
UK Renal Registry 16th Annual Report: Chapter 1 UK Renal Replacement Therapy Incidence in 2012: National and Centre-specific Analyses

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Key Words

Acceptance rates · Comorbidity · Dialysis · End stage renal disease · End stage renal failure · Established renal failure · Haemodialysis · Incidence · Peritoneal dialysis · Registries · Renal replacement therapy · Transplantation · Treatment modality

Summary

- In 2012 the incidence rate in the UK was stable at 108 per million population (pmp) reflecting renal replacement therapy (RRT) initiation for 6,891 new patients.
- From 2006 to 2012 the incidence rate pmp was stable for England but had increased from 95 pmp in 2001.
- The median age of all incident patients was 64.6 years but this is highly dependant on race (66.1 for White incident patients; 57.8 for non-White patients).
- Diabetic renal disease remained the single most common cause of renal failure (26%).
- By 90 days, 66.9% of patients were on haemodialysis, 19.0% on peritoneal dialysis, 8.3% had had a transplant and 5.9% had died or stopped treatment.
- The mean eGFR at the start of RRT was 8.5 ml/min/1.73 m² similar to the previous four years.
- Late presentation (<90 days) fell from 23.9% in 2006 to 19.3% in 2012.

Introduction

This chapter contains analyses of adult patients starting renal replacement therapy (RRT) in the UK in 2012. It describes regional and national variations in incidence rates of RRT, the demographic and clinical characteristics of all patients starting RRT and analyses of late presentation and delayed referral. The methodology and results for these analyses are in three separate sections.

Definitions

The definition of incident patients is given in detail in appendix B: Definitions and Analysis Criteria (www.renalreg.com). In brief, it is all patients over 18 who commenced RRT in the UK in 2012 and who did not recover renal function within 90 days. Importantly this does not include those with a failed renal transplant who returned to dialysis as they had already started RRT.

Differences may be seen in the 2007 to 2011 numbers 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. Where applicable and possible, pre-emptive transplant patients were allocated to their work up centre rather than their transplant centre. However, this was not possible for all such patients and consequently some patients probably remain incorrectly allocated to the transplanting centre. The term established renal failure (ERF) as used within this chapter is synonymous with the terms end stage renal failure/disease (ESRF or ESRD).

UK Renal Registry coverage

The UK Renal Registry (UKRR) received individual patient level data from all 71 adult renal centres in the UK (five renal centres in Wales, five in Northern Ireland, nine in Scotland, 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 7: Demography of the UK Paediatric Renal Replacement Therapy population in 2012.

1. Geographical variation in incidence rates

Over the years, there have been wide variations in incidence rates between renal centres. Equity of access to RRT is an important aim but hard to assess as the need for RRT depends on many variables including medical,

social and demographic factors such as underlying conditions, age, gender, social deprivation and ethnicity. Thus, comparison of crude incidence rates by geographical area can be misleading. This year's report again uses age and gender standardisation of PCT/HB rates as well as showing crude rates. It also gives the ethnic minority percentage of each area as this influences incidence rates.

The UKRR investigated the effect of socio-demographic, population health status and access to care factors on RRT incidence. This work suggested that population age, socio-economic deprivation and the proportion of non-White residents were able to explain 22% of the observed variation in RRT incidence. The prevalence of diabetes in an area explained a further 4% of the variation and access to complex health procedures (CABG/coronary angioplasty) a further 6% [1]. Much of the observed variation (about 2/3rds) remains unexplained and may be due to unmeasured elements of the above factors or be due to differences in practice patterns at individual renal centres which have not yet been captured.

Methods

Crude incidence rates were calculated per million population (pmp) and age/gender standardised incidence ratios were calculated as detailed in appendix D: Methodology used for Analyses (www.renalreg.com).

Results

In 2012, the number of adult patients starting RRT in the UK was 6,891 equating to an incidence rate of 108 pmp (table 1.1), the same as in 2011. Wales remained the country with the highest incidence rate (figure 1.1). For England, incidence rates have been stable for the last seven years. There continued to be very marked gender differences in incidence rates which were 136 pmp (95% CI 132–140) in males and 80 pmp (95% CI 77–83) in females. When incident patients aged under 18 were included, the UK rate was 110 pmp.

Table 1.2 shows incidence rates and standardised incidence ratios for PCT/HBs. The ratios calculated using combined data from up to six years have been used to determine areas with significantly high or low incidence rates. Significantly high areas have been shaded with bold text and significantly low areas shaded a lighter grey with italicised text. There were wide variations between areas, with 49 being significantly high and 48 being significantly low out of a total of 177 areas. Last year these numbers were 53 and 48 areas respectively. The standardised incidence ratios ranged from 0.51 to 2.37 (IQR 0.84, 1.18).

Table 1.1. Number of new adult patients starting RRT in the UK in 2012

	England	N Ireland	Scotland	Wales	UK
Number starting RRT	5,826	186	519	360	6,891
Total estimated population mid-2012 (millions)*	53.5	1.8	5.3	3.1	63.7
Incidence rate (pmp)	109	102	98	117	108
(95% CI)	(106–112)	(87–117)	(89–106)	(105–129)	(106–111)

*Data from the Office for National Statistics, National Records of Scotland and the Northern Ireland Statistics and Research Agency – based on the 2011 census

As would be expected, urban areas with high percentages of non-White residents tended to have high incidence rates. Figure 1.2 shows the positive correlation ($r = 0.87$, $p < 0.001$) between the standardised incidence ratio and the percentage of the PCT/HB population that was non-White.

Confidence intervals are not presented for the crude rates per million population but figures D1 and D2 in appendix D can be used to determine if a PCT/HB falls within the 95% confidence interval around the national average rate.

The number of new patients starting RRT at each renal centre from 2007 to 2012 is shown in table 1.3. For most centres there was a lot of variability in the numbers of incident patients from one year to the next making it hard to see any underlying trend. 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, changes in catchment populations or in completeness of reporting. Variation over time may also be due to changing incidence of established renal failure (increases in underlying disease prevalence, survival from comorbid conditions and

recognition of ERF), changes to treatment thresholds or the introduction of conservative care programmes. Table 1.3 also shows centre level incidence rates (per million population). For the methodology used to estimate catchment populations in England and Wales see appendix E: Methodology for Estimating Catchment Populations (www.renalreg.com). For Scotland, mid-2011 populations of Health Boards (from the General Register Office for Scotland) were converted to centre level populations using an approximate mapping of renal centres to HBs supplied by the Scottish Renal Registry. Estimates of the catchment populations in Northern Ireland were supplied by personal communication from Dr D Fogarty.

There were falls of 8% and 17% respectively in the number of new patients for Scotland and Wales between 2007 and 2012. There was an increase of approximately 6% in new patients for England between 2007 and 2012. Across all four countries the change between 2007 and 2012 was an increase of 3.3%.

2. Demographics and clinical characteristics of patients starting RRT

Methods

Age, gender, primary renal disease, ethnic origin and treatment modality were examined for patients starting RRT. Centre level results are not shown for any centre with fewer than 10 incident patients in the year. Individual EDTA codes for primary diagnoses were grouped into eight categories, the details are given in appendix H: Ethnicity and ERA-EDTA Coding (www.renalreg.com).

Most centres electronically upload ethnicity coding to their renal information technology (IT) system from the hospital Patient Administration System (PAS). Ethnicity coding in these PAS systems is based on self-reported ethnicity. 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

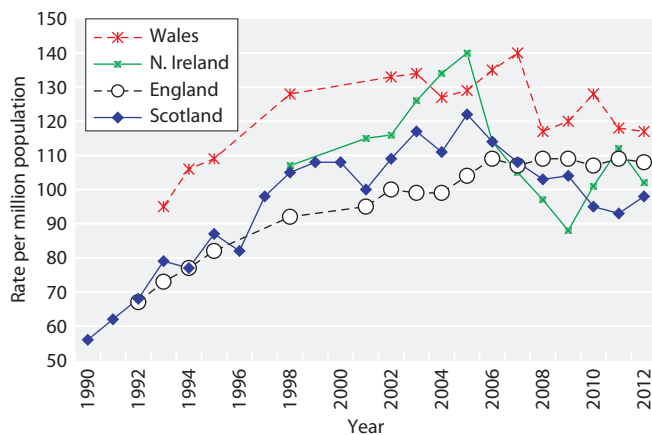


Fig. 1.1. RRT incidence rates in the countries of the UK 1990–2012

Table 1.2. Crude adult incidence rates (pmp) and age/gender standardised incidence ratios 2007–2012

PCT/HB – PCT in England, Health and Social Care Areas in Northern Ireland, Local Health Boards in Wales and Health Boards in Scotland

O/E – standardised incidence ratio

LCL – lower 95% confidence limit

UCL – upper 95% confidence limit

pmp – per million population

* – per year

Areas with significantly low incidence ratios over six years are italicised in greyed areas, those with significantly high incidence ratios over six years are bold in greyed areas

Blank cells – no data returned to the UKRR for that year. For the one area not covered by the Registry for the entire period 2007–2012, the combined years standardised incidence ratio and incidence rate are averages for the years covered by the Registry

Population data from the Office for National Statistics, National Records of Scotland and the Northern Ireland Statistics and Research Agency – based on the 2011 census

% non-White – percentage of the PCT/HB population that is non-White, from 2011 census for E, W & NI (2001 for Scotland)

UK Area	PCT/HB	Tot pop (2011)	2007 O/E	2008 O/E	2009 O/E	2010 O/E	2011 O/E	2012		2007–2012				% non-White
								O/E	Crude rate pmp	O/E	95% LCL	95% UCL	Crude rate pmp*	
North East	<i>County Durham</i>	513,000	0.69	0.69	0.76	0.78	0.84	1.05	123	0.80	0.71	0.90	92	1.8
	Darlington	105,600	1.13	1.04	0.94	0.96	0.93	1.26	142	1.04	0.83	1.31	115	3.8
	<i>Gateshead</i>	200,300	0.81	0.54	0.80	0.77	0.75	0.88	100	0.76	0.62	0.92	85	3.7
	Hartlepool	92,100	0.50	1.40	0.79	0.60	0.59	0.97	109	0.81	0.61	1.07	89	2.3
	Middlesbrough	138,400	1.31	1.31	0.64	1.46	0.71	1.06	108	1.08	0.88	1.33	108	11.8
	Newcastle	279,100	1.18	1.02	0.98	0.77	0.85	0.78	75	0.93	0.79	1.09	88	14.5
	<i>North Tyneside</i>	201,200	0.76	0.54	0.92	0.99	0.61	0.87	99	0.78	0.65	0.95	88	3.4
	<i>Northumberland</i>	316,300	0.75	0.65	0.59	0.63	0.84	0.78	98	0.71	0.61	0.82	87	1.6
	Redcar and Cleveland	135,200	0.95	0.76	0.87	0.76	1.05	0.86	104	0.88	0.71	1.09	104	1.5
	South Tyneside	148,200	1.20	0.54	1.42	0.72	1.00	0.52	61	0.90	0.73	1.10	102	4.1
	Stockton-on-Tees Teaching	191,800	0.75	0.85	0.69	0.91	1.12	1.07	115	0.90	0.74	1.08	95	5.4
Sunderland Teaching	275,300	1.09	0.89	0.94	1.00	0.74	0.87	98	0.92	0.79	1.07	102	4.1	
North West	<i>Ashton, Leigh and Wigan</i>	318,100	0.56	0.85	0.55	0.74	0.92	0.77	85	0.73	0.62	0.86	79	2.7
	Blackburn with Darwen Teaching	147,700	1.24	0.51	0.87	1.04	1.37	1.22	115	1.04	0.84	1.29	97	30.8
	Blackpool	142,100	0.98	0.92	1.03	0.55	0.78	1.43	169	0.95	0.78	1.16	110	3.3
	Bolton Teaching	277,300	0.89	0.92	0.80	1.43	0.94	0.90	94	0.98	0.84	1.14	100	18.1
	Bury	185,400	0.67	0.77	0.71	0.78	0.66	1.35	146	0.82	0.68	1.01	87	10.8
	<i>Central and Eastern Cheshire</i>	462,800	0.66	0.67	0.68	0.75	0.77	0.74	89	0.71	0.63	0.81	83	3.1
	<i>Central Lancashire</i>	467,400	0.78	0.90	0.94	0.62	0.78	0.89	98	0.82	0.72	0.93	89	7.8
	<i>Cumbria Teaching</i>	499,800	0.64	0.74	0.61	0.69	0.59	0.60	76	0.64	0.57	0.73	80	1.5
	<i>East Lancashire Teaching</i>	382,500	0.76	0.66	0.82	0.71	0.88	0.52	58	0.73	0.63	0.84	78	11.6
	Halton and St Helens	301,100	0.94	0.52	0.81	0.89	1.11	0.92	103	0.87	0.75	1.01	95	2.0
	Heywood, Middleton and Rochdale	211,900	0.90	0.90	1.13	0.77	1.26	1.25	127	1.04	0.88	1.23	104	18.3
	Knowsley	145,900	1.11	0.52	0.77	0.92	1.09	1.28	137	0.95	0.77	1.17	101	2.8
	Liverpool	465,700	1.08	1.15	1.16	0.87	1.08	1.30	129	1.10	0.99	1.24	108	11.1
	Manchester Teaching	502,900	1.29	1.31	1.42	1.31	1.24	1.41	109	1.33	1.19	1.49	103	33.4
	<i>North Lancashire Teaching</i>	321,600	0.61	0.53	0.75	0.69	0.74	0.74	93	0.68	0.58	0.79	84	3.1
	Oldham	225,200	0.91	1.09	0.90	0.97	0.98	0.71	71	0.93	0.78	1.11	91	22.5
	Salford	234,500	0.62	1.02	1.01	1.39	0.65	0.87	85	0.92	0.78	1.10	90	9.9
	Sefton	274,000	0.55	0.85	0.86	1.04	1.24	0.91	113	0.91	0.79	1.05	111	2.6
	<i>Stockport</i>	283,300	0.82	0.79	0.62	0.89	0.83	0.64	74	0.76	0.65	0.90	86	7.9
	Tameside and Glossop	252,900	1.33	0.76	0.90	0.96	0.93	0.59	63	0.91	0.77	1.07	96	8.2
Trafford	227,100	1.05	0.59	1.00	1.32	0.54	1.15	123	0.94	0.79	1.11	99	14.5	
<i>Warrington</i>	202,700	0.74	0.61	1.10	0.61	0.50	0.86	94	0.74	0.61	0.90	79	4.1	
Western Cheshire	237,400	0.90	0.54	0.85	1.26	1.05	0.87	105	0.91	0.78	1.07	108	2.8	
<i>Wirral</i>	319,800	0.74	0.74	0.81	0.93	0.93	0.66	78	0.80	0.69	0.93	93	3.0	

