UK Kidney Association
UK Renal Registry

Chapter 6

Adults on peritoneal dialysis (PD) in the UK at the end of 2022

Contents

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 2022 (figure 6.1). This population comprises patients who were on PD at the end of 2021 and remained on PD throughout 2022, as well as patients who commenced/re-commenced PD in 2022. This latter group includes both incident kidney replacement therapy (KRT) patients who ended 2022 on PD and prevalent KRT patients who switched to PD from in-centre haemodialysis (ICHD), home haemodialysis (HHD) or a transplant (Tx) in 2022. 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.

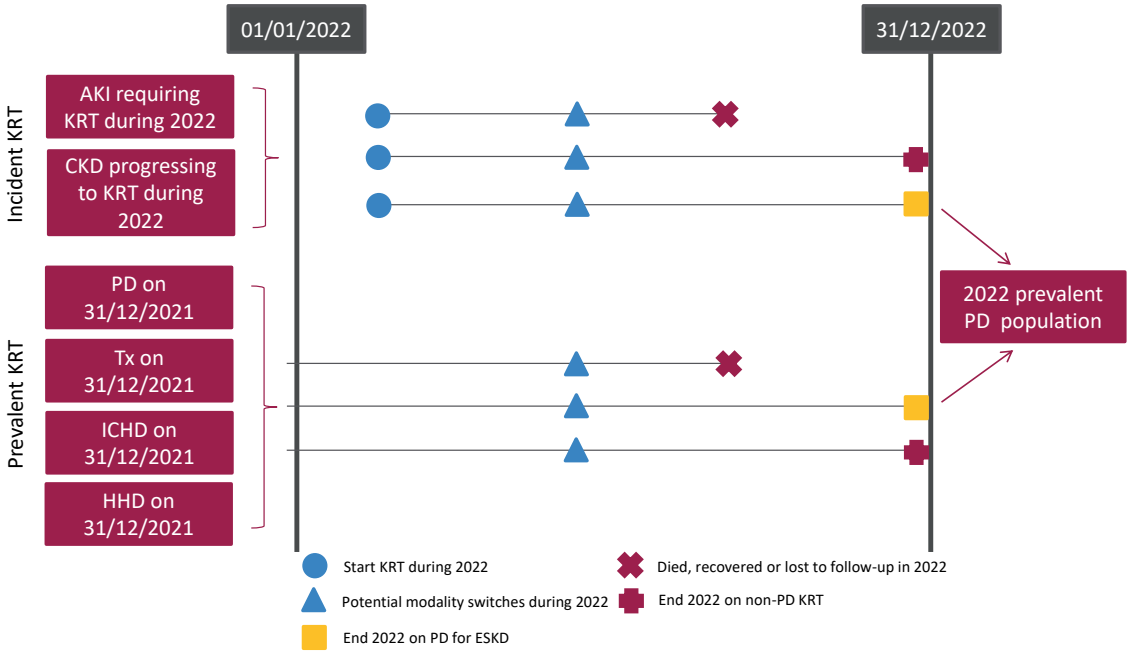

Figure 6.1 Pathways adult patients could follow to be included in the UK 2022 prevalent PD population

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 2022 or if they had been on KRT for ≥90 days and were on PD at the end of 2022
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 the UKRR data portal (ukkidney.org/audit-research/data-portals) as new data become available.

Rationale for analyses

The analyses begin with a description of the 2022 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) provide audit measures relevant to the care of patients on PD and, where data permit, their attainment by UK kidney centres in 2022 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). 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 exluded 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 2022. Aggregate numbers by modality were provided, enabling inclusion in Tables 6.2 and 6.3. Exeter is excluded from all other analyses.

Manchester moved to a new Trust IT system, and as a result data were not submitted for the final quarter of 2022. Data for Manchester presented in this chapter are for patients receiving PD on 30th September 2022, rather than 31st December 2022.

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

- 3,800 adult patients were receiving PD for ESKD in the UK on 31/12/2022, compared to 3,896 in 2021, which represented 5.4% of the KRT population.
- The median age of PD patients was 63.5 years and 59.1% were male.
- The median adjusted calcium for PD patients was 2.4 mmol/L and 15.0% were above the target range of 2.2–2.5 mmol/L.
- The median bicarbonate for PD patients was 24 mmol/L and 77.0% were within the target range of 22–30 mmol/L.
- The median haemoglobin for PD patients was 110 g/L and 10.0% had a ferritin <100 µg/L.
- The PD peritonitis rate in 2022 (England only) was 0.37/1 PD patient-year.
- This year for the first time, cause of death records from Civil Registration were used where the cause of death was missing in the UKRR data. This has resulted in improved completeness and changes in proportions of causes of death. The leading cause of death was cardiac disease in both younger patients and those ≥65 years at 28.6% and 18.2% respectively. Treatment withdrawal accounted for 12.1% of deaths in those ≥65 years, and infection around 18% in both younger and older patients.

Analyses

Changes to the prevalent adult PD population

For the 67 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

	N on PD					% on PD					Estimated catchment population (millions)	2022 crude rate (pmp)
Centre	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022		
ENGLAND												
Bham	257	257	268	276	277	7.9	7.8	8.2	8.4	8.2	2.03	137
Bradfd	26	34	26	37	40	3.8	4.6	3.6	5.0	5.1	0.50	81
Brightn	60	55	65	68	56	5.7	5.2	6.0	6.2	5.1	1.08	52
Bristol	56	63	68	77	62	3.8	4.2	4.6	5.1	4.1	1.25	50
Camb	32	28	26	29	28	2.3	1.9	1.7	1.8	1.7	0.96	29
Carlis	30	35	32	30	28	10.2	11.6	10.8	9.8	9.2	0.26	109
Carsh	99	72	121	132	128	5.7	4.0	6.5	6.9	6.6	1.64	78
Colchr	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.30	0
Covnt	52	81	83	80	80	5.4	7.5	7.5	7.1	7.1	0.84	96
Derby	78	62	69	67	59	13.3	9.5	10.2	9.7	8.2	0.56	106
Donc	23	25	19	13	15	7.0	7.3	5.6	3.8	4.0	0.38	40
Dorset	38	33	34	23	19	5.0	4.3	4.3	2.9	2.4	0.73	26
Dudley	38	36	32	40	30	10.6	9.8	8.6	9.9	7.8	0.34	87
EssexMS	87	85	83	92	82	10.3	10.0	9.4	10.3	9.1	1.00	82
Exeter	77	84	84	73	75	7.1	7.7	7.7	6.8	6.6	0.98	77
Glouc	37	31	30	36	32	7.1	5.8	5.7	6.6	5.8	0.52	62
Hull	45	49	57	52	57	5.1	5.4	6.2	5.7	6.1	0.80	71
Ipswi	40	42	33	34	22	9.3	9.8	7.7	8.1	5.6	0.31	70
Kent	43	50	62	72	74	3.9	4.4	5.4	6.0	6.0	1.08	69
L Barts	237	228	265	255	232	9.1	8.6	9.9	9.3	8.1	1.61	144
L Guys	43	53	64	70	47	1.9	2.3	2.8	3.0	2.0	1.00	47
L Kings	89	95	101	98	103	7.5	7.6	8.1	7.4	7.4	0.93	111
L Rfree	163	165	179	172	147	7.3	7.0	7.7	7.2	6.1	1.33	111
L St.G	40	43	48	53	61	4.8	5.0	5.6	6.1	7.1	0.65	94
L West	135	155	200	214	196	3.8	4.3	5.7	6.0	5.4	1.97	100
Leeds	64	67	64	52	54	3.8	3.9	3.7	2.9	2.9	1.39	39
Leic	108	126	120	138	150	4.4	4.9	4.6	5.2	5.5	2.11	71
Liv UH	82	57	57	56	61	5.5	3.8	3.9	3.8	4.1	1.26	49
M RI	69	76	84	96	91	3.3	3.7	4.2	4.6	4.3	1.36	67
Middlbr	29	32	28	20	22	3.1	3.4	3.0	2.1	2.3	0.82	27
Newc	60	59	46	58	43	5.2	5.0	3.8	4.7	3.5	0.97	44
Norwch	36	46	47	48	38	4.6	5.7	5.8	6.0	4.9	0.70	54
Nottm	70	76	95	103	94	5.8	6.2	7.9	8.5	7.8	0.94	100
Oxford	70	58	68	66	75	3.6	2.9	3.4	3.3	3.6	1.48	51
Plymth	40	42	33	34	45	7.4	7.9	6.1	6.3	8.2	0.41	111
Ports	94	87	101	90	107	5.3	4.6	5.3	4.6	5.4	1.77	60
Prestn	39	43	50	55	51	3.0	3.2	3.7	4.0	3.6	1.25	41
Redng	40	56	61	50	56	4.9	6.5	7.0	5.7	6.1	0.70	80
Salford	115	120	106	84	93	9.8	9.7	8.4	6.9	7.3	1.17	80
Sheff	61	60	77	80	82	4.1	4.0	5.2	5.3	5.5	1.15	71
Shrew	58	55	51	50	47	13.5	12.6	11.9	11.4	10.6	0.42	112
Stevng	28	37	25	36	42	3.0	3.8	2.6	3.5	3.9	1.12	37

