UK Kidney Association
UK Renal Registry

Chapter 3

Adults on kidney replacement therapy (KRT) in the UK at the end of 2023

Contents

Introduction

This chapter describes the population of adult patients with end-stage kidney disease (ESKD) who were on kidney replacement therapy (KRT) in the UK at the end of 2023 (figure 3.1). Patients may have started KRT prior to 2023 or during 2023. Three KRT modalities are available to patients with ESKD – haemodialysis (HD), peritoneal dialysis (PD) and kidney transplantation (Tx). HD may be undertaken in-centre (ICHD) or at home (HHD).

The size of the prevalent population on each KRT modality reflects uptake to the modality by new KRT patients (chapter 2); the number of patients switching from one modality to another; and the length of time patients remain on a modality before they switch to another, withdraw from KRT or die.

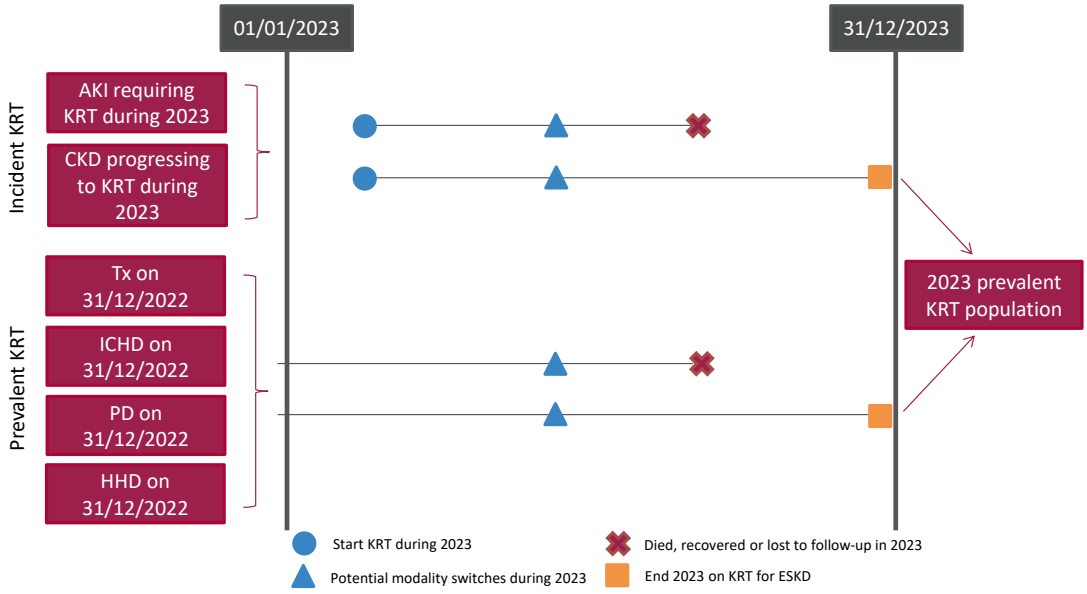

Figure 3.1 Pathways adult patients could follow to be included in the UK 2023 prevalent KRT population

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 KRT at the end of 2023 or if they had been on KRT for ≥90 days and were on KRT at the end of 2023

CKD – chronic kidney disease; Tx – transplant

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

Rationale for analyses

The analyses focus on a description of the 2023 prevalent adult KRT population, including the number on KRT per million population (pmp). These analyses are performed annually to help clinicians and policy makers plan future KRT requirements in the UK. Variation in case-mix is also reported to aid understanding of how to improve equity of KRT provision in the UK.

The UK Kidney Association guidelines (ukkidney.org/health-professionals/guidelines/guidelines-commentaries) provide audit measures relevant to the care of patients on KRT, but these are treatment-specific – for further details see the guideline tables in each chapter.

Exeter and Manchester were unable to submit patient level data for 2023. Aggregate numbers by modality were provided, enabling inclusion in Tables 3.1 and 3.2. 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 who were on KRT on 30th September 2023, rather than 31st December 2023.

For definitions and methods relating to this chapter see appendix A.

Key findings

- 72,708 adult patients were receiving KRT for ESKD on 31/12/2023. This represents a 2.5% increase from 2022, in line with the 2-2.5% increase that was seen in the years before the pandemic.
- KRT prevalence was 1,342 per million population compared 1,322 per million population in 2022, an increase of 1.5%.
- The median age of KRT patients was 60.0 years (ICHD 65.6 years, HHD 55.9 years, PD 63.0 years and Tx 57.0 years). In 2010 the median age was 57.9 years (ICHD 66.8 years, HHD 52.4 years, PD 61.5 years and Tx 51.2 years).
- 61.4% of KRT patients were male.
- Tx continued as the most common treatment modality (56.3%) – ICHD comprised 36.6%, PD 5.1% and HHD 2.0% of the KRT population.
- The most common identifiable primary renal disease (PRD) was glomerulonephritis (19.5%), followed by diabetes (18.9%).
- There were 3 centres above the upper 95% limit and 1 centre below the lower 95% limit in the funnel plots showing 1 year age-, sex- and comorbidity-adjusted survival for patients prevalent to dialysis on 31/12/2022. It is expected that 3 centres would be outside the limits by chance.
- Cause of death records from Civil Registration were used where the 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 was cardiac disease (23.3%) in younger patients (<65 years) and infections (20.1%) in patients ≥ 65 years.

Analyses

Changes to the prevalent adult KRT population

For the 67 adult kidney centres, the number of prevalent patients on KRT was calculated as a proportion of the estimated centre catchment population (calculated as detailed in appendix A).

Table 3.1 Number of prevalent adult KRT patients by year and by centre; number of KRT patients as a proportion of the catchment population

Centre	N on KRT					Estimated catchment population (millions)	2023 crude rate (pmp)
	2019	2020	2021	2022	2023		
ENGLAND							
Bham	3,312	3,261	3,303	3,389	3,417	2.10	1,630
Bradfd	733	725	736	781	824	0.51	1,623
Brightn	1,064	1,078	1,091	1,097	1,145	1.08	1,059
Bristol	1,487	1,476	1,497	1,525	1,522	1.27	1,201
Camb	1,456	1,511	1,628	1,660	1,629	0.99	1,648
Carlis	302	297	306	303	305	0.26	1,178
Carsh	1,782	1,851	1,907	1,940	2,001	1.68	1,192
Colchr	145	150	146	155	164	0.30	551
Covnt	1,082	1,109	1,129	1,130	1,158	0.81	1,436
Derby	654	675	691	717	735	0.58	1,276
Donc	342	341	341	380	387	0.38	1,018
Dorset	773	798	787	792	816	0.75	1,088
Dudley	366	374	403	383	368	0.35	1,048
EssexMS	852	885	895	891	974	1.01	963
Exeter	1,089	1,092	1,077	1,128	1,127	0.99	1,142
Glouc	531	522	545	557	560	0.53	1,064
Hull	904	913	917	934	959	0.81	1,181
Ipswi	428	426	422	395	397	0.32	1,248
Kent	1,140	1,144	1,192	1,221	1,240	1.08	1,143
L Barts	2,655	2,670	2,724	2,841	2,959	1.62	1,832
L Guys	2,322	2,318	2,326	2,312	2,318	1.01	2,302
L Kings	1,248	1,254	1,332	1,396	1,389	0.94	1,471
L Rfree	2,345	2,336	2,396	2,422	2,475	1.27	1,942
L St.G	852	854	872	855	878	0.67	1,313
L West	3,608	3,529	3,548	3,614	3,681	2.03	1,812
Leeds	1,727	1,753	1,785	1,840	1,906	1.40	1,357
Leic	2,580	2,621	2,634	2,722	2,820	2.18	1,294
Liv UH	1,483	1,446	1,462	1,478	1,503	1.27	1,186
M RI	2,048	1,986	2,071	2,108	2,258	1.37	1,654
Middlbr	953	946	958	956	971	0.82	1,185
Newc	1,172	1,197	1,225	1,246	1,287	0.96	1,345
Norwch	809	810	800	802	808	0.71	1,145
Nottm	1,217	1,208	1,217	1,208	1,195	0.93	1,282
Oxford	1,979	2,021	2,006	2,076	2,132	1.54	1,384
Plymth	535	542	543	544	549	0.41	1,327
Ports	1,882	1,900	1,943	2,000	2,030	1.79	1,136
Prestn	1,342	1,368	1,374	1,400	1,436	1.27	1,130
Redng	862	870	879	922	994	0.74	1,338
Salford	1,243	1,267	1,217	1,273	1,371	1.19	1,154
Sheff	1,491	1,495	1,501	1,487	1,478	1.12	1,316
Shrew	437	427	443	446	461	0.42	1,089
Stevng	963	980	1,023	1,069	1,117	1.15	968

