
Chapter 1

UK RRT Incidence in 2009: national and centre-specific analyses

Julie Gilg, Clare Castledine, Damian Fogarty, Terry Feest

UK Renal Registry, Bristol, UK

Key Words

Acceptance rates · Comorbidity · Dialysis · End stage renal disease · End stage renal failure · Established renal failure · Haemodialysis · Incidence · Peritoneal dialysis · Primary Care Trust · Renal replacement therapy · Transplantation

Summary

- In 2009 the incidence rate in the UK was stable at 109 per million population (pmp).
- From 2007 to 2009, acceptance rates pmp have fallen in Northern Ireland (88), Scotland (104) and Wales (120) whilst they have risen slightly in England (109).

- The median age of all incident patients was 64.8 years and for non-Whites 57.1 years.
- Diabetic renal disease remains the single most common cause of renal failure (25%).
- By 90 days, 69.1% of patients were on haemodialysis, 17.7% on peritoneal dialysis, 6.7% had had a transplant and 6.5% had died or stopped treatment.
- The mean eGFR at the start of RRT was 8.6 ml/min/1.73 m² which has been stable for the last three years.
- There was no relationship between social deprivation and presentation pattern.
- Late presentation (<90 days) has fallen from 27% in 2004 to 19% in 2009.

Introduction

This chapter includes analyses of adult patients starting renal replacement therapy (RRT) in the UK in 2009. It describes regional and national variations in acceptance rates onto RRT in the UK, the demographics and clinical characteristics of all patients starting RRT in the UK and late presentation to a renal centre for initiation of RRT. The methodology and the results for these analyses are discussed in three separate sections.

Definitions

The definition of incident patients is given in detail in appendix B: definitions and analysis criteria (www.renalreg.com/Report-Area/Report2010/appendix-B.pdf). In brief, it is all patients over 18 who commenced RRT in the UK in 2009 and who did not recover renal function within 90 days: this does not include those with a failed renal transplant who return to dialysis as they started RRT with or before the transplant.

Small differences may be seen in the 2004 to 2008 figures now quoted when compared with previous publications because of retrospective updating of data in collaboration with renal centres, in particular for patients who were initially thought to have acute renal failure. As last year, rather than allocating all pre-emptive transplants to the transplanting centre, an attempt was made to allocate these patients to their work up centre. This was not possible for all such patients and consequently some patients probably remained incorrectly allocated to the transplanting centre.

The term established renal failure (ERF) used within this chapter is synonymous with the terms end stage renal failure (ESRF) and end stage renal disease (ESRD), which are in more widespread international usage. Within the UK, patient groups have disliked the term 'end stage' which formerly reflected the inevitable outcome of this disease.

UK Renal Registry coverage

The UK Renal Registry (UKRR) received individual patient level data from all adult renal centres in the UK (5 renal centres in Wales, 6 in Northern Ireland, 9 in Scotland and 52 in England). Data from centres in Scotland were obtained from the Scottish Renal Registry. Data on children and young adults can be found in chapter 5: Demography of the UK Paediatric Renal Replacement Therapy population in 2009.

1 Geographical variation in acceptance rates

Over the years, there have been wide variations in acceptance trends between renal centres. Equity of access to RRT is an important aim but the need for RRT depends on many variables including age, gender, social deprivation, ethnicity and medical, social and demographic factors such as underlying conditions. Thus comparison of crude acceptance rates by geographical area can be misleading. This year's report again uses age and gender standardisation as well as showing crude rates. It also gives the ethnic minority percentage of each area as this influences acceptance rates. More detailed investigations into variation in acceptance rates are continuing at the UKRR.

Methods

Crude acceptance rates were calculated per million population (pmp) and standardised acceptance ratios were calculated as detailed in appendix D: methodology used for analyses of PCT/HBs (www.renalreg.com/Report-Area/Report2010/appendix-D.pdf). Briefly, data from all areas covered by the Registry for the relevant year were used to calculate overall age and gender specific acceptance rates. The age and gender breakdown of the population in each Primary Care Trust (PCT) area in England, Local Health Board (HB) in Wales, Scottish Health Board (HB) and the Health and Social Care Trust Areas in Northern Ireland (HSC) was obtained from the Office for National Statistics (ONS) [1]. These will be referred to by the umbrella term 'PCT/HB' in this report. This population breakdown was extrapolated by the ONS from the 2001 census data to mid-2009 estimates. For Wales and Northern Ireland the population data were aggregated from local authority to health board level. The population breakdown and the overall acceptance rates were used to calculate the expected age and gender specific acceptance numbers for each PCT/HB. The age and gender standardised acceptance ratio was the observed acceptance numbers divided by the expected acceptance numbers. A ratio below 1 indicated that the observed rate was less than expected given the area's age structure. This was statistically significant if the upper confidence limit was less than 1. Analyses were undertaken for each of the last 6 years and, as the incident numbers for one year can be small for smaller areas, a combined 6 years analysis was also done. The proportion of non-Whites in each PCT/HB area was obtained from the ONS from the 2001 Census for Northern Ireland, Scotland and Wales and from the ONS revised estimates for 2007 for England.

As part of continuing quality control, checks on the accuracy of data received are repeatedly carried out. A small degree of under-reporting of patients has been identified for 2009 in the following centres: Belfast (9), Dorset (9), Basildon (3), Antrim (3), Derry (3), Norwich (3), Doncaster (1), Tyrone (1), Ulster (1), Newry (1), Chelmsford (1), total 35. These patients have been added to tables 1.1 and 1.3 and figure 1.1 but are not included in any other analyses in this chapter.

Table 1.1. Number of new adult patients starting RRT in the UK in 2009

	England	Wales	Scotland	N Ireland	UK
All UK centres	5,673	359	540	158	6,730
*Total estimated population mid-2009 (millions)	51.8	3.0	5.2	1.8	61.8
Acceptance rate (pmp)	109	120	104	88	109
(95% CI)	(107–112)	(107–132)	(95–113)	(75–102)	(106–112)

* data extrapolated by the Office for National Statistics – based on the 2001 census

Results

In 2009 the number of adult patients starting RRT in the UK was 6,730 equating to an acceptance rate of 109 pmp (table 1.1), slightly higher than in 2008. Wales remained the country with the highest acceptance rate (figure 1.1). For England, acceptance rates have been stable for the last 4 years. There continued to be very marked gender differences in take-on rates, 137 pmp (95% CI 133–141) in males and 82 pmp (95% CI 78–85) in females.

Table 1.2 shows acceptance rates and standardised ratios for PCT/HBs. The ratios calculated using combined data from up to six years have been used in determining significantly high and low areas. Provided that the area has been covered by the Registry for at least three years (all but one PCT/HB) significantly high areas have been shaded with bold text and significantly low areas shaded with italicised text in table 1.2. There were wide variations between areas, with 49 being significantly high and 47 being significantly low out of a total of 178 areas. As would be expected, urban areas with high percentages of non-White residents tended to have high acceptance rates. Figure 1.2 shows the positive correlation between

the standardised ratios and the percentage of the PCT/HB that is non-White.

Confidence intervals are not presented for the crude rates per million population but figures D1 and D2 in appendix D (www.renalreg.com/Report-Area/Report2010/appendix-D.pdf) show the confidence limits around the national average rate for different sized areas and allow an individual area's rate to be compared to the average to ascertain if it is higher or lower than expected.

The number of new patients accepted by each renal centre from 2004 to 2009 is shown in table 1.3, along with the percentage change in incident number between these years for those centres with full reporting during that period. Some centres have had an increase in new patients over time and others have fallen. The variation may reflect chance fluctuation, the introduction of new centres, completeness of reporting, changing incidence of established renal failure, changes in referral patterns, changes in catchment populations and areas or the introduction of conservative care programmes. For the first time this year the rate per million population has been presented for each centre. This has previously not been possible as accurate catchment populations were not available. For a full description of the methodology used see appendix E: methodology for estimating catchment populations (www.renalreg.com/Report-Area/Report2010/appendix-E.pdf). In brief, the patient post-code for each prevalent dialysis patient in 2007 was used to create a series of overlapping areas corresponding to each renal centre. These small areas were then assigned to a Census Area Statistics ward using geographical information system technology and the population in each area assigned to its respective renal centre. This methodology was used for England only. Estimates of the catchment populations in Wales and Northern Ireland were supplied by personal communication from Dr K Donovan, Dr A Williams and Dr D Fogarty. No data were available from Scotland. These estimates will not be accurate for new centres and centres with changes in catchment populations since 2007 (e.g. Bristol, Cambridge and Ipswich, which have lost catchment population since 2007 and Dorset

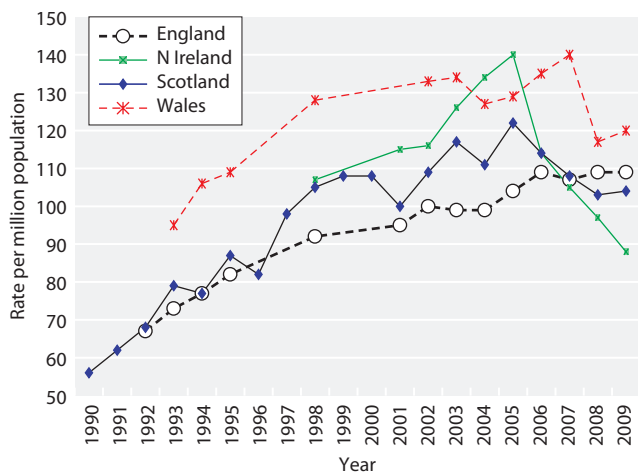
**Fig. 1.1.** RRT incident rates in the countries of the UK 1990–2009

Table 1.2. Crude adult acceptance rates (pmp) and standardised ratios 2004–2009

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

Areas with data for minimum 3 years and with significantly low acceptance ratios over 6 years are italicised in greyed areas, those with significantly high ratios are bold in greyed areas.

O/E = standardised acceptance rate ratio.

% non-White = percentage of the PCT/HB population that is non-White, from 2001 census (revised by ONS to 2007 for England)

PCT/HB = Primary Care Trust (England), Local Health Board (Wales), Scottish Health Board (Scotland), Health and Social Care areas (N Ireland)

For those areas not covered by the Registry for the entire period 2004–2009, the combined years standardised acceptance rate ratios and the acceptance rates are averages for the years covered by the Registry

pmp = per million population

LCL = lower 95% confidence limit

UCL = upper 95% confidence limit

UK Area	PCT/HB	Tot pop (2009)	2004	2005	2006	2007	2008	2009		2004–2009			% non-White	
			O/E	O/E	O/E	O/E	O/E	O/E	pmp	O/E	LCL	UCL		pmp
North East	<i>County Durham</i>	506,600	0.89	0.91	0.86	0.66	0.68	0.78	89	0.79	0.71	0.89	90	2.5
	Darlington	100,600	0.78	0.36	0.69	1.14	0.96	0.97	109	0.82	0.63	1.07	91	3.3
	Gateshead	190,500	0.96	0.94	0.90	0.86	0.55	0.87	100	0.85	0.70	1.02	95	3.8
	Hartlepool	90,800	1.11	0.94	1.38	0.50	1.30	0.71	77	0.99	0.77	1.28	106	2.6
	Middlesbrough	140,300	1.01	1.01	1.44	1.18	1.25	0.63	64	1.09	0.89	1.34	109	8.6
	Newcastle	284,300	1.16	1.12	0.85	1.18	1.03	0.87	84	1.03	0.89	1.20	99	9.7
	<i>North Tyneside</i>	197,000	0.94	0.78	0.78	0.84	0.49	0.89	102	0.78	0.65	0.95	88	3.6
	<i>Northumberland</i>	311,200	0.86	0.61	0.73	0.72	0.67	0.62	77	0.70	0.60	0.82	86	2.2
	Redcar and Cleveland	137,600	1.15	0.76	0.84	0.98	0.67	0.86	102	0.87	0.71	1.08	102	3.0
	South Tyneside	152,600	0.95	0.89	1.07	1.03	0.51	1.27	144	0.95	0.78	1.16	107	4.8
	<i>Stockton-on-Tees Teaching</i>	191,100	1.04	0.81	0.82	0.63	0.78	0.69	73	0.79	0.65	0.97	83	4.7
<i>Sunderland Teaching</i>	281,700	0.68	0.83	0.69	1.05	0.83	0.97	106	0.84	0.72	0.99	92	3.3	
North West	<i>Ashton, Leigh and Wigan</i>	306,400	0.79	0.95	0.70	0.94	0.83	0.60	65	0.80	0.69	0.94	86	2.9
	Blackburn with Darwen Teaching	139,900	1.19	1.50	1.42	1.29	0.45	0.93	86	1.13	0.91	1.39	104	22.7
	<i>Blackpool</i>	140,000	0.27	0.69	0.59	0.96	0.96	1.03	121	0.76	0.60	0.95	88	3.7
	Bolton	265,600	0.79	0.70	0.87	0.92	0.92	0.90	94	0.85	0.72	1.01	88	12.3
	<i>Bury</i>	182,800	0.85	0.80	0.55	0.71	0.76	0.83	88	0.75	0.61	0.92	78	8.5
	<i>Central and Eastern Cheshire</i>	456,000				0.65	0.60	0.75	88	0.67	0.55	0.80	78	3.4
	<i>Central Lancashire</i>	457,800	0.66	0.74	0.56	0.79	0.93	0.94	103	0.77	0.68	0.88	83	6.7
	<i>Cumbria Teaching</i>	494,900	0.61	0.86	0.65	0.61	0.69	0.60	75	0.67	0.59	0.76	82	2.0
	<i>East Lancashire Teaching</i>	380,900	0.70	0.73	0.92	0.77	0.67	0.83	89	0.77	0.67	0.89	82	9.4
	Halton and St Helens	295,900	0.82	1.18	1.15	1.01	0.61	0.94	101	0.96	0.83	1.10	103	2.1
	Heywood, Middleton and Rochdale	204,900				0.94	0.94	1.10	112	1.00	0.78	1.27	102	12.6
	Knowsley	149,300	0.99	0.86	0.75	1.08	0.45	0.77	80	0.81	0.65	1.02	84	2.8
	Liverpool	442,400	1.13	1.33	1.24	1.05	1.17	1.21	120	1.19	1.06	1.33	117	8.3
	Manchester Teaching	483,500				1.26	1.38	1.47	118	1.37	1.17	1.60	112	23.4
	<i>North Lancashire Teaching</i>	327,000	0.41	0.43	0.51	0.61	0.52	0.72	89	0.54	0.45	0.64	65	4.2
	<i>Oldham</i>	219,200	0.70	0.65	0.84	0.85	1.12	0.73	73	0.82	0.68	0.99	81	12.2
	<i>Salford</i>	225,300	0.53	0.36	0.99	0.52	1.13	0.84	84	0.74	0.60	0.90	73	7.7
	<i>Sefton</i>	273,400	0.50	0.90	0.82	0.57	0.84	0.78	95	0.74	0.63	0.87	88	2.6
	<i>Stockport</i>	283,600				0.77	0.77	0.53	60	0.69	0.55	0.88	79	6.4
	Tameside and Glossop	249,100				1.35	0.68	0.92	96	0.98	0.79	1.23	104	5.9
Trafford	215,400				1.02	0.55	1.12	121	0.90	0.70	1.15	97	11.2	
<i>Warrington</i>	197,900	0.98	0.72	0.73	0.55	0.60	1.03	111	0.76	0.63	0.93	82	3.5	
<i>Western Cheshire</i>	232,900	1.08	0.56	0.85	0.86	0.58	0.94	112	0.81	0.68	0.96	94	3.1	
Wirral	308,600	1.20	1.18	0.76	0.75	0.78	0.78	91	0.90	0.78	1.04	103	2.8	

