

Chapter 7

Adults on home haemodialysis (HHD) in the UK at the end of 2023

Contents

- Introduction 156
- Rationale for analyses 157
- Key findings 158
- Analyses 159
 - Changes to the prevalent adult HHD population 159
 - Demographics of prevalent adult HHD patients 162
 - Biochemistry parameters in prevalent adult HHD patients 164
 - Anaemia in prevalent adult HHD patients 169
 - Cause of death in adult HHD patients 173

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 2023 (figure 7.1). This population comprises patients who were on HHD at the end of 2022 and remained on HHD throughout 2023, as well as patients who commenced/re-commenced HHD in 2023. This latter group includes both incident kidney replacement therapy (KRT) patients who ended 2023 on HHD and prevalent KRT patients who switched to HHD from in-centre haemodialysis (ICHHD), peritoneal dialysis (PD), or a transplant (Tx) in 2023. 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 KRT, survival on HHD, transplantation and other dialysis therapies (ICHHD and PD), and the care of patients on those other modalities, as described in other chapters of this report.

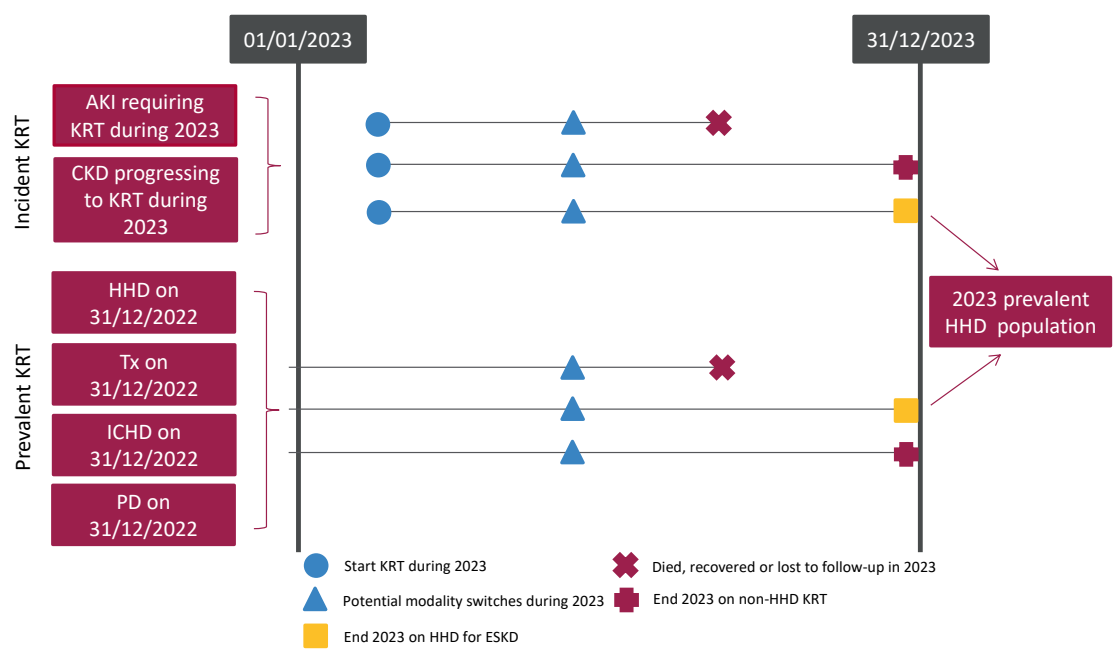


Figure 7.1 Pathways adult patients could follow to be included in the UK 2023 prevalent HHD population

Note that patients receiving dialysis for acute kidney injury (AKI) are only included in this chapter if they had a timeline or KRT modality code for chronic HHD at the end of 2023 or if they had been on KRT for ≥ 90 days and were on HHD at the end of 2023
CKD – chronic kidney disease

Where possible, the chapter addresses key aspects of the care of patients on HHD for which there are UK Kidney 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 available through the UK Renal Registry (UKRR) data portal (ukkidney.org/audit-research/data-portals).

Rationale for analyses

The analyses begin with a description of the 2023 prevalent adult HHD population, including the number on HHD 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 HHD, and the guidelines available during 2023 were used for this audit. Where data permit, attainment of these measures by UK kidney centres in 2023 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 glycated 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 (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.

Table 7.1 The UK Kidney Association audit measures relevant to HHD 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 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 (2020)	Proportion of patients who are not iron replete with a serum ferritin <200 µg/L	Table 7.7
	Proportion of patients with haemoglobin 100–120 g/L	
Commentary on the NICE Guideline on Renal Replacement Therapy and Conservative Management (2020)	Number of patients withdrawing from HHD as a proportion of all deaths on HHD	Table 7.8, figure 7.10

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.

Exeter and Manchester were unable to submit patient level data for 2023. Aggregate numbers by modality were provided, enabling inclusion in Tables 7.2 and 7.3. Exeter and Manchester are excluded from all other analyses.

London Kings moved to a new Trust IT system, and as a result data were not submitted for the final quarter of 2023. Data for London Kings presented in this chapter are for patients receiving HHD on 30th September 2023, rather than 31st December 2023.

Key findings

- 1,451 adult patients were receiving HHD for ESKD in the UK on 31/12/2023, compared to 1,458 on 31/12/2022, which represented 2.0% of the KRT population.
- The median age of HHD patients was 55.9 years and 61.9% were male.
- The median adjusted calcium for HHD patients was 2.4 mmol/L and 13.6% were above the target range 2.2–2.5 mmol/L.
- The median pre-dialysis bicarbonate for HHD patients was 24 mmol/L and 75.4% were within the target range 18–26 mmol/L.
- The median pre-dialysis potassium for HHD patients was 5.0 mmol/L and 80.8% were within the target range 4.0–6.0 mmol/L.
- The median ferritin for HHD patients was 371 µg/L and 26.8% had a ferritin <200 µg/L.
- The median haemoglobin for HHD patients was 109 g/L and 25.6% had a haemoglobin <100 g/L.
- Cause of death records from Civil Registration were used where cause of death was missing in the UKRR data. This resulted in improved completeness and changes in proportions of the causes of death. The leading cause of death for patients on HHD was cardiac disease (27.3%) in younger patients (<65 years) and infections (17.5%) in patients ≥ 65 years.