Table 6.2 Continued

Centre	N on PD					% on PD					Estimated catchment population (millions)	2022 crude rate (pmp)
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022		
Stoke	81	71	94	107	107	10.0	8.8	11.6	12.7	11.8	0.74	145
Sund	17	26	32	37	36	3.0	4.6	5.8	6.8	6.4	0.55	65
Truro	17	21	23	22	16	3.9	4.7	5.2	4.8	3.4	0.37	44
Wirral	20	18	18	20	15	5.0	4.3	4.3	4.8	3.8	0.47	32
Wolve	54	49	59	64	57	8.9	8.0	9.0	9.2	7.9	0.55	104
York	29	33	24	27	40	5.1	5.7	4.2	4.6	6.6	0.50	81
N IRELAND												
Antrim	20	19	12	18	20	7.3	6.7	4.2	6.1	6.5	0.25	81
Belfast	22	18	15	27	22	2.5	2.0	1.7	3.0	2.4	0.53	41
Newry	16	11	9	13	10	6.3	4.3	3.4	4.6	3.7	0.24	42
Ulster	10	8	3	3	5	5.2	4.3	1.5	1.5	2.4	0.20	24
West NI	9	14	7	6	7	2.8	4.3	2.0	1.8	2.0	0.25	28
SCOTLAND												
Abrdn	26	22	22	20	28	4.5	3.9	3.9	3.4	4.7	0.50	56
Airdrie	22	21	29	29	26	4.5	4.0	5.6	5.7	5.0	0.46	57
D&Gall	6	8	10	8	9	4.1	5.4	6.4	5.2	6.1	0.12	74
Dundee	22	21	13	16	20	4.9	4.7	3.0	3.9	5.0	0.37	55
Edinb	36	41	33	33	38	4.2	4.6	3.7	3.6	3.9	0.84	45
Glasgw	52	45	46	39	37	2.9	2.4	2.5	2.1	1.9	1.37	27
Inverns	13	12	9	11	14	4.7	4.3	3.3	4.0	5.0	0.23	62
Klmarnk	19	24	27	33	31	5.6	6.7	7.3	9.0	8.3	0.29	107
Krkcldy	10	12	6	7	13	3.4	4.1	2.1	2.4	4.5	0.27	48
WALES												
Bangor	20	14	18	12	10	9.9	7.0	8.3	5.5	4.5	0.20	49
Cardff	59	63	67	58	53	3.4	3.6	4.0	3.4	3.0	1.17	45
Clwyd	15	13	13	11	12	7.9	6.3	6.4	5.4	5.9	0.18	66
Swanse	70	77	59	49	52	8.5	8.9	6.9	5.8	6.1	0.76	68
Wrexm	24	23	25	17	21	7.6	7.4	7.7	5.6	6.8	0.21	101
TOTALS												
England	3,106	3,176	3,412	3,486	3,372	5.5	5.5	5.9	5.9	5.6	45.20	75
N Ireland	77	70	46	67	64	4.0	3.6	2.3	3.3	3.1	1.47	43
Scotland	206	206	195	196	216	3.9	3.8	3.7	3.6	3.9	4.44	49
Wales	188	190	182	147	148	5.8	5.7	5.6	4.5	4.4	2.53	59
UK	**3,577**	**3,642**	**3,835**	**3,896**	**3,800**	**5.4**	**5.3**	**5.6**	**5.6**	**5.4**	**53.65**	**71**

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 and 2022 patient level data, but provided aggregate numbers of patients on KRT at the end of each year, by treatment modality
pmp – per million population

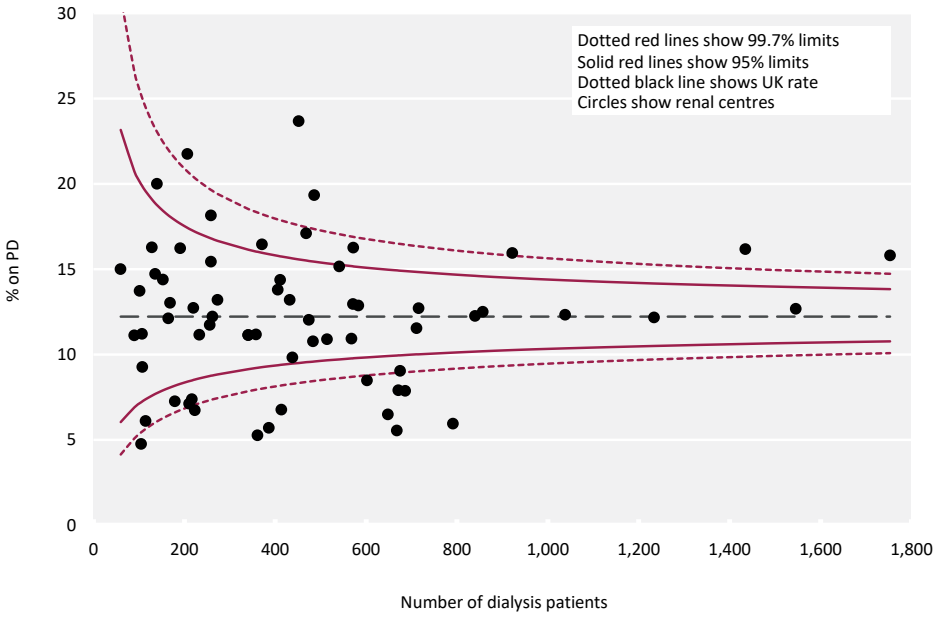

Figure 6.2a Percentage of adult patients prevalent to dialysis on 31/12/2022 who were on PD by centre