Table 1.2. Continued

UK Area	PCT/HB	Tot pop (2011)	2007 O/E	2008 O/E	2009 O/E	2010 O/E	2011 O/E	2012		2007–2012				% non- White
								O/E	Crude rate pmp	O/E	95% LCL	95% UCL	Crude rate pmp*	
Yorkshire and the Humber	Barnsley	231,900	0.86	1.13	0.89	1.18	0.80	1.03	116	0.98	0.84	1.15	109	2.1
	Bradford and Airedale Teaching	523,100	1.43	1.08	0.96	1.32	1.04	1.30	122	1.19	1.07	1.32	110	32.6
	<i>Calderdale</i>	<i>204,200</i>	<i>0.84</i>	<i>0.88</i>	<i>1.01</i>	<i>0.61</i>	<i>0.59</i>	<i>0.77</i>	<i>83</i>	<i>0.78</i>	<i>0.65</i>	<i>0.95</i>	<i>83</i>	<i>10.3</i>
	Doncaster	302,500	0.64	0.76	1.02	0.95	1.05	0.80	89	0.87	0.75	1.01	95	4.7
	<i>East Riding of Yorkshire</i>	<i>334,700</i>	<i>0.67</i>	<i>0.98</i>	<i>0.89</i>	<i>0.72</i>	<i>0.77</i>	<i>0.83</i>	<i>108</i>	<i>0.81</i>	<i>0.71</i>	<i>0.93</i>	<i>103</i>	<i>1.9</i>
	Hull Teaching	256,100	1.09	1.05	0.99	0.93	0.71	0.79	78	0.92	0.78	1.09	90	5.9
	Kirklees	423,000	0.72	0.74	1.03	0.94	1.05	0.86	90	0.89	0.78	1.02	91	20.9
	<i>Leeds</i>	<i>750,700</i>	<i>0.86</i>	<i>1.02</i>	<i>0.81</i>	<i>0.66</i>	<i>0.80</i>	<i>0.74</i>	<i>73</i>	<i>0.81</i>	<i>0.73</i>	<i>0.90</i>	<i>80</i>	<i>14.9</i>
	North East Lincolnshire	161,200	1.07	1.01	0.83	0.68	1.37	0.66	74	0.94	0.77	1.14	104	2.6
	North Lincolnshire	163,600	0.70	0.81	0.75	0.71	1.49	1.16	134	0.94	0.78	1.14	107	4.1
	<i>North Yorkshire and York</i>	<i>799,000</i>	<i>0.83</i>	<i>0.71</i>	<i>0.80</i>	<i>0.64</i>	<i>0.87</i>	<i>0.92</i>	<i>111</i>	<i>0.80</i>	<i>0.73</i>	<i>0.87</i>	<i>94</i>	<i>3.4</i>
	Rotherham	257,700	1.02	1.27	0.91	1.07	0.73	0.82	93	0.97	0.83	1.13	107	6.4
Sheffield	551,800	1.17	1.15	1.30	1.07	0.98	1.25	127	1.15	1.04	1.27	115	16.3	
<i>Wakefield District</i>	<i>326,400</i>	<i>0.50</i>	<i>0.76</i>	<i>0.61</i>	<i>0.85</i>	<i>0.91</i>	<i>1.06</i>	<i>119</i>	<i>0.78</i>	<i>0.67</i>	<i>0.91</i>	<i>86</i>	<i>4.6</i>	
East Midlands	Bassetlaw	113,000	1.68	0.61	0.68	0.84	0.82	1.04	124	0.94	0.75	1.18	111	2.6
	Derby City	248,900	0.98	1.68	1.37	1.07	1.40	1.56	157	1.34	1.17	1.54	133	19.7
	<i>Derbyshire County</i>	<i>737,500</i>	<i>0.82</i>	<i>1.04</i>	<i>0.78</i>	<i>0.73</i>	<i>0.90</i>	<i>0.83</i>	<i>99</i>	<i>0.85</i>	<i>0.78</i>	<i>0.94</i>	<i>100</i>	<i>2.5</i>
	Leicester City	329,600	1.68	1.57	1.31	1.74	1.82	1.61	140	1.62	1.44	1.82	139	49.5
	<i>Leicestershire County and Rutland</i>	<i>688,800</i>	<i>0.86</i>	<i>0.71</i>	<i>0.80</i>	<i>0.93</i>	<i>0.83</i>	<i>0.71</i>	<i>83</i>	<i>0.81</i>	<i>0.73</i>	<i>0.89</i>	<i>92</i>	<i>8.3</i>
	<i>Lincolnshire Teaching</i>	<i>717,200</i>	<i>0.79</i>	<i>0.69</i>	<i>0.71</i>	<i>0.85</i>	<i>0.89</i>	<i>0.69</i>	<i>86</i>	<i>0.77</i>	<i>0.70</i>	<i>0.85</i>	<i>95</i>	<i>2.4</i>
	Northamptonshire Teaching	694,000	0.99	1.19	0.81	0.80	0.90	1.12	120	0.97	0.88	1.07	101	8.5
	Nottingham City	303,900	0.97	1.31	1.46	1.49	1.06	1.18	102	1.24	1.08	1.43	106	28.5
	Nottinghamshire County Teaching	673,800	1.06	0.91	1.01	0.90	0.90	0.82	95	0.93	0.85	1.02	106	4.8
West Midlands	Birmingham East and North	421,400	1.45	1.73	1.45	1.38	1.86	1.61	154	1.58	1.43	1.75	149	36.1
	Coventry Teaching	316,900	1.36	1.53	1.71	1.31	1.52	1.89	183	1.55	1.38	1.75	149	26.2
	Dudley	313,300	0.96	0.82	1.40	0.80	0.80	1.19	137	1.00	0.87	1.14	113	10.0
	Heart of Birmingham Teaching	299,200	2.47	2.83	2.68	2.19	1.89	2.14	160	2.37	2.12	2.64	177	70.5
	Herefordshire	183,600	0.93	0.93	1.08	0.71	0.82	0.86	109	0.89	0.74	1.06	111	1.8
	North Staffordshire	212,900	0.56	0.84	1.30	0.69	1.18	0.62	75	0.87	0.73	1.03	103	3.5
	Sandwell	309,000	1.55	2.15	1.76	1.84	1.65	1.39	139	1.72	1.54	1.92	170	30.1
	<i>Shropshire County</i>	<i>307,100</i>	<i>0.78</i>	<i>1.00</i>	<i>0.71</i>	<i>0.92</i>	<i>0.92</i>	<i>0.73</i>	<i>91</i>	<i>0.84</i>	<i>0.73</i>	<i>0.97</i>	<i>103</i>	<i>2.0</i>
	Solihull	206,900	0.76	0.98	1.37	1.02	0.70	0.99	116	0.97	0.82	1.15	112	10.9
	South Birmingham	353,700	1.26	1.53	1.39	1.09	1.26	1.09	105	1.27	1.12	1.43	121	25.3
	<i>South Staffordshire</i>	<i>628,500</i>	<i>0.95</i>	<i>0.88</i>	<i>0.77</i>	<i>1.00</i>	<i>0.97</i>	<i>0.76</i>	<i>89</i>	<i>0.89</i>	<i>0.81</i>	<i>0.98</i>	<i>102</i>	<i>4.7</i>
	Stoke on Trent	256,900	1.24	1.01	1.33	1.32	0.99	0.88	93	1.13	0.98	1.30	118	11.0
	Telford and Wrekin	166,800	1.61	1.08	1.24	1.51	1.06	1.23	126	1.29	1.08	1.53	130	7.3
	Walsall Teaching	269,500	1.13	1.37	1.01	1.84	1.10	1.34	145	1.30	1.14	1.48	138	21.1
	Warwickshire	546,600	1.01	0.98	0.96	1.15	1.06	0.81	93	0.99	0.90	1.10	113	7.3
Wolverhampton City	249,900	1.01	1.44	1.11	1.45	1.18	1.41	148	1.27	1.10	1.46	131	32.0	
<i>Worcestershire</i>	<i>566,600</i>	<i>0.83</i>	<i>0.94</i>	<i>1.05</i>	<i>0.77</i>	<i>0.81</i>	<i>0.98</i>	<i>118</i>	<i>0.90</i>	<i>0.81</i>	<i>1.00</i>	<i>106</i>	<i>4.3</i>	
East of England	<i>Bedfordshire</i>	<i>413,500</i>	<i>0.60</i>	<i>0.76</i>	<i>0.81</i>	<i>0.90</i>	<i>0.74</i>	<i>1.00</i>	<i>109</i>	<i>0.80</i>	<i>0.70</i>	<i>0.92</i>	<i>85</i>	<i>11.2</i>
	<i>Cambridgeshire</i>	<i>622,300</i>	<i>0.82</i>	<i>0.73</i>	<i>1.02</i>	<i>0.80</i>	<i>0.95</i>	<i>0.65</i>	<i>71</i>	<i>0.83</i>	<i>0.74</i>	<i>0.92</i>	<i>88</i>	<i>7.4</i>
	<i>Hertfordshire</i>	<i>1,119,800</i>	<i>0.74</i>	<i>0.95</i>	<i>0.82</i>	<i>0.90</i>	<i>0.92</i>	<i>0.79</i>	<i>83</i>	<i>0.85</i>	<i>0.79</i>	<i>0.92</i>	<i>88</i>	<i>12.4</i>
	Great Yarmouth and Waveney	212,800	1.17	1.09	0.89	1.13	1.10	0.91	117	1.05	0.90	1.22	132	2.7
	Luton	203,600	1.47	1.13	1.01	1.15	1.44	1.22	108	1.24	1.04	1.47	108	45.3
	Mid Essex	375,200	0.92	0.84	0.93	0.90	0.94	0.75	85	0.88	0.77	1.00	98	4.4
	<i>Norfolk</i>	<i>762,000</i>	<i>1.07</i>	<i>0.88</i>	<i>0.69</i>	<i>0.81</i>	<i>0.81</i>	<i>0.77</i>	<i>97</i>	<i>0.84</i>	<i>0.76</i>	<i>0.91</i>	<i>104</i>	<i>3.5</i>

Table 1.2. Continued

UK Area	PCT/HB	Tot pop (2011)	2007 O/E	2008 O/E	2009 O/E	2010 O/E	2011 O/E	2012		2007–2012				% non- White
								O/E	Crude rate pmp	O/E	95% LCL	95% UCL	Crude rate pmp*	
East of England	North East Essex	311,700		1.57	0.82	0.98	1.27	0.98	119	1.12	0.98	1.29	135	5.5
	Peterborough	184,500	1.09	1.03	1.19	0.70	0.96	0.62	60	0.93	0.76	1.13	89	17.5
	<i>South East Essex</i>	<i>345,600</i>	<i>1.03</i>	<i>0.91</i>	<i>0.62</i>	<i>0.78</i>	<i>0.79</i>	<i>0.81</i>	<i>95</i>	<i>0.82</i>	<i>0.71</i>	<i>0.94</i>	<i>95</i>	<i>5.7</i>
	South West Essex	407,100	0.92	1.11	0.69	0.85	1.02	1.11	115	0.95	0.84	1.08	97	9.8
	<i>Suffolk</i>	<i>614,800</i>	<i>0.93</i>	<i>0.72</i>	<i>0.86</i>	<i>0.74</i>	<i>0.63</i>	<i>0.88</i>	<i>104</i>	<i>0.79</i>	<i>0.71</i>	<i>0.88</i>	<i>92</i>	<i>5.3</i>
	<i>West Essex</i>	<i>289,600</i>	<i>0.73</i>	<i>0.48</i>	<i>0.79</i>	<i>0.67</i>	<i>0.75</i>	<i>1.21</i>	<i>135</i>	<i>0.77</i>	<i>0.66</i>	<i>0.91</i>	<i>85</i>	<i>8.1</i>
London	Barking and Dagenham	187,000	1.15	1.56	1.48	1.45	1.67	2.20	176	1.59	1.35	1.87	126	41.7
	Barnet	357,500	1.92	1.40	1.35	1.75	1.46	1.58	148	1.57	1.41	1.76	146	35.9
	Bexley	232,800	1.09	1.17	1.28	1.39	1.19	0.86	90	1.16	1.00	1.35	120	18.1
	Brent Teaching	312,200	1.99	1.92	2.17	2.72	2.19	2.49	215	2.25	2.03	2.49	192	63.7
	Bromley	310,600	0.73	1.28	0.98	1.10	0.68	0.65	71	0.90	0.78	1.04	97	15.7
	Camden	220,100	1.11	1.16	1.37	1.67	1.30	1.20	105	1.30	1.11	1.53	112	33.7
	City and Hackney Teaching	254,600	1.35	1.24	1.68	1.67	1.87	2.04	149	1.64	1.42	1.90	119	44.6
	Croydon	364,800	1.72	1.39	1.64	1.47	1.28	2.04	189	1.59	1.43	1.78	145	44.9
	Ealing	339,300	1.95	1.54	2.27	2.05	1.85	2.26	197	1.99	1.79	2.21	172	51.0
	Enfield	313,900	1.14	1.40	1.31	1.41	2.00	1.65	150	1.49	1.31	1.68	133	39.0
	Greenwich Teaching	255,500	1.47	1.66	1.23	2.08	1.08	1.36	114	1.48	1.28	1.71	122	37.5
	Hammersmith and Fulham	182,400	1.58	0.62	1.30	1.55	1.35	1.57	126	1.33	1.10	1.59	106	31.9
	Haringey Teaching	255,500	1.13	1.58	1.08	1.41	1.90	2.39	192	1.59	1.38	1.83	126	39.5
	Harrow	240,500	0.52	1.68	1.99	2.17	2.27	1.51	150	1.69	1.49	1.92	165	57.8
	<i>Havering</i>	<i>237,900</i>	<i>0.69</i>	<i>0.81</i>	<i>0.61</i>	<i>0.39</i>	<i>1.21</i>	<i>1.05</i>	<i>118</i>	<i>0.80</i>	<i>0.67</i>	<i>0.95</i>	<i>88</i>	<i>12.3</i>
	Hillingdon	275,500	0.91	1.46	1.33	1.40	1.59	1.47	138	1.36	1.19	1.56	126	39.4
	Hounslow	254,900	1.47	1.19	1.59	1.92	1.85	1.85	161	1.64	1.44	1.88	141	48.6
	Islington	206,300	1.22	0.92	1.59	1.50	1.63	2.31	184	1.53	1.30	1.79	121	31.8
	Kensington and Chelsea	158,300	0.54	1.28	0.87	1.17	0.93	0.79	76	0.93	0.75	1.15	87	29.4
	Kingston	160,400	0.88	1.49	0.74	0.89	1.06	1.13	106	1.03	0.84	1.27	96	25.5
	Lambeth	304,500	1.95	1.61	1.96	1.52	1.85	1.82	138	1.78	1.57	2.02	135	42.9
	Lewisham	276,900	1.83	1.61	2.31	1.46	1.90	1.99	162	1.85	1.64	2.10	150	46.5
	Newham	310,500	1.65	1.78	2.03	2.52	2.27	2.02	139	2.05	1.81	2.31	140	71.0
	Redbridge	281,400	1.38	1.54	1.81	1.56	1.39	2.15	192	1.64	1.45	1.86	145	57.5
	<i>Richmond and Twickenham</i>	<i>187,500</i>	<i>0.77</i>	<i>0.77</i>	<i>0.81</i>	<i>0.89</i>	<i>0.70</i>	<i>0.81</i>	<i>80</i>	<i>0.79</i>	<i>0.64</i>	<i>0.98</i>	<i>77</i>	<i>14.0</i>
	Southwark	288,700	2.33	2.10	1.51	1.87	2.03	1.86	142	1.95	1.72	2.20	148	45.8
Sutton and Merton	391,700	1.23	1.47	1.27	1.36	1.45	1.63	156	1.40	1.25	1.57	132	28.4	
Tower Hamlets	256,000	1.77	2.00	1.90	1.46	1.81	2.02	133	1.83	1.58	2.11	120	54.8	
Waltham Forest	259,700	2.41	1.32	1.64	1.15	1.86	1.17	96	1.59	1.39	1.83	130	47.8	
Wandsworth	307,700	1.69	1.61	1.90	1.53	1.19	1.19	94	1.52	1.33	1.73	119	28.6	
Westminster	219,600	0.71	1.46	1.71	1.29	1.49	1.35	123	1.34	1.14	1.56	121	38.3	
South East Coast	Brighton and Hove City	273,000	0.82	1.06	1.12	0.83	0.92	1.12	106	0.98	0.84	1.15	92	10.9
	<i>East Sussex Downs and Weald</i>	<i>343,900</i>	<i>0.89</i>	<i>0.65</i>	<i>0.62</i>	<i>0.61</i>	<i>0.75</i>	<i>1.04</i>	<i>134</i>	<i>0.76</i>	<i>0.66</i>	<i>0.87</i>	<i>96</i>	<i>3.8</i>
	Eastern and Coastal Kent	759,600	1.31	1.19	1.04	1.04	0.90	0.88	103	1.06	0.97	1.15	121	5.0
	<i>Hastings and Rother</i>	<i>183,400</i>	<i>0.61</i>	<i>0.92</i>	<i>0.68</i>	<i>0.74</i>	<i>1.02</i>	<i>0.80</i>	<i>104</i>	<i>0.80</i>	<i>0.66</i>	<i>0.96</i>	<i>101</i>	<i>4.5</i>
	Medway	264,900	1.42	0.65	0.99	0.82	0.87	0.79	79	0.92	0.79	1.09	91	10.4
	Surrey	1,124,800	0.80	0.93	0.97	1.04	0.97	0.97	108	0.95	0.88	1.02	104	9.5
	West Kent	706,800	1.00	1.02	0.98	0.82	0.89	0.75	82	0.91	0.83	1.00	98	7.7
	<i>West Sussex</i>	<i>808,900</i>	<i>0.85</i>	<i>0.87</i>	<i>0.77</i>	<i>0.76</i>	<i>0.67</i>	<i>0.72</i>	<i>88</i>	<i>0.77</i>	<i>0.70</i>	<i>0.85</i>	<i>92</i>	<i>6.2</i>