Analyses

Changes to the prevalent adult HHD population

For the 67 adult kidney centres, the number of prevalent patients on HHD 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 7.2 Number of prevalent adult HHD patients and proportion of adult KRT 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)	2023 crude rate (pmp)
	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023		
ENGLAND												
Bham	76	76	71	67	63	2.3	2.3	2.1	2.0	1.8	2.10	30
Bradfd	6	6	7	9	6	0.8	0.8	1.0	1.2	0.7	0.51	12
Brightn	32	31	30	35	34	3.0	2.9	2.7	3.2	3.0	1.08	31
Bristol	16	17	18	15	9	1.1	1.2	1.2	1.0	0.6	1.27	7
Camb	32	26	24	23	20	2.2	1.7	1.5	1.4	1.2	0.99	20
Carlis	0	2	3	6	7	0.0	0.7	1.0	2.0	2.3	0.26	27
Carsh	35	28	28	26	24	2.0	1.5	1.5	1.3	1.2	1.68	14
Colchr	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.30	0
Covnt	20	20	21	18	15	1.8	1.8	1.9	1.6	1.3	0.81	19
Derby	58	63	55	62	60	8.9	9.3	8.0	8.6	8.2	0.58	104
Donc	5	5	5	9	9	1.5	1.5	1.5	2.4	2.3	0.38	24
Dorset	15	16	14	14	14	1.9	2.0	1.8	1.8	1.7	0.75	19
Dudley	12	9	10	14	11	3.3	2.4	2.5	3.7	3.0	0.35	31
EssexMS	24	29	21	23	17	2.8	3.3	2.3	2.6	1.7	1.01	17
Exeter	21	19	16	16	17	1.9	1.7	1.5	1.4	1.5	0.99	17
Glouc	3	4	4	2	3	0.6	0.8	0.7	0.4	0.5	0.53	6
Hull	7	7	12	17	17	0.8	0.8	1.3	1.8	1.8	0.81	21
Ipswi	4	3	2	0	0	0.9	0.7	0.5	0.0	0.0	0.32	0
Kent	20	18	18	21	20	1.8	1.6	1.5	1.7	1.6	1.08	18
L Barts	20	25	25	47	53	0.8	0.9	0.9	1.7	1.8	1.62	33
L Guys	45	48	41	37	38	1.9	2.1	1.8	1.6	1.6	1.01	38
L Kings	17	22	34	39	34	1.4	1.8	2.6	2.8	2.4	0.94	36
L Rfree	11	10	10	9	6	0.5	0.4	0.4	0.4	0.2	1.27	5
L St.G	6	6	6	5	5	0.7	0.7	0.7	0.6	0.6	0.67	7
L West	29	35	36	39	47	0.8	1.0	1.0	1.1	1.3	2.03	23
Leeds	26	22	16	22	26	1.5	1.3	0.9	1.2	1.4	1.40	19
Leic	54	50	48	48	43	2.1	1.9	1.8	1.8	1.5	2.18	20
Liv UH	54	60	57	56	62	3.6	4.1	3.9	3.8	4.1	1.27	49
M RI	75	71	84	82	86	3.7	3.6	4.1	3.9	3.8	1.37	63
Middlbr	19	18	17	20	16	2.0	1.9	1.8	2.1	1.6	0.82	20
Newc	19	15	18	19	21	1.6	1.3	1.5	1.5	1.6	0.96	22
Norwch	14	13	10	10	9	1.7	1.6	1.3	1.2	1.1	0.71	13
Nottm	31	32	28	30	30	2.5	2.6	2.3	2.5	2.5	0.93	32
Oxford	25	17	19	26	24	1.3	0.8	0.9	1.3	1.1	1.54	16
Plymth	7	4	3	3	5	1.3	0.7	0.6	0.6	0.9	0.41	12
Ports	70	83	85	78	77	3.7	4.4	4.4	3.9	3.8	1.79	43
Prestn	49	47	42	40	39	3.7	3.4	3.1	2.9	2.7	1.27	31
Redng	8	8	9	14	17	0.9	0.9	1.0	1.5	1.7	0.74	23
Salford	41	40	31	31	31	3.3	3.2	2.5	2.4	2.3	1.19	26
Sheff	55	61	56	54	44	3.7	4.1	3.7	3.6	3.0	1.12	39
Shrew	27	36	37	40	44	6.2	8.4	8.4	9.0	9.5	0.42	104

Table 7.2 Continued

Centre	N on HHD					% on HHD					Estimated catchment population (millions)	2023 crude rate (pmp)
	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023		
Stevng	36	32	41	36	45	3.7	3.3	4.0	3.4	4.0	1.15	39
Stoke	31	39	41	29	35	3.8	4.8	4.9	3.2	3.8	0.75	47
Sund	12	9	10	11	15	2.1	1.6	1.8	1.9	2.5	0.54	28
Truro	4	4	5	3	9	0.9	0.9	1.1	0.6	1.9	0.37	25
Wirral	8	7	6	6	4	1.9	1.7	1.4	1.5	1.0	0.48	8
Wolve	33	31	38	43	43	5.4	4.7	5.5	5.9	5.5	0.55	78
York	16	18	17	22	18	2.7	3.1	2.9	3.6	3.0	0.49	37
N IRELAND												
Antrim	4	4	2	1	1	1.4	1.4	0.7	0.3	0.3	0.25	4
Belfast	13	10	8	7	8	1.5	1.1	0.9	0.8	0.9	0.54	15
Newry	2	4	3	3	2	0.8	1.5	1.1	1.1	0.7	0.24	8
Ulster	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.21	0
West NI	1	2	2	1	2	0.3	0.6	0.6	0.3	0.6	0.25	8
SCOTLAND												
Abrdn	3	2	2	3	3	0.5	0.4	0.3	0.5	0.5	0.50	6
Airdrie	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.47	0
D&Gall	2	1	1	1	1	1.3	0.6	0.6	0.7	0.7	0.12	8
Dundee	7	6	6	5	4	1.6	1.4	1.5	1.3	1.0	0.37	11
Edinb	2	3	7	9	8	0.2	0.3	0.8	0.9	0.8	0.85	9
Glasgw	18	11	10	11	16	1.0	0.6	0.5	0.6	0.8	1.38	12
Inverns	7	3	2	3	1	2.5	1.1	0.7	1.1	0.3	0.23	4
Klmarnk	14	14	16	12	13	3.9	3.8	4.3	3.2	3.3	0.29	45
Krkldy	2	3	2	3	2	0.7	1.0	0.7	1.1	0.7	0.28	7
WALES												
Bangor	15	13	21	22	22	7.5	6.0	9.7	10.0	10.1	0.16	139
Cardff	33	34	51	49	44	1.9	2.0	3.0	2.8	2.4	1.16	38
Clwyd	2	6	5	10	9	1.0	2.9	2.5	4.9	4.1	0.18	50
Swanse	45	44	40	39	35	5.2	5.2	4.7	4.6	3.9	0.75	47
Wrexm	7	7	3	3	8	2.3	2.2	1.0	1.0	2.4	0.21	38
TOTALS												
England	1228	1242	1229	1276	1272	2.1	2.1	2.1	2.1	2.1	45.78	28
N Ireland	20	20	15	12	13	1.0	1.0	0.7	0.6	0.6	1.48	9
Scotland	55	43	46	47	48	1.0	0.8	0.9	0.9	0.9	4.48	11
Wales	102	104	120	123	118	3.1	3.2	3.7	3.7	3.4	2.46	48
UK	1405	1409	1410	1458	1451	2.1	2.1	2.0	2.1	2.0	54.20	27

