

Chapter 7

Adults on home haemodialysis (HHD) in the UK at the end of 2019

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Introduction

This chapter describes the population of adult patients with end-stage kidney disease (ESKD) who were receiving regular home haemodialysis (HHD) in the UK at the end of 2019 (figure 7.1). This population comprises patients who were on HHD at the end of 2018 and remained on HHD throughout 2019, as well as patients who commenced/re-commenced HHD in 2019. This latter group includes both incident renal replacement therapy (RRT) patients who ended 2019 on HHD and prevalent RRT patients who switched to HHD from in-centre haemodialysis (ICHD), peritoneal dialysis (PD), or a transplant (Tx) in 2019. Consequently, the cohort of patients receiving HHD in a centre not only reflects differences in underlying population case-mix, but also differences in the rates of acceptance onto RRT, survival on HHD, transplantation and other dialysis therapies (ICHD and PD), and the care of patients on those other modalities, as described in other chapters of this report.

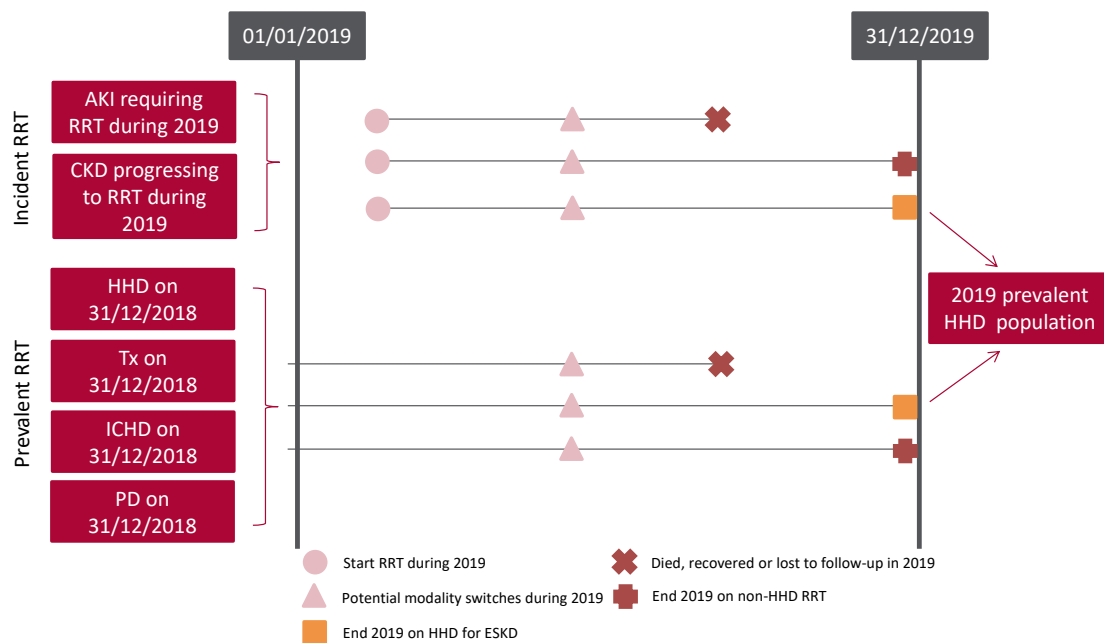


Figure 7.1 Pathways adult patients could follow to be included in the UK 2019 prevalent HHD population

Note that patients receiving dialysis for acute kidney injury (AKI) are only included in this chapter if they had a timeline or RRT modality code for chronic HHD at the end of 2019 or if they had been on RRT for ≥ 90 days and were on HHD at the end of 2019

CKD – chronic kidney disease

Where possible, the chapter addresses key aspects of the care of patients on HHD for which there are Renal Association guidelines (table 7.1). This includes complications associated with ESKD and HHD, for example anaemia and mineral bone disorders.

Data on infections associated with haemodialysis (HD) are described in chapter 5 on a combined ICHD and HHD population.

Rationale for analyses

The analyses begin with a description of the 2019 prevalent adult HHD population, including the number on HHD per million population (pmp).

The Renal Association guidelines (renal.org/health-professionals/guidelines/guidelines-commentaries) provide audit measures relevant to the care of patients on HHD and, where data permit, their attainment by UK renal centres in 2019 is reported in this chapter (table 7.1). Audit measures in guidelines that have been archived are not included. Some audit measures – for example, the target for glycosylated haemoglobin (HbA1c) in those on hypoglycaemia-inducing treatment – cannot be reported because the completeness of the required data items is too low. Further detail about the completeness of data returned to the UKRR is available through the UKRR data portal (renal.org/audit-research/data-portal). Audit measures that cannot be reported because the required data items were not collected by the UKRR are omitted.

Table 7.1 The Renal Association audit measures relevant to HHD that are reported in this chapter

The Renal 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 7.5, figure 7.3
HD (2019)	Proportion of patients with pre-dialysis bicarbonate 18–26 mmol/L	Table 7.6, figure 7.4
	Proportion of patients with pre-dialysis potassium 4.0–6.0 mmol/L	Table 7.6, figure 7.5
Anaemia (2017)	Proportion of patients with serum ferritin <100 µg/L at start of treatment with erythropoiesis stimulating agent (ESA)	Table 7.7, figure 7.8 (the UKRR does not hold treatment with ESA start dates)
	Proportion of patients with haemoglobin <100 g/L not on ESA	Table 7.8
	Proportion of patients on ESA with haemoglobin >120 g/L	Table 7.8, figure 7.10
	Mean (median) ESA dose in patients maintained on ESA therapy	Table 7.8
Planning, initiating and withdrawing RRT (2014)	Number of patients withdrawing from HHD as a proportion of all deaths on HHD	Table 7.9, figure 7.11

ESA – erythropoiesis stimulating agent

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.

Key findings

- 1,386 adult patients were receiving HHD for ESKD in the UK on 31/12/2019, which represented 2.0% of the RRT population
- The median age of HHD patients was 55.2 years and 61.0% were male
- The median adjusted calcium for HHD patients was 2.4 mmol/L and 12.8% were above the target range 2.2–2.5 mmol/L
- The median pre-dialysis bicarbonate for HHD patients was 24 mmol/L and 77.2% were within the target range 18–26 mmol/L
- The median pre-dialysis potassium for HHD patients was 5.0 mmol/L and 81.1% were within the target range 4.0–6.0 mmol/L
- The median haemoglobin and ferritin for HHD patients was 108 g/L and 297 µg/L, respectively, and 90.0% were on an ESA at a median dose of 8,000 IU/week
- 2.0% of HHD patients had a haemoglobin <100 g/L not on an ESA and 13.2% had a haemoglobin >120 g/L on an ESA
- There was no cause of death data available for 34.4% of deaths. For those with data, the leading cause of death in both younger (<65 years) and older (≥65 years) patients was cardiac disease (28.3% and 27.5%, respectively).

Analyses

Changes to the prevalent adult HHD population

For the 70 adult renal centres, the number of prevalent patients on HHD was calculated as both a proportion of the prevalent patients on RRT and as a proportion of the estimated centre catchment population (calculated as detailed in appendix A).