Table 3.1 Continued

Centre	N on KRT 2019	2020	2021	2022	2023	Estimated catchment population (millions)	2023 crude rate (pmp)
Stoke	808	816	845	906	921	0.75	1,232
Sund	570	556	547	565	590	0.54	1,083
Truro	450	444	462	471	468	0.37	1,282
Wirral	417	417	416	403	387	0.48	803
Wolve	615	655	695	725	780	0.55	1,409
York	582	572	581	609	610	0.49	1,239
N IRELAND							
Antrim	285	287	295	306	311	0.25	1,252
Belfast	881	889	908	926	938	0.54	1,742
Newry	253	264	281	269	277	0.24	1,163
Ulster	185	201	203	209	210	0.21	1,022
West NI	328	351	339	355	357	0.25	1,410
SCOTLAND							
Abrdn	557	565	578	589	608	0.50	1,219
Airdrie	525	516	504	517	565	0.47	1,211
D&Gall	150	157	155	146	145	0.12	1,200
Dundee	447	425	403	388	384	0.37	1,043
Edinb	885	886	921	964	989	0.85	1,168
Glasgw	1,850	1,843	1,854	1,893	1,934	1.38	1,398
Inverns	283	272	276	280	310	0.23	1,374
Klmarnk	362	370	369	379	394	0.29	1,351
Krkcldy	295	289	291	285	288	0.28	1,047
WALES							
Bangor	201	216	217	220	218	0.16	1,380
Cardff	1,730	1,681	1,701	1,760	1,830	1.16	1,581
Clwyd	205	204	202	204	222	0.18	1,221
Swanse	869	850	852	848	901	0.75	1,197
Wrexm	310	322	303	307	327	0.21	1,564
TOTALS							
England	57,637	57,886	58,838	60,074	61,500	45.78	1,343
N Ireland	1,932	1,992	2,026	2,065	2,093	1.48	1,411
Scotland	5,354	5,323	5,351	5,441	5,617	4.48	1,255
Wales	3,315	3,273	3,275	3,339	3,498	2.46	1,423
UK	**68,238**	**68,474**	**69,490**	**70,919**	**72,708**	**54.20**	**1,342**

Country KRT populations were calculated by summing the KRT 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 both provided aggregate numbers of patients on KRT at the end of each year, by treatment modality
pmp – per million population

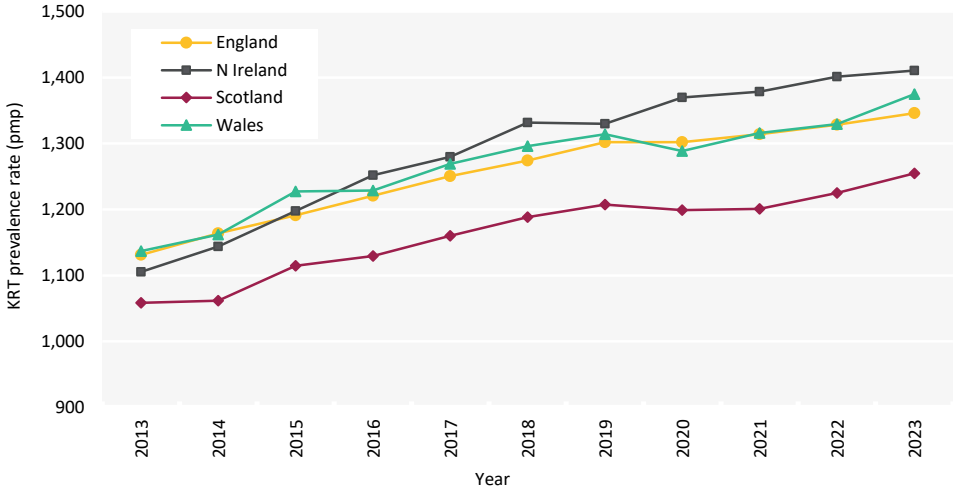

Figure 3.2 Adult KRT prevalence rates by country between 2013 and 2023
pmp – per million population

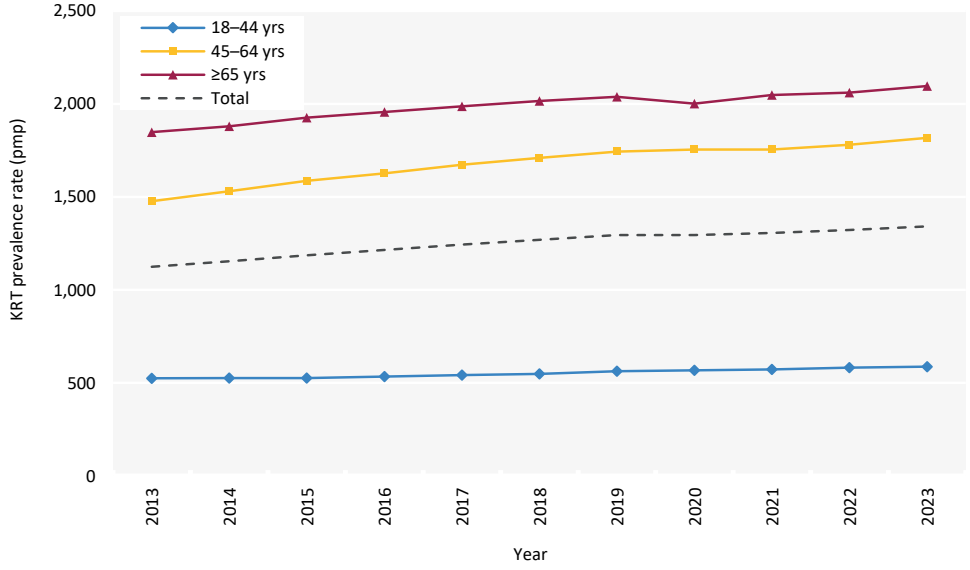

Figure 3.3 Adult KRT prevalence rates by age group between 2013 and 2023
pmp – per million population

Demographics and treatment modality of prevalent adult KRT patients

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

Variation between centres in the proportion of dialysis patients on home therapies (PD and HHD combined) is shown in figure 3.4.

Table 3.2 Demographics and treatment modality of adult patients prevalent to KRT on 31/12/2023 by centre

								Ethnicity				
Centre	N on KRT	% on ICHD	% on PD	% on HHD	% with Tx	Median age (yrs)	% male	% White	% Asian	% Black	% Other	% missing
ENGLAND												
Bham	3,417	41.2	7.3	1.8	49.7	59.0	59.6	54.5	30.6	11.9	3.0	1.4
Bradfd	824	42.0	3.8	0.7	53.5	56.3	58.7	49.7	45.4	2.7	2.2	0.1
Brightn	1,145	39.7	5.5	3.0	51.9	61.4	61.1	88.5	6.2	2.5	2.7	3.2
Bristol	1,522	31.1	4.3	0.6	64.1	59.0	62.0	86.0	4.7	6.9	2.3	0.3
Camb	1,629	19.7	1.8	1.2	77.3	58.6	63.2	88.5	6.9	2.9	1.7	1.5
Carlis	305	35.1	6.9	2.3	55.7	60.6	60.3	96.7	2.7	0.7	0.0	1.6
Carsh	2,001	46.2	6.2	1.2	46.3	62.2	61.2	63.0	19.8	12.1	5.0	3.7
Colchr	164	100.0	0.0	0.0	0.0	69.5	64.6	92.9	0.6	1.9	4.5	5.5
Covnt	1,158	34.4	6.5	1.3	57.9	60.0	62.3	76.2	17.4	5.7	0.7	0.6
Derby	735	38.9	8.7	8.2	44.2	61.5	62.3	81.6	12.4	3.3	2.6	5.9
Donc	387	51.4	5.2	2.3	41.1	63.1	63.6	91.4	3.4	2.1	3.1	1.0
Dorset	816	40.6	3.3	1.7	54.4	64.5	62.5	94.5	2.8	0.7	2.0	0.0
Dudley	368	54.9	9.0	3.0	33.2	64.1	64.4	75.8	17.7	6.0	0.5	0.0
EssexMS	974	49.0	11.8	1.7	37.5	62.8	64.2	82.6	6.3	6.8	4.2	5.3
Exeter	1,127	43.0	6.2	1.5	49.2							
Glouc	560	38.9	6.1	0.5	54.5	63.0	60.7	90.2	4.7	2.1	3.0	0.2
Hull	959	39.8	5.6	1.8	52.8	59.6	63.3	95.2	1.7	1.4	1.7	1.3
Ipswi	397	36.3	3.8	0.0	59.9	64.1	62.5	81.2	2.3	3.8	12.7	0.8
Kent	1,240	38.5	4.6	1.6	55.3	60.5	61.0	91.0	3.4	2.1	3.5	1.5
L Barts	2,959	40.6	7.4	1.8	50.2	58.3	59.0	30.9	36.8	26.1	6.3	1.7
L Guys	2,318	29.8	1.9	1.6	66.7	57.4	59.8	55.9	10.3	28.4	5.3	2.5
L Kings	1,389	48.6	6.4	2.4	42.5	60.1	61.2	41.8	14.9	39.4	3.8	1.7
L Rfree	2,475	32.6	5.6	0.2	61.5	59.1	60.8	40.9	21.3	22.3	15.5	4.4
L St.G	878	35.5	6.5	0.6	57.4	60.8	57.4	40.3	25.6	24.7	9.4	4.2
L West	3,681	37.1	5.2	1.3	56.5	60.9	62.5	35.0	38.5	19.0	7.4	0.0
Leeds	1,906	33.9	2.9	1.4	61.8	58.0	60.8	74.6	17.6	5.9	1.9	0.3
Leic	2,820	37.6	5.7	1.5	55.2	60.7	61.4	72.2	20.1	5.7	2.0	4.9
Liv UH	1,503	36.0	3.7	4.1	56.2	58.8	62.7	90.0	3.4	3.3	3.3	4.8
M RI	2,258	26.0	4.5	3.8	65.7							
Middlbr	971	37.9	1.4	1.6	59.0	60.3	62.3	92.3	5.5	1.0	1.2	0.3
Newc	1,287	31.2	4.0	1.6	63.2	59.3	59.4	92.1	5.1	1.6	1.2	0.1
Norwch	808	39.1	7.2	1.1	52.6	63.7	62.3	96.0	1.8	1.3	0.9	4.6
Nottm	1,195	29.7	7.4	2.5	60.4	58.7	60.4	80.6	6.8	7.4	5.1	1.0
Oxford	2,132	24.0	4.0	1.1	70.9	58.9	61.2	78.1	12.0	5.8	4.0	7.3
Plymth	549	28.4	6.4	0.9	64.3	61.2	63.4	96.3	1.5	0.5	1.6	0.4
Ports	2,030	34.3	4.6	3.8	57.3	60.5	59.8	91.5	4.7	1.5	2.3	12.8
Prestn	1,436	36.8	3.9	2.7	56.6	59.7	61.0	82.7	15.4	1.0	0.9	3.6
Redng	994	37.5	5.2	1.7	55.5	60.6	64.1	61.9	23.8	5.7	8.6	10.1
Salford	1,371	36.4	7.0	2.3	54.3	59.1	62.1	75.9	17.5	4.0	2.5	2.6
Sheff	1,478	39.4	4.7	3.0	52.8	59.4	63.1	85.5	8.2	3.4	2.9	1.6
Shrew	461	37.3	11.9	9.5	41.2	62.3	64.9	90.0	4.0	2.2	3.8	2.0
Stevng	1,117	54.1	3.3	4.0	38.6	61.5	64.3	66.5	19.9	9.2	4.4	2.9
Stoke	921	36.6	9.7	3.8	49.9	60.0	61.7	89.0	6.1	2.5	2.4	3.9