Table 1.2. Continued

UK Area	PCT/HB	Tot pop (2011)	2007 O/E	2008 O/E	2009 O/E	2010 O/E	2011 O/E	2012		2007–2012				% non- White
								O/E	Crude rate pmp	O/E	95% LCL	95% UCL	Crude rate pmp*	
South Central	Berkshire East	410,100	1.34	1.23	1.32	1.25	1.36	0.85	80	1.22	1.09	1.38	115	26.6
	Berkshire West	464,400	0.89	1.11	0.84	0.75	1.05	0.76	78	0.90	0.79	1.02	90	14.0
	<i>Buckinghamshire</i>	<i>521,000</i>	<i>0.77</i>	<i>0.84</i>	<i>0.93</i>	<i>0.75</i>	<i>0.79</i>	<i>0.75</i>	<i>83</i>	<i>0.80</i>	<i>0.71</i>	<i>0.90</i>	<i>87</i>	<i>13.3</i>
	<i>Hampshire</i>	<i>1,322,100</i>	<i>0.77</i>	<i>0.83</i>	<i>0.83</i>	<i>0.76</i>	<i>0.74</i>	<i>0.69</i>	<i>81</i>	<i>0.77</i>	<i>0.71</i>	<i>0.83</i>	<i>88</i>	<i>5.0</i>
	<i>Isle of Wight National Health Service</i>	<i>138,400</i>	<i>0.22</i>	<i>0.34</i>	<i>0.16</i>	<i>0.62</i>	<i>0.82</i>	<i>0.87</i>	<i>116</i>	<i>0.51</i>	<i>0.39</i>	<i>0.66</i>	<i>66</i>	<i>2.7</i>
	Milton Keynes	255,400	1.18	1.00	1.00	1.11	0.99	1.19	110	1.08	0.92	1.27	97	19.6
	Oxfordshire	629,600	0.74	0.68	1.03	0.93	1.04	0.99	105	0.90	0.81	1.00	94	9.4
	Portsmouth City Teaching	205,400	0.80	0.90	0.74	0.59	1.30	1.10	102	0.91	0.75	1.10	84	11.6
	Southampton City	235,900	0.85	1.22	0.60	1.23	1.14	0.88	81	0.99	0.83	1.17	90	14.1
South West	Bath and North East Somerset	175,500	0.94	0.73	1.38	0.63	0.56	0.96	108	0.87	0.71	1.05	96	5.4
	<i>Bournemouth and Poole Teaching</i>	<i>331,500</i>	<i>0.68</i>	<i>0.84</i>	<i>0.53</i>	<i>0.54</i>	<i>0.74</i>	<i>0.79</i>	<i>90</i>	<i>0.69</i>	<i>0.59</i>	<i>0.81</i>	<i>77</i>	<i>6.3</i>
	Bristol	428,100	1.05	1.56	1.19	1.45	1.38	1.26	117	1.31	1.18	1.47	121	16.0
	Cornwall and Isles of Scilly	536,000	0.98	0.89	1.09	0.89	0.79	0.96	123	0.93	0.84	1.03	117	1.8
	Devon	747,700	1.07	1.13	1.01	0.93	0.89	0.99	128	1.00	0.92	1.09	128	2.5
	<i>Dorset</i>	<i>413,800</i>	<i>0.72</i>	<i>0.92</i>	<i>0.69</i>	<i>0.61</i>	<i>0.70</i>	<i>0.65</i>	<i>89</i>	<i>0.71</i>	<i>0.63</i>	<i>0.81</i>	<i>97</i>	<i>2.1</i>
	Gloucestershire	598,300	0.88	0.68	1.13	0.87	0.92	1.17	137	0.94	0.85	1.04	108	4.6
	North Somerset	203,100	0.82	1.19	0.88	0.99	0.84	0.99	123	0.95	0.81	1.12	116	2.7
	Plymouth Teaching	256,600	1.73	1.05	1.15	1.29	1.10	0.95	101	1.21	1.05	1.39	127	3.9
	<i>Somerset</i>	<i>531,600</i>	<i>0.73</i>	<i>0.75</i>	<i>1.11</i>	<i>1.07</i>	<i>0.85</i>	<i>0.69</i>	<i>87</i>	<i>0.87</i>	<i>0.78</i>	<i>0.96</i>	<i>106</i>	<i>2.0</i>
	South Gloucestershire	263,400	0.88	0.98	0.69	1.17	0.58	0.82	91	0.85	0.73	1.00	93	5.0
	Swindon	214,900	0.61	1.08	1.07	1.00	1.16	1.29	130	1.04	0.87	1.23	103	10.0
Torbay	131,200	0.90	1.62	0.70	1.50	0.87	1.10	145	1.11	0.92	1.34	144	2.5	
<i>Wiltshire</i>	<i>474,300</i>	<i>0.62</i>	<i>0.85</i>	<i>0.74</i>	<i>0.83</i>	<i>0.63</i>	<i>0.49</i>	<i>57</i>	<i>0.69</i>	<i>0.61</i>	<i>0.79</i>	<i>78</i>	<i>3.4</i>	
Wales	Betsi Cadwaladr University	688,700	1.11	0.93	0.94	1.00	0.81	0.99	121	0.96	0.88	1.05	115	2.5
	Powys Teaching	133,200	0.99	0.93	1.03	0.64	1.25	1.24	165	1.02	0.84	1.23	133	1.6
	Hywel Dda	381,900	1.10	1.27	0.80	1.12	1.20	0.86	107	1.06	0.94	1.18	130	2.2
	Abertawe Bro Morgannwg Univ.	517,700	1.51	1.20	1.52	1.47	1.14	1.35	155	1.36	1.25	1.49	153	3.9
	Cwm Taf	293,500	1.61	1.07	1.31	0.99	1.45	0.86	95	1.21	1.07	1.38	132	2.6
	Aneurin Bevan	577,000	1.34	0.95	0.95	1.30	1.17	1.16	132	1.14	1.04	1.26	127	3.9
	Cardiff and Vale University	472,300	1.46	1.00	1.14	1.36	1.00	1.05	104	1.17	1.05	1.30	114	12.2
Scotland	Ayrshire & Arran	373,800	0.85	0.82	0.88	1.08	0.81	0.89	107	0.89	0.78	1.01	105	0.7
	Borders	113,900	1.20	1.13	0.97	1.06	0.55	0.48	61	0.89	0.71	1.12	113	0.6
	Dumfries and Galloway	151,400	0.83	1.14	1.07	0.63	0.56	1.06	139	0.88	0.73	1.07	113	0.7
	Fife	365,300	1.00	0.96	1.21	1.19	1.15	0.86	99	1.06	0.94	1.20	120	1.3
	Forth Valley	298,100	1.33	0.77	1.07	1.03	0.79	0.84	94	0.97	0.84	1.12	106	1.1
	<i>Grampian</i>	<i>569,600</i>	<i>0.84</i>	<i>0.87</i>	<i>0.88</i>	<i>0.85</i>	<i>0.82</i>	<i>0.85</i>	<i>93</i>	<i>0.85</i>	<i>0.76</i>	<i>0.95</i>	<i>92</i>	<i>1.6</i>
	Greater Glasgow & Clyde	1,214,600	1.08	0.95	1.00	0.87	1.04	1.10	117	1.01	0.94	1.08	105	3.4
	<i>Highland</i>	<i>321,700</i>	<i>0.86</i>	<i>0.83</i>	<i>0.72</i>	<i>0.60</i>	<i>0.48</i>	<i>0.53</i>	<i>65</i>	<i>0.67</i>	<i>0.57</i>	<i>0.78</i>	<i>81</i>	<i>0.8</i>
	<i>Lanarkshire</i>	<i>572,400</i>	<i>0.80</i>	<i>0.77</i>	<i>0.84</i>	<i>0.96</i>	<i>0.84</i>	<i>1.15</i>	<i>126</i>	<i>0.89</i>	<i>0.80</i>	<i>1.00</i>	<i>96</i>	<i>1.2</i>
	<i>Lothian</i>	<i>836,600</i>	<i>0.88</i>	<i>0.97</i>	<i>0.85</i>	<i>0.62</i>	<i>0.72</i>	<i>0.73</i>	<i>75</i>	<i>0.79</i>	<i>0.72</i>	<i>0.87</i>	<i>81</i>	<i>2.8</i>
	Orkney	21,400	0.38	1.54	1.14	0.39	0.00	1.86	233	0.89	0.53	1.50	109	0.4
	Shetland	23,200	1.58	0.00	0.39	0.40	0.78	0.00	0	0.52	0.26	1.04	57	1.1
	Tayside	410,300	1.26	1.17	1.28	0.98	1.14	0.72	85	1.09	0.98	1.22	126	1.9
Western Isles	27,700	1.72	0.29	0.85	1.73	0.00	0.00	0	0.76	0.46	1.24	96	0.6	
N Ireland	Belfast	348,300	1.27	1.01	0.76	1.25	1.10	1.68	167	1.18	1.04	1.34	115	3.2
	Northern	463,500	1.39	1.14	0.78	1.19	1.22	1.15	119	1.15	1.03	1.28	116	1.2
	Southern	359,400	0.60	0.96	0.77	1.07	1.33	0.76	72	0.92	0.79	1.06	85	1.2
	<i>South Eastern</i>	<i>347,700</i>	<i>0.92</i>	<i>0.87</i>	<i>0.69</i>	<i>0.71</i>	<i>0.96</i>	<i>0.79</i>	<i>83</i>	<i>0.82</i>	<i>0.71</i>	<i>0.95</i>	<i>85</i>	<i>1.3</i>
	Western	295,300	1.04	0.90	1.21	0.84	1.10	0.56	54	0.94	0.81	1.10	89	1.0

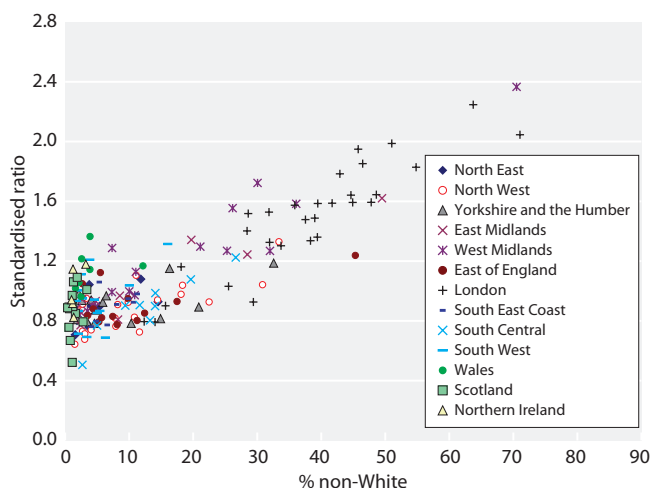


Fig. 1.2. Age/gender standardised incidence ratio (2007–2012) by percentage non-White

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). Chi-squared, Fisher's exact, ANOVA and Kruskal Wallis tests were used as appropriate to test for significant differences.

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 [2]. 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.

Results

Age

Overall, incidence rates have levelled off in the last seven years (figure 1.3). Figure 1.4 shows RRT incidence rates for 2012 by age group and gender. For women, the peak rate was in the 75–79 age group and in men in the 80–84 age group. Regarding numbers starting RRT (rather than rates), figure 1.5 shows that the 65–74 age group contained the most patients starting on both HD and PD. The pattern seen in this graph is very similar to the pattern for 2011.

In 2012, the median age of patients starting renal replacement therapy was 64.6 years (table 1.4) and this has changed little over the last six years (data not shown). The median age at start was 66.9 years for patients starting on HD, 60.5 for patients starting on PD and 48.6 for those having a pre-emptive transplant (table 1.5). The median age of non-White patients (57.8 years) was considerably lower than for White patients (66.1 years) reflecting the younger age distribution of

ethnic minority populations in general compared with the White population (5.1% of ethnic minorities were over 65 years old compared to 16.9% of Whites) [3]. The median age of new patients with diabetes was similar to the overall median and has not varied greatly over the last five years.

There were large differences between centres in the median age of incident patients (figure 1.6) reflecting differences in the age and ethnic structure of the catchment populations and also, particularly in smaller centres, chance fluctuations. The median age of patients starting treatment at transplant centres was 63.1 years (IQR 49.8, 73.6) and at non-transplanting centres 65.9 years (IQR 52.7, 75.2) ($p < 0.0001$).

