UK Renal Registry 15th Annual Report: Chapter 1 UK RRT Incidence in 2011: 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 · Primary Care Trust · Renal replacement therapy · Transplantation · Treatment modality

Summary

- In 2011 the incidence rate in the UK was stable at 108 per million population (pmp).
- From 2006 to 2011 the incidence rate pmp was stable for England but had increased from 95 pmp in 2001.
- The median age of all incident patients was 64.9 years and for non-Whites 58.4 years.
- Diabetic renal disease remained the single most common cause of renal failure (25%).
- By 90 days, 67.1% of patients were on haemodialysis, 19.2% on peritoneal dialysis, 7.8% had had a transplant and 5.8% had died or stopped treatment.
- The mean eGFR at the start of RRT was 8.7 ml/min/1.73 m^2 similar to the previous four years.
- Late presentation (<90 days) fell from 23.9% in 2006 to 19.6% in 2011.
- There was no relationship between social deprivation and presentation pattern.

Introduction

This chapter contains analyses of adult patients starting renal replacement therapy (RRT) in the UK in 2011. 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 2011 and who did not recover renal function within 90 days: 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 2006 to 2010 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) 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. Patient groups have disliked the term 'end stage' which reflected the inevitable outcome of this disease.

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). Hope Hospital has been renamed Salford Royal and so is now abbreviated in the report as 'Salford' rather than as 'M Hope'. There are only five Northern Irish centres in the report this year as 'Tyrone' and 'Derry' are now grouped together as 'West NI'. Data from centres in Scotland were obtained from the Scottish Renal Registry. Data on children and young adults can be found in chapter 4: Demography of the UK Paediatric Renal Replacement Therapy population in 2011.

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 as well as showing crude rates. It also gives the ethnic minority percentage of each area as this influences incidence rates. More detailed analyses at the Registry investigated the effect of socio-demographic, population health status and access to care factors on RRT incidence. These 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]. Despite accounting for all these factors much of the observed variation remains unexplained and is thought to be due to practice patterns in place at individual renal centres.

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 2011, the number of adult patients starting RRT in the UK was 6,835 equating to an incidence rate of 108 pmp (table 1.1), slightly higher than in 2010. Wales remained the country with the highest incidence rate although the rate has fallen since 2006 and in 2011 was closer to the UK average (figure 1.1). For England, incidence rates have been stable for the last 6 years. There continued to be very marked gender differences in incidence rates which were 139 pmp (95% CI 135–143) in males and 79 pmp (95% CI 76–82) 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

Table 1.1. Number of new adult patients starting RRT in the UK in 2011

	England	N Ireland	Scotland	Wales	**UK**
Number starting RRT	5,774	203	495	363	**6,835**
Total estimated population mid-2011 (millions)*	53.0	1.8	5.3	3.1	**63.2**
Incidence rate (pmp)	109	112	93	118	**108**
(95% CI)	(106–112)	(97–128)	(85–102)	(106–131)	**(106–111)**

* Data from the Office for National Statistics – based on the 2011 census.

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 53 being significantly high and 48 being significantly low out of a total of 177 areas. Last year these numbers were 52 and 54 areas respectively. The standardised incidence ratios ranged from 0.42 to 2.52 (IQR 0.85, 1.20).

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 ($r = 0.84$, $p < 0.001$) 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 2006 to 2011 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 harder 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 co-morbid conditions and recognition of ERF), changes to treatment thresholds or the introduction of conservative care programmes. Centre level incidence rates (per million population) were presented for the first time in the 13th Annual Report (www.renalreg.com) after a piece of work was done to estimate the English centres' catchment populations (using 2007 prevalent dialysis patients). These rates are again reported this year. For a description of the methodology used to estimate the catchment populations and discussion of some limitations see appendix E: Methodology for Estimating Catchment Populations Analyses (www.renalreg.com). Estimates of the catchment populations in Wales, Northern Ireland and Scotland were supplied by personal communication from Dr K Donovan, Dr A Williams, Dr D Fogarty and the Scottish Renal Registry.

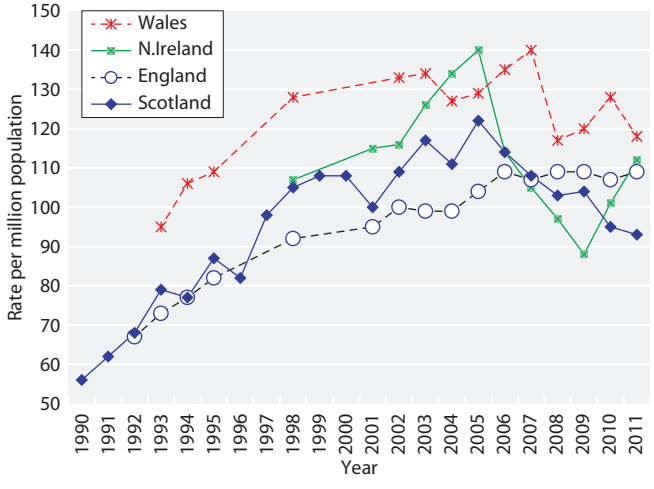

Fig. 1.1. RRT incidence rates in the countries of the UK 1990–2011

There were falls of over 10% in the number of new patients for Scotland and Wales from 2007 to 2011. There was an increase of about 5% in new patients for England and 8% for Northern Ireland from 2007 to 2011. Across all four countries the change from 2007 to 2011 was an increase of 2.5%.

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

Table 1.2. Crude adult incidence rates (pmp) and age/gender standardised incidence ratios 2006–2011

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
% non-White – percentage of the PCT/HB population that is non-White, from 2001 census (revised by ONS to 2007 for England)
For those areas not covered by the Registry for the entire period 2006–2011, the combined years standardised incidence ratios and incidence rates are averages for the years covered by the registry

								2011		2006–2011				
UK Area	PCT/HB	Tot pop (2010)	2006 O/E	2007 O/E	2008 O/E	2009 O/E	2010 O/E	O/E	Crude rate pmp	O/E	95% LCL	95% UCL	Crude rate pmp*	% non-White
North East	*County Durham*	*510,800*	*0.88*	*0.67*	*0.69*	*0.76*	*0.78*	*0.83*	*96*	*0.77*	*0.68*	*0.87*	*88*	*2.5*
	Darlington	100,600	0.62	1.16	1.07	0.96	0.99	0.96	109	0.96	0.75	1.22	108	3.3
	Gateshead	*192,000*	*0.91*	*0.78*	*0.55*	*0.86*	*0.79*	*0.81*	*94*	*0.78*	*0.65*	*0.95*	*89*	*3.8*
	Hartlepool	91,400	1.48	0.50	1.30	0.79	0.60	0.49	55	0.86	0.66	1.13	95	2.6
	Middlesbrough	142,100	1.53	1.19	1.26	0.69	1.49	0.69	70	1.14	0.93	1.39	115	8.6
	Newcastle	292,200	0.82	1.19	0.97	0.89	0.73	0.81	79	0.90	0.77	1.06	86	9.7
	North Tyneside	*198,400*	*0.79*	*0.76*	*0.49*	*0.92*	*0.99*	*0.61*	*71*	*0.76*	*0.63*	*0.92*	*87*	*3.6*
	Northumberland	*312,100*	*0.71*	*0.75*	*0.67*	*0.61*	*0.62*	*0.84*	*106*	*0.70*	*0.60*	*0.82*	*88*	*2.2*
	Redcar and Cleveland	137,300	0.92	0.99	0.74	0.85	0.69	1.09	131	0.88	0.71	1.09	104	3.0
	South Tyneside	154,100	1.08	1.15	0.58	1.25	0.70	0.96	110	0.95	0.78	1.16	108	4.8
	Stockton-on-Tees Teaching	192,600	0.87	0.64	0.83	0.63	0.89	1.11	119	0.83	0.68	1.01	88	4.7
	Sunderland Teaching	283,400	0.70	1.06	0.87	0.92	1.01	0.70	78	0.88	0.75	1.02	96	3.3
North West	*Ashton, Leigh and Wigan*	*307,200*	*0.67*	*0.56*	*0.83*	*0.56*	*0.78*	*0.91*	*101*	*0.72*	*0.61*	*0.85*	*79*	*2.9*
	Blackburn with Darwen Teaching	140,000	1.29	1.31	0.54	0.91	1.09	1.51	143	1.11	0.90	1.37	104	22.7
	Blackpool	140,200	0.54	0.98	0.92	0.96	0.61	0.90	107	0.82	0.66	1.02	96	3.7
	Bolton Teaching	266,500	0.82	0.90	0.93	0.82	1.45	0.96	101	0.98	0.84	1.14	103	12.3
	Bury	*183,500*	*0.56*	*0.67*	*0.77*	*0.71*	*0.73*	*0.66*	*71*	*0.68*	*0.55*	*0.85*	*73*	*8.5*
	Central and Eastern Cheshire	*457,200*		*0.62*	*0.66*	*0.72*	*0.77*	*0.79*	*94*	*0.71*	*0.62*	*0.82*	*84*	*3.4*
	Central Lancashire	*459,200*	*0.57*	*0.79*	*0.89*	*0.94*	*0.60*	*0.78*	*87*	*0.76*	*0.67*	*0.87*	*84*	*6.7*
	Cumbria Teaching	*494,400*	*0.63*	*0.62*	*0.73*	*0.59*	*0.72*	*0.61*	*77*	*0.65*	*0.57*	*0.74*	*81*	*2.0*
	East Lancashire Teaching	*381,200*	*0.94*	*0.73*	*0.66*	*0.84*	*0.71*	*0.88*	*97*	*0.79*	*0.69*	*0.91*	*86*	*9.4*
	Halton and St Helens	296,700	1.22	1.02	0.56	0.89	0.91	1.10	121	0.95	0.82	1.10	104	2.1
	Heywood, Middleton and Rochdale	205,000		0.91	1.01	1.13	0.82	1.22	127	1.02	0.84	1.23	104	12.6
	Knowsley	149,200	0.89	1.03	0.52	0.76	0.91	1.08	114	0.87	0.70	1.08	90	2.8
	Liverpool	**445,300**	**1.20**	**1.12**	**1.16**	**1.22**	**0.97**	**1.27**	**128**	**1.16**	**1.03**	**1.29**	**115**	**8.3**
	Manchester Teaching	**498,800**		**1.24**	**1.28**	**1.41**	**1.31**	**1.26**	**102**	**1.30**	**1.15**	**1.47**	**103**	**23.4**
	North Lancashire Teaching	*329,100*	*0.49*	*0.60*	*0.52*	*0.73*	*0.65*	*0.73*	*91*	*0.62*	*0.53*	*0.73*	*76*	*4.2*
	Oldham	219,600	0.85	0.90	1.09	0.89	0.92	0.98	100	0.94	0.79	1.12	95	12.2
	Salford	229,100	0.96	0.62	1.01	1.00	1.34	0.69	70	0.94	0.79	1.11	93	7.7
	Sefton	272,800	0.78	0.55	0.88	0.77	1.01	1.45	180	0.91	0.78	1.05	111	2.6
	Stockport	*284,700*		*0.84*	*0.78*	*0.61*	*0.88*	*0.83*	*95*	*0.79*	*0.66*	*0.94*	*89*	*6.4*
	Tameside and Glossop	250,700		1.33	0.76	0.90	0.96	0.97	104	0.98	0.83	1.17	104	5.9
	Trafford	217,100		1.13	0.61	0.98	1.35	0.55	60	0.92	0.76	1.11	99	11.2
	Warrington	*199,100*	*0.73*	*0.74*	*0.60*	*1.05*	*0.61*	*0.46*	*50*	*0.70*	*0.57*	*0.86*	*76*	*3.5*
	Western Cheshire	234,300	0.89	0.87	0.54	0.89	1.23	1.13	137	0.93	0.79	1.08	110	3.1
	Wirral	*308,800*	*0.78*	*0.76*	*0.79*	*0.83*	*0.90*	*1.05*	*123*	*0.85*	*0.74*	*0.98*	*99*	*2.8*