Table 3.2 Continued

Centre	N on KRT	% on ICHD	% on PD	% on HHD	% with Tx	Median age (yrs)	% male	Ethnicity				
								% White	% Asian	% Black	% Other	% missing
Sund	590	39.0	6.1	2.5	52.4	60.8	59.3	95.1	3.1	0.8	1.0	0.0
Truro	468	40.6	2.8	1.9	54.7	62.1	60.7	98.1	0.9	0.2	0.9	0.0
Wirral	387	43.2	4.4	1.0	51.4	61.4	61.5	95.3	2.3	1.3	1.0	0.0
Wolve	780	52.2	7.8	5.5	34.5	60.5	60.4	57.8	28.0	10.1	4.1	0.1
York	610	33.8	4.4	3.0	58.9	61.6	62.6	96.0	1.5	0.3	2.2	2.0
N IRELAND												
Antrim	311	38.9	4.8	0.3	55.9	63.5	62.1	99.3	0.0	0.4	0.4	9.6
Belfast	938	14.7	2.5	0.9	82.0	58.9	60.4	96.8	2.3	0.3	0.6	4.7
Newry	277	28.2	2.9	0.7	68.2	61.3	61.4	97.3	1.2	1.2	0.4	7.2
Ulster	210	45.7	2.4	0.0	51.9	64.2	63.3	94.2	4.3	1.4	0.0	1.0
West NI	357	30.8	0.3	0.6	68.3	59.2	60.8	98.5	1.5	0.0	0.0	3.6
SCOTLAND												
Abrdn	608	33.9	3.5	0.5	62.2	58.0	58.6					
Airdrie	565	40.9	4.2	0.0	54.9	60.1	56.5					
D&Gall	145	31.0	5.5	0.7	62.8	62.0	64.8					
Dundee	384	37.0	6.0	1.0	56.0	61.4	61.5					
Edinb	989	30.0	3.0	0.8	66.1	59.3	64.7					
Glasgw	1,934	31.3	1.5	0.8	66.3	59.5	60.1					
Inverns	310	37.7	3.2	0.3	58.7	60.8	59.7					
Klmarnk	394	41.6	8.1	3.3	47.0	61.3	60.4					
Krkcldy	288	59.4	4.2	0.7	35.8	62.5	63.2					
WALES												
Bangor	218	31.2	4.6	10.1	54.1	61.4	63.3	97.8	0.0	0.5	1.6	15.6
Cardff	1,830	32.1	3.2	2.4	62.2	59.0	63.0	90.5	6.1	1.6	1.8	6.7
Clwyd	222	43.2	8.6	4.1	44.1	63.7	65.8	97.5	2.0	0.5	0.0	11.3
Swanse	901	48.3	4.8	3.9	43.1	62.7	61.4	96.3	2.3	0.5	0.9	2.9
Wrexm	327	36.4	6.4	2.4	54.7	59.3	62.1	96.2	1.3	1.0	1.6	4.3
TOTALS												
England	61,500	37.0	5.4	2.1	55.5	60.0	61.3	70.4	16.0	9.6	4.0	2.8
N Ireland	2,093	25.9	2.5	0.6	71.0	60.6	61.2	97.2	1.9	0.5	0.4	5.2
Scotland	5,617	35.2	3.4	0.9	60.5	60.1	60.7					
Wales	3,498	37.3	4.3	3.4	54.9	60.2	62.7	93.4	4.0	1.1	1.4	6.3
UK	**72,708**	**36.6**	**5.1**	**2.0**	**56.3**	**60.0**	**61.4**	**72.4**	**14.9**	**8.9**	**3.8**	**3.0**

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 and Manchester were unable to submit 2023 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

PRDs were grouped into categories as shown in table 3.3, with the mapping of disease codes into groups explained in more detail in appendix A. The proportion of KRT patients in each ethnic group and with each PRD is shown for patients with ethnicity and PRD data, respectively, and these total 100% of patients with data. The proportions of patients with no ethnicity and no PRD data are shown on separate lines.

Table 3.3 Demographics, primary renal diseases (PRDs) and prevalent treatment modality of adult patients prevalent to KRT on 31/12/2023 by age group

	Age group (yrs)								
Characteristic	18–34	35–44	45–54	55–64	65–74	75–84	≥85	Total	Median age (yrs)
Total									
N on KRT	5,289	8,070	12,512	17,590	14,855	9,295	1,712	69,323	60.0
% on KRT	7.6	11.6	18.0	25.4	21.4	13.4	2.5		
Sex (%)									
Male	7.5	11.6	17.7	25.4	21.5	13.6	2.7	61.4	60.3
Female	7.9	11.8	18.5	25.3	21.3	13.1	2.1	38.6	59.7
Ethnicity (%)									
White	7.6	11.2	17.2	25.3	21.4	14.6	2.7	72.9	60.6
Asian	8.6	13.5	20.2	21.8	23.9	10.2	1.7	14.7	58.7
Black	6.2	11.9	22.3	32.9	16.5	7.9	2.4	8.8	58.0
Other	10.2	16.5	20.6	25.7	16.9	8.4	1.8	3.7	56.0
Missing	6.8	10.1	16.2	24.0	24.3	16.3	2.3	8.2	62.2
PRD (%)									
Diabetes	2.7	8.8	17.5	28.0	26.6	14.0	2.3	18.9	62.5
Glomerulonephritis	8.9	14.9	20.4	26.5	18.6	9.6	1.2	19.5	57.3
Hypertension	3.6	9.3	19.0	27.3	20.6	16.4	3.8	6.5	61.5
Polycystic kidney disease	1.8	6.0	18.6	33.8	26.5	12.1	1.0	10.5	62.0
Pyelonephritis	7.7	13.5	19.5	25.5	18.7	12.4	2.8	7.3	58.5
Renal vascular disease	2.2	4.1	6.6	15.3	29.0	34.0	8.9	2.4	73.1
Other	17.2	15.5	17.4	20.3	17.2	10.5	1.9	18.2	55.0
Uncertain aetiology	6.8	11.9	17.8	22.8	20.5	16.4	3.8	16.6	61.0
Missing	9.1	10.3	14.3	22.0	21.7	18.7	4.0	3.5	62.6
Modality (%)									
ICHD	4.8	7.8	13.7	22.2	23.6	22.3	5.6	36.8	65.6
HHD	9.5	16.3	21.4	28.9	15.7	7.3	0.9	1.9	55.9
PD	7.8	10.4	15.4	20.3	22.6	20.0	3.4	5.1	63.0
Tx	9.4	14.1	21.0	27.8	20.1	7.2	0.4	56.1	57.0

Variation between centres in the proportion of patients prevalent to dialysis on 31/12/2023 and on home therapies is shown in figure 3.4 . Please visit the UKRR data portal (ukkidney.org/audit-research/data-portals) to identify individual kidney centres.