Country HHD populations were calculated by summing the HHD patients from centres in each country. Estimated country populations were derived from publicly available sources (see appendix A for details on estimated catchment population by kidney centre)

Exeter was unable to submit 2021 to 2023 patient level data, Manchester was unable to submit 2023 patient level data, but provided aggregate numbers of patients on KRT at the end of each year by treatment modality

pmp – per million population

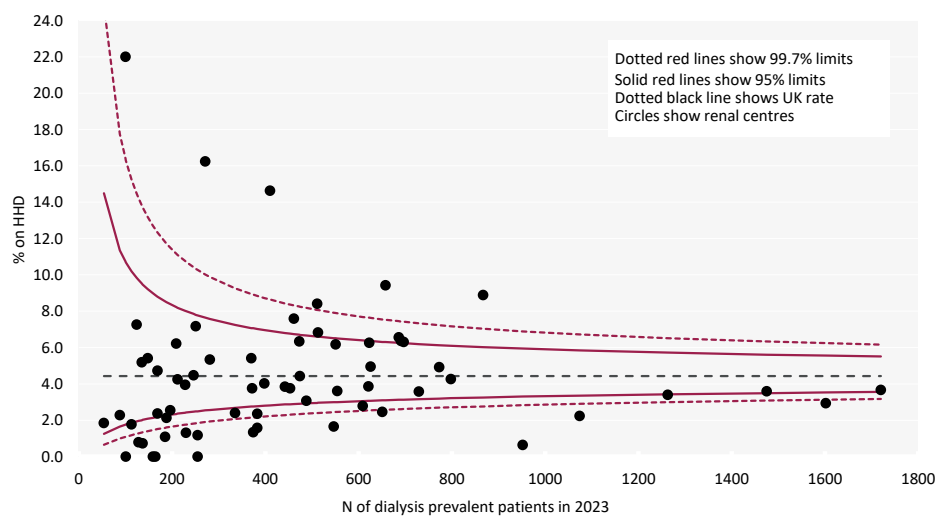


Figure 7.2 Percentage of adult patients prevalent to dialysis on 31/12/2023 who were on HHD by centre

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 31/12/2023 by centre

Centre	N on KRT	N on HHD	% on HHD	Median age (yrs)	% male	Ethnicity				
						% White	% Asian	% Black	% Other	% missing
ENGLAND										
Bham	3,417	63	1.8	55.0	71.4	64.5	16.1	14.5	4.8	1.6
Bradfd	824	6	0.7	60.6	66.7	83.3	16.7	0.0	0.0	0.0
Brightn	1,145	34	3.0	60.6	58.8	91.2	5.9	2.9	0.0	0.0
Bristol	1,522	9	0.6	60.9	22.2	100.0	0.0	0.0	0.0	0.0
Camb	1,629	20	1.2	62.0	65.0	90.0	0.0	10.0	0.0	0.0
Carlisle	305	7	2.3	46.1	71.4	100.0	0.0	0.0	0.0	0.0
Carsh	2,001	24	1.2	57.8	70.8	78.3	13.0	8.7	0.0	4.2
Colchr	164	0	0.0							
Covnt	1,158	15	1.3	53.1	60.0	86.7	6.7	6.7	0.0	0.0
Derby	735	60	8.2	59.8	66.7	86.4	8.5	5.1	0.0	1.7
Donc	387	9	2.3	64.0	55.6	100.0	0.0	0.0	0.0	0.0
Dorset	816	14	1.7	65.9	92.9	92.9	7.1	0.0	0.0	0.0
Dudley	368	11	3.0	59.5	72.7	100.0	0.0	0.0	0.0	0.0
EssexMS	974	17	1.7	60.8	82.4	87.5	6.3	0.0	6.3	5.9
Exeter	1,127	17	1.5							
Glouc	560	3	0.5	51.9	33.3	100.0	0.0	0.0	0.0	0.0
Hull	959	17	1.8	43.3	76.5	82.4	0.0	11.8	5.9	0.0
Ipswi	397	0	0.0	.	.	.	.	.	.	.
Kent	1,240	20	1.6	54.7	65.0	90.0	0.0	0.0	10.0	0.0
L Barts	2,959	53	1.8	53.7	52.8	37.7	20.8	32.1	9.4	0.0
L Guys	2,318	38	1.6	50.2	52.6	60.5	5.3	34.2	0.0	0.0
L Kings	1,389	34	2.4	56.0	61.8	51.5	9.1	36.4	3.0	2.9
L Rfree	2,475	6	0.2	49.7	66.7	33.3	16.7	50.0	0.0	0.0
L St.G	878	5	0.6	51.0	80.0	80.0	0.0	20.0	0.0	0.0
L West	3,681	47	1.3	53.0	61.7	31.9	27.7	38.3	2.1	0.0
Leeds	1,906	26	1.4	50.7	65.4	80.8	7.7	3.8	7.7	0.0
Leic	2,820	43	1.5	58.0	81.4	80.0	15.0	5.0	0.0	7.0
Liv UH	1,503	62	4.1	53.5	51.6	94.7	0.0	0.0	5.3	8.1
M RI	2,258	86	3.8							
Middlbr	971	16	1.6	56.7	50.0	81.3	0.0	6.3	12.5	0.0
Newc	1,287	21	1.6	58.5	42.9	100.0	0.0	0.0	0.0	0.0
Norwch	808	9	1.1	56.6	44.4	100.0	0.0	0.0	0.0	0.0
Nottm	1,195	30	2.5	57.3	40.0	90.0	0.0	10.0	0.0	0.0
Oxford	2,132	24	1.1	49.8	50.0	83.3	8.3	4.2	4.2	0.0
Plymth	549	5	0.9	56.6	60.0	100.0	0.0	0.0	0.0	0.0
Ports	2,030	77	3.8	55.6	66.2	90.8	6.2	1.5	1.5	15.6
Prestn	1,436	39	2.7	54.2	61.5	89.2	8.1	2.7	0.0	5.1
Redng	994	17	1.7	54.5	58.8	53.3	26.7	13.3	6.7	11.8
Salford	1,371	31	2.3	57.2	64.5	86.7	0.0	10.0	3.3	3.2
Sheff	1,478	44	3.0	56.8	43.2	86.4	4.5	4.5	4.5	0.0
Shrew	461	44	9.5	60.9	65.9	83.7	4.7	0.0	11.6	2.3
Stevng	1,117	45	4.0	56.3	60.0	68.2	20.5	6.8	4.5	2.2
Stoke	921	35	3.8	56.1	71.4	94.1	0.0	2.9	2.9	2.9
Sund	590	15	2.5	53.0	46.7	100.0	0.0	0.0	0.0	0.0
Truro	468	9	1.9	55.0	55.6	100.0	0.0	0.0	0.0	0.0
Wirral	387	4	1.0	56.0	75.0	100.0	0.0	0.0	0.0	0.0
Wolve	780	43	5.5	53.8	74.4	69.8	16.3	7.0	7.0	0.0