Averaged over 2007–2012, crude PCT/HB incidence rates in the over 75 years age group varied from 0 per million age related population (pmarp) (Shetland) to 904 pmarp (Heart of Birmingham) (data not shown). Excluding four areas which had much higher or lower rates than the rest, there was 5.4-fold variation (124 pmarp to 673 pmarp). The wide range of treatment rates suggests that there was geographical variation in the prevalence of comorbid and predisposing renal conditions as well as uncertainty within the renal community about the suitability of older patients for dialysis. The 5.4-fold variation between PCT/HBs seen in the over 75s was much greater than the 2.6-fold variation (66 pmp to 172 pmp) seen in the overall analysis although a proportion of this difference is likely to be due to the smaller numbers included in the over 75 analysis.

Gender

As in previous years, more men than women started RRT with 62.1% of new starters being male. This was a slight fall from the 63.0% seen for 2011 and negates some of the increase seen in 2010 and 2011. The male percentage was above 50 for all age groups and above 60 for over 55s (figure 1.7).

Ethnicity

As in previous reports, Scotland is not included in this section as ethnicity completeness was low. Across English, Welsh and Northern Irish centres the average completeness improved further this year up to 97.0% (vs 92.9% for 2011). A large part of the improvement was due to three centres (Brighton, Reading, Liverpool RI) which improved from having data for 3%, 30% and 40% of patients respectively to having data for 80% or more. Indeed, completeness was 80% or more for all centres for 2012 (table 1.6) and was over 90% for all

Table 1.3. Number of patients starting RRT by renal centre 2007–2012

Centre	Year						Catchment population (millions)	2012 crude rate pmp	(95% CI)
	2007	2008	2009	2010	2011	2012			
England									
B Heart	101	105	99	95	113	101	0.74	137	(110–164)
B QEH	222	268	255	197	215	216	1.70	127	(110–144)
Basldn	39	40	27	32	42	53	0.42	128	(93–162)
Bradfd	88	62	59	67	60	71	0.65	109	(84–134)
Brightn	120	119	117	106	119	136	1.30	105	(87–122)
Bristol	153	175	157	169	139	148	1.44	103	(86–119)
Camb	125	94	134	106	122	124	1.16	107	(88–126)
Carlis	26	30	28	22	28	19	0.32	59	(33–86)
Carsh	191	210	204	216	207	242	1.91	127	(111–142)
Chelms	51	36	51	45	47	45	0.51	88	(62–114)
Colchr	n/a	58	21	32	44	29	0.30	97	(62–132)
Covnt	110	113	116	114	111	112	0.89	126	(102–149)
Derby	62	97	77	79	80	81	0.70	115	(90–140)
Donc	20	26	40	45	43	40	0.41	98	(67–128)
Dorset	62	82	74	71	79	72	0.86	84	(64–103)
Dudley	40	46	69	43	43	56	0.44	127	(94–160)
Exeter	126	135	145	139	112	138	1.09	127	(106–148)
Glouc	59	46	79	61	58	74	0.59	126	(97–155)
Hull	99	110	99	87	109	97	1.02	95	(76–114)
Ipswi	40	38	38	33	29	43	0.40	108	(76–140)
Kent	171	139	128	134	122	115	1.22	94	(77–111)
L Barts	215	206	237	203	249	263	1.83	144	(126–161)
L Guys	167	161	172	143	120	127	1.08	117	(97–138)
L Kings	122	151	126	144	140	125	1.17	107	(88–125)
L Rfree	185	172	169	204	223	240	1.52	158	(138–178)
L St.G	90	99	110	86	74	91	0.80	114	(91–137)
L West	273	317	357	365	365	352	2.40	147	(131–162)
Leeds	124	158	153	126	158	154	1.67	92	(78–107)
Leic	244	242	228	246	267	235	2.44	96	(84–109)
Liv Ain	34	42	38	50	61	63	0.48	130	(98–162)
Liv RI	112	102	110	99	114	110	1.00	110	(89–131)
M RI	159	131	146	161	156	160	1.53	104	(88–121)
Middlbr	100	95	96	101	100	120	1.00	120	(98–141)
Newc	106	99	97	91	98	104	1.12	93	(75–111)
Norwch	111	84	72	86	87	74	0.79	94	(73–116)
Nottm	129	115	133	116	116	99	1.09	91	(73–109)
Oxford	143	148	174	165	177	171	1.69	101	(86–116)
Plymth ^a	76	69	57	56	60	75	0.47	160	(124–196)
Ports	157	170	149	149	187	161	2.02	80	(67–92)
Prestn	132	113	146	124	140	147	1.49	98	(83–114)
Redng	92	103	94	89	103	73	0.91	80	(62–99)
Salford	110	139	125	149	126	134	1.49	90	(75–105)
Sheff	165	180	149	143	135	158	1.37	115	(97–133)
Shrew	58	59	48	58	61	57	0.50	114	(84–143)
Stevng	88	102	98	107	110	110	1.20	91	(74–108)
Sthend	34	36	23	28	29	26	0.32	82	(51–114)
Stoke	87	80	110	95	93	77	0.89	87	(67–106)
Sund	62	45	64	54	57	71	0.62	115	(88–142)
Truro	45	41	58	46	38	50	0.41	121	(87–155)
Wirral	53	39	63	62	62	50	0.57	87	(63–112)
Wolve	68	89	65	106	76	84	0.67	126	(99–152)
York	37	36	44	38	52	53	0.49	108	(79–137)

Table 1.3. Continued

Centre	Year						Catchment population (millions)	2012 crude rate pmp	(95% CI)
	2007	2008	2009	2010	2011	2012			
N Ireland									
Antrim	37	41	21	41	30	26	0.30	87	(53–120)
Belfast	90	70	58	72	69	91	0.55	165	(131–199)
Newry	15	21	19	21	38	18	0.28	64	(35–94)
Ulster	18	14	13	20	35	30	0.30	100	(64–136)
West NI	29	31	37	26	38	21	0.35	60	(34–86)
Scotland									
Abrdn	56	56	55	51	50	54	0.60	90	(66–114)
Airdrie	48	39	48	56	48	61	0.56	109	(82–136)
D & Gall	17	19	17	10	10	19	0.15	127	(70–184)
Dundee	62	64	69	50	58	41	0.41	100	(69–131)
Dunfn	37	30	33	45	43	29	0.37	78	(50–107)
Edinb	95	103	98	68	75	76	0.96	79	(61–97)
Glasgw	187	159	174	153	177	186	1.51	123	(105–141)
Inverns	26	25	21	27	12	13	0.34	38	(17–59)
Klmarnk	36	33	39	43	33	40	0.37	108	(75–142)
Wales									
Bangor	36	40	30	26	20	21	0.22	96	(55–137)
Cardff	220	150	177	186	186	170	1.42	120	(102–138)
Clwyd	21	15	25	21	17	22	0.19	116	(68–164)
Swanse	128	125	116	135	118	113	0.89	128	(104–151)
Wrexm	27	21	19	25	26	34	0.24	142	(94–189)
							% change since 2007		
England	5,483	5,652	5,728	5,583	5,756	5,826	6.3		
N Ireland	189	177	148	180	210	186	–1.6		
Scotland	564	528	554	503	506	519	–8.0		
Wales	432	351	367	393	367	360	–16.7		
UK	6,668	6,708	6,797	6,659	6,839	6,891	3.3		

n/a – renal centre not yet operational

pmp – per million population

^aPlymouth had 75 incident patients in 2012 but only 47 of these were included in the data extract. The extra 28 patients have been included in tables 1.1 and 1.3 but not in the remainder of this chapter. The estimated catchment population may be too low and hence the rate too high due to the missing patients (an incident cohort 2008–2012 was used for this work)

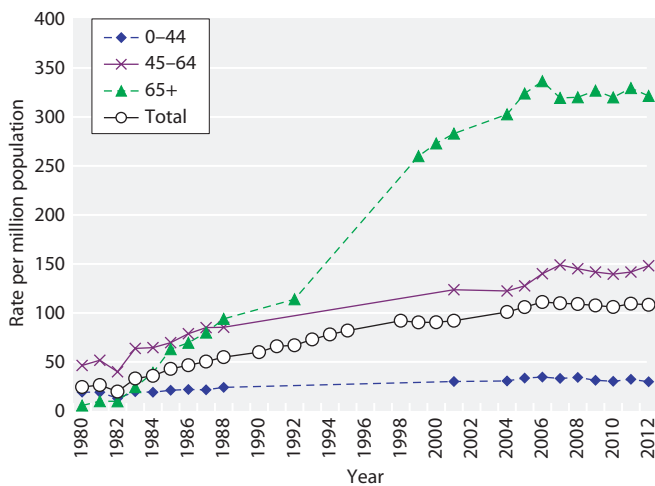


Fig. 1.3. RRT incidence rates between 1980 and 2012

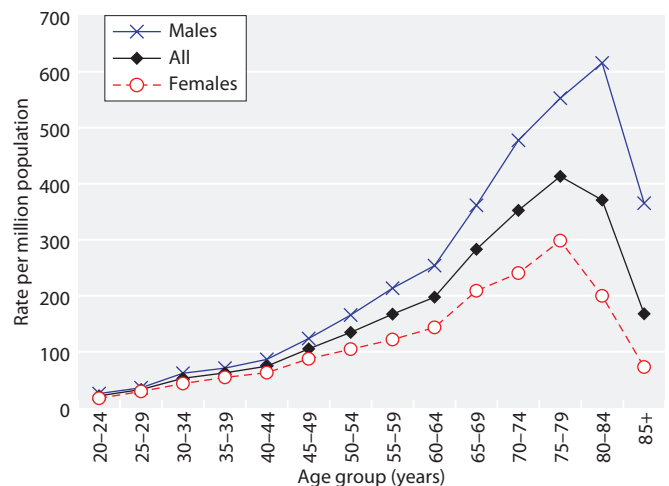


Fig. 1.4. RRT incidence rates in 2012 by age and gender

Table 1.4. Median, inter-quartile range and 90% range of the age of patients starting renal replacement therapy in 2012 by country

Country	Median	IQR	90% range
England	64.5	(51.0–74.6)	(31.2–83.7)
N Ireland	68.2	(52.0–76.0)	(33.3–85.4)
Scotland	63.9	(51.9–73.3)	(35.2–82.7)
Wales	67.1	(53.6–75.8)	(34.1–83.8)
UK	64.6	(51.3–74.5)	(31.6–83.6)

but six centres. There was great variation between centres in the percentage of incident patients who were non-White ranging from zero in Antrim, Bangor, Colchester, Newry, Truro and Wrexham to over 50% in St Bartholomew’s and London West.

Table 1.5. Median, inter-quartile range and 90% range of the age of patients starting renal replacement therapy in 2012 by initial treatment modality

Treatment	Median	IQR	90% range
HD	66.9	(54.8–76.0)	(34.7–84.4)
PD	60.5	(47.0–71.2)	(29.1–82.0)
Transplant	48.6	(38.4–58.3)	(24.2–68.8)

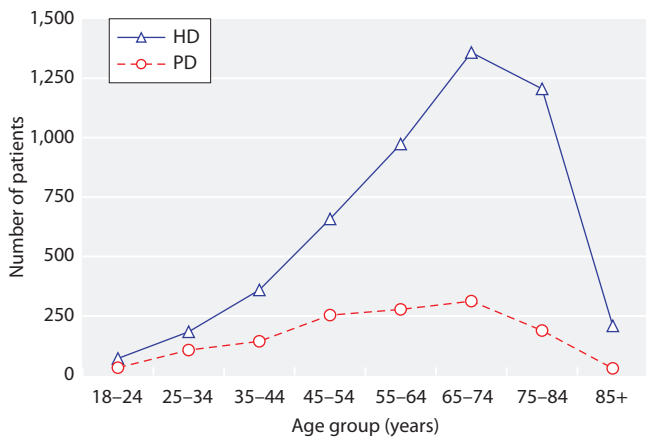


Fig. 1.5. Number of incident dialysis patients in 2012, by age group and initial dialysis modality

Primary renal diagnosis

The breakdown of primary renal disease (PRD) by centre is shown in table 1.7. The information was missing for 6.3% of patients. Sixty-one centres provided data on over 90% of incident patients and 33 of these centres had 100% completeness. There was only a small amount of missing data for Wales and none for Scotland, whilst England had 7.4% missing (down from 12.0% for 2011) and Northern Ireland, 2.7% missing. The overall percentage missing was down on 2011 (6.3% from 10.2%) and was slightly lower in under rather than over 65 year olds (5.3% and 7.3% respectively). As for 2011, four centres had missing PRD for more than 25% of incident patients and for these centres the percentages in the diagnostic categories are not shown in table 1.7.

The UKRR continues to be concerned about centres with apparently very high data completeness for PRD but also very high rates of ‘uncertain’ diagnoses (EDTA code 00: Chronic renal failure; aetiology uncertain). 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

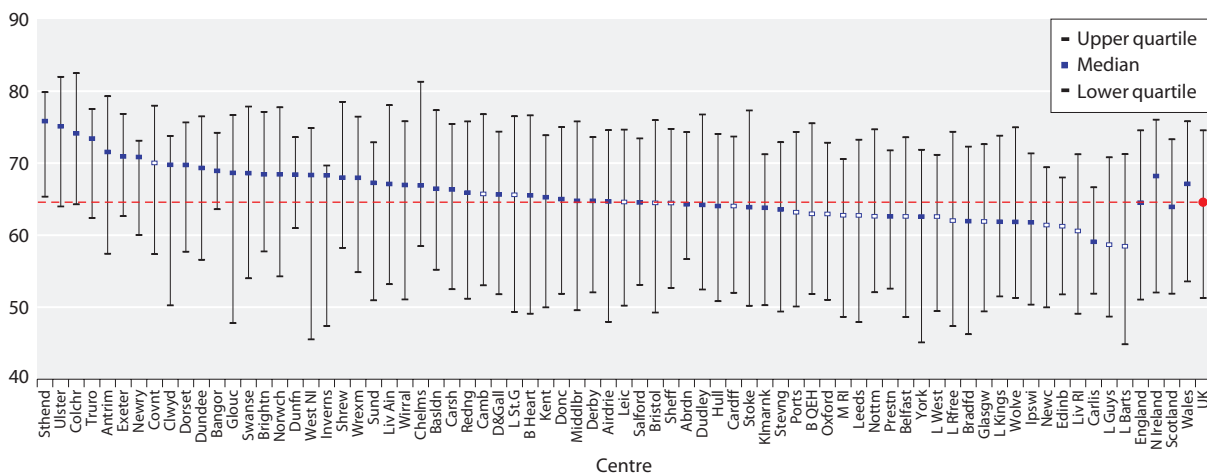


Fig. 1.6. Median age of incident RRT patients by centre in 2012
White points indicate transplant centres

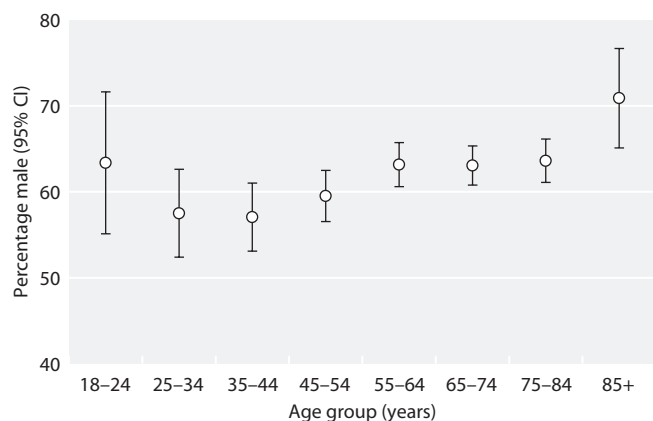


Fig. 1.7. Percentage of patients starting RRT in 2012 who were male, by age group

definitions of e.g. renal vascular disease and hypertensive renal disease remain relatively subjective. There was again a lot of variability between centres but, as in previous years, a small number of centres had far higher percentages with ‘uncertain’ diagnosis than other centres. This year, there were two centres with diagnosis ‘uncertain’ for over 50% of their incident patients – Cambridge (68%) and Ipswich (65%). 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 1.7 or been used in the country and UK averages. These centres have also been excluded where PRD is used to stratify analyses.