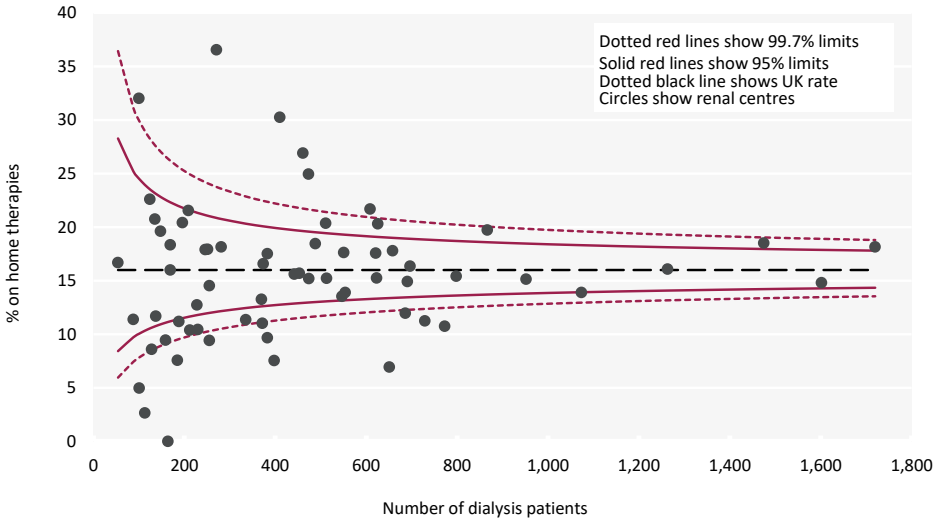

Figure 3.4 Percentage of adult patients prevalent to dialysis on 31/12/2023 on home therapies (PD and HHD) by centre

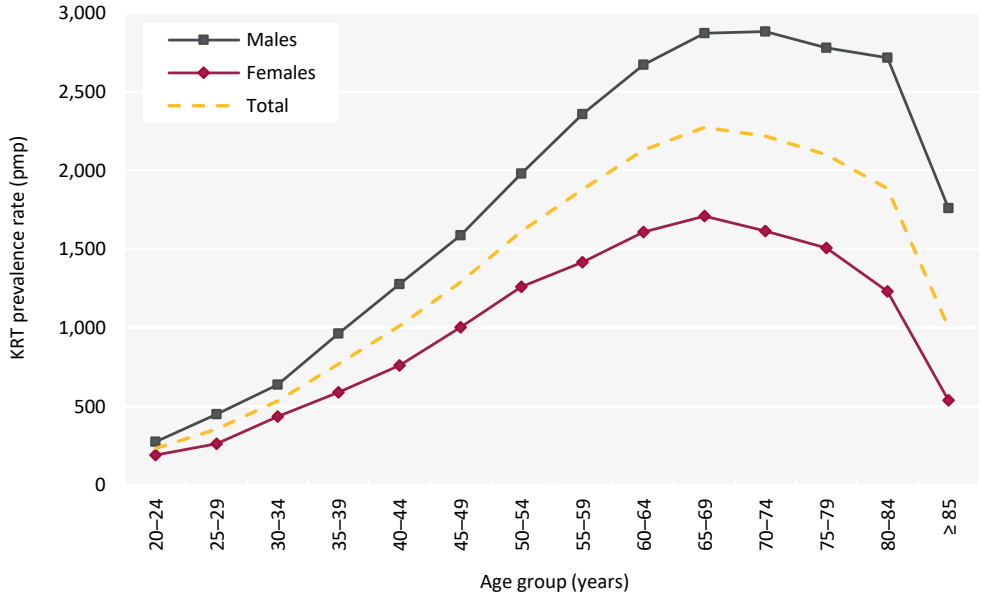

Figure 3.5 Prevalence rates for adult patients on KRT on 31/12/2023 by age group and sex
pmp – per million population

For each modality, the percentage of patients of each year of age is shown in figure 3.6.

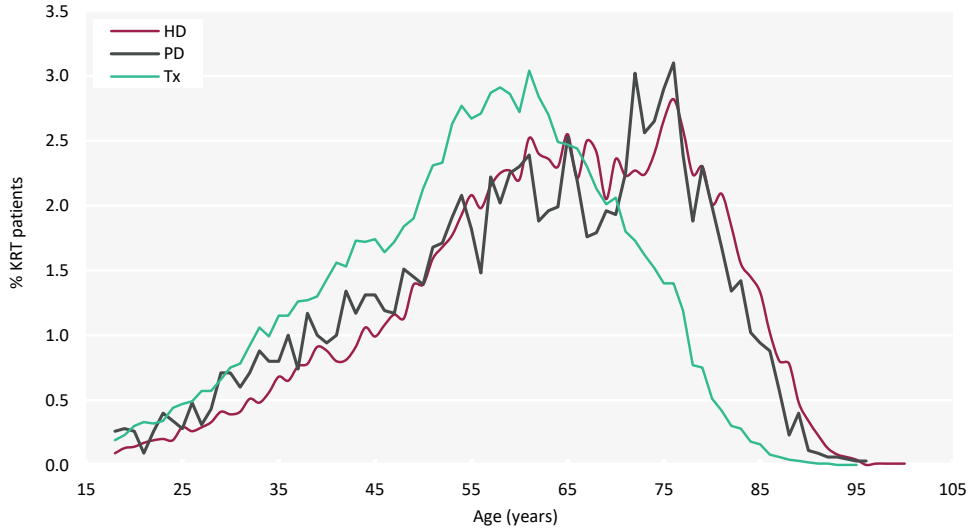

Figure 3.6 Age profile of adult patients prevalent to KRT on 31/12/2023 by KRT modality

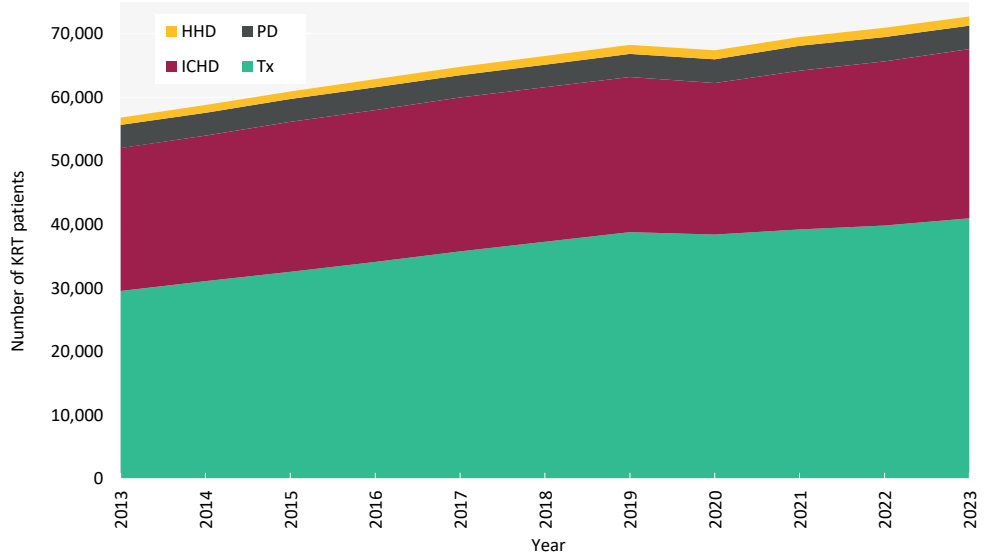

Figure 3.7 Growth in numbers of prevalent adult KRT patients by treatment modality between 2013 and 2023

Table 3.4 Change in adult KRT prevalence rates by modality between 2019 and 2023

	Prevalence (pmp)					% growth in prevalence				
Year	HD	PD	Dialysis	Tx	KRT	HD	PD	Dialysis	Tx	KRT
2019	490	69	559	736	1,295					
2020	477	71	548	726	1,274	-2.6	2.4	-2.0	-1.4	-1.7
2021	497	73	570	737	1,306	4.1	3.2	4.0	1.5	2.6
2022	509	71	580	742	1,322	2.5	-3.0	1.8	0.7	1.2
2023	518	68	586	756	1,342	1.8	-4.1	1.0	1.8	1.5
Average annual growth 2019-2023						**1.4**	**-0.3**	**1.2**	**0.7**	**0.9**

pmp – per million population

In table 3.5, for each PRD category, the proportion of patients on each treatment modality 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 3.6 shows changes in PRDs between 2014 and 2023, in particular the increase in diabetes.

Table 3.5 Treatment modality of adult patients prevalent to KRT on 31/12/2023 by primary renal disease (PRD)

PRD	N on KRT	% KRT population	Modality (%)		
			HD	PD	Tx
Diabetes	12,659	18.9	57.7	6.2	36.1
Glomerulonephritis	13,045	19.5	27.2	4.3	68.5
Hypertension	4,339	6.5	46.6	5.7	47.7
Polycystic kidney disease	7,002	10.5	22.4	3.7	73.9
Pyelonephritis	4,907	7.3	32.3	3.8	63.9
Renal vascular disease	1,613	2.4	62.4	8.6	29.0
Other	12,186	18.2	35.1	4.1	60.7
Uncertain aetiology	11,128	16.6	36.7	5.3	58.0
Total (with data)	**66,879**	**100.0**	**38.0**	**4.9**	**57.1**
Missing	2,444	3.5	60.6	10.4	29.1

Table 3.6 Change in primary renal disease (PRD) of adult patients prevalent to KRT between 2014 and 2023

PRD	Year									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Diabetes	16.7	17.2	17.5	17.9	18.3	18.6	18.7	18.8	18.7	18.9
Glomerulonephritis	19.2	19.2	19.3	19.4	19.4	19.4	19.5	19.5	19.6	19.5
Hypertension	6.2	6.2	6.2	6.2	6.2	6.4	6.4	6.3	6.4	6.5
Polycystic kidney disease	10.1	10.2	10.2	10.3	10.3	10.4	10.5	10.4	10.4	10.5
Pyelonephritis	8.6	8.4	8.3	8.2	7.9	7.8	7.7	7.5	7.4	7.3
Renal vascular disease	3.2	3.1	3.1	3.0	2.9	2.8	2.7	2.6	2.5	2.4
Other	16.6	16.7	17.0	17.1	17.3	17.5	17.7	18.0	18.2	18.2
Uncertain aetiology	19.4	18.9	18.5	17.9	17.5	17.1	16.9	16.8	16.7	16.6
Missing	0.9	1.0	1.0	1.2	1.3	1.6	1.9	2.6	3.1	3.5

The percentages in each PRD category add up to 100% in each year; the percentages with missing PRD data are shown separately

The treatment modality distribution for prevalent adult KRT patients was further divided by treatment location for HD patients – hospital unit, satellite unit or home – and for PD patients by type of PD – automated PD (APD) and continuous ambulatory PD (CAPD).