Table 7.3 Continued

Centre	N on KRT	N on HHD	% on HHD	Median age (yrs)	% male	Ethnicity				
						% White	% Asian	% Black	% Other	% missing
York	610	18	3.0	52.5	72.2	94.4	0.0	5.6	0.0	0.0
N IRELAND										
Antrim	311	1	0.3	64.1	100.0	100.0	0.0	0.0	0.0	0.0
Belfast	938	8	0.9	59.4	62.5	100.0	0.0	0.0	0.0	0.0
Newry	277	2	0.7	49.9	50.0	100.0	0.0	0.0	0.0	0.0
Ulster	210	0	0.0							
West NI	357	2	0.6	52.0	0.0	50.0	50.0	0.0	0.0	0.0
SCOTLAND										
Abrdn	608	3	0.5	59.5	0.0					
Airdrie	565	0	0.0							
D&Gall	145	1	0.7	58.3	0.0					
Dundee	384	4	1.0	66.5	75.0					
Edinb	989	8	0.8	56.0	75.0					
Glasgw	1,934	16	0.8	54.2	62.5					
Inverns	310	1	0.3	68.2	100.0					
Klmarnk	394	13	3.3	66.3	76.9					
Krkldy	288	2	0.7	65.5	50.0					
WALES										
Bangor	218	22	10.1	52.6	68.2	100.0	0.0	0.0	0.0	18.2
Cardff	1,830	44	2.4	59.9	63.6	95.2	2.4	2.4	0.0	4.5
Clwyd	222	9	4.1	55.3	66.7	100.0	0.0	0.0	0.0	22.2
Swanse	901	35	3.9	58.3	57.1	94.1	2.9	2.9	0.0	2.9
Wrexm	327	8	2.4	66.5	37.5	100.0	0.0	0.0	0.0	12.5
TOTALS										
England	61,500	1,272	2.1	55.5	62.0	78.7	8.4	9.6	3.3	2.8
N Ireland	2,093	13	0.6	55.5	53.8	92.3	7.7	0.0	0.0	0.0
Scotland	5,617	48	0.9	60.2	64.6					
Wales	3,498	118	3.4	59.0	61.0	96.3	1.9	1.9	0.0	8.5
UK	72,708	1,451	2.0	55.9	61.9	80.4	7.8	8.8	3.0	3.3

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 and Manchester were unable to submit patient level data but provided aggregate numbers of patients on KRT at the end of 2023 by treatment modality

UK ethnicity distribution and completeness does not include Scotland

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 31/12/2023

PRD	N on HHD	% HHD population	Age <65 yrs		Age ≥65 yrs		M/F ratio
			N	%	N	%	
Diabetes	189	14.6	137	13.9	52	16.8	1.4
Glomerulonephritis	328	25.4	269	27.3	59	19.1	2.2
Hypertension	86	6.7	57	5.8	29	9.4	2.9
Polycystic kidney disease	133	10.3	98	10.0	35	11.3	1.1
Pyelonephritis	112	8.7	83	8.4	29	9.4	1.2
Renal vascular disease	13	1.0	6	0.6	7	2.3	1.2
Other	250	19.3	194	19.7	56	18.1	1.4
Uncertain aetiology	182	14.1	140	14.2	42	13.6	1.7
Total (with data)	1,293	100.0	984	100.0	309	100.0	
Missing	55	4.1	42	4.1	13	4.0	2.1

Biochemistry parameters in prevalent adult HHD 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.

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 31/12/2023 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				
Bham	2.3	82.3	4.8	100.0
Bradfd				100.0
Brightn	2.4	78.8	6.1	100.0
Bristol				100.0
Camb	2.25	45.0	25.0	100.0
Carlisle				100.0
Carsh	2.3	78.3	8.7	95.8
Colchr				
Covnt	2.4	54.6	36.4	78.6
Derby	2.4	84.8	6.8	100.0
Donc				100.0
Dorset	2.2	84.6	0.0	100.0
Dudley	2.4	81.8	18.2	100.0
EssexMS	2.4	62.5	31.3	94.1
Exeter				
Glouc				100.0
Hull	2.3	70.6	11.8	100.0
Ipswi				
Kent	2.3	75.0	10.0	100.0
L Barts	2.3	75.5	11.3	100.0
L Guys	2.3	69.7	18.2	86.8
L Kings	2.3	76.5	8.8	100.0
L Rfree				100.0
L St.G				100.0
L West				53.2
Leeds	2.3	73.1	7.7	100.0
Leic	2.3	74.4	9.3	100.0
Liv UH	2.4	72.4	22.4	100.0
M RI				
Middlbr	2.2	62.5	0.0	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
Newc	2.4	76.2	23.8	100.0
Norwch				88.9
Nottm	2.45	76.7	23.3	100.0
Oxford	2.25	54.2	16.7	100.0
Plymth				100.0
Ports	2.4	83.6	9.6	98.7
Prestn	2.3	71.8	23.1	100.0
Redng	2.3	100.0	0.0	100.0
Salford	2.5	48.3	41.4	100.0
Sheff	2.3	76.7	4.7	97.7
Shrew	2.3	71.8	20.5	100.0
Stoke	2.5	91.4	8.6	100.0
Sund	2.3	60.0	20.0	100.0
Truro				100.0
Wirral				75.0
Wolve	2.4	76.7	18.6	100.0
York	2.3	77.8	0.0	100.0
N IRELAND				
Antrim				100.0
Belfast				100.0
Newry				100.0
Ulster				
West NI				100.0
WALES				
Bangor	2.4	77.3	9.1	100.0
Cardff	2.4	86.4	9.1	100.0
Clwyd				100.0
Swanse	2.4	88.2	8.8	100.0
Wrexms				100.0
TOTALS				
England	2.3	74.3	14.1	96.9
N Ireland	2.4	76.9	0.0	100.0
Wales	2.4	83.6	10.3	100.0
E, W & NI	2.4	75.2	13.6	97.2