Table 1.2. Continued

UK Area	PCT/HB	Tot pop (2009)	2004	2005	2006	2007	2008	2009		2004–2009			% non- White	
			O/E	O/E	O/E	O/E	O/E	O/E	pmp	O/E	LCL	UCL		pmp
Yorkshire and the Humber	Barnsley	226,500	0.88	0.74	0.89	0.83	1.10	0.92	102	0.89	0.75	1.06	98	2.7
	Bradford and Airedale Teaching	506,900	1.27	1.33	0.90	1.55	1.15	0.94	89	1.19	1.07	1.32	111	25.0
	Calderdale	201,500	1.13	0.86	0.86	0.87	0.87	1.02	109	0.93	0.78	1.12	98	9.8
	<i>Doncaster</i>	<i>290,200</i>	<i>0.95</i>	<i>0.70</i>	<i>0.78</i>	<i>0.61</i>	<i>0.82</i>	<i>1.08</i>	<i>121</i>	<i>0.82</i>	<i>0.70</i>	<i>0.96</i>	<i>91</i>	<i>4.3</i>
	<i>East Riding of Yorkshire</i>	<i>337,100</i>	<i>0.73</i>	<i>1.09</i>	<i>0.62</i>	<i>0.70</i>	<i>0.98</i>	<i>0.94</i>	<i>119</i>	<i>0.84</i>	<i>0.74</i>	<i>0.97</i>	<i>105</i>	<i>3.0</i>
	Hull Teaching	262,700	1.28	1.20	0.83	1.00	1.00	1.01	99	1.05	0.90	1.22	102	5.8
	Kirklees	406,800	1.36	0.77	1.15	0.69	0.76	1.16	118	0.98	0.86	1.11	98	16.0
	Leeds	787,600	1.05	1.18	0.92	0.80	0.98	0.84	81	0.96	0.88	1.06	92	11.8
	North East Lincolnshire	158,600	1.12	1.22	1.10	1.11	1.11	0.85	95	1.08	0.90	1.30	120	3.1
	North Lincolnshire	157,100	1.26	1.01	1.01	0.75	0.81	0.76	89	0.93	0.77	1.13	107	3.2
	<i>North Yorkshire and York</i>	<i>796,300</i>	<i>1.01</i>	<i>0.94</i>	<i>0.88</i>	<i>0.78</i>	<i>0.73</i>	<i>0.82</i>	<i>97</i>	<i>0.86</i>	<i>0.78</i>	<i>0.94</i>	<i>100</i>	<i>3.7</i>
	Rotherham	253,900	1.18	1.18	0.90	1.02	1.38	0.97	106	1.10	0.95	1.27	120	5.2
	Sheffield	547,100	1.18	1.05	1.10	1.15	1.10	1.20	122	1.13	1.02	1.25	114	12.2
<i>Wakefield District</i>	<i>323,800</i>	<i>0.99</i>	<i>0.69</i>	<i>1.04</i>	<i>0.67</i>	<i>0.72</i>	<i>0.62</i>	<i>68</i>	<i>0.79</i>	<i>0.68</i>	<i>0.92</i>	<i>85</i>	<i>4.3</i>	
East Midlands	Bassetlaw	111,900	0.58	1.01	0.59	1.57	0.60	0.76	89	0.86	0.67	1.09	100	3.1
	Derby City	244,300	1.10	1.31	1.17	0.99	1.54	1.44	147	1.26	1.09	1.45	128	15.0
	<i>Derbyshire County</i>	<i>726,400</i>	<i>0.70</i>	<i>0.65</i>	<i>0.68</i>	<i>0.75</i>	<i>1.03</i>	<i>0.75</i>	<i>88</i>	<i>0.76</i>	<i>0.69</i>	<i>0.84</i>	<i>89</i>	<i>3.2</i>
	Leicester City	304,800	1.41	1.46	1.61	1.84	1.47	1.57	138	1.56	1.38	1.77	136	38.2
	<i>Leicestershire County and Rutland</i>	<i>683,200</i>	<i>0.67</i>	<i>0.74</i>	<i>0.85</i>	<i>0.85</i>	<i>0.70</i>	<i>0.75</i>	<i>85</i>	<i>0.76</i>	<i>0.69</i>	<i>0.84</i>	<i>86</i>	<i>7.7</i>
	<i>Lincolnshire Teaching</i>	<i>700,200</i>	<i>0.71</i>	<i>1.03</i>	<i>0.83</i>	<i>0.80</i>	<i>0.68</i>	<i>0.74</i>	<i>91</i>	<i>0.80</i>	<i>0.72</i>	<i>0.88</i>	<i>98</i>	<i>3.3</i>
	Northamptonshire Teaching	684,000	0.69	0.84	0.88	0.98	1.20	0.82	86	0.91	0.82	1.00	95	7.4
	Nottingham City	300,800	1.20	1.39	1.33	0.96	1.34	1.09	93	1.22	1.06	1.41	103	18.7
	Nottinghamshire County Teaching	665,000	1.01	1.20	1.12	1.08	0.91	1.01	116	1.06	0.97	1.16	120	5.1
West Midlands	Birmingham East and North	407,400	1.63	1.97	1.87	1.49	1.67	1.46	140	1.68	1.52	1.86	160	23.8
	Coventry Teaching	312,600	0.97	0.98	1.09	1.36	1.58	1.71	166	1.29	1.13	1.46	124	19.6
	Dudley	306,500	1.12	0.96	0.88	0.92	0.84	1.42	163	1.02	0.89	1.17	116	8.5
	Heart of Birmingham Teaching	280,500	2.41	2.14	2.46	2.62	3.04	2.87	214	2.60	2.33	2.89	193	61.8
	Herefordshire	179,000	1.01	0.81	0.72	0.78	0.91	1.13	145	0.89	0.74	1.06	113	2.4
	North Staffordshire	211,500				0.55	0.91	1.12	132	0.86	0.67	1.09	102	3.5
	Sandwell	291,100	1.98	1.47	1.43	1.55	2.11	1.74	179	1.71	1.53	1.91	174	21.8
	Shropshire County	291,900	1.11	0.76	0.93	0.76	1.14	0.74	92	0.91	0.79	1.04	112	3.0
	Solihull	205,200	1.26	1.13	1.28	0.84	1.01	1.35	156	1.14	0.98	1.34	130	9.0
	South Birmingham	341,200	1.82	1.32	1.05	1.30	1.54	1.38	135	1.39	1.24	1.57	135	17.9
	South Staffordshire	609,300				0.93	0.93	0.84	97	0.90	0.78	1.03	104	4.7
	Stoke on Trent	246,900				1.23	0.97	1.40	150	1.20	0.98	1.46	130	7.1
	Telford and Wrekin	162,300	1.25	0.80	1.10	1.71	1.00	1.20	123	1.18	0.98	1.41	120	6.6
	Walsall Teaching	255,800	1.54	1.18	1.36	1.24	1.31	1.11	121	1.29	1.12	1.47	139	14.7
	Warwickshire	535,100	0.86	0.97	1.06	1.03	0.95	0.99	114	0.98	0.88	1.09	111	6.7
	Wolverhampton City	238,500	1.80	1.68	1.22	1.00	1.43	1.13	122	1.37	1.19	1.57	145	23.8
	<i>Worcestershire</i>	<i>556,600</i>	<i>0.90</i>	<i>0.78</i>	<i>0.69</i>	<i>0.80</i>	<i>0.96</i>	<i>1.09</i>	<i>129</i>	<i>0.87</i>	<i>0.78</i>	<i>0.97</i>	<i>102</i>	<i>4.4</i>
East of England	<i>Bedfordshire</i>	<i>411,100</i>	<i>0.86</i>	<i>0.66</i>	<i>1.11</i>	<i>0.56</i>	<i>0.72</i>	<i>0.87</i>	<i>92</i>	<i>0.80</i>	<i>0.70</i>	<i>0.91</i>	<i>84</i>	<i>9.3</i>
	Cambridgeshire	607,200	0.93	0.93	1.06	0.85	0.82	1.06	114	0.94	0.85	1.05	100	7.4
	<i>East and North Hertfordshire</i>	<i>545,600</i>	<i>0.64</i>	<i>0.75</i>	<i>0.88</i>	<i>0.65</i>	<i>0.76</i>	<i>0.77</i>	<i>81</i>	<i>0.74</i>	<i>0.66</i>	<i>0.84</i>	<i>77</i>	<i>8.8</i>
	Great Yarmouth and Waveney	214,000	1.29	1.21	1.25	1.20	1.20	0.48	61	1.10	0.95	1.28	139	3.5
	Luton	194,600	0.87	1.50	1.26	1.44	1.05	1.07	98	1.20	1.01	1.43	109	31.5
	<i>Mid Essex</i>	<i>371,300</i>	<i>1.07</i>	<i>0.88</i>	<i>0.85</i>	<i>0.94</i>	<i>0.82</i>	<i>0.71</i>	<i>78</i>	<i>0.87</i>	<i>0.76</i>	<i>1.00</i>	<i>96</i>	<i>5.1</i>
	Norfolk	757,200	0.86	1.14	1.00	1.06	0.91	0.61	77	0.93	0.85	1.01	115	3.9

Table 1.2. Continued

UK Area	PCT/HB	Tot pop (2009)	2004	2005	2006	2007	2008	2009		2004–2009				% non- White
			O/E	O/E	O/E	O/E	O/E	O/E	pmp	O/E	LCL	UCL	pmp	
East of England	North East Essex	324,800					1.60	0.59	71	1.10	0.89	1.36	132	6.4
	Peterborough	171,000	0.85	1.16	1.16	1.05	1.11	1.31	129	1.11	0.92	1.34	108	13.0
	South East Essex	336,500	1.17	0.86	1.28	1.08	0.90	0.61	71	0.98	0.86	1.12	114	5.7
	South West Essex	405,000	1.24	0.89	1.10	0.90	1.11	0.70	72	0.99	0.87	1.12	100	7.6
	<i>Suffolk</i>	<i>596,200</i>	<i>0.78</i>	<i>0.94</i>	<i>0.80</i>	<i>0.92</i>	<i>0.78</i>	<i>0.87</i>	<i>102</i>	<i>0.85</i>	<i>0.76</i>	<i>0.94</i>	<i>99</i>	<i>5.7</i>
	<i>West Essex</i>	<i>282,400</i>	<i>1.00</i>	<i>0.70</i>	<i>0.79</i>	<i>0.70</i>	<i>0.42</i>	<i>0.75</i>	<i>81</i>	<i>0.72</i>	<i>0.61</i>	<i>0.86</i>	<i>78</i>	<i>7.9</i>
	<i>West Hertfordshire</i>	<i>549,900</i>	<i>0.63</i>	<i>0.74</i>	<i>0.97</i>	<i>0.81</i>	<i>1.13</i>	<i>0.94</i>	<i>98</i>	<i>0.87</i>	<i>0.78</i>	<i>0.98</i>	<i>90</i>	<i>11.1</i>
London	Barking and Dagenham	176,000	1.26	0.83	0.92	0.99	1.72	1.41	119	1.19	0.98	1.44	99	23.7
	Barnet	343,200		0.71	1.52	1.86	1.39	1.17	114	1.34	1.17	1.52	131	29.4
	Bexley	225,800	0.83	0.99	1.14	1.08	1.16	1.34	142	1.09	0.93	1.28	114	13.0
	Brent Teaching	255,200			1.66	2.09	2.17	2.59	243	2.13	1.86	2.44	203	53.5
	Bromley	310,200	0.96	1.05	0.82	0.74	1.24	0.96	103	0.96	0.83	1.11	102	11.9
	Camden	231,600		0.92	1.19	1.19	1.09	1.43	117	1.17	0.97	1.40	96	24.9
	City and Hackney Teaching	227,100			1.21	1.38	1.38	2.09	163	1.51	1.25	1.82	120	35.7
	Croydon	342,800	1.28	1.69	1.01	1.65	1.59	1.73	166	1.49	1.33	1.67	141	34.5
	Ealing	316,300	2.15	1.78	1.93	1.98	1.56	2.41	215	1.96	1.76	2.19	174	40.7
	Enfield	291,400		1.03	1.54	1.13	1.35	1.26	120	1.26	1.09	1.46	121	28.0
	Greenwich Teaching	226,200	0.85	2.10	1.09	1.61	1.70	1.48	128	1.48	1.27	1.72	127	26.1
	Hammersmith and Fulham	169,800	1.75	1.20	1.15	1.36	0.61	1.31	112	1.22	1.01	1.48	103	21.0
	Haringey Teaching	225,400		1.36	1.46	1.47	1.73	1.02	84	1.41	1.19	1.67	118	33.1
	Harrow	228,600			1.33	0.65	1.78	2.03	201	1.45	1.22	1.72	145	44.7
	<i>Havering</i>	<i>234,500</i>			<i>0.94</i>	<i>0.76</i>	<i>0.76</i>	<i>0.65</i>	<i>72</i>	<i>0.78</i>	<i>0.63</i>	<i>0.97</i>	<i>87</i>	<i>8.8</i>
	Hillingdon	262,500	1.47	1.08	1.49	1.03	1.51	1.25	118	1.30	1.13	1.50	122	25.9
	Hounslow	234,200	2.10	1.45	1.72	1.54	1.25	1.81	158	1.64	1.42	1.88	142	37.8
	Islington	192,100		1.73	1.59	1.47	1.15	1.44	115	1.47	1.23	1.77	119	22.9
	Kensington and Chelsea	169,900			0.81	0.64	1.16	0.59	59	0.80	0.61	1.04	81	22.6
	Kingston	166,900				0.90	1.28	0.91	84	1.03	0.78	1.37	96	19.9
	Lambeth	283,400	1.43	1.87	1.57	2.06	1.62	2.02	159	1.77	1.55	2.01	138	32.0
	Lewisham	264,300	1.92	1.78	1.69	2.02	1.57	2.38	197	1.89	1.67	2.14	155	34.4
	Newham	241,200	2.16	2.22	2.33	1.75	2.01	2.63	195	2.18	1.92	2.48	161	57.0
	Redbridge	267,700	1.34	0.96	0.99	1.39	1.55	1.74	161	1.33	1.16	1.53	121	40.9
Richmond and Twickenham	189,400				0.75	0.70	0.82	79	0.75	0.56	1.02	74	11.7	
Southwark	285,600	1.25	1.69	1.49	2.27	2.05	1.53	123	1.72	1.52	1.96	137	34.1	
Sutton and Merton	398,900				1.30	1.51	1.22	115	1.35	1.15	1.58	129	20.8	
Tower Hamlets	234,800	1.26	1.59	1.47	1.71	1.88	1.88	132	1.64	1.41	1.91	115	22.8	
Waltham Forest	224,500			1.47	2.46	1.49	1.52	129	1.74	1.47	2.05	150	36.6	
Wandsworth	286,900				1.87	1.48	2.03	164	1.79	1.50	2.13	146	19.7	
Westminster	249,200			1.41	0.71	1.36	1.58	140	1.26	1.05	1.52	114	27.8	
South East Coast	Brighton and Hove City	256,200	1.02	0.91	0.82	0.95	1.19	1.17	113	1.01	0.86	1.19	97	8.7
	<i>East Sussex Downs and Weald</i>	<i>333,700</i>	<i>1.15</i>	<i>0.64</i>	<i>0.92</i>	<i>0.83</i>	<i>0.64</i>	<i>0.55</i>	<i>72</i>	<i>0.78</i>	<i>0.68</i>	<i>0.90</i>	<i>100</i>	<i>4.9</i>
	Eastern and Coastal Kent	732,100				1.30	1.19	1.06	123	1.19	1.06	1.33	138	5.3
	Hastings and Rother	178,400	1.00	0.72	1.06	0.56	0.77	0.95	123	0.84	0.70	1.01	107	5.2
	Medway	254,900				1.50	0.73	0.90	90	1.05	0.84	1.30	106	7.5
	<i>Surrey</i>	<i>1,100,500</i>	<i>0.80</i>	<i>0.61</i>	<i>0.80</i>	<i>0.83</i>	<i>0.95</i>	<i>0.97</i>	<i>106</i>	<i>0.83</i>	<i>0.77</i>	<i>0.90</i>	<i>90</i>	<i>8.3</i>
	West Kent	678,600				1.03	1.00	0.97	108	1.00	0.88	1.14	112	6.8
	<i>West Sussex</i>	<i>792,900</i>	<i>0.56</i>	<i>0.78</i>	<i>0.84</i>	<i>0.86</i>	<i>0.89</i>	<i>0.71</i>	<i>86</i>	<i>0.78</i>	<i>0.71</i>	<i>0.85</i>	<i>93</i>	<i>5.8</i>