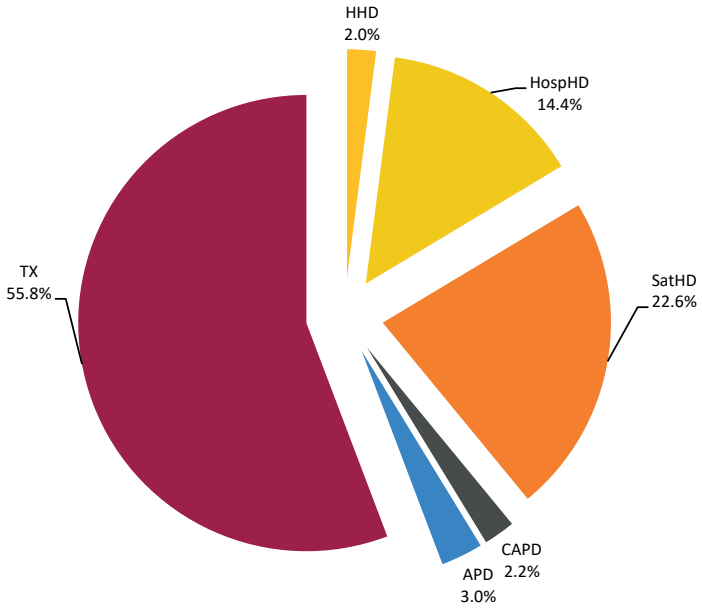

Figure 3.8 Detailed treatment modality of adult patients prevalent to KRT on 31/12/2023

No Scottish centres were included because data on satellite HD were not available
APD – automated PD; CAPD – continuous ambulatory PD; HospHD - hospital HD; SatHD - satellite HD

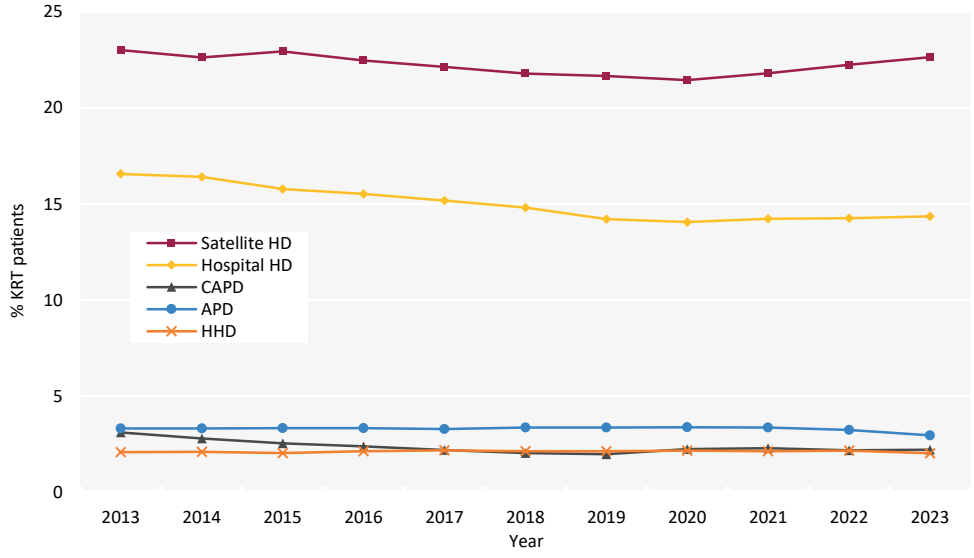

Figure 3.9 Detailed dialysis modality changes in prevalent adult KRT patients between 2013 and 2023

No Scottish centres were included because data on satellite HD were not available
The denominator includes patients with a Tx
APD – automated PD; CAPD – continuous ambulatory PD

Table 3.7 Adult patients prevalent to dialysis on 31/12/2023 by detailed dialysis modality and centre

Centre	N on dialysis	% Tx wait-listed <65 yrs	% Tx wait-listed ≥65 yrs	% on HD				% on PD		
				All HD	HHD	Hospital	Satellite	All PD	CAPD	APD
ENGLAND										
Bham	1,720	35.4	4.6	85.5	3.6	28.0	53.8	14.5	2.0	12.4
Bradfd	383	43.3	15.5	91.9	1.6	79.9	10.4	8.1	3.4	4.7
Brightn	551	35.0	3.8	88.6	6.2	40.5	41.9	11.4	8.2	3.3
Bristol	547	32.8	5.8	88.1	1.7	17.0	69.5	11.9	8.0	3.8
Camb	370	28.6	0.4	92.2	5.4	38.7	48.1	7.8	4.9	3.0
Carlis	135	31.9	6.3	84.4	5.2	54.8	24.4	15.6	2.2	13.3
Carsh	1,074	34.2	4.4	88.4	2.2	20.2	65.9	11.6	3.5	8.2
Colchr	164	21.9	1.0	100.0	0.0	67.7	32.3	0.0	0.0	0.0
Covnt	488	41.9	10.3	84.6	3.1	32.0	49.6	15.4	7.8	7.6
Derby	410	32.7	5.8	84.4	14.6	63.2	6.6	15.6	12.4	2.9
Donc	228	40.2	4.0	91.2	4.0	57.9	29.4	8.8	1.3	7.5
Dorset	372	34.2	9.9	92.7	3.8	25.8	63.2	7.3	2.4	4.0
Dudley	246	38.5	4.2	86.6	4.5	17.9	64.2	13.4	10.2	3.3
EssexMS	609	31.9	4.2	81.1	2.8	71.6	6.7	18.9	3.8	14.8
Exeter	572									
Glouc	255	37.1	6.7	86.7	1.2	73.3	12.2	13.3	2.0	11.4
Hull	453	24.0	4.8	88.1	3.8	39.7	44.6	11.9	10.4	1.6
Ipswi	159	21.8	1.0	90.6	0.0	84.3	6.3	9.4	5.7	1.9
Kent	554	30.2	3.3	89.7	3.6	32.9	53.3	10.3	8.8	1.4
L Barts	1,475	38.8	7.7	85.1	3.6	36.6	44.9	14.9	4.5	10.4
L Guys	773	30.4	3.6	94.2	4.9	14.5	74.8	5.8	1.6	4.3
L Kings	798	30.5	3.9	88.9	4.3	13.0	71.6	11.2	3.6	7.5
L Rfree	952	32.1	8.8	85.5	0.6	3.8	81.1	14.5	5.3	9.2
L St.G	374	40.8	8.9	84.8	1.3	17.4	66.0	15.2	2.9	12.3
L West	1,602	48.1	13.0	88.1	2.9	16.9	68.3	11.9	11.0	0.9
Leeds	729	42.0	14.9	92.3	3.6	13.0	75.7	7.7	2.3	5.4
Leic	1,263	40.1	8.2	87.3	3.4	14.7	69.2	12.7	3.5	9.2
Liv UH	658	27.9	6.0	91.6	9.4	18.4	63.8	8.4	1.7	6.7
M RI	775									
Middlbr	398	35.1	7.9	96.5	4.0	31.7	60.8	3.5	3.3	0.3
Newc	474	36.4	13.6	89.2	4.4	59.7	25.1	10.8	1.9	8.9
Norwch	383	17.7	0.8	84.9	2.4	15.9	66.6	15.1	11.0	4.2
Nottm	473	32.1	8.3	81.4	6.3	27.5	47.6	18.6	18.0	0.6
Oxford	621	42.8	10.8	86.3	3.9	34.5	48.0	13.7	5.2	8.5
Plymth	196	50.6	12.4	82.1	2.6	76.5	3.1	17.9	5.1	12.8
Ports	867	31.3	11.5	89.2	8.9	14.3	66.0	10.8	5.8	5.1
Prestn	623	38.6	12.5	91.0	6.3	16.5	68.2	9.0	5.9	3.1
Redng	442	44.1	6.6	88.2	3.9	31.7	52.7	11.8	10.6	0.9
Salford	626	47.6	20.4	84.7	5.0	24.0	55.8	15.3	6.2	9.1
Sheff	697	30.4	7.3	90.0	6.3	49.8	33.9	10.0	3.3	6.7
Shrew	271	26.6	6.3	79.7	16.2	34.3	29.2	20.3	4.4	15.9
Stevng	686	33.2	7.6	94.6	6.6	23.3	64.7	5.4	2.9	2.5
Stoke	461	28.0	8.1	80.7	7.6	48.2	25.0	19.3	2.2	17.1
Sund	281	30.7	7.6	87.2	5.3	48.0	33.8	12.8	3.6	9.3
Truro	212	31.4	9.5	93.9	4.3	44.3	45.3	6.1	2.8	3.3
Wirral	188	33.3	12.6	91.0	2.1	34.6	54.3	9.0	1.1	8.0
Wolve	511	25.6	4.0	88.1	8.4	76.5	3.1	11.9	3.3	8.2
York	251	44.0	11.1	89.2	7.2	29.5	52.6	10.8	5.6	5.2
N IRELAND[1]										
Antrim	137	14.9	2.2	89.1	0.7	88.3	0.0	11.0	2.9	7.3
Belfast	169	24.4	5.7	86.4	4.7	81.7	0.0	13.6	0.6	12.4
Newry	88	38.7	1.8	90.9	2.3	88.6	0.0	9.1	3.4	3.4