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

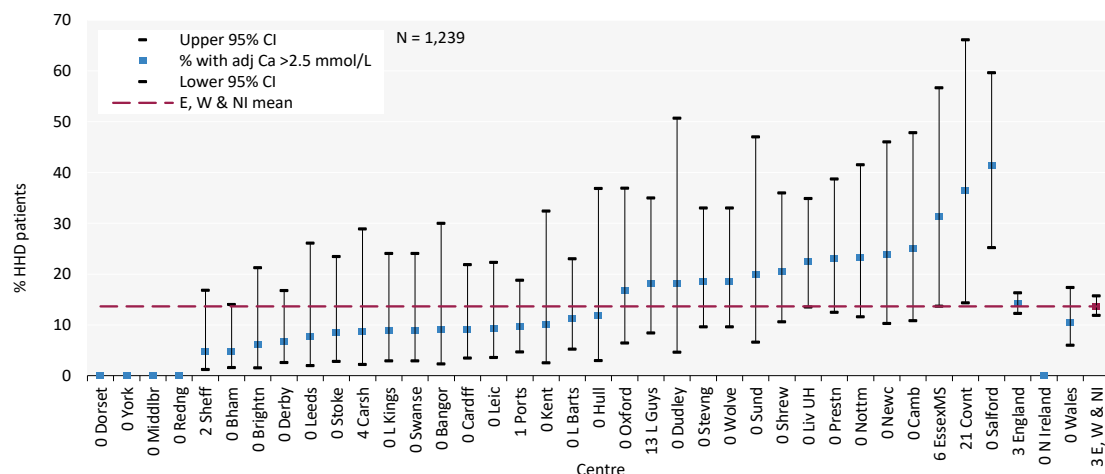


Figure 7.3 Percentage of adult patients prevalent to HHD on 31/12/2023 with adjusted calcium (Ca) above the target range (>2.5 mmol/L) by centre
CI – confidence interval

Table 7.6 Median pre-dialysis potassium and bicarbonate and percentage attaining target ranges in adult patients prevalent to HHD on 31/12/2023 by centre

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
ENGLAND										
Bham					40.3					61.3
Bradfd					100.0					100.0
Brightn					0.0	27	0.0	45.2	54.8	93.9
Bristol					100.0					100.0
Camb	5.0	5.0	90.0	5.0	100.0	25.5	0.0	60.0	40.0	100.0
Carlisle					0.0					100.0
Carsh					0.0					0.0
Colchr										
Covnt					0.0	27	0.0	45.5	54.6	78.6
Derby	4.4	25.4	74.6	0.0	100.0	24	1.7	89.8	8.5	100.0
Donc					100.0					100.0
Dorset	4.9	0.0	92.3	7.7	100.0	24	0.0	100.0	0.0	100.0
Dudley	5.4	0.0	72.7	27.3	100.0	26	0.0	54.6	45.5	100.0
EssexMS	5.3	11.8	88.2	0.0	100.0	26.5	0.0	50.0	50.0	94.1
Exeter										
Glouc					0.0					100.0
Hull	5.2	5.9	76.5	17.7	100.0	24	0.0	94.1	5.9	100.0
Ipswi										
Kent	4.3	45.0	55.0	0.0	100.0	23.5	0.0	85.0	15.0	100.0
L Barts	5.2	7.6	75.5	17.0	100.0	23	1.9	86.8	11.3	100.0
L Guys	4.6	11.1	88.9	0.0	94.7	26	0.0	56.3	43.8	84.2
L Kings					0.0	20	5.9	94.1	0.0	100.0
L Rfree					100.0					66.7
L St.G					0.0					0.0
L West					0.0					29.8
Leeds	5.4	0.0	80.8	19.2	100.0	23.5	0.0	84.6	15.4	100.0
Leic	5.4	9.3	76.7	14.0	100.0	24	0.0	81.4	18.6	100.0
Liv UH					0.0	24.5	1.7	72.4	25.9	100.0
M RI										
Middlbr	5.1	6.3	81.3	12.5	100.0	30	0.0	12.5	87.5	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
Newc					0.0	23	0.0	90.5	9.5	100.0
Norwch					88.9					88.9
Nottm	4.8	20.0	76.7	3.3	100.0					36.7
Oxford	5.1	12.5	79.2	8.3	100.0	23.5	8.3	75.0	16.7	100.0
Plymth					100.0					100.0
Ports	4.6	16.4	78.1	5.5	98.7	24	1.5	77.9	20.6	91.9
Prestn	5.2	5.1	84.6	10.3	100.0	24.5	5.3	71.1	23.7	97.4
Redng	4.8	0.0	100.0	0.0	100.0	24	0.0	88.2	11.8	100.0
Salford	5.2	10.3	82.8	6.9	100.0	25	3.9	65.4	30.8	89.7
Sheff	5.0	4.7	88.4	7.0	97.7	24	2.3	72.1	25.6	97.7
Shrew					0.0	22	7.7	89.7	2.6	100.0
Sthend										
Stoke					0.0	27	2.9	42.9	54.3	100.0
Sund					0.0	24	0.0	100.0	0.0	100.0
Truro					100.0					100.0
Wirral					0.0					100.0
Wolve	4.9	9.3	90.7	0.0	100.0	21	11.6	83.7	4.7	100.0
York	5.8	11.1	66.7	22.2	100.0	22	5.6	77.8	16.7	100.0
N IRELAND										
Antrim					100.0					100.0
Belfast					100.0					100.0
Newry					100.0					100.0
Ulster										
West NI					100.0					100.0
WALES										
Bangor	4.6	18.2	77.3	4.6	100.0	26	4.6	54.6	40.9	100.0
Cardff	5.0	4.6	88.6	6.8	100.0	23	4.6	81.8	13.6	100.0
Clwyd					100.0					100.0
Swanse	5.0	0.0	94.1	5.9	100.0	23	0.0	94.1	5.9	100.0
Wrexms					100.0					100.0
TOTALS										
England	5.0	11.9	79.8	8.3	63.1	24	3.0	74.6	22.5	88.6
N Ireland	5.3	0.0	84.6	15.4	100.0	21	0.0	92.3	7.7	100.0
Wales	5.0	6.9	86.2	6.9	100.0	24	3.5	80.2	16.4	100.0
E, W & NI	5.0	11.0	80.8	8.2	66.8	24	3.0	75.4	21.7	89.7