Table 1.2. Continued

UK Area	PCT/HB	Tot pop (2010)	2006 O/E	2007 O/E	2008 O/E	2009 O/E	2010 O/E	2011		2006–2011				% non-White
								O/E	Crude rate pmp	O/E	95% LCL	95% UCL	Crude rate pmp*	
Yorkshire and the Humber	Barnsley	227,500	1.02	0.88	1.15	0.94	1.21	0.82	92	1.00	0.86	1.18	111	2.7
	Bradford and Airedale Teaching	512,700	0.89	1.44	1.06	0.97	1.31	1.00	96	1.11	0.99	1.24	104	25.0
	Calderdale	*202,800*	*0.87*	*0.84*	*0.83*	*1.01*	*0.56*	*0.59*	*64*	*0.78*	*0.65*	*0.95*	*84*	*9.8*
	Doncaster	290,900	0.82	0.62	0.80	1.03	0.93	1.09	124	0.88	0.76	1.03	99	4.3
	East Riding of Yorkshire	*338,500*	*0.63*	*0.64*	*0.97*	*0.90*	*0.71*	*0.74*	*95*	*0.76*	*0.66*	*0.88*	*97*	*3.0*
	Hull Teaching	263,800	0.73	1.05	1.01	0.96	0.90	0.68	68	0.89	0.75	1.05	87	5.8
	Kirklees	409,900	1.14	0.75	0.77	1.07	0.93	1.09	112	0.96	0.85	1.09	98	16.0
	Leeds	*798,700*	*0.85*	*0.82*	*0.98*	*0.79*	*0.63*	*0.78*	*76*	*0.81*	*0.73*	*0.89*	*78*	*11.8*
	North East Lincolnshire	158,800	1.06	1.07	1.07	0.78	0.68	1.38	157	1.01	0.84	1.22	113	3.1
	North Lincolnshire	157,500	1.02	0.65	0.82	0.75	0.71	1.44	171	0.90	0.74	1.10	106	3.2
	North Yorkshire and York	*802,100*	*0.86*	*0.82*	*0.71*	*0.78*	*0.64*	*0.86*	*103*	*0.78*	*0.71*	*0.85*	*92*	*3.7*
	Rotherham	254,300	0.91	1.03	1.32	0.92	1.12	0.74	83	1.00	0.86	1.17	111	5.2
	Sheffield	**555,700**	**1.11**	**1.14**	**1.12**	**1.25**	**1.05**	**0.96**	**99**	**1.11**	**1.00**	**1.22**	**112**	**12.2**
	Wakefield District	*325,500*	*0.99*	*0.53*	*0.75*	*0.64*	*0.88*	*0.88*	*98*	*0.78*	*0.67*	*0.91*	*86*	*4.3*
East Midlands	Bassetlaw	112,100	0.60	1.67	0.61	0.67	0.76	0.82	98	0.85	0.67	1.08	101	3.1
	Derby City	**247,100**	**1.22**	**1.00**	**1.63**	**1.30**	**1.08**	**1.36**	**142**	**1.27**	**1.10**	**1.46**	**130**	**15.0**
	Derbyshire County	*729,900*	*0.67*	*0.82*	*1.04*	*0.78*	*0.74*	*0.89*	*107*	*0.82*	*0.75*	*0.91*	*97*	*3.2*
	Leicester City	**306,800**	**1.52**	**1.76**	**1.65**	**1.37**	**1.82**	**1.91**	**169**	**1.67**	**1.48**	**1.88**	**146**	**38.2**
	Leicestershire County and Rutland	*687,200*	*0.86*	*0.86*	*0.70*	*0.79*	*0.94*	*0.84*	*97*	*0.83*	*0.75*	*0.92*	*95*	*7.7*
	Lincolnshire Teaching	*705,000*	*0.78*	*0.79*	*0.69*	*0.72*	*0.85*	*0.88*	*111*	*0.79*	*0.71*	*0.87*	*98*	*3.3*
	Northamptonshire Teaching	687,600	0.88	0.98	1.20	0.82	0.79	0.91	97	0.93	0.84	1.02	99	7.4
	Nottingham City	**306,300**	**1.39**	**0.97**	**1.32**	**1.43**	**1.53**	**1.10**	**95**	**1.29**	**1.12**	**1.48**	**109**	**18.7**
	Nottinghamshire County Teaching	668,000	1.17	1.06	0.89	1.03	0.89	0.90	105	0.99	0.90	1.09	114	5.1
West Midlands	**Birmingham East and North**	**409,300**	**1.85**	**1.46**	**1.74**	**1.49**	**1.42**	**1.88**	**183**	**1.64**	**1.49**	**1.81**	**158**	**23.8**
	Coventry Teaching	**315,700**	**1.07**	**1.34**	**1.53**	**1.71**	**1.29**	**1.47**	**146**	**1.40**	**1.24**	**1.58**	**137**	**19.6**
	Dudley	307,500	0.92	0.96	0.82	1.39	0.77	0.78	91	0.94	0.82	1.08	109	8.5
	Heart of Birmingham Teaching	**285,100**	**2.40**	**2.60**	**2.97**	**2.87**	**2.31**	**2.00**	**151**	**2.52**	**2.26**	**2.82**	**188**	**61.8**
	Herefordshire	179,400	0.73	0.87	0.91	1.06	0.70	0.81	106	0.85	0.71	1.01	110	2.4
	North Staffordshire	211,900		0.56	0.84	1.22	0.68	1.13	137	0.89	0.74	1.07	106	3.5
	Sandwell	**292,900**	**1.32**	**1.58**	**2.18**	**1.78**	**1.86**	**1.68**	**174**	**1.73**	**1.55**	**1.94**	**178**	**21.8**
	Shropshire County	293,400	0.91	0.79	1.07	0.73	0.93	0.94	119	0.89	0.78	1.03	112	3.0
	Solihull	206,300	1.29	0.76	0.97	1.37	0.98	0.70	82	1.01	0.86	1.19	117	9.0
	South Birmingham	**342,200**	**1.10**	**1.30**	**1.53**	**1.37**	**1.09**	**1.27**	**126**	**1.28**	**1.13**	**1.44**	**125**	**17.9**
	South Staffordshire	611,300		0.96	0.89	0.81	1.03	1.00	118	0.94	0.84	1.04	109	4.7
	Stoke on Trent	**248,000**		**1.25**	**1.02**	**1.38**	**1.33**	**1.04**	**113**	**1.20**	**1.03**	**1.40**	**129**	**7.1**
	Telford and Wrekin	**162,400**	**1.35**	**1.60**	**1.07**	**1.23**	**1.56**	**1.05**	**111**	**1.31**	**1.11**	**1.55**	**136**	**6.6**
	Walsall Teaching	**256,800**	**1.41**	**1.15**	**1.40**	**1.03**	**1.88**	**1.16**	**129**	**1.34**	**1.17**	**1.52**	**146**	**14.7**
	Warwickshire	536,200	1.04	1.02	0.97	0.97	1.14	1.07	125	1.04	0.94	1.14	120	6.7
	Wolverhampton City	**239,300**	**1.32**	**1.02**	**1.46**	**1.12**	**1.47**	**1.12**	**121**	**1.25**	**1.09**	**1.44**	**134**	**23.8**
	Worcestershire	*557,300*	*0.63*	*0.83*	*0.95*	*1.07*	*0.79*	*0.81*	*99*	*0.85*	*0.76*	*0.94*	*101*	*4.4*
East of England	*Bedfordshire*	*416,300*	*1.03*	*0.59*	*0.72*	*0.83*	*0.87*	*0.73*	*79*	*0.79*	*0.69*	*0.91*	*85*	*9.3*
	Cambridgeshire	*616,400*	*1.10*	*0.82*	*0.71*	*1.01*	*0.78*	*0.97*	*105*	*0.90*	*0.81*	*1.00*	*97*	*7.4*
	Hertfordshire	*1,107,500*	*0.93*	*0.73*	*0.95*	*0.81*	*0.87*	*0.94*	*99*	*0.87*	*0.81*	*0.95*	*91*	*9.9*
	Great Yarmouth and Waveney	214,700	1.34	1.14	1.07	0.87	1.11	1.15	149	1.11	0.96	1.28	142	3.5
	Luton	**198,900**	**1.16**	**1.50**	**1.11**	**0.99**	**1.12**	**1.36**	**126**	**1.21**	**1.02**	**1.43**	**110**	**31.5**
	Mid Essex	374,500	0.93	0.92	0.84	0.88	0.85	0.95	107	0.90	0.79	1.02	100	5.1
	Norfolk	*764,800*	*0.98*	*1.06*	*0.86*	*0.68*	*0.81*	*0.78*	*99*	*0.86*	*0.79*	*0.94*	*108*	*3.9*

Table 1.2. Continued

UK Area	PCT/HB	Tot pop (2010)	2006 O/E	2007 O/E	2008 O/E	2009 O/E	2010 O/E	2011 O/E	2011 Crude rate pmp	2006–2011 O/E	2006–2011 95% LCL	2006–2011 95% UCL	2006–2011 Crude rate pmp*	% non-White
East of England	North East Essex	329,500			1.48	0.78	0.90	1.20	146	1.09	0.94	1.26	131	6.4
	Peterborough	173,600	1.28	1.11	1.05	1.27	0.71	0.92	92	1.06	0.88	1.28	105	13.0
	South East Essex	338,200	1.23	1.04	0.91	0.62	0.82	0.77	92	0.90	0.79	1.03	105	5.7
	South West Essex	410,000	1.03	0.93	1.09	0.68	0.89	1.03	107	0.94	0.83	1.07	97	7.6
	Suffolk	*601,900*	*0.78*	*0.93*	*0.74*	*0.86*	*0.74*	*0.64*	*76*	*0.78*	*0.70*	*0.87*	*92*	*5.7*
	West Essex	*286,400*	*0.73*	*0.74*	*0.45*	*0.82*	*0.68*	*0.76*	*84*	*0.70*	*0.59*	*0.83*	*76*	*7.9*
London	**Barking and Dagenham**	**179,700**	**0.80**	**1.21**	**1.54**	**1.46**	**1.43**	**1.71**	**145**	**1.36**	**1.14**	**1.62**	**113**	**23.7**
	Barnet	**348,000**	**1.30**	**1.87**	**1.40**	**1.35**	**1.78**	**1.46**	**144**	**1.52**	**1.36**	**1.70**	**148**	**29.4**
	Bexley	**228,300**	**1.12**	**1.05**	**1.21**	**1.28**	**1.31**	**1.15**	**123**	**1.18**	**1.02**	**1.38**	**125**	**13.0**
	Brent Teaching	**256,300**	**1.85**	**2.16**	**2.16**	**2.38**	**3.03**	**2.37**	**226**	**2.32**	**2.09**	**2.58**	**219**	**53.5**
	Bromley	312,400	0.92	0.72	1.25	0.97	1.11	0.67	74	0.94	0.82	1.08	101	11.9
	Camden	**235,500**	**1.20**	**1.09**	**1.09**	**1.35**	**1.65**	**1.24**	**102**	**1.27**	**1.08**	**1.49**	**103**	**24.9**
	City and Hackney Teaching	**231,000**	**1.27**	**1.38**	**1.27**	**1.76**	**1.65**	**1.98**	**156**	**1.55**	**1.34**	**1.81**	**121**	**35.7**
	Croydon	**345,400**	**0.99**	**1.72**	**1.36**	**1.61**	**1.41**	**1.37**	**133**	**1.41**	**1.25**	**1.58**	**136**	**34.5**
	Ealing	**318,300**	**1.74**	**1.99**	**1.64**	**2.32**	**2.17**	**1.83**	**167**	**1.95**	**1.75**	**2.17**	**175**	**40.7**
	Enfield	**295,000**	**1.45**	**1.14**	**1.39**	**1.30**	**1.37**	**1.97**	**190**	**1.44**	**1.27**	**1.63**	**137**	**28.0**
	Greenwich Teaching	**228,100**	**1.01**	**1.63**	**1.73**	**1.36**	**2.28**	**1.10**	**96**	**1.51**	**1.31**	**1.75**	**131**	**26.1**
	Hammersmith and Fulham	**169,800**	**1.03**	**1.59**	**0.62**	**1.37**	**1.56**	**1.44**	**124**	**1.27**	**1.05**	**1.53**	**108**	**21.0**
	Haringey Teaching	**225,100**	**1.37**	**1.32**	**1.74**	**1.15**	**1.62**	**1.99**	**169**	**1.53**	**1.32**	**1.78**	**129**	**33.1**
	Harrow	**230,300**	**1.35**	**0.48**	**1.71**	**1.99**	**2.22**	**2.37**	**239**	**1.69**	**1.48**	**1.92**	**168**	**44.7**
	Havering	*236,100*	*0.99*	*0.69*	*0.81*	*0.60*	*0.39*	*1.17*	*131*	*0.78*	*0.65*	*0.93*	*86*	*8.8*
	Hillingdon	**266,200**	**1.62**	**0.96**	**1.44**	**1.26**	**1.41**	**1.61**	**154**	**1.38**	**1.21**	**1.59**	**131**	**25.9**
	Hounslow	**236,700**	**1.67**	**1.54**	**1.20**	**1.72**	**1.96**	**2.00**	**177**	**1.68**	**1.47**	**1.93**	**148**	**37.8**
	Islington	**193,900**	**1.74**	**1.29**	**1.03**	**1.61**	**1.66**	**1.92**	**155**	**1.54**	**1.31**	**1.82**	**123**	**22.9**
	Kensington and Chelsea	169,500	0.82	0.47	1.12	0.76	0.96	0.81	83	0.82	0.66	1.02	83	22.6
	Kingston	169,000		0.90	1.42	0.70	0.85	0.95	89	0.97	0.77	1.21	89	19.9
	Lambeth	**284,400**	**1.42**	**1.95**	**1.64**	**1.99**	**1.51**	**1.94**	**155**	**1.74**	**1.53**	**1.98**	**138**	**32.0**
	Lewisham	**266,400**	**1.62**	**1.85**	**1.63**	**2.34**	**1.53**	**1.88**	**158**	**1.81**	**1.59**	**2.05**	**150**	**34.4**
	Newham	**240,200**	**2.26**	**1.94**	**2.11**	**2.32**	**2.83**	**2.79**	**212**	**2.38**	**2.10**	**2.69**	**178**	**57.0**
	Redbridge	**270,300**	**1.04**	**1.28**	**1.61**	**1.83**	**1.59**	**1.43**	**133**	**1.46**	**1.28**	**1.67**	**135**	**40.9**
	Richmond and Twickenham	190,800		0.76	0.76	0.80	0.93	0.75	73	0.80	0.64	1.00	78	11.7
	Southwark	**287,100**	**1.51**	**2.29**	**1.98**	**1.42**	**1.77**	**1.97**	**160**	**1.82**	**1.61**	**2.06**	**147**	**34.1**
	Sutton and Merton	**403,000**		**1.21**	**1.44**	**1.22**	**1.33**	**1.37**	**132**	**1.32**	**1.16**	**1.49**	**125**	**20.8**
	Tower Hamlets	**238,100**	**1.31**	**1.78**	**1.96**	**1.96**	**1.53**	**2.01**	**143**	**1.76**	**1.52**	**2.04**	**124**	**22.8**
	Waltham Forest	**227,400**	**1.91**	**2.59**	**1.45**	**1.80**	**1.32**	**2.05**	**176**	**1.86**	**1.62**	**2.12**	**158**	**36.6**
	Wandsworth	**289,200**		**1.76**	**1.67**	**2.00**	**1.59**	**1.32**	**107**	**1.67**	**1.45**	**1.92**	**134**	**19.7**
	Westminster	**253,400**	**1.41**	**0.62**	**1.28**	**1.63**	**1.18**	**1.40**	**126**	**1.25**	**1.08**	**1.46**	**112**	**27.8**
South East Coast	Brighton and Hove City	258,400	0.92	0.85	1.09	1.19	0.86	0.95	93	0.98	0.83	1.15	94	8.7
	East Sussex Downs and Weald	*336,100*	*1.00*	*0.91*	*0.65*	*0.61*	*0.58*	*0.70*	*92*	*0.74*	*0.64*	*0.85*	*96*	*4.9*
	Eastern and Coastal Kent	**742,200**		**1.33**	**1.20**	**1.05**	**1.06**	**0.91**	**106**	**1.11**	**1.01**	**1.21**	**128**	**5.3**
	Hastings and Rother	*179,700*	*1.02*	*0.61*	*0.91*	*0.68*	*0.74*	*0.97*	*128*	*0.82*	*0.68*	*0.99*	*107*	*5.2*
	Medway	256,600		1.47	0.70	1.00	0.79	0.88	90	0.97	0.81	1.15	97	7.5
	Surrey	*1,114,400*	*0.75*	*0.81*	*0.96*	*0.99*	*1.04*	*0.98*	*109*	*0.92*	*0.86*	*0.99*	*101*	*8.3*
	West Kent	685,100		1.01	1.02	0.95	0.78	0.89	99	0.93	0.84	1.03	103	6.8
	West Sussex	*800,000*	*0.85*	*0.88*	*0.87*	*0.76*	*0.74*	*0.66*	*81*	*0.79*	*0.72*	*0.87*	*96*	*5.8*