Table 1.2. Continued

UK Area	PCT/HB	Tot pop (2009)	2004	2005	2006	2007	2008	2009		2004–2009			% non- White	
			O/E	O/E	O/E	O/E	O/E	O/E	pmp	O/E	LCL	UCL		pmp
South Central	Berkshire East	399,600	1.07	1.23	1.27	1.36	1.29	1.25	120	1.25	1.11	1.40	118	18.9
	Berkshire West	466,600	1.03	1.25	1.04	0.92	1.15	0.93	92	1.05	0.94	1.18	103	10.1
	<i>Buckinghamshire</i>	<i>508,700</i>	<i>0.76</i>	<i>0.63</i>	<i>0.67</i>	<i>0.77</i>	<i>0.79</i>	<i>0.94</i>	<i>102</i>	<i>0.76</i>	<i>0.67</i>	<i>0.86</i>	<i>82</i>	<i>10.4</i>
	<i>Hampshire</i>	<i>1,289,100</i>	<i>0.62</i>	<i>0.67</i>	<i>0.81</i>	<i>0.77</i>	<i>0.79</i>	<i>0.82</i>	<i>94</i>	<i>0.75</i>	<i>0.69</i>	<i>0.81</i>	<i>85</i>	<i>4.2</i>
	<i>Isle of Wight National Health Service</i>	<i>140,200</i>	<i>0.65</i>	<i>0.39</i>	<i>0.47</i>	<i>0.21</i>	<i>0.27</i>	<i>0.16</i>	<i>21</i>	<i>0.36</i>	<i>0.26</i>	<i>0.49</i>	<i>46</i>	<i>3.6</i>
	Milton Keynes	242,300	0.84	0.73	0.78	1.09	0.92	0.94	87	0.88	0.74	1.06	81	12.7
	<i>Oxfordshire</i>	<i>615,900</i>	<i>0.81</i>	<i>0.88</i>	<i>0.83</i>	<i>0.69</i>	<i>0.68</i>	<i>1.00</i>	<i>104</i>	<i>0.81</i>	<i>0.73</i>	<i>0.91</i>	<i>84</i>	<i>8.1</i>
	<i>Portsmouth City Teaching</i>	<i>203,400</i>	<i>0.69</i>	<i>0.65</i>	<i>0.72</i>	<i>0.93</i>	<i>0.88</i>	<i>0.68</i>	<i>64</i>	<i>0.76</i>	<i>0.62</i>	<i>0.94</i>	<i>70</i>	<i>8.0</i>
	Southampton City	237,000	0.71	0.66	0.77	0.86	1.18	0.79	72	0.83	0.69	1.00	75	11.4
South West	Bath and North East Somerset	177,500	1.30	1.06	0.90	1.02	0.71	1.28	141	1.04	0.87	1.24	113	5.8
	<i>Bournemouth and Poole Teaching</i>	<i>306,000</i>	<i>0.71</i>	<i>0.69</i>	<i>0.71</i>	<i>0.67</i>	<i>0.83</i>	<i>0.59</i>	<i>69</i>	<i>0.70</i>	<i>0.60</i>	<i>0.82</i>	<i>81</i>	<i>5.0</i>
	Bristol	433,000	1.30	1.14	1.33	1.02	1.48	1.31	120	1.26	1.13	1.42	115	11.6
	Cornwall and Isles of Scilly	532,900	1.36	0.70	1.06	0.88	0.87	1.01	128	0.98	0.88	1.08	122	2.8
	Devon	747,500	0.99	1.03	0.92	1.03	1.09	0.97	124	1.01	0.93	1.09	127	3.3
	<i>Dorset</i>	<i>404,200</i>	<i>0.73</i>	<i>0.56</i>	<i>0.52</i>	<i>0.77</i>	<i>0.86</i>	<i>0.68</i>	<i>94</i>	<i>0.69</i>	<i>0.60</i>	<i>0.78</i>	<i>93</i>	<i>3.5</i>
	Gloucestershire	588,700	0.90	0.85	1.00	0.88	0.64	1.14	132	0.90	0.81	1.00	103	4.7
	North Somerset	209,400	1.17	1.09	0.84	0.78	1.20	0.90	110	0.99	0.85	1.17	119	3.6
	Plymouth Teaching	256,700	1.09	1.09	1.85	1.72	1.01	1.18	121	1.33	1.16	1.52	135	4.4
	<i>Somerset</i>	<i>523,600</i>	<i>0.81</i>	<i>0.63</i>	<i>0.75</i>	<i>0.66</i>	<i>0.79</i>	<i>1.04</i>	<i>130</i>	<i>0.78</i>	<i>0.70</i>	<i>0.87</i>	<i>96</i>	<i>3.2</i>
	South Gloucestershire	262,300	1.01	1.23	0.96	0.90	0.90	0.63	69	0.94	0.80	1.09	100	5.0
	Swindon	203,700	1.07	0.70	0.80	0.53	1.10	1.11	113	0.88	0.73	1.06	88	7.1
	Torbay	133,900	1.26	0.95	0.73	0.85	1.65	0.69	90	1.02	0.84	1.23	131	3.1
<i>Wiltshire</i>	<i>456,000</i>	<i>0.57</i>	<i>0.79</i>	<i>0.65</i>	<i>0.62</i>	<i>0.83</i>	<i>0.78</i>	<i>90</i>	<i>0.71</i>	<i>0.62</i>	<i>0.81</i>	<i>80</i>	<i>3.4</i>	
Wales	Betsi Cadwaladr University	679,000	1.04	1.38	1.11	1.13	0.97	0.87	105	1.08	0.99	1.18	128	1.0
	Powys Teaching	131,700	0.82	1.19	0.79	1.09	0.92	1.04	137	0.97	0.80	1.18	127	0.9
	Hywel Dda	374,800	1.02	1.06	0.86	1.11	1.15	0.80	99	1.00	0.89	1.12	122	1.0
	Abertawe Bro Morgannwg Univ.	502,300	1.25	1.06	1.41	1.50	1.23	1.57	179	1.34	1.22	1.47	151	1.6
	Cwm Taf	290,500	1.77	1.46	1.72	1.59	1.09	1.36	148	1.50	1.33	1.68	161	1.1
	Aneurin Bevan	560,600	1.03	1.19	1.11	1.34	0.96	0.92	103	1.09	0.99	1.20	121	1.9
	Cardiff and Vale University	461,000	1.39	1.16	1.27	1.40	1.07	1.24	121	1.25	1.13	1.39	121	6.7
Scotland	Ayrshire & Arran	367,000	0.91	1.16	1.30	0.84	0.87	0.86	101	0.99	0.88	1.12	116	0.7
	Borders	113,100	1.41	0.73	0.83	1.12	1.06	1.00	124	1.02	0.82	1.26	125	0.6
	Dumfries and Galloway	148,200	1.03	1.23	1.06	0.82	1.08	1.04	135	1.04	0.87	1.25	134	0.7
	Fife	363,400	1.00	1.41	1.00	0.92	0.97	1.08	121	1.06	0.94	1.20	118	1.3
	Forth Valley	291,400	0.69	1.00	0.88	1.30	0.78	1.07	117	0.96	0.83	1.11	104	1.1
	Grampian	545,400	1.19	1.03	0.84	0.89	0.90	0.83	92	0.94	0.85	1.05	103	1.6
	Greater Glasgow & Clyde	1,199,000	1.27	1.17	1.11	1.06	0.95	0.99	103	1.09	1.02	1.17	112	3.4
	Highland	311,000	1.13	1.47	0.87	0.88	0.76	0.71	87	0.96	0.84	1.10	116	0.8
	<i>Lanarkshire</i>	<i>562,500</i>	<i>0.95</i>	<i>0.77</i>	<i>0.95</i>	<i>0.87</i>	<i>0.74</i>	<i>0.87</i>	<i>92</i>	<i>0.86</i>	<i>0.76</i>	<i>0.96</i>	<i>91</i>	<i>1.2</i>
	Lothian	826,200	1.01	1.03	1.03	0.84	0.96	0.82	84	0.95	0.87	1.04	96	2.8
	Orkney	20,000	0.45	1.27	0.80	0.41	1.22	1.24	150	0.90	0.52	1.55	108	0.4
	Shetland	22,000	1.35	0.42	0.00	1.61	0.00	0.82	91	0.69	0.37	1.28	76	1.1
	Tayside	399,600	1.31	1.38	1.00	1.27	1.14	1.28	150	1.23	1.10	1.36	142	1.9
	Western Isles	26,100	1.30	0.00	0.87	1.76	0.29	0.89	115	0.85	0.53	1.37	109	0.6
	N Ireland	Belfast	334,600		1.58	1.59	1.28	1.01	0.70	69	1.23	1.07	1.41	123
Northern		458,300		1.59	1.21	1.29	1.10	0.75	76	1.19	1.06	1.34	121	0.6
Southern		354,000		1.25	0.62	0.60	1.02	0.83	76	0.86	0.73	1.01	80	0.4
South Eastern		344,200		1.25	0.96	0.89	0.84	0.62	64	0.91	0.78	1.06	94	0.7
Western		297,900		0.96	1.26	1.06	0.81	1.19	111	1.06	0.90	1.24	99	0.5

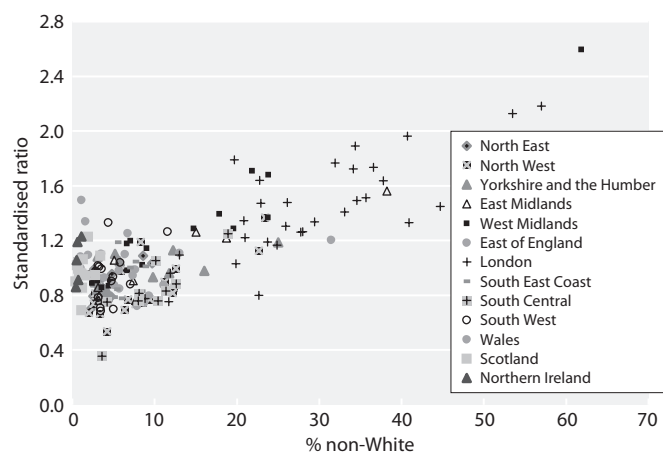


Fig. 1.2. Standardised ratio (2004–2009) by percentage non-White

which gained catchment population); there are also some pre-emptive transplant patients who have been allocated to the transplant centre. Estimation of a centre’s catchment population therefore remains an inexact science and these figures should be regarded as indicative only.

For those centres reporting continuously since 2004, only England has seen an increase in numbers of accepted patients (9.6%), whilst there was a fall for Scotland. For Wales there was an increase and then a fall again resulting in a negligible overall change since 2004. Northern Ireland could not be included in the analysis as the UKRR only received data from 2005 onwards. The overall number of accepted patients in the UK remained relatively stable between 2008 and 2009.

