.5	66.3	54.2
Ulster	2	45	28	0	17	0	0	4.3	95.7	63.8	62.2
Newcastle	46	226	122	4	96	4	0	16.9	83.1	63.2	55.8
Belfast	86	262	122	6	119	15	0	24.7	75.3	61.5	48.9
Norwich	49	272	136	12	123	1	0	15.3	84.7	61.4	54.4
Dumfries	15	70	34	2	34	0	0	17.6	82.4	60.0	51.4
Tyrone	11	109	55	0	51	3	0	9.2	90.8	55.0	50.5
Antrim	20	125	54	1	64	6	0	13.8	86.2	51.7	44.0

* definitive HD access is defined as AVF or AVG

Renal units are listed in order of percentage of patients with definitive access.

Morbidity data

Infection

Centres again provided information on the number of *Staphylococcus aureus* bacteraemic episodes diagnosed in the prevalent haemodialysis population during the calendar year 2005 and the number of those due to Methicillin resistant species. There were 590 episodes from 35 reporting centres: 179 (30%) were MRSA (29% in 2004). The median rate was 8.1 *Staph. Aureus* bacteraemias per 100 haemodialysis patients, with rates ranging from 1.9 to 18.2 episodes/100 patients. As most of these *Staph Aureus* infections will be occurring in HD patients with lines, the true rate is closer to 25 *Staph. Aureus* bacteraemias per 100 HD patients with a line.

Bed occupancy

On census day, the numbers of in-patient beds occupied by haemodialysis patients were collated. A total of 295 (3.9%) from 7523 haemodialysis patients were in-patients and this compared with 5% in the 2005 survey.

Incident data

The 37 centres reported 236 incident patients during April 2006, range 0 to 17. (Table 5.1). About one third were female and 92% Caucasian. Unchanged from the 2005 survey, over half had been referred for access prior to renal replacement therapy and 11% (10% in 2005) were transplant listed prior to the initiation of RRT.

The survey demonstrated a similar pattern of modality and access at first renal replacement therapy to that shown in the 2005 survey: 1.3% received a pre-emptive transplant, 20% commenced on peritoneal dialysis and 78% started on haemodialysis. Of the 185 patients commencing on haemodialysis, only 37% did so with an arteriovenous fistula or graft (31% in the 2005 survey).

Access modality at start, 6 & 12 months post commencement of renal replacement therapy

26% of patients commenced dialysis using either an arteriovenous fistula (AVF) or an arteriovenous graft (AVG). 49% percent commenced using venous catheters, split approximately equally between tunnelled and non-tunnelled. Twenty percent of patients commenced on peritoneal dialysis and 4% were pre-emptively transplanted.

At 6 months, 76% of live patients were using definitive access (defined as the use of peritoneal dialysis, transplant, AVF or AVG) and at 12 months 80%. Of haemodialysis patients, 65% started

using venous catheters, at 6 months this had fallen to 35% and at 12 months 30%. The use of non-tunnelled lines was below 1% by 6 months.

1-year survival rate for incident patients

If the purpose of RRT is to extend useful life, then survival after starting RRT is the most important indicator of the success of this form of treatment. Variations in RRT delivery that might affect survival include

- dose of haemodialysis
- dose of peritoneal dialysis
- control of blood pressure
- optimal treatment of heart failure
- treatment of ischaemic heart disease, e.g. access to coronary angiography, coronary artery bypass grafting for prognostically important coronary disease
- control of abnormalities of bone and mineral metabolism in dialysis patients (e.g. control of phosphate retention and of hyperparathyroidism)
- infectious complications of dialysis, e.g. septicaemia related to vascular access for haemodialysis, peritoneal dialysis-related peritonitis
- variations in access to kidney transplantation
- kidney transplant success rates

However, survival is dependent not just on how well RRT is delivered, but also on other factors that influence the risk of death, including age and other co-morbid illnesses such as cardiac, cerebral and peripheral vascular disease, malignant disease, respiratory diseases, etc. Differences in case-mix therefore are a critically important contributor to the differences in survival between Renal Units in this Report. The Registry is able to perform statistical adjustment for co-morbidity at the start of RRT, but is prevented from making these adjustments by the fact that many Renal Unit provide no, or incomplete data, on comorbidity. This is the first year that the data on survival have been made identifiable by Unit, and it is hoped that this de-anonymisation will provide additional incentive for Units to provide complete co-morbidity data.