Table 1.2. Continued

UK Area	PCT/HB	Tot pop (2010)	2006 O/E	2007 O/E	2008 O/E	2009 O/E	2010 O/E	2011 O/E	2011 Crude rate pmp	2006–2011 O/E	2006–2011 95% LCL	2006–2011 95% UCL	2006–2011 Crude rate pmp*	% non-White
South Central	**Berkshire East**	**406,500**	**1.07**	**1.34**	**1.21**	**1.32**	**1.28**	**1.29**	**125**	**1.25**	**1.12**	**1.40**	**120**	**18.9**
	Berkshire West	471,500	0.94	0.90	1.12	0.87	0.76	1.06	106	0.94	0.83	1.06	93	10.1
	Buckinghamshire	*512,100*	*0.71*	*0.75*	*0.82*	*0.94*	*0.76*	*0.83*	*92*	*0.80*	*0.71*	*0.90*	*88*	*10.4*
	Hampshire	*1,297,200*	*0.90*	*0.78*	*0.82*	*0.82*	*0.78*	*0.73*	*86*	*0.80*	*0.75*	*0.86*	*93*	*4.2*
	Isle of Wight National Health Service	*140,200*	*0.43*	*0.22*	*0.32*	*0.16*	*0.60*	*0.79*	*107*	*0.42*	*0.31*	*0.56*	*56*	*3.6*
	Milton Keynes	247,000	0.69	1.17	0.95	0.95	1.06	0.99	93	0.97	0.82	1.15	90	12.7
	Oxfordshire	*624,200*	*0.75*	*0.73*	*0.68*	*1.04*	*0.94*	*1.05*	*111*	*0.86*	*0.78*	*0.96*	*90*	*8.1*
	Portsmouth City Teaching	207,200	0.78	0.78	0.83	0.72	0.58	1.27	121	0.83	0.68	1.01	77	8.0
	Southampton City	239,800	0.69	0.87	1.19	0.64	1.21	1.12	104	0.95	0.80	1.13	87	11.4
South West	Bath and North East Somerset	179,800	0.86	0.98	0.72	1.36	0.67	0.60	67	0.87	0.71	1.05	95	5.8
	Bournemouth and Poole Teaching	*310,800*	*0.67*	*0.67*	*0.87*	*0.58*	*0.56*	*0.74*	*87*	*0.68*	*0.58*	*0.80*	*79*	*5.0*
	Bristol	**441,100**	**1.40**	**1.03**	**1.50**	**1.19**	**1.42**	**1.35**	**125**	**1.31**	**1.18**	**1.47**	**119**	**11.6**
	Cornwall and Isles of Scilly	537,900	1.06	0.95	0.90	1.03	0.88	0.80	102	0.94	0.85	1.04	119	2.8
	Devon	749,700	0.92	1.07	1.15	1.01	0.94	0.86	112	0.99	0.91	1.08	127	3.3
	Dorset	*404,900*	*0.55*	*0.69*	*0.90*	*0.69*	*0.61*	*0.65*	*91*	*0.68*	*0.60*	*0.77*	*94*	*3.5*
	Gloucestershire	*593,600*	*1.01*	*0.88*	*0.66*	*1.12*	*0.87*	*0.89*	*104*	*0.90*	*0.82*	*1.00*	*105*	*4.7*
	North Somerset	212,100	0.85	0.78	1.13	0.88	0.94	0.80	99	0.90	0.76	1.06	109	3.6
	Plymouth Teaching	**258,900**	**1.80**	**1.71**	**1.02**	**1.16**	**1.22**	**1.07**	**112**	**1.33**	**1.16**	**1.52**	**136**	**4.4**
	Somerset	*525,500*	*0.76*	*0.69*	*0.75*	*1.07*	*1.06*	*0.81*	*103*	*0.86*	*0.77*	*0.95*	*107*	*3.2*
	South Gloucestershire	264,900	1.00	0.84	0.98	0.65	1.13	0.62	68	0.87	0.74	1.02	94	5.0
	Swindon	206,900	0.76	0.57	1.10	1.09	1.06	1.18	121	0.96	0.80	1.15	97	7.1
	Torbay	134,400	0.80	0.87	1.56	0.68	1.45	0.84	112	1.03	0.85	1.24	134	3.1
	Wiltshire	*459,800*	*0.71*	*0.63*	*0.85*	*0.75*	*0.82*	*0.65*	*76*	*0.73*	*0.65*	*0.83*	*85*	*3.4*
Wales	Betsi Cadwaladr University	678,500	1.11	1.11	0.95	0.87	0.92	0.87	106	0.97	0.89	1.06	117	1.0
	Powys Teaching	131,100	0.63	0.98	0.93	1.02	0.70	1.24	168	0.92	0.75	1.12	122	0.9
	Hywel Dda	374,800	0.91	1.10	1.25	0.78	1.17	1.12	141	1.05	0.94	1.18	132	1.0
	Abertawe Bro Morgannwg Univ.	**504,800**	**1.40**	**1.50**	**1.20**	**1.55**	**1.48**	**1.11**	**129**	**1.37**	**1.25**	**1.50**	**157**	**1.6**
	Cwm Taf	**290,600**	**1.68**	**1.61**	**1.07**	**1.31**	**0.96**	**1.43**	**158**	**1.34**	**1.19**	**1.52**	**147**	**1.1**
	Aneurin Bevan	**561,300**	**1.10**	**1.35**	**0.95**	**0.96**	**1.32**	**1.17**	**134**	**1.14**	**1.04**	**1.25**	**129**	**1.9**
	Cardiff and Vale University	**466,100**	**1.40**	**1.45**	**1.01**	**1.15**	**1.38**	**0.99**	**99**	**1.23**	**1.11**	**1.37**	**121**	**6.7**
Scotland	Ayrshire & Arran	366,900	1.39	0.85	0.83	0.89	1.09	0.79	95	0.97	0.86	1.10	116	0.7
	Borders	113,000	0.91	1.21	1.07	0.98	1.07	0.56	71	0.97	0.78	1.20	121	0.6
	Dumfries and Galloway	148,100	1.13	0.83	1.14	1.07	0.57	0.56	74	0.89	0.73	1.07	116	0.7
	Fife	364,800	1.02	1.00	0.95	1.18	1.19	1.13	129	1.08	0.96	1.22	122	1.3
	Forth Valley	293,100	1.02	1.35	0.78	0.99	1.01	0.80	89	0.99	0.86	1.14	109	1.1
	Grampian	*550,500*	*0.82*	*0.86*	*0.88*	*0.90*	*0.85*	*0.81*	*91*	*0.85*	*0.76*	*0.96*	*94*	*1.6*
	Greater Glasgow & Clyde	1,204,100	1.11	1.09	0.94	1.00	0.88	1.03	109	1.01	0.94	1.08	105	3.4
	Highland	*310,700*	*0.86*	*0.87*	*0.84*	*0.75*	*0.64*	*0.49*	*61*	*0.74*	*0.64*	*0.86*	*91*	*0.8*
	Lanarkshire	*562,700*	*0.92*	*0.81*	*0.74*	*0.85*	*0.99*	*0.82*	*89*	*0.85*	*0.76*	*0.95*	*92*	*1.2*
	Lothian	*837,000*	*1.04*	*0.88*	*0.98*	*0.82*	*0.63*	*0.69*	*72*	*0.84*	*0.77*	*0.92*	*86*	*2.8*
	Orkney	19,800	0.82	0.42	1.66	1.23	0.42	0.00	0	0.76	0.42	1.37	93	0.4
	Shetland	22,500	0.00	1.58	0.00	0.39	0.40	0.78	89	0.52	0.26	1.05	59	1.1
	Tayside	**402,400**	**1.06**	**1.24**	**1.17**	**1.28**	**1.01**	**1.13**	**134**	**1.15**	**1.03**	**1.28**	**135**	**1.9**
	Western Isles	26,500	0.88	1.78	0.30	0.88	1.49	0.00	0	0.88	0.56	1.40	113	0.6
N Ireland	**Belfast**	**335,700**	**1.58**	**1.29**	**1.02**	**0.80**	**1.28**	**1.12**	**113**	**1.18**	**1.04**	**1.34**	**118**	**1.1**
	Northern	**458,600**	**1.27**	**1.39**	**1.13**	**0.81**	**1.17**	**1.22**	**126**	**1.17**	**1.05**	**1.30**	**119**	**0.6**
	Southern	357,700	0.66	0.60	0.96	0.78	1.07	1.31	123	0.90	0.77	1.04	83	0.4
	South Eastern	*347,100*	*1.02*	*0.89*	*0.86*	*0.69*	*0.71*	*0.91*	*95*	*0.85*	*0.73*	*0.98*	*88*	*0.7*
	Western	299,900	1.26	1.03	0.85	1.20	0.83	0.98	93	1.03	0.88	1.19	97	0.5

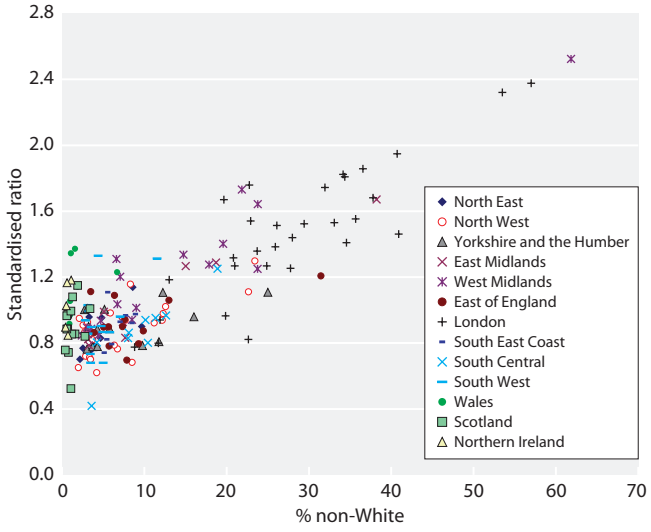

Fig. 1.2. Age/gender standardised incidence ratio (2006–2011) by percentage non-White

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). EDTA code 10, 'Glomerulonephritis biopsy unproven', was now put in the 'Glomerulonephritis' group rather than into the 'Uncertain' aetiology group as was done in previous year's reports.

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 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. Patients with an eGFR >20 ml/min/1.73 m^2 were excluded from the eGFR analyses due to concerns about possible data extraction errors.

Results

Age

Overall, incidence rates have levelled off in the last five years (figure 1.3).

Figure 1.4 shows RRT incidence rates for 2011 by age group and gender. For both men and women, the peak rate was in the 75–79 age group.

In 2011, the median age of patients starting renal replacement therapy was 64.9 years (table 1.4) and this had changed little over the previous six years (data not shown). The median age of non-White patients was considerably lower at 58.4 years. This reflects 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] and the higher rates of diabetes in South Asian and Black populations.

Figure 1.5 shows that the 55–64 and 65–74 age groups contained the most patients starting on peritoneal dialysis whereas the 65–74 age group contained the most patients starting on haemodialysis closely followed by the 75–84 age group. The figure also gives the numbers for 2010 showing that there was an increase in 2011 in the numbers starting PD, most notably in the 65–74 age group.

There were large differences between centres in the median age of incident patients (figure 1.6). This reflects differences in the age and ethnic structure of the catchment populations and also chance fluctuations, particularly in small centres. The median age of patients treated at transplant centres was 63.8 years (IQR 49.5, 74.3) and at non-transplanting centres 66.2 years (IQR 52.4, 76.0) ($p < 0.0001$).

Whilst the median age of patients had risen only slightly over the last 10 years the percentage of patients aged over 75 years rose from 22.3% to 25.2%.

Averaged over 2006–2011, crude incidence rates in the over 75 years age group varied from 0 per million age related population (pmarp) (Shetland) to 989 pmarp (Heart of Birmingham).

Excluding four areas which had much higher or lower rates than the rest there was 6–fold variation (104 pmarp to 637 pmarp). The wide range of treatment rates suggests there was geographical variation in the prevalence of comorbid and predisposing renal conditions within the UK as well as uncertainty within the renal community about the suitability of older patients for dialysis. The 6–fold variation seen in the over 75s was much greater than the 2.4-fold variation (73 pmp to 178 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 75s analysis.

The median age of new patients with diabetes was similar to the overall median and has not varied greatly over the last 5 years.