Table 7.2 Number of prevalent adult HHD patients and proportion of adult RRT patients on HHD by year and by centre; number of HHD patients as a proportion of the catchment population

Centre	N on HHD					% on HHD					Estimated catchment population (millions)	2019 crude rate (pmp)
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019		
ENGLAND												
Basldn	5	9	9	11	10	1.8	3.3	3.0	3.5	3.1	0.34	29
Bham	63	75	75	66	76	2.2	2.5	2.4	2.0	2.3	2.03	37
Bradfd	7	7	9	9	6	1.2	1.1	1.3	1.3	0.8	0.49	12
Brightn	45	37	40	39	32	4.7	3.7	4.0	3.7	3.0	1.07	30
Bristol	22	19	17	15	16	1.5	1.3	1.2	1.0	1.1	1.21	13
Camb	21	22	26	32	30	1.6	1.7	2.0	2.3	2.0	0.93	32
Carlis	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.25	0
Carsh	29	29	27	29	35	1.8	1.8	1.6	1.6	2.0	1.61	22
Chelms	2	3	3	2	0	0.7	1.1	1.1	0.8	0.0	0.37	0
Colchr	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.29	0
Covnt	16	12	14	22	20	1.7	1.2	1.5	2.3	1.9	0.79	25
Derby	38	42	52	53	58	7.1	7.7	9.4	9.0	8.9	0.56	104
Donc	10	9	9	9	5	3.3	2.7	2.7	2.7	1.5	0.37	13
Dorset	7	9	10	13	15	1.0	1.3	1.4	1.7	1.9	0.72	21
Dudley	13	14	13	12	12	4.1	4.0	3.5	3.3	3.3	0.34	35
Exeter	5	9	13	19	21	0.5	0.9	1.2	1.7	1.9	0.94	22
Glouc	5	9	5	3	3	1.1	1.9	1.0	0.6	0.6	0.51	6
Hull	8	4	6	5	7	0.9	0.5	0.7	0.6	0.8	0.79	9
Ipswi	1	3	8	5	4	0.2	0.7	1.8	1.2	0.9	0.31	13
Kent	16	22	21	18	19	1.5	2.1	1.9	1.6	1.7	1.06	18
L Barts	23	23	31	36	18	1.0	1.0	1.2	1.4	0.7	1.57	11
L Guys	49	48	41	38	44	2.4	2.3	1.9	1.7	1.9	1.00	44
L Kings	12	18	20	17	18	1.1	1.6	1.7	1.4	1.4	0.92	19
L Rfree	21	20	17	12	11	1.0	0.9	0.8	0.5	0.5	1.32	8
L St.G	4	4	5	6	6	0.5	0.5	0.6	0.7	0.7	0.66	9
L West	18	15	12	19	29	0.5	0.4	0.3	0.5	0.8	1.95	15
Leeds	23	17	23	23	26	1.5	1.1	1.4	1.4	1.5	1.36	19
Leic	60	73	72	64	54	2.8	3.2	3.1	2.6	2.1	2.07	26
Liv Ain	10	13	14	18	13	4.5	5.7	6.7	8.3	6.2	0.43	30
Liv Roy	37	39	39	39	36	3.0	3.2	3.1	3.1	2.9	0.80	45
M RI	49	61	77	74	76	2.6	3.1	3.8	3.6	3.7	1.32	58
Middlbr	15	11	12	13	19	1.7	1.2	1.3	1.4	2.0	0.80	24
Newc	24	24	21	22	19	2.4	2.3	1.9	1.9	1.6	0.94	20
Norwch	25	16	14	13	14	3.5	2.1	1.8	1.7	1.7	0.68	20
Nottm	29	29	34	34	31	2.6	2.5	2.9	2.8	2.5	0.92	34
Oxford	19	19	16	21	25	1.1	1.1	0.9	1.1	1.3	1.43	17
Plymth	8	8	10	10	7	1.6	1.6	1.9	1.9	1.3	0.40	18
Ports	56	75	65	70	70	3.4	4.4	3.7	4.0	3.7	1.73	40
Prestn	41	41	49	43	49	3.4	3.4	3.9	3.3	3.7	1.22	40

Table 7.2 Continued

Centre	N on HHD					% on HHD					Estimated catchment population (millions)	2019 crude rate (pmp)
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019		
Redng	5	7	6	9	8	0.6	0.9	0.8	1.1	0.9	0.69	12
Salford	15	28	41	35	41	1.5	2.7	3.7	3.0	3.3	1.14	36
Sheff	45	54	51	50	56	3.3	3.8	3.5	3.4	3.8	1.12	50
Shrew	23	19	22	20	27	6.2	5.0	5.7	4.7	6.3	0.41	66
Stevng	23	26	30	43	37	2.8	2.9	3.4	4.6	3.8	1.10	34
Sthend	2	3	2	1	6	0.8	1.3	0.8	0.4	2.3	0.27	22
Stoke	33	34	28	22	28	4.2	4.1	3.5	2.7	3.5	0.72	39
Sund	2	6	21	22	12	0.4	1.2	3.9	3.9	2.1	0.54	22
Truro	10	9	9	3	4	2.4	2.1	2.1	0.7	0.9	0.35	11
Wirral	12	10	9	8	8	4.3	3.0	2.3	2.0	1.9	0.47	17
Wolve	23	30	32	33	32	4.0	5.3	5.5	5.4	5.4	0.54	59
York	11	14	13	17	16	2.2	2.6	2.3	3.0	2.8	0.48	33
N IRELAND												
Antrim	2	1	4	4	4	0.8	0.4	1.6	1.5	1.4	0.24	16
Belfast	9	9	8	10	13	1.2	1.1	1.0	1.1	1.5	0.53	25
Newry	3	3	3	2	2	1.3	1.3	1.2	0.8	0.8	0.23	9
Ulster	2	1	1	0	0	1.2	0.6	0.5	0.0	0.0	0.20	0
West NI	4	3	3	2	1	1.4	1.0	1.0	0.6	0.3	0.25	4
SCOTLAND												
Abrdn	5	4	4	4	3	0.9	0.7	0.7	0.7	0.5	0.50	6
Airdrie	0	0	2	0	0	0.0	0.0	0.4	0.0	0.0	0.46	0
D&Gall	3	3	2	1	2	2.3	2.3	1.5	0.7	1.3	0.12	16
Dundee	2	2	2	8	7	0.5	0.5	0.5	1.8	1.6	0.37	19
Edinb	6	6	4	3	2	0.8	0.8	0.5	0.3	0.2	0.84	2
Glasgw	26	23	15	18	18	1.5	1.3	0.8	1.0	1.0	1.37	13
Inverns	3	7	5	7	7	1.2	2.7	1.9	2.5	2.5	0.22	31
Klmarnk	10	8	10	13	14	3.2	2.5	3.0	3.8	3.9	0.29	48
Krkldy	0	0	0	0	2	0.0	0.0	0.0	0.0	0.7	0.27	7
WALES												
Bangor	15	10	11	13	15	8.2	5.6	5.6	6.4	7.5	0.16	92
Cardff	28	31	38	34	33	1.7	1.9	2.3	2.0	1.9	1.15	29
Clwyd	7	4	2	2	2	3.8	2.3	1.1	1.1	1.0	0.18	11
Swanse	36	39	34	36	45	4.7	5.0	4.3	4.3	5.2	0.75	60
Wrexm	5	8	5	6	7	1.7	2.6	1.6	1.9	2.3	0.21	34
TOTALS												
England	1,040	1,128	1,193	1,197	1,209	2.0	2.1	2.2	2.1	2.1	44.33	27
N Ireland	20	17	19	18	20	1.2	1.0	1.0	0.9	1.0	1.45	14
Scotland	55	53	44	54	55	1.1	1.1	0.9	1.0	1.0	4.43	12
Wales	91	92	90	91	102	3.0	3.0	2.8	2.8	3.1	2.45	42
UK	1,206	1,290	1,346	1,360	1,386	2.0	2.1	2.1	2.0	2.0	52.67	26

Country HHD populations were calculated by summing the HHD 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 renal centre. pmp – per million population