Table 3.7 Continued

Centre	N on dialysis	% Tx wait-listed <65 yrs	% Tx wait-listed ≥65 yrs	% on HD				% on PD		
				All HD	HHD	Hospital	Satellite	All PD	CAPD	APD
Ulster	101	29.0	1.4	95.1	0.0	95.1	0.0	5.0	0.0	3.0
West NI	113	20.4	1.6	99.1	1.8	97.4	0.0	0.9	0.0	0.0
SCOTLAND[2]										
Abrdn	230	30.9	9.2	90.9	1.3	89.6	0.0	9.1	4.4	2.6
Airdrie	255	36.2	17.2	90.6	0.0	90.6	0.0	9.4	5.1	4.3
D&Gall	54	40.9	6.3	85.2	1.9	83.3	0.0	14.8	0.0	14.8
Dundee	169	43.0	2.2	86.4	2.4	84.0	0.0	13.6	4.1	8.3
Edinb	335	38.4	11.4	91.0	2.4	88.7	0.0	9.0	3.3	5.7
Glasgw	651	49.5	13.9	95.6	2.5	93.1	0.0	4.5	1.1	3.4
Inverns	128	26.9	10.5	92.2	0.8	91.4	0.0	7.8	4.7	3.1
Klmarnk	209	33.3	3.1	84.7	6.2	78.5	0.0	15.3	3.4	12.0
Krkcldy	185	31.9	10.6	93.5	1.1	92.4	0.0	6.5	1.6	4.3
WALES										
Bangor	100	33.3	3.4	90.0	22.0	56.0	12.0	10.0	3.0	7.0
Cardff	691	27.5	4.8	91.5	6.4	12.0	73.1	8.5	3.2	5.4
Clwyd	124	23.6	4.3	84.7	7.3	77.4	0.0	15.3	12.1	3.2
Swanse	513	27.1	3.9	91.6	6.8	48.3	36.5	8.4	3.7	4.7
Wrexm	148	22.7	5.5	85.8	5.4	46.0	34.5	14.2	0.0	14.2
TOTALS										
England	26,003	35.6	7.7	88.0	4.5	31.0	52.6	12.0	5.2	6.8
N Ireland	608	24.2	2.7	91.5	2.1	89.3	0.0	8.6	1.3	6.1
Scotland	2,216	39.4	10.8	91.5	2.2	89.3	0.0	8.5	2.9	5.3
Wales	1,576	26.9	4.4	90.4	7.5	35.0	47.9	9.6	3.7	5.9
UK	**30,403**	**35.3**	**7.7**	**88.4**	**4.4**	**36.6**	**47.4**	**11.6**	**4.9**	**6.6**

Blank cells – no data returned by the centre

[1]There were no satellite units in Northern Ireland

[2]All HD patients in Scotland were shown as receiving treatment at home or in hospital because no data were available regarding satellite dialysis

APD – automated PD; CAPD – continuous ambulatory PD

The proportion of patients on HHD versus satellite HD is shown in figure 3.10, with the remaining patients on hospital HD.

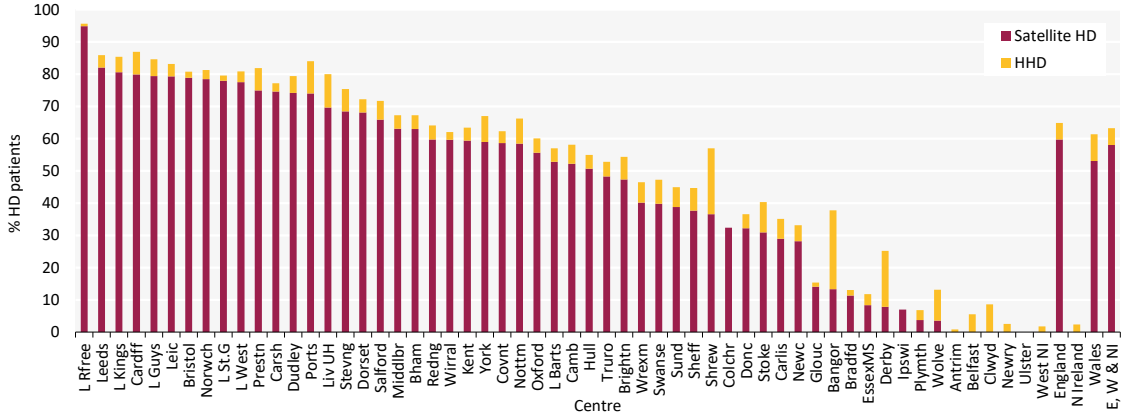

Figure 3.10 Adult patients prevalent to HD on 31/12/2023 treated with satellite HD or HHD by centre

There were no satellite units in Northern Ireland and Scottish centres were excluded because data on satellite HD were not available

Dialysis access in prevalent adult dialysis patients

The type of dialysis access used by the prevalent dialysis population is described in chapter 5.

Survival in adult dialysis patients

Survival was analysed in prevalent patients receiving dialysis on 31/12/2022 and followed-up for one year in 2023. Survival in patients with a Tx is presented in chapter 4.

Survival analyses, where stated, were adjusted to age 60 years to allow comparisons between centres with different age distributions. Centre-specific survival rates were further adjusted for not only age (figure 3.11), but also sex and comorbidities for centres with at least 85% completeness (figure 3.12). UKRR comorbidity data were augmented using diagnostic and procedure codes from Hospital Episode Statistics (HES) in England and Patient Episode Database for Wales (PEDW) in Wales (see appendix A for details). Centres are identifiable from the x-axis by using the number of prevalent dialysis patients by centre in table 3.8.

Table 3.8 1 year adjusted survival (age and case-mix) of adult patients prevalent to dialysis on 31/12/2022 by centre

	Age-adjusted survival				Case-mix adjusted survival[1]			
Centre	N on dialysis	1 yr (%)	Lower 95% limit	Upper 95% limit	N on dialysis	1 yr (%)	Lower 95% limit	Upper 95% limit
D&Gall	56	86.5	76.0	93.9				
Newry	93	82.5	79.1	92.8	91	83.9	83.6	95.6
Clwyd	94	91.0	79.2	92.8	94	93.2	83.7	95.6
Inverns	98	87.9	79.4	92.7				
Bangor	105	84.8	79.7	92.6	104	89.8	84.2	95.4
Ulster	117	88.7	80.2	92.4	110	89.1	84.5	95.4
Wrexm	127	88.6	80.5	92.2	127	91.7	85.1	95.1
West NI	129	87.9	80.6	92.2	116	85.6	84.7	95.3
Carlis	133	78.2	80.7	92.1	129	84.0	85.1	95.1
Colchr	145	84.7	81.1	92.0	141	89.8	85.4	95.0
Antrim	147	89.8	81.1	92.0				
Ipswi	149	87.8	81.2	91.9	141	91.6	85.4	95.0
Dundee	158	87.9	81.4	91.8				
Krkcldy	170	84.6	81.6	91.7				
Klmarnk	176	88.3	81.8	91.6				
Plymth	190	85.2	82.0	91.5	190	89.9	86.4	94.6
Truro	199	83.7	82.1	91.4	190	89.1	86.4	94.6
Belfast	201	87.4	82.2	91.4				
Abrdn	204	86.2	82.2	91.4				
Donc	207	86.8	82.3	91.4	204	90.4	86.6	94.5
Wirral	213	83.0	82.4	91.3	213	88.9	86.8	94.5
Airdrie	220	86.7	82.4	91.3				
York	237	90.0	82.7	91.1	237	92.6	87.0	94.3
Glouc	239	82.1	82.7	91.1	230	87.4	87.0	94.4
Dudley	247	83.8	82.8	91.1	247	88.0	87.1	94.3
Shrew	255	89.4	82.9	91.0	253	92.5	87.2	94.2
Sund	262	87.9	82.9	91.0	261	92.0	87.3	94.2
Edinb	329	88.9	83.5	90.7				
Bradfd	332	90.0	83.5	90.7	332	93.1	87.8	93.9
Dorset	345	90.4	83.6	90.6	345	93.2	87.9	93.9
Middlbr	356	85.8	83.7	90.6	355	90.1	87.9	93.9
Norwch	360	90.4	83.7	90.5	354	92.8	87.9	93.9
L St.G	363	90.6	83.7	90.5	353	94.0	87.9	93.9
Redng	374	89.2	83.8	90.5	373	92.6	88.0	93.8
Derby	390	86.3	83.8	90.4	389	90.4	88.1	93.8
Camb	392	89.9	83.9	90.4	391	92.6	88.1	93.8
Hull	399	84.6	83.9	90.4	399	88.6	88.2	93.7
Newc	405	85.2	83.9	90.4	405	90.3	88.2	93.7
Covnt	444	88.1	84.1	90.3	436	91.0	88.3	93.7
Stoke	450	85.7	84.1	90.3	437	89.8	88.3	93.6
Swanse	453	87.2	84.1	90.3	453	91.2	88.4	93.6
Wolve	457	89.8	84.2	90.2	456	92.8	88.4	93.6
Nottm	476	86.7	84.2	90.2	476	91.2	88.5	93.6
Brightn	486	87.9	84.3	90.2	479	91.3	88.5	93.6
EssexMS	511	88.2	84.4	90.1	506	91.6	88.6	93.5
Salford	518	87.6	84.4	90.1	516	91.9	88.6	93.5
Oxford	518	85.9	84.4	90.1	509	90.9	88.6	93.5
Bristol	531	84.6	84.4	90.1	517	89.7	88.6	93.5
Kent	544	84.9	84.5	90.0	544	89.0	88.7	93.4
Prestn	564	83.5	84.5	90.0	564	89.3	88.7	93.4
Stevng	613	89.1	84.6	89.9	602	92.6	88.8	93.3
Glasgw	618	83.7	84.7	89.9				
Cardff	621	86.3	84.7	89.9	620	90.1	88.9	93.3
Liv UH	625	85.9	84.7	89.9	615	91.1	88.9	93.3