Table 1.3. Number of patients starting RRT by renal centre 2006–2011

Centre	Year						Catchment population (millions)	2011 crude rate pmp	(95% CI)
	2006	2007	2008	2009	2010	2011			
England									
B Heart	115	101	105	99	95	112	0.72	155	(126–183)
B QEH	187	222	268	255	197	216	1.62	133	(115–151)
Basldn	45	39	40	27	32	42	0.41	103	(72–134)
Bradfd	50	88	62	59	67	58	0.58	100	(74–126)
Brightn	131	120	119	117	106	118	1.20	99	(81–117)
Bristol	176	153	175	157	168	139	1.57	88	(74–103)
Camb[a]	155	125	94	134	105	125	1.27[a]	99[a]	(81–116)
Carlis	28	26	30	28	23	29	0.31	92	(59–126)
Carsh	180	194	214	206	220	210	1.92	110	(95–124)
Chelms[a]	50	51	36	51	45	43	0.47[a]	92[a]	(65–120)
Colchr[b]	n/a	n/a	58	21	32	45	[b]	[b]	[b]
Covnt	102	111	113	118	115	109	0.87	125	(102–149)
Derby	70	62	97	76	79	79	0.65	122	(95–149)
Donc[b]	n/a	20	26	40	44	43	[b]	[b]	[b]
Dorset	53	62	82	74	71	74	0.73	102	(79–125)
Dudley	45	40	46	69	43	41	0.42	99	(69–129)
Exeter	105	126	135	145	140	112	1.03	109	(89–129)
Glouc	73	59	45	79	61	58	0.58	101	(75–127)
Hull	101	99	111	100	87	108	0.99	109	(89–130)
Ipswi[a]	42	40	38	38	33	29	0.56[a]	52[a]	(33–70)
Kent		171	140	129	134	123	1.16	106	(87–124)
L Barts	191	215	207	238	204	264	1.68	157	(138–176)
L Guys	135	167	161	172	135	116	1.15	101	(82–119)
L Kings	109	122	151	127	144	139	0.97	143	(119–167)
L Rfree	194	185	173	170	207	227	1.50	151	(131–171)
L St.G		89	99	110	86	75	0.59	128	(99–157)
L West	312	273	317	356	366	366	2.23	164	(148–181)
Leeds	169	124	159	153	125	160	1.65	97	(82–112)
Leic	240	244	242	228	245	268	2.32	116	(102–129)
Liv Ain[c]	34	35	42	39	51	73	0.51[c]	144	(111–177)
Liv RI	140	112	102	110	99	113	1.20	94	(77–112)
M RI		159	131	147	161	156	1.47	106	(90–123)
Middlbr	108	99	92	95	98	98	1.01	97	(78–116)
Newc	107	106	101	98	94	100	1.11	90	(73–108)
Norwch	110	111	84	72	86	85	0.79	107	(84–130)
Nottm	137	129	115	133	116	116	1.14	102	(83–120)
Oxford	154	143	148	174	165	176	1.68	105	(89–120)
Plymth	92	75	69	56	56	59	0.48	124	(92–156)
Ports	175	157	170	149	149	187	2.00	93	(80–107)
Prestn	119	132	113	146	124	140	1.51	93	(77–108)
Redng	84	93	103	96	89	103	0.80	128	(103–153)
Salford[d]	129	110	139	124	149	125	1.42	88	(73–103)
Sheff[a]	169	165	181	149	143	135	1.49[a]	91[a]	(75–106)
Shrew	54	58	60	48	58	61	0.39	156	(117–195)
Stevng	121	88	102	98	107	110	1.09	101	(82–120)
Sthend	48	34	36	23	29	29	0.32	92	(58–125)
Stoke		87	81	110	95	93	0.90	104	(83–125)
Sund	57	62	45	64	55	55	0.59	93	(69–118)
Truro	52	45	41	58	46	39	0.41	95	(65–124)
Wirral	51	53	39	63	61	67	0.52	129	(98–159)
Wolve	84	68	89	65	106	75	0.61	124	(96–152)
York	48	36	36	43	38	51	0.51	101	(73–129)

Table 1.3. Continued

Centre	Year 2006	2007	2008	2009	2010	2011	Catchment population (millions)	2011 crude rate pmp	(95% CI)
N Ireland									
Antrim	33	37	41	21	41	29	0.30	97	(61–132)
Belfast	121	90	70	59	72	68	0.55	123	(94–152)
Newry	13	15	21	19	21	38	0.28	134	(92–177)
Ulster	8	17	14	13	20	34	0.30	113	(75–151)
West NI[e]	33	29	31	37	26	34	0.35	96	(64–129)
Scotland[f]									
Abrdn	53	56	56	55	51	49	0.60	82	(59–105)
Airdrie	55	48	39	48	56	48	0.56	85	(61–109)
D & Gall	20	17	19	17	10	10	0.15	68	(26–109)
Dundee	51	62	64	69	50	57	0.41	140	(104–177)
Dunfn	37	37	30	33	45	43	0.37	117	(82–152)
Edinb	106	95	103	98	68	72	0.96	75	(58–92)
Glasgw	186	187	159	174	154	171	1.51	114	(97–131)
Inverns	26	26	25	21	27	12	0.34	35	(15–56)
Klmarnk	57	36	33	39	43	33	0.37	90	(59–121)
Wales									
Bangor	42	36	41	30	26	20	0.25	80	(45–115)
Cardff	203	220	150	177	186	182	1.45	126	(107–144)
Clwyd[g]	18	21	15	18	15	21[g]	0.20	105	(60–150)
Swanse	116	127	125	116	137	114	0.80	143	(116–169)
Wrexm	26	27	21	20	25	26	0.30	87	(53–120)
							% change since 2007[i]		
England	**5,131**[h]	**5,485**	**5,662**	**5,736**	**5,584**	**5,774**	**5.3**		
N Ireland	**208**	**188**	**177**	**149**	**180**	**203**	**8.0**		
Scotland	**591**	**564**	**528**	**554**	**504**	**495**	**−12.2**		
Wales	**405**	**431**	**352**	**361**	**389**	**363**	**−15.8**		
UK	**6,335**[h]	**6,668**	**6,719**	**6,800**	**6,657**	**6,835**	**2.5**		

Blank cells – no data returned to the registry for that year
n/a – renal centre not yet operational
pmp – per million population
[a] Some reduction required to the population and increase to the rate after the opening of Colchester renal centre and the expansion of Doncaster renal centre
[b] Colchester renal centre was opened in 2007, Doncaster was still expanding and so catchment populations could not be calculated (2007 data was used for catchment population estimations)
[c] Population changed from 0.29 to 0.51 at the centre's request. Therefore the populations given for nearby centres are probably somewhat too high
[d] Salford previously named M Hope
[e] West NI is the amalgamation of Derry and Tyrone
[f] Populations for Scottish centres based on mid-2011 populations of Health Boards (from the General Register Office for Scotland) and an approximate mapping of renal centres to HBs supplied by the Scottish Renal Registry
[g] Clywd had 21 incident patients in 2011 but only 7 of these were included in the data extract. The extra 14 patients have been included in tables 1.1, 1.2 and 1.3 but not in the remainder of this chapter. Clywd are therefore not shown in any of the subsequent tables or figures as there were fewer than 10 patients with full data
[h] Does not include Kent, L St.G, M RI or Stoke as they were not reporting to the registry for 2006
[i] Change shown from 2007 not 2006 as not all centres included in 2006 data

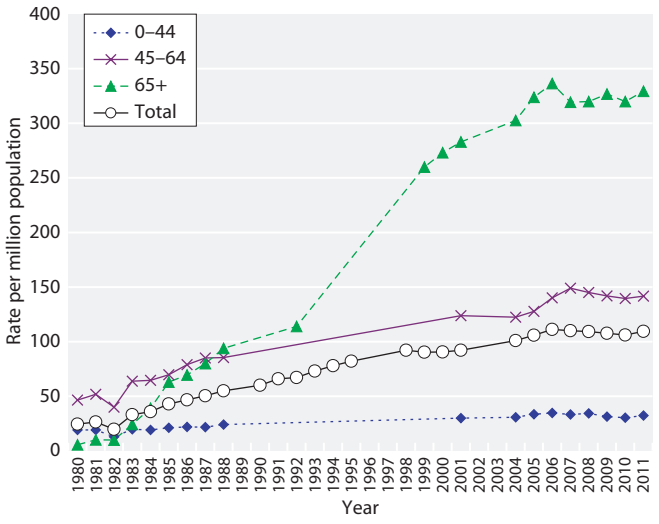

Fig. 1.3. RRT incidence rates between 1980 and 2011

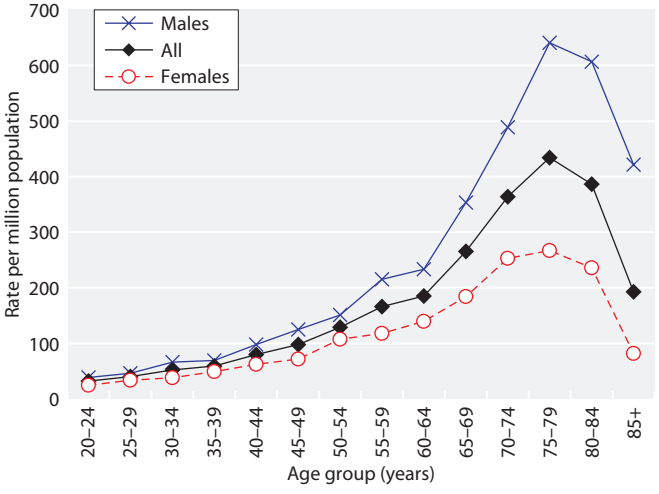

Fig. 1.4. RRT incidence rates in 2011 by age and gender

Table 1.4. Median and inter-quartile range of the age of patients starting renal replacement therapy in 2011 by country

Country	Median	IQR
England	64.9	(50.7–75.0)
N Ireland	64.7	(49.9–74.0)
Scotland	64.8	(53.1–74.4)
Wales	66.4	(52.9–76.3)
UK	**64.9**	**(50.9–75.1)**

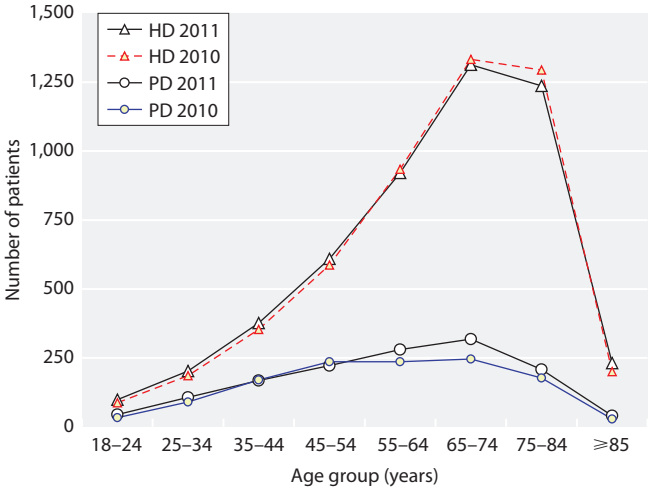

Fig. 1.5. Number of incident RRT patients in 2011 (and 2010), by age group and initial dialysis modality

Gender

As in previous years, more men than women started RRT (63.0% male). The male percentage was above 50 for all age groups and increased with increasing age group after age 45 (figure 1.7). The male to female

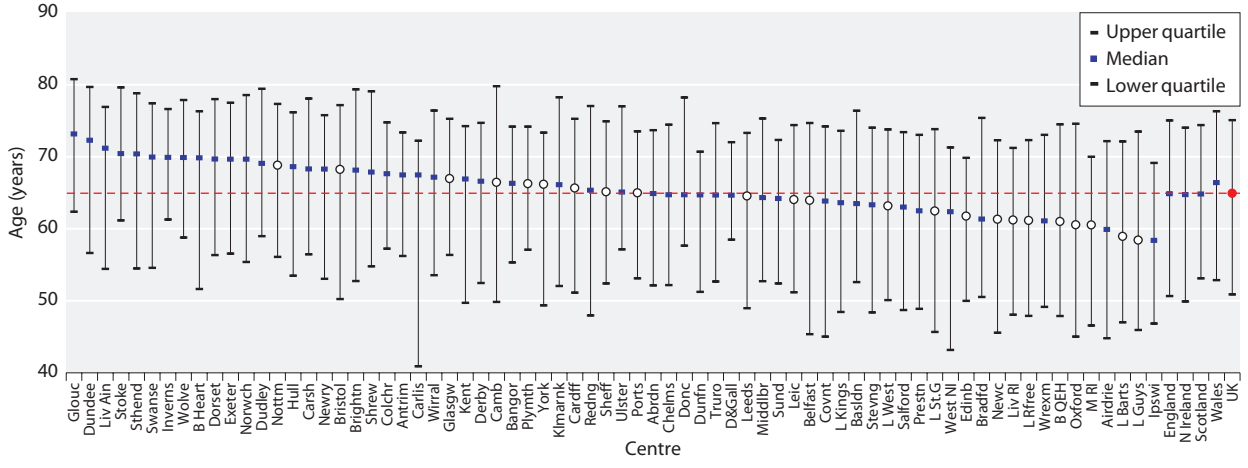

Fig. 1.6. Median age of incident RRT patients by centre in 2011
White points indicate transplant centres

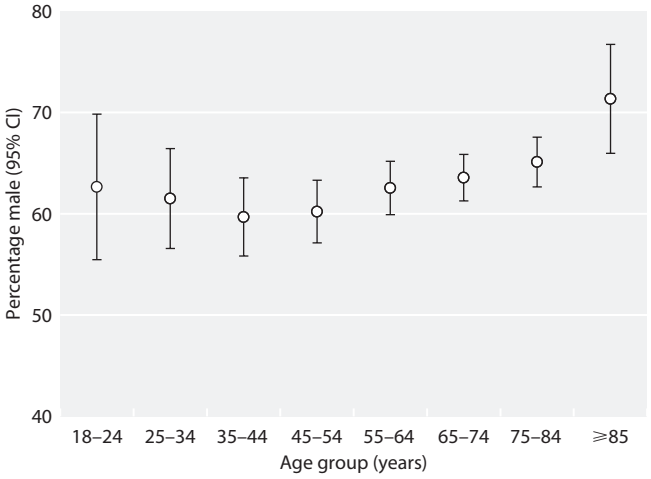

Fig. 1.7. Percentage of patients starting RRT in 2011 who were male, by age group

ratio which had been consistently stable at 1.6 since 1998 has increased over the last 2 years to 1.7.

Ethnicity

The completeness of ethnicity data was similar to that seen for 2010 incident patients. Fifty-nine centres returned ethnicity data that were 50% or more complete (table 1.5). This compared with 61 centres last year. Fifty-three of these 59 centres provided ethnicity data for 90% or more of their incident patients compared with 52 centres last year. Ethnicity completeness was low in the Scottish Renal Registry and Scotland has not been included in the table. The low completeness for some centres means that the overall breakdowns should still be interpreted with some caution. There was great variation between centres in the percentage of incident patients who were non-White ranging from zero in Carlisle, Dorset, Exeter, Truro, Newry and West NI to over 50% in Barts, the Royal Free and London West.

Primary renal diagnosis

The distribution of primary renal disease (PRD) by centre is shown in table 1.6. Data for PRD were missing for 10.2% of patients and there remained marked differences between centres in completeness of data. Sixty centres provided data on over 90% of incident patients and 32 of these had 100% completeness. There was only a small amount of missing data for Scotland and Wales and none for Northern Ireland, whilst England had 12.0% missing. The overall percentage missing was slightly up on 2010 (10.2% from 9.8%) and was similar in under and over 65 year olds (10.0% and 10.4% respectively). Four centres had missing PRD for more than 25% of new patients and for these centres the percentages in the diagnostic categories are not shown in table 1.6.