As in previous years, there was a lot of variability between centres in the percentages with the specific

diagnoses (partly due to the reasons mentioned above). For example, the percentage with diabetes as PRD varied from about 10% to 44% of incident patients. The overall percentage with uncertain aetiology was lower than last year (15.9% vs. 17.3%). There were increases in the percentages with diabetes, glomerulonephritis, hypertension and ‘other’ and decreases in the percentages with polycystic kidney disease, pyelonephritis and renal vascular disease.

The overall UK distribution of PRDs is shown in table 1.8. Diabetic nephropathy was the most common renal diagnosis in both the under and over 65 year age groups, accounting for 26% of all (non-missing) incident diagnoses. Glomerulonephritis and autosomal dominant polycystic kidney disease (ADPKD) made up higher proportions of the younger than the older incident cohorts (17% vs. 10% and 10% vs. 3% respectively), whilst patients with renal vascular disease comprised a much higher percentage of the older rather than the younger patients (11% vs. 2%). Uncertainty about the underlying diagnosis was also much more likely in the older rather than the younger cohort (20% vs. 12%).

For all primary renal diagnoses except ADPKD, the male to female ratio was 1.3 or greater. This gender difference may relate to factors such as smoking, hypertension, atheroma and renal vascular disease which are more common in males and may influence the rate of progression of renal failure.

Table 1.9 shows the incidence rates for each PRD per million population for the 2012 cohort. The incidence of RRT due to diabetes as PRD was somewhat higher in

Table 1.6. Percentage of incident RRT patients (2012) in different ethnic groups by centre

Centre	% data not available	N with data	Percentage in each ethnic group				
			White	South Asian	Black	Chinese	Other
England							
B Heart	0.0	101	70.3	24.8	5.0		
B QEH	0.0	216	70.8	22.7	5.1		1.4
Basldn	0.0	53	79.2	3.8	11.3	5.7	
Bradfd	0.0	71	57.7	42.3			
Brightn	5.1	129	91.5	3.1	3.9		1.6
Bristol	4.1	142	90.8	4.9	4.2		
Camb	0.8	123	96.7	0.8	0.8	0.8	0.8
Carlis	0.0	19	94.7			5.3	
Carsh	14.1	208	72.6	13.0	10.1	0.5	3.8
Chelms	20.0	36	97.2	2.8			
Colchr	0.0	29	100.0				
Covnt	0.9	111	83.8	12.6	2.7	0.9	
Derby	6.2	76	81.6	13.2	2.6	2.6	
Donc	0.0	40	95.0		5.0		
Dorset	0.0	72	98.6				1.4

Table 1.6. Continued

Centre	% data not available	N with data	Percentage in each ethnic group				
			White	South Asian	Black	Chinese	Other
Dudley	0.0	56	85.7	10.7	3.6		
Exeter	0.7	137	97.1	0.7			2.2
Glouc	0.0	74	95.9	2.7			1.4
Hull	4.1	93	96.8	3.2			
Ipswi	9.3	39	97.4		2.6		
Kent	5.2	109	95.4	1.8			2.8
L Barts	0.0	263	35.7	26.6	36.5	0.4	0.8
L Guys	3.2	123	62.6	6.5	23.6	0.8	6.5
L Kings	0.8	124	55.6	11.3	29.8		3.2
L Rfree	12.1	211	50.2	13.7	23.7	1.9	10.4
L St.G	11.0	81	56.8	19.8	16.0	1.2	6.2
L West	0.0	352	41.5	40.6	17.6	0.3	
Leeds	0.6	153	83.7	11.1	4.6	0.7	
Leic	2.6	229	79.5	16.6	2.2		1.7
Liv Ain	0.0	63	95.2	3.2		1.6	
Liv RI	4.5	105	94.3	1.9	1.9		1.9
M RI	0.0	160	75.6	10.6	10.0		3.8
Middlbr	0.8	119	95.0	5.0			
Newc	1.9	102	92.2	6.9			1.0
Norwch	5.4	70	87.1			12.9	
Nottm	0.0	99	83.8	10.1	4.0		2.0
Oxford	0.0	171	78.9	10.5	4.1		6.4
Plymth	2.1	46	97.8				2.2
Ports	5.6	152	94.1	3.3	1.3		1.3
Prestn	0.0	147	88.4	10.2	1.4		
Redng	19.2	59	72.9	16.9	6.8	1.7	1.7
Salford	10.4	120	82.5	15.8	0.8		0.8
Sheff	1.9	155	86.5	5.8	5.2	2.6	
Shrew	3.5	55	96.4	1.8	1.8		
Stevng	1.8	108	70.4	15.7	8.3	0.9	4.6
Sthend	3.8	25	96.0		4.0		
Stoke	3.9	74	93.2	2.7			4.1
Sund	1.4	70	95.7	4.3			
Truro	0.0	50	100.0				
Wirral	2.0	49	98.0			2.0	
Wolve	0.0	84	70.2	23.8	6.0		
York	0.0	53	96.2	1.9	1.9		
N Ireland				1.6			
Antrim	0.0	26	100.0				
Belfast	0.0	91	94.5	1.1		3.3	1.1
Newry	0.0	18	100.0				
Ulster	0.0	30	96.7	3.3			
West NI	0.0	21	95.2	4.8			
Wales				2.2	0.3		
Bangor	0.0	21	100.0				
Cardff	0.0	170	95.3	3.5	0.6	0.6	
Clwyd	0.0	22	90.9	9.1			
Swanse	0.0	113	99.1				0.9
Wrexm	0.0	34	100.0				
England	3.3	5,606	77.8	12.2	7.6	0.6	1.8
N Ireland	0.0	186	96.2	1.6		1.6	0.5
Wales	0.0	360	96.9	2.2	0.3	0.3	0.3
E, W & NI	3.0	6,152	79.4	11.3	7.0	0.6	1.7

Blank cells – no reported patients

Table 1.7. Distribution of primary renal diagnosis by centre in the 2012 incident RRT cohort

Centre	% data not available	N with data	Percentage							
			Uncertain aetiology	Diabetes	Glomerulo-nephritis	Hyper-tension	Other	Polycystic kidney	Pyelo-nephritis	Renal vascular disease
England										
B Heart	6.9	94	20.2	34.0	7.5	7.5	16.0	4.3	6.4	4.3
B QEH	0.5	215	10.7	20.9	14.0	3.7	23.3	5.6	8.4	13.5
Basldn	11.3	47	2.1	27.7	21.3	14.9	12.8	6.4	4.3	10.6
Bradfd	1.4	70	24.3	27.1	17.1	7.1	10.0	8.6	1.4	4.3
Brightn	2.2	133	24.8	18.1	12.0	1.5	19.6	9.0	10.5	4.5
Bristol	15.5	125	13.6	23.2	17.6	4.0	18.4	8.0	9.6	5.6
Camb ^a	0.0	124	67.7							
Carlis	0.0	19	5.3	15.8	42.1	5.3	0.0	10.5	15.8	5.3
Carsh	22.7	187	24.1	19.8	10.2	6.4	18.2	9.1	7.5	4.8
Chelms	2.2	44	25.0	34.1	13.6	6.8	11.4	2.3	2.3	4.6
Colchr	2.2	29	44.8	24.1	3.5	3.5	10.3	3.5	6.9	3.5
Covnt	1.8	110	12.7	21.8	10.0	11.8	18.2	4.6	7.3	13.6
Derby	2.5	79	12.7	31.7	17.7	1.3	15.2	7.6	6.3	7.6
Donc	2.5	39	28.2	23.1	10.3	10.3	18.0	2.6	0.0	7.7
Dorset	0.0	72	5.6	23.6	11.1	9.7	26.4	9.7	8.3	5.6
Dudley	1.8	55	25.5	14.6	3.6	5.5	38.2	9.1	0.0	3.6
Exeter	0.0	138	8.7	26.1	15.9	8.7	16.7	5.1	7.3	11.6
Glouc	0.0	74	27.0	16.2	14.9	2.7	16.2	5.4	13.5	4.1
Hull	0.0	97	23.7	23.7	14.4	7.2	14.4	11.3	5.2	0.0
Ipswi ^a	0.0	43	65.1							
Kent	0.0	115	25.2	17.4	15.7	3.5	15.7	2.6	15.7	4.4
L Barts	6.5	246	14.2	31.3	11.8	14.6	15.5	4.5	6.5	1.6
L Guys	13.4	110	14.6	28.2	12.7	5.5	12.7	11.8	11.8	2.7
L Kings	0.0	125	13.6	39.2	13.6	12.0	8.8	7.2	4.8	0.8
L Rfree	0.4	239	6.7	26.8	15.1	11.3	27.2	3.4	2.5	7.1
L St.G	18.7	74	28.4	21.6	13.5	9.5	17.6	4.1	4.1	1.4
L West	0.3	351	13.7	35.3	14.5	2.9	18.8	5.4	4.0	5.4
Leeds	1.3	152	10.5	16.5	15.1	11.8	21.7	9.2	8.6	6.6
Leic	16.2	197	21.8	19.3	13.2	6.6	14.7	11.2	7.6	5.6
Liv Ain	0.0	63	22.2	17.5	17.5	14.3	11.1	3.2	6.4	7.9
Liv RI	0.0	90	10.0	20.0	11.1	21.1	23.3	6.7	7.8	0.0
M RI	3.8	154	15.6	29.2	9.1	17.5	14.3	7.1	4.6	2.6
Middlbr	1.7	118	19.5	24.6	11.0	3.4	18.6	6.8	6.8	9.3
Newc	1.9	102	16.7	19.6	23.5	4.9	19.6	3.9	4.9	6.9
Norwch	8.1	68	29.4	17.7	16.2	5.9	17.7	5.9	7.4	0.0
Nottm	0.0	99	13.1	26.3	15.2	4.0	23.2	6.1	5.1	7.1
Oxford	0.0	171	15.8	31.0	14.6	7.6	11.1	5.9	7.0	7.0
Plymth ^b	27.7	34								
Ports	1.9	158	8.9	23.4	11.4	10.1	19.0	11.4	7.0	8.9
Prestn	1.4	145	13.1	28.3	13.1	11.0	13.8	6.2	7.6	6.9
Redng	2.7	71	11.3	33.8	12.7	5.6	18.3	4.2	8.5	5.6
Salford ^b	78.4	29								
Sheff	0.6	157	15.9	33.8	19.1	3.8	6.4	4.5	8.3	8.3
Shrew ^b	31.6	39								
Stevng	0.0	110	14.6	15.5	6.4	1.8	52.7	4.6	3.6	0.9
Sthend	0.0	26	3.9	15.4	23.1	0.0	23.1	7.7	3.9	23.1
Stoke	6.5	72	8.3	27.8	18.1	9.7	15.3	13.9	5.6	1.4
Sund	0.0	71	5.6	23.9	5.6	22.5	16.9	11.3	5.6	8.5
Truro	8.0	46	10.9	10.9	23.9	15.2	19.6	4.4	6.5	8.7
Wirral ^b	62.0	19								
Wolve	0.0	84	31.0	22.6	13.1	2.4	16.7	8.3	3.6	2.4
York	1.9	52	5.8	21.2	21.2	1.9	21.2	11.5	9.6	7.7

Table 1.7. Continued

Centre	% data not available	N with data	Percentage							
			Uncertain aetiology	Diabetes	Glomerulonephritis	Hypertension	Other	Polycystic kidney	Pyelonephritis	Renal vascular disease
N Ireland										
Antrim	0.0	26	42.3	30.8	7.7	3.9	11.5	0.0	3.9	0.0
Belfast	4.4	87	14.9	18.4	14.9	3.5	20.7	6.9	17.2	3.5
Newry	0.0	18	5.6	44.4	11.1	5.6	5.6	5.6	5.6	16.7
Ulster	0.0	30	10.0	20.0	10.0	30.0	10.0	3.3	3.3	13.3
West NI	4.8	20	5.0	15.0	20.0	15.0	30.0	0.0	10.0	5.0
Scotland										
Abrdn	0.0	54	9.3	25.9	13.0	11.1	20.4	7.4	7.4	5.6
Airdrie	0.0	61	23.0	29.5	18.0	1.6	4.9	6.6	8.2	8.2
D & Gall	0.0	19	10.5	42.1	10.5	5.3	15.8	5.3	5.3	5.3
Dundee	0.0	41	17.1	14.6	26.8	2.4	24.4	4.9	4.9	4.9
Dunfn	0.0	29	20.7	31.0	10.3	6.9	17.2	0.0	6.9	6.9
Edinb	0.0	76	15.8	30.3	13.2	2.6	19.7	9.2	5.3	4.0
Glasgw	0.0	186	14.5	28.5	18.3	2.2	13.4	9.1	7.5	6.5
Inverns	0.0	13	46.2	15.4	7.7	0.0	7.7	15.4	0.0	7.7
Klmarnk	0.0	40	0.0	37.5	15.0	12.5	17.5	5.0	7.5	5.0
Wales										
Bangor	0.0	21	9.5	38.1	19.1	9.5	14.3	0.0	0.0	9.5
Cardff	0.6	169	24.9	26.0	14.2	2.4	11.2	8.9	3.6	8.9
Clwyd	0.0	22	4.6	18.2	18.2	22.7	22.7	4.6	9.1	0.0
Swanse	0.0	113	15.9	29.2	14.2	4.4	18.6	2.7	3.5	11.5
Wrexm	0.0	34	11.8	26.5	14.7	0.0	20.6	8.8	5.9	11.8
England	7.4	5,381	15.7	25.3	13.7	7.9	18.1	6.7	6.7	5.9
N Ireland	2.7	181	16.0	22.7	13.3	9.4	17.1	4.4	11.1	6.1
Scotland	0.0	519	15.2	28.5	16.4	4.2	15.4	7.5	6.7	6.0
Wales	0.3	359	18.7	27.3	14.8	4.5	15.3	6.1	3.9	9.5
UK	6.3	6,440	15.9	25.6	14.0	7.4	17.7	6.7	6.6	6.1

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

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

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

Wales than in the other countries. As there were some missing data, the rates for at least some of the diagnoses will be underestimates.

First established treatment modality

In 2012, the first treatment recorded, irrespective of any later change, was haemodialysis in 73.0% of patients, peritoneal dialysis in 19.5% and pre-emptive transplant in 7.4%. The previous year on year fall in the proportion of patients starting on PD has now levelled off during the last six years (table 1.10). The percentage having a pre-emptive transplant has continued to rise. Table F.1.3 in appendix F: Additional Data Tables for 2012 New and Existing Patients gives the treatment breakdown at start of RRT by centre.