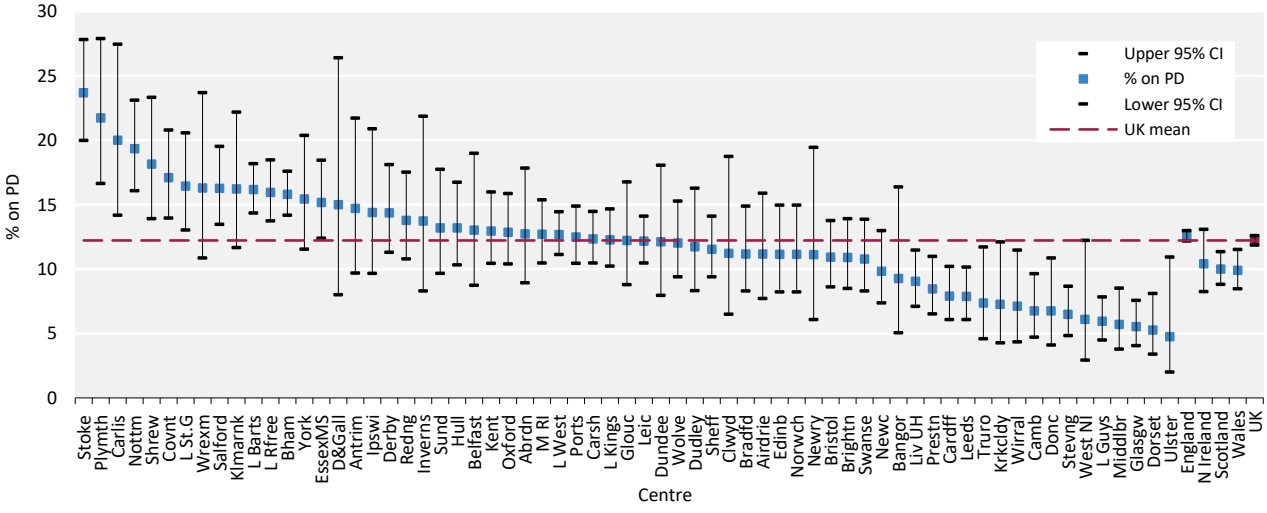

Figure 6.2b Percentage of adult patients prevalent to dialysis on 31/12/2022 who were on PD by centre
CI - confidence interval

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 31/12/2022 by centre

Centre	N on KRT	N on PD	% on PD	Median age (yrs)	% male	Ethnicity				
						% White	% Asian	% Black	% Other	% missing
ENGLAND										
Bham	3,378	277	8.2	63.1	59.9	58.4	26.6	14.6	0.4	3.6
Bradfd	781	40	5.1	60.1	50.0	65.0	32.5	0.0	2.5	0.0
Brightn	1,100	56	5.1	67.7	60.7	94.2	5.8	0.0	0.0	7.1
Bristol	1,524	62	4.1	64.6	58.1	93.4	1.6	3.3	1.6	1.6
Camb	1,663	28	1.7	66.5	67.9	92.6	7.4	0.0	0.0	3.6
Carlis	303	28	9.2	67.0	57.1	100.0	0.0	0.0	0.0	0.0
Carsh	1,936	128	6.6	64.7	59.4	66.9	17.4	8.3	7.4	5.5
Colchr	157	0	0.0							
Covnt	1,125	80	7.1	67.1	63.8	80.0	13.8	6.3	0.0	0.0
Derby	716	59	8.2	69.2	62.7	92.7	7.3	0.0	0.0	6.8
Donc	376	15	4.0	61.3	53.3	92.3	0.0	7.7	0.0	13.3
Dorset	792	19	2.4	66.5	52.6	94.7	0.0	0.0	5.3	0.0
Dudley	383	30	7.8	65.5	53.3	70.0	20.0	10.0	0.0	0.0
EssexMS	897	82	9.1	70.9	63.4	86.7	5.3	6.7	1.3	8.5
Exeter	1,128	75	6.6							
Glouc	554	32	5.8	61.6	59.4	80.0	6.7	0.0	13.3	6.3
Hull	933	57	6.1	68.0	63.2	96.4	1.8	1.8	0.0	1.8
Ipswi	395	22	5.6	75.8	59.1	88.2	0.0	5.9	5.9	22.7
Kent	1,224	74	6.0	59.7	59.5	87.3	2.8	5.6	4.2	4.1
L Barts	2,851	232	8.1	60.5	57.8	26.8	38.4	29.9	4.9	3.4
L Guys	2,309	47	2.0	58.0	48.9	46.3	22.0	24.4	7.3	12.8
L Kings	1,394	103	7.4	59.0	58.3	45.1	14.7	36.3	3.9	1.0
L Rfree	2,418	147	6.1	64.8	57.8	38.8	22.3	23.0	15.8	5.4
L St.G	855	61	7.1	63.3	59.0	40.4	26.9	15.4	17.3	14.8
L West	3,626	196	5.4	67.0	54.1	38.8	40.3	12.8	8.2	0.0
Leeds	1,836	54	2.9	59.8	51.9	66.0	20.8	9.4	3.8	1.9
Leic	2,719	150	5.5	66.3	58.0	83.2	12.4	1.5	2.9	8.7
Liv UH	1,479	61	4.1	59.6	54.1	87.5	5.4	3.6	3.6	8.2
M RI	2,111	91	4.3	62.2	54.9					38.5
Middlbr	955	22	2.3	61.1	50.0	95.5	0.0	0.0	4.5	0.0
Newc	1,245	43	3.5	58.4	55.8	86.0	4.7	7.0	2.3	0.0
Norwch	783	38	4.9	73.2	78.9	100.0	0.0	0.0	0.0	7.9
Nottm	1,211	94	7.8	64.6	67.0	78.7	14.6	6.7	0.0	5.3
Oxford	2,080	75	3.6	64.0	57.3					33.3
Plymth	546	45	8.2	65.7	60.0	97.8	2.2	0.0	0.0	0.0
Ports	2,000	107	5.4	64.5	58.9					38.3
Prestn	1,400	51	3.6	60.3	52.9	76.5	19.6	2.0	2.0	0.0
Redng	924	56	6.1	60.7	62.5	66.7	22.2	4.4	6.7	19.6
Salford	1,273	93	7.3	55.2	57.0	80.6	15.1	3.2	1.1	0.0
Sheff	1,488	82	5.5	65.7	59.8	87.5	7.5	3.8	1.3	2.4
Shrew	445	47	10.6	65.7	59.6	90.5	2.4	2.4	4.8	10.6
Stevng	1,066	42	3.9	61.5	59.5	60.0	30.0	10.0	0.0	4.8
Stoke	903	107	11.8	64.8	62.6	90.6	4.2	2.1	3.1	10.3
Sund	562	36	6.4	60.2	50.0	94.4	5.6	0.0	0.0	0.0
Truro	471	16	3.4	55.8	56.3	100.0	0.0	0.0	0.0	0.0
Wirral	400	15	3.8	70.5	53.3	100.0	0.0	0.0	0.0	0.0
Wolve	722	57	7.9	56.3	54.4	56.1	21.1	21.1	1.8	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
York	608	40	6.6	59.8	65.0	100.0	0.0	0.0	0.0	7.5
N IRELAND										
Antrim	306	20	6.5	76.7	70.0					65.0
Belfast	926	22	2.4	75.8	68.2					45.5
Newry	269	10	3.7	75.0	50.0	100.0	0.0	0.0	0.0	20.0
Ulster	210	5	2.4	65.0	40.0	75.0	25.0	0.0	0.0	20.0
West NI	356	7	2.0	69.5	71.4	100.0	0.0	0.0	0.0	14.3
SCOTLAND										
Abrdn	594	28	4.7	60.1	67.9					
Airdrie	519	26	5.0	71.0	38.5					
D&Gall	148	9	6.1	70.0	44.4					
Dundee	399	20	5.0	58.9	80.0					
Edinb	976	38	3.9	56.8	63.2					
Glasgw	1,921	37	1.9	59.8	75.7					
Inverns	280	14	5.0	67.6	64.3					
Klmarnk	374	31	8.3	62.3	54.8					
Krkcldy	292	13	4.5	51.2	69.2					
WALES										
Bangor	220	10	4.5	71.8	70.0					40.0
Cardff	1,758	53	3.0	64.3	50.9	96.0	4.0	0.0	0.0	5.7
Clwyd	204	12	5.9	62.5	83.3					33.3
Swanse	847	52	6.1	65.5	69.2	96.2	1.9	0.0	1.9	0.0
Wrexm	307	21	6.8	56.4	61.9	88.9	5.6	5.6	0.0	14.3
TOTALS										
England	60,045	3,372	5.6	63.6	58.6	69.3	16.8	10.2	3.8	7.3
N Ireland	2,067	64	3.1	75.5	64.1					42.2
Scotland	5,503	216	3.9	60.7	63.0					
Wales	3,336	148	4.4	63.6	62.8	95.5	3.0	0.7	0.7	9.5
UK	**70,951**	**3,800**	**5.4**	**63.5**	**59.1**	**70.7**	**16.1**	**9.7**	**3.6**	**8.0**