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

Table 1.5. Percentage of incident RRT patients (2011) in different ethnic groups by centre

Centre	% data not available	N with data	Percentage in each ethnic group				
			White	Black	South Asian	Chinese	Other
England							
B Heart	0.9	111	62.2	4.5	32.4		0.9
B QEH	0.5	215	65.6	10.2	20.5	0.9	2.8
Basldn	0.0	42	83.3	9.5	4.8		2.4
Bradfd	0.0	58	62.1		37.9		
Brightn	96.6	4					
Bristol	5.0	132	85.6	7.6	5.3		1.5
Camb	0.0	125	96.8	2.4			0.8
Carlis	0.0	29	100.0				
Carsh	10.5	188	72.3	10.6	13.8	0.5	2.7
Chelms	9.3	39	89.7	5.1	2.6		2.6
Colchr	0.0	45	93.3	2.2			4.4
Covnt	0.0	109	78.9	9.2	11.9		
Derby	10.1	71	83.1	5.6	9.9	1.4	
Donc	0.0	43	97.7				2.3
Dorset	0.0	74	100.0				

Table 1.5. Continued

Centre	% data not available	N with data	Percentage in each ethnic group				
			White	Black	South Asian	Chinese	Other
Dudley	2.4	40	90.0		10.0		
Exeter	19.6	90	100.0				
Glouc	0.0	58	93.1	1.7	3.4		1.7
Hull	0.0	108	98.1		0.9	0.9	
Ipswi	3.4	28	96.4	3.6			
Kent	7.3	114	95.6	0.9	1.8		1.8
L Barts	1.5	260	36.5	36.5	25.8	0.8	0.4
L Guys	9.5	105	56.2	42.9			1.0
L Kings	2.2	136	53.7	34.6	9.6		2.2
L Rfree	7.0	211	46.9	24.6	16.1	1.4	10.9
L St.G	14.7	64	53.1	23.4	15.6	1.6	6.3
L West	0.0	366	43.2	15.8	38.0	1.9	1.1
Leeds	1.3	158	81.6	4.4	13.3		0.6
Leic	5.6	253	78.3	2.8	17.4		1.6
Liv Ain	9.6	66	92.4			6.1	1.5
Liv RI	59.3	46					
M RI	3.8	150	78.0	10.7	9.3	0.7	1.3
Middlbr	1.0	97	91.8		8.2		
Newc	1.0	99	93.9		6.1		
Norwch	4.7	81	96.3	1.2	1.2		1.2
Nottm	0.0	116	87.9	4.3	5.2		2.6
Oxford	0.0	176	84.7	3.4	9.7	0.6	1.7
Plymth	5.1	56	96.4		1.8		1.8
Ports	3.2	181	92.3	0.6	4.4		2.8
Prestn	0.0	140	82.1	0.7	17.1		
Redng	69.9	31					
Salford	0.0	125	81.6	2.4	15.2	0.8	
Sheff	0.0	135	90.4	3.7	5.2		0.7
Shrew	0.0	61	93.4		4.9	1.6	
Stevng	3.6	106	71.7	7.5	16.0	0.9	3.8
Sthend	0.0	29	89.7	3.4		3.4	3.4
Stoke	0.0	93	93.5		5.4		1.1
Sund	1.8	54	96.3	1.9	1.9		
Truro	0.0	39	100.0				
Wirral	11.9	59	96.6			1.7	1.7
Wolve	2.7	73	71.2	9.6	19.2		
York	0.0	51	96.1		2.0		2.0
N Ireland							
Antrim	0.0	29	96.6		3.4		
Belfast	8.8	62	98.4		1.6		
Newry	0.0	38	100.0				
Ulster	0.0	34	94.1		2.9	2.9	
West NI	0.0	34	100.0				
Wales							
Bangor	5.0	19	94.7			5.3	
Cardff	2.2	178	94.4	0.6	4.5	0.6	
Swanse	5.3	108	98.1	0.9	0.9		
Wrexm	0.0	26	96.2	3.8			
England	**7.5**	**5,340**	**76.8**	**8.8**	**12.2**	**0.5**	**1.7**
N Ireland	**3.0**	**197**	**98.0**		**1.5**	**0.5**	
Wales	**3.4**	**337**	**95.8**	**0.9**	**2.7**	**0.6**	
E, W & NI	**7.1**	**5,874**	**78.6**	**8.0**	**11.3**	**0.5**	**1.5**

The percentage breakdown is not shown for centres with less than 50% data completeness but these centres are included in national averages

Table 1.6. Distribution of primary renal diagnosis by centre in the 2011 incident RRT cohort

			Percentage							
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	0.0	112	22.3	35.7	12.5	8.9	8.9	4.5	4.5	2.7
B QEH	0.0	216	15.3	21.3	13.4	7.9	23.2	8.8	2.3	7.9
Basldn	2.4	41	9.8	26.8	14.6	9.8	12.2	7.3	9.8	9.8
Bradfd	0.0	58	29.3	27.6	8.6	12.1	6.9	6.9	5.2	3.5
Brightn	72.9	32								
Bristol	2.9	135	15.6	22.2	15.6	3.7	17.8	10.4	6.7	8.2
Camb	0.0	125	56.8							
Carlis	3.5	28	3.6	32.1	3.6	14.3	25.0	7.1	3.6	10.7
Carsh	12.9	183	29.0	16.9	9.3	9.3	19.7	3.3	8.2	4.4
Chelms	9.3	39	25.6	18.0	18.0	12.8	18.0	2.6	2.6	2.6
Colchr	2.2	44	79.6							
Covnt	0.9	108	13.9	18.5	15.7	11.1	13.0	5.6	7.4	14.8
Derby	8.9	72	22.2	30.6	12.5	1.4	12.5	2.8	15.3	2.8
Donc	0.0	43	25.6	18.6	4.7	16.3	11.6	11.6	9.3	2.3
Dorset	0.0	74	12.2	20.3	9.5	6.8	20.3	9.5	12.2	9.5
Dudley	0.0	41	14.6	24.4	12.2	7.3	26.8	4.9	2.4	7.3
Exeter	0.9	111	12.6	20.7	15.3	13.5	11.7	6.3	7.2	12.6
Glouc	1.7	57	29.8	21.1	8.8	1.8	15.8	7.0	1.8	14.0
Hull	2.8	105	17.1	21.9	7.6	6.7	23.8	10.5	8.6	3.8
Ipswi	0.0	29	34.5	27.6	10.3	0.0	3.5	13.8	6.9	3.5
Kent	0.8	122	21.3	27.1	16.4	4.9	18.0	4.9	4.9	2.5
L Barts	17.4	218	17.4	33.9	9.2	12.4	13.8	6.4	4.6	2.3
L Guys	1.7	114	12.3	29.8	14.0	9.7	19.3	5.3	7.0	2.6
L Kings	0.0	139	12.2	41.0	9.4	12.2	9.4	3.6	7.9	4.3
L Rfree	59.9	91								
L St.G	9.3	68	14.7	25.0	20.6	8.8	16.2	8.8	1.5	4.4
L West	0.0	366	12.3	36.3	12.3	4.1	21.0	4.4	4.9	4.6
Leeds	0.6	159	16.4	20.1	11.3	13.8	15.1	9.4	10.7	3.1
Leic	21.3	211	18.0	20.9	14.2	4.3	14.7	9.0	12.3	6.6
Liv Ain	15.1	62	30.7	17.7	8.1	8.1	11.3	9.7	9.7	4.8
Liv RI	0.0	113	86.7							
M RI	17.3	129	17.8	20.9	13.2	14.0	17.1	7.8	6.2	3.1
Middlbr	2.0	96	26.0	25.0	9.4	4.2	18.8	12.5	0.0	4.2
Newc	1.0	99	13.1	11.1	16.2	1.0	25.3	14.1	9.1	10.1
Norwch	8.2	78	32.1	15.4	14.1	1.3	11.5	10.3	5.1	10.3
Nottm	0.0	116	17.2	22.4	12.9	6.0	24.1	4.3	6.9	6.0
Oxford	1.1	174	21.8	25.3	13.8	5.8	10.9	10.3	9.2	2.9
Plymth	22.0	46	21.7	17.4	28.3	4.4	4.4	4.4	8.7	10.9
Ports	20.3	149	11.4	24.8	15.4	10.7	16.1	8.1	6.0	7.4
Prestn	0.0	140	13.6	22.9	14.3	10.0	15.0	10.7	10.7	2.9
Redng	1.0	102	15.7	25.5	11.8	2.9	19.6	2.9	9.8	11.8
Salford	81.6	23								
Sheff	3.7	130	20.8	20.8	12.3	5.4	12.3	9.2	10.0	9.2
Shrew	3.3	59	17.0	28.8	10.2	6.8	23.7	5.1	1.7	6.8
Stevng	0.0	110	18.2	21.8	7.3	2.7	31.8	8.2	5.5	4.6
Sthend	0.0	29	13.8	20.7	20.7	0.0	20.7	10.3	10.3	3.5
Stoke	5.4	88	17.1	28.4	2.3	9.1	22.7	3.4	9.1	8.0
Sund	0.0	55	0.0	30.9	20.0	16.4	14.6	5.5	10.9	1.8
Truro	0.0	39	12.8	23.1	20.5	5.1	10.3	2.6	15.4	10.3
Wirral	82.1	12								
Wolve	1.3	74	23.0	23.0	14.9	1.4	13.5	8.1	5.4	10.8
York	2.0	50	6.0	18.0	18.0	8.0	14.0	10.0	10.0	16.0

Table 1.6. Continued

Centre	% data not available	N with data	Percentage							
			Uncertain aetiology*	Diabetes	Glomerulo-nephritis*	Hyper-tension	Other	Polycystic kidney	Pyelo-nephritis	Renal vascular disease
N Ireland										
Antrim	0.0	29	17.2	31.0	10.3	6.9	3.5	6.9	17.2	6.9
Belfast	0.0	68	14.7	19.1	13.2	2.9	16.2	5.9	16.2	11.8
Newry	0.0	38	15.8	26.3	10.5	0.0	15.8	13.2	0.0	18.4
Ulster	0.0	34	8.8	26.5	14.7	8.8	26.5	5.9	2.9	5.9
West NI	0.0	34	11.8	17.7	14.7	5.9	17.7	5.9	14.7	11.8
Scotland										
Abrdn	0.0	49	8.2	34.7	8.2	4.1	16.3	10.2	8.2	10.2
Airdrie	2.1	47	12.8	23.4	19.2	12.8	6.4	6.4	10.6	8.5
D & Gall	0.0	10	20.0	20.0	30.0	20.0	0.0	0.0	10.0	0.0
Dundee	0.0	57	24.6	28.1	12.3	5.3	8.8	8.8	7.0	5.3
Dunfn	0.0	43	11.6	23.3	27.9	0.0	14.0	9.3	7.0	7.0
Edinb	1.4	71	12.7	28.2	14.1	5.6	8.5	14.1	8.5	8.5
Glasgw	0.0	171	15.2	22.8	18.7	2.3	10.5	9.4	5.3	15.8
Inverns	0.0	12	25.0	8.3	16.7	0.0	25.0	0.0	8.3	16.7
Klmarnk	0.0	33	6.1	15.2	21.2	15.2	3.0	6.1	15.2	18.2
Wales										
Bangor	0.0	20	30.0	15.0	20.0	10.0	15.0	10.0	0.0	0.0
Cardff	1.1	180	24.4	28.9	18.9	3.3	12.2	3.9	3.9	4.4
Swanse	2.6	111	9.0	28.8	14.4	1.8	10.8	4.5	7.2	23.4
Wrexm	0.0	26	19.2	30.8	11.5	3.9	11.5	3.9	15.4	3.9
England	**12.0**	**5,114**	**17.6**	**24.7**	**12.7**	**7.6**	**17.3**	**7.2**	**7.0**	**6.0**
N Ireland	**0.0**	**203**	**13.8**	**23.2**	**12.8**	**4.4**	**16.3**	**7.4**	**10.8**	**11.3**
Scotland	**0.4**	**493**	**14.4**	**24.5**	**17.4**	**5.3**	**10.1**	**9.1**	**7.7**	**11.4**
Wales	**1.5**	**344**	**19.3**	**28.2**	**16.9**	**3.3**	**11.9**	**4.5**	**5.6**	**10.4**
UK	**10.2**	**6,154**	**17.3**	**24.8**	**13.3**	**7.0**	**16.3**	**7.2**	**7.1**	**6.9**

* presumed glomerulonephritis not biopsy proven has now been grouped into glomerulonephritis rather than into uncertain as in previous years

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 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

patients will vary between clinicians and centres as the 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, data was not used from three centres which had diagnosis 'uncertain' for over 50% of their incident patients with non-missing data (Cambridge, Colchester, Royal Liverpool). 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 or used in the country and UK averages. These centres have also been excluded where PRD is used to stratify analyses.

There was a lot of variability between centres in the percentages with the specific diagnoses. For example, the percentage with diabetes as PRD varied from about 10% to just over 40% of incident patients. The percentage with glomerulonephritis varied from below 5% to 30%.

The overall percentage with uncertain aetiology was lower than last year (17.3 versus 19.8%) but about two-thirds of this decrease was due to the reclassification of those with EDTA code 10 (Glomerulonephritis biopsy not proven) from uncertain into glomerulonephritis (when including this group in uncertain as last year the relevant percentage was 18.9%).

The overall UK distribution of PRDs is shown in table 1.7. Diabetic nephropathy was the most common

Table 1.7. Percentage distribution of primary renal diagnosis by age in the 2011 incident RRT cohort

	Percentage with diagnosis		
Diagnosis	Age <65	Age ⩾65	All patients
Diabetes	27.2	22.4	24.8
Glomerulonephritis*	17.4	9.2	13.3
Pyelonephritis	7.8	6.5	7.1
Hypertension	6.7	7.4	7.0
Polycystic kidney	10.6	3.8	7.2
Renal vascular disease	2.3	11.5	6.9
Other	16.1	16.6	16.3
Uncertain aetiology*	12.0	22.6	17.3

* Presumed glomerulonephritis not biopsy proven has now been grouped into glomerulonephritis rather than into uncertain as in previous years

Percentages calculated after excluding those patients with data not available

specific renal diagnosis in both the under and over 65 year age groups, accounting for 25% 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. 9% and 11% vs. 4% respectively), whilst patients with renal vascular disease comprised a much higher percentage of the older rather than the younger patients (12% vs. 2%). Uncertainty about the underlying diagnosis was also much more likely in the older rather than the younger cohort (23% 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 1.8 shows the incidence rates for each PRD per million population for the 2011 cohort. In both the 2010 and 2011 cohorts, the incidence of RRT due to diabetes as PRD was noticeably higher in 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

The first treatment recorded, irrespective of any later change, was haemodialysis (HD) in 73.1% of patients, peritoneal dialysis (PD) in 20.3% and pre-emptive transplant in 6.6% in 2011. As seen last year, this continues the decrease in HD (76.3%, 74.8%, 73.1%) and increase in PD (17.9%, 18.3%, 20.3%) seen respectively for 2009, 2010 and 2011). For pre-emptive transplant the percentages were 5.9, 6.9 and 6.6 for the three years. Table F.1.3 in appendix F: Additional Data Tables for 2011 new and existing patients (www.renalreg.com) gives the treatment breakdown at start of RRT by centre.