It is sometimes difficult clinically to distinguish patients who have acute renal failure (who will have poor short term survival), from patients that present late with chronic renal failure and are predicted not to recover. Because of the variability of this classification between individual nephrologists the Registry only compares differences in patients' survival between renal units as the one year survival after the first 90 days from start of RRT.

Between country

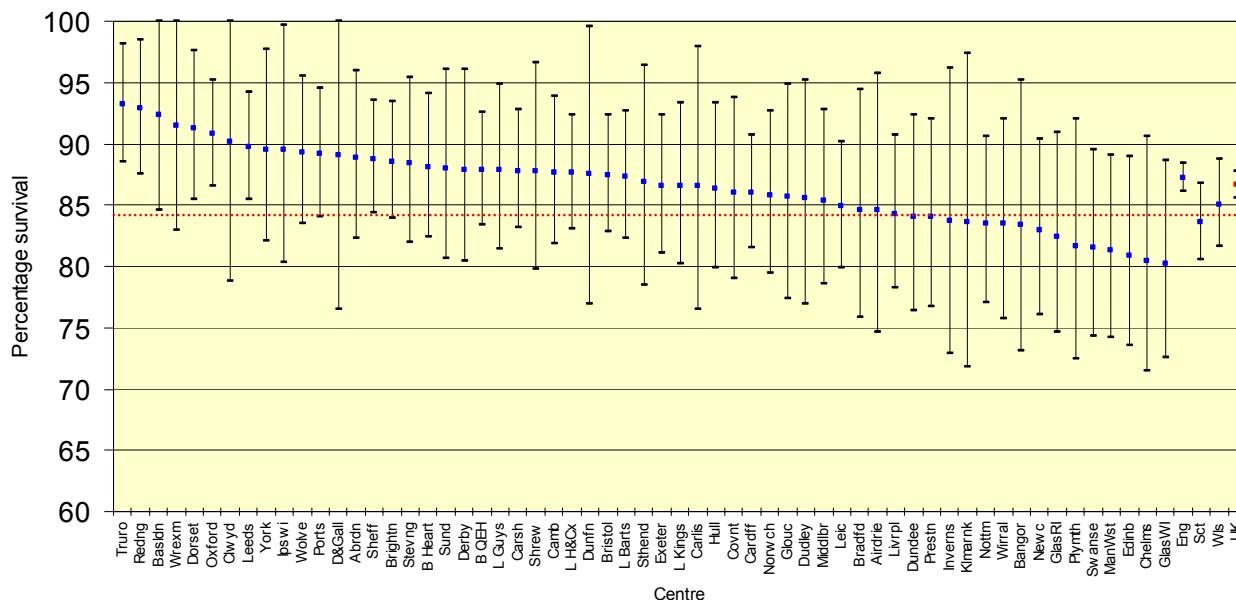
Table 14: Incident patient percentage survival across the UK, combined 2 year cohort (2003- 2004), adjusted to age 60

	England	Wales	Scotland	UK
% 90 day	93.7	93.4	93.8	93.7
95% CI	92.9 - 94.5	91.3 - 95.5	92.1 - 95.5	92.9 - 94.5
% 1 year after 90 days	87.2	85.1	83.6	86.6
95% CI	86.1 - 88.4	81.6 - 88.7	80.6 - 86.7	85.5 - 87.8

Analysis of centre variability in 1 year after 90 days survival

The one year after 90 day survival for the 2004 incident cohort is shown in Figure 9 for each renal unit. The tables for these data and for 90 day survival are in Appendix 1 of chapter 12 on the web

Figure 10: Survival one-year after 90 days, adjusted to age 60, 2004 cohort



Showing 95% confidence intervals.

