

## *Chapter 6*

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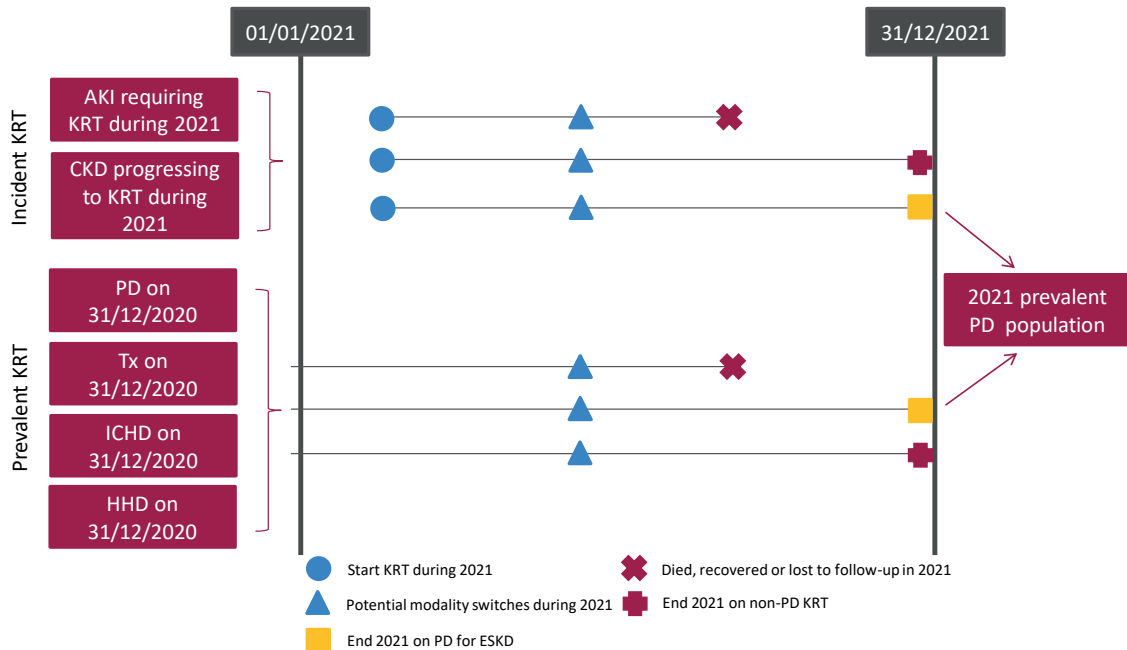
# **Adults on peritoneal dialysis (PD) in the UK at the end of 2021**

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# Introduction

This chapter describes the population of adult patients with end-stage kidney disease (ESKD) who were receiving regular peritoneal dialysis (PD) in the UK at the end of 2021 (figure 6.1). This population comprises patients who were on PD at the end of 2020 and remained on PD throughout 2021, as well as patients who commenced/re-commenced PD in 2021. This latter group includes both incident kidney replacement therapy (KRT) patients who ended 2021 on PD and prevalent KRT patients who switched to PD from in-centre haemodialysis (ICHD), home haemodialysis (HHD) or a transplant (Tx) in 2021. Consequently, the cohort of patients receiving PD in a centre not only reflects differences in underlying population case-mix, but also differences in the rates of acceptance onto KRT, survival on PD, transplantation and haemodialysis (ICHD and HHD), and the care of patients on those other modalities, as described in other chapters of this report.



**Figure 6.1** Pathways adult patients could follow to be included in the UK 2021 prevalent PD population

Note that patients receiving dialysis for acute kidney injury (AKI) are only included in this chapter if they had a timeline or KRT modality code for chronic PD at the end of 2021 or if they had been on KRT for  $\geq 90$  days and were on PD at the end of 2021  
CKD – chronic kidney disease

The cause of death analyses were undertaken on historic prevalent cohorts to allow sufficient follow-up time.

This chapter addresses the following key aspects of the care of patients on PD for which there are UK Kidney Association guidelines (table 6.1):

- **Complications associated with ESKD and PD:** these include anaemia, mineral bone disorders and metabolic acidosis.
- **Infections associated with PD:** rates of PD peritonitis are reported in this chapter. The four infections subject to mandatory reporting to the UK Health Security Agency (UKHSA) methicillin-resistant *Staphylococcus aureus* (MRSA), methicillin-sensitive *Staphylococcus aureus* (MSSA), *Escherichia coli* bacteraemia and *Clostridium difficile* - will be added to our website alongside the annual report when 2021 data are available.

## Rationale for analyses

The analyses begin with a description of the 2021 prevalent adult PD population, including the number on PD per million population (pmp).

The UK Kidney Association guidelines ([ukkidney.org/health-professionals/guidelines/guidelines-commentaries](http://ukkidney.org/health-professionals/guidelines/guidelines-commentaries)) provide audit measures relevant to the care of patients on PD and, where data permit, their attainment by UK kidney centres in 2021 is reported in this chapter (table 6.1). Audit measures in guidelines that have been archived are not included.

Some audit measures – for example, the target for glycated haemoglobin (HbA1c) in those on hypoglycaemia-inducing treatment – cannot be reported because the completeness of the required data items is too low. Detail about the completeness of data returned to the UK Renal Registry (UKRR) is available through the UKRR data portal ([ukkidney.org/audit-research/data-portals](http://ukkidney.org/audit-research/data-portals)). Audit measures that cannot be reported because the required data items were not collected by the UKRR are omitted.

For definitions and methods relating to this chapter see appendix A. Centres were excluded from caterpillar plots and cells were blanked in tables where data completeness for a biochemical variable was <70% and/or the number of patients reported was <10. The number preceding the centre name in each caterpillar plot indicates the percentage of missing data for that centre.

As Colchester kidney centre did not have any PD patients they were excluded from some of the analyses, although their dialysis patients were included in the relevant dialysis population denominators.

Exeter was unable to submit patient level data for 2021. Aggregate numbers by modality were provided, enabling inclusion in Tables 6.2 and 6.3. Exeter is excluded from all other analyses.

**Table 6.1** The UK Kidney Association audit measures relevant to PD that are reported in this chapter

The UK Kidney Association guideline	Audit criteria	Related analysis/analyses
CKD mineral bone disorder (2018)	Percentage of patients with serum calcium above the normal reference range of 2.2–2.5 mmol/L	Table 6.5, figure 6.3
PD (2017)	Plasma bicarbonate should be maintained in the normal reference range 22–30 mmol/L – 100%	Table 6.5, figure 6.5
Anaemia (2020)	Proportion of patients with serum ferritin <100 µg/L at start of treatment with erythropoiesis stimulating agent (ESA)	Table 6.6, figure 6.9 (the UKRR does not hold treatment with ESA start dates)
Planning, initiating and withdrawing KRT (2014)	Number of patients withdrawing from PD as a proportion of all deaths on PD	Table 6.8, figure 6.13

ESA – erythropoiesis stimulating agent

## Key findings

- 3,903 adult patients were receiving PD for ESKD in the UK on 31/12/2021, compared to 3822 in 2020, which represented 5.6% of the KRT population.
- The median age of PD patients was 63.3 years and 60.3% were male.
- The median adjusted calcium for PD patients was 2.4 mmol/L and 14.3% were above the target range of 2.2–2.5 mmol/L.
- The median bicarbonate for PD patients was 24 mmol/L and 74.1% were within the target range of 22–30 mmol/L.
- The median haemoglobin for PD patients was 111 g/L and 8.8% had a ferritin <100 µg/L.
- The PD peritonitis rate in 2021 (England only) was 0.42/1 PD patient-year.
- There was no cause of death data available for 37.0% of deaths. For those with data, the leading cause of death was infection in both younger patients and those ≥65 years at 40.0% and 26.2% respectively with a likely contribution from COVID related deaths. Treatment withdrawal accounted for 11.0% of deaths in those ≥65 years.

# Analyses

## Changes to the prevalent adult PD population

For the 68 adult kidney centres, the number of prevalent patients on PD was calculated as both a proportion of the prevalent patients on KRT and as a proportion of the estimated centre catchment population (calculated as detailed in appendix A).

