

## *Chapter 3*

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# **Adults on kidney replacement therapy (KRT) in the UK at the end of 2022**

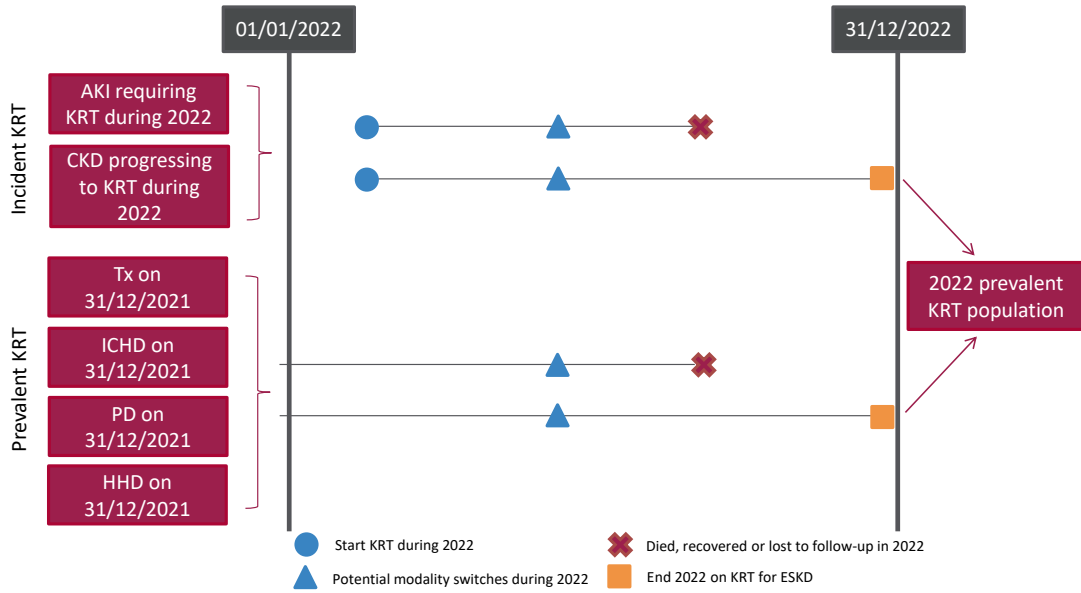
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# Introduction

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 2022 (figure 3.1). Patients may have started KRT prior to 2022 or during 2022. Three KRT modalities are available to patients with ESKD – haemodialysis (HD), peritoneal dialysis (PD) and kidney transplantation. 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 2022 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 2022 or if they had been on KRT for  $\geq 90$  days and were on KRT at the end of 2022  
 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 2022 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](https://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 was unable to submit patient level data for 2022. Aggregate numbers by modality were provided, enabling inclusion in Tables 3.1 and 3.2. Exeter is excluded from all other analyses.

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

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

## Key findings

- 70,951 adult patients were receiving KRT for ESKD on 31/12/2022. This represents a 2.0% increase from 2021 and approaches the 2-2.5% increase that was seen in the years before the pandemic.
- KRT prevalence was 1,323 per million population compared 1,307 per million population in 2021.
- The median age of KRT patients was 59.9 years (ICHD 65.8 years, HHD 55.5 years, PD 63.5 years and Tx 56.7 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).
- 61.3% of KRT patients were male.
- Tx continued as the most common treatment modality (56.2%) – ICHD comprised 36.4%, PD 5.4% and HHD 2.1% of the KRT population.
- The most common identifiable primary renal disease was glomerulonephritis (19.9%), followed by diabetes (18.6%).
- There were 4 centres above the upper 95% limit and 0 centres below the lower 95% limit in the funnel plots showing 1 year age-, sex- and comorbidity-adjusted survival for patients prevalent to dialysis on 31/12/2021. It is expected that 3 centres would be outside the limits by chance.
- This year for the first time, cause of death records from Civil Registration were used where the cause of death was missing in the UKRR data. This resulted in improved completeness and changes in proportions of the causes of death. The leading cause of death was cardiac disease (24.1%) in younger patients (<65 years) and infections (20.6%) in patients  $\geq$  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).