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 2022 patient level data, but provided aggregate numbers of patients on KRT at the end of 2022, by treatment modality
UK ethnicity distribution and completeness does not include Scotland

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 31/12/2022

PRD	N on PD	% PD population	Age <65 yrs		Age ≥65 yrs		M/F ratio
			N	%	N	%	
Diabetes	810	24.0	417	22.9	393	25.3	1.7
Glomerulonephritis	545	16.1	364	20.0	181	11.6	1.6
Hypertension	261	7.7	142	7.8	119	7.6	1.9
Polycystic kidney disease	270	8.0	173	9.5	97	6.2	0.8
Pyelonephritis	209	6.2	106	5.8	103	6.6	1.5
Renal vascular disease	143	4.2	30	1.6	113	7.3	2.3
Other	561	16.6	319	17.5	242	15.6	1.0
Uncertain aetiology	578	17.1	270	14.8	308	19.8	1.4
Total (with data)	**3,377**	**100.0**	**1,821**	**100.0**	**1,556**	**100.0**	
Missing	348	9.3	178	8.9	170	9.8	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 31/12/2022 by centre

Centre	Adjusted calcium				Bicarbonate				
	Median (mmoI/L)	% 2.2-2.5 mmoI/L	% >2.5 mmoI/L	% data completeness	Median (mmoI/L)	% <22 (mmoI/L)	% 22-30 (mmoI/L)	% >30 (mmoI/L)	% data completeness
ENGLAND									
Bham	2.4	78.2	16.9	99.2					55.5
Bradfd	2.5	80.0	17.1	100.0	26	11.4	80.0	8.6	100.0
Brightn	2.4	68.8	25.0	100.0	26	20.8	77.1	2.1	100.0
Bristol	2.4	80.0	20.0	100.0	23	20.0	80.0	0.0	100.0
Camb	2.4	88.0	12.0	100.0	27	8.0	92.0	0.0	100.0
Carlis	2.3	88.0	0.0	100.0	24	32.0	68.0	0.0	100.0
Carsh	2.3	71.7	16.0	96.4					0.0
Colchr									
Covnt	2.3	77.4	6.5	92.5	26	10.2	81.4	8.5	88.1
Derby	2.4	80.4	17.7	100.0	23	13.7	84.3	2.0	100.0
Donc	2.4	90.0	10.0	100.0	23	30.0	70.0	0.0	100.0
Dorset	2.4	76.5	17.7	100.0	22	41.2	58.8	0.0	100.0
Dudley	2.4	75.9	13.8	100.0	25	3.5	96.6	0.0	100.0
EssexMS	2.4	85.3	6.7	98.7	26	8.0	86.7	5.3	98.7
Exeter									
Glouc	2.4	72.0	12.0	89.3	23	28.0	72.0	0.0	89.3
Hull	2.4	81.8	15.9	100.0	25	13.6	79.6	6.8	100.0
Ipswi				63.6					59.1
Kent	2.4	69.7	22.7	98.5	25	10.9	85.9	3.1	95.5
L Barts	2.4	83.9	10.1	97.1	24	28.8	70.2	1.0	96.6
L Guys	2.4	76.9	18.0	100.0	23	23.1	74.4	2.6	100.0
L Kings	2.35	81.1	6.7	100.0	24	22.2	77.8	0.0	100.0
L Rfree	2.4	80.2	11.5	99.2	25	14.2	82.7	3.2	96.2
L St.G	2.5	72.6	23.5	94.4	23	24.0	76.0	0.0	92.6

Table 6.5 Continued

Centre	Adjusted calcium				Bicarbonate				
	Median (mmoI/L)	% 2.2-2.5 mmoI/L	% >2.5 mmoI/L	% data completeness	Median (mmoI/L)	% <22 (mmoI/L)	% 22-30 (mmoI/L)	% >30 (mmoI/L)	% data completeness
L West				29.0					25.4
Leeds	2.4	82.7	7.7	100.0	26	11.5	86.5	1.9	100.0
Leic	2.4	75.9	14.3	99.3	24	18.2	78.8	3.0	98.5
Liv UH	2.5	74.5	23.5	96.2	26	9.8	88.2	2.0	96.2
M RI	2.4	84.7	11.1	90.0	24	20.8	79.2	0.0	90.0
Middlbr	2.3	82.4	5.9	94.4	27	5.9	94.1	0.0	94.4
Newc	2.4	71.8	12.8	100.0	22	40.5	56.8	2.7	94.9
Norwch	2.4	80.6	19.4	100.0	21	55.6	44.4	0.0	100.0
Nottm	2.4	81.0	16.5	100.0					29.1
Oxford	2.4	76.0	16.0	82.0	22	44.2	55.8	0.0	70.5
Plymth	2.4	82.9	12.2	100.0	22	50.0	50.0	0.0	97.6
Ports	2.4	81.4	8.1	100.0	24	17.9	81.0	1.2	97.7
Prestn	2.3	81.3	12.5	96.0	26	10.4	85.4	4.2	96.0
Redng	2.4	83.3	10.4	100.0	25	6.3	91.7	2.1	100.0
Salford	2.4	72.2	21.5	100.0	27	3.8	83.5	12.7	100.0
Sheff	2.3	76.8	5.8	98.6	22	33.3	66.7	0.0	98.6
Shrew	2.3	70.3	13.5	97.4	22	46.0	54.1	0.0	97.4
Stoke	2.4	73.3	22.2	100.0	26	15.7	80.9	3.4	98.9
Sund	2.4	67.7	25.8	96.9					0.0
Truro	2.45	78.6	21.4	100.0	24	14.3	85.7	0.0	100.0
Wirral	2.4	80.0	20.0	100.0	27	0.0	86.7	13.3	100.0
Wolve	2.4	76.9	19.2	96.3	23	26.9	73.1	0.0	96.3
York	2.5	74.2	25.8	96.9	26	3.2	87.1	9.7	96.9
N IRELAND									
Antrim	2.4	94.4	5.6	100.0	26	11.1	83.3	5.6	100.0
Belfast	2.4	79.0	10.5	100.0	26	5.3	89.5	5.3	100.0
Newry				100.0					100.0
Ulster				100.0					100.0
West NI				100.0					100.0
WALES									
Bangor	2.5	80.0	20.0	100.0	28	10.0	70.0	20.0	100.0
Cardff	2.4	76.6	23.4	100.0					57.5
Clwyd				100.0					100.0
Swanse	2.4	67.4	30.2	100.0	25	11.6	83.7	4.7	100.0
Wrexm	2.4	94.7	5.3	95.0	26	5.3	94.7	0.0	95.0
TOTALS									
England	2.4	78.2	14.7	93.6	24	21.0	76.5	2.6	81.9
N Ireland	2.4	81.8	14.6	100.0	26	9.1	85.5	5.5	100.0
Wales	2.4	78.0	21.3	99.2	25	12.2	84.1	3.7	83.6
E, W & NI	**2.4**	**78.2**	**15.0**	**93.9**	**24**	**20.3**	**77.0**	**2.7**	**82.3**