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 2010 to 30th September 2011 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 0.3% had stopped treatment, leaving 94.1% of the original cohort still on RRT. Table 1.9 shows the percentages on each

Table 1.8. Primary renal diagnosis RRT incidence rates (2011) per million population (unadjusted)

Diagnosis	England	N Ireland	Scotland	Wales	UK
Diabetes	23.7	26.0	22.9	33.2	24.2
Glomerulonephritis*	12.2	14.4	16.2	19.9	12.9
Pyelonephritis	6.8	12.1	7.2	6.6	6.9
Hypertension	7.3	5.0	4.9	3.8	6.8
Polycystic kidney	6.9	8.3	8.5	5.2	7.0
Renal vascular disease	5.7	12.7	10.6	12.2	6.7
Other	16.6	18.2	9.4	14.0	15.9
Uncertain aetiology*	16.9	15.5	13.4	22.7	16.8
Data not available	13.1	0.0	0.4	1.7	11.0
All	**109**	**112**	**93**	**119**	**108**

* Presumed glomerulonephritis not biopsy proven has now been grouped into glomerulonephritis rather than into uncertain as in previous years

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

Table 1.9. RRT modality at 90 days by centre (incident cohort 1/10/2010 to 30/09/2011)

		Status at 90 days of all patients who started RRT (%)					Status at 90 days of only those patients still on RRT (%)		
Centre	N	HD	PD	Tx	Stopped treatment	Died	HD	PD	Tx
England									
B Heart	104	79.8	15.4	1.9	0.0	2.9	82.2	15.8	2.0
B QEH	194	65.5	23.7	6.7	0.0	4.1	68.3	24.7	7.0
Basldn	36	69.4	27.8	0.0	0.0	2.8	71.4	28.6	0.0
Bradfd	59	74.6	13.6	5.1	0.0	6.8	80.0	14.6	5.5
Brightn	111	65.8	21.6	1.8	0.0	10.8	73.7	24.2	2.0
Bristol	141	69.5	12.1	14.9	0.0	3.6	72.1	12.5	15.4
Camb	125	60.0	11.2	24.8	0.0	4.0	62.5	11.7	25.8
Carlis	27	44.4	40.7	11.1	0.0	3.7	46.2	42.3	11.5
Carsh	208	72.1	13.9	7.7	0.0	6.3	76.9	14.9	8.2
Chelms	49	61.2	24.5	2.0	2.0	10.2	69.8	27.9	2.3
Colchr	40	97.5	0.0	0.0	0.0	2.5	100.0	0.0	0.0
Covnt	109	51.4	26.6	10.1	0.0	11.9	58.3	30.2	11.5
Derby	83	45.8	42.2	1.2	0.0	10.8	51.4	47.3	1.4
Donc	41	80.5	9.8	2.4	0.0	7.3	86.8	10.5	2.6
Dorset	78	60.3	23.1	5.1	5.1	6.4	68.1	26.1	5.8
Dudley	43	58.1	30.2	0.0	4.7	7.0	65.8	34.2	0.0
Exeter	120	73.3	20.0	0.8	0.8	5.0	77.9	21.2	0.9
Glouc	65	67.7	16.9	9.2	1.5	4.6	72.1	18.0	9.8
Hull	105	52.4	37.1	1.9	1.0	7.6	57.3	40.6	2.1
Ipswi	37	64.9	27.0	8.1	0.0	0.0	64.9	27.0	8.1
Kent	123	73.2	13.8	5.7	1.6	5.7	79.0	14.9	6.1
L Barts	221	62.0	27.2	8.6	0.0	2.3	63.4	27.8	8.8
L Guys	120	70.8	7.5	19.2	0.0	2.5	72.7	7.7	19.7
L Kings	147	71.4	23.1	2.7	0.0	2.7	73.4	23.8	2.8
L Rfree	219	69.9	16.4	10.1	0.0	3.7	72.5	17.1	10.4
L St.G	77	71.4	14.3	10.4	0.0	3.9	74.3	14.9	10.8
L West	357	79.6	4.8	12.3	0.0	3.4	82.3	4.9	12.8
Leeds	156	62.8	23.7	7.1	0.0	6.4	67.1	25.3	7.5
Leic	278	60.4	21.2	13.0	0.0	5.4	63.9	22.4	13.7
Liv Ain	76	77.6	11.8	0.0	0.0	10.5	86.8	13.2	0.0
Liv RI	109	50.5	22.9	17.4	0.9	8.3	55.6	25.3	19.2
M RI	150	64.0	20.0	10.7	0.0	5.3	67.6	21.1	11.3
Middlbr	89	77.5	11.2	4.5	0.0	6.7	83.1	12.1	4.8
Newc	96	53.1	17.7	19.8	0.0	9.4	58.6	19.5	21.8
Norwch	84	59.5	27.4	1.2	1.2	10.7	67.6	31.1	1.4
Nottm	123	51.2	30.1	6.5	2.4	9.8	58.3	34.3	7.4
Oxford	167	53.3	21.6	19.8	0.0	5.4	56.3	22.8	20.9
Plymth	53	60.4	18.9	17.0	0.0	3.8	62.8	19.6	17.7
Ports	175	68.0	21.1	6.3	0.0	4.6	71.3	22.2	6.6
Prestn	144	77.1	13.9	6.3	0.7	2.1	79.3	14.3	6.4
Redng	92	48.9	34.8	7.6	0.0	8.7	53.6	38.1	8.3
Salford	141	55.3	29.1	9.9	0.0	5.7	58.7	30.8	10.5
Sheff	146	76.0	13.0	4.8	0.0	6.2	81.0	13.9	5.1
Shrew	66	62.1	25.8	1.5	1.5	9.1	69.5	28.8	1.7
Stevng	114	77.2	14.0	7.9	0.0	0.9	77.9	14.2	8.0
Sthend	29	62.1	27.6	6.9	0.0	3.5	64.3	28.6	7.1
Stoke	78	68.0	23.1	1.3	0.0	7.7	73.6	25.0	1.4
Sund	46	67.4	15.2	10.9	2.2	4.4	72.1	16.3	11.6
Truro	45	64.4	17.8	8.9	0.0	8.9	70.7	19.5	9.8
Wirral	71	70.4	19.7	1.4	0.0	8.5	76.9	21.5	1.5
Wolve	92	67.4	25.0	1.1	0.0	6.5	72.1	26.7	1.2
York	44	52.3	29.6	13.6	0.0	4.6	54.8	31.0	14.3

Table 1.9. 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	25	60.0	20.0	8.0	4.0	8.0	68.2	22.7	9.1
Belfast	71	77.5	14.1	7.0	0.0	1.4	78.6	14.3	7.1
Newry	31	74.2	19.4	3.2	0.0	3.2	76.7	20.0	3.3
Ulster	35	85.7	5.7	0.0	2.9	5.7	93.8	6.3	0.0
West NI	35	77.1	17.1	2.9	0.0	2.9	79.4	17.7	2.9
Scotland									
Abrdn	51	82.4	11.8	0.0	0.0	5.9	87.5	12.5	0.0
Airdrie	41	90.2	4.9	2.4	0.0	2.4	92.5	5.0	2.5
D & Gall	10	40.0	60.0	0.0	0.0	0.0	40.0	60.0	0.0
Dundee	59	84.8	8.5	0.0	0.0	6.8	90.9	9.1	0.0
Dunfn	46	71.7	17.4	0.0	0.0	10.9	80.5	19.5	0.0
Edinb	68	72.1	17.7	4.4	1.5	4.4	76.6	18.8	4.7
Glasgw	161	73.3	14.3	5.6	0.0	6.8	78.7	15.3	6.0
Inverns	17	76.5	23.5	0.0	0.0	0.0	76.5	23.5	0.0
Klmarnk	32	56.3	18.8	3.1	0.0	21.9	72.0	24.0	4.0
Wales									
Bangor	26	73.1	26.9	0.0	0.0	0.0	73.1	26.9	0.0
Cardff	192	67.7	19.3	9.9	0.0	3.1	69.9	19.9	10.2
Swanse	120	70.8	22.5	0.8	0.0	5.8	75.2	23.9	0.9
Wrexm	26	65.4	19.2	7.7	0.0	7.7	70.8	20.8	8.3
England	**5,703**	**66.0**	**19.6**	**8.5**	**0.4**	**5.6**	**70.2**	**20.9**	**9.0**
N Ireland	**197**	**76.1**	**14.7**	**4.6**	**1.0**	**3.6**	**79.8**	**15.4**	**4.8**
Scotland	**485**	**75.1**	**14.9**	**2.9**	**0.2**	**7.0**	**80.9**	**16.0**	**3.1**
Wales	**371**	**69.3**	**20.5**	**5.9**	**0.0**	**4.3**	**72.4**	**21.4**	**6.2**
UK	**6,756**	**67.1**	**19.2**	**7.8**	**0.3**	**5.5**	**71.3**	**20.4**	**8.3**

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, 67.1% were on HD at 90 days, 19.2% were on PD and 7.8% had received a transplant. Expressed as percentages of those still receiving RRT at 90 days, 71.3% were on HD, 20.4% on PD and 8.3% had received a transplant. Last year it was reported that the percentage receiving peritoneal dialysis at 90 days had increased from the previous year for the first time since the start of the Renal Registry, this percentage further increased from 2010 to 2011 (from 19.2 to 20.4%).

The percentage of patients on PD at 90 days increased greatly for Northern Ireland (from 6% to 15%) making it much closer to the percentages seen in the other countries. 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 main centre HD and 28% with satellite HD.

The percentage of incident patients who had died by 90 days varied considerably between centres (0% to 22%, table 1.9). 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

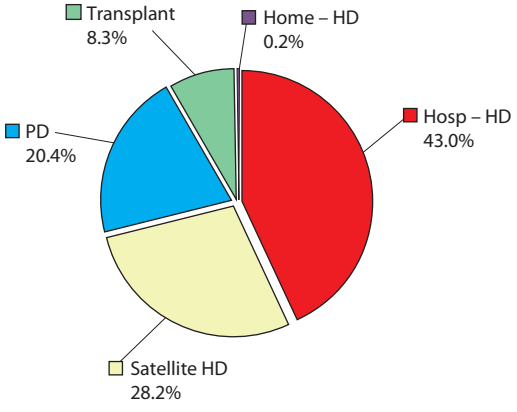

Fig. 1.8. RRT modality at 90 days (incident cohort 1/10/2010 to 30/09/2011)

centres from 0% to 26%. The mean percentage of the incident cohort with a functioning transplant by 90 days was significantly greater in transplanting compared to non-transplanting centres (11.4% vs. 4.4%: $p < 0.0001$). 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 1.10 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 60% higher in patients aged under 65 years than in older patients (27.8% vs. 17.1%). This was a change from 2010 when the percentage on PD was twice as high in the younger group than in the older group. The percentage on PD fell slightly from 2010 to 2011 in the younger age group (28.2 to 27.8%) but increased markedly in the over 65 age group (14.0% to 17.1%). For the younger age group, four centres (Derby, Hull, Nottm, Sthend) had over twice the average percentage on PD. Derby also had over twice the average percentage on PD in the older age group.

The median age at start for those on HD at 90 days was 67.3 years compared with 60.2 years for PD. For PD, this was an increase in median age at start of almost two years from 2010 to 2011. There were 11 centres where the percentage of patients treated with PD was the same as or higher in the over 65s than the under 65s (compared with four centres for 2010).

Modality change over time

Table 1.11 gives the breakdown of status/treatment modality at four subsequent time points by initial treatment type for patients starting RRT in 2006. Fifty-four percent of patients who started on HD had died within five years of starting. This compared to 33% and 6% 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. In contrast, 90% of patients starting with

Table 1.10. Modality split of patients on dialysis at 90 days (incident cohort 1/10/2010 to 30/09/2011)

		Age <65 (%)		Age ⩾65 (%)		All patients (%)	
Centre	N	HD	PD	HD	PD	HD	PD
England							
B Heart	99	78.3	21.7	88.7	11.3	83.8	16.2
B QEH	173	62.0	38.0	86.4	13.6	73.4	26.6
Basldn	35	63.2	36.8	81.3	18.8	71.4	28.6
Bradfd	52	84.4	15.6	85.0	15.0	84.6	15.4
Brightn	97	68.9	31.1	80.8	19.2	75.3	24.7
Bristol	115	78.7	21.3	89.7	10.3	85.2	14.8
Camb	89	65.4	34.6	92.1	7.9	84.3	15.7
Carlis	23	50.0	50.0	53.3	46.7	52.2	47.8
Carsh	179	80.6	19.4	86.0	14.0	83.8	16.2
Chelms	42	57.9	42.1	82.6	17.4	71.4	28.6
Colchr	39	100.0	0.0	100.0	0.0	100.0	0.0
Covnt	85	62.2	37.8	70.0	30.0	65.9	34.1
Derby	73	40.0	60.0	60.5	39.5	52.1	47.9
Donc	37	84.2	15.8	94.4	5.6	89.2	10.8
Dorset	65	69.2	30.8	74.4	25.6	72.3	27.7
Dudley	38	53.3	46.7	73.9	26.1	65.8	34.2
Exeter	112	68.0	32.0	87.1	12.9	78.6	21.4
Glouc	55	66.7	33.3	85.0	15.0	80.0	20.0
Hull	94	41.7	58.3	69.0	31.0	58.5	41.5
Ipswi	34	66.7	33.3	75.0	25.0	70.6	29.4
Kent	107	79.6	20.4	87.9	12.1	84.1	15.9
L Barts	197	66.7	33.3	73.5	26.5	69.5	30.5
L Guys	94	86.0	14.0	95.5	4.5	90.4	9.6
L Kings	139	72.0	28.0	79.7	20.3	75.5	24.5
L Rfree	189	81.2	18.8	80.7	19.3	81.0	19.0