**Table 6.2** Number of prevalent adult PD patients and proportion of adult KRT patients on PD by year and by centre; number of PD patients as a proportion of the catchment population

Centre	N on PD					% on PD					Estimated catchment population (millions)	2021 crude rate (pmp)
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021		
ENGLAND												
Bham	249	257	257	268	277	7.8	7.9	7.8	8.2	8.4	2.05	135
Bradfd	20	26	34	26	37	3.0	3.8	4.6	3.6	5.0	0.49	75
Brightn	59	60	55	65	69	5.8	5.7	5.2	6.0	6.3	1.08	64
Bristol	58	56	63	68	77	3.9	3.8	4.2	4.6	5.1	1.22	63
Camb	26	32	28	26	29	1.9	2.3	1.9	1.7	1.8	0.94	31
Carlis	27	30	35	32	30	9.6	10.2	11.6	10.8	9.8	0.26	117
Carsh	96	99	72	121	134	5.7	5.7	4.0	6.5	7.0	1.63	82
Colchr	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.29	0
Covnt	52	52	81	84	81	5.4	5.4	7.5	7.6	7.2	0.80	102
Derby	78	78	62	69	66	14.1	13.3	9.5	10.2	9.6	0.56	118
Donc	29	23	25	19	13	8.7	7.0	7.3	5.6	3.8	0.38	35
Dorset	35	38	33	34	23	4.8	5.0	4.3	4.3	2.9	0.73	32
Dudley	57	38	36	32	40	15.6	10.6	9.8	8.6	10.1	0.34	116
EssexMS	93	87	85	83	93	11.2	10.3	10.0	9.4	10.4	0.99	94
Exeter	75	77	84	84	73	7.1	7.1	7.7	7.7	6.8	0.95	77
Glouc	45	37	31	30	36	8.8	7.1	5.8	5.7	6.6	0.51	71
Hull	56	45	49	57	52	6.4	5.1	5.4	6.2	5.7	0.80	65
Ipswi	45	40	42	33	33	10.3	9.3	9.8	7.7	7.8	0.31	106
Kent	51	43	50	62	72	4.7	3.9	4.4	5.4	6.0	1.07	67
L Barts	236	237	228	266	258	9.4	9.1	8.6	9.9	9.4	1.59	162
L Guys	39	43	53	64	70	1.8	1.9	2.3	2.8	3.0	1.01	70
L Kings	97	89	95	101	98	8.4	7.5	7.6	8.1	7.3	0.93	105
L Rfree	143	163	165	179	173	6.5	7.3	7.0	7.7	7.3	1.33	130
L St.G	37	40	43	48	53	4.4	4.8	5.0	5.6	6.1	0.67	80
L West	120	135	155	200	214	3.5	3.8	4.3	5.7	6.0	1.96	109
Leeds	59	64	67	64	53	3.6	3.8	3.9	3.7	3.0	1.37	39
Leic	96	108	126	120	138	4.1	4.4	4.9	4.6	5.2	2.09	66
Liv Ain	21	25	22	25	22	10.0	11.5	9.7	10.3	8.3	0.43	51
Liv Roy	70	57	35	32	32	5.6	4.5	2.8	2.6	2.7	0.81	39
M RI	71	69	76	84	97	3.5	3.3	3.7	4.2	4.7	1.33	73
Middlbr	23	29	32	28	20	2.5	3.1	3.4	3.0	2.1	0.81	25
Newc	58	60	59	46	58	5.2	5.2	5.0	3.8	4.7	0.95	61
Norwch	43	36	46	45	45	5.5	4.6	5.7	5.6	5.7	0.69	65
Nottm	69	70	76	95	103	5.8	5.8	6.2	7.9	8.4	0.93	111
Oxford	67	70	58	68	66	3.6	3.6	2.9	3.4	3.3	1.45	46
Plymth	49	40	42	33	34	9.1	7.4	7.9	6.1	6.2	0.40	85
Ports	84	94	87	101	90	4.8	5.3	4.6	5.3	4.6	1.75	51
Prestn	35	39	43	50	55	2.8	3.0	3.2	3.7	4.0	1.23	45
Redng	39	40	56	61	50	4.9	4.9	6.5	7.0	5.7	0.70	72
Salford	117	115	120	106	84	10.5	9.8	9.7	8.4	6.9	1.15	73

**Table 6.2** Continued

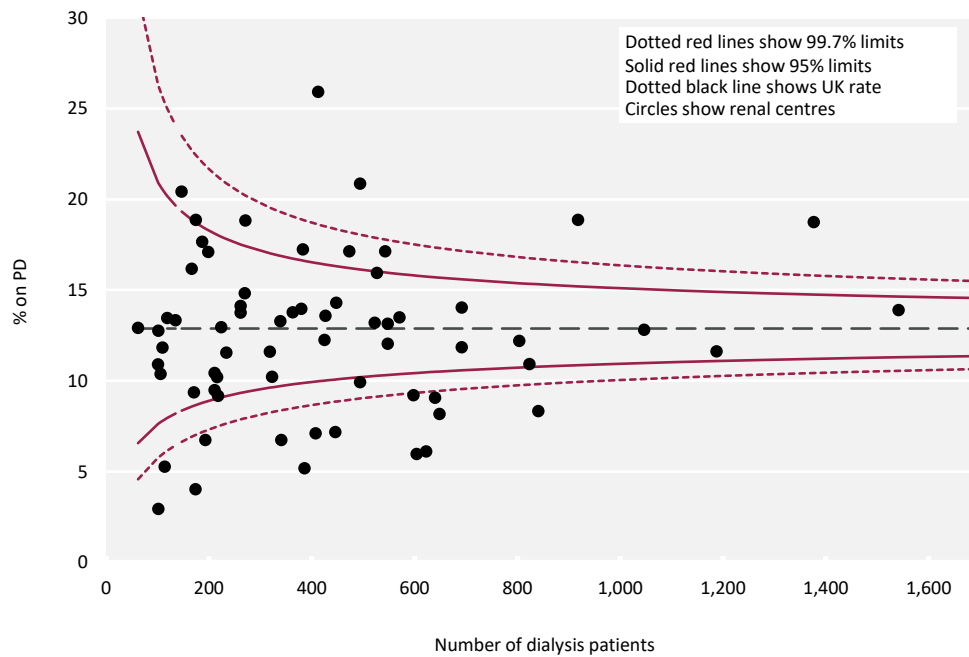
Centre	N on PD					% on PD					Estimated catchment population (millions)	2021 crude rate (pmp)
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021		
Sheff	55	61	60	77	82	3.8	4.1	4.0	5.2	5.5	1.13	72
Shrew	42	58	55	51	51	10.9	13.5	12.6	11.9	11.5	0.41	124
Stevng	23	28	37	25	36	2.6	3.0	3.9	2.6	3.6	1.11	32
Stoke	72	81	71	94	107	8.9	10.0	8.8	11.6	12.7	0.73	146
Sund	16	17	26	32	37	2.9	3.0	4.6	5.8	6.8	0.55	68
Truro	15	17	21	23	22	3.5	3.9	4.7	5.2	4.8	0.36	61
Wirral	20	20	18	18	20	5.1	5.0	4.3	4.3	4.9	0.47	43
Wolve	54	54	49	59	64	9.3	8.9	8.0	9.0	9.3	0.55	117
York	35	29	33	24	27	6.3	5.1	5.7	4.2	4.6	0.49	56
<b>N IRELAND</b>												
Antrim	14	20	19	12	18	5.5	7.3	6.7	4.2	6.1	0.25	73
Belfast	16	22	18	15	27	1.9	2.5	2.0	1.7	3.0	0.53	51
Newry	23	16	11	9	13	9.5	6.3	4.3	3.4	4.6	0.24	55
Ulster	6	10	8	3	3	3.3	5.2	4.3	1.5	1.5	0.20	15
West NI	9	9	14	7	6	2.9	2.8	4.3	2.0	1.8	0.25	24
<b>SCOTLAND</b>												
Abrdn	22	26	22	22	20	3.9	4.5	3.9	3.9	3.5	0.50	40
Airdrie	16	22	21	29	29	3.4	4.5	4.0	5.6	5.8	0.46	63
D&Gall	6	6	8	10	8	4.4	4.1	5.4	6.4	5.2	0.12	65
Dundee	18	22	21	13	16	4.1	4.9	4.7	3.0	3.9	0.37	43
Edinb	33	36	41	33	33	4.0	4.2	4.6	3.7	3.6	0.84	39
Glasgw	48	52	45	46	38	2.7	2.9	2.4	2.5	2.0	1.37	28
Inverns	10	13	12	9	11	3.8	4.7	4.3	3.3	4.0	0.22	49
Klmarnk	24	19	24	27	33	7.1	5.6	6.7	7.3	9.0	0.29	113
Krkldy	11	10	12	6	7	3.6	3.4	4.1	2.1	2.4	0.27	26
<b>WALES</b>												
Bangor	17	20	14	18	13	8.7	9.9	7.0	8.3	6.0	0.16	79
Cardff	71	59	63	67	58	4.2	3.4	3.6	4.0	3.4	1.16	50
Clwyd	12	15	13	13	11	6.7	7.9	6.3	6.4	5.4	0.18	61
Swanse	74	70	77	59	49	9.4	8.5	8.9	6.9	5.7	0.76	65
Wrexm	27	24	23	25	16	8.4	7.6	7.4	7.7	5.3	0.21	77
<b>TOTALS</b>												
England	3,056	3,106	3,176	3,412	3,494	5.6	5.5	5.5	5.9	5.9	44.77	78
N Ireland	68	77	70	46	67	3.7	4.0	3.6	2.3	3.3	1.47	46
Scotland	188	206	206	195	195	3.7	3.9	3.8	3.7	3.6	4.45	44
Wales	201	188	190	182	147	6.3	5.8	5.7	5.6	4.5	2.49	59
<b>UK</b>	<b>3,513</b>	<b>3,577</b>	<b>3,642</b>	<b>3,835</b>	<b>3,903</b>	<b>5.4</b>	<b>5.4</b>	<b>5.3</b>	<b>5.6</b>	<b>5.6</b>	<b>53.19</b>	<b>73</b>