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

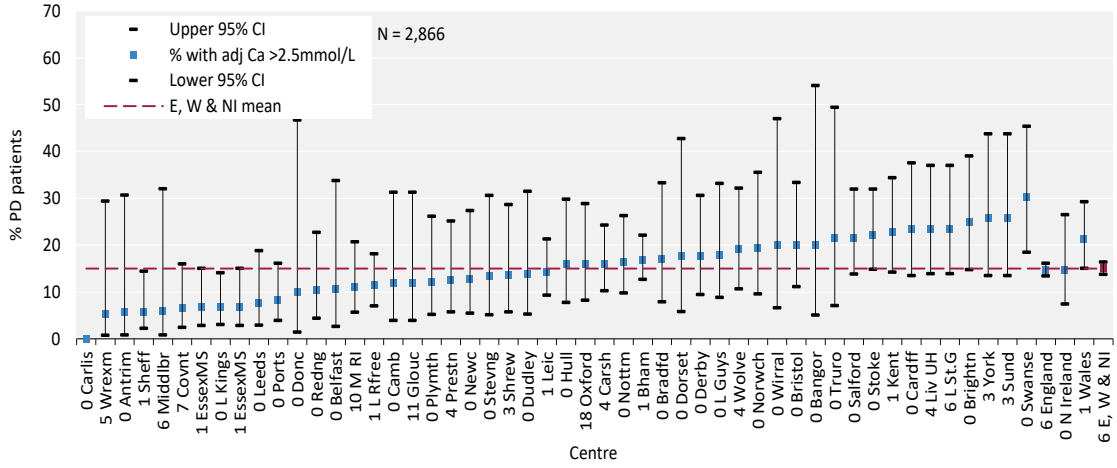

Figure 6.3 Percentage of adult patients prevalent to PD on 31/12/2022 with adjusted calcium (Ca) above the target range (>2.5 mmol/L) by centre
CI – confidence interval

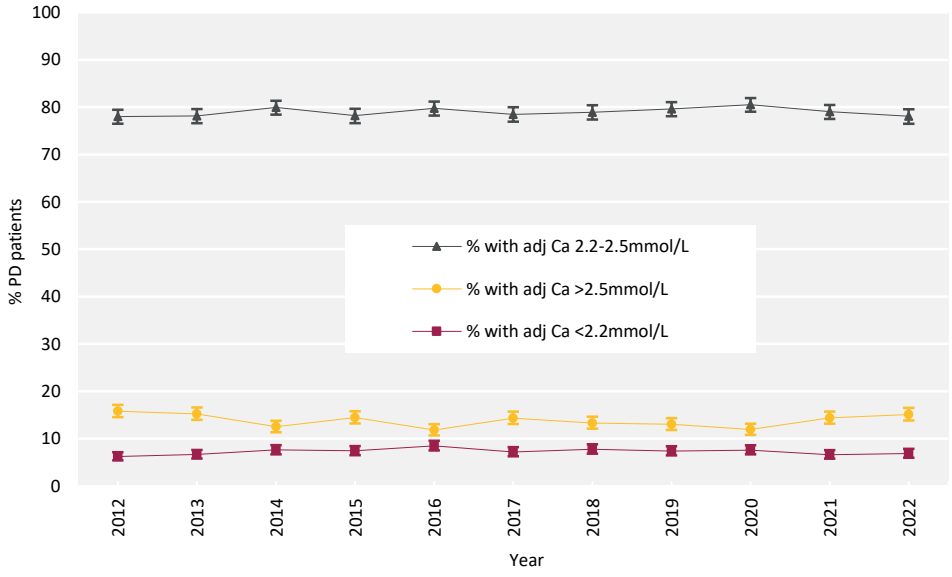

Figure 6.4 Change in percentage of prevalent adult PD patients within, above and below the target range for adjusted calcium (Ca 2.2–2.5 mmol/L) between 2012 and 2022

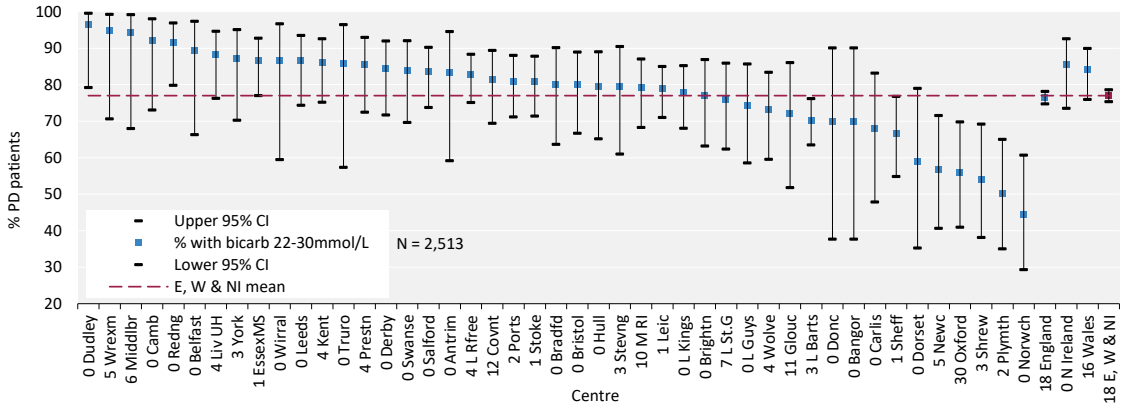

Figure 6.5 Percentage of adult patients prevalent to PD on 31/12/2022 with bicarbonate (bicarb) within the target range (22–30 mmol/L) by centre