Table 1.10. Continued

		Age <65 (%)		Age ⩾65 (%)		All patients (%)	
Centre	N	HD	PD	HD	PD	HD	PD
L St.G	66	75.0	25.0	93.3	6.7	83.3	16.7
L West	301	96.8	3.2	91.7	8.3	94.4	5.6
Leeds	135	60.6	39.4	84.1	15.9	72.6	27.4
Leic	227	74.5	25.5	73.6	26.4	74.0	26.0
Liv Ain	68	82.8	17.2	89.7	10.3	86.8	13.2
Liv RI	80	54.5	45.5	86.1	13.9	68.8	31.3
M RI	126	71.4	28.6	82.1	17.9	76.2	23.8
Middlbr	79	89.5	10.5	85.4	14.6	87.3	12.7
Newc	68	70.3	29.7	80.6	19.4	75.0	25.0
Norwch	73	60.6	39.4	75.0	25.0	68.5	31.5
Nottm	100	42.9	57.1	73.8	26.2	63.0	37.0
Oxford	125	58.2	41.8	86.2	13.8	71.2	28.8
Plymth	42	62.5	37.5	84.6	15.4	76.2	23.8
Ports	156	68.8	31.2	83.5	16.5	76.3	23.7
Prestn	131	80.6	19.4	89.1	10.9	84.7	15.3
Redng	77	51.2	48.8	67.6	32.4	58.4	41.6
Salford	119	52.4	47.6	80.4	19.6	65.5	34.5
Sheff	130	86.4	13.6	84.4	15.6	85.4	14.6
Shrew	58	50.0	50.0	83.3	16.7	70.7	29.3
Stevng	104	81.1	18.9	88.2	11.8	84.6	15.4
Sthend	26	42.9	57.1	78.9	21.1	69.2	30.8
Stoke	71	65.4	34.6	80.0	20.0	74.6	25.4
Sund	38	72.7	27.3	93.8	6.3	81.6	18.4
Truro	37	78.9	21.1	77.8	22.2	78.4	21.6
Wirral	64	69.7	30.3	87.1	12.9	78.1	21.9
Wolve	85	73.0	27.0	72.9	27.1	72.9	27.1
York	36	60.0	40.0	68.8	31.3	63.9	36.1
N Ireland							
Antrim	20	66.7	33.3	78.6	21.4	75.0	25.0
Belfast	65	83.3	16.7	85.7	14.3	84.6	15.4
Newry	29	80.0	20.0	78.9	21.1	79.3	20.7
Ulster	32	85.7	14.3	100.0	0.0	93.8	6.3
West NI	33	77.8	22.2	86.7	13.3	81.8	18.2
Scotland							
Abrdn	48	82.6	17.4	92.0	8.0	87.5	12.5
Airdrie	39	92.9	7.1	100.0	0.0	94.9	5.1
D & Gall	10	66.7	33.3	0.0	100.0	40.0	60.0
Dundee	55	91.3	8.7	90.6	9.4	90.9	9.1
Dunfn	41	75.0	25.0	85.7	14.3	80.5	19.5
Edinb	61	80.0	20.0	81.0	19.0	80.3	19.7
Glasgw	141	80.3	19.7	86.7	13.3	83.7	16.3
Inverns	17	57.1	42.9	90.0	10.0	76.5	23.5
Klmarnk	24	80.0	20.0	71.4	28.6	75.0	25.0
Wales							
Bangor	26	64.3	35.7	83.3	16.7	73.1	26.9
Cardff	167	73.8	26.3	81.6	18.4	77.8	22.2
Swanse	112	58.3	41.7	89.1	10.9	75.9	24.1
Wrexm	22	60.0	40.0	91.7	8.3	77.3	22.7
England	**4,884**	**71.3**	**28.7**	**82.4**	**17.6**	**77.1**	**22.9**
N Ireland	**179**	**80.8**	**19.2**	**86.1**	**13.9**	**83.8**	**16.2**
Scotland	**436**	**81.6**	**18.4**	**85.4**	**14.6**	**83.5**	**16.5**
Wales	**333**	**67.5**	**32.5**	**85.5**	**14.5**	**77.2**	**22.8**
UK	**5,832**	**72.2**	**27.8**	**82.9**	**17.1**	**77.8**	**22.2**

Table 1.11. Initial and subsequent modalities for patients starting RRT in 2006

First treatment	N	Later modality	Percentage			
			90 days	1 year	3 years	5 years
HD	4,853	HD	86	70	46	29
		PD	3	4	2	1
		Transplant	0	3	10	15
		Other*	1	1	1	1
		Died	9	22	40	54
PD	1,267	HD	4	15	22	19
		PD	92	68	31	12
		Transplant	1	10	26	35
		Other*	0	1	1	1
		Died	2	7	21	33
Transplant	215	HD	1	1	3	3
		PD	0	0	0	1
		Transplant	97	94	91	90
		Died	2	4	6	6

* Other e.g. stopped treatment

a transplant continued to be transplant patients after 5 years.

Renal function at the time of starting RRT

The mean eGFR at initiation of RRT in 2011 was 8.7 ml/min/1.73 m^2. This was highest in the 65–74 and 75–84 age groups at about 8.9 ml/min/1.73 m^2 (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 m^2 [4].

Figure 1.10 shows serial data from centres reporting annually to the UKRR since 2002. For HD patients, average eGFR at start of RRT in 2011 was similar to that for 2010. For the six years prior to 2011 there was higher average eGFR at start of RRT for PD than HD patients but there was a small fall in the eGFR for PD patients for 2011 bringing the average just below that for HD patients.

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 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

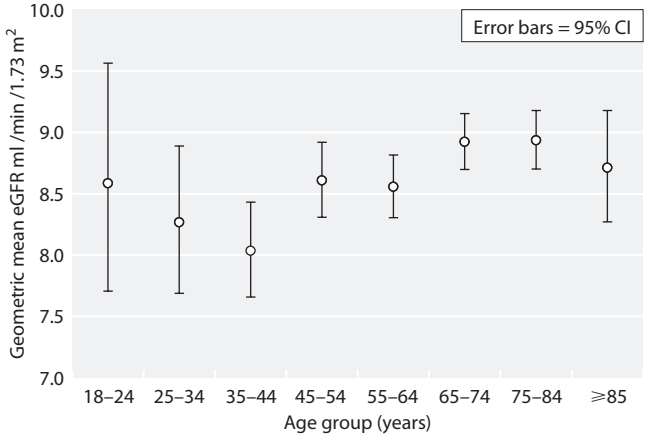

Fig. 1.9. Geometric mean eGFR at start of RRT (2011) by age group

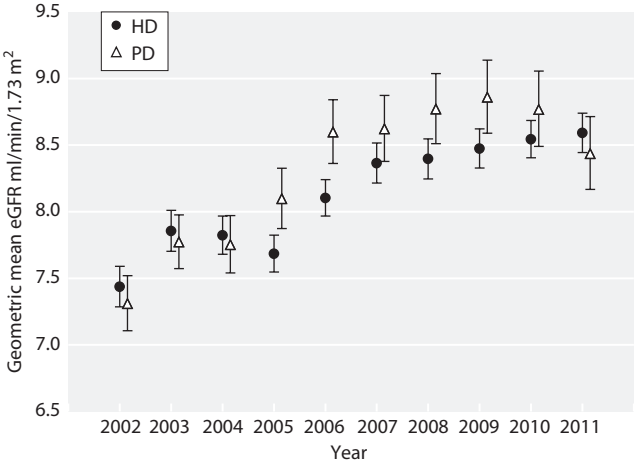

Fig. 1.10. eGFR on starting RRT 2002 to 2011, PD and HD (restricted to centres reporting since 2002)

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 centres. 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 (shown in table 1.13) attempts to capture 'late referrals'. In this table the percentage presenting within 90 days of starting RRT is shown 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), 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, haemolytic ureaemic syndrome (including Moschcowitz syndrome), multi-system disease – other, tubular necrosis (irreversible) or cortical necrosis, Balkan nephropathy, kidney tumour and traumatic or surgical loss of kidney.

Methods

Data were included from all incident patients in the years 2010 to 2011. 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. Data were excluded for centres for any year where 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 9,118 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 1.12 shows the percentage completeness of data for 2010 and 2011. Last year's report showed a big improvement in the reporting of presentation time data from 2009 to 2010 (from about 50% to about 80% complete). The completeness for 2011 was again about 80%. The 2010–2011 cohort available for analysis was therefore substantially larger than the 2009–2010 cohort used in last year's report. Nevertheless, a two year cohort is again 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.

Late presentation by centre

Figure 1.11 shows that late presentation varied between centres from 9–35% in patients starting RRT in 2010 to 2011. The overall rate of late presentation was 20.1% and was 14.9% once those people with diseases likely to present acutely were excluded. Table 1.13 shows the overall percentage presenting late for the combined 2010–2011 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 2011 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 2011, 67.3% of incident patients presented over a year before they needed to start RRT. There were 8.4% of patients presenting within 6–12 months, 4.7% within 3–6 months and 19.6% within 3 months. These figures have remained stable over the last 2 years. Figure 1.12 shows this breakdown by year for those 18 centres supplying data over 75% complete for each of

Table 1.12. Percentage completeness of time of presentation data (2010 and 2011 incident RRT patients) by centre

Centre	N		Percentage completeness	
	2010	2011	2010	2011
England				
B Heart	95	112	95.8	97.2
B QEH	197	216	94.9	97.7
Basldn	32	42	93.8	100.0
Bradfd	67	58	98.5	98.2
Brightn	106	118	1.9	10.3
Bristol	168	139	98.8	86.1
Camb	105	125	99.0	97.6
Carlis	23	29	0.0	89.7
Carsh	220	210	86.7	94.3
Chelms	45	43	100.0	97.7
Colchr	32	45	84.4	86.7
Covnt	115	109	95.6	72.0
Derby	79	79	100.0	96.2
Donc	44	43	97.7	100.0
Dorset	71	74	91.5	100.0
Dudley	43	41	92.9	97.6
Exeter	140	112	65.7	99.1
Glouc	61	58	91.8	100.0
Hull	87	108	65.5	65.7
Ipswi	33	29	93.9	92.9
Kent	134	123	100.0	100.0
L Barts	204	264	[a]	0.8
L Guys	135	116	91.8	94.8
L Kings	144	139	93.8	96.4
L Rfree	207	227	90.3	61.5
L St.G	86	75	88.4	33.3
L West	366	366	0.5	92.9
Leeds	125	160	100.0	97.4
Leic	245	268	98.8	96.6
Liv Ain	51	73	[a]	61.1
Liv RI	99	113	48.5	4.5
M RI	161	156	95.0	58.4
Middlbr	98	98	95.9	99.0
Newc	94	100	93.6	94.0
Norwch	86	85	85.9	90.6
Nottm	116	116	97.4	97.4
Oxford	165	176	96.3	94.3
Plymth	56	59	1.8	32.2
Ports	149	187	98.6	97.8
Prestn	124	140	96.0	98.6
Redng	89	103	94.4	57.3
Salford	149	125	[a]	0.8
Sheff	143	135	98.6	100.0
Shrew	58	61	100.0	100.0
Stevng	107	110	97.2	96.4
Sthend	29	29	93.1	100.0
Stoke	95	93	98.9	100.0
Sund	55	55	94.5	94.5
Truro	46	39	100.0	97.4
Wirral	61	67	88.3	[a]
Wolve	106	75	99.0	100.0
York	38	51	92.1	98.0
N Ireland				
Antrim	41	29	100.0	96.6
Belfast	72	68	94.4	95.6
Newry	21	38	95.2	100.0
Ulster	20	34	100.0	100.0
West NI	26	34	100.0	94.1
Wales				
Bangor	26	20	92.0	100.0
Cardff	186	182	95.1	97.3
Clwyd	15	21	60.0	[b]
Swanse	137	114	100.0	96.5
Wrexm	25	26	100.0	88.0
England	**5,584**	**5,774**	**76.4**	**78.3**
N Ireland	**180**	**203**	**97.2**	**97.1**
Wales	**389**	**363**	**95.6**	**90.9**
E, W & NI	**6,153**	**6,340**	**78.8**	**80.6**

[a] data not shown as >10% of patients reported as starting RRT on the same date as first presentation
[b] Clwyd not shown for 2011 as less than 10 patients with full data
Date first seen by a nephrologist has not been collected from the Scottish Renal Registry and so Scottish centres were excluded from these analyses

the last six years. The percentage of patients presenting late in these centres fell steadily until 2009 alongside an increase in those presenting 12 months or more before starting RRT. There was less change between 2009 and 2011.

Age and late presentation

In the 2010 to 2011 cohort, patients who presented late were not significantly older or younger than patients who presented earlier (>90 days before RRT initiation) (median age 65.3 vs. 65.4 years: $p = 0.3$). Except for the two youngest age groups, the median duration of pre-RRT care did not vary greatly with age (figure 1.13).

Gender and late presentation

In the 2010 to 2011 cohort, there was no significant difference in the ratio of males to females by time of presentation (male:female ratio 1.72 in early presentation, 1.81 in late presentation, $p = 0.32$).

Ethnicity, social deprivation and late presentation

In the 2010 to 2011 cohort, the percentage of South Asian and Black patients presenting late (<90 days)

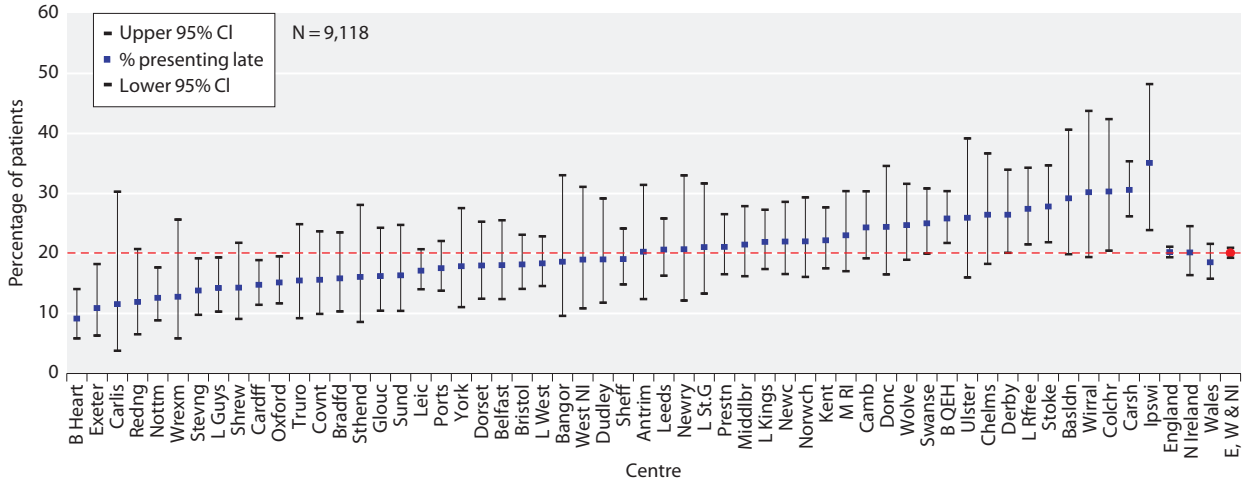

Fig. 1.11. Percentage presenting late (2010/2011)

was significantly lower than in Whites (17.6% vs. 20.3%: $p = 0.02$). The high incidence of diabetes in non-Whites (as discussed below, patients with diabetes tended to present earlier) explains most of the difference in presentation time between the ethnic groups. When patients with diabetes were excluded, the percentages presenting late (<90 days) became 22.8% in South Asian and Black patients vs. 23.3% in Whites ($p = 0.8$). There was no relationship between social deprivation and presentation pattern.