Table 3.8 Continued

Centre	Age-adjusted survival				Case-mix adjusted survival[1]			
	N on dialysis	1 yr (%)	Lower 95% limit	Upper 95% limit	N on dialysis	1 yr (%)	Lower 95% limit	Upper 95% limit
Leeds	641	91.0	84.7	89.9	639	93.9	88.9	93.3
Sheff	676	85.7	84.8	89.8	676	89.7	89.0	93.2
M RI	676	89.4	84.8	89.8	657	92.9	88.9	93.3
L Guys	778	89.6	85.0	89.7	777	92.7	89.2	93.1
Ports	789	86.7	85.0	89.6	774	91.3	89.2	93.1
L Kings	795	89.5	85.0	89.6	782	93.0	89.2	93.1
L Rfree	907	87.7	85.2	89.5	890	91.7	89.3	93.0
Carsh	988	86.6	85.3	89.4	958	90.2	89.4	93.0
Leic	1,169	87.4	85.5	89.3	1,156	91.0	89.6	92.8
L Barts	1,361	90.8	85.6	89.2	1,319	93.7	89.7	92.8
L West	1,457	88.7	85.7	89.1	1,403	92.3	89.8	92.7
Bham	1,693	88.1	85.8	89.0	1,670	91.8	89.9	92.6

Centres are ordered by increasing number of patients

[1]Centres excluded if <85% comorbidity data were available – this included Belfast and Antrim in Northern Ireland and all Scottish kidney centres

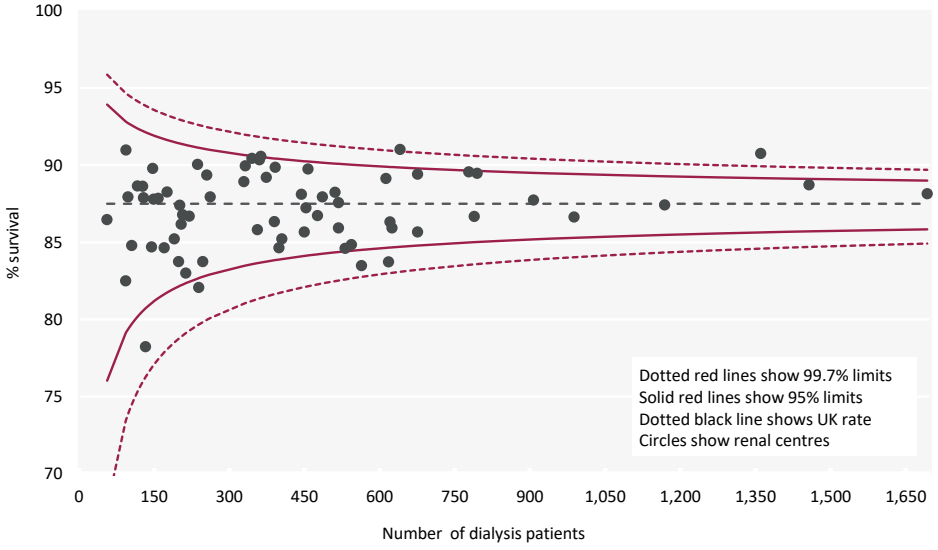

Figure 3.11 1 year survival (adjusted to age 60 years) of adult patients prevalent to dialysis on 31/12/2022 by centre

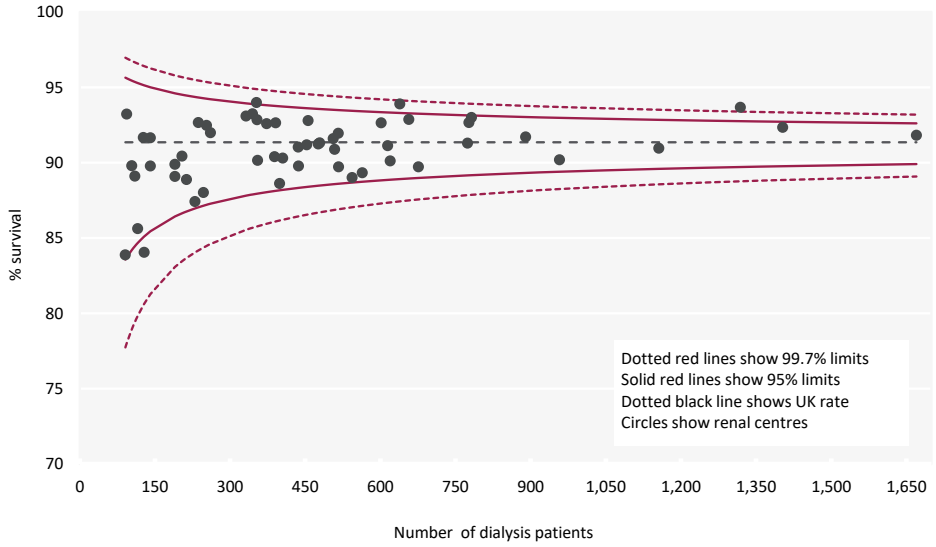

Figure 3.12 1 year survival (adjusted to 60 years, male and median comorbidity score) of adult patients prevalent to dialysis on 31/12/2022 by centre

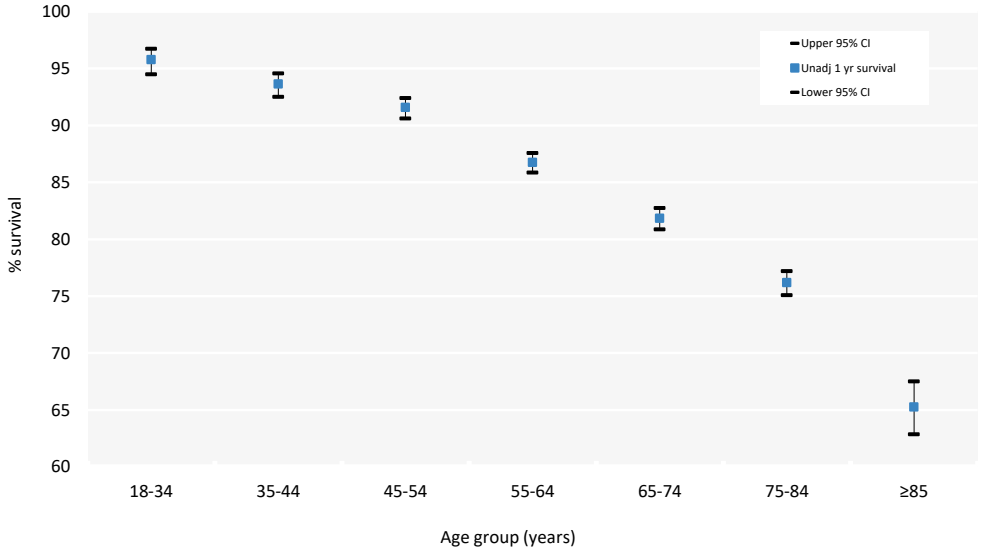

Figure 3.13 1 year survival (unadjusted) of adult patients prevalent to dialysis on 31/12/2022 by age group
CI – confidence interval