Country PD populations were calculated by summing the PD patients from centres in each country. Estimated country populations were derived from Office for National Statistics figures (see appendix A for details on estimated catchment population by kidney centre)

Exeter was unable to submit 2021 patient level data, but provided aggregate numbers of patients on KRT at the end of 2021, by treatment modality

pmp – per million population





**Figure 6.2** Percentage of adult patients prevalent to dialysis on 31/12/2021 who were on PD by centre

## Demographics of prevalent adult PD patients

The proportion of PD patients from each ethnic group is shown for patients with ethnicity data – the proportion of patients in each centre with no ethnicity data is shown separately.

**Table 6.3** Demographics of adult patients prevalent to PD on 31/12/2021 by centre

Centre	N on KRT	N on PD	% on PD	Median age (yrs)	% male	Ethnicity				
						% White	% Asian	% Black	% Other	% missing
ENGLAND										
Bham	3,309	277	8.4	62.1	61.4	57.8	29.3	11.5	1.5	2.5
Bradfd	735	37	5.0	62.1	64.9	64.9	29.7	0.0	5.4	0.0
Brightn	1,092	69	6.3	68.5	66.7	90.5	6.3	1.6	1.6	8.7
Bristol	1,497	77	5.1	59.9	66.2	94.5	1.4	1.4	2.7	5.2
Camb	1,629	29	1.8	62.2	72.4	96.3	3.7	0.0	0.0	6.9
Carlis	305	30	9.8	69.6	60.0	100.0	0.0	0.0	0.0	0.0
Carsh	1,907	134	7.0	63.8	61.2	66.1	16.1	8.1	9.7	7.5
Colchr	145	0	0.0							
Covnt	1,119	81	7.2	71.5	70.4	88.9	4.9	6.2	0.0	0.0
Derby	689	66	9.6	69.0	59.1	90.8	7.7	1.5	0.0	1.5
Donc	339	13	3.8	61.1	38.5	100.0	0.0	0.0	0.0	0.0
Dorset	786	23	2.9	69.5	69.6	95.7	0.0	0.0	4.3	0.0
Dudley	398	40	10.1	65.9	60.0	80.0	15.0	5.0	0.0	0.0
EssexMS	895	93	10.4	70.2	67.7	89.7	5.7	2.3	2.3	6.5
Exeter	1,077	73	6.8							
Glouc	546	36	6.6	57.3	58.3	82.4	5.9	2.9	8.8	5.6
Hull	919	52	5.7	66.8	57.7	94.2	3.8	1.9	0.0	0.0
Ipswi	421	33	7.8	75.3	66.7	83.3	0.0	4.2	12.5	27.3
Kent	1,192	72	6.0	62.4	56.9	87.9	1.5	6.1	4.5	8.3
L Barts	2,750	258	9.4	61.5	58.5	26.3	42.2	25.5	6.0	2.7
L Guys	2,322	70	3.0	56.3	45.7	49.2	14.3	31.7	4.8	10.0
L Kings	1,334	98	7.3	57.0	63.3	47.4	12.4	34.0	6.2	1.0
L Rfree	2,380	173	7.3	63.6	60.7	33.5	29.0	23.2	14.2	10.4
L St.G	866	53	6.1	57.5	58.5	38.6	22.7	15.9	22.7	17.0
L West	3,556	214	6.0	67.0	54.2	38.0	44.1	16.0	1.9	0.5
Leeds	1,784	53	3.0	58.9	47.2	69.8	17.0	11.3	1.9	0.0
Leic	2,640	138	5.2	64.8	55.8	80.6	14.0	3.9	1.6	6.5
Liv Ain	264	22	8.3	69.6	63.6	90.5	0.0	9.5	0.0	4.5
Liv Roy	1,207	32	2.7	54.3	43.8	86.7	3.3	3.3	6.7	6.3
M RI	2,077	97	4.7	59.9	60.8	67.5	15.7	13.3	3.6	14.4
Middlbr	955	20	2.1	64.0	65.0	100.0	0.0	0.0	0.0	0.0
Newc	1,226	58	4.7	57.2	65.5	87.7	5.3	3.5	3.5	1.7
Norwch	784	45	5.7	72.6	71.1	97.7	2.3	0.0	0.0	2.2
Nottm	1,220	103	8.4	57.5	69.9	77.5	14.7	6.9	1.0	1.0
Oxford	2,003	66	3.3	65.6	51.5					34.8
Plymth	548	34	6.2	64.5	67.6	100.0	0.0	0.0	0.0	0.0
Ports	1,941	90	4.6	66.8	62.2	92.8	5.8	0.0	1.4	23.3
Prestn	1,379	55	4.0	65.1	56.4	78.2	21.8	0.0	0.0	0.0
Redng	877	50	5.7	59.4	62.0	75.6	13.3	4.4	6.7	10.0
Salford	1,215	84	6.9	61.8	58.3	82.1	14.3	1.2	2.4	0.0
Sheff	1,496	82	5.5	63.0	63.4	97.5	2.5	0.0	0.0	2.4
Shrew	442	51	11.5	68.5	56.9	91.3	6.5	0.0	2.2	9.8
Stevng	1,014	36	3.6	60.8	52.8	68.8	15.6	9.4	6.3	11.1
Stoke	845	107	12.7	64.3	56.1	87.4	6.3	4.2	2.1	11.2
Sund	547	37	6.8	57.8	51.4	94.6	5.4	0.0	0.0	0.0
Truro	461	22	4.8	57.1	59.1	100.0	0.0	0.0	0.0	0.0
Wirral	412	20	4.9	61.5	50.0	100.0	0.0	0.0	0.0	0.0