CI – confidence interval

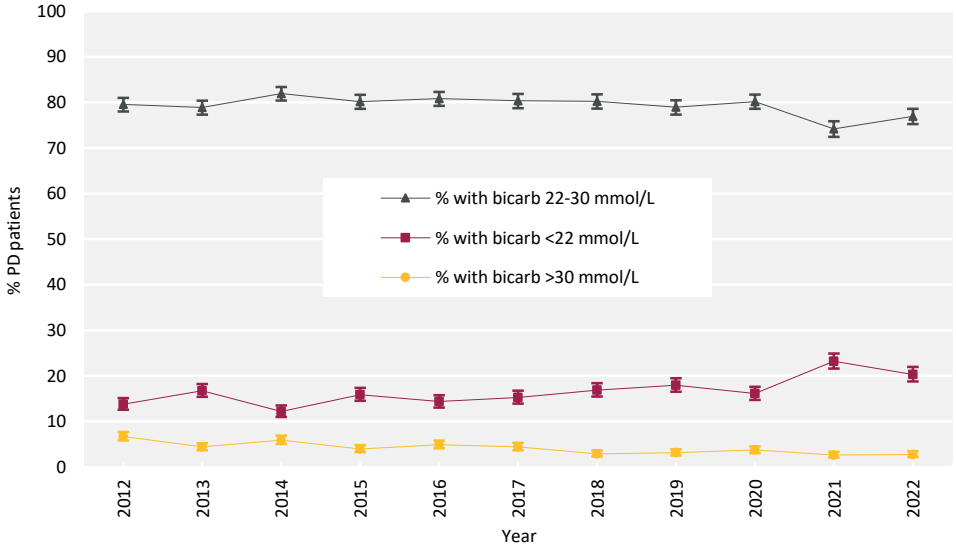

Figure 6.6 Percentage of prevalent adult PD patients within, above and below the target range for bicarbonate (bicarb 22–30 mmol/L) between 2012 and 2022

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 31/12/2022 by centre

	Haemoglobin				Ferritin		
Centre	Median (g/L)	% <100 g/L	% >120 g/L	% data completeness	Median (µg/L)	% <100 µg/L	% data completeness
ENGLAND							
Bham	109	26.7	16.9	99.2	345	4.9	99.6
Bradfd	117	0.0	45.7	100.0	337	5.7	100.0
Brightn	111	12.5	27.1	100.0	324	4.3	95.8
Bristol	111	8.0	22.0	100.0	217	16.0	100.0
Camb	117	8.0	32.0	100.0	315	0.0	100.0
Carlis	109	20.0	24.0	100.0	237	21.7	92.0
Carsh	104	29.2	10.4	96.4	293	4.7	97.3
Colchr							
Covnt	112	20.3	31.3	95.5	167	28.1	95.5
Derby	116	7.8	47.1	100.0	446	2.0	98.0
Donc	114	30.0	20.0	100.0	299	0.0	100.0
Dorset	108	23.5	17.6	100.0	438	11.8	100.0
Dudley	111	20.7	20.7	100.0	228	21.4	96.6
EssexMS	113	13.3	26.7	98.7	247	24.0	98.7
Exeter							
Glouc	106	34.6	11.5	92.9	311	4.0	89.3
Hull	114	11.4	29.5	100.0	467	4.5	100.0
Ipswi				63.6			63.6
Kent	110	11.9	28.4	100.0	410	6.1	98.5
L Barts	111	22.5	28.0	97.6	289	19.1	91.7
L Guys	105	33.3	12.8	100.0	336	2.6	97.4
L Kings	115	15.7	33.7	98.9	235	13.4	91.1
L Rfree	111	22.9	21.4	99.2	616	6.1	100.0
L St.G	109	35.3	21.6	94.4	358	5.9	94.4
L West				29.0			26.0
Leeds	109	28.8	21.2	100.0	423	7.7	100.0
Leic	113	21.1	25.6	99.3	290	8.5	97.0
Liv UH	110	21.6	13.7	96.2	365	9.8	96.2
M RI	106	36.7	25.3	98.8	339	11.5	97.5
Middlbr	114	5.9	29.4	94.4	382	13.3	83.3
Newc	109	23.1	15.4	100.0	549	2.6	100.0
Norwch	116	13.9	36.1	100.0	381	8.3	100.0
Nottm	108	32.9	16.5	100.0	382	2.6	98.7
Oxford	108	29.8	15.8	93.4	383	8.5	96.7
Plymth	115	14.6	31.7	100.0	245	9.8	100.0
Ports	113	16.3	24.4	100.0	500	9.6	96.5
Prestn	108	20.4	24.5	98.0	564	12.8	94.0
Redng	107	27.1	12.5	100.0	420	4.2	100.0
Salford	112	20.3	26.6	100.0	474	6.3	100.0
Sheff	112	21.7	29.0	98.6	682	7.2	98.6
Shrew	109	18.9	8.1	97.4	289	18.4	100.0
Stevng	110	26.7	20.0	100.0	201	24.1	96.7
Stoke	112	14.4	24.4	100.0	409	2.2	98.9
Sund	110	31.3	18.8	100.0	315	6.9	90.6
Truro	112	21.4	7.1	100.0	214	14.3	100.0
Wirral	111	20.0	26.7	100.0	469	0.0	100.0
Wolve	114	21.2	32.7	96.3	174	28.8	96.3
York	105	22.6	19.4	96.9	295	6.3	100.0
N IRELAND							
Antrim	115	5.6	38.9	100.0	489	0.0	100.0
Belfast	110	21.1	21.1	100.0	419	10.5	100.0
Newry				88.9			100.0
Ulster				100.0			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
West NI				100.0			100.0
SCOTLAND							
Abrdn	109	21.7	13.0	92.0			
Airdrie	115	5.3	26.3	86.4			
D&Gall				87.5			
Dundee	103	28.6	7.1	77.8			
Edinb				0.0			
Glasgw	108	29.6	40.7	93.1			
Inverns				72.7			
Klmarnk	103	38.5	11.5	96.3			
Krkcldy				0.0			
WALES							
Bangor	122	0.0	50.0	100.0	179	30.0	100.0
Cardff	115	10.6	29.8	100.0	193	27.9	91.5
Clwyd				100.0			100.0
Swanse	111	23.3	30.2	100.0	286	11.6	100.0
Wrexm	112	10.5	5.3	95.0	308	10.5	95.0
TOTALS							
England	110	21.9	23.3	94.3	358	9.7	92.8
N Ireland	113	13.0	31.5	98.2	485	3.6	100.0
Scotland	109	24.2	22.6	70.0			
Wales	113	14.2	28.3	99.2	254	17.9	96.1
UK	**110**	**21.5**	**23.7**	**93.2**	**356**	**10.0**	**93.0**

Blank cells – no data returned by the centre or <10 patients in the centre or data completeness <70%
Ferritin total for UK represents E, W and NI only

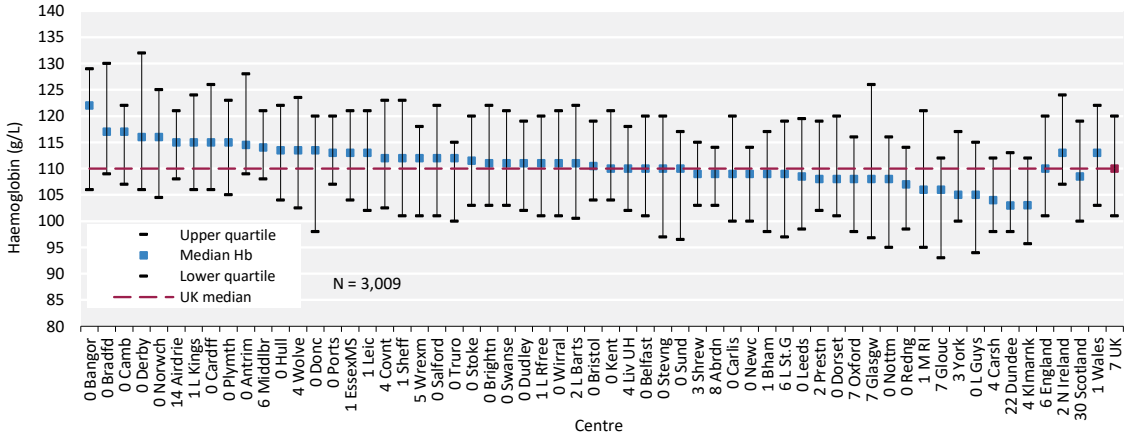

Figure 6.7 Median haemoglobin (Hb) in adult patients prevalent to PD on 31/12/2022 by centre