Table 1.8. Percentage distribution of primary renal diagnosis by age in the 2012 incident RRT cohort

Diagnosis	Percentage with diagnosis		
	Age <65	Age ≥65	All patients
Diabetes	28.6	22.3	25.6
Glomerulonephritis	17.3	10.4	14.0
Pyelonephritis	6.8	6.4	6.6
Hypertension	6.2	8.8	7.4
Polycystic kidney	10.1	3.1	6.7
Renal vascular disease	1.7	10.9	6.1
Other	17.4	18.0	17.7
Uncertain aetiology	11.8	20.1	15.9

Percentages calculated after excluding those patients with data not available

Table 1.9. Primary renal diagnosis RRT incidence rates (2012) per million population (unadjusted)

Diagnosis	England	N Ireland	Scotland	Wales	UK
Diabetes	25.5	22.5	27.9	31.9	25.9
Glomerulonephritis	13.8	13.2	16.0	17.2	14.2
Pyelonephritis	6.7	11.0	6.6	4.6	6.7
Hypertension	8.0	9.3	4.1	5.2	7.5
Polycystic kidney	6.8	4.4	7.3	7.2	6.8
Renal vascular disease	6.0	6.0	5.8	11.1	6.2
Other	18.3	17.0	15.1	17.9	18.0
Uncertain aetiology	15.9	15.9	14.9	21.8	16.1
Data not available	8.1	2.7	0.0	0.3	6.8
All	109	102	98	117	108

The overall rates per country may be slightly different to those in table 1.1 as those centres whose PRD data has not been used have been excluded from both the numerator and the denominator here

Many patients undergo a brief period of HD before switches to other modalities are, or can be, considered. Therefore, the established modality at 90 days is more representative of the elective first modality and this modality was used for the remainder of this section. For these analyses, the incident cohort from 1st October 2011 to 30th September 2012 was used so that follow up to 90 days was possible for all patients. By 90 days, 5.5% of incident patients had died and a further 0.4% had stopped treatment, leaving 94.0% of the original cohort still on RRT. Table 1.11 shows the percentages on each treatment modality at 90 days both as percentages of all of those starting RRT and then of those still on treatment at 90 days. Expressed as percentages of the whole incident cohort, 66.9% were on HD at 90 days, 19.0% were on PD and 8.3% had received a transplant. Expressed as

Table 1.10. Treatment at start and at 90 days by year of start

Start	HD (%)	PD (%)	Transplant (%)
Day 0 treatment			
2007	74.7	20.5	4.8
2008	75.2	19.3	5.5
2009	76.4	18.0	5.7
2010	74.7	18.5	6.7
2011	72.9	20.3	6.8
2012	73.1	19.5	7.4
Day 90 treatment			
Oct 2006 to end Sept 2007	71.7	22.7	5.7
Oct 2007 to end Sept 2008	72.0	21.5	6.5
Oct 2008 to end Sept 2009	73.9	19.1	7.0
Oct 2009 to end Sept 2010	72.7	19.4	7.9
Oct 2010 to end Sept 2011	71.0	20.5	8.5
Oct 2011 to end Sept 2012	71.0	20.2	8.8

percentages of those still receiving RRT at 90 days, 71.0% were on HD, 20.2% on PD and 8.8% had received a transplant. This small decrease for PD as a modality at 90 days (22.7%–20.2%) is similar in size to the increase for transplant patients (5.7%–8.8%) over the last 6 years.

Figure 1.8 shows the modality breakdown with the HD patients further subdivided. Of those still on RRT at 90 days, 43% were treated with hospital HD, 28% with satellite HD, and only 0.2% were receiving home HD at this early stage.

The percentage of incident patients who had died by 90 days varied considerably between centres (0% to 23% although, as last year, the percentage was 12.5% or less for all except one centre). Differences in the definition of whether patients have acute or chronic renal failure may be a factor in this apparent variation along with possible differences in clinical practice.

The percentage of patients still on RRT at 90 days who had a functioning transplant at 90 days varied between centres from 0% to 24%. The mean percentage of the incident cohort with a functioning transplant at 90 days was significantly greater in transplanting compared to non-transplanting centres (11.2% vs. 5.4%: $p < 0.0001$). 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).

Table 1.12 gives the HD/PD breakdown for those incident patients on dialysis at 90 days. The breakdown is given by age group and overall. The percentage on PD at 90 days was about 65% higher in patients aged under 65 years than in older patients (27.6% vs. 16.7%). These percentages are similar to those for 2011. There was a lot of variability in the percentage on PD

Table 1.11. RRT modality at 90 days by centre (incident cohort 1/10/2011 to 30/09/2012)

Centre	N	Status at 90 days of all patients who started RRT (%)					Status at 90 days of only those patients still on RRT (%)		
		HD	PD	Tx	Stopped treatment	Died	HD	PD	Tx
England									
B Heart	105	78.1	17.1	1.0	0.0	3.8	81.2	17.8	1.0
B QEH	225	72.0	17.8	8.4	0.0	1.8	73.3	18.1	8.6
Basldn	51	72.6	19.6	3.9	0.0	3.9	75.5	20.4	4.1
Bradfd	73	74.0	11.0	9.6	0.0	5.5	78.3	11.6	10.1
Brightn	130	62.3	26.2	2.3	0.8	8.5	68.6	28.8	2.5
Bristol	140	72.1	16.4	5.7	0.0	5.7	76.5	17.4	6.1
Camb	125	62.4	10.4	20.8	0.0	6.4	66.7	11.1	22.2
Carlis	17	58.8	35.3	0.0	0.0	5.9	62.5	37.5	0.0
Carsh	228	70.2	15.4	8.8	0.4	5.3	74.4	16.3	9.3
Chelms	44	84.1	11.4	0.0	0.0	4.6	88.1	11.9	0.0
Colchr	36	91.7	2.8	0.0	0.0	5.6	97.1	2.9	0.0
Covnt	105	57.1	28.6	9.5	0.0	4.8	60.0	30.0	10.0
Derby	83	56.6	33.7	1.2	0.0	8.4	61.8	36.8	1.3
Donc	38	76.3	18.4	0.0	5.3	0.0	80.6	19.4	0.0
Dorset	76	60.5	27.6	4.0	5.3	2.6	65.7	30.0	4.3
Dudley	49	65.3	28.6	0.0	2.0	4.1	69.6	30.4	0.0
Exeter	126	72.2	19.1	4.0	0.8	4.0	75.8	20.0	4.2
Glouc	64	70.3	20.3	1.6	0.0	7.8	76.3	22.0	1.7
Hull	93	50.5	33.3	5.4	0.0	10.8	56.6	37.4	6.0
Ipswi	37	59.5	29.7	8.1	0.0	2.7	61.1	30.6	8.3
Kent	115	62.6	20.0	11.3	0.0	6.1	66.7	21.3	12.0
L Barts	274	63.9	24.8	6.2	0.0	5.1	67.3	26.2	6.5
L Guys	129	73.6	12.4	13.2	0.0	0.8	74.2	12.5	13.3
L Kings	130	69.2	26.9	2.3	0.0	1.5	70.3	27.3	2.3
L Rfree	240	63.3	19.6	12.9	0.4	3.8	66.1	20.4	13.5
L St.G	90	73.3	10.0	7.8	0.0	8.9	80.5	11.0	8.5
L West	365	78.6	5.2	12.6	0.0	3.6	81.5	5.4	13.1
Leeds	152	66.5	17.1	13.2	0.0	3.3	68.7	17.7	13.6
Leic	242	61.2	18.6	13.6	0.0	6.6	65.5	19.9	14.6
Liv Ain	69	72.5	18.8	1.5	0.0	7.3	78.1	20.3	1.6
Liv RI	111	53.2	25.2	10.8	0.9	9.9	59.6	28.3	12.1
M RI	170	52.4	25.9	20.0	0.0	1.8	53.3	26.4	20.4
Middlbr	127	74.8	3.2	12.6	0.0	9.5	82.6	3.5	13.9
Newc	107	60.8	15.9	12.2	0.0	11.2	68.4	17.9	13.7
Norwch	80	65.0	26.3	2.5	0.0	6.3	69.3	28.0	2.7
Nottm	98	43.9	38.8	7.1	0.0	10.2	48.9	43.2	8.0
Oxford	167	56.9	19.2	13.8	0.6	9.6	63.3	21.3	15.3
Plymth ^a	50								
Ports	175	66.9	16.6	10.3	0.0	6.3	71.3	17.7	11.0
Prestn	133	66.9	15.0	11.3	0.8	6.0	71.8	16.1	12.1
Redng	84	61.9	32.1	3.6	0.0	2.4	63.4	32.9	3.7
Salford	119	70.6	25.2	2.5	0.8	0.8	71.8	25.6	2.6
Sheff	153	69.3	15.7	9.2	0.7	5.2	73.6	16.7	9.7
Shrew	56	66.1	25.0	0.0	0.0	8.9	72.6	27.5	0.0
Stevng	101	69.3	14.9	10.9	0.0	5.0	72.9	15.6	11.5
Sthend	22	81.8	18.2	0.0	0.0	0.0	81.8	18.2	0.0
Stoke	89	68.5	18.0	4.5	0.0	9.0	75.3	19.8	4.9
Sund	74	81.1	10.8	4.1	0.0	4.1	84.5	11.3	4.2
Truro	41	58.5	22.0	7.3	0.0	12.2	66.7	25.0	8.3
Wirral	47	61.7	29.8	2.1	0.0	6.4	65.9	31.8	2.3
Wolve	87	41.4	48.3	1.2	0.0	9.2	45.6	53.2	1.3
York	55	54.6	25.5	14.6	0.0	5.5	57.7	26.9	15.4

Table 1.11. Continued

Centre	N	Status at 90 days of all patients who started RRT (%)					Status at 90 days of only those patients still on RRT (%)		
		HD	PD	Tx	Stopped treatment	Died	HD	PD	Tx
N Ireland									
Antrim	31	74.2	16.1	6.5	3.2	0.0	76.7	16.7	6.7
Belfast	92	59.8	9.8	21.7	1.1	7.6	65.5	10.7	23.8
Newry	26	65.4	30.8	0.0	0.0	3.9	68.0	32.0	0.0
Ulster	26	69.2	7.7	0.0	0.0	23.1	90.0	10.0	0.0
West NI	30	76.7	10.0	3.3	6.7	3.3	85.2	11.1	3.7
Scotland									
Abrdn	44	81.8	18.2	0.0	0.0	0.0	81.8	18.2	0.0
Airdrie	61	83.6	14.8	1.6	0.0	0.0	83.6	14.8	1.6
D & Gall	18	50.0	38.9	0.0	0.0	11.1	56.3	43.8	0.0
Dundee	41	75.6	19.5	0.0	0.0	4.9	79.5	20.5	0.0
Dunfn	31	80.7	12.9	0.0	0.0	6.5	86.2	13.8	0.0
Edinb	78	74.4	10.3	9.0	0.0	6.4	79.5	11.0	9.6
Glasgw	185	78.9	10.3	7.6	0.0	3.2	81.6	10.6	7.8
Inverns	12	75.0	25.0	0.0	0.0	0.0	75.0	25.0	0.0
Klmarnk	39	66.7	23.1	0.0	0.0	10.3	74.3	25.7	0.0
Wales									
Bangor	16	68.8	18.8	0.0	0.0	12.5	78.6	21.4	0.0
Cardff	180	67.2	14.4	12.8	0.6	5.0	71.2	15.3	13.5
Clwyd	21	71.4	9.5	4.8	4.8	9.5	83.3	11.1	5.6
Swanse	128	67.2	23.4	0.8	1.6	7.0	73.5	25.6	0.9
Wrexm	32	43.8	28.1	12.5	3.1	12.5	51.9	33.3	14.8
England	5,797	66.1	19.6	8.6	0.3	5.5	70.1	20.8	9.1
N Ireland	205	66.3	13.2	11.2	2.0	7.3	73.1	14.5	12.4
Scotland	509	76.8	14.7	4.3	0.0	4.1	80.1	15.4	4.5
Wales	377	65.5	18.6	7.7	1.3	6.9	71.4	20.2	8.4
UK	6,888	66.9	19.0	8.3	0.4	5.5	71.0	20.2	8.8

^aBreakdown not shown for Plymouth as not all data was available (see table 1.3)

with some centres having over double the average percentage on PD for one or both of the age groups. Some centres had less than half the average percentage on PD.

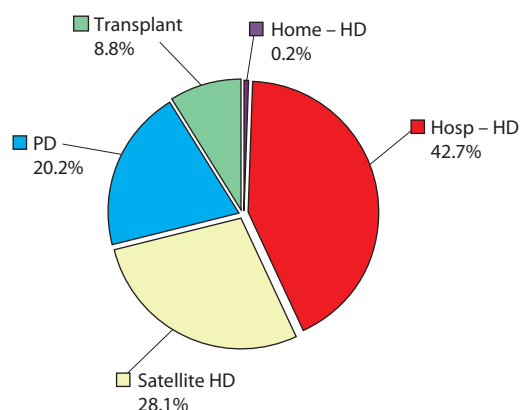


Fig. 1.8. RRT modality at 90 days (incident cohort 1/10/2011 to 30/09/2012)

The median age at start for those on HD at 90 days was 66.3 years compared with 59.8 years for PD. There were 10 centres where the percentage of patients treated with PD was the same as or higher in the over 65s than the under 65s (a similar number to the 11 centres for 2011).

Modality change over time

Table 1.13 gives the breakdown of status/treatment modality at four subsequent time points by initial treatment type for patients starting RRT in 2007. Fifty-three percent of patients who started on HD had died within five years of starting. This compared to 30% and 4% for those starting on PD or transplant respectively. Of those patients starting on PD, 92% were on PD at 90 days but this percentage dropped sharply at the later time points. As expected and in contrast, 89% of patients starting with a transplant were also transplant patients at the five year time point.