**Table 6.3** Continued

Centre	N on KRT	N on PD	% on PD	Median age (yrs)	% male	Ethnicity				
						% White	% Asian	% Black	% Other	% missing
Wolve	691	64	9.3	58.1	50.0	67.2	12.5	15.6	4.7	0.0
York	581	27	4.6	62.7	63.0	96.3	3.7	0.0	0.0	0.0
N IRELAND										
Antrim	296	18	6.1	75.7	72.2					38.9
Belfast	911	27	3.0	71.4	70.4					40.7
Newry	281	13	4.6	78.1	76.9	100.0	0.0	0.0	0.0	7.7
Ulster	203	3	1.5	76.8	66.7	100.0	0.0	0.0	0.0	0.0
West NI	339	6	1.8	74.4	66.7	100.0	0.0	0.0	0.0	0.0
SCOTLAND										
Abrdn	578	20	3.5	63.2	75.0					100.0
Airdrie	504	29	5.8	65.7	55.2					62.1
D&Gall	154	8	5.2	58.3	50.0					75.0
Dundee	411	16	3.9	66.6	81.3					100.0
Edinb	926	33	3.6	60.4	66.7					97.0
Glasgw	1,865	38	2.0	57.3	63.2					84.2
Inverns	278	11	4.0	65.5	54.5					90.9
Klmarnk	365	33	9.0	67.2	39.4					84.8
Krkldy	295	7	2.4	50.2	85.7					100.0
WALES										
Bangor	217	13	6.0	70.0	84.6					30.8
Cardff	1,700	58	3.4	62.7	51.7	94.5	3.6	1.8	0.0	5.2
Clwyd	204	11	5.4	66.2	81.8	100.0	0.0	0.0	0.0	18.2
Swanse	853	49	5.7	67.4	69.4	95.9	4.1	0.0	0.0	0.0
Wrexm	300	16	5.3	63.9	68.8	93.3	0.0	6.7	0.0	6.3
TOTALS										
England	58,817	3,494	5.9	63.1	59.8	69.8	16.8	9.7	3.7	5.8
N Ireland	2,030	67	3.3	75.0	71.6	100.0	0.0	0.0	0.0	28.4
Scotland	5,376	195	3.6	62.4	61.0					86.7
Wales	3,274	147	4.5	65.7	64.6	95.6	2.9	1.5	0.0	6.8
<b>UK</b>	<b>69,497</b>	<b>3,903</b>	<b>5.6</b>	<b>63.3</b>	<b>60.3</b>	<b>71.4</b>	<b>15.9</b>	<b>9.2</b>	<b>3.5</b>	<b>10.3</b>

Blank cells – no data returned by the centre or data completeness <70%

Breakdown by ethnicity is not shown for centres with <70% data completeness, but these centres were included in national averages

Exeter was unable to submit 2021 patient level data, but provided aggregate numbers of patients on KRT at the end of 2021, by treatment modality

Primary renal diseases (PRDs) were grouped into categories as shown in table 6.4, with the mapping of disease codes into groups explained in more detail in appendix A. The proportion of PD patients with each PRD is shown for patients with PRD data and these total 100% of patients with data. The proportion of patients with no PRD data is shown on a separate line.

**Table 6.4** Primary renal diseases (PRDs) of adult patients prevalent to PD on 31/12/2021

PRD	N on PD	% PD population	Age <65 yrs		Age ≥65 yrs		M/F ratio
			N	%	N	%	
Diabetes	867	24.6	458	24.0	409	25.3	1.8
Glomerulonephritis	580	16.5	388	20.3	192	11.9	1.6
Hypertension	262	7.4	134	7.0	128	7.9	2.0
Polycystic kidney disease	297	8.4	198	10.4	99	6.1	1.0
Pyelonephritis	215	6.1	103	5.4	112	6.9	1.9
Renal vascular disease	148	4.2	28	1.5	120	7.4	2.7
Other	546	15.5	325	17.0	221	13.7	1.0
Uncertain aetiology	609	17.3	274	14.4	335	20.7	1.4
<b>Total (with data)</b>	<b>3,524</b>	<b>100.0</b>	<b>1,908</b>	<b>100.0</b>	<b>1,616</b>	<b>100.0</b>	
Missing	306	8.0	151	7.3	155	8.8	1.7

## Biochemistry parameters in prevalent adult PD patients

The UK Kidney Association guideline on CKD mineral bone disease contains only one audit measure, which is the percentage of patients with adjusted calcium above the target range. The UK Kidney Association guideline on PD contains one biochemical audit measure, which is the proportion of patients with bicarbonate in the target range.

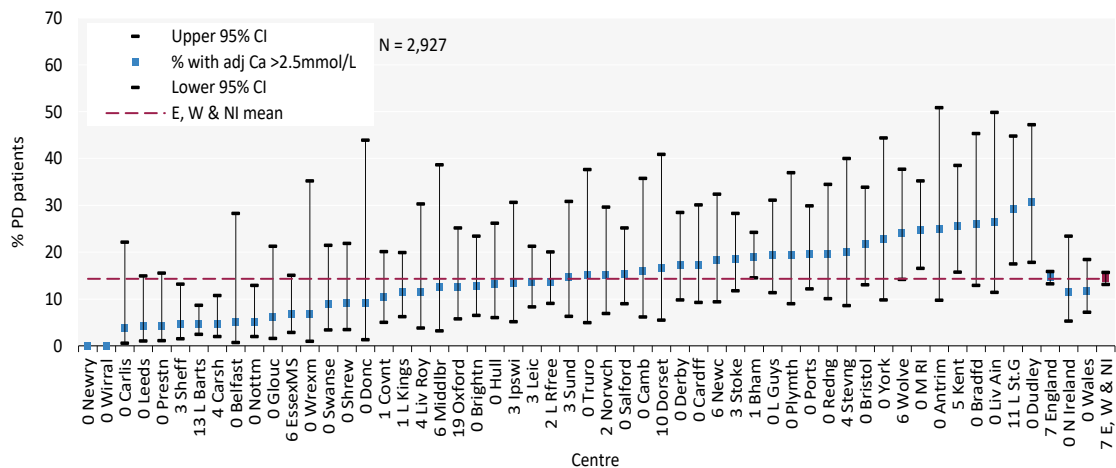
**Table 6.5** Median adjusted calcium (Ca) and percentage with adjusted Ca within and above the target range (2.2–2.5 mmol/L); and median bicarbonate and percentage with bicarbonate below, within and above the target range (22–30 mmol/L) in adult patients prevalent to PD on 31/12/2021 by centre

Centre	Adjusted calcium				Bicarbonate				
	Median (mmol/L)	% 2.2–2.5 mmol/L	% >2.5 mmol/L	% data completeness	Median (mmol/L)	% <22 mmol/L	% 22–30 mmol/L	% >30 mmol/L	% data completeness
ENGLAND									
Bham	2.4	78.3	18.9	99.2					58.6
Bradfd	2.5	74.1	25.9	100.0	27	7.4	81.5	11.1	100.0
Brightn	2.4	81.0	12.7	100.0	24	20.6	77.8	1.6	100.0
Bristol	2.4	76.7	21.7	100.0	23	28.3	70.0	1.7	100.0
Camb	2.4	80.0	16.0	100.0	26	12.0	88.0	0.0	100.0
Carlis	2.3	81.5	3.7	100.0	22	48.2	51.9	0.0	100.0
Carsh	2.3	78.5	4.7	95.5					0.0
Colchr									
Covnt	2.3	88.2	10.3	98.6	25	22.1	76.5	1.5	98.6
Derby	2.4	81.3	17.2	100.0	23	26.6	73.4	0.0	100.0
Donc	2.4	90.9	9.1	100.0	24	27.3	72.7	0.0	100.0
Dorset	2.3	72.2	16.7	90.0	22	50.0	45.0	5.0	100.0
Dudley	2.5	69.4	30.6	100.0	23	25.0	75.0	0.0	100.0
EssexMS	2.4	84.0	6.7	93.8	27	5.3	82.7	12.0	93.8
Exeter									
Glouc	2.3	81.8	6.1	100.0	22	42.4	57.6	0.0	100.0
Hull	2.4	78.3	13.0	100.0	27	4.4	89.1	6.5	100.0
Ipswi	2.3	80.0	13.3	96.8	25	14.3	85.7	0.0	90.3
Kent	2.5	67.3	25.5	94.8	23	23.2	73.2	3.6	96.6
L Barts	2.3	81.0	4.6	87.1	23	29.4	70.1	0.5	86.6
L Guys	2.4	75.8	19.4	100.0	24	14.5	83.9	1.6	100.0
L Kings	2.3	78.4	11.4	98.9	23	34.1	62.5	3.4	98.9
L Rfree	2.4	81.8	13.6	98.1	24	22.0	76.7	1.3	95.5
L St.G	2.5	70.7	29.3	89.1	25	25.7	74.3	0.0	76.1