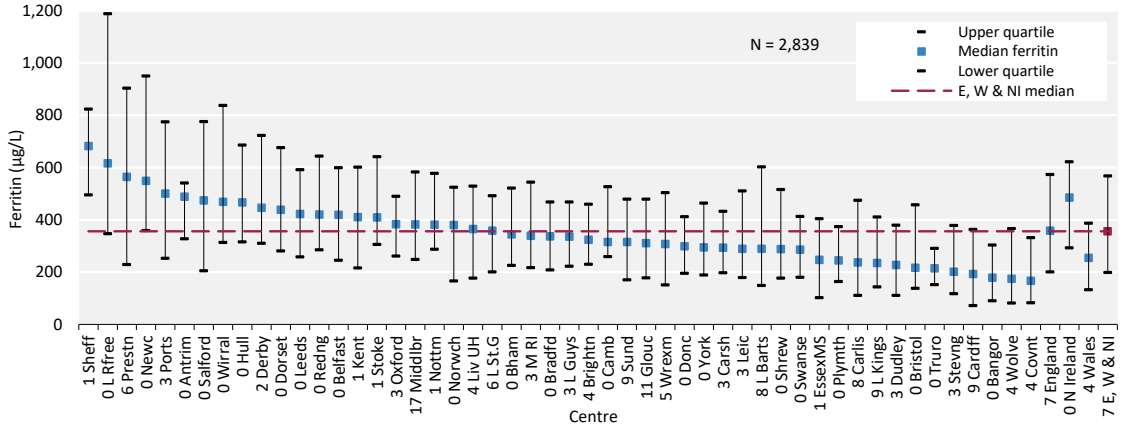

Figure 6.8 Median ferritin in adult patients prevalent to PD on 31/12/2022 by centre

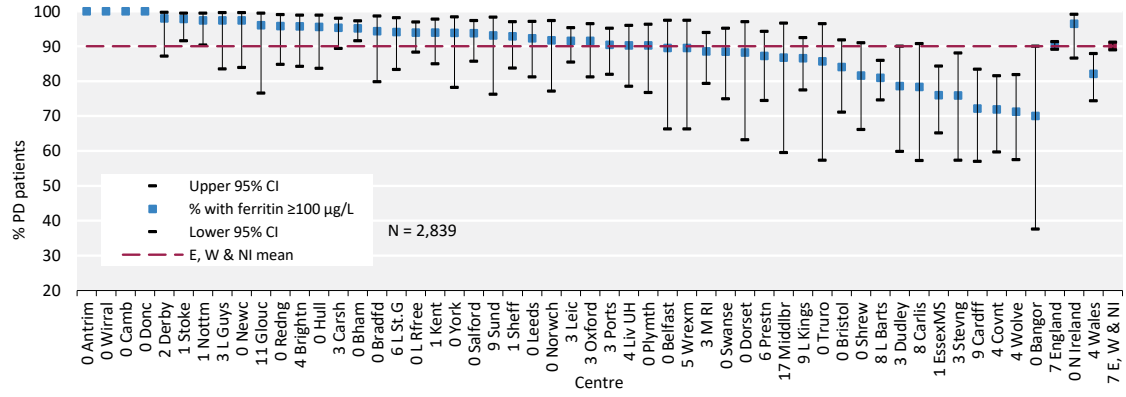

Figure 6.9 Percentage of adult patients prevalent to PD on 31/12/2022 with ferritin ≥100 µg/L by centre
CI – confidence interval

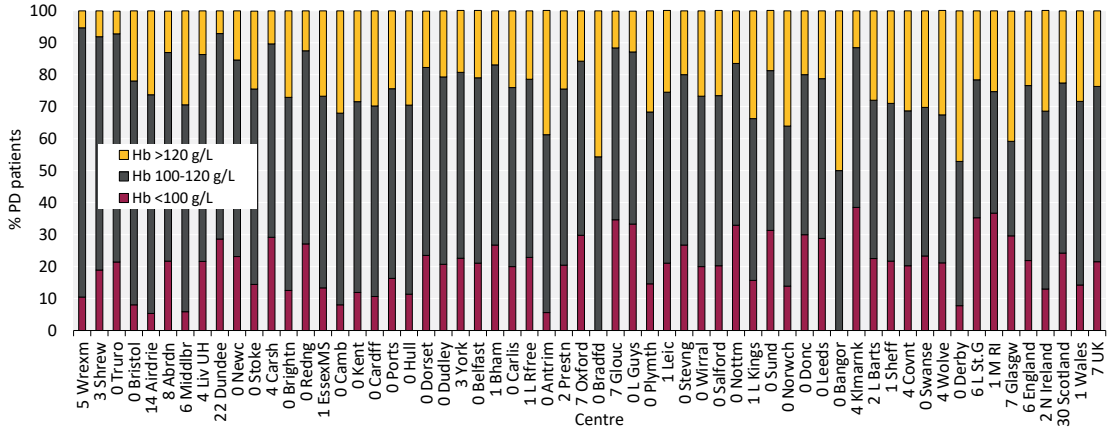

Figure 6.10 Distribution of haemoglobin (Hb) in adult patients prevalent to PD on 31/12/2022 by centre

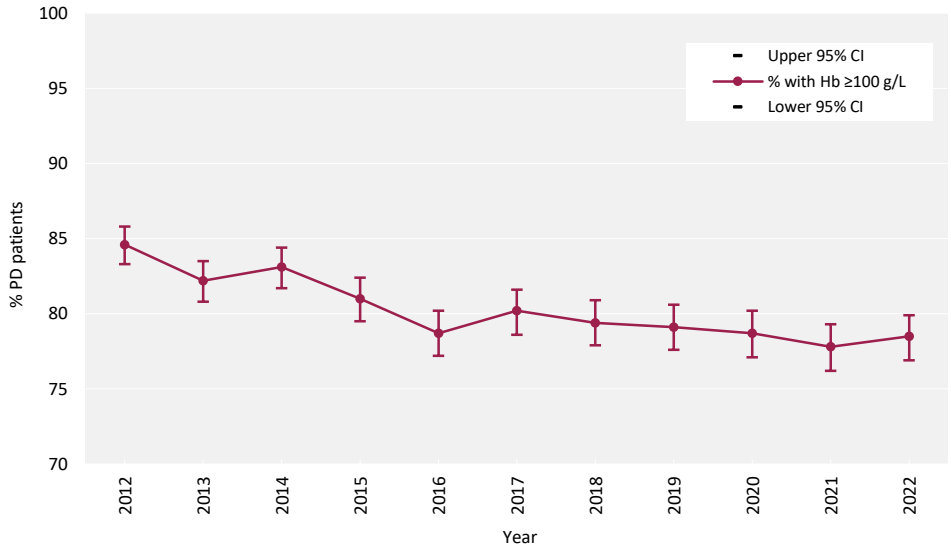

Figure 6.11 Percentage of prevalent adult PD patients with haemoglobin (Hb) ≥100 g/L between 2012 and 2022
CI – confidence interval