Primary renal disease and late presentation

In the 2010 to 2011 cohort, late presentation differed significantly between primary renal diagnoses (Chi-squared test $p < 0.0001$) (table 1.14). 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.

Modality and late presentation

In the 2010 to 2011 cohort, late presentation was associated with initial modality. The percentage of patients

Table 1.13 Percentage of patients presenting to a nephrologist less than 90 days before RRT initiation (2010–2011 incident patients) by centre

		Percentage presenting late			
Centre	N with data	Overall	(95% CI)	Non-acute*	Non-diab PRD
England					
B Heart	197	9.1	(5.8–14.0)	7.3	13.5
B QEH	395	25.8	(21.8–30.4)	21.7	26.0
Basldn	72	29.2	(19.9–40.6)	22.7	32.7
Bradfd	120	15.8	(10.3–23.5)	14.2	17.1
Bristol	281	18.2	(14.1–23.1)	13.6	20.2
Camb	226	24.3	(19.2–30.4)		
Carlis	26	11.5	(3.8–30.3)	13.6	5.9
Carsh	386	30.6	(26.2–35.4)	24.1	33.5
Chelms	87	26.4	(18.2–36.7)	21.1	25.7
Colchr	66	30.3	(20.5–42.4)	25.0	29.2
Covnt	109	15.6	(9.9–23.7)	11.2	16.8
Derby	155	26.5	(20.1–34.0)	18.5	32.8
Donc	86	24.4	(16.5–34.6)	18.4	29.9
Dorset	139	18.0	(12.5–25.3)	14.1	20.9
Dudley	79	19.0	(11.8–29.1)	17.1	24.1

Table 1.13 Continued

Centre	N with data	Percentage presenting late			
		Overall	(95% CI)	Non-acute*	Non-diab PRD
Exeter	110	10.9	(6.3–18.2)	8.9	12.6
Glouc	111	16.2	(10.5–24.3)	11.3	19.3
Ipswi	57	35.1	(23.9–48.2)	34.6	44.4
Kent	257	22.2	(17.5–27.7)	15.2	25.7
L Guys	232	14.2	(10.3–19.3)	12.1	16.0
L Kings	269	21.9	(17.4–27.3)	18.0	29.0
L Rfree	186	27.4	(21.5–34.3)	24.4	28.2
L St.G	76	21.1	(13.3–31.6)	15.4	24.1
L West	338	18.3	(14.6–22.8)	14.9	21.9
Leeds	276	20.7	(16.3–25.8)	14.8	24.2
Leic	491	17.1	(14.0–20.7)	9.7	20.1
M RI	152	23.0	(17.0–30.4)	17.7	26.3
Middlbr	191	21.5	(16.2–27.9)	19.1	22.2
Newc	182	22.0	(16.6–28.6)	14.7	25.3
Norwch	150	22.0	(16.1–29.3)	14.2	24.2
Nottm	222	12.6	(8.9–17.7)	10.3	14.9
Oxford	323	15.2	(11.7–19.5)	11.4	17.7
Ports	325	17.5	(13.8–22.1)	10.0	19.7
Prestn	256	21.1	(16.5–26.5)	15.3	22.7
Redng	84	11.9	(6.5–20.7)	8.7	13.6
Sheff	273	19.1	(14.8–24.1)	12.3	22.5
Shrew	119	14.3	(9.1–21.8)	10.4	16.9
Stevng	210	13.8	(9.8–19.2)	9.8	17.4
Sthend	56	16.1	(8.6–28.1)	12.8	19.6
Stoke	187	27.8	(21.9–34.7)	21.6	32.4
Sund	104	16.4	(10.4–24.7)	11.0	19.7
Truro	84	15.5	(9.2–24.9)	14.1	20.0
Wirral	53	30.2	(19.4–43.7)	21.1	34.9
Wolve	178	24.7	(18.9–31.6)	21.8	29.2
York	84	17.9	(11.1–27.5)	11.0	21.4
N Ireland					
Antrim	69	20.3	(12.4–31.4)	17.5	22.2
Belfast	133	18.1	(12.4–25.5)	10.3	21.2
Newry	58	20.7	(12.1–33.0)	13.2	19.1
Ulster	54	25.9	(16.0–39.2)	20.0	28.2
West NI	58	19.0	(10.8–31.1)	17.0	18.8
Wales					
Bangor	43	18.6	(9.6–33.0)	16.7	20.6
Cardff	352	14.8	(11.4–18.9)	11.7	18.0
Swanse	244	25.0	(20.0–30.8)	18.2	30.2
Wrexm	47	12.8	(5.9–25.6)	11.6	17.7
England	**8,060**	**20.2**	**(19.4–21.1)**	**15.0**	**23.0**
N Ireland	**372**	**20.2**	**(16.4–24.6)**	**14.6**	**21.6**
Wales	**686**	**18.5**	**(15.8–21.6)**	**14.3**	**22.6**
E, W & NI	**9,118**	**20.1**	**(19.3–20.9)**	**14.9**	**22.9**
(min, max)		**(9.1–35.1)**		**(7.3–34.6)**	**(5.9–44.4)**
(IQR)		**(15.9–24.4)**		**(11.4–18.4)**	**(18.8–26.3)**

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 Moschcowitz syndrome), multi-system disease – other, tubular necrosis (irreversible) or cortical necrosis, Balkan nephropathy, kidney tumour, and traumatic or surgical loss of kidney

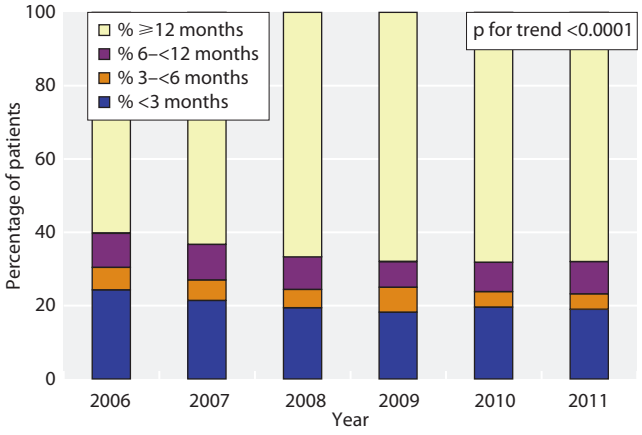

Fig. 1.12. Late presentation rate by year (2006–2011)
Restricted to centres reporting continuous data for 2006–2011

whose first modality was PD was significantly lower in the late presentation group than in those presenting earlier (9.1% vs. 21.6%: $p < 0.0001$). By 90 days after RRT initiation this difference was reduced, although it was still highly significant (12.2% vs. 21.6%: $p < 0.0001$).

Comorbidity and late presentation

In the 2010 to 2011 cohort, the percentage of patients who were assessed as having no comorbidity was roughly the same in those who presented late and those presenting earlier (45.1% vs. 46.9%: $p = 0.3$). Ischaemic heart disease, cerebrovascular disease and peripheral vascular disease were significantly less common in the group presenting late (table 1.15). Malignancy was significantly more common in those presenting late; perhaps because of the potential for rapid decline in renal function in this group.

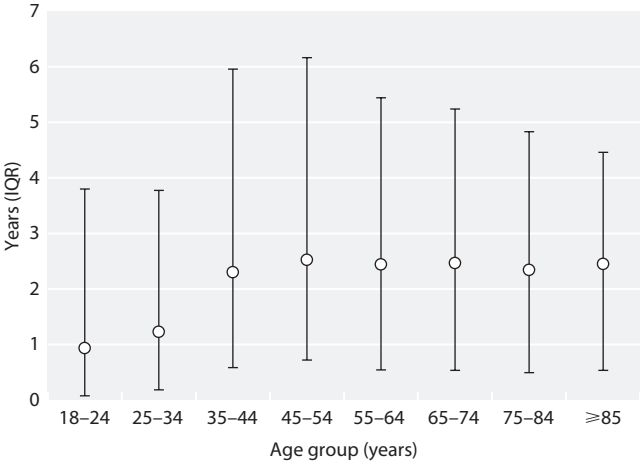

Fig. 1.13. Median duration of pre-RRT care by age group (incident patients 2010–2011)

Table 1.14. Late presentation by primary renal diagnosis (2010–2011 incident patients)

		Late presentation	
Diagnosis	N	N	%
Uncertain aetiology*	1,440	316	21.9
Diabetes	2,044	201	9.8
Glomerulonephritis*	1,071	153	14.3
Other identified category	714	160	22.4
Polycystic kidney or pyelonephritis	1,209	126	10.4
Renal vascular disease	1,069	167	15.6
Acute group	816	457	56.0
Data not available	459	172	37.5

* Presumed glomerulonephritis not biopsy proven has now been grouped into glomerulonephritis rather than into uncertain as in previous years
Unlike elsewhere in the report, the RVD group includes hypertension and 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 Moschcowitz syndrome), multi-system disease – other, tubular necrosis (irreversible) or cortical necrosis, Balkan nephropathy, kidney tumour, and traumatic or surgical loss of kidney

Haemoglobin and late presentation

In the 2010 to 2011 cohort, patients presenting late had a significantly lower average haemoglobin concentration at RRT initiation than patients presenting earlier (9.4 vs. 10.3 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 multi-system disease or inter-current illness. More detailed analyses of haemoglobin at start of RRT and late

Table 1.15. Percentage prevalence of specific comorbidities amongst patients presenting late (<3 months) compared with those presenting early (⩾3 months) (2010–2011 incident patients)

Comorbidity	<3 months	⩾3 months	p-value
Ischaemic heart disease	16.8	20.9	0.004
Cerebrovascular disease	7.9	10.3	0.02
Peripheral vascular disease	7.7	12.2	<0.0001
Diabetes (not a cause of ERF)	8.0	9.2	0.2
Liver disease	3.6	2.7	0.1
Malignancy	19.2	11.0	<0.0001
COPD	7.9	7.0	0.3
Smoking	14.6	13.4	0.3

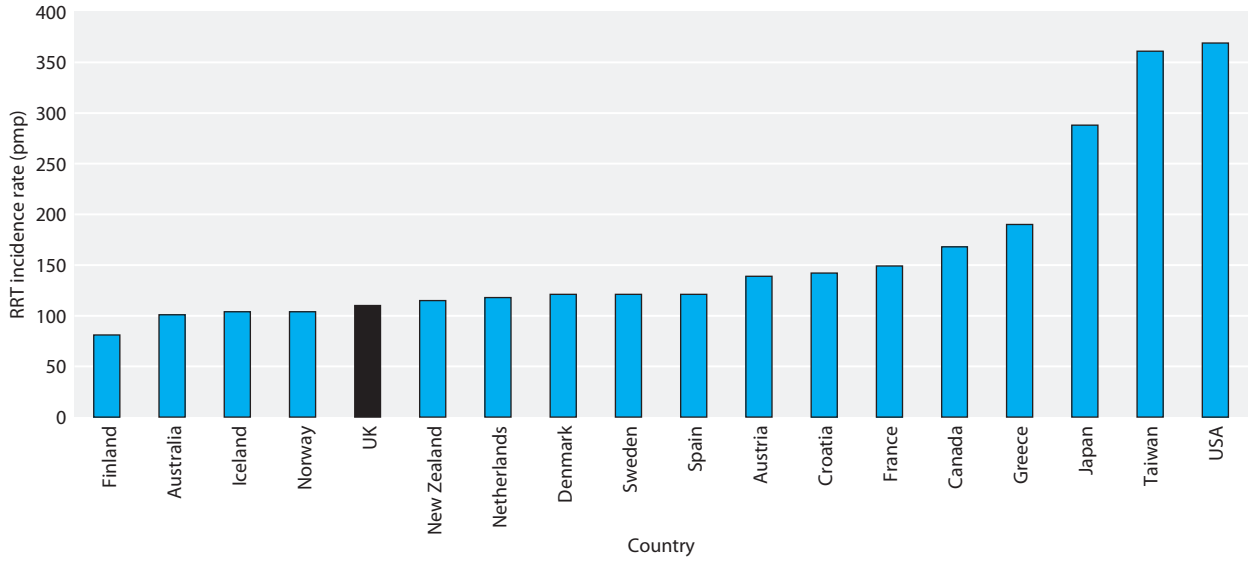

Fig. 1.14. International comparison of RRT incidence rates in 2010
Non UK data from USRDS

presentation can be found in chapter 6: Haemoglobin, Ferritin and Erythropoietin amongst UK Adult Dialysis Patients in 2011: national and centre-specific analyses.

eGFR at start of RRT and late presentation

In the 2010 to 2011 cohort, eGFR at start of RRT was significantly lower in patients presenting late than those presenting earlier (8.0 vs. 8.9 ml/min/1.73 m^2: $p < 0.0001$).

Survival of incident patients

See chapter 5: Survival and Causes of Death of UK Adult Patients on Renal Replacement Therapy in 2011.

International comparisons

Figure 1.14 shows the crude RRT incidence rates (including children) for 2010 for several countries. The data is from the USRDS; 2010 was the latest year available at time of writing. The UK incidence rate was similar to many other Northern European countries and Australia and New Zealand but remains markedly lower than other countries, most notably Greece, Japan, Taiwan and the USA. These differences are 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.

Summary

RRT incidence rates for 2011 were similar to 2010 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. There was a further increase from 2010 to 2011 in the percentage on PD at 90 days. Significant numbers of patients continue to present late to renal centres.

Conflicts of interest: none

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