Table 1.3. Number of new patients accepted by individual renal centres reporting to the UK Renal Registry 2004–2009

Country	Centre	Year						Catchment population (millions)	2009 rate pmp	(95% CI)
		2004	2005	2006	2007	2008	2009			
England	B Heart	106	121	115	101	106	99	0.72	137	(110–164)
	B QEH	197	199	187	225	268	253	1.62	156	(137–175)
	Basldn	46	32	45	39	40	29	0.41	71	(45–97)
	Bradfd	61	67	50	88	63	54	0.58	93	(68–118)
	Brightn	119	112	130	119	121	125	1.20	105	(86–123)
	Bristol	164	175	176	157	176	157	1.57	100	(84–116)
	Camb	107	111	155	127	113	138	1.27	109	(91–127)
	Carlis	29	31	27	26	30	24	0.31	76	(46–107)
	Carsh	173	183	186	196	216	207	1.92	108	(93–123)
	Chelms	50	40	49	52	34	39	0.47	84	(57–110)
	Colchr*	n/a	n/a	n/a	n/a	60	15	*	*	*
	Covnt	80	85	105	112	115	119	0.87	137	(112–161)
	Derby	67	72	69	63	92	78	0.65	120	(94–147)
	Donc	n/a	n/a	n/a	18	26	41	*	*	*
	Dorset	61	49	53	64	85	79	0.73	109	(85–133)
	Dudley	54	38	45	39	47	66	0.42	159	(121–197)
	Exeter	109	111	106	125	135	140	1.03	136	(114–159)
	Glouc	54	61	72	58	47	79	0.58	137	(107–168)
	Hull	108	127	105	99	113	102	0.99	103	(83–123)
	Ipswi*	46	59	42	41	38	38	0.56	68*	(46–89)
	Kent				175	140	128	1.16	110	(91–129)
	L Barts	186	185	189	214	206	234	1.68	139	(121–157)
	L Guys	122	146	153	165	166	179	1.15	155	(132–178)
	L Kings	114	134	112	125	151	127	0.97	131	(108–154)
	L Rfree		132	194	184	173	156	1.50	104	(87–120)
	L St.G				96	100	108	0.59	184	(150–219)
	L West	286	308	314	279	318	359	2.23	161	(145–178)
	Leeds	185	171	180	129	161	156	1.65	95	(80–110)
	Leic	163	226	243	245	242	222	2.32	96	(83–108)
	Liv Ain	n/a	29	35	36	42	36	0.29	124	(84–165)
	Liv RI	128	138	141	112	102	114	1.20	95	(78–113)
	M Hope	112	112	131	121	141	118	1.42	83	(68–98)

Table 1.3. Number of new patients accepted by individual renal centres reporting to the UK Renal Registry 2004–2009

Country	Centre	Year						Catchment population (millions)	2009 rate pmp	(95% CI)
		2004	2005	2006	2007	2008	2009			
England	M RI				161	134	150	1.47	102	(86–118)
	Middlbr	101	84	109	99	93	95	1.01	94	(75–113)
	Newc	107	112	106	106	98	100	1.11	90	(73–108)
	Norwch	94	118	112	111	89	51	0.79	64	(47–82)
	Nottm	107	145	137	129	116	124	1.14	109	(90–128)
	Oxford	170	154	160	144	148	171	1.68	102	(87–117)
	Plymth	63	60	93	76	69	60	0.48	126	(94–158)
	Ports	119	149	175	157	170	151	2.00	75	(63–87)
	Prestn	85	124	122	132	113	147	1.51	97	(82–113)
	Redng	67	89	86	95	105	98	0.80	122	(98–146)
	Sheff	167	158	168	166	180	142	1.49	95	(80–111)
	Shrew	55	42	54	58	61	47	0.39	120	(86–154)
	Stevng	84	92	122	89	103	97	1.09	89	(71–107)
	Sthend	41	34	50	35	36	23	0.32	73	(43–103)
	Stoke				87	82	109	0.90	122	(99–144)
	Sund	52	59	58	62	45	64	0.59	109	(82–135)
	Truro	68	32	52	45	40	51	0.41	124	(90–158)
	Wirral	67	60	52	53	42	62	0.52	119	(89–149)
	Wolve	105	95	85	68	88	66	0.61	109	(83–135)
	York	50	45	48	38	37	46	0.51	91	(65–117)
N Ireland	Antrim		42	33	37	40	22	0.30	73	(43–104)
	Belfast		130	119	89	69	62	0.55	112	(84–140)
	Derry			3	8	6	19	0.18	108	(59–156)
	Newry		28	13	15	21	21	0.28	74	(42–106)
	Tyrone		24	29	22	25	20	0.18	113	(64–163)
Ulster		9	8	16	14	14	0.30	47	(22–71)	
Scotland	Abrdn	69	62	53	56	56	53			
	Airdrie	51	39	55	50	39	47			
	D & Gall	16	21	21	17	19	17			
	Dundee	62	75	51	62	64	69			
	Dunfn	29	44	37	37	30	28			
	Edinb	97	99	106	95	103	94			
	Glasgw	186	200	187	189	159	177			
	Inverns	33	44	27	26	25	19			
Klmarnk	29	44	57	36	34	36				
Wales	Bangor	36	40	42	36	41	30	0.25	120	(77–163)
	Cardff	183	184	206	222	152	180	1.45	124	(106–142)
	Clwyd	13	26	18	22	15	17	0.20	85	(45–125)
	Swanse	95	100	116	126	124	113	0.80	141	(115–167)
	Wrexm	29	42	26	27	21	19	0.30	63	(35–92)
England		4,532	4,907	5,199	5,541	5,717	5,673			
N Ireland			233	205	187	175	158			
Scotland		572	628	594	568	529	540			
Wales		356	391	407	433	352	359			
UK		5,460	6,159	6,405	6,729	6,773	6,730			
Including only centres reporting continuously 2004–2009								% change since 2004		
England		4,532	4,774	5,004	4,820	5,001	4,966	9.6		
Scotland		572	628	594	568	529	540	–5.6		
Wales		356	392	408	433	353	359	0.8		
UK		5,460	5,794	6,006	5,821	5,883	5,865	7.4		

Blank cells—no data returned to the registry for that year

n/a – renal centre not yet operational

* Colchester and Doncaster were still expanding and so catchment populations could not be calculated

2 Demographics and clinical characteristics of patients accepted onto RRT

Methods

Age, gender, primary renal disease, ethnic origin and modality were examined for patients starting RRT.

Some centres electronically upload ethnicity coding to their renal information technology (IT) system from the hospital Patient Administration Systems (PAS). Ethnicity coding in these PAS systems is based on self-reported ethnicity and uses a different coding system [2]. For the remaining centres, ethnicity coding is performed by clinical staff and recorded directly into the renal IT system (using a variety of coding systems). For all these analyses, data on ethnic origin were grouped into Whites, South Asians, Blacks, Chinese and Others. The details of regrouping of the PAS codes into the above ethnic categories are provided in appendix H: ethnicity and ERA-EDTA coding (www.renalreg.com/Report-Area/Report2010/appendix-H.pdf). Chi-squared, Fisher's exact, ANOVA and Kruskal Wallis tests were used as appropriate to test for significant differences between groups.

Estimated glomerular filtration rate (eGFR) at the start of RRT was studied amongst patients with eGFR data within 14 days before the start of RRT. The eGFR was calculated using the abbreviated 4 variable MDRD study equation [3]. For the purpose of the eGFR calculation, patients who had missing ethnicity but a valid serum creatinine measurement were classed as Whites. The eGFR values were log transformed in order to normalise the data. Patients with an eGFR >20ml/min/1.73 m² were excluded from the eGFR analyses due to concerns about possible data extraction errors.

Results

Age

Incidence rates within the UK have levelled off in the last three years. (figure 1.3).

Figure 1.4 shows RRT incidence rates for 2009 by age band. For men, the peak is in the 80–84 age band, for women 75–79, and overall 75–79 (the high male peak at 80–84 does not shift the overall figure as there are relatively few people in this age band).

In 2009, the median age of patients starting renal replacement therapy was 64.8 years (table 1.4) and this has changed little over the last six years (data not shown). The median age of patients starting in England was lower than that of the other three countries of the United Kingdom possibly reflecting the larger ethnic minority population in England. The median age of incident UK non-White patients was considerably lower at 57.1 years. This reflects the younger age distribution of ethnic minority populations in general compared with the White population (5.1% of ethnic minorities

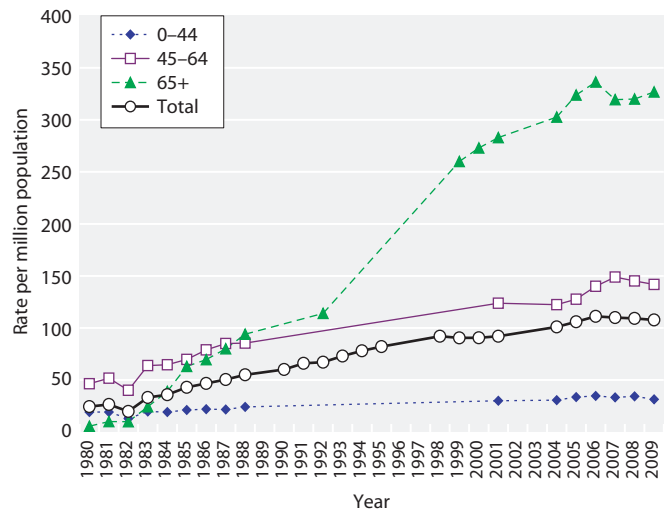


Fig. 1.3. UK incident RRT rates between 1980 and 2009

were over 65 years old compared to 16.9% of whites) [4] and the higher rates of diabetes in South Asian and Black populations.

Figure 1.5 shows that the 55–64 age band contained the most patients starting on peritoneal dialysis whereas the 65–74 age band contained the most patients starting on haemodialysis.

There were large differences between centres in the median age of incident patients (figure 1.6). In part this reflects differences in the age and ethnic structure of the catchment populations and chance fluctuations, particularly in small centres. The median age of patients treated at transplant centres was 63.0 years (IQR 49.0, 74.2) and at non-transplanting centres 66.3 years (IQR 52.6, 75.9) ($p < 0.0001$).

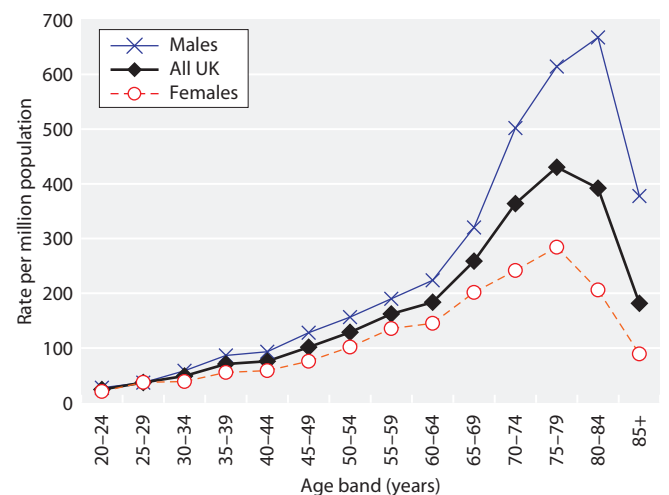


Fig. 1.4. Incidence rates by age and gender in 2009

Table 1.4. Median age of patients starting renal replacement therapy in 2009 by country

Country	Lower quartile	Median	Upper quartile
England	50.5	64.3	74.8
N Ireland	49.7	68.3	75.4
Scotland	51.5	65.5	74.9
Wales	54.8	68.6	77.0
UK	50.8	64.8	75.1

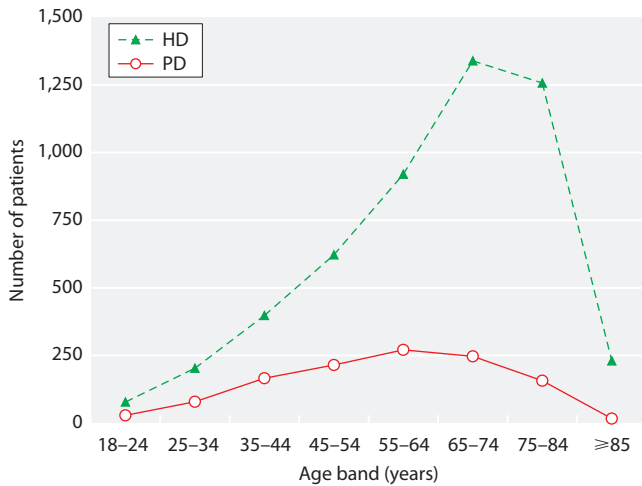


Fig. 1.5. Number of incident patients in 2009, by age band and initial dialysis modality

Gender

As in previous years, more men than women started RRT in all age groups and this became more prominent with older age (figures 1.4 and 1.7).

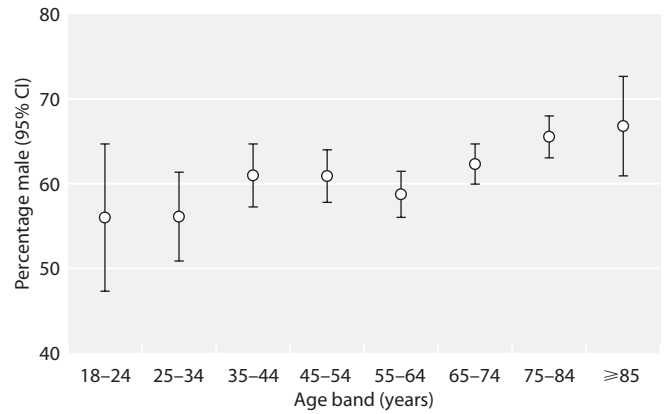


Fig. 1.7. Percentage of total patients starting RRT who are male, by age band in 2009

In the UK as a whole, 61.7% of the 2009 incident cohort were male.

Ethnicity

This year, 51 centres returned ethnicity data that were 50% or more complete (table 1.5). Only 27 of these centres provided ethnicity data for 90% or more of their incident patients. Ethnicity is not a mandatory data item for the Scottish Renal Registry and Scotland has not been included in the table. The low completeness for some centres means results should be interpreted with caution. There was great variation between centres with respect to the ethnic mix of incident patients ranging from 0% ethnic minorities in Dorset, Wirral, Carlisle, Southend, Tyrone, Ulster, Derry and Wrexham to over 50% in London Barts and London Royal Free.