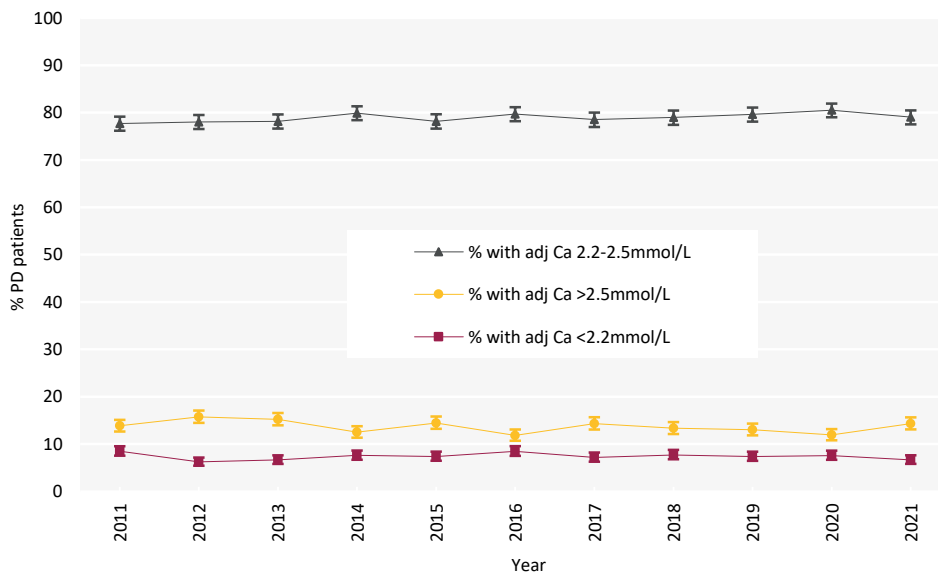
**Table 6.5** Continued

Centre	Adjusted calcium				Bicarbonate				
	Median (mmol/L)	% 2.2- 2.5 mmol/L	% >2.5 mmol/L	% data completeness	Median (mmol/L)	% <22 mmol/L	% 22-30 mmol/L	% >30 mmol/L	% data completeness
L West				33.5					29.9
Leeds	2.4	91.8	4.1	100.0	28	4.1	77.6	18.4	100.0
Leic	2.4	82.9	13.5	97.4	24	13.5	86.5	0.0	97.4
Liv Ain	2.5	68.4	26.3	100.0	26	10.5	84.2	5.3	100.0
Liv Roy	2.5	88.5	11.5	96.3	25	15.4	80.8	3.9	96.3
M RI	2.4	72.8	24.7	100.0	24	22.2	77.8	0.0	100.0
Middlbr	2.4	68.8	12.5	94.1	27	6.3	75.0	18.8	94.1
Newc	2.4	79.6	18.2	93.6	24	25.0	70.5	4.6	93.6
Norwch	2.4	82.5	15.0	97.6	23	36.6	63.4	0.0	100.0
Nottm	2.3	79.5	5.1	100.0					29.5
Oxford	2.4	72.9	12.5	81.4					61.0
Plymth	2.4	77.4	19.4	100.0	23	14.3	85.7	0.0	90.3
Ports	2.4	74.0	19.5	100.0	25	15.8	79.0	5.3	98.7
Prestn	2.3	76.6	4.3	100.0	25	18.2	77.3	4.6	93.6
Redng	2.4	75.6	19.5	100.0	24	14.6	82.9	2.4	100.0
Salford	2.4	78.2	15.4	100.0					0.0
Sheff	2.3	84.9	4.6	97.1	22	49.2	50.8	0.0	95.6
Shrew	2.4	86.4	9.1	100.0	21	54.6	45.5	0.0	100.0
Stoke	2.4	77.9	18.6	96.6	26	6.7	88.8	4.5	100.0
Sund	2.4	85.3	14.7	97.1					0.0
Truro	2.4	75.0	15.0	100.0	25	10.0	90.0	0.0	100.0
Wirral	2.4	85.7	0.0	100.0	22	28.6	64.3	7.1	100.0
Wolve	2.5	72.0	24.0	94.3	22	46.9	53.1	0.0	92.5
York	2.5	72.7	22.7	100.0	26	4.6	95.5	0.0	100.0
N IRELAND									
Antrim	2.4	62.5	25.0	100.0	26	6.3	93.8	0.0	100.0
Belfast	2.3	85.0	5.0	100.0	25	10.0	90.0	0.0	100.0
Newry	2.4	91.7	0.0	100.0	24	8.3	91.7	0.0	100.0
Ulster				100.0					100.0
West NI				100.0					100.0
WALES									
Bangor				100.0					100.0
Cardff	2.4	80.8	17.3	100.0	25	21.2	76.9	1.9	100.0
Clwyd				100.0					88.9
Swanse	2.4	88.9	8.9	100.0	25	22.2	71.1	6.7	100.0
Wrexm	2.4	93.3	6.7	100.0	28	6.7	80.0	13.3	100.0
TOTALS									
England	2.4	78.7	14.5	92.7	24	24.0	73.5	2.6	78.9
N Ireland	2.3	78.9	11.5	100.0	25	7.7	92.3	0.0	100.0
Wales	2.4	86.1	11.6	100.0	25	17.2	77.3	5.5	99.2
<b>E, W &amp; NI</b>	<b>2.4</b>	<b>79.0</b>	<b>14.3</b>	<b>93.1</b>	<b>24</b>	<b>23.3</b>	<b>74.1</b>	<b>2.7</b>	<b>80.1</b>

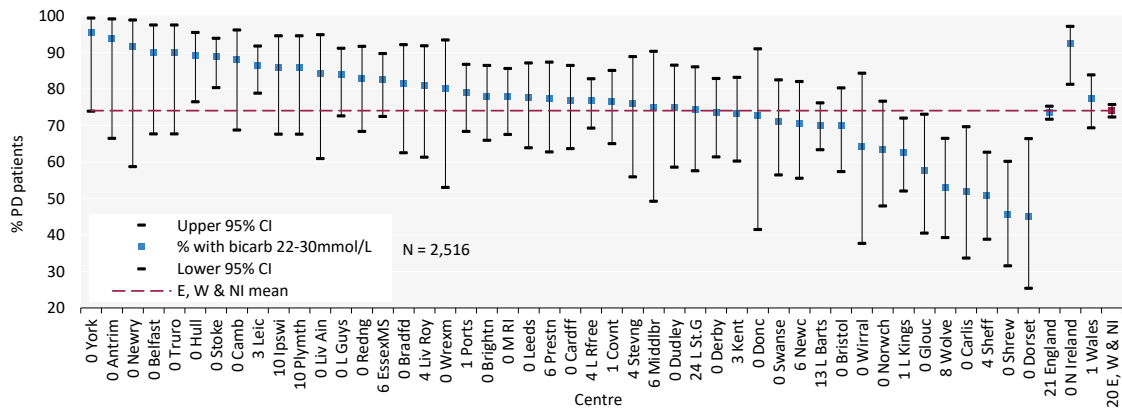
Blank cells – no data returned by the centre or <10 patients in the centre or data completeness <70%