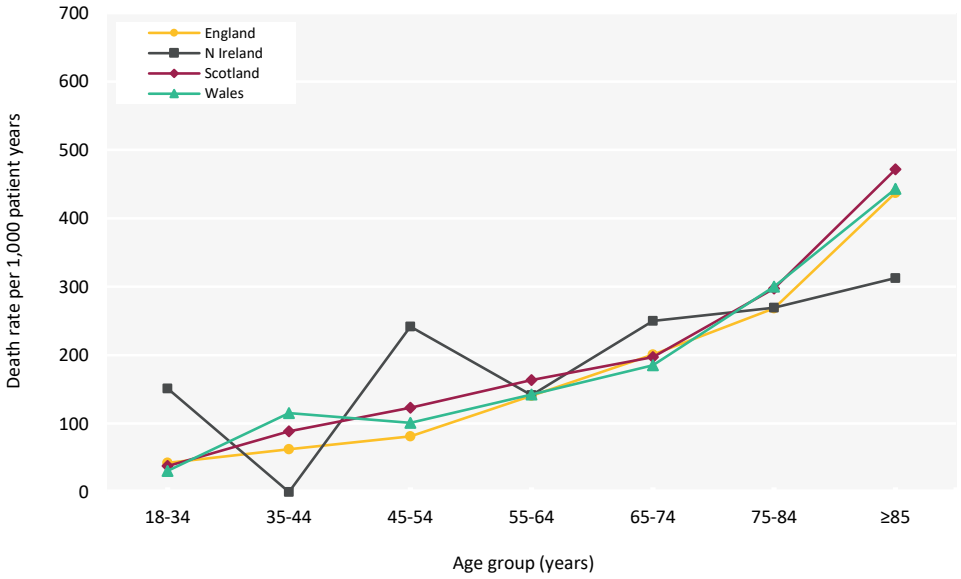

Figure 3.14 1 year death rate per 1,000 patient years for adult patients prevalent to dialysis on 31/12/2022 by country and age group

The serial one year death rate in prevalent adult dialysis patients by country is shown in figure 3.15, adjusted to age 60 years.

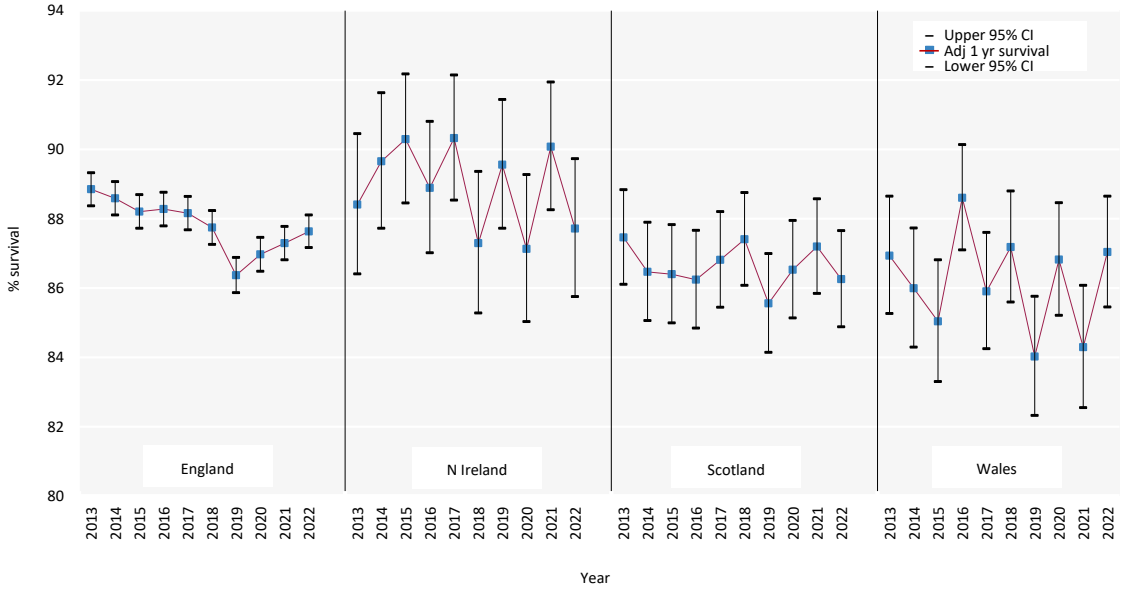

Figure 3.15 1 year survival (adjusted to age 60 years) for prevalent adult dialysis patients by country between 2013 and 2022
CI – confidence interval

The relative risk of death by age group for prevalent KRT patients compared to the general population's risk of death, calculated using Office for National Statistics UK population and deaths data, is shown in table 3.9.

Table 3.9 Death rate by age group for adult patients prevalent to KRT on 31/12/2022 followed-up for 1 year compared with the general population and with previous analyses in the 1998–2001 cohort

Age group (yrs)	UK population mid-2023 (thousands)	UK deaths in 2023	Death rate per 1,000 population	Expected number of deaths in UKRR population	UKRR deaths in 2023	UKRR death rate per 1,000 prevalent KRT patients	Relative risk of death in 2023	Relative risk of death 1998-2001 cohort
20-24	4,098	1,531	0.4	0	6	6	17.0	41.1
25-29	4,428	2,064	0.5	1	19	12	26.7	41.8
30-34	4,700	3,194	0.7	2	43	18	25.7	31.2
35-39	4,637	4,837	1.0	4	78	23	21.9	26.0
40-44	4,446	6,978	1.6	7	119	28	17.6	22.6
45-49	4,043	9,432	2.3	12	176	35	15.0	19.0
50-54	4,523	15,922	3.5	25	285	40	11.4	12.8
55-59	4,625	23,778	5.1	42	523	64	12.4	10.1
60-64	4,182	32,670	7.8	65	652	78	10.0	10.4
65-69	3,490	43,080	12.3	89	740	103	8.3	7.9
70-74	3,120	61,503	19.7	124	907	144	7.3	7.2
75-79	2,843	91,195	32.1	165	1,039	203	6.3	5.3
80-84	1,763	104,640	59.3	173	763	262	4.4	4.0
≥85	1,707	256,310	150.1	206	559	408	2.7	3.0
Total	**52,605**	**657,134**	**12.5**	**914**	**5,909**	**92**	**6.5**	**7.7**

Cause of death in adult KRT patients

Cause of death was analysed in prevalent patients receiving KRT on 31/12/2022 and followed-up for one year in 2023. The proportion of KRT 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.

Table 3.10 Cause of death in adult patients prevalent to KRT on 31/12/2022 followed-up in 2023 by age group

	KRT all ages		KRT <65 yrs		KRT ≥65 yrs	
Cause of death	N	%	N	%	N	%
Cardiac disease	1,054	19.2	407	23.3	647	17.3
Cerebrovascular disease	193	3.5	86	4.9	107	2.9
Infection	1,039	18.9	287	16.4	752	20.1
Malignancy	480	8.7	157	9.0	323	8.6
Treatment withdrawal	480	8.7	104	6.0	376	10.0
Other	1,733	31.5	535	30.6	1,198	32.0
Uncertain aetiology	517	9.4	171	9.8	346	9.2
Total (with data)	**5,496**	**100.0**	**1,747**	**100.0**	**3,749**	**100.0**
Missing	630	10.3	232	11.7	398	9.6

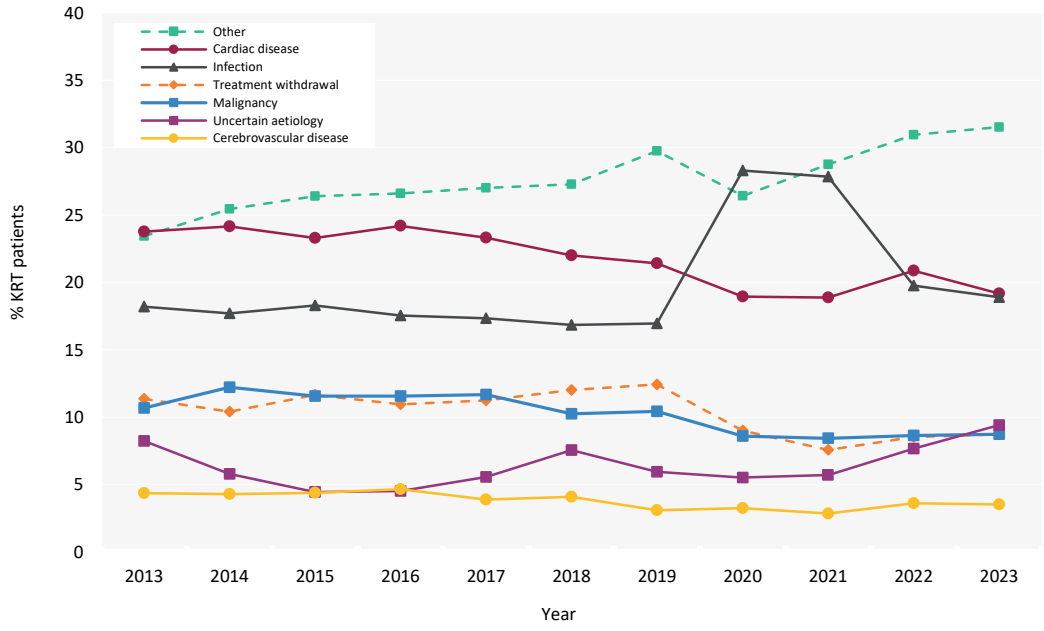

Figure 3.16 Cause of death between 2013 and 2023 for adult patients prevalent to KRT at the beginning of the year