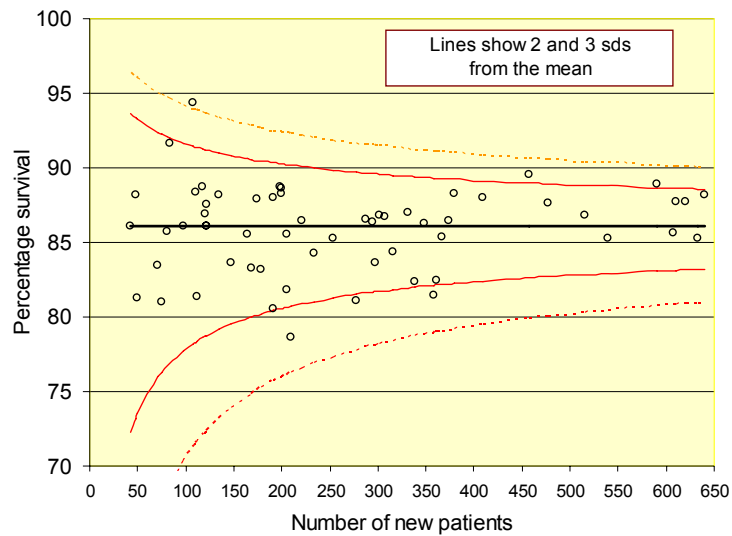
Identifying outliers in survival

In the analysis of 2004 survival data, some of the smaller centres have wide confidence intervals (Figure 10). This can be addressed by including a larger cohort, from all patients starting RRT 2001-2004, which also assesses sustained performance. A few centres have been contributing data to the Renal Registry for only part of this period so will have fewer years included.

The survival results are shown for this larger cohort, using a funnel plot to identify possible outliers (Figure 11). From Figure 11, for any size of incident cohort (X axis) one can identify whether any given survival rate (Y axis) falls within plus or minus 2 standard deviations (SDs) from the national mean (solid lines, 95% confidence interval) or 3 standard deviations (dotted lines, 99.8% confidence interval). Plotting data for 50 centres it may be expected by chance 1 centre to fall above the 2 sd line and 1 below the line. No centre would be expected to fall outside the 3 sd line by chance alone.

There are 3 centres that fall between 2-3 sds below average (Plymouth, Glasgow Western and Edinburgh), one centre outside 3 sds above average (Ipswich) and 2 other centres between 2–3 sds above average (Sheffield and Hammersmith & Charing Cross). These data have not been adjusted for any patient related factor except age (not co-morbidity or primary renal disease or ethnicity) with both Plymouth and the Scottish centres returning no data on co-morbidity. There is no censoring at transplantation, so the effect of differing unit rates of transplantation is not taken into account. The 3 centres below the 2 sd line have been contacted and are investigating the reasons for the apparent difference in survival within their renal unit.

Figure 11: Funnel plot of age adjusted survival for 1 year after 90 days



One of the reasons for the apparent difference in survival, may relate to the mortality within the underlying general population. For example, within Scotland, the general population is known to have more ill health than England & Wales, reflected in 16% higher all cause mortality and particularly cardio-vascular disease mortality. Table 15 below shows differences in life expectancy between the UK countries. Thus a slightly higher dialysis mortality in Scotland may reflect the increased mortality in the population from which the dialysis patients are drawn. This emphasises the need to consider the characteristics of the general population from which patients come when considering or comparing outcomes of treatment.

Table 15: Life expectancy 2003-2005 in UK countries (source ONS)

	At Birth		At age 65	
	Male	Female	Male	Female
England	76.9	81.2	16.8	19.6
Wales	76.3	80.7	16.4	19.2
Scotland	74.2	79.3	15.5	18.4
Northern Ireland	76.0	80.8	16.4	19.3
UK	76.6	81.0	16.6	19.4

Appendix I: Abbreviations used for the renal units names in the figures and data tables