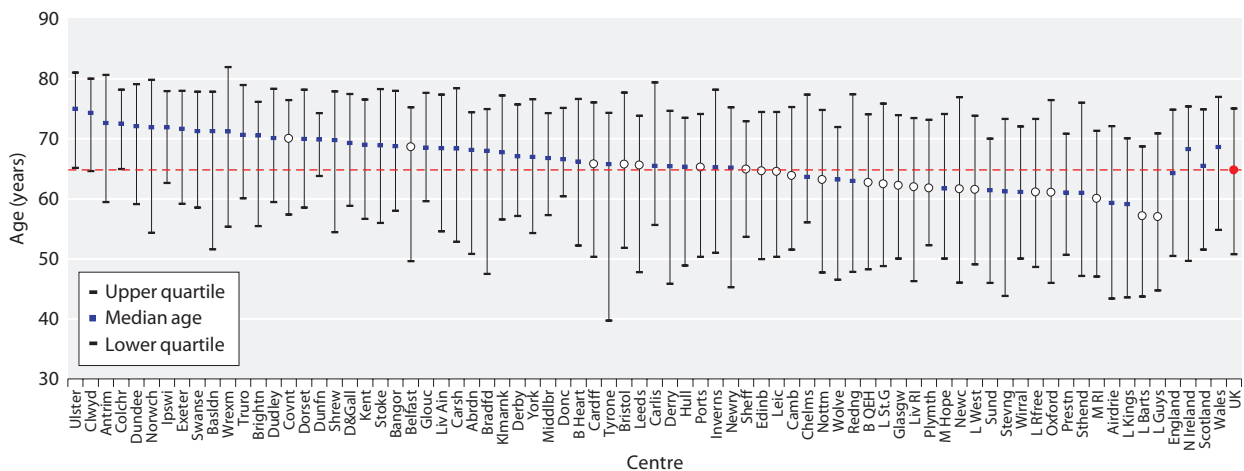


Fig. 1.6. Median age of new patients in each centre in 2009

A white point indicates a transplant centre

Table 1.5. Percentage of incident patients (2009) in different ethnic groups by centre

Country	Centre	% completion	N with data	Percentage in each ethnic group				
				White	Black	South Asian	Chinese	Other
England	Dorset	100.0	70	100.0				
	Newc	100.0	100	94.0	2.0	1.0		3.0
	Nottm	100.0	124	90.3	4.0	4.0		1.6
	M Hope	100.0	118	86.4	0.8	11.0		1.7
	Stevng	100.0	97	74.2	12.4	12.4		1.0
	Redng	100.0	98	70.4	6.1	22.4		1.0
	B Heart	99.0	98	74.5	7.1	18.4		
	B QEH	98.8	250	66.0	10.0	20.4		3.6
	Wolve	98.5	65	73.8	6.2	20.0		
	Sund	98.4	63	95.2	1.6	3.2		
	Wirral	98.4	61	100.0				
	Oxford	97.1	166	81.3	4.8	9.0	2.4	2.4
	L Barts	97.0	227	37.0	25.6	28.2	2.6	6.6
	Bristol	96.8	152	87.5	3.3	3.9	2.0	3.3
	Basldn	96.2	25	92.0	8.0			
	L Kings	96.1	122	58.2	31.1	8.2		2.5
	Carlis	95.8	23	100.0				
	Exeter	95.7	134	99.3	0.7			
	Camb	95.7	132	95.5	1.5	0.8	0.8	1.5
	Leic	95.0	211	74.9	4.7	18.5	0.9	0.9
	Donc	95.0	38	94.7		5.3		
	Leeds	94.9	148	83.8	4.7	10.8		0.7
	M RI	94.7	142	83.1	6.3	10.6		
	Shrew	93.6	44	97.7	2.3			
	York	93.5	43	97.7		2.3		
	Dudley	92.4	61	86.9	1.6	11.5		
	Bradfd	90.7	49	75.5	2.0	22.4		
	Covnt	89.9	107	81.3	5.6	13.1		
	L Rfree	89.7	140	49.3	17.1	21.4		12.1
	Middlbr	89.5	85	97.6		2.4		
	Kent	88.3	113	92.0	0.9	3.5	1.8	1.8
	Ports	86.8	131	91.6	2.3	2.3	0.8	3.1
	Carsh	85.0	176	80.1	6.3	8.5	2.8	2.3
	Derby	84.6	66	87.9	9.1	3.0		
L St.G	83.3	90	61.1	22.2	8.9	1.1	6.7	
Sthend	82.6	19	100.0					
Chelms	76.3	29	86.2	3.4		3.4	6.9	
Prestn	75.5	111	91.9	0.9	6.3		0.9	
L Guys	62.0	111	57.7	42.3				
Liv RI	58.8	67	85.1	6.0	1.5	7.5		
Brightn	58.3	28	96.4	3.6				
Norwch	54.2	26	96.2	3.8				
Sheff	52.1	74	91.9	2.7	5.4			
N Ireland	Tyrone	100.0	19	100.0				
	Ulster	100.0	13	100.0				
	Newry	100.0	20	95.0				5.0
	Antrim	100.0	19	94.7		5.3		
	Derry	93.8	15	100.0				
Wales	Belfast	75.5	40	97.5				2.5
	Wrexm	100.0	19	100.0				
	Swanse	100.0	113	98.2		1.8		
England		77.6	4,331	79.8	7.8	9.6	0.8	2.0
N Ireland		90.0	126	97.6		0.8		1.6
Wales		63.0	226	94.2	0.9	4.0	0.9	
UK		70.8	4,685	80.9	7.3	9.1	0.7	1.9

Centres with less than 50% data completeness are not shown, but are included national averages

Primary renal diagnosis

The distribution of primary renal disease (PRD) by centre is shown in table 1.6. Data for PRD were missing in 9.9% of patients and there remained a marked difference between centres in completeness of data returns. Thirty centres provided data on all incident patients, whilst seven centres had more than 25% data missing for PRD. For the centres with >25% missing data, the percentages in the other diagnostic categories have not been shown in table 1.6.

The Registry continues to be concerned about centres with apparently very high data completeness for PRD but also very high rates of 'uncertain' diagnoses (EDTA codes 00 and 10). It is accepted that there will inevitably be a number of patients with uncertain aetiology and that the proportion of these patients will vary between clinicians and centres as the definitions of renovascular disease, hypertensive nephropathy and chronic glomerulonephritis without tissue diagnosis remain relatively subjective. The situation has improved

from last year when diagnosis data for five centres was not used. This year data was not used from two centres which had diagnosis 'unknown' for over 50% of their incident patients with non-missing data. As the numbers with the specific PRDs are likely to be falsely low in these centres, the breakdown into these categories has not been shown in table 1.6. These centres have also been excluded from the other analyses where PRD is used to stratify analyses. A third centre had just over 50% with diagnosis 'unknown' but as this was a smaller centre it was possible that this was a chance finding and that centre has been kept in the analyses.

For the non-excluded centres, the overall UK percentage with uncertain aetiology (20.7%) is the same as for 2008 incident patients and again, there is great variation between centres. Some of this variation is likely to reflect the lack of a clear definition of certain diagnostic categories e.g. hypertensive renal disease and renal vascular disease; some may result from differences between

Table 1.6. Percentage distribution of primary renal diagnosis by centre in the 2009 incident cohort

Country	Centre	Data not available	N with data	Uncertain aetiology*	Diabetes	Glomerulo-nephritis	Hyper-tension	Other	Polycystic kidney	Pyelo-nephritis	Renal vascular disease
England	B Heart	1.0	98	33.7	29.6	8.2	2.0	15.3	4.1	5.1	2.0
	B QEH	7.1	235	12.3	26.8	14.9	9.8	16.2	6.8	6.4	6.8
	Basldn	3.9	25	16.0	16.0	16.0	0.0	16.0	4.0	12.0	20.0
	Bradfd	1.9	53	13.2	22.6	17.0	15.1	13.2	3.8	3.8	11.3
	Brightn	4.2	46	41.3	19.6	10.9	2.2	10.9	4.4	4.4	6.5
	Bristol	11.5	139	24.5	18.7	15.1	6.5	20.9	6.5	6.5	1.4
	Camb	0.7	137	52.6							
	Carlis	0.0	24	8.3	20.8	8.3	4.2	20.8	12.5	0.0	25.0
	Carsh	4.8	197	33.0	13.2	7.6	8.6	16.8	6.1	6.6	8.1
	Chelms	2.6	37	35.1	16.2	8.1	2.7	16.2	8.1	5.4	8.1
	Colchr	93.3	1								
	Covnt	7.6	110	16.4	25.5	9.1	10.9	11.8	4.6	9.1	12.7
	Derby	0.0	78	18.0	29.5	11.5	3.9	24.4	2.6	5.1	5.1
	Donc	0.0	40	35.0	20.0	5.0	10.0	12.5	5.0	5.0	7.5
	Dorset	0.0	70	15.7	24.3	12.9	7.1	7.1	11.4	12.9	8.6
	Dudley	0.0	66	33.3	21.2	4.6	7.6	19.7	6.1	4.6	3.0
	Exeter	52.9	66								
	Glouc	1.3	78	30.8	9.0	15.4	2.6	19.2	6.4	10.3	6.4
	Hull	31.4	70								
	Ipswi	2.6	37	40.5	21.6	10.8	0.0	8.1	16.2	2.7	0.0
	Kent	0.8	127	25.2	21.3	12.6	3.9	12.6	3.9	12.6	7.9
	L Barts	3.4	226	16.8	31.9	11.5	14.2	12.4	5.3	6.2	1.8
	L Guys	1.1	177	9.0	26.0	18.6	11.9	18.6	4.0	8.5	3.4
	L Kings	0.0	127	11.0	36.2	10.2	15.8	13.4	5.5	5.5	2.4
	L Rfree	99.4	1								
	L St.G	20.4	86	14.0	30.2	15.1	8.1	16.3	9.3	2.3	4.7
L West	0.0	359	17.0	39.8	11.4	3.9	13.9	5.3	4.7	3.9	
Leeds	16.0	131	21.4	20.6	12.2	9.2	19.1	3.8	6.9	6.9	

Table 1.6. Continued

Country	Centre	Data not available	N with data	Uncertain aetiology*	Diabetes	Glomerulo-nephritis	Hyper-tension	Other	Polycystic kidney	Pyelo-nephritis	Renal vascular disease
England	Leic	12.2	195	26.2	21.0	9.7	4.6	9.7	10.8	12.3	5.6
	Liv Ain	8.3	33	51.5	27.3	3.0	3.0	9.1	0.0	3.0	3.0
	Liv RI	0.0	114	54.4							
	M Hope	5.9	111	27.9	33.3	11.7	2.7	5.4	6.3	9.9	2.7
	M RI	12.7	131	17.6	22.9	6.1	10.7	23.7	9.9	6.1	3.1
	Middlbr	10.5	85	25.9	22.4	12.9	7.1	21.2	5.9	1.2	3.5
	Newc	9.0	91	17.6	19.8	11.0	5.5	20.9	7.7	12.1	5.5
	Norwch	0.0	48	25.0	18.8	12.5	6.3	14.6	4.2	6.3	12.5
	Nottm	0.0	124	19.4	18.6	8.1	5.7	27.4	10.5	6.5	4.0
	Oxford	5.9	161	23.0	21.1	13.0	3.7	16.8	5.6	11.2	5.6
	Plymth	8.3	55	10.9	30.9	16.4	1.8	12.7	12.7	10.9	3.6
	Ports	0.7	150	17.3	24.7	6.0	14.7	19.3	8.0	8.0	2.0
	Prestn	6.1	138	11.6	27.5	17.4	12.3	13.0	5.1	8.7	4.4
	Redng	1.0	97	15.5	30.9	14.4	3.1	20.6	6.2	4.1	5.2
	Sheff	2.1	139	25.9	19.4	8.6	5.8	13.7	11.5	10.1	5.0
	Shrew	4.3	45	28.9	22.2	2.2	6.7	17.8	13.3	4.4	4.4
	Stevng	0.0	97	28.9	29.9	12.4	3.1	9.3	5.2	8.3	3.1
	Sthend	0.0	23	21.7	26.1	13.0	4.4	8.7	0.0	13.0	13.0
	Stoke	0.9	108	8.3	19.4	16.7	14.8	14.8	5.6	9.3	11.1
	Sund	0.0	64	9.4	26.6	10.9	17.2	14.1	12.5	0.0	9.4
Truro	54.9	23									
Wirral	82.3	11									
Wolve	1.5	65	20.0	27.7	13.9	6.2	16.9	1.5	6.2	7.7	
York	28.3	33									
N Ireland	Antrim	0.0	19	42.1	21.1	15.8	0.0	10.5	0.0	0.0	10.5
	Belfast	0.0	53	18.9	24.5	9.4	7.6	13.2	5.7	9.4	11.3
	Derry	0.0	16	12.5	12.5	6.3	12.5	18.8	12.5	12.5	12.5
	Newry	0.0	20	30.0	30.0	0.0	5.0	20.0	10.0	0.0	5.0
	Tyrone	0.0	19	5.3	36.8	5.3	5.3	21.1	15.8	10.5	0.0
Ulster	0.0	13	0.0	30.8	23.1	7.7	0.0	0.0	15.4	23.1	
Scotland	Abrdn	1.9	52	3.9	25.0	17.3	3.9	25.0	3.9	19.2	1.9
	Airdrie	0.0	47	19.2	21.3	19.2	0.0	19.2	8.5	8.5	4.3
	D&Gall	0.0	17	11.8	35.3	5.9	23.5	5.9	5.9	5.9	5.9
	Dundee	0.0	69	13.0	23.2	11.6	8.7	10.1	8.7	13.0	11.6
	Dunfn	0.0	28	21.4	32.1	10.7	0.0	7.1	3.6	10.7	14.3
	Edinb	0.0	94	19.2	21.3	10.6	5.3	19.2	8.5	5.3	10.6
	Glasgw	2.3	173	19.7	27.2	10.4	0.6	17.9	9.3	5.8	9.3
	Inverns	0.0	19	26.3	15.8	15.8	5.3	26.3	0.0	10.5	0.0
Klmarnk	0.0	36	19.4	22.2	11.1	16.7	11.1	5.6	5.6	8.3	
Wales	Bangor	0.0	30	36.7	23.3	0.0	6.7	13.3	3.3	6.7	10.0
	Clwyd	0.0	17	35.3	23.5	5.9	5.9	11.8	0.0	11.8	5.9
	Cardff	17.2	149	31.5	30.9	12.8	2.7	8.7	7.4	4.7	1.3
	Swanse	0.0	113	16.8	21.2	6.2	0.9	16.8	8.9	9.7	19.5
	Wrexm	0.0	19	21.1	21.1	10.5	0.0	21.1	0.0	10.5	15.8
England		11.2	4,982	20.7	25.3	11.7	7.5	15.6	6.6	7.2	5.5
N Ireland		0.0	140	19.3	25.7	9.3	6.4	14.3	7.1	7.9	10.0
Scotland		0.9	535	17.2	24.7	12.2	4.7	16.8	7.5	8.6	8.4
Wales		8.6	328	26.5	25.9	8.8	2.4	12.8	6.7	7.3	9.5
UK		9.9	5,985	20.7	25.3	11.5	6.9	15.5	6.7	7.3	6.1

* includes presumed glomerulonephritis not biopsy proven

The percentage in each category has been calculated after excluding those patients with data not available

For those centres with >25% missing primary diagnoses, the percentages in the other diagnostic categories have not been calculated

For those centres judged to have high % uncertain aetiology, the percentages in the other diagnostic categories have not been calculated and the centres have not been included in the country and UK averages

Table 1.7. Percentage distribution of primary renal diagnosis by age, plus gender ratio, in the 2009 incident cohort

Diagnosis	Age <65	Age ≥65	All patients	M:F
Diabetes	27.3	23.2	25.3	1.5
Glomerulonephritis	16.0	6.9	11.5	2.2
Pyelonephritis	7.1	7.6	7.3	1.4
Hypertension	6.0	7.9	6.9	2.0
Polycystic kidney	10.2	3.1	6.7	0.8
Renal vascular disease	2.0	10.4	6.1	2.0
Other	16.5	14.4	15.5	1.4
Uncertain aetiology*	15.0	26.6	20.7	1.8

* includes presumed glomerulonephritis not biopsy proven

Percentages are of all patients with data for PRD, however 9.5% of under 65 year olds and 10.4% of over 65 year olds had no data for PRD and are therefore not included in this table

centres in attitudes to the degree of certainty required to record other diagnoses.