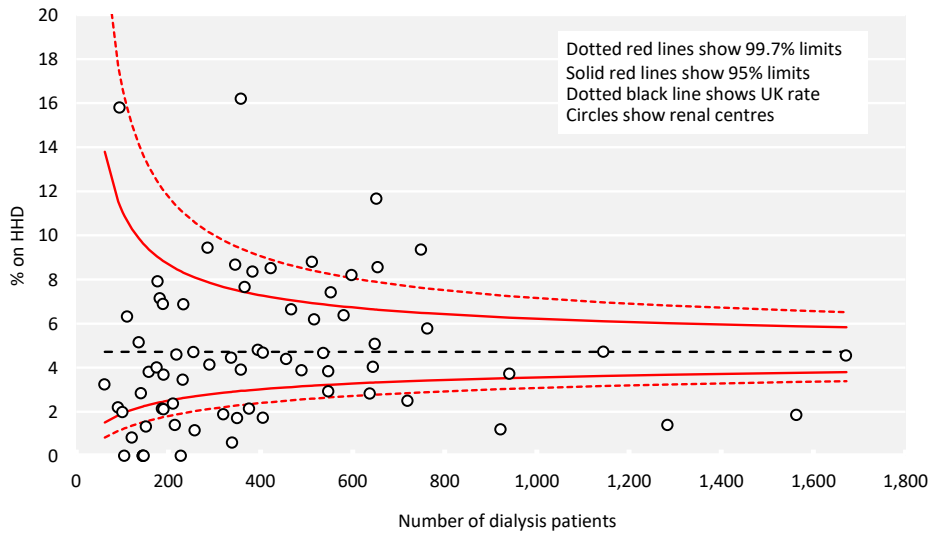


Figure 7.2 Percentage of adult patients prevalent to dialysis on 31/12/2019 who were on HHD by centre

Demographics of prevalent adult HHD patients

The proportion of HHD 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 7.3 Demographics of adult patients prevalent to HHD on 31/12/2019 by centre

Centre	N on RRT	N on HHD	% on HHD	Median age (yrs)	% male	Ethnicity				
						% White	% Asian	% Black	% Other	% missing
ENGLAND										
Baslnd	322	10	3.1	63.6	20.0	100.0	0.0	0.0	0.0	0.0
Bham	3,308	76	2.3	53.0	73.7	65.3	17.3	9.3	8.0	1.3
Bradfd	733	6	0.8	47.8	66.7	100.0	0.0	0.0	0.0	0.0
Brightn	1,059	32	3.0	66.3	68.8	96.9	3.1	0.0	0.0	0.0
Bristol	1,486	16	1.1	58.1	50.0	93.8	0.0	6.3	0.0	0.0
Camb	1,469	30	2.0	59.5	60.0	90.0	0.0	6.7	3.3	0.0
Carlis	303	0	0.0							
Carsh	1,771	35	2.0	59.2	62.9	82.9	5.7	8.6	2.9	0.0
Chelms	261	0	0.0							
Colchr	145	0	0.0							
Covnt	1,076	20	1.9	52.3	60.0	85.0	15.0	0.0	0.0	0.0
Derby	652	58	8.9	60.9	63.8	81.0	15.5	1.7	1.7	0.0
Donc	342	5	1.5	58.7	60.0	100.0	0.0	0.0	0.0	0.0
Dorset	772	15	1.9	67.6	66.7	100.0	0.0	0.0	0.0	0.0
Dudley	366	12	3.3	56.4	75.0	100.0	0.0	0.0	0.0	0.0
Exeter	1,091	21	1.9	49.5	61.9	100.0	0.0	0.0	0.0	0.0
Glouc	525	3	0.6	56.2	66.7	100.0	0.0	0.0	0.0	0.0
Hull	904	7	0.8	66.0	85.7	85.7	0.0	0.0	14.3	0.0
Ipswi	424	4	0.9	54.5	25.0	100.0	0.0	0.0	0.0	0.0
Kent	1,140	19	1.7	57.0	68.4	94.7	0.0	0.0	5.3	0.0
L Barts	2,660	18	0.7	54.4	50.0	38.9	5.6	44.4	11.1	0.0
L Guys	2,310	44	1.9	47.5	59.1	61.4	11.4	27.3	0.0	0.0
L Kings	1,244	18	1.4	55.1	72.2	61.1	5.6	27.8	5.6	0.0
L Rfree	2,344	11	0.5	60.0	63.6	54.5	0.0	45.5	0.0	0.0
L St.G	852	6	0.7	52.9	33.3	83.3	0.0	16.7	0.0	0.0
L West	3,613	29	0.8	54.0	31.0	41.4	20.7	34.5	3.4	0.0
Leeds	1,723	26	1.5	51.0	53.8	76.9	7.7	15.4	0.0	0.0
Leic	2,587	54	2.1	57.2	68.5	84.9	9.4	1.9	3.8	1.9
Liv Ain	210	13	6.2	53.5	53.8	100.0	0.0	0.0	0.0	0.0
Liv Roy	1,227	36	2.9	55.2	58.3	94.4	0.0	2.8	2.8	0.0
M RI	2,060	76	3.7	54.0	57.9	63.2	14.5	21.1	1.3	0.0
Middlbr	949	19	2.0	52.8	47.4	94.7	0.0	0.0	5.3	0.0
Newc	1,175	19	1.6	53.4	57.9	94.7	5.3	0.0	0.0	0.0
Norwch	809	14	1.7	58.4	71.4	100.0	0.0	0.0	0.0	0.0
Nottm	1,218	31	2.5	53.7	41.9	83.9	3.2	6.5	6.5	0.0
Oxford	1,969	25	1.3	60.6	64.0	85.7	9.5	4.8	0.0	16.0
Plymth	531	7	1.3	72.7	57.1	100.0	0.0	0.0	0.0	0.0
Ports	1,883	70	3.7	53.3	62.9	90.8	0.0	3.1	6.2	7.1
Prestn	1,341	49	3.7	56.1	61.2	91.8	8.2	0.0	0.0	0.0
Redng	860	8	0.9	51.7	75.0	71.4	0.0	28.6	0.0	12.5
Salford	1,237	41	3.3	51.9	63.4	90.2	2.4	4.9	2.4	0.0
Sheff	1,491	56	3.8	55.4	55.4	92.9	1.8	3.6	1.8	0.0
Shrew	428	27	6.3	59.8	70.4	96.3	3.7	0.0	0.0	0.0
Stevng	966	37	3.8	55.8	62.2	79.4	5.9	8.8	5.9	8.1
Sthend	264	6	2.3	55.5	33.3	100.0	0.0	0.0	0.0	0.0