City	Hospital	Abbreviation	Country
Basildon	Basildon Hospital	Basldn	England
Birmingham	Heartlands Hospital	B Heart	England
Birmingham	Queen Elizabeth Hospital	B QEH	England
Bradford	St Luke's Hospital	Bradfd	England
Brighton	Royal Sussex County Hospital	Brightn	England
Bristol	Southmead Hospital	Bristol	England
Cambridge	Addenbrookes Hospital	Camb	England
Carlisle	Cumberland Infirmary	Carlis	England
Carshalton	St Helier Hospital	Carsh	England
Chelmsford	Broomfield Hospital	Chelms	England
Coventry	Walsgrave Hospital	Covnt	England
Derby	Derby City General Hospital	Derby	England
Dorset	Dorchester Hospital	Dorset	England
Dudley	Russells Hall Hospital (previously reported as Wordsley, Stourbridge)	Dudley	England
Exeter	Royal Devon and Exeter Hospital	Exeter	England
Gloucester	Gloucester Royal Hospital	Glouc	England
Hull	Hull Royal Infirmary	Hull	England
Ipswich	Ipswich Hospital	Ipswi	England
Leeds	St James's Hospital and Leeds General Infirmary	Leeds	England
Leicester	Leicester General Hospital	Leic	England
Liverpool	Royal Liverpool University Hospital	Livrpl	England
London	St Barts and The London Hospital	L Barts	England
London	Guy's & St Thomas' Hospital	L Guys	England
London	Hammersmith & Charing Cross Hospitals	L H&Cx	England
London	King's College Hospital	L Kings	England
London	Royal Free, Middlesex, UCL Hospitals	L Rfree	England
Manchester	Hope Hospital	ManWst	England
Middlesbrough	James Cook University Hospital	Middlbr	England
Newcastle	Freeman Hospital	Newc	England
Norwich	Norfolk and Norwich University Hospital	Norwch	England
Nottingham	Nottingham City Hospital	Nottm	England
Oxford	John Radcliffe Hospital (previously reported as Churchill Hospital)	Oxford	England
Plymouth	Derriford Hospital	Plymth	England
Portsmouth	Queen Alexandra Hospital	Ports	England
Preston	Royal Preston Hospital	Prestn	England
Reading	Royal Berkshire Hospital	Redng	England
Sheffield	Northern General Hospital	Sheff	England
Shrewsbury	Royal Shrewsbury Hospital	Shrew	England
Southend	Southend Hospital	Sthend	England
Stevenage	Lister Hospital	Stevng	England
Sunderland	Sunderland Royal Hospital	Sund	England
Truro	Royal Cornwall Hospital	Truro	England
Wirral	Arrowe Park Hospital	Wirral	England
Wolverhampton	New Cross Hospital	Wolve	England
York	York District Hospital	York	England
Bangor	Ysbyty Gwynedd	Bangor	Wales
Cardiff	University Hospital of Wales	Cardff	Wales
Clwyd	Ysbyty Glan Clwyd	Clwyd	Wales
Swansea	Morrison Hospital	Swanse	Wales
Wrexham	Wrexham Maelor Hospital	Wrexm	Wales

City	Hospital	Abbreviation	Country
Aberdeen	Aberdeen Royal Infirmary	Abrdn	Scotland
Airdrie	Monklands District General Hospital	Airdrie	Scotland
Dumfries	Dumfries & Galloway Royal Infirmary	D&Gall	Scotland
Dundee	Ninewells Hospital	Dundee	Scotland
Dunfermline	Queen Margaret Hospital	Dunfn	Scotland
Edinburgh	Edinburgh Royal Infirmary	Edinb	Scotland
Glasgow	Glasgow Western Infirmary	GlasWI	Scotland
Glasgow	Glasgow Royal Infirmary & Stobhill Hospital	GlasRI	Scotland
Inverness	Raigmore Hospital	Inverns	Scotland
Kilmarnock	Crosshouse Hospital	Klmarnk	Scotland
Antrim	Antrim Hospital	Antrim	Northern Ireland
Belfast	Belfast City Hospital	Belfast	Northern Ireland
Newry	Daisy Hill Hospital	Newry	Northern Ireland
Tyrone	Tyrone County Hospital	Tyrone	Northern Ireland
Ulster	Ulster Hospital	Ulster	Northern Ireland