There were no missing data for Northern Ireland and only 0.9% for Scotland, whilst England and Wales had 11.2% and 8.6% respectively. This was a change from last year when Scotland had 13.5% missing data and Wales had 1.5%. The overall percentage missing is down from 10.8 for 2008 incident patients to 9.9% for 2009.

The overall distribution of PRDs is shown in table 1.7. Diabetic nephropathy was the most common specific renal diagnosis in both the under and over 65 year age groups, accounting for 25% of all (non-missing) incident diagnoses. Biopsy proven glomerulonephritis and autosomal dominant polycystic kidney disease (ADPKD) made up higher proportions of the younger than the older incident cohorts (16% vs. 7% and 10% vs. 3% respectively), whilst renal vascular disease was much more common in older incident patients (10% vs. 2%). It was perhaps not surprising that uncertainty about

the underlying diagnosis was also more common in the older cohort (27% vs. 15%). The proportion of each major diagnosis has changed little in the last few years.

For all primary renal diagnoses except ADPKD, the male to female ratio was 1.4 or greater. This gender difference may relate to factors such as hypertension, atheroma and renal vascular disease, which are more common in males and more common with increasing age. These factors may influence the rate of progression of renal failure.

Table 1.8 shows the incidence rates for each PRD per million population in the 2009 cohort by country. As there are some missing data, the rates for each diagnosis will be underestimates.

First established treatment modality

The first treatment recorded, irrespective of any later change, was haemodialysis (HD) in 76.3% of patients, peritoneal dialysis (PD) in 17.9% and pre-emptive

Table 1.8. Primary renal diagnosis incidence rates per million population (unadjusted) 2009

Diagnosis	England	N Ireland	Scotland	Wales	UK
Diabetes	24.2	20.1	25.4	28.3	24.4
Glomerulonephritis	11.2	7.3	12.5	9.7	11.1
Pyelonephritis	6.9	6.1	8.9	8.0	7.1
Hypertension	7.2	5.0	4.8	2.7	6.7
Polycystic kidney	6.3	5.6	7.7	7.3	6.4
Renal vascular disease	5.3	7.8	8.7	10.3	5.9
Other	14.9	11.2	17.3	14.0	15.0
Uncertain aetiology*	19.9	15.1	17.7	29.0	20.0
Data not available	12.1	0.0	1.0	10.3	10.7
All	108**	78**	104	120	107

* includes presumed glomerulonephritis not biopsy proven

** as mentioned earlier there are 35 patients who were only included in tables 1.1 and 1.3. As a result the rates here are slightly too low for England and markedly too low for N Ireland

transplant in 5.9%. The proportion with HD as the first treatment modality has remained relatively stable over the last few years, though it has increased considerably since the late 1990s (58% of incident patients in 1998). The frequency of PD usage has fallen whilst pre-emptive transplantation has risen. This may be as a consequence of national initiatives to encourage live donation and pre-emptive transplantation thus improving pre-emptive transplant rates in the same group of younger, less comorbid patients approaching ERF who traditionally started on PD.

Many patients, especially those presenting late, undergo a brief period of HD before switches to other modalities are, or can be, considered. Hence, the established modality at 90 days is more representative of the elective first modality. By 90 days, 6.3% of the 2009 incident patients had died and a further 0.2% had stopped treatment, leaving 93.5% of the original cohort on RRT. Table 1.9 shows the percentages on each treatment at 90 days both as percentages of all of those starting and then of those still on treatment at 90 days.

For this analysis, the incident cohort from 1/10/2008 to 31/09/2009 was used so that follow up to 90 days was available for all patients. Expressed as a percentage of the whole incident cohort, 69.1% were on HD at 90 days, 17.7% were on PD and 6.7% had received a transplant. Expressed as a percentage of those still receiving RRT at 90 days, 73.9% were on HD, 18.9% on PD and 7.2% had received a transplant. Figure 1.8 shows these percentages with the HD patients further subdivided. Of those still on RRT at 90 days, only 0.7% were receiving home haemodialysis, with the vast majority of HD patients on centre-based treatment either in main hospital centres (47.4% of total) or satellite units (25.8%). Although Northern Ireland continued to have a lower percentage of all patients on PD at 90 days compared with other parts of the UK, the percentages in the 3 other countries have all continued to fall, most dramatically in Wales (24.6% in 2007 to 20.9% in 2008 to 15.9% in 2009) and Scotland (21.3% to 18.1% to 13.5%). This comes at a time when the Department of Health is trying to increase the proportion of patients on home therapies.

Table 1.9. RRT modality at 90 days by centre (incident cohort 1/10/2008 to 31/09/2009)

Country	Centre	N	Percentage of patients who started RRT					Percentage of patients still on RRT at 90 days		
			HD	PD	Tx	Stopped treatment	Died	HD	PD	Tx
England	B Heart	96	79.2	12.5	3.1	0.0	5.2	83.5	13.2	3.3
	B QEH	260	71.9	17.3	7.3	0.0	3.5	74.5	17.9	7.6
	Basldn	33	72.7	12.1	3.0	6.1	6.1	82.8	13.8	3.5
	Bradfd	58	65.5	24.1	0.0	0.0	10.3	73.1	26.9	0.0
	Brightn*	85	54.1	31.8	8.2	0.0	5.9	57.5	33.8	8.8
	Bristol	158	65.8	17.1	7.6	0.0	9.5	72.7	18.9	8.4
	Camb	144	75.0	6.3	13.9	0.0	4.9	78.8	6.6	14.6
	Carlisle	21	76.2	19.1	4.8	0.0	0.0	76.2	19.1	4.8
	Carsh	213	73.7	16.0	1.4	0.0	8.9	80.9	17.5	1.6
	Chelms	35	65.7	31.4	0.0	2.9	0.0	67.7	32.4	0.0
	Colchr	29	89.7	3.5	0.0	0.0	6.9	96.3	3.7	0.0
	Covnt	124	63.7	25.0	4.8	0.0	6.5	68.1	26.7	5.2
	Derby	75	64.0	30.7	0.0	0.0	5.3	67.6	32.4	0.0
	Donc	35	65.7	20.0	0.0	0.0	14.3	76.7	23.3	0.0
	Dorset	85	65.9	18.8	5.9	0.0	9.4	72.7	20.8	6.5
	Dudley	65	60.0	24.6	0.0	0.0	15.4	70.9	29.1	0.0
	Exeter	136	72.1	16.9	2.2	0.0	8.8	79.0	18.6	2.4
	Glouc	79	72.2	20.3	1.3	0.0	6.3	77.0	21.6	1.4
	Hull	100	75.0	14.0	2.0	0.0	9.0	82.4	15.4	2.2
	Ipswi	39	71.8	23.1	5.1	0.0	0.0	71.8	23.1	5.1
Kent	138	66.7	16.7	8.7	1.5	6.5	72.4	18.1	9.5	
L Barts	227	66.5	26.4	5.3	0.0	1.8	67.7	26.9	5.4	
L Guys	163	69.3	6.8	20.9	0.0	3.1	71.5	7.0	21.5	
L Kings	134	75.4	15.7	5.2	0.0	3.7	78.3	16.3	5.4	
L Rfree	167	74.3	10.2	12.6	0.0	3.0	76.5	10.5	13.0	
L St.G	118	63.6	19.5	12.7	0.0	4.2	66.4	20.4	13.3	

Table 1.9. Continued

Country	Centre	N	Percentage of patients who started RRT					Percentage of patients still on RRT at 90 days		
			HD	PD	Tx	Stopped treatment	Died	HD	PD	Tx
England	L West	344	79.4	3.2	12.2	0.0	5.2	83.7	3.4	12.9
	Leeds	158	62.0	21.5	7.6	0.0	8.9	68.1	23.6	8.3
	Leic	230	66.5	16.1	11.7	0.0	5.7	70.5	17.1	12.4
	Liv Ain	45	68.9	11.1	0.0	0.0	20.0	86.1	13.9	0.0
	Liv RI	120	68.3	22.5	7.5	0.0	1.7	69.5	22.9	7.6
	M Hope	143	63.6	30.1	2.1	0.0	4.2	66.4	31.4	2.2
	M RI	148	58.8	23.7	16.9	0.0	0.7	59.2	23.8	17.0
	Middlbr	88	73.9	10.2	9.1	0.0	6.8	79.3	11.0	9.8
	Newc	102	59.8	19.6	12.8	1.0	6.9	64.9	21.3	13.8
	Norwch	48	68.8	29.2	2.1	0.0	0.0	68.8	29.2	2.1
	Nottm	134	63.4	24.6	5.2	0.0	6.7	68.0	26.4	5.6
	Oxford	159	49.7	27.0	12.0	0.0	11.3	56.0	30.5	13.5
	Plymth	60	51.7	28.3	15.0	0.0	5.0	54.4	29.8	15.8
	Ports	155	60.7	26.5	7.1	0.0	5.8	64.4	28.1	7.5
	Prestn	138	71.7	18.1	4.4	0.0	5.8	76.2	19.2	4.6
	Redng	103	53.4	30.1	5.8	0.0	10.7	59.8	33.7	6.5
	Sheff	148	71.6	17.6	5.4	0.7	4.7	75.7	18.6	5.7
	Shrew	51	74.5	19.6	3.9	0.0	2.0	76.0	20.0	4.0
	Stevng	90	75.6	8.9	11.1	0.0	4.4	79.1	9.3	11.6
	Sthend	29	62.1	31.0	3.5	0.0	3.5	64.3	32.1	3.6
	Stoke	116	72.4	14.7	6.9	0.0	6.0	77.1	15.6	7.3
Sund	57	71.9	21.1	1.8	0.0	5.3	75.9	22.2	1.9	
Truro	41	73.2	17.1	2.4	0.0	7.3	79.0	18.4	2.6	
Wirral	56	66.1	21.4	1.8	3.6	7.1	74.0	24.0	2.0	
Wolve	77	76.6	19.5	0.0	0.0	3.9	79.7	20.3	0.0	
York	45	64.4	17.8	0.0	0.0	17.8	78.4	21.6	0.0	
N Ireland	Antrim	24	83.3	8.3	0.0	4.2	4.2	90.9	9.1	0.0
	Belfast	65	76.9	15.4	4.6	0.0	3.1	79.4	15.9	4.8
	Derry	14	92.9	7.1	0.0	0.0	0.0	92.9	7.1	0.0
	Newry	21	81.0	9.5	0.0	4.8	4.8	89.5	10.5	0.0
	Tyrone	21	71.4	23.8	0.0	0.0	4.8	75.0	25.0	0.0
Ulster	10	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	
Scotland	Abrdn	54	72.2	20.4	0.0	0.0	7.4	78.0	22.0	0.0
	Airdrie	36	75.0	13.9	0.0	0.0	11.1	84.4	15.6	0.0
	D & Gall	21	85.7	4.8	4.8	0.0	4.8	90.0	5.0	5.0
	Dundee	67	76.1	6.0	1.5	0.0	16.4	91.1	7.1	1.8
	Dunfn	23	69.6	13.0	0.0	0.0	17.4	84.2	15.8	0.0
	Edinb	102	59.8	21.6	7.8	0.0	10.8	67.0	24.2	8.8
	Glasgw	178	77.0	9.0	3.9	0.0	10.1	85.6	10.0	4.4
	Inverns	16	75.0	12.5	0.0	0.0	12.5	85.7	14.3	0.0
Klmarnk	30	73.3	23.3	0.0	0.0	3.3	75.9	24.1	0.0	
Wales	Bangor	34	61.8	23.5	0.0	2.9	11.8	72.4	27.6	0.0
	Cardff	176	72.7	15.3	8.0	0.0	4.0	75.7	16.0	8.3
	Clwyd	20	90.0	5.0	0.0	0.0	5.0	94.7	5.3	0.0
	Swanse	115	75.7	14.8	1.7	0.0	7.8	82.1	16.0	1.9
	Wrexm	20	65.0	25.0	5.0	0.0	5.0	68.4	26.3	5.3
England		5,703	68.2	18.4	7.3	0.2	5.9	72.7	19.6	7.8
N Ireland		155	80.7	12.9	1.9	1.3	3.2	84.5	13.5	2.0
Scotland		527	72.7	13.5	3.2	0.0	10.6	81.3	15.1	3.6
Wales		364	73.4	15.9	4.4	0.3	6.0	78.3	17.0	4.7
UK		6,749	69.1	17.7	6.7	0.2	6.3	73.9	18.9	7.2

* For technical reasons, only 9 months of data are included for Brighton

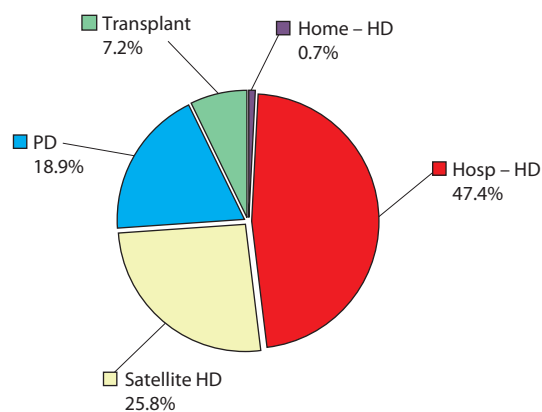


Fig. 1.8. RRT modality at day 90 in the 2009 incident cohort

It is possible that this is in part due to fears about encapsulating peritoneal sclerosis and improvements in haemodialysis provision that is closer to patients' homes.

The percentage of incident patients who had died by 90 days varied considerably between centres (0% to 20%, table 1.9). The definition of whether patients have acute or chronic renal failure may be a factor in this apparent variation.

The proportion with a functioning transplant at 90 days in different centres varied between 0% and 21%. The mean percentage of the incident cohort with a functioning transplant by 90 days was significantly greater in transplanting compared to non-transplanting centres (9.3% vs. 4.2%; $p < 0.0001$). One possible reason could be that some patients transplanted pre-emptively were attributed to the incident cohort of the transplanting centre rather than that of the referring centre (as mentioned earlier). Further information and analyses in this area can be found in chapter 13: Centre Variation in Access to Renal Transplantation in the UK.