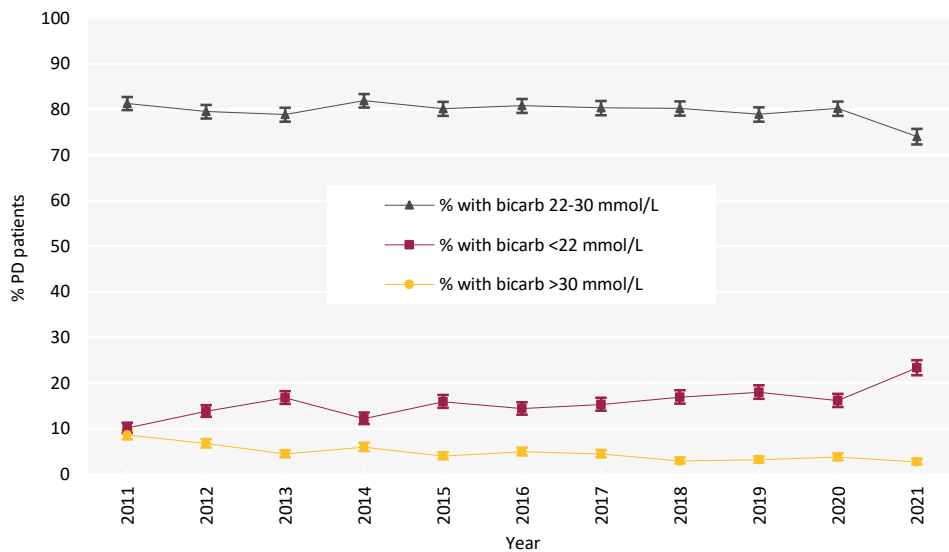
**Figure 6.3** Percentage of adult patients prevalent to PD on 31/12/2021 with adjusted calcium (Ca) above the target range (>2.5 mmol/L) by centre  
 CI – confidence interval



**Figure 6.4** Change in percentage of prevalent adult PD patients within, above and below the target range for adjusted calcium (Ca 2.2–2.5 mmol/L) between 2011 and 2021



**Figure 6.5** Percentage of adult patients prevalent to PD on 31/12/2021 with bicarbonate (bicarb) within the target range (22–30 mmol/L) by centre  
 CI – confidence interval



**Figure 6.6** Percentage of prevalent adult PD patients within, above and below the target range for bicarbonate (bicarb) 22–30 mmol/L) between 2011 and 2021

## Anaemia in prevalent adult PD patients

UK Kidney Association anaemia guidelines recommend a target haemoglobin of 100-120 g/L. Data regarding target and median haemoglobin and ferritin levels attained are presented in table 6.6.

**Table 6.6** Median haemoglobin and ferritin and percentage attaining target ranges in adult patients prevalent to PD on 31/12/2021 by centre

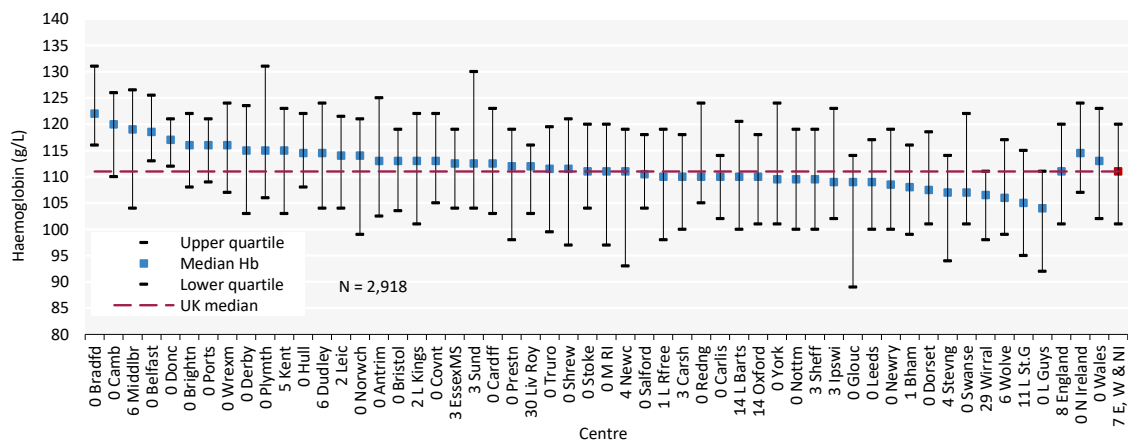
Centre	Haemoglobin			Ferritin			
	Median (g/L)	% <100 g/L	% >120 g/L	% data completeness	Median (µg/L)	% <100 µg/L	% data completeness
ENGLAND							
Bham	108	28.6	17.3	98.8	365	5.6	98.8
Bradfd	122	7.4	55.6	100.0	424	3.7	100.0
Brightn	116	6.3	31.7	100.0	372	1.6	100.0
Bristol	113	13.3	21.7	100.0	357	6.7	100.0
Camb	120	8.0	40.0	100.0	359	4.3	92.0
Carlis	110	18.5	14.8	100.0	266	16.7	88.9
Carsh	110	24.8	18.3	97.3	273	6.4	97.3
Colchr							
Covnt	113	20.3	29.0	100.0	284	11.9	97.1
Derby	115	21.9	34.4	100.0	472	1.6	100.0
Donc	117	9.1	36.4	100.0	394	10.0	90.9
Dorset	108	25.0	10.0	100.0	281	5.0	100.0
Dudley	115	11.8	29.4	94.4			8.3
EssexMS	113	12.8	23.1	97.5	315	13.5	92.5
Exeter							
Glouc	109	36.4	18.2	100.0	205	7.4	81.8
Hull	115	6.5	32.6	100.0	444	8.9	97.8
Ipswi	109	16.7	26.7	96.8	288	17.2	93.6
Kent	115	21.8	29.1	94.8	351	5.6	93.1
L Barts	110	24.5	25.0	85.7	282	13.5	79.5
L Guys	104	37.1	9.7	100.0	281	8.3	96.8
L Kings	113	21.8	29.9	97.8	255	14.1	95.5
L Rfree	110	27.1	22.6	98.7	582	7.7	98.7
L St.G	105	39.0	14.6	89.1	359	9.8	89.1
L West				35.1			28.4
Leeds	109	24.5	16.3	100.0	389	8.2	100.0
Leic	114	13.4	30.4	98.3	272	10.8	97.4
Liv Ain				36.8	536	5.6	94.7
Liv Roy	112	10.5	10.5	70.4	379	11.5	96.3
M RI	111	29.6	23.5	100.0	325	6.2	100.0
Middlbr	119	12.5	50.0	94.1	224	0.0	88.2
Newc	111	31.1	17.8	95.7	432	13.3	95.7
Norwch	114	26.8	29.3	100.0	287	7.3	100.0
Nottm	110	23.1	19.2	100.0	403	5.1	100.0
Oxford	110	21.6	23.5	86.4	378	3.5	96.6
Plymth	115	12.9	35.5	100.0	339	9.7	100.0
Ports	116	13.0	26.0	100.0	377	6.5	100.0
Prestn	112	29.8	19.1	100.0	619	4.3	97.9
Redng	110	12.2	36.6	100.0	378	9.8	100.0
Salford	111	19.2	19.2	100.0	497	6.4	100.0
Sheff	110	24.2	24.2	97.1	548	3.1	94.1
Shrew	112	27.3	25.0	100.0	272	7.0	97.7
Stevng	107	40.0	8.0	96.2	202	16.7	92.3
Stoke	111	15.7	23.6	100.0	346	8.0	97.8
Sund	113	17.6	38.2	97.1	314	12.5	91.4
Truro	112	25.0	25.0	100.0	184	17.6	85.0
Wirral	107	40.0	20.0	71.4	361	0.0	100.0
Wolve	106	28.0	18.0	94.3	160	27.1	90.6
York	110	13.6	27.3	100.0	233	9.1	100.0
N IRELAND							
Antrim	113	12.5	31.3	100.0	592	0.0	100.0
Belfast	119	5.0	35.0	100.0	480	10.0	100.0