Table 7.3 Continued

Centre	N on RRT	N on HHD	% on HHD	Median age (yrs)	% male	Ethnicity				
						% White	% Asian	% Black	% Other	% missing
Stoke	803	28	3.5	54.2	75.0	92.9	0.0	3.6	3.6	0.0
Sund	568	12	2.1	55.5	83.3	100.0	0.0	0.0	0.0	0.0
Truro	449	4	0.9	56.5	75.0	100.0	0.0	0.0	0.0	0.0
Wirral	411	8	1.9	52.0	75.0	87.5	12.5	0.0	0.0	0.0
Wolve	598	32	5.4	49.4	65.6	75.0	15.6	3.1	6.3	0.0
York	581	16	2.8	54.0	62.5	93.8	0.0	6.3	0.0	0.0
N IRELAND										
Antrim	280	4	1.4	63.3	100.0	100.0	0.0	0.0	0.0	0.0
Belfast	890	13	1.5	50.7	69.2	100.0	0.0	0.0	0.0	0.0
Newry	251	2	0.8	68.4	100.0	100.0	0.0	0.0	0.0	0.0
Ulster	182	0	0.0							
West NI	328	1	0.3	51.5	0.0	100.0	0.0	0.0	0.0	0.0
SCOTLAND										
Abrdn	558	3	0.5	58.7	0.0					66.7
Airdrie	524	0	0.0							
D&Gall	149	2	1.3	54.3	50.0					50.0
Dundee	449	7	1.6	64.7	71.4					71.4
Edinb	885	2	0.2	43.1	100.0	50.0	50.0	0.0	0.0	0.0
Glasgw	1,854	18	1.0	54.5	50.0					33.3
Inverns	282	7	2.5	50.3	42.9					42.9
Klmarnk	359	14	3.9	60.2	57.1					71.4
Krkldy	295	2	0.7	64.0	50.0					100.0
WALES										
Bangor	201	15	7.5	55.9	80.0	100.0	0.0	0.0	0.0	0.0
Cardff	1,730	33	1.9	55.6	54.5	97.0	3.0	0.0	0.0	0.0
Clwyd	205	2	1.0	60.5	50.0	100.0	0.0	0.0	0.0	0.0
Swanse	868	45	5.2	58.5	57.8	100.0	0.0	0.0	0.0	0.0
Wrexm	311	7	2.3	60.1	42.9	100.0	0.0	0.0	0.0	0.0
TOTALS										
England	57,510	1,209	2.1	54.8	61.4	82.8	6.5	7.9	2.8	1.2
N Ireland	1,931	20	1.0	54.5	75.0	100.0	0.0	0.0	0.0	0.0
Scotland	5,355	55	1.0	56.6	52.7					52.7
Wales	3,315	102	3.1	57.4	58.8	99.0	1.0	0.0	0.0	0.0
UK	68,111	1,386	2.0	55.2	61.0	84.6	6.0	7.0	2.5	3.2

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.

Primary renal diseases (PRDs) were grouped into categories as shown in table 7.4, with the mapping of disease codes into groups explained in more detail in appendix A. The proportion of HHD 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 7.4 Primary renal diseases (PRDs) of adult patients prevalent to HHD on 31/12/2019

PRD	N on HHD	% HHD population	Age <65 yrs		Age ≥65 yrs		M/F ratio
			N	%	N	%	
Diabetes	195	14.5	144	14.0	51	15.9	1.7
Glomerulonephritis	335	24.9	274	26.7	61	19.0	1.7
Hypertension	63	4.7	45	4.4	18	5.6	2.9
Polycystic kidney disease	120	8.9	87	8.5	33	10.3	1.4
Pyelonephritis	146	10.8	122	11.9	24	7.5	1.1
Renal vascular disease	28	2.1	12	1.2	16	5.0	2.1
Other	281	20.9	216	21.1	65	20.2	1.2
Uncertain aetiology	178	13.2	125	12.2	53	16.5	2.0
Total (with data)	1,346	100.0	1,025	100.0	321	100.0	
Missing	40	2.9	29	2.8	11	3.3	1.4

Biochemistry parameters in prevalent adult HHD patients

The Renal 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.

Table 7.5 Median adjusted calcium (Ca) and percentage with adjusted Ca within and above the target range (2.2–2.5 mmol/L) in adult patients prevalent to HHD on 31/12/2019 by centre

Centre	Median adj Ca (mmol/L)	% adj Ca 2.2-2.5 mmol/L	% adj Ca >2.5 mmol/L	% data completeness
ENGLAND				
Basldn				100.0
Bham	2.4	77.0	16.2	100.0
Bradfd				100.0
Brightn	2.4	87.5	3.1	100.0
Bristol	2.4	87.5	12.5	100.0
Camb	2.4	80.0	13.3	100.0
Carlis				
Carsh	2.3	81.3	3.1	97.0
Chelms				
Colchr				
Covnt	2.3	75.0	10.0	100.0
Derby	2.4	82.5	10.5	100.0
Donc				100.0
Dorset	2.2	80.0	6.7	100.0
Dudley	2.4	83.3	16.7	100.0
Exeter	2.3	95.2	0.0	100.0
Glouc				100.0
Hull				100.0
Ipswi				100.0
Kent	2.4	68.4	21.1	100.0
L Barts	2.3	83.3	11.1	100.0
L Guys	2.4	70.5	13.6	100.0
L Kings	2.3	77.8	5.6	100.0
L Rfree	2.5	54.6	27.3	100.0
L St.G				100.0
L West	2.3	78.3	0.0	82.1
Leeds	2.3	88.5	11.5	100.0
Leic	2.4	85.2	1.9	100.0
Liv Ain	2.4	69.2	23.1	100.0

Table 7.5 Continued

Centre	Median adj Ca (mmol/L)	% adj Ca 2.2-2.5 mmol/L	% adj Ca >2.5 mmol/L	% data completeness
Liv Roy	2.4	76.5	17.7	100.0
M RI	2.5	70.8	29.2	96.0
Middlbr	2.2	63.2	5.3	100.0
Newc	2.4	73.7	5.3	100.0
Norwch	2.3	92.9	0.0	100.0
Nottm	2.3	87.1	3.2	100.0
Oxford	2.4	72.2	16.7	72.0
Plymth				100.0
Ports	2.3	80.6	7.5	100.0
Prestn	2.4	66.0	17.0	100.0
Redng				100.0
Salford	2.4	69.2	25.6	100.0
Sheff	2.3	63.6	10.9	100.0
Shrew	2.4	80.8	15.4	100.0
Stevng	2.3	71.9	9.4	100.0
Sthend				100.0
Stoke	2.5	80.0	20.0	92.6
Sund	2.3	80.0	10.0	83.3
Truro				100.0
Wirral				100.0
Wolve	2.4	66.7	16.7	100.0
York	2.3	87.5	6.3	100.0
N IRELAND				
Antrim				100.0
Belfast	2.4	83.3	8.3	100.0
Newry				100.0
Ulster				
West NI				100.0
SCOTLAND				
Abrdn				100.0
Airdrie				
D&Gall				100.0
Dundee				100.0
Edinb				
Glasgw	2.4	88.9	5.6	100.0
Inverns				100.0
Klmarnk	2.3	92.9	7.1	100.0
Krkldy				100.0
WALES				
Bangor	2.4	86.7	6.7	100.0
Cardff	2.4	65.6	18.8	100.0
Clwyd				100.0
Swanse	2.4	88.9	6.7	100.0
Wrexm				100.0
TOTALS				
England	2.4	76.6	12.9	98.3
N Ireland	2.4	84.2	10.5	100.0
Scotland	2.4	84.9	11.3	98.2
Wales	2.4	78.2	12.9	100.0
UK	2.4	77.1	12.8	98.5

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

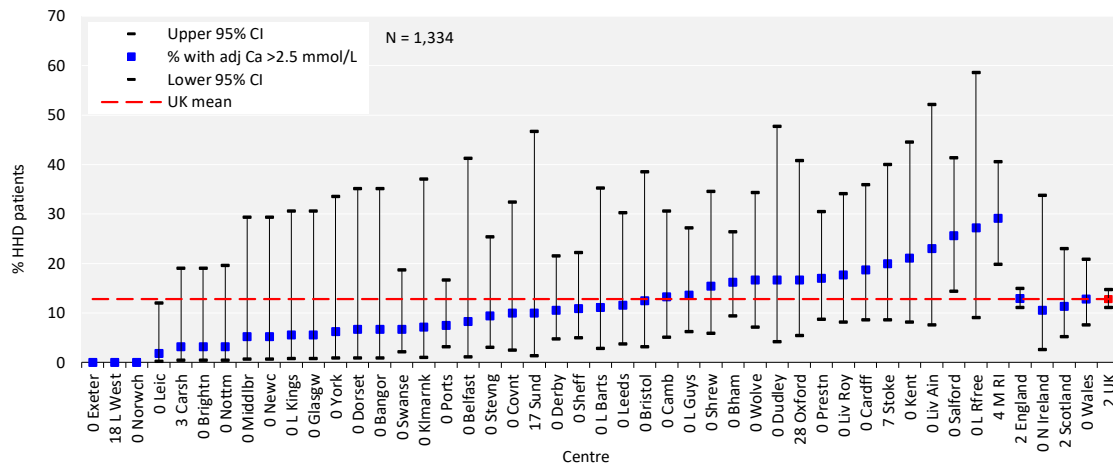


Figure 7.3 Percentage of adult patients prevalent to HHD on 31/12/2019 with adjusted calcium (Ca) above the target range (>2.5 mmol/L) by centre