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

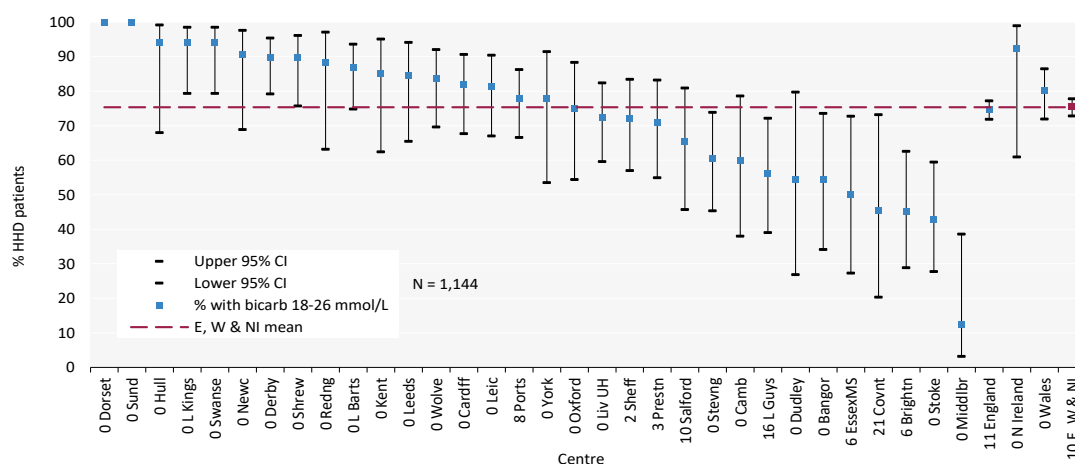


Figure 7.4 Percentage of adult patients prevalent to HHD on 31/12/2023 with pre-dialysis bicarbonate (bicarb) within the target range (18-26 mmol/L) by centre
CI – confidence interval

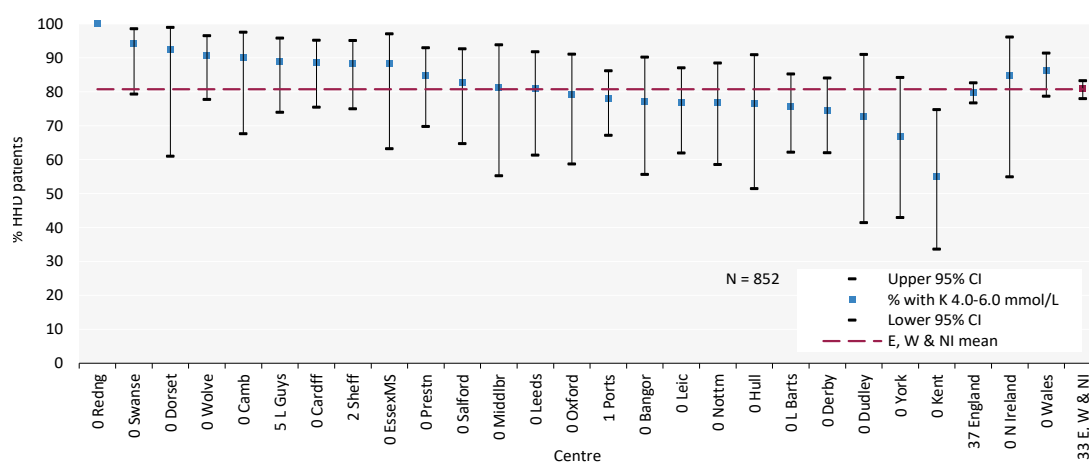


Figure 7.5 Percentage of adult patients prevalent to HHD on 31/12/2023 with pre-dialysis potassium (K) within the target range (4.0-6.0 mmol/L) by centre
CI – confidence interval

Anaemia in prevalent adult HHD patients

UK Kidney Association anaemia guidelines recommend a target haemoglobin of 100-120 g/L. Data are presented in table 7.7 regarding target and median haemoglobin and ferritin levels attained.

Table 7.7 Median haemoglobin and ferritin and percentage attaining target ranges in adult patients prevalent to HHD on 31/12/2023 by centre

Centre	Haemoglobin				Ferritin		
	Median (g/L)	% <100 g/L	% >120 g/L	% data completeness	Median (µg/L)	% <200 µg/L	% data completeness
ENGLAND							
Bham	111	22.6	22.6	100.0	478	16.1	100.0
Bradfd				100.0			100.0
Brightn	110	18.2	12.1	100.0	245	45.5	100.0
Bristol				100.0			100.0
Camb				15.0			15.0
Carlis				100.0			100.0
Carsh	112	26.1	21.7	95.8	430	21.7	95.8
Colchr							
Covnt	110	9.1	9.1	78.6	240	27.3	78.6
Derby	116	15.3	32.2	100.0	422	8.6	98.3
Donc				100.0			100.0
Dorset	109	23.1	15.4	100.0	367	15.4	100.0
Dudley	105	18.2	9.1	100.0	251	45.5	100.0
EssexMS	112	17.6	29.4	100.0	232	35.3	100.0
Exeter							
Glouc				100.0			100.0
Hull	109	23.5	17.6	100.0	831	0.0	100.0
Ipswi							
Kent	109	25.0	20.0	100.0	342	35.0	100.0
L Barts	108	18.9	17.0	100.0	583	17.0	100.0
L Guys	104	33.3	18.2	86.8	375	28.1	84.2
L Kings	112	2.9	17.6	100.0	534	8.8	100.0
L Rfree				100.0			100.0
L St.G				100.0			100.0
L West				55.3			59.6
Leeds	109	30.8	23.1	100.0	144	65.4	100.0
Leic	111	32.6	30.2	100.0	336	23.3	100.0
Liv UH	108	27.6	25.9	100.0	350	20.7	100.0
M RI							
Middlbr	108	25.0	12.5	100.0	1057	6.3	100.0
Newc	111	28.6	38.1	100.0	536	4.8	100.0
Norwch				88.9			88.9
Nottm	107	23.3	20.0	100.0	328	26.7	100.0
Oxford	109	33.3	25.0	100.0	546	13.0	95.8
Plymth				100.0			100.0
Ports	107	30.1	23.3	98.7	242	38.0	96.0
Prestn	112	30.8	28.2	100.0	345	43.2	94.9
Redng	113	23.5	23.5	100.0	317	23.5	100.0
Salford	105	24.1	20.7	100.0	205	44.8	100.0
Sheff	110	39.5	20.9	97.7	411	16.3	97.7
Shrew	107	28.2	15.4	100.0	336	17.9	100.0
Stevng	107	23.3	18.6	100.0	482	9.3	100.0
Stoke	116	11.4	40.0	100.0	311	25.7	100.0
Sund	109	26.7	20.0	100.0	125	73.3	100.0
Truro				100.0			88.9
Wirral				100.0			100.0
Wolve	106	32.6	16.3	100.0	312	39.5	100.0