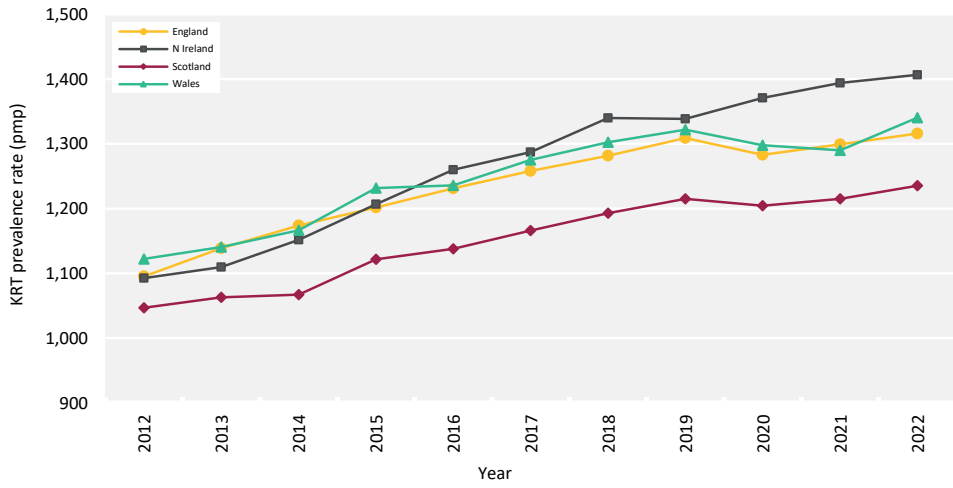
**Table 3.1** Number of prevalent adult KRT patients by year and by centre; number of KRT patients as a proportion of the catchment population

Centre	N on KRT					Estimated catchment population (millions)	2022 crude rate (pmp)
	2018	2019	2020	2021	2022		
<b>ENGLAND</b>							
Bham	3,249	3,312	3,261	3,302	3,378	2.03	1,668
Bradfd	689	733	725	736	781	0.50	1,572
Brightn	1,055	1,064	1,078	1,091	1,100	1.08	1,015
Bristol	1,471	1,487	1,476	1,496	1,524	1.25	1,223
Camb	1,389	1,456	1,511	1,628	1,663	0.96	1,739
Carlis	293	302	297	306	303	0.26	1,181
Carsh	1,752	1,781	1,849	1,905	1,936	1.64	1,183
Colchr	122	145	150	146	157	0.30	528
Covnt	965	1,082	1,109	1,129	1,125	0.84	1,344
Derby	586	654	675	691	716	0.56	1,286
Donc	330	342	341	339	376	0.38	996
Dorset	764	773	798	787	792	0.73	1,078
Dudley	360	366	374	403	383	0.34	1,112
EssexMS	844	852	885	895	897	1.00	900
Exeter	1,083	1,089	1,092	1,077	1,128	0.98	1,153
Glouc	522	531	522	545	554	0.52	1,068
Hull	880	904	913	917	933	0.80	1,166
Ipswi	428	428	426	422	395	0.31	1,257
Kent	1,112	1,140	1,144	1,192	1,224	1.08	1,136
L Barts	2,599	2,656	2,676	2,729	2,851	1.61	1,767
L Guys	2,231	2,321	2,318	2,326	2,309	1.00	2,309
L Kings	1,183	1,248	1,253	1,331	1,394	0.93	1,505
L Rfree	2,233	2,344	2,336	2,395	2,418	1.33	1,823
L St.G	834	852	853	870	855	0.65	1,311
L West	3,560	3,607	3,532	3,558	3,626	1.97	1,843
Leeds	1,683	1,727	1,751	1,784	1,836	1.39	1,321
Leic	2,452	2,580	2,621	2,634	2,719	2.11	1,286
Liv UH	1,487	1,483	1,446	1,462	1,479	1.26	1,176
M RI	2,067	2,047	1,986	2,072	2,111	1.36	1,555
Middlbr	930	953	946	959	955	0.82	1,168
Newc	1,153	1,172	1,197	1,224	1,245	0.97	1,286
Norwch	788	810	810	803	783	0.70	1,116
Nottm	1,197	1,217	1,208	1,217	1,211	0.94	1,286
Oxford	1,944	1,976	2,019	2,003	2,080	1.48	1,409
Plymth	540	535	542	543	546	0.41	1,346
Ports	1,763	1,882	1,900	1,942	2,000	1.77	1,131
Prestn	1,322	1,342	1,368	1,374	1,400	1.25	1,119
Redng	814	862	870	878	924	0.70	1,313
Salford	1,173	1,243	1,267	1,217	1,273	1.17	1,092
Sheff	1,485	1,491	1,495	1,502	1,488	1.15	1,297
Shrew	430	437	427	440	445	0.42	1,062
Stevng	938	963	980	1,020	1,066	1.12	948