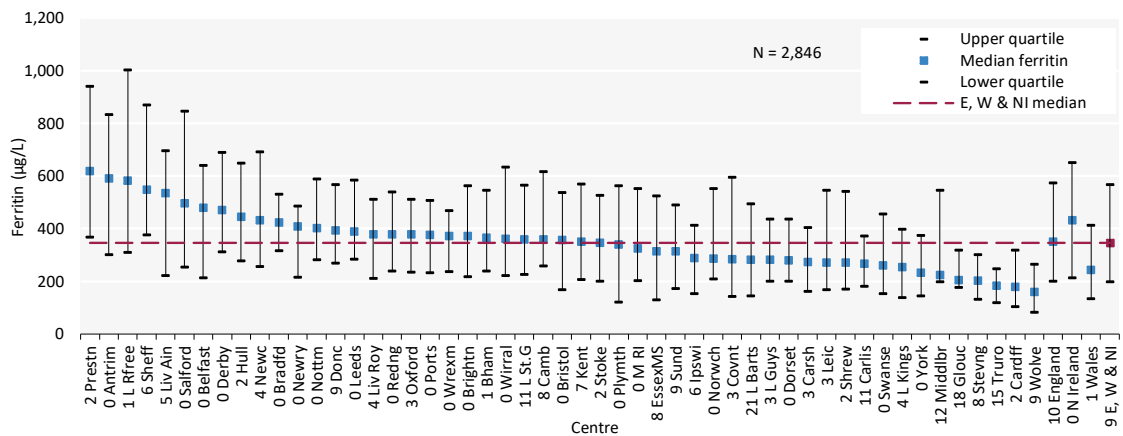
**Table 6.6** Continued

Centre	Haemoglobin				Ferritin		
	Median (g/L)	% <100 g/L	% >120 g/L	% data completeness	Median (µg/L)	% <100 µg/L	% data completeness
Newry	109	25.0	25.0	100.0	409	16.7	100.0
Ulster				100.0			100.0
West NI				100.0			100.0
WALES							
Bangor				100.0			100.0
Cardff	113	23.1	30.8	100.0	180	21.6	98.1
Clwyd				100.0			100.0
Swanse	107	17.8	35.6	100.0	261	15.6	100.0
Wrexm	116	0.0	26.7	100.0	373	6.7	100.0
TOTALS							
England	111	22.5	23.7	92.4	350	8.4	90.0
N Ireland	115	11.5	30.8	100.0	432	7.7	100.0
Wales	113	18.6	31.8	100.0	244	18.0	99.2
<b>UK</b>	<b>111</b>	<b>22.1</b>	<b>24.2</b>	<b>92.8</b>	<b>346</b>	<b>8.8</b>	<b>90.6</b>

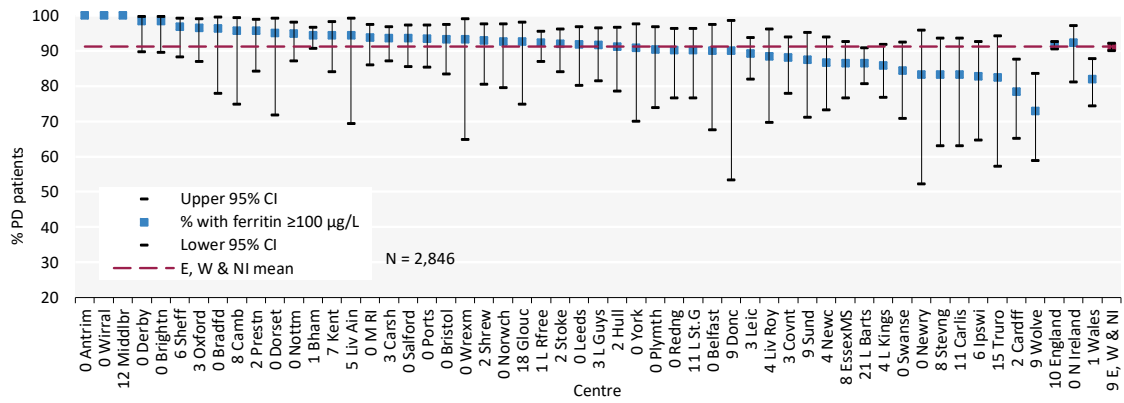
Blank cells – no data returned by the centre or <10 patients in the centre or data completeness <70%



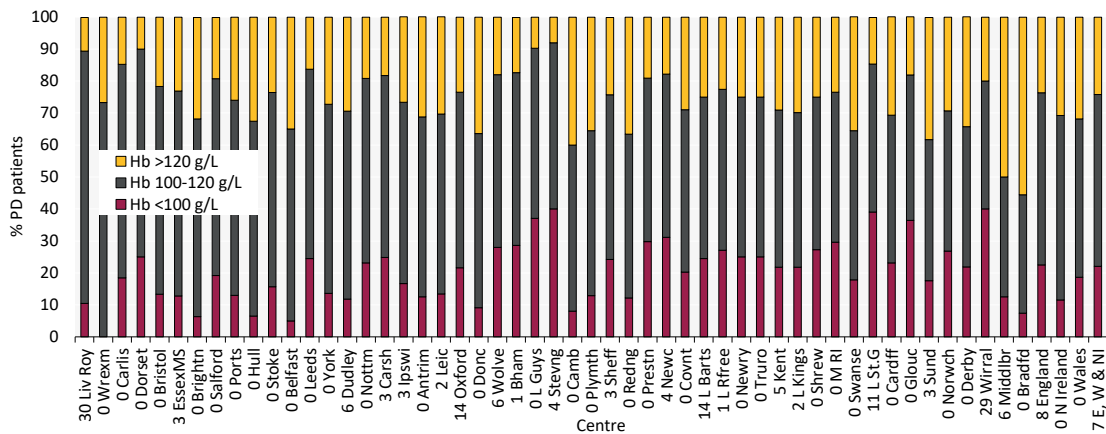
**Figure 6.7** Median haemoglobin (Hb) in adult patients prevalent to PD on 31/12/2021 by centre



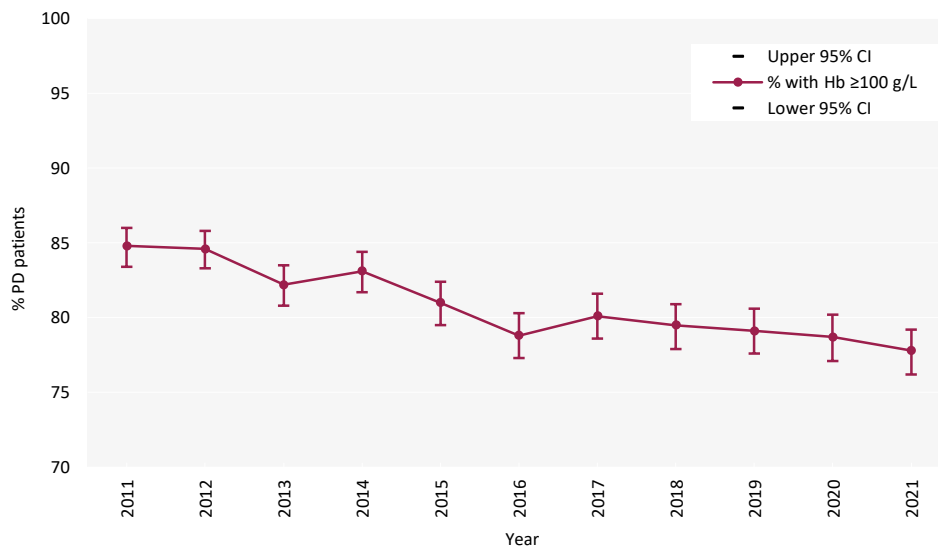
**Figure 6.8** Median ferritin in adult patients prevalent to PD on 31/12/2021 by centre



**Figure 6.9** Percentage of adult patients prevalent to PD on 31/12/2021 with ferritin  $\geq 100 \mu\text{g/L}$  by centre  
CI – confidence interval