Table 1.10 shows the HD/PD split for those incident patients on dialysis at 90 days. It also gives this split by age group. The percentage on PD at 90 days was almost twice as high in patients aged <65 years than in older patients (26.9% vs. 14.2%). The median age on HD was 67.1 years compared with 58.7 years for PD and these medians have been stable for 5 years.

Renal function at the time of starting RRT

Some caution should be applied to the analysis of eGFR at the start of RRT. A review of pre-RRT biochemistry in nine renal centres revealed that up to 18%

Table 1.10. Modality split of patients on dialysis at 90 days after starting RRT (1/10/2008 to 31/09/2009)

Centre	N	Age <65 (%)		Age ≥ 65 (%)		All patients (%)	
		HD	PD	HD	PD	HD	PD
Abrdn	50	68.0	32.0	88.0	12.0	78.0	22.0
Airdrie	32	82.4	17.6	86.7	13.3	84.4	15.6
Antrim	22	85.7	14.3	93.3	6.7	90.9	9.1
B Heart	88	82.9	17.1	89.4	10.6	86.4	13.6
B QEH	232	78.1	21.9	83.1	16.9	80.6	19.4
Bangor	29	72.7	27.3	72.2	27.8	72.4	27.6
Basldn	28	88.9	11.1	84.2	15.8	85.7	14.3
Belfast	60	83.3	16.7	83.3	16.7	83.3	16.7
Bradfd	52	69.0	31.0	78.3	21.7	73.1	26.9
Brightn*	73	63.0	37.0	63.0	37.0	63.0	37.0
Bristol	131	65.0	35.0	91.5	8.5	79.4	20.6
Camb	117	85.2	14.8	98.4	1.6	92.3	7.7
Cardff	155	71.4	28.6	91.8	8.2	82.6	17.4
Carlisle	20	70.0	30.0	90.0	10.0	80.0	20.0
Carsh	191	71.6	28.4	91.3	8.7	82.2	17.8
Chelms	34	66.7	33.3	68.4	31.6	67.6	32.4
Clwyd	19	100.0	0.0	92.3	7.7	94.7	5.3
Colchr	27	100.0	0.0	95.0	5.0	96.3	3.7
Covnt	110	67.9	32.1	75.4	24.6	71.8	28.2
D & Gall	19	100.0	0.0	91.7	8.3	94.7	5.3
Derby	71	57.1	42.9	74.4	25.6	67.6	32.4
Derry	14	100.0	0.0	85.7	14.3	92.9	7.1
Donc	30	64.3	35.7	87.5	12.5	76.7	23.3
Dorset	72	74.1	25.9	80.0	20.0	77.8	22.2

Table 1.10. Continued

Centre	N	Age <65 (%)		Age ≥65 (%)		All patients (%)	
		HD	PD	HD	PD	HD	PD
Dudley	55	54.2	45.8	83.9	16.1	70.9	29.1
Dundee	55	84.2	15.8	97.2	2.8	92.7	7.3
Dunfn	19	100.0	0.0	76.9	23.1	84.2	15.8
Edinb	83	76.7	23.3	70.0	30.0	73.5	26.5
Exeter	121	77.8	22.2	82.9	17.1	81.0	19.0
Glasgw	153	85.6	14.4	95.2	4.8	89.5	10.5
Glouc	73	67.7	32.3	85.7	14.3	78.1	21.9
Hull	89	81.6	18.4	87.5	12.5	84.3	15.7
Inverns	14	83.3	16.7	87.5	12.5	85.7	14.3
Ipswi	37	64.3	35.7	82.6	17.4	75.7	24.3
Kent	115	69.6	30.4	87.0	13.0	80.0	20.0
Klmarnk	29	71.4	28.6	80.0	20.0	75.9	24.1
L Barts	211	70.5	29.5	73.2	26.8	71.6	28.4
L Guys	124	87.0	13.0	97.9	2.1	91.1	8.9
L Kings	122	80.0	20.0	86.5	13.5	82.8	17.2
L Rfree	141	85.5	14.5	90.3	9.7	87.9	12.1
L St.G	98	69.2	30.8	84.8	15.2	76.5	23.5
L West	284	94.1	5.9	98.0	2.0	96.1	3.9
Leeds	132	66.2	33.8	82.1	17.9	74.2	25.8
Leic	190	73.4	26.6	87.5	12.5	80.5	19.5
Liv Ain	36	78.9	21.1	94.1	5.9	86.1	13.9
Liv RI	109	65.6	34.4	87.5	12.5	75.2	24.8
M Hope	134	55.1	44.9	85.7	14.3	67.9	32.1
M RI	122	63.6	36.4	80.4	19.6	71.3	28.7
Middlbr	74	81.3	18.8	92.9	7.1	87.8	12.2
Newc	81	65.2	34.8	88.6	11.4	75.3	24.7
Newry	19	88.9	11.1	90.0	10.0	89.5	10.5
Norwch	47	47.6	52.4	88.5	11.5	70.2	29.8
Nottm	118	64.5	35.5	80.4	19.6	72.0	28.0
Oxford	122	46.8	53.2	83.3	16.7	64.8	35.2
Plymth	48	55.6	44.4	76.2	23.8	64.6	35.4
Ports	135	64.6	35.4	74.3	25.7	69.6	30.4
Prestn	124	81.2	18.8	78.2	21.8	79.8	20.2
Redng	86	50.0	50.0	83.3	16.7	64.0	36.0
Sheff	132	77.6	22.4	82.4	17.6	80.3	19.7
Shrew	48	61.1	38.9	90.0	10.0	79.2	20.8
Stevng	76	84.1	15.9	96.9	3.1	89.5	10.5
Sthend	27	50.0	50.0	90.9	9.1	66.7	33.3
Stoke	101	73.8	26.2	89.8	10.2	83.2	16.8
Sund	53	63.3	36.7	95.7	4.3	77.4	22.6
Swanse	104	73.2	26.8	90.5	9.5	83.7	16.3
Truro	37	69.2	30.8	87.5	12.5	81.1	18.9
Tyrone	20	75.0	25.0	75.0	25.0	75.0	25.0
Ulster	10	100.0	0.0	100.0	0.0	100.0	0.0
Wirral	49	72.7	27.3	81.3	18.8	75.5	24.5
Wolve	74	77.5	22.5	82.4	17.6	79.7	20.3
Wrexm	18	66.7	33.3	77.8	22.2	72.2	27.8
York	37	76.5	23.5	80.0	20.0	78.4	21.6
England	4,938	72.0	28.0	85.5	14.5	78.8	21.2
N Ireland	145	86.2	13.8	86.3	13.8	86.2	13.8
Scotland	454	81.5	18.5	87.2	12.8	84.4	15.6
Wales	325	73.0	27.0	88.8	11.2	82.2	17.8
UK	5,862	73.1	26.9	85.8	14.2	79.6	20.4

* For technical reasons, only 9 months of data are included for Brighton

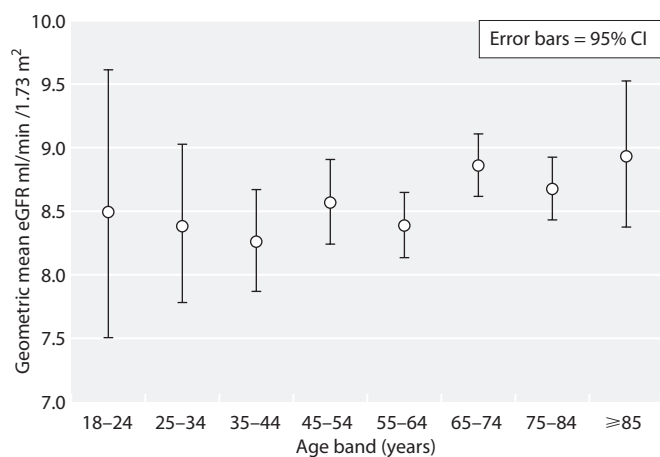


Fig. 1.9. Geometric mean eGFR at start of RRT (2009) by age band

of patients may have an incorrect date of start of RRT allocated (by up to 5 weeks). In these patients, the eGFR used for analysis in some patients may have been taken whilst they were already receiving RRT and thus be artificially high. The details of this analysis and a subsequent validation study were described in detail in the 12th Annual Report chapter 13: The UK Renal Registry Advanced CKD Study 2009 [5].

The mean eGFR at initiation of RRT in 2009 was 8.6 ml/min/1.73 m². This was highest in patients who were aged 85 and over, at 8.9 ml/min/1.73 m² (figure 1.9). By contrast the mean eGFR at initiation of RRT in the United States was 11.1 in 2008 and 12.2 for those aged over 75 years [6].

Figure 1.10 shows serial data from centres reporting annually to the UKRR since 1999. It demonstrates a continued pattern over the last 5 years of a higher mean eGFR at start of RRT for PD than HD patients.

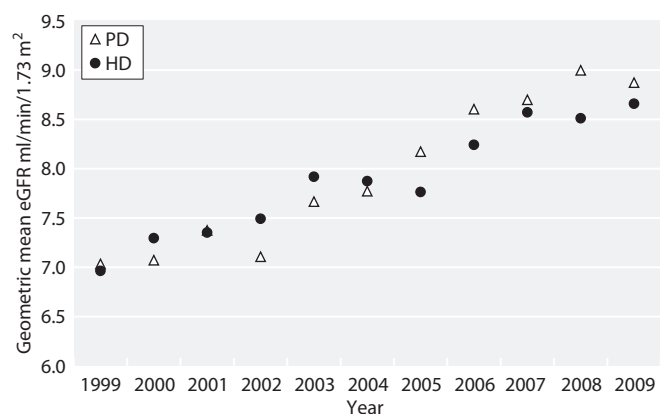


Fig. 1.10. eGFR on starting RRT 1999-2009; PD and HD. Restricted to centres reporting since 1999

In patients starting HD, there may be some plateauing of this level around an eGFR of 8.5 ml/min/1.73 m².

3 Late presentation and delayed referral of incident patients

Introduction

Late presentation to a nephrologist has many definitions and a range of possible causes. There are many patients with chronic kidney disease who are regularly monitored in primary or secondary care, and whose referral to nephrological services is delayed (delayed or late referral). In contrast other patients present late to medical services. Chronic kidney disease may be asymptomatic until very advanced stages resulting in no contact with medical services or patients may present with a variety of rapidly progressive kidney diseases: these patients are the true 'late presenters'. The analyses presented here do not differentiate between these groups and include any patient first seen by renal services within 90 days of requiring RRT as 'late presentation'.

Methods

Data were included from all incident patients in the years 2004 to 2009. The date first seen in a renal centre and the date of starting RRT were used to define the late presenting cohort. Around 5% of data were excluded because of actual or potential inconsistencies, it is hoped to address this before next year's report. Only data from those centres with 75% or more completeness were used. Data were excluded for centres in the years where 10% or more of the patients were reported to have started RRT on the same date as the first presentation, as investigation has shown that this is due to misunderstanding on the part of the renal centres resulting in incorrect recording of data. After these exclusions, data on 11,206 patients were available for analysis. Presentation times of 90 days or more were defined as early presentation and times of less than 90 days were defined as late presentation.

Results

Table 1.11 shows the percentage completeness of data from 2004 to 2009 excluding centres with 10% or more start dates for RRT being on the same day as first presentation. Whilst some centres have made improvements to the reporting of late presentation data several centres have shown no improvement.

Late presentation by centre and year

Late presentation ranged by centre from 5-37% in patients commencing RRT in 2009 (table 1.12). The

Table 1.11. Percentage completeness of late presentation data (2004 to 2009) by centre

Centre	Year					
	2004	2005	2006	2007	2008	2009
Antrim		0.0	66.7	67.6	80.0	100.0
B Heart	0.0	0.0	0.9	1.0	1.0	1.0
B QEH	0.0	0.5	0.0	1.4	0.0	0.4
Bangor	97.1	92.3	*	*	*	93.1
Basldn	97.8	90.6	100.0	100.0	100.0	*
Belfast		56.9	63.6	78.7	68.1	81.1
Bradfd	95.1	98.5	98.0	94.3	84.1	90.6
Brightn	0.8	0.0	0.0	0.0	0.0	0.0
Bristol	77.6	81.6	92.0	72.4	83.3	71.3
Camb	65.4	69.7	51.6	65.4	69.9	38.4
Cardff	0.5	1.1	0.0	1.8	0.0	0.0
Carlis	*	*	61.5	*	83.3	83.3
Carsh	0.6	0.6	0.0	0.0	0.0	1.0
Chelms	80.0	55.0	89.8	90.4	97.1	97.4
Clwyd	0.0	0.0	0.0	4.5	0.0	0.0
Colchr	n/a	n/a	n/a	n/a	3.3	0.0
Covnt	0.0	0.0	1.9	3.7	0.0	0.0
Derby	*	54.9	73.5	81.0	94.6	97.4
Donc	n/a	n/a	n/a	100.0	96.2	95.0
Dorset	98.4	100.0	100.0	96.9	100.0	88.4
Dudley	*	*	*	0.0	0.0	0.0
Exeter	64.2	50.0	55.2	25.2	18.7	19.4
Glouc	15.1	95.1	86.1	96.6	87.0	93.4
Hull	0.9	3.2	0.0	1.0	0.0	0.0
Ipswi	*	94.7	92.9	*	97.3	92.1
Kent				*	97.1	97.7
L Barts	0.5	0.0	19.6	0.5	0.5	0.0
L Guys	*	*	*	3.1	2.4	4.0
L Kings	15.9	16.4	10.7	18.5	96.0	98.4
L Rfree		0.0	0.0	1.1	0.6	0.0
L St.G				6.3	0.0	6.5
L West	*	*	*	*	*	0.0
Leeds	88.0	88.2	86.0	82.0	79.1	92.9
Leic	91.9	64.3	58.9	68.4	75.1	68.8
Liv Ain	n/a	0.0	0.0	0.0	0.0	0.0
Liv RI	0.8	0.0	0.0	0.9	0.0	0.0
M Hope	59.8	75.7	86.3	78.5	41.4	0.0
M RI				15.5	26.9	41.2
Middlbr	87.1	94.0	83.5	89.9	96.7	96.8
Newc	*	*	96.2	100.0	100.0	*
Newry		78.6	*	100.0	100.0	100.0
Norwch	66.0	46.6	54.5	*	59.6	85.4
Nottm	97.1	97.2	97.8	97.6	96.5	98.3
Oxford	90.5	92.2	89.8	99.3	98.6	91.0
Plymth	0.0	3.4	1.1	1.3	3.0	3.3
Ports	93.1	91.8	94.2	89.1	86.3	96.0
Prestn	0.0	0.8	1.7	0.8	0.0	0.0
Redng	41.8	43.2	45.9	*	65.7	*
Sheff	99.4	97.5	95.2	97.5	96.6	97.9
Shrew	*	*	*	*	98.4	100.0
Stevng	89.0	76.1	76.7	88.6	91.2	96.9
Sthend	0.0	0.0	0.0	0.0	2.8	0.0
Stoke				*	*	37.6
Sund	*	*	3.5	3.2	*	0.0
Swanse	64.5	93.9	98.3	97.5	89.9	0.9
Truro	60.3	71.0	51.9	91.1	27.5	23.5
Tyrone		95.8	100.0	90.9	96.0	100.0