Table 1.12. Modality split of patients on dialysis at 90 days (incident cohort 1/10/2011 to 30/09/2012)

Centre	N	Age <65 (%)		Age ≥65 (%)		All patients (%)	
		HD	PD	HD	PD	HD	PD
England							
B Heart	100	73.5	26.5	90.2	9.8	82.0	18.0
B QEH	202	73.0	27.0	89.7	10.3	80.2	19.8
Basldn	47	70.8	29.2	87.0	13.0	78.7	21.3
Bradfd	62	85.7	14.3	88.9	11.1	87.1	12.9
Brightn	115	60.8	39.2	78.1	21.9	70.4	29.6
Bristol	124	73.7	26.3	88.1	11.9	81.5	18.5
Camb	91	80.0	20.0	88.5	11.5	85.7	14.3
Carlisle	16	54.5	45.5	80.0	20.0	62.5	37.5
Carsh	195	72.7	27.3	88.1	11.9	82.1	17.9
Chelms	42	81.0	19.0	95.2	4.8	88.1	11.9
Colchr	34	92.3	7.7	100.0	0.0	97.1	2.9
Covnt	90	56.4	43.6	74.5	25.5	66.7	33.3
Derby	75	60.5	39.5	64.9	35.1	62.7	37.3
Donc	36	81.3	18.8	80.0	20.0	80.6	19.4
Dorset	67	63.6	36.4	71.1	28.9	68.7	31.3
Dudley	46	54.2	45.8	86.4	13.6	69.6	30.4
Exeter	115	69.7	30.3	82.9	17.1	79.1	20.9
Glouc	58	79.3	20.7	75.9	24.1	77.6	22.4
Hull	78	50.0	50.0	75.0	25.0	60.3	39.7
Ipswi	33	70.6	29.4	62.5	37.5	66.7	33.3
Kent	95	68.6	31.4	80.0	20.0	75.8	24.2
L Barts	243	71.6	28.4	72.6	27.4	72.0	28.0
L Guys	111	80.3	19.7	93.3	6.7	85.6	14.4
L Kings	125	66.2	33.8	81.3	18.8	72.0	28.0
L Rfree	199	68.3	31.7	84.7	15.3	76.4	23.6
L St.G	75	84.6	15.4	91.7	8.3	88.0	12.0
L West	306	92.2	7.8	95.4	4.6	93.8	6.2
Leeds	127	69.6	30.4	91.4	8.6	79.5	20.5
Leic	193	74.7	25.3	78.4	21.6	76.7	23.3
Liv Ain	63	69.0	31.0	88.2	11.8	79.4	20.6
Liv RI	87	62.7	37.3	75.0	25.0	67.8	32.2
M RI	133	64.9	35.1	69.6	30.4	66.9	33.1
Middlbr	99	93.8	6.3	98.0	2.0	96.0	4.0
Newc	82	76.7	23.3	82.1	17.9	79.3	20.7
Norwch	73	58.1	41.9	81.0	19.0	71.2	28.8
Nottm	81	41.9	58.1	65.8	34.2	53.1	46.9
Oxford	127	77.0	23.0	71.7	28.3	74.8	25.2
Plymth ^a	44						
Ports	146	76.4	23.6	83.8	16.2	80.1	19.9
Prestn	109	81.0	19.0	82.4	17.6	81.7	18.3
Redng	79	61.8	38.2	68.9	31.1	65.8	34.2
Salford	114	64.4	35.6	83.6	16.4	73.7	26.3
Sheff	130	74.6	25.4	88.9	11.1	81.5	18.5
Shrew	51	57.7	42.3	88.0	12.0	72.5	27.5
Stevng	85	76.3	23.7	87.2	12.8	82.4	17.6
Sthend	22	70.0	30.0	91.7	8.3	81.8	18.2
Stoke	77	80.6	19.4	78.0	22.0	79.2	20.8
Sund	68	82.9	17.1	93.9	6.1	88.2	11.8
Truro	33	55.6	44.4	79.2	20.8	72.7	27.3
Wirral	43	60.0	40.0	73.9	26.1	67.4	32.6
Wolve	78	45.8	54.2	46.7	53.3	46.2	53.8
York	44	55.0	45.0	79.2	20.8	68.2	31.8

Table 1.12. Continued

Centre	N	Age <65 (%)		Age ≥65 (%)		All patients (%)	
		HD	PD	HD	PD	HD	PD
N Ireland							
Antrim	28	64.3	35.7	100.0	0.0	82.1	17.9
Belfast	64	80.0	20.0	93.1	6.9	85.9	14.1
Newry	25	72.7	27.3	64.3	35.7	68.0	32.0
Ulster	20	85.7	14.3	92.3	7.7	90.0	10.0
West NI	26	83.3	16.7	92.9	7.1	88.5	11.5
Scotland							
Abrdn	44	68.2	31.8	95.5	4.5	81.8	18.2
Airdrie	60	82.9	17.1	88.0	12.0	85.0	15.0
D & Gall	16	57.1	42.9	55.6	44.4	56.3	43.8
Dundee	39	73.3	26.7	83.3	16.7	79.5	20.5
Dunfn	29	82.4	17.6	91.7	8.3	86.2	13.8
Edinb	66	94.6	5.4	79.3	20.7	87.9	12.1
Glasgw	165	82.4	17.6	95.0	5.0	88.5	11.5
Inverns	12	80.0	20.0	71.4	28.6	75.0	25.0
Klmarnk	35	66.7	33.3	85.7	14.3	74.3	25.7
Wales							
Bangor	14	80.0	20.0	77.8	22.2	78.6	21.4
Cardff	147	76.4	23.6	88.0	12.0	82.3	17.7
Clwyd	17	85.7	14.3	90.0	10.0	88.2	11.8
Swanse	116	59.1	40.9	83.3	16.7	74.1	25.9
Wrexm	23	44.4	55.6	71.4	28.6	60.9	39.1
England	4,968	71.6	28.4	82.6	17.4	77.1	22.9
N Ireland	163	77.2	22.8	89.3	10.7	83.4	16.6
Scotland	466	80.3	19.7	87.8	12.2	83.9	16.1
Wales	317	69.3	30.7	84.4	15.6	77.9	22.1
UK	5,914	72.4	27.6	83.3	16.7	77.9	22.1

^aBreakdown not shown for Plymouth as not all data was available (see table 1.3) and more PD than HD starters were missing

Table 1.13. Initial and subsequent modalities for patients starting RRT in 2007

First treatment	N	Later modality	Percentage			
			90 days	1 year	3 years	5 years
HD	4,981	HD	88	72	47	30
		PD	3	3	2	1
		Transplant	1	3	10	15
		Other*	0	1	1	1
		Died	7	20	40	53
PD	1,365	HD	4	13	20	18
		PD	92	70	31	12
		Transplant	2	11	28	39
		Other*	0	1	1	1
		Died	1	5	19	30
Transplant	322	HD	1	1	3	5
		PD	0	0	0	2
		Transplant	98	96	92	89
		Died	1	2	3	4

*Other e.g. stopped treatment

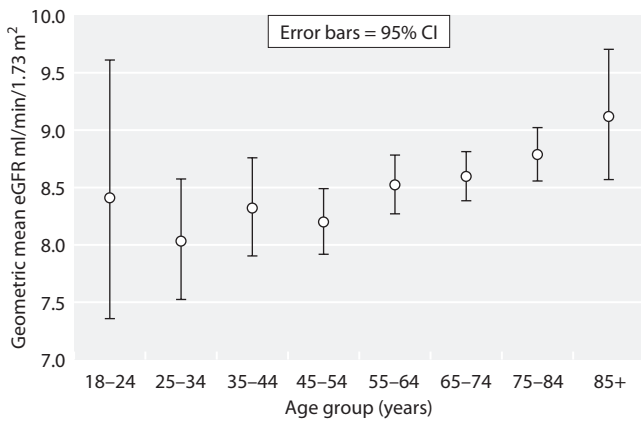


Fig. 1.9. Geometric mean eGFR at start of RRT (2012) by age group

Renal function at the time of starting RRT

The mean eGFR at initiation of RRT in 2012 was 8.5 ml/min/1.73 m². This increased with increasing age after the 45–54 age group and was highest in the 85+ age group at about 9.1 ml/min/1.73 m² (figure 1.9). By contrast, in the United States, 54% of patients starting RRT in 2009 had an eGFR greater than 10 ml/min/1.73 m² [4].

Figure 1.10 shows serial data from centres reporting annually to the UKRR since 2003. For both HD and PD patients, average eGFR at start of RRT in 2012 was slightly lower than for 2011. For the six years prior to 2011 there was higher average eGFR at start of RRT for PD than HD patients but the values were similar for 2011 and 2012.

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

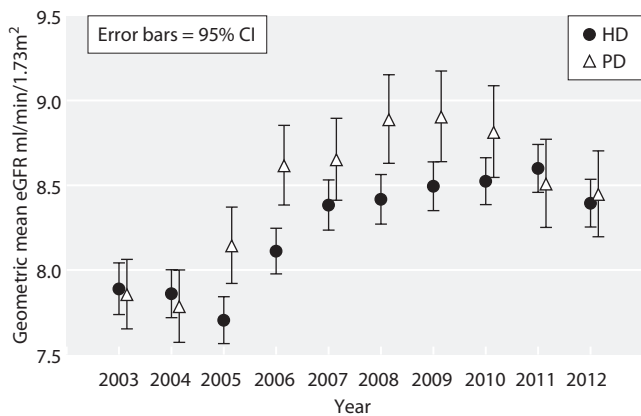


Fig. 1.10. eGFR on starting RRT 2003 to 2012, PD and HD (restricted to centres reporting since 2003)

18% of patients may have had an incorrect date of starting RRT allocated and thus, the eGFR used for analysis may have been taken whilst they were already receiving RRT. For details see the 12th Annual Report chapter 13: The UK Renal Registry Advanced CKD Study 2009 [5].

3. Late presentation and delayed referral of incident patients

Introduction

Late presentation to a nephrologist is regarded as a negative aspect in renal care. It can be defined in a number of ways as it has 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 nephrology services is delayed (delayed or late referral). In contrast, other patients present late to medical services due to no particular deficiency in the service; those with either such slowly progressive disease as to have remained asymptomatic for many years or the opposite with rapidly progressive glomerulonephritis. The main analyses presented here do not differentiate between these groups and include any patient first seen by renal services within 90 days of starting RRT as ‘late presentation’.

One analysis attempts to capture ‘late referrals’: it shows the percentage presenting within 90 days of starting RRT after excluding an acute renal disease group. This group is made up of those people with conditions likely to present with rapidly deteriorating renal function: crescentic glomerulonephritis (type I, II, III), renal vascular disease due to malignant hypertension, renal vascular disease due to polyarteritis, nephropathy (interstitial) due to cisplatin, Balkan nephropathy, Wegener’s granulomatosis, cryoglobulinemic glomerulonephritis, myelomatosis/light chain deposit disease, Goodpasture’s syndrome, systemic sclerosis, haemolytic ureaemic syndrome (including Moschcowitz syndrome), multi-system disease – other, tubular necrosis (irreversible) or cortical necrosis, kidney tumour(s) and surgical loss of kidney.

Methods

Date first seen by a nephrologist has not been collected from the Scottish Renal Registry and so Scottish centres were excluded from these analyses. Data were included from all incident patients in English, Welsh or Northern Irish centres in the years 2011 to 2012. This two year cohort is used for most of the analyses in order to make the late presentation percentages more reliably

estimated and to allow these to be shown for subgroups of patients. The date first seen in a renal centre and the date of starting RRT were used to define the late presenting cohort. A small amount of data were excluded because of actual or potential inconsistencies. Only data from those centres with 75% or more completeness for the relevant year were used. Some data were excluded if 10% or more of the patients were reported to have started RRT on the same date as the first presentation. This was because investigation has shown that this is likely due to misunderstanding on the part of the renal centres resulting in incorrect recording of data. After these exclusions, data on 9,937 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 1.14 shows the percentage completeness of data for 2011 and 2012. Average completeness for 2012 was similar to 2011 at just over 80%.

Late presentation by centre

Figure 1.11 shows that late presentation varied between centres from 7–32% in patients starting RRT in 2011 to 2012. The overall rate of late presentation was 19.5% and was 14.2% once those people with diseases likely to present acutely were excluded. Table 1.15 shows the overall percentage presenting late for the combined

Table 1.14. Percentage completeness of time of presentation data (2011 and 2012 incident RRT patients) by centre

Centre	N		Percentage completeness		Centre	N		Percentage completeness	
	2011	2012	2011	2012		2011	2012	2011	2012
England					Norwich	87	74	93.1	64.9
B Heart	113	101	97.3	96.0	Nottm	116	99	97.4	97.9
B QEH	215	216	97.7	99.5	Oxford	177	171	94.3	98.2
Basldn	42	53	100.0	96.2	Plymth	60	47	31.7	31.9
Bradfd	60	71	98.3	97.1	Ports	187	161	97.8	96.9
Brightn	119	136	17.1	91.8	Prestn	140	147	98.6	95.8
Bristol	139	148	88.2	94.6	Redng	103	73	63.1	97.3
Camb	122	124	98.4	100.0	Salford	126	134	0.8	10.6
Carlis	28	19	96.4	94.7	Sheff	135	158	100.0	98.7
Carsh	207	242	94.2	88.0	Shrew	61	57	100.0	98.3
Chelms	47	45	95.7	97.8	Stevng	110	110	97.3	99.1
Colchr	44	29	86.4	100.0	Sthend	29	26	100.0	100.0
Covnt	111	112	73.4	98.2	Stoke	93	77	100.0	98.7
Derby	80	81	95.0	100.0	Sund	57	71	94.7	98.6
Donc	43	40	100.0	95.0	Truro	38	50	97.4	98.0
Dorset	79	72	100.0	95.8	Wirral ^a	62	50	^b	97.9
Dudley	43	56	97.7	98.2	Wolve	76	84	100.0	100.0
Exeter	112	138	99.1	97.1	York	52	53	100.0	100.0
Glouc	58	74	100.0	94.5	N Ireland				
Hull	109	97	66.1	97.9	Antrim	30	26	96.7	100.0
Ipswi	29	43	92.9	97.7	Belfast	69	91	95.7	89.0
Kent	122	115	100.0	100.0	Newry	38	18	100.0	100.0
L Barts	249	263	2.0	1.5	Ulster	35	30	100.0	100.0
L Guys	120	127	94.1	22.4	West NI	38	21	94.7	100.0
L Kings	140	125	96.4	96.0	Wales				
L Rfree	223	240	91.9	99.2	Bangor	20	21	100.0	90.5
L St.G	74	91	32.4	65.9	Cardff	186	170	97.3	98.8
L West	365	352	93.1	0.3	Clwyd	17	22	^b	95.5
Leeds	158	154	98.1	98.0	Swanse	118	113	99.2	99.1
Leic	267	235	97.3	97.0	Wrexm	26	34	88.0	97.1
Liv Ain	61	63	58.3	100.0	England	5,756	5,798	81.8	81.6
Liv RI	114	110	7.1	99.1	N Ireland	210	186	97.1	94.6
M RI	156	160	81.2	92.4	Wales	367	360	92.9	98.0
Middlbr	100	120	98.0	97.5	E, W & NI	6,333	6,344	83.0	82.9
Newc	98	104	95.9	89.4					

^aAlthough completeness was good for Wirral for 2012, the late presentation percentage was suspiciously high and is not shown in table 1.15 or figure 1.11 due to concerns about data accuracy

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

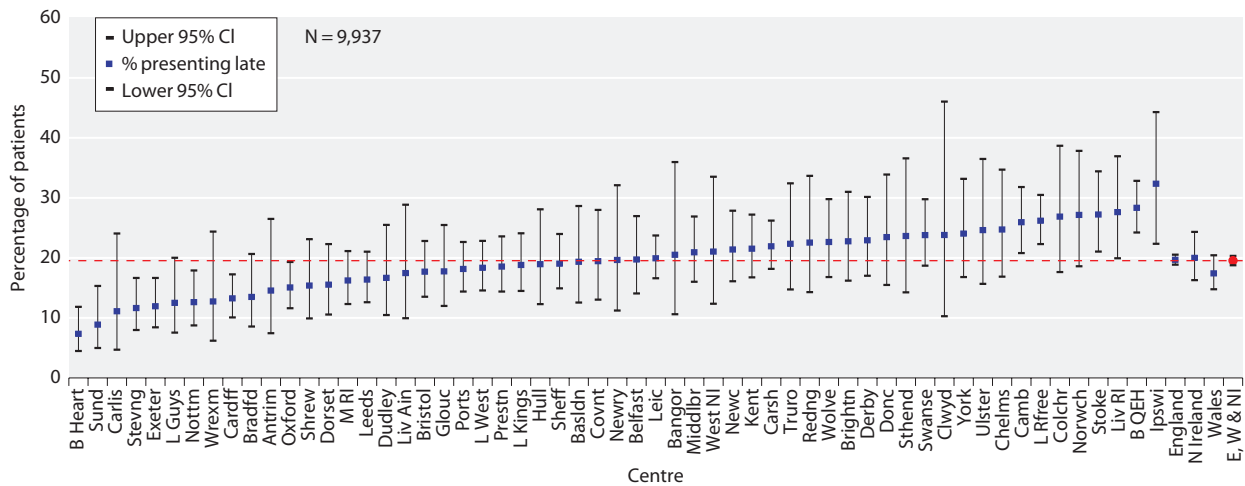


Fig. 1.11. Percentage presenting late (2011/2012)

2011–2012 incident cohort, the percentages presenting late amongst those patients defined as not having an ‘acute diagnosis’ and the percentages amongst non-diabetics (as PRD).