CI – confidence interval

Table 7.6 Median pre-dialysis potassium and bicarbonate and percentage attaining target ranges in adult patients prevalent to HHD on 31/12/2019 by centre

Centre	Pre-dialysis potassium				% data complete-ness	Pre-dialysis bicarbonate				% data complete-ness
	Median (mmol/L)	% <4.0 mmol/L	4.0–6.0 mmol/L	% >6.0 mmol/L		Median (mmol/L)	% <18 mmol/L	% 18–26 mmol/L	% >26 mmol/L	
ENGLAND										
Basldn					100.0					100.0
Bham	5.1	5.4	81.1	13.5	100.0					63.5
Bradfd					100.0					100.0
Brightn					0.0	23	0.0	93.6	6.5	96.9
Bristol	4.7	6.3	87.5	6.3	100.0	24	6.3	75.0	18.8	100.0
Camb	5.3	0.0	80.0	20.0	100.0	25	0.0	73.3	26.7	100.0
Carlis										
Carsh					0.0					0.0
Chelms										
Colchr										
Covnt					0.0	23	5.0	80.0	15.0	100.0
Derby					0.0	25	0.0	82.5	17.5	100.0
Donc					100.0					100.0
Dorset	4.8	0.0	93.3	6.7	100.0	23	6.7	86.7	6.7	100.0
Dudley	5.6	0.0	91.7	8.3	100.0	24	0.0	91.7	8.3	100.0
Exeter	4.6	4.8	95.2	0.0	100.0	23	9.5	90.5	0.0	100.0
Glouc					0.0					100.0
Hull					100.0					100.0
Ipswi					0.0					100.0
Kent	3.9	52.6	36.8	10.5	100.0	23	0.0	94.7	5.3	100.0
L Barts	5.1	0.0	88.9	11.1	100.0	25	0.0	77.8	22.2	100.0
L Guys	4.7	25.0	68.2	6.8	100.0	25	0.0	68.2	31.8	100.0
L Kings	3.8	55.6	44.4	0.0	100.0	22	16.7	72.2	11.1	100.0
L Rfree	5.5	18.2	63.6	18.2	100.0	23	9.1	90.9	0.0	100.0
L St.G					0.0					100.0
L West					0.0					50.0
Leeds	5.2	7.7	88.5	3.9	100.0	24	0.0	92.3	7.7	100.0
Leic	5.1	7.4	83.3	9.3	100.0	24	3.8	79.3	17.0	98.2
Liv Ain					0.0	23	7.7	76.9	15.4	100.0

Table 7.6 Continued

Centre	Pre-dialysis potassium					Pre-dialysis bicarbonate				
	Median (mmol/L)	% <4.0 mmol/L	% 4.0–6.0 mmol/L	% >6.0 mmol/L	% data completeness	Median (mmol/L)	% <18 mmol/L	% 18–26 mmol/L	% >26 mmol/L	% data completeness
Liv Roy					0.0	22	5.9	73.5	20.6	100.0
M RI					0.0	24	1.4	75.0	23.6	96.0
Middlbr	5.4	5.3	84.2	10.5	100.0	27	0.0	36.8	63.2	100.0
Newc					0.0	22	5.3	94.7	0.0	100.0
Norwch	5.2	7.1	64.3	28.6	100.0	24	0.0	92.9	7.1	100.0
Nottm	5.0	6.5	93.6	0.0	100.0					48.4
Oxford					68.0	24	5.6	77.8	16.7	72.0
Plymth					100.0					100.0
Ports	4.7	10.5	83.6	6.0	100.0	24	3.0	74.6	22.4	100.0
Prestn					0.0	24	4.8	81.0	14.3	89.4
Redng					0.0					100.0
Salford	4.9	12.8	79.5	7.7	100.0					0.0
Sheff	5.0	3.6	89.1	7.3	100.0	24	1.8	85.5	12.7	100.0
Shrew					0.0	23	0.0	84.6	15.4	100.0
Stevng	5.1	6.3	87.5	6.3	100.0	25	0.0	68.8	31.3	100.0
Sthend					100.0					100.0
Stoke					0.0	28	0.0	37.0	63.0	100.0
Sund					0.0	25	0.0	70.0	30.0	83.3
Truro					100.0					100.0
Wirral					0.0					100.0
Wolve	4.8	10.0	83.3	6.7	100.0	21	3.3	86.7	10.0	100.0
York	5.4	0.0	68.8	31.3	100.0	23	0.0	87.5	12.5	100.0
N IRELAND										
Antrim					100.0					100.0
Belfast	5.6	8.3	83.3	8.3	100.0	23	0.0	91.7	8.3	100.0
Newry					100.0					100.0
Ulster										
West NI					100.0					100.0
SCOTLAND										
Abrdn					100.0					0.0
Airdrie										
D&Gall					100.0					100.0
Dundee					100.0					100.0
Edinb					100.0					0.0
Glasgw	5.0	0.0	92.3	7.7	72.2					50.0
Inverns					100.0					100.0
Klmarnk	4.8	7.1	92.9	0.0	100.0	23	8.3	91.7	0.0	85.7
Krkldy					100.0					100.0
WALES										
Bangor					0.0	26	0.0	60.0	40.0	100.0
Cardff					0.0	26	0.0	62.5	37.5	100.0
Clwyd					0.0					100.0
Swanse					0.0	25	0.0	77.8	22.2	100.0
Wrexm					0.0					100.0
TOTALS										
England	4.9	10.7	80.6	8.7	61.1	24	2.7	77.7	19.6	87.5
N Ireland	5.2	10.5	84.2	5.3	100.0	23	0.0	84.2	15.8	100.0
Scotland	5.1	6.1	87.8	6.1	90.7	24	2.6	81.6	15.8	70.4
Wales					0.0	26	0.0	68.3	31.7	100.0
UK	5.0	10.4	81.1	8.5	58.2	24	2.4	77.2	20.4	87.9

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

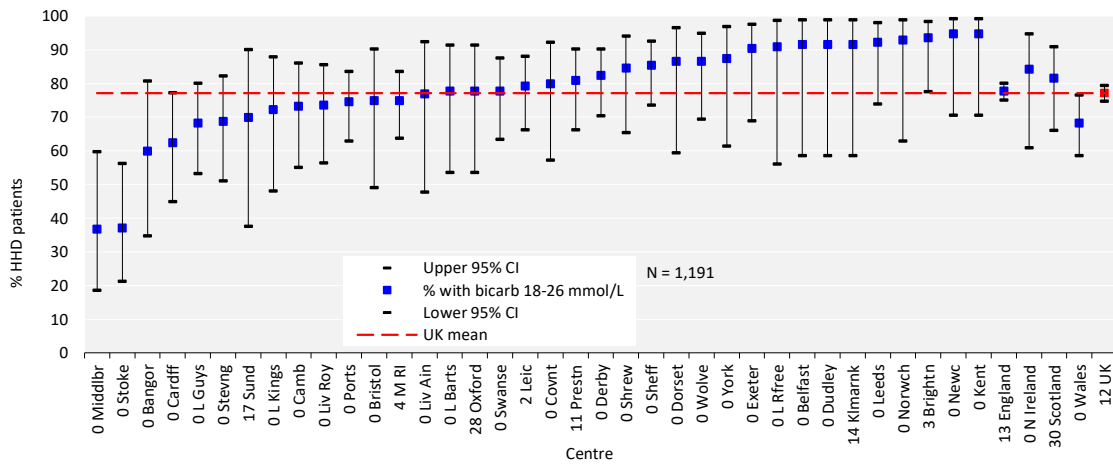


Figure 7.4 Percentage of adult patients prevalent to HHD on 31/12/2019 with pre-dialysis bicarbonate (bicarb) within the target range (18–26 mmol/L) by centre
 CI – confidence interval