**Figure 6.10** Distribution of haemoglobin (Hb) in adult patients prevalent to PD on 31/12/2021 by centre

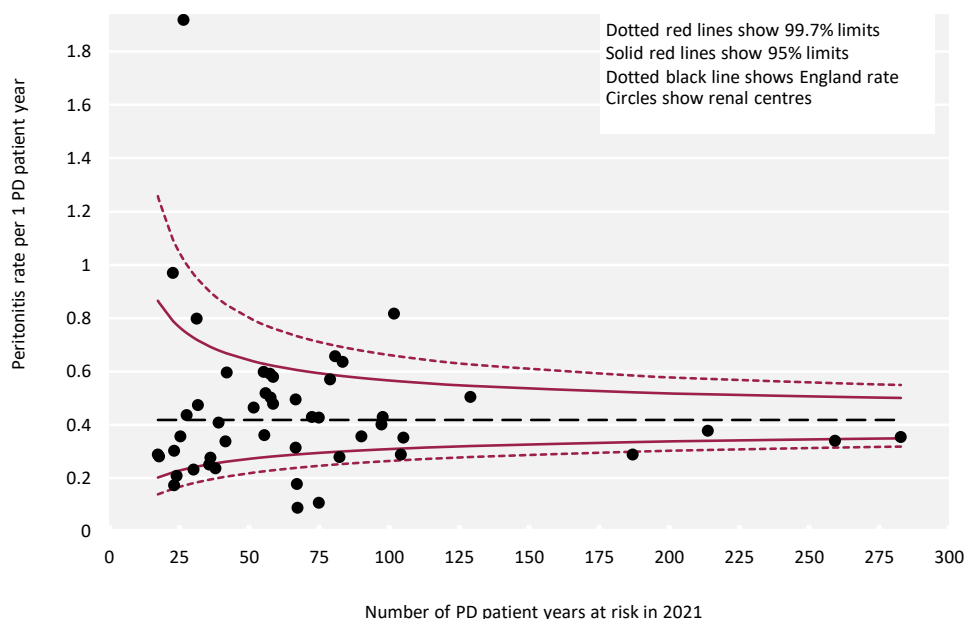


**Figure 6.11** Percentage of prevalent adult PD patients with haemoglobin (Hb)  $\geq 100 \text{ g/L}$  between 2011 and 2021  
CI – confidence interval

**PD peritonitis** infection rates are collected for English kidney centres by the UKRR in collaboration with NHS England for the Renal Dialysis Quality Dashboard ([ukkidney.org/audit-research/data-permissions/data/ukrr-nhs-england-quality-dashboard-dataset](http://ukkidney.org/audit-research/data-permissions/data/ukrr-nhs-england-quality-dashboard-dataset)) and are listed in the table below. The funnel plot (figure 6.12) shows each centre's 2021 peritonitis rate per one PD patient-year against the number of patient-years at risk to take into account the greater variation expected as centre size decreases.

**Table 6.7** Number of patient-years and peritonitis rate in adult patients receiving PD in 2021 by centre in England

Centre	PD patient years	Peritonitis rate per 1 PD patient year
Bham	283	0.35
Bradfd	32	0.48
Brightn	67	0.18
Bristol	81	0.66
Camb	28	0.44
Carlis	23	0.17
Carsh	129	0.50
Covnt	83	0.64
Derby	67	0.32
Donc	17	0.29
Dorset	27	1.92
Dudley	36	0.25
EssexMS	82	0.28
Exeter	75	0.43
Glouc	38	0.24
Hull	55	0.36
Ipswi	36	0.28
Kent	67	0.09
L Barts	259	0.34
L Guys	66	0.50
L Kings	105	0.35
L Rfree	187	0.29
L St.G	58	0.50
L West	214	0.38
Leeds	58	0.48
Leic	104	0.29
Liv Ain	24	0.21
Liv Roy	31	0.80
M RI	90	0.36
Middlbr	23	0.97
Newc	52	0.47
Norwch	56	0.52
Nottm	102	0.82
Oxford	72	0.43
Plymth	30	0.23
Ports	97	0.40
Prestn	42	0.60
Redng	55	0.60
Salford	98	0.43
Sheff	75	0.11
Shrew	59	0.58
Stevng	39	0.41
Stoke	79	0.57
Sund	41	0.34
Truro	23	0.30
Wirral	18	0.28
Wolve	57	0.59
York	25	0.36
TOTAL		
<b>England</b>	<b>3,465</b>	<b>0.42</b>



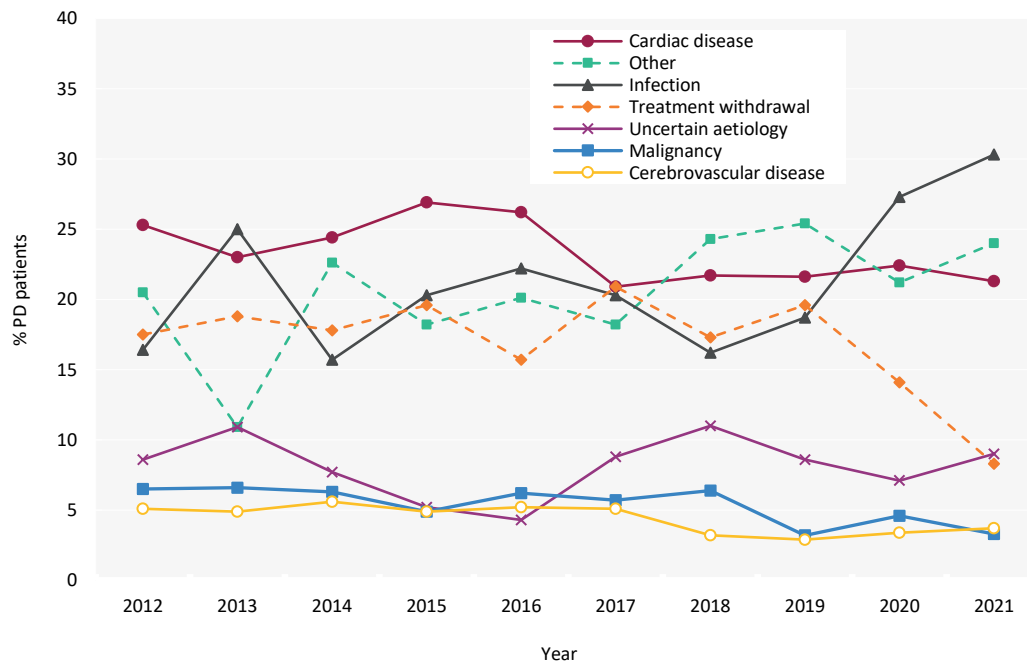
**Figure 6.12** PD peritonitis rates in adult patients receiving PD in 2021 per 1 PD patient-year by centre in England  
Please visit the UKRR data portal ([ukkidney.org/audit-research/data-portals](http://ukkidney.org/audit-research/data-portals)) to identify individual kidney centres

## Cause of death in adult PD patients

Cause of death was analysed in prevalent patients receiving PD on 31/12/2020 and followed-up for one year in 2021. The proportion of PD patients with each cause of death is shown for patients with cause of death data and these total 100% of patients with data. The proportion of patients with no cause of death data is shown on a separate line. Further detail on the survival of prevalent KRT patients is in chapter 3.

**Table 6.8** Cause of death in adult patients prevalent to PD on 31/12/2020 followed-up in 2021 by age group

Cause of death	PD all ages		PD < 65 years		PD ≥ 65 years	
	N	%	N	%	N	%
Cardiac disease	64	21.3	21	23.3	43	20.5
Cerebrovascular disease	11	3.7	2	2.2	9	4.3
Infection	91	30.3	36	40.0	55	26.2
Malignancy	10	3.3	1	1.1	9	4.3
Treatment withdrawal	25	8.3	2	2.2	23	11.0
Other	72	24.0	19	21.1	53	25.2
Uncertain aetiology	27	9.0	9	10.0	18	8.6
<b>Total (with data)</b>	<b>300</b>	<b>100.0</b>	<b>90</b>	<b>100.0</b>	<b>210</b>	<b>100.0</b>
<b>Missing</b>	<b>176</b>	<b>37.0</b>	<b>44</b>	<b>32.8</b>	<b>132</b>	<b>38.6</b>



**Figure 6.13** Cause of death between 2012 and 2021 for adult patients prevalent to PD at the beginning of the year