Table 1.11. Continued

Centre	Year					
	2004	2005	2006	2007	2008	2009
Ulster		*	100.0	100.0	92.9	100.0
Wirral	47.8	75.0	80.0	82.4	80.5	71.7
Wolve	96.1	97.9	96.3	95.5	97.7	98.5
Wrexm	*	*	61.5	*	100.0	89.5
York	92.0	*	97.9	89.2	89.2	82.6
Total	40.6	40.5	44.4	37.9	45.7	39.9

Blank cells – data not available

* data not shown as >10% of patients reported as starting RRT on the same date as first presentation

n/a = renal centre not yet operational

Table 1.12. Percentage of patients presenting to a nephrologist less than 90 days before dialysis initiation

Centre	Year					
	2004	2005	2006	2007	2008	2009
Antrim					9.4	36.8
Bangor	36.4	38.9				25.9
Basldn	35.6	17.2	26.7	20.5	32.5	
Belfast				24.3		4.7
Bradfd	15.5	32.3	16.3	20.5	17.0	14.6
Bristol	29.6	23.2	16.3		24.1	
Carlisle					12.0	25.0
Chelms	22.5		29.5	23.4	24.2	16.2
Derby				19.6	18.4	17.1
Derry			0.0	0.0	20.0	12.5
Donc				27.8	20.0	15.8
Dorset	18.3	36.7	17.0	17.7	20.2	21.3
Glouc		19.0	22.6	21.4	17.5	18.3
Ipswi		51.9	33.3		36.1	25.7
Kent					39.0	35.2
L Kings					19.3	21.6
Leeds	29.0	30.0	28.1	21.9	14.4	16.1
Leic	23.6				13.3	
M Hope		20.2	13.3	3.2		
Middlbr	31.8	22.8	18.7	20.2	18.0	21.7
Newc			23.0	19.0	28.6	
Newry		22.7		20.0	14.3	15.0
Norwch						19.5
Nottm	33.3	33.3	24.1	16.9	24.8	21.4
Oxford	26.8	27.7	24.8	20.0	18.8	17.1
Ports	30.6	28.1	30.7	24.5	24.8	18.8
Sheff	22.0	22.2	22.8	19.5	13.5	11.5
Shrew					25.0	29.8
Stevng	21.9	14.3	13.0	19.2	9.7	13.8
Swanse		43.0	38.1	28.6	26.2	
Truro				17.1		
Tyrone		21.7	13.8	15.0	16.7	5.3
Ulster			12.5	31.3	15.4	23.1
Wirral		31.1	57.5	45.2	33.3	
Wolve	30.3	30.4	25.6	26.6	25.0	14.1
Wrexm					19.0	29.4
York	26.1		26.1	27.3	15.2	26.3
Total	27.0	28.3	24.1	21.0	21.0	19.4

Blank cells = data not available, poor data completeness (<75%) or >10% with same date of start as date first seen

Table 1.13. Presentation times in 4 groups by year restricted to 11 centres contributing continuous data 2004–2009

Year	% <3 months	% 3–<6 months	% 6–<12 months	% ≥12 months
2004	27.1	6.6	11.0	55.4
2005	27.4	6.4	10.6	55.6
2006	23.7	6.7	9.5	60.0
2007	20.6	5.6	10.1	63.7
2008	19.0	5.8	9.1	66.1
2009	17.0	7.3	7.3	68.4

overall rate of late presentation was 19.4%, slightly lower than last year.

There has been a steady decline nationally in the proportion of patients presenting late to renal services, with some centres achieving <10% late presentation rates. This may have been as a consequence of the National CKD guidelines published by the Medical and GP Royal Colleges [7], the Quality and Outcomes Framework (QOF) initiative (www.dh.gov.uk) raising awareness of CKD amongst non-nephrologists and the introduction of estimated GFR reporting.

Time referred before dialysis initiation in the 2009 incident cohort

In 2009, 67.1% of incident patients presented over a year before they needed to start dialysis. There were 7.2% of patients presented within 6–12 months, 6.3% within 3–6 months and 19.4% within 3 months. Table 1.13 shows this breakdown by year for those 11 centres supplying data for each of the last 6 years with >75% completeness (Basildon, Bradford, Dorset, Leeds, Middlesbrough, Nottingham, Oxford, Portsmouth, Sheffield, Stevenage and Wolverhampton). The proportion of patients presenting late in these centres has steadily fallen since 2005 (figure 1.11), and there has been an increase in those presenting 12 months or more before starting RRT.

Age and late presentation

In the 2004 to 2009 cohort, patients who presented late were significantly older than patients who presented earlier (>90 days before dialysis initiation) (median age 67.0 vs. 64.7 years: $p < 0.0001$). The median duration of pre-RRT care diminished progressively with increasing age beyond the 45–54 age group (figure 1.12).

Gender and late presentation

There was no significant difference in the proportion of males to females by time of presentation (male:female

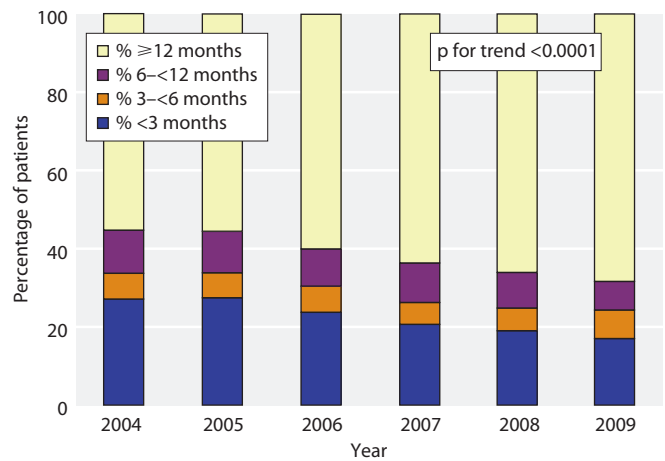


Fig. 1.11. Late presentation rate by year 2004–2009 Restricted to centres reporting continuous data 2004–2009

ratio 1.64 in early presentation, 1.71 in late presentation, $p = 0.37$).

Ethnicity, social deprivation and late presentation

This analysis of the 2004 to 2009 cohort was limited to patients from centres with >70% ethnicity and >75% presentation time data. Patients from the Chinese and Other ethnic minority groups were excluded due to the small numbers with presentation data. The percentage of non-Whites (South Asian and Black) presenting late (<90 days) was significantly lower than in Whites (18.9% vs. 23.2%: $p = 0.0018$). The high incidence of diabetes in non-Whites (as discussed below, patients with diabetes tended to present earlier) and the older median age of incident Whites may explain this finding. There was no relationship between social deprivation and presentation pattern.

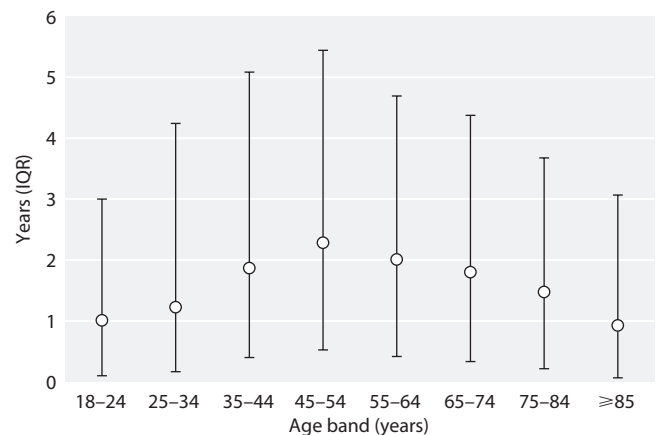


Fig. 1.12. Median duration of pre-RRT care by age

Table 1.14. Late presentation by primary renal diagnosis

Diagnosis	Late presentation	
	N	%
Uncertain aetiology*	625	25.5
Diabetes	270	11.2
Glomerulonephritis	229	19.5
Other identified category	743	44.7
Polycystic kidney	57	7.3
Pyelonephritis	176	20.2
Renal vascular disease	329	23.4
Data not available	96	33.6

* includes presumed glomerulonephritis not biopsy proven

Primary renal disease and late presentation

In the 2004 to 2009 cohort, late presentation differed significantly between primary renal diagnoses (Chi-squared test $p < 0.0001$) (table 1.14). Patients with a diagnosis of 'other identified category', 'not available' and the aetiology uncertain/glomerulonephritis unproven groups had higher rates of late presentation. Those with diabetes and adult polycystic kidney disease had lower rates. Over these 6 years, there has been a significant downward trend in the proportion of diabetics presenting late (Maentel-Haenszel Chi-squared test $p = 0.0001$). This likely reflects national initiatives to screen patients with diabetes for proteinuria and falling GFR.

Modality and late presentation

In the 2004 to 2009 cohort, late presentation was associated with initial modality. The percentage of patients whose first modality was PD was significantly less in the late presentation group compared to those presenting earlier (10.8% vs. 25.9%: $p < 0.0001$). By 90 days after dialysis initiation this difference was reduced, although still highly significant (15.7% vs. 26.9%: $p < 0.0001$).

Comorbidity and late presentation

In the 2004 to 2009 cohort, a slightly lower percentage of patients who presented late were assessed as having no comorbidity when compared with the group who presented earlier, this just reached statistical significance (39.8% vs. 42.9%: $p = 0.02$). Peripheral vascular disease and ischaemic heart disease were significantly less common in the group presenting late. Malignancy was significantly more common in those presenting late, perhaps because of the potential for rapid decline in renal function in this setting. Liver disease and smoking were also more common in those presenting late

Table 1.15. Percentage prevalence of specific comorbidities amongst patients presenting late (<3 months) compared with those presenting early (≥ 3 months)

Comorbidity	<3 months	≥ 3 months	p-value
Cerebrovascular disease	9.5	10.8	0.1
COPD	7.0	7.1	0.9
Diabetes (not a cause of ERF)	8.4	8.8	0.5
Ischaemic heart disease	21.3	24.9	0.002
Liver disease	3.5	2.5	0.02
Malignancy	19.8	11.0	<0.0001
Peripheral vascular disease	10.3	13.7	0.0002
Smoking	16.0	14.0	0.03

although for these the differences were only of borderline statistical significance (table 1.15).

Haemoglobin and late presentation

In the 2004 to 2009 cohort, patients presenting late had a significantly lower haemoglobin concentration at dialysis initiation than patients presenting earlier (9.4 vs. 10.5 g/dl: $p < 0.0001$). This may reflect inadequate pre-dialysis care with limited anaemia management, but alternatively those presenting late may be more likely to have anaemia because of multisystem disease or inter-current illness.

eGFR at start of RRT and late presentation

In the 2004 to 2009 cohort, eGFR at start of RRT was lower in patients presenting late (7.5 vs. 8.4 ml/min/1.73 m²: $p < 0.0001$).

Survival of incident patients

This analysis is to be found in chapter 7: Survival and Causes of Death of UK Adult Patients on Renal Replacement Therapy in 2009.

International comparisons

Figure 1.13 shows the crude RRT incidence rates for 2004 to 2008 combined for several countries with complete coverage of their populations. The UK incidence rate is similar to many other Northern European countries and Australasia, but remains lower than Belgium, Greece, US, Japan and Taiwan. These differences are

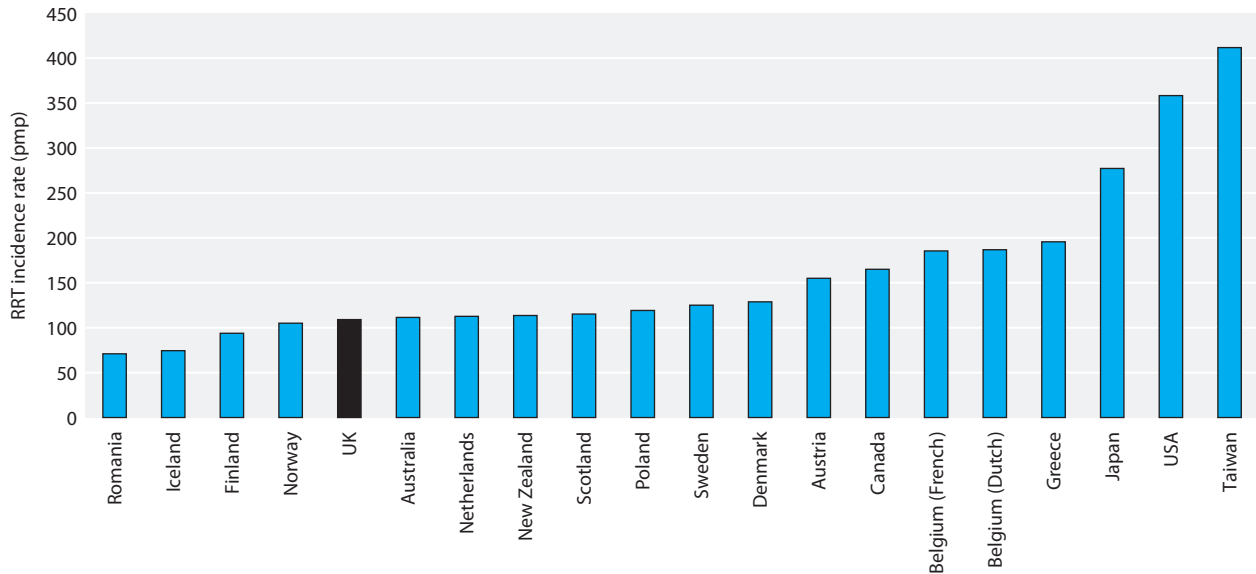


Fig. 1.13 International comparison of RRT acceptance rates (latest available data)

likely to be due to the rate of advanced kidney disease in these populations as well as lower mortality from competing risks for RRT, such as cardiovascular disease in southern Europe and the Far East. The healthcare system in use in these countries may also influence RRT incidence.

numbers of patients continued to present late to renal centres but there was a continuing decline in late presentation rate overall with the most marked difference for those with diabetes.

Conflicts of interest: none

Summary

RRT incidence rates have fallen in Northern Ireland, Scotland and Wales whilst they have risen slightly in England over the last 3 years. Wales continued to have the highest incidence rate. There remained large centre variations in incidence rates for RRT. Significant

Acknowledgements

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