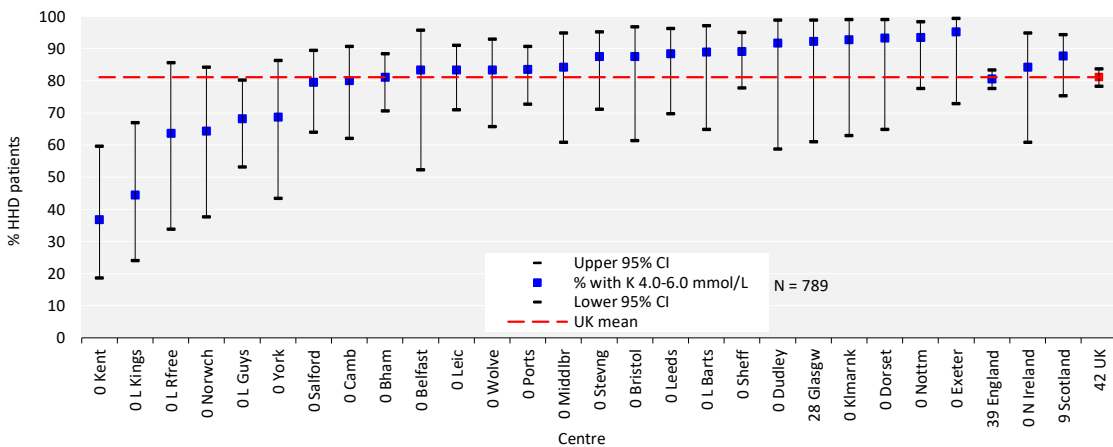


Figure 7.5 Percentage of adult patients prevalent to HHD on 31/12/2019 with pre-dialysis potassium (K) within the target range (4.0–6.0 mmol/L) by centre
 CI – confidence interval

Anaemia in prevalent adult HHD patients

Inadequate data completeness in relation to ESAs makes auditing against national guidelines difficult to interpret. An important assumption is that patients for whom no ESA data have been submitted to the UKRR are not on ESA treatment, provided the centre has submitted ESA data for other patients on HHD. The weekly ESA dose is reported, but there are some uncertainties surrounding the accuracy of this measure (see appendix A).

Table 7.7 Median haemoglobin and ferritin and percentage attaining target ranges in adult patients prevalent to HHD on 31/12/2019 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							
Basldn				100.0			100.0
Bham	106	31.1	20.3	100.0	304	17.6	100.0
Bradfd				100.0			100.0
Brightn	112	15.6	12.5	100.0	422	9.4	100.0
Bristol	105	12.5	18.8	100.0	298	6.3	100.0
Camb				10.0			10.0
Carlis							
Carsh	107	31.3	18.8	97.0	236	9.1	100.0
Chelms							
Colchr							
Covnt	104	40.0	15.0	100.0	198	10.0	100.0
Derby	114	15.8	26.3	100.0	542	0.0	100.0
Donc				100.0			100.0
Dorset	109	21.4	21.4	93.3	374	0.0	100.0
Dudley	116	16.7	16.7	100.0			8.3
Exeter	104	28.6	0.0	100.0	199	19.0	100.0
Glouc				100.0			100.0
Hull				100.0			100.0
Ipswi				100.0			100.0
Kent	105	31.6	26.3	100.0	270	15.8	100.0
L Barts	109	33.3	22.2	100.0	636	5.6	100.0
L Guys	103	43.2	20.5	100.0	283	20.9	97.7
L Kings	105	27.8	0.0	100.0	514	0.0	100.0
L Rfree	103	27.3	27.3	100.0	269	9.1	100.0
L St.G				100.0			100.0
L West	102	37.5	8.3	85.7	357	16.7	85.7
Leeds	110	19.2	15.4	100.0	309	15.4	100.0
Leic	106	33.3	16.7	100.0	291	14.8	100.0
Liv Ain	111	7.7	30.8	100.0	178	15.4	100.0
Liv Roy	102	44.1	11.8	100.0	157	35.3	100.0
M RI	106	29.2	19.4	96.0	259	25.0	96.0
Middlbr	106	26.3	21.1	100.0	728	0.0	89.5
Newc	111	10.5	5.3	100.0	392	5.3	100.0
Norwch	111	28.6	7.1	100.0	194	7.1	100.0
Nottm	110	16.7	16.7	96.8	383	9.7	100.0
Oxford	119	20.0	30.0	80.0	308	8.0	100.0
Plymth				100.0			100.0
Ports	116	21.2	42.4	98.5	255	12.1	98.5
Prestn	108	27.7	12.8	100.0	197	14.9	100.0
Redng				100.0			100.0

Table 7.7 Continued

Centre	Haemoglobin				Ferritin		
	Median (g/L)	% <100 g/L	% >120 g/L	% data completeness	Median (µg/L)	% <100 µg/L	% data completeness
Salford	102	43.6	15.4	100.0	194	33.3	100.0
Sheff	102	40.0	16.4	100.0	390	20.4	98.2
Shrew	111	7.7	15.4	100.0	494	11.5	100.0
Stevng	107	31.3	28.1	100.0	508	10.0	93.8
Sthend				100.0			100.0
Stoke	112	18.5	40.7	100.0	309	4.0	92.6
Sund	111	18.2	18.2	91.7	546	9.1	91.7
Truro				100.0			100.0
Wirral				100.0			100.0
Wolve	110	43.3	20.0	100.0	257	23.3	100.0
York	111	18.8	18.8	100.0	320	6.3	100.0
N IRELAND							
Antrim				100.0			100.0
Belfast	114	16.7	25.0	100.0	105	41.7	100.0
Newry				100.0			100.0
Ulster							
West NI				100.0			100.0
SCOTLAND							
Abrdn				100.0			100.0
Airdrie							
D&Gall				100.0			100.0
Dundee				100.0			100.0
Edinb				100.0			100.0
Glasgw	109	16.7	27.8	100.0	209	16.7	100.0
Inverns				100.0			100.0
Klmarnk	96	71.4	7.1	100.0	309	14.3	100.0
Krkldy				100.0			100.0
WALES							
Bangor	116	0.0	33.3	100.0	170	20.0	100.0
Cardff	100	50.0	6.3	100.0	156	34.4	100.0
Clwyd				100.0			100.0
Swanse	106	22.2	22.2	100.0	144	40.0	100.0
Wrexm				100.0			100.0
TOTALS							
England	108	27.5	19.3	96.3	313	14.8	95.3
N Ireland	114	10.5	26.3	100.0	107	36.8	100.0
Scotland	108	37.0	16.7	100.0	282	18.5	100.0
Wales	106	26.7	18.8	100.0	159	32.7	100.0
UK	108	27.6	19.3	96.8	297	16.7	95.9

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

Table 7.8 Distribution of haemoglobin and erythropoiesis stimulating agent (ESA) dose values in adult patients prevalent to HHD on 31/12/2019 by centre