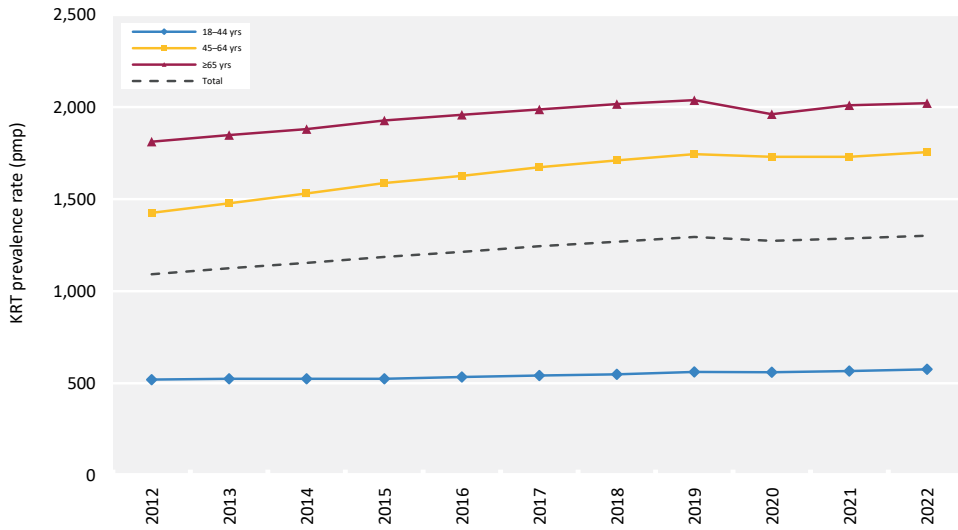
**Table 3.1** Continued

Centre	N on KRT					Estimated catchment population (millions)	2022 crude rate (pmp)
	2018	2019	2020	2021	2022		
Stoke	806	806	813	844	903	0.74	1,226
Sund	561	570	556	547	562	0.55	1,019
Truro	437	450	445	461	471	0.37	1,290
Wirral	401	417	417	415	400	0.47	848
Wolve	609	614	655	695	722	0.55	1,313
York	569	582	572	581	608	0.50	1,227
N IRELAND							
Antrim	274	285	287	295	306	0.25	1,240
Belfast	878	881	889	909	926	0.53	1,731
Newry	252	253	264	281	269	0.24	1,137
Ulster	191	185	201	203	210	0.20	1,029
West NI	327	328	351	339	356	0.25	1,416
SCOTLAND							
Abrdn	572	558	565	580	594	0.50	1,194
Airdrie	488	524	518	505	519	0.46	1,134
D&Gall	145	149	156	154	148	0.12	1,215
Dundee	445	449	430	411	399	0.37	1,091
Edinb	862	885	890	928	976	0.84	1,158
Glasgw	1,813	1,855	1,850	1,873	1,921	1.37	1,405
Inverns	279	282	271	278	280	0.23	1,244
Klmarnk	340	359	369	368	374	0.29	1,290
Krkldy	298	296	292	296	292	0.27	1,067
WALES							
Bangor	203	201	216	217	220	0.20	1,079
Cardff	1,720	1,730	1,681	1,701	1,758	1.17	1,500
Clwyd	190	205	204	202	204	0.18	1,120
Swanse	825	869	850	852	847	0.76	1,113
Wrexm	314	311	323	304	307	0.21	1,480
TOTALS							
England	56,083	57,628	57,885	58,833	60,045	45.20	1,328
N Ireland	1,922	1,932	1,992	2,027	2,067	1.47	1,402
Scotland	5,242	5,357	5,341	5,393	5,503	4.44	1,239
Wales	3,252	3,316	3,274	3,276	3,336	2.53	1,320
<b>UK</b>	<b>66,499</b>	<b>68,233</b>	<b>68,492</b>	<b>69,529</b>	<b>70,951</b>	<b>53.65</b>	<b>1,323</b>

Country KRT populations were calculated by summing the KRT patients from centres in each country. Estimated country populations were derived from Office for National Statistics figures (see appendix A for details on estimated catchment population by kidney centre) Exeter was unable to submit 2021 and 2022 patient level data, but provided aggregate numbers of patients on KRT at the end of each year, by treatment modality  
pmp – per million population



**Figure 3.2** Adult KRT prevalence rates by country between 2012 and 2022  
pmp – per million population



**Figure 3.3** Adult KRT prevalence rates by age group between 2012 and 2022  
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 31/12/2022 by centre