Table 7.7 Continued

Centre	Haemoglobin				Ferritin		
	Median (g/L)	% <100 g/L	% >120 g/L	% data completeness	Median (µg/L)	% <200 µg/L	% data completeness
York	106	38.9	11.1	100.0	243	27.8	100.0
N IRELAND							
Antrim				100.0			100.0
Belfast				100.0			100.0
Newry				100.0			100.0
Ulster							
West NI				100.0			100.0
SCOTLAND							
Abrdn				100.0			
Airdrie							
D&Gall				100.0			
Dundee				100.0			
Edinb				100.0			
Glasgw	116	20.0	33.3	93.8			
Inverns				100.0			
Klmarnk	107	38.5	0.0	100.0			
Krkldy				100.0			
WALES							
Bangor	113	18.2	36.4	100.0	443	13.6	100.0
Cardff	108	25.0	4.5	100.0	221	44.2	97.7
Clwyd				100.0			100.0
Swanse	111	14.7	17.6	100.0	406	23.5	100.0
Wrexm				100.0			100.0
TOTALS							
England	109	25.5	21.7	95.6	372	26.1	95.1
N Ireland	109	46.2	15.4	100.0	267	46.2	100.0
Scotland	110	27.7	23.4	97.9			
Wales	109	22.4	15.5	100.0	366	31.3	99.1
UK	109	25.6	21.1	96.2	371	26.8	95.5

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

UK National average for ferritin does not include Scotland

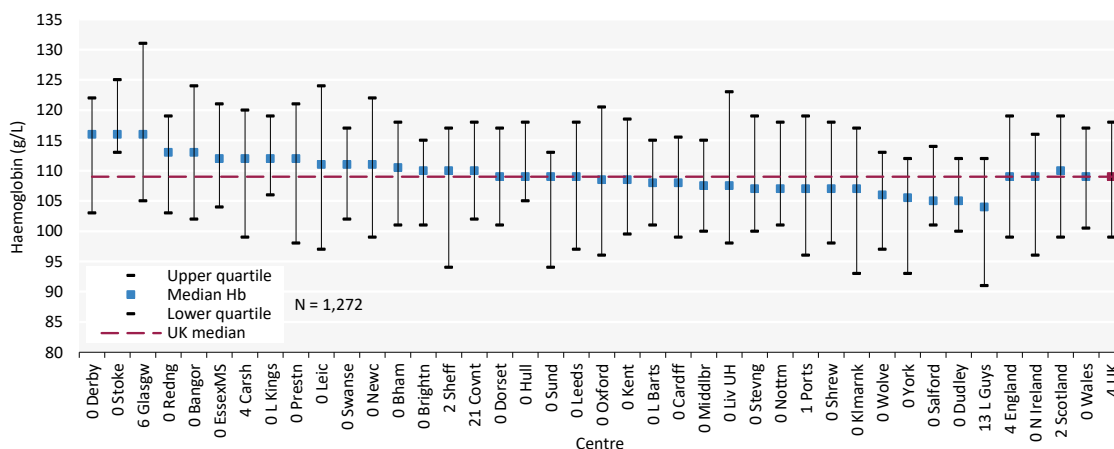


Figure 7.6 Median haemoglobin (Hb) in adult patients prevalent to HHD on 31/12/2023 by centre

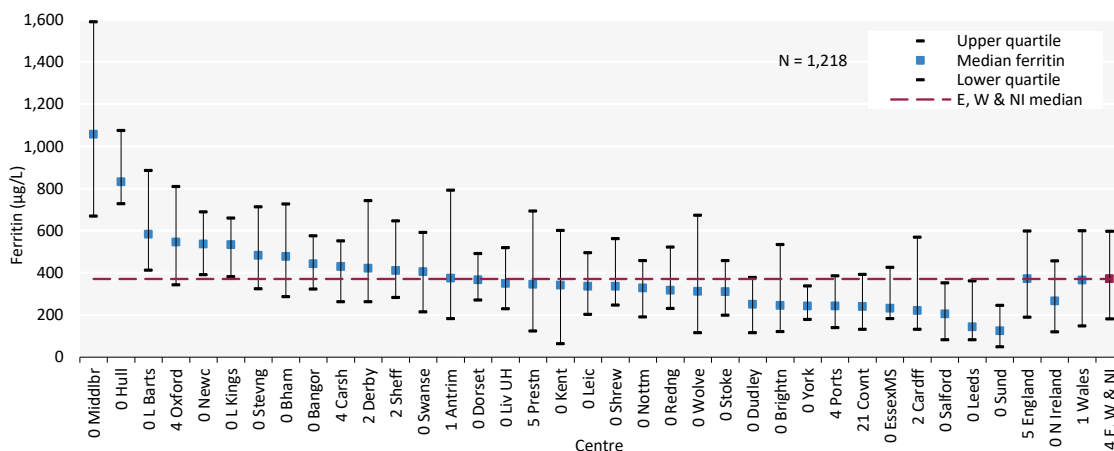


Figure 7.7 Median ferritin in adult patients prevalent to HHD on 31/12/2023 by centre