Centre	ESA		Haemoglobin and ESA	
	% on ESA	Median dose (IU/week)	% <100g/L and not on ESA	% >120g/L and on ESA
ENGLAND				
Basldn	88.9			
Bham	31.1			
Bradfd	100.0			
Brightn	53.1			
Bristol	100.0	12,000	0.0	18.8
Camb	80.0			
Carlis				
Carsh	6.1			
Chelms				
Colchr				
Covnt	95.0	8,000	0.0	10.0
Derby	0.0			
Donc	100.0			
Dorset	100.0	5,400	0.0	28.6
Dudley	100.0	10,000	0.0	16.7
Exeter	95.2	7,000	0.0	0.0
Glouc	66.7			
Hull	0.0			
Ipswi	0.0			
Kent	94.7	13,500	0.0	21.1
L Barts	83.3	8,000	0.0	11.1
L Guys	0.0			
L Kings	77.8	9,000	5.6	0.0
L Rfree	0.0			
L St.G	0.0			
L West	0.0			
Leeds	100.0	10,000	0.0	15.4
Leic	90.7	8,000	1.9	9.3
Liv Ain	0.0			
Liv Roy	0.0			
M RI	0.0			
Middlbr	89.5	6,000	0.0	10.5
Newc	36.8			
Norwch	85.7	9,000	0.0	7.1
Nottm	83.9	13,500	3.3	10.0
Oxford	96.0	9,000	0.0	30.0
Plymth	0.0			
Ports	55.2			
Prestn	95.7		2.1	10.6
Redng	37.5			
Salford	84.6	10,000	10.3	12.8
Sheff	67.3			
Shrew	0.0			
Stevng	90.6	6,000	0.0	18.8
Sthend	83.3			
Stoke	0.0			
Sund	33.3			
Truro	0.0			
Wirral	100.0			
Wolve	83.3	8,000	3.3	6.7

Table 7.8 Continued

Centre	ESA		Haemoglobin and ESA	
	% on ESA	Median dose (IU/week)	% <100g/L and not on ESA	% >120g/L and on ESA
York	100.0	5,500	0.0	18.8
N IRELAND				
Antrim	100.0			
Belfast	91.7	8,000	0.0	16.7
Newry	50.0			
Ulster				
West NI	100.0			
SCOTLAND				
Abrdn	75.0			
Airdrie				
D&Gall	50.0			
Dundee	50.0			
Edinb	100.0			
Glasgw	83.3		0.0	16.7
Inverns	100.0			
Klmarnk	81.8		9.1	9.1
Krkldy	0.0			
WALES				
Bangor	40.0			
Cardff	56.3			
Clwyd	50.0			
Swanse	82.2	6,000	4.4	13.3
Wrexm	28.6			
TOTAL ¹				
UK	90.0	8,000	2.0	13.2

Blank cells – no data returned by the centre or <10 patients in the centre or data completeness <70% (or <70% patients were on an ESA).
Data for Scotland refer to patients prevalent to HHD on 31/05/2019 due to ESA data availability.

¹This is the total of only those centres with at least 70% of HHD patients on an ESA.

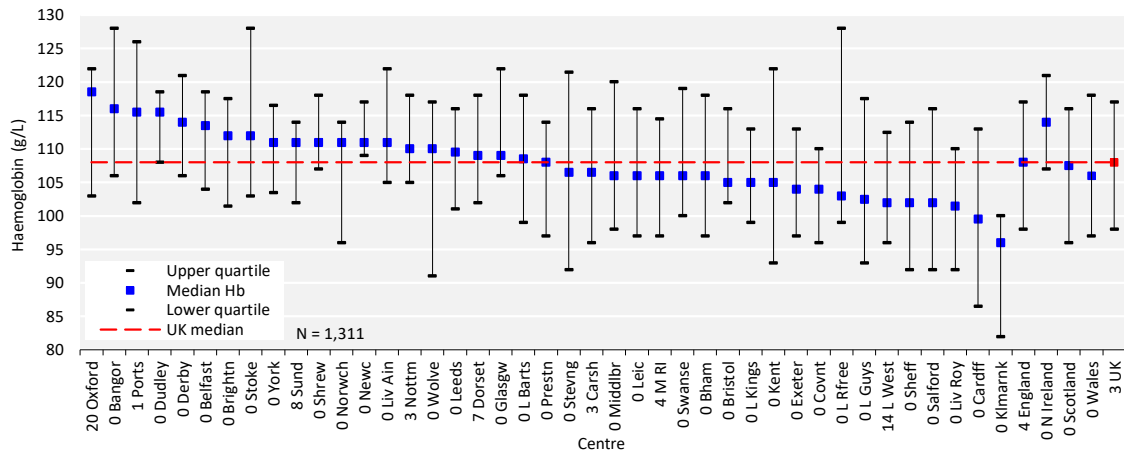


Figure 7.6 Median haemoglobin (Hb) in adult patients prevalent to HHD on 31/12/2019 by centre

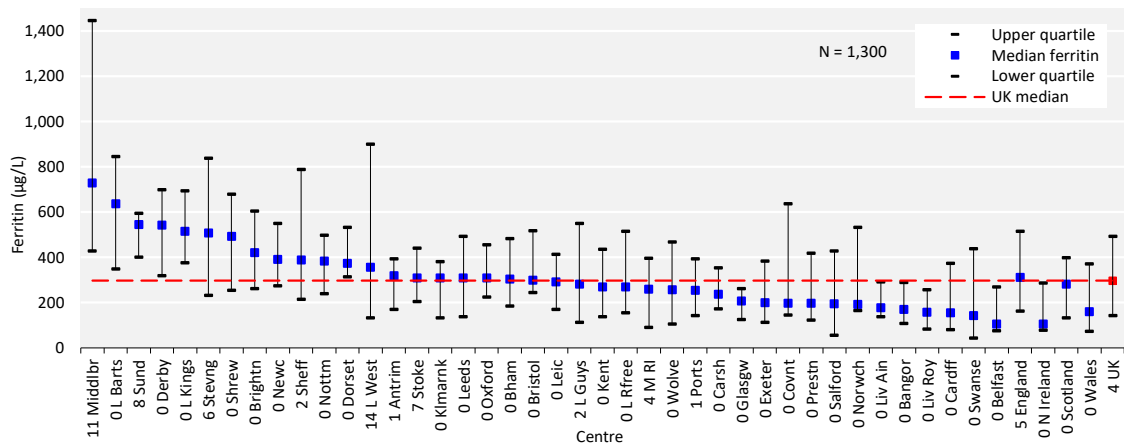


Figure 7.7 Median ferritin in adult patients prevalent to HHD on 31/12/2019 by centre

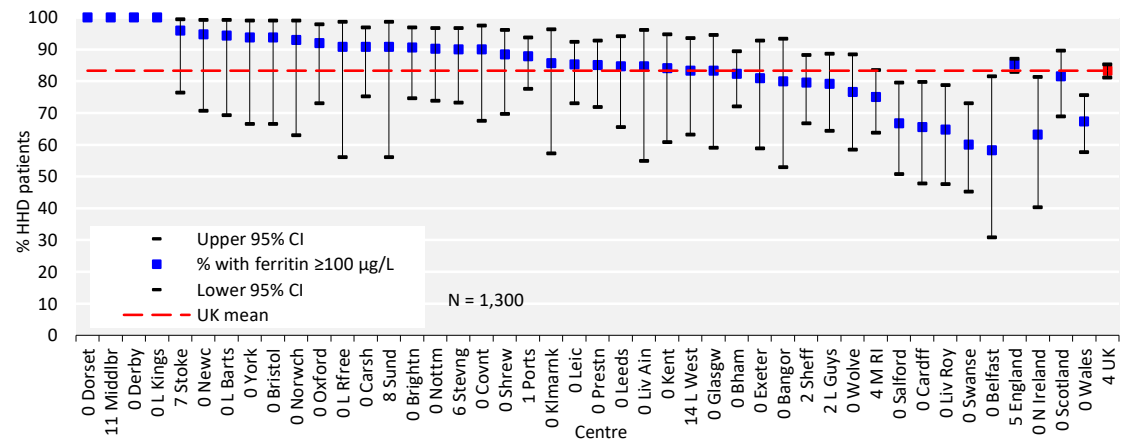


Figure 7.8 Percentage of adult patients prevalent to HHD on 31/12/2019 with ferritin ≥ 100 $\mu\text{g/L}$ by centre
CI – confidence interval