Peritonitis in prevalent adult PD patients

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) and are listed in the table below. The funnel plot (figure 6.12) shows each centre's 2022 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 2022 by centre in England

Centre	PD patient years	Peritonitis rate per 1 PD patient year
Bham	282	0.45
Bradfd	36	0.33
Brightn	61	0.13
Bristol	76	0.41
Camb	30	0.37
Carlis		
Carsh	132	0.40
Covnt	82	0.57
Derby	69	0.49
Donc	13	0.77
Dorset	22	0.67
Dudley	33	0.43
EssexMS		
Exeter	74	0.31
Glouc		
Hull	51	0.49
Ipswi	33	0.18
Kent	78	0.14
L Barts	255	0.40
L Guys	60	0.32
L Kings	105	0.27
L Rfree	166	0.35

Table 6.7 Continued

Centre	PD patient years	Peritonitis rate per 1 PD patient year
L St.G	63	0.30
L West	209	0.28
Leeds	55	0.31
Leic	130	0.29
Liv UH	61	0.38
M RI	94	0.55
Middlbr		
Newc	55	0.42
Norwch	53	0.83
Nottm	98	0.12
Oxford	56	0.59
Plymth	44	0.05
Ports	96	0.31
Prestn	55	0.42
Redng	64	0.46
Salford		
Sheff	77	0.10
Shrew	55	0.40
Stevng	37	0.59
Stoke	103	0.33
Sund	37	0.14
Truro	19	0.89
Wirral	22	0.36
Wolve	56	0.46
York	34	0.09
TOTAL		
England	**3,232**	**0.37**

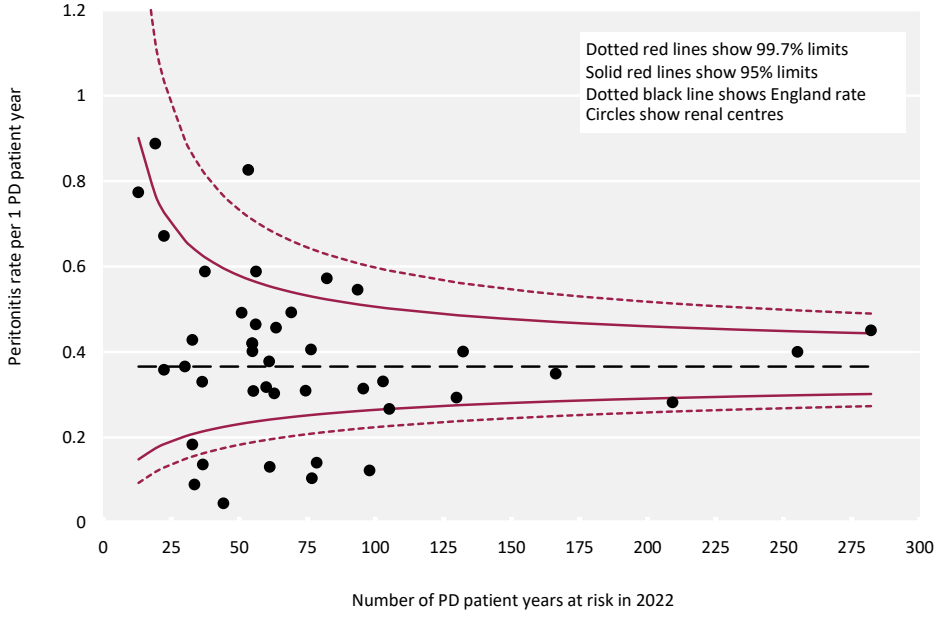

Figure 6.12 PD peritonitis rates in adult patients receiving PD in 2022 per 1 PD patient-year by centre in England
Please visit the UKRR data portal (ukkidney.org/audit-research/data-portals) to identify individual kidney centres

Cause of death in adult PD patients

Cause of death was analysed in prevalent patients receiving PD on 31/12/2021 and followed-up for one year in 2022. 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. Where cause of death was missing in UKRR data, cause of death from Civil Registration records was used. 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 31/12/2021 followed-up in 2022 by age group

	PD all ages		PD < 65 years		PD ≥ 65 years	
Cause of death	N	%	N	%	N	%
Cardiac disease	95	20.7	32	28.6	63	18.2
Cerebrovascular disease	14	3.1	3	2.7	11	3.2
Infection	83	18.1	21	18.8	62	17.9
Malignancy	25	5.5	2	1.8	23	6.7
Treatment withdrawal	53	11.6	11	9.8	42	12.1
Other	162	35.4	36	32.1	126	36.4
Uncertain aetiology	26	5.7	7	6.3	19	5.5
Total (with data)	**458**	**100.0**	**112**	**100.0**	**346**	**100.0**
Missing	47	9.3	17	13.2	30	8.0

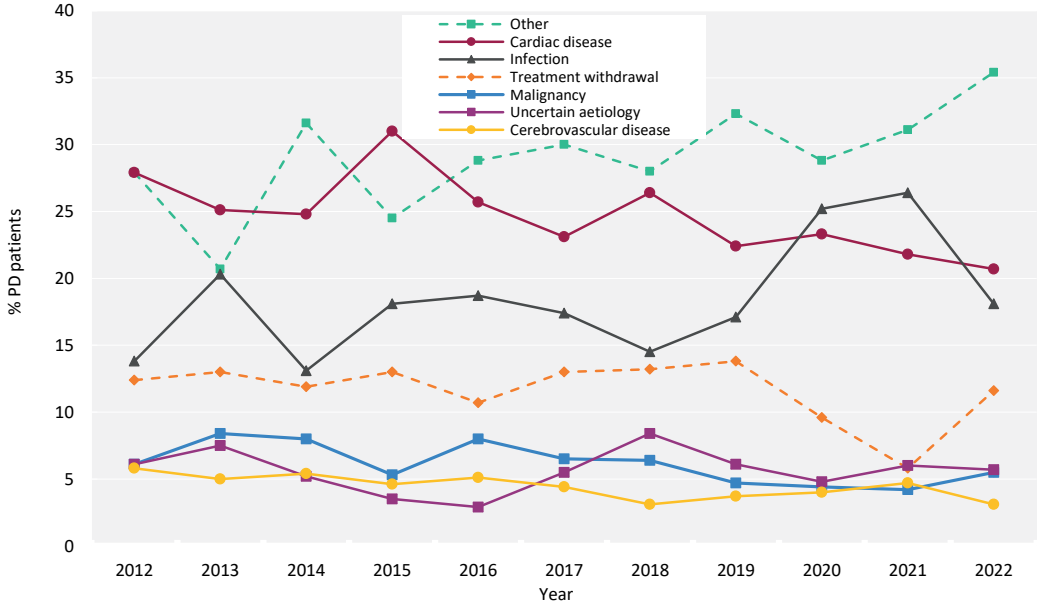

Figure 6.13 Cause of death between 2012 and 2022 for adult patients prevalent to PD at the beginning of the year