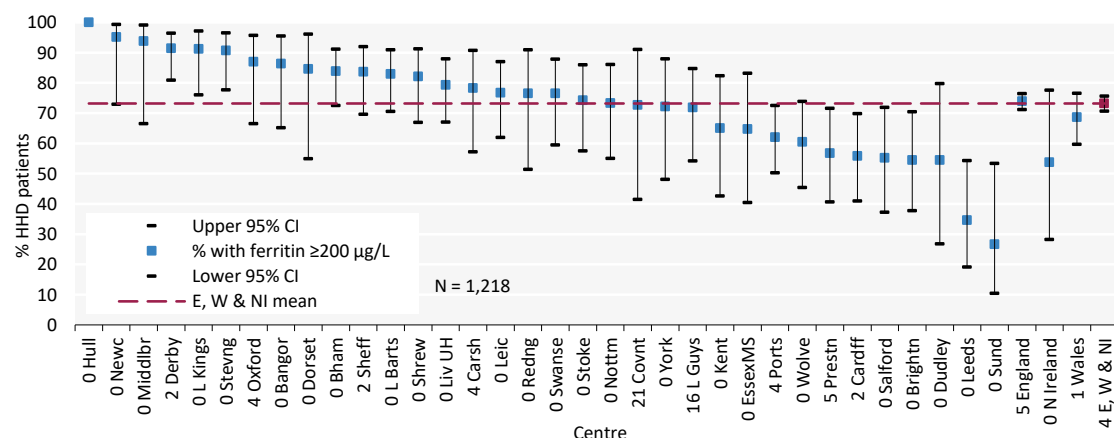


Figure 7.8 Percentage of adult patients prevalent to HHD on 31/12/2023 with ferritin ≥ 200 $\mu\text{g/L}$ by centre
CI – confidence interval

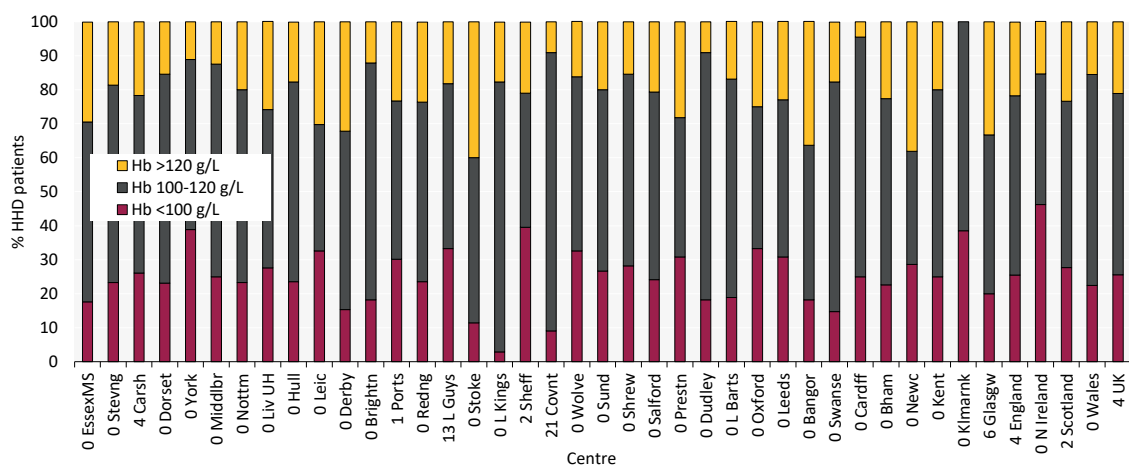


Figure 7.9 Distribution of haemoglobin (Hb) in adult patients prevalent to HHD on 31/12/2023 by centre

Cause of death in adult HHD patients

Cause of death was analysed in prevalent patients receiving HHD on 31/12/2022 and followed-up for one year in 2023. 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. Where the cause of death was missing in the 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 7.8 Cause of death in adult patients prevalent to HHD on 31/12/2022 followed-up in 2023 by age group

Cause of death	HHD all ages		HHD < 65 years	HHD ≥ 65 years
	N	%	%	%
Cardiac disease	27	22.0	27.3	15.8
Cerebrovascular disease	6	4.9	6.1	3.5
Infection	20	16.3	15.2	17.5
Malignancy	7	5.7	3.0	8.8
Treatment withdrawal	12	9.8	7.6	12.3
Other	37	30.1	28.8	31.6
Uncertain aetiology	14	11.4	12.1	10.5
Total (with data)	123	100.0	100.0	100.0
Missing	7	5.4	5.7	5.0

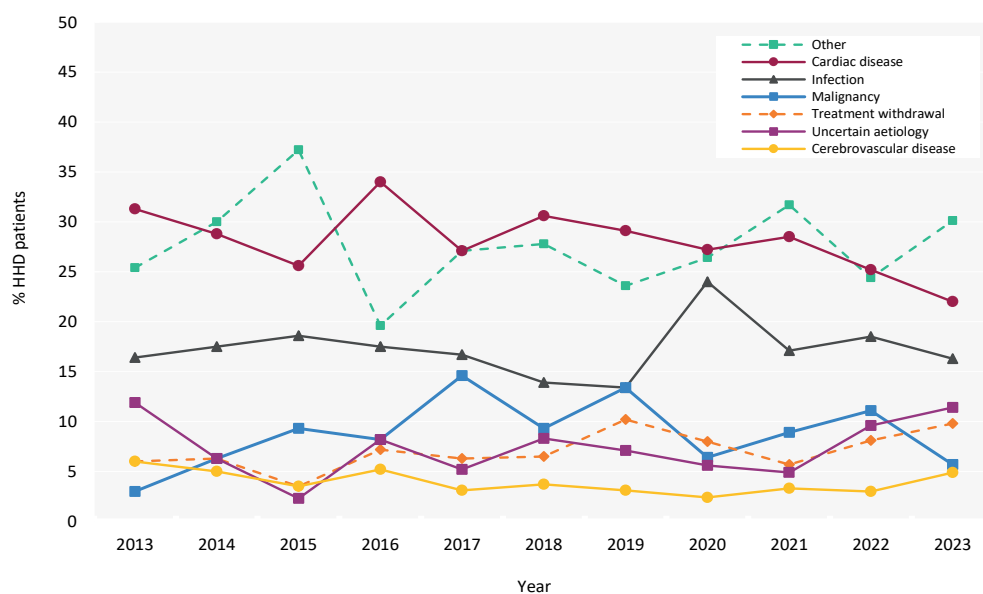


Figure 7.10 Cause of death between 2013 and 2023 for adult patients prevalent to HHD at the beginning of the year