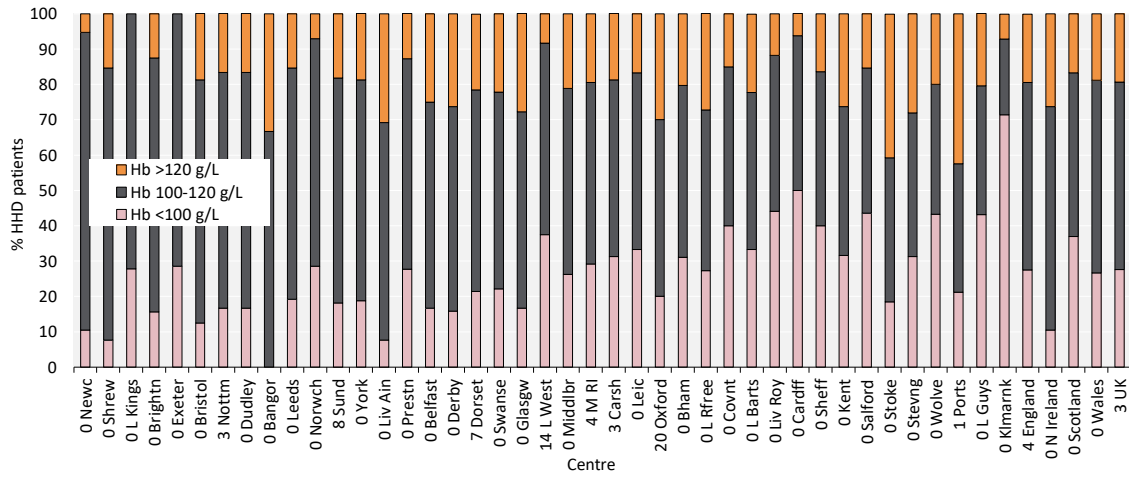


Figure 7.9 Distribution of haemoglobin (Hb) in adult patients prevalent to HHD on 31/12/2019 by centre

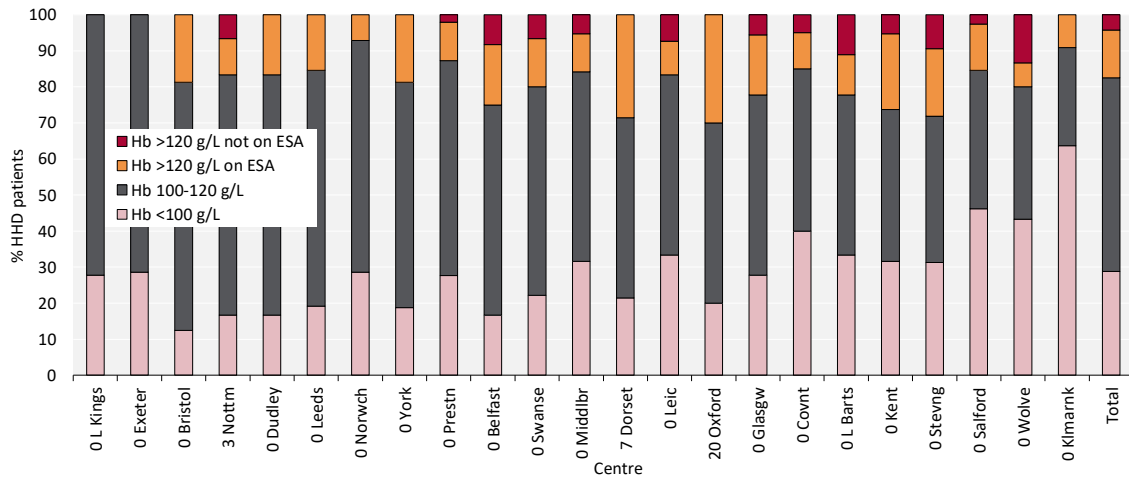


Figure 7.10 Distribution of haemoglobin (Hb) in adult patients prevalent to HHD on 31/12/2019 and the proportion with haemoglobin >120 g/L receiving erythropoiesis stimulating agent (ESA) by centre
Figure (including total) does not include centres with <70% data completeness (or <70% ESA use).

Cause of death in adult HHD patients

Cause of death was analysed in prevalent patients receiving HHD on 31/12/2018 and followed-up for one year in 2019. The proportion of HHD 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 RRT patients is in chapter 3.

Table 7.9 Cause of death in adult patients prevalent to HHD on 31/12/2018 followed-up in 2019 by age group

Cause of death	HHD all ages		HHD <65 yrs		HHD ≥65 yrs	
	N	%	N	%	N	%
Cardiac disease	24	27.9	13	28.3	11	27.5
Cerebrovascular disease	4	4.7	3	6.5	1	2.5
Infection	11	12.8	6	13.0	5	12.5
Malignancy	9	10.5	6	13.0	3	7.5
Treatment withdrawal	14	16.3	7	15.2	7	17.5
Other	15	17.4	6	13.0	9	22.5
Uncertain aetiology	9	10.5	5	10.9	4	10.0
Total (with data)	86	100.0	46	100.0	40	100.0
Missing	45	34.4	28	37.8	17	29.8

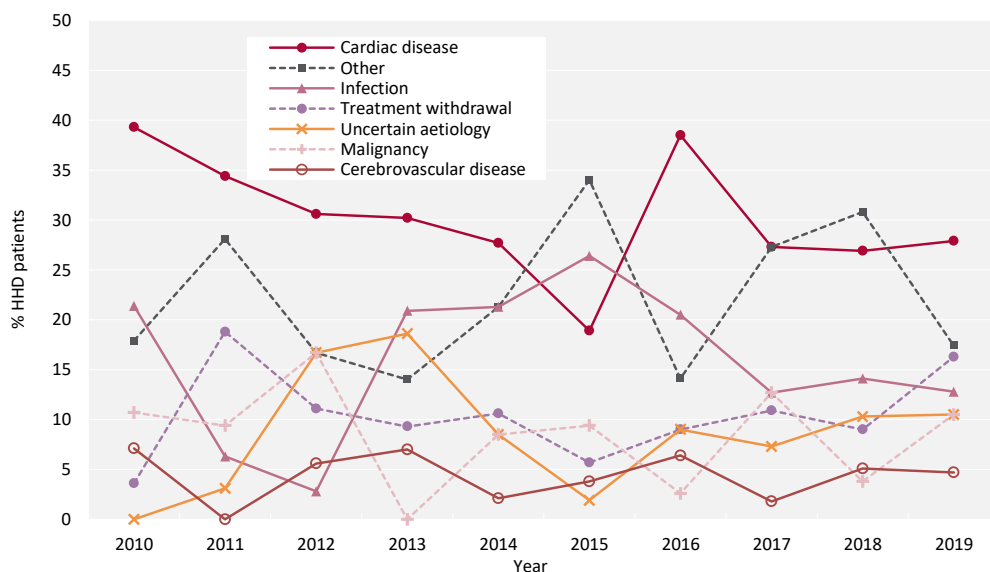


Figure 7.11 Cause of death between 2010 and 2019 for adult patients prevalent to HHD at the beginning of the year