Late presentation in 2012 and the trend over time

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 be a consequence of the National CKD guidelines published by the Medical and GP Royal Colleges [6], 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.

In 2012, 66.8% of incident patients presented over a year before they needed to start RRT. There were 8.4% of patients presenting within 6–12 months, 5.5% within 3–6 months and 19.3% within three months. Figure 1.12 shows this breakdown by year for those 20 centres supplying data over 75% complete for each of the last six years. The figure shows an increase over time in the percentage of patients presenting 12 months or more before starting RRT. As shown in previous reports this

Table 1.15. Percentage of patients presenting to a nephrologist less than 90 days before RRT initiation (2011–2012 incident patients) by centre

Centre	N with data	Percentage presenting late			
		Overall	(95% CI)	Non-acute*	Non-diab PRD
England					
B Heart	204	7.4	(4.5–11.8)	4.5	10.5
B QEH	420	28.3	(24.2–32.8)	23.5	29.3
Basldn	93	19.4	(12.6–28.6)	12.2	23.2
Bradfd	126	13.5	(8.6–20.6)	11.9	15.6
Brightn	123	22.8	(16.2–31.0)	16.5	25.0
Bristol	260	17.7	(13.5–22.8)	11.4	20.4
Camb	243	25.9	(20.8–31.8)		
Carlis	45	11.1	(4.7–24.1)	11.9	11.4
Carsh	406	21.9	(18.2–26.2)	17.9	23.3
Chelms	89	24.7	(16.9–34.7)	19.0	28.8
Colchr	67	26.9	(17.6–38.7)	18.5	22.7
Covnt	108	19.4	(13.0–28.0)	14.6	20.2
Derby	157	22.9	(17.0–30.2)	16.8	29.7
Donc	81	23.5	(15.5–33.9)	18.6	28.1
Dorset	148	15.5	(10.6–22.3)	14.0	17.5
Dudley	96	16.7	(10.5–25.5)	12.5	20.3
Exeter	243	11.9	(8.4–16.7)	10.0	14.6

Table 1.15. Continued

Centre	N with data	Percentage presenting late			
		Overall	(95% CI)	Non-acute*	Non-diab PRD
Glouc	124	17.7	(12.0–25.5)	13.9	19.0
Hull	95	19.0	(12.3–28.1)	14.9	23.0
Ipswi	68	32.4	(22.4–44.3)	34.6	44.4
Kent	237	21.5	(16.8–27.2)	16.8	25.0
L Guys	112	12.5	(7.5–20.0)	10.2	12.8
L Kings	255	18.8	(14.5–24.1)	14.0	27.5
L Rfree	443	26.2	(22.3–30.5)	21.5	28.7
L West	338	18.3	(14.6–22.8)	14.9	21.9
Leeds	299	16.4	(12.6–21.0)	8.7	18.8
Leic	482	19.9	(16.6–23.7)	11.7	23.5
Liv Ain	63	17.5	(9.9–28.9)	16.7	21.2
Liv RI	105	27.6	(19.9–36.9)	11.3	32.2
M RI	271	16.2	(12.3–21.1)	14.3	18.5
Middlbr	215	20.9	(16.0–26.9)	18.8	26.1
Newc	187	21.4	(16.1–27.9)	11.8	24.2
Norwch	81	27.2	(18.6–37.8)	17.7	30.4
Nottm	206	12.6	(8.7–17.9)	11.3	14.8
Oxford	332	15.1	(11.6–19.3)	11.3	19.0
Ports	336	18.2	(14.4–22.6)	9.4	20.3
Prestn	275	18.6	(14.4–23.6)	13.1	20.1
Redng	71	22.5	(14.3–33.7)	19.1	31.3
Sheff	289	19.0	(14.9–24.0)	13.5	23.8
Shrew	117	15.4	(9.9–23.1)	11.1	11.1
Stevng	215	11.6	(8.0–16.6)	9.8	12.1
Sthend	55	23.6	(14.3–36.6)	18.8	28.9
Stoke	169	27.2	(21.0–34.4)	19.0	32.3
Sund	124	8.9	(5.0–15.3)	5.6	10.0
Truro	85	22.4	(14.7–32.4)	18.7	25.0
Wolve	159	22.6	(16.8–29.8)	20.5	25.6
York	104	24.0	(16.8–33.2)	17.4	27.4
N Ireland					
Antrim	55	14.6	(7.4–26.5)	13.2	18.4
Belfast	147	19.7	(14.1–27.0)	12.3	24.6
Newry	56	19.6	(11.2–32.1)	13.5	23.7
Ulster	65	24.6	(15.7–36.5)	21.0	22.5
West NI	57	21.1	(12.4–33.5)	16.3	22.9
Wales					
Bangor	39	20.5	(10.6–36.0)	21.1	25.0
Cardff	347	13.3	(10.1–17.3)	10.3	16.3
Clwyd	21	23.8	(10.3–46.0)	22.2	17.7
Swanse	227	23.8	(18.7–29.8)	16.2	30.7
Wrexm	55	12.7	(6.2–24.4)	11.1	18.4
England	8,868	19.7	(18.9–20.5)	14.3	22.2
N Ireland	380	20.0	(16.3–24.3)	14.8	23.0
Wales	689	17.4	(14.8–20.4)	13.2	21.7
E, W & NI	9,937	19.5	(18.8–20.3)	14.2	22.2
(min, max)		(7.4–42.6)		(4.5–34.6)	(10.0–44.4)
(IQR)		(16.3–23.6)		(11.7–18.5)	(18.5–26.4)

Blank cells – data for PRD not used due to high % with uncertain aetiology

*Non-acute group excludes crescentic (extracapillary) glomerulonephritis (type I, II, III), nephropathy (interstitial) due to cis-platinum, renal vascular disease due to malignant hypertension, renal vascular disease due to polyarteritis, Wegener's granulomatosis, cryoglobulinemic glomerulonephritis, myelomatosis/light chain deposit disease, Goodpasture's syndrome, systemic sclerosis (scleroderma), haemolytic ureaemic syndrome (including Moschowitz syndrome), multi-system disease – other, tubular necrosis (irreversible) or cortical necrosis, Balkan nephropathy, kidney tumour(s), and traumatic or surgical loss of kidney

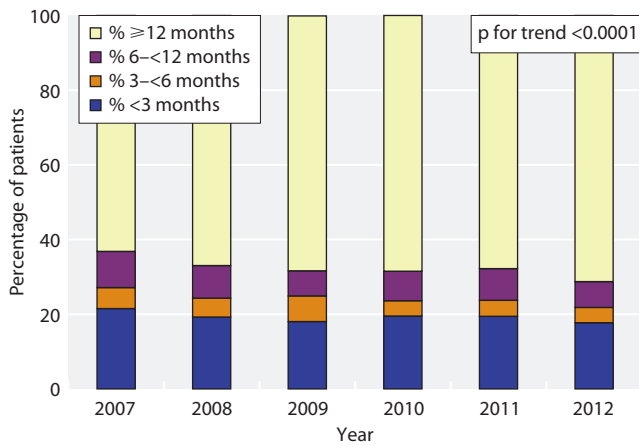


Fig. 1.12. Late presentation rate by year (2007–2012) Restricted to centres reporting continuous data for 2007–2012

increase was most marked in the years just before those shown in the figure. In 2005, only 52.6% of incident patients presented over a year before they needed to start RRT compared with the 66.8% seen for 2012.

Age and late presentation

In the 2011 to 2012 cohort, patients who presented late were not significantly older or younger than patients who presented earlier (≥ 90 days before RRT initiation) (median age 66.1 vs. 64.7 years: $p = 0.1$). Except for the two youngest age groups, the median duration of pre-RRT care did not vary greatly with age group (figure 1.13).

Gender and late presentation

In the 2011 and 2012 cohort, there was no significant difference in the ratio of males to females by time of presentation (male:female ratio 1.68 in early presentation, 1.84 in late presentation, $p = 0.08$).

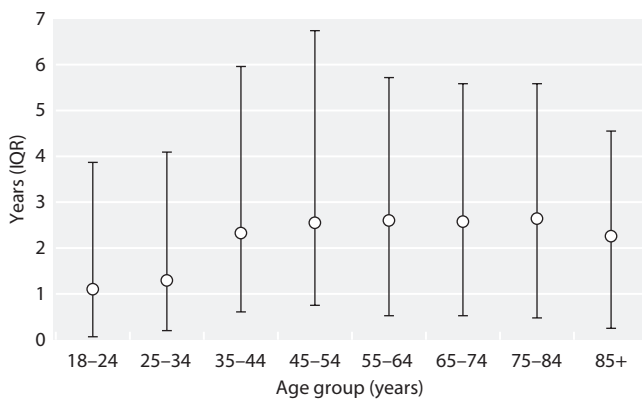


Fig. 1.13. Median duration of pre-RRT care by age group (incident patients 2011–2012)

Ethnicity and late presentation

In the 2011 to 2012 cohort, the percentage of South Asian and Black patients presenting late (< 90 days) was significantly lower than in Whites (16.4% vs. 19.8%: $p = 0.002$). The high incidence of diabetes in non-Whites (as discussed below, patients with diabetes tended to present earlier) explains some of the difference in presentation time between the ethnic groups. When patients with diabetes were excluded, the percentages presenting late (< 90 days) became 20.0% in South Asian and Black patients vs. 22.6% in Whites ($p = 0.1$).

Primary renal disease and late presentation

In the 2011 to 2012 cohort, late presentation differed significantly between primary renal diagnoses (Chi-squared test $p < 0.0001$) (table 1.16). Patients in the acute group or with data not available had high rates of late presentation. Those with diabetes and pyelonephritis or adult polycystic kidney disease had low rates. There was a notable decline in the proportion of diabetics presenting late up until 2007. Since then the proportion has been stable. The decline seen earlier likely reflects national initiatives to screen patients with diabetes for proteinuria and falling GFR.

Table 1.16. Late presentation by primary renal diagnosis (2011–2012 incident patients)

Diagnosis	N	Late presentation	
		N	%
Uncertain aetiology	1,407	294	20.9
Diabetes	2,251	204	9.1
Glomerulonephritis	1,160	179	15.4
Other identified category	893	167	18.7
Polycystic kidney or pyelonephritis	1,270	130	10.2
Renal vascular disease	1,140	179	15.7
Acute group	889	488	54.9
Data not available	296	127	42.9

Unlike elsewhere in the report, the RVD group includes hypertension Polycystic and pyelonephritis are grouped together Acute group includes crescentic (extracapillary) glomerulonephritis (type I, II, III), nephropathy (interstitial) due to cis-platinum, renal vascular disease due to malignant hypertension, renal vascular disease due to polyarteritis, Wegener’s granulomatosis, cryoglobulinemic glomerulonephritis, myelomatosis/light chain deposit disease, Goodpasture’s syndrome, systemic sclerosis (scleroderma), haemolytic ureaemic syndrome (including Moschowitz syndrome), multi-system disease – other, tubular necrosis (irreversible) or cortical necrosis, Balkan nephropathy, kidney tumour(s), and traumatic or surgical loss of kidney

Table 1.17. Percentage prevalence of specific comorbidities amongst patients presenting late (<90 days) compared with those presenting early (≥ 90 days) (2011–2012 incident patients)

Comorbidity	<90 days	≥ 90 days	p-value
Ischaemic heart disease	16.3	19.5	0.02
Cerebrovascular disease	9.7	10.0	0.7
Peripheral vascular disease	8.8	12.7	0.0003
Diabetes (not a cause of ERF)	10.2	9.6	0.5
Liver disease	4.2	2.8	0.02
Malignancy	19.9	11.1	<0.0001
COPD	9.0	7.3	0.1
Smoking	15.4	14.2	0.3

Modality and late presentation

In the 2011 to 2012 cohort, late presentation was associated with initial modality. The percentage of patients whose first modality was PD was significantly lower in the late presentation group than in those presenting earlier (9.3% vs. 22.7%: $p < 0.0001$). By 90 days after RRT initiation this difference was reduced, although it was still highly significant (12.5% vs. 22.0%: $p < 0.0001$).

Comorbidity and late presentation

In the 2011 to 2012 cohort, the percentage of patients who were assessed as having no comorbidity was slightly lower in those who presented late than those presenting earlier (43.3% vs. 47.0%: $p = 0.03$). Ischaemic heart disease and peripheral vascular disease were significantly less common in the group presenting late (table 1.17). Liver disease was significantly more common in those presenting late as was malignancy; perhaps because of the potential for rapid decline in renal function in this group. The evidence in the literature is in keeping with these findings with subtle variation between the individual comorbidities [7–9].

Haemoglobin and late presentation

In the 2011 to 2012 cohort, patients presenting late had a significantly lower average haemoglobin concentration at

RRT initiation than patients presenting earlier (92 vs. 102 g/L: $p < 0.0001$). 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. More detailed analyses of haemoglobin at start of RRT and late presentation can be found in chapter 10: Haemoglobin, Ferritin and Erythropoietin amongst UK Adult Dialysis Patients in 2012: National and Centre-specific Analyses.

eGFR at start of RRT and late presentation

In the 2011 to 2012 cohort, eGFR at start of RRT was significantly lower in patients presenting late than those presenting earlier (7.9 vs. 8.7 ml/min/1.73 m²: $p < 0.0001$). These findings are in contrast to some of the studies in the literature which have found the opposite [7, 8].

Survival of incident patients

See chapter 8: Survival and Causes of Death of UK Adult Patients on Renal Replacement Therapy in 2012.

Summary

RRT incidence rates for 2012 were similar to 2011 for England and for the UK as a whole. At least partly because of the smaller numbers involved, rates have been more variable over the last few years for Northern Ireland, Scotland and Wales. Wales continues to have the highest incidence rate. There remain large centre variations in incidence rates for RRT. Significant numbers of patients continue to present late to renal centres.

Conflicts of interest: none

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