Centre	N on KRT	% on ICHD	% on PD	% on HHD	% with Tx	Median age (yrs)	% male	Ethnicity				
								% White	% Asian	% Black	% Other	% missing
<b>ENGLAND</b>												
Bham	3,378	41.7	8.2	2.0	48.1	59.0	59.4	55.2	30.1	11.7	3.0	1.7
Bradfd	781	39.6	5.1	1.2	54.2	56.5	58.5	51.5	43.9	2.7	1.9	0.0
Brightn	1,100	38.5	5.1	3.2	53.3	61.3	60.9	89.7	6.0	2.1	2.2	3.4
Bristol	1,524	32.2	4.1	1.0	62.7	58.8	62.0	87.5	4.3	6.2	2.1	1.0
Camb	1,663	21.8	1.7	1.4	75.1	58.5	62.6	89.3	6.3	2.8	1.6	2.8
Carlis	303	35.0	9.2	2.0	53.8	60.1	60.4	97.7	1.7	0.7	0.0	0.0
Carsh	1,936	45.7	6.6	1.3	46.4	62.2	62.4	65.0	17.9	11.5	5.7	3.2
Colchr	157	100.0	0.0	0.0	0.0	71.2	66.9	95.3	0.7	2.0	2.0	5.1
Covnt	1,125	32.9	7.1	1.6	58.4	60.0	62.8	76.8	16.9	6.1	0.2	0.4
Derby	716	40.6	8.2	8.5	42.6	61.4	63.7	82.9	11.9	3.0	2.2	3.6
Donc	376	52.9	4.0	2.4	40.7	62.8	63.6	92.2	3.0	2.7	2.2	1.3
Dorset	792	41.4	2.4	1.8	54.4	65.1	62.5	95.2	2.5	0.6	1.6	0.0
Dudley	383	55.4	7.8	3.7	33.2	64.8	64.0	77.5	16.2	5.7	0.5	0.0
EssexMS	897	48.6	9.1	2.6	39.7	63.3	66.1	84.1	6.1	6.3	3.6	4.2
Exeter	1,128	44.0	6.6	1.4	48.0							
Glouc	554	41.2	5.8	0.4	52.7	63.6	61.7	91.2	3.5	2.4	2.9	1.1
Hull	933	38.4	6.1	1.8	53.7	60.0	65.2	95.6	1.9	1.2	1.3	0.8
Ipswi	395	33.2	5.6	0.0	61.3	63.1	63.0	83.2	2.6	4.1	10.1	2.3
Kent	1,224	38.9	6.0	1.7	53.3	60.6	60.8	91.4	3.6	2.1	3.0	1.5
L Barts	2,851	40.6	8.1	1.6	49.7	58.0	59.2	31.7	35.9	26.0	6.4	2.7
L Guys	2,309	30.6	2.0	1.6	65.7	57.3	59.3	56.8	10.5	27.8	4.9	4.4
L Kings	1,394	50.1	7.4	2.8	39.7	59.8	61.3	42.1	14.4	39.8	3.7	1.6
L Rfree	2,418	31.7	6.1	0.4	61.9	58.8	60.3	42.8	22.3	22.4	12.5	6.4
L St.G	855	35.7	7.1	0.6	56.6	60.0	58.2	39.8	25.6	25.5	9.1	5.0
L West	3,626	36.2	5.4	1.1	57.4	60.9	62.1	36.8	37.2	19.0	7.1	0.0
Leeds	1,836	33.2	2.9	1.2	62.6	57.7	61.7	74.9	17.8	5.5	1.8	0.2
Leic	2,719	38.1	5.5	1.8	54.6	60.5	61.4	71.9	20.8	5.3	1.9	4.9
Liv UH	1,479	37.7	4.1	3.8	54.4	59.0	61.9	90.4	3.4	3.2	3.0	3.2
M RI	2,111	25.7	4.3	3.9	66.1	57.7	60.3	65.9	14.1	17.6	2.4	6.2
Middlbr	955	36.0	2.3	2.1	59.6	60.0	62.9	92.2	5.4	0.8	1.6	0.9
Newc	1,245	30.2	3.5	1.5	64.8	59.2	59.5	92.5	4.9	1.3	1.3	0.2
Norwch	783	37.4	4.9	1.3	56.4	62.8	62.2	96.8	1.3	0.8	1.1	4.2
Nottm	1,211	29.9	7.8	2.5	59.9	58.5	60.4	81.0	8.2	7.9	2.9	1.0
Oxford	2,080	23.2	3.6	1.3	72.0	58.8	60.7	78.8	11.5	5.3	4.5	16.1
Plymth	546	29.1	8.2	0.5	62.1	62.2	64.1	96.7	1.5	0.2	1.6	0.0
Ports	2,000	33.6	5.4	3.9	57.2	60.6	59.3	92.1	4.4	1.3	2.2	12.4
Prestn	1,400	36.6	3.6	2.7	57.0	59.7	60.6	82.0	15.9	1.0	1.1	0.5
Redng	924	36.5	6.1	1.4	56.1	60.5	63.0	62.7	24.4	6.0	6.9	8.7
Salford	1,273	35.2	7.3	2.4	55.1	58.9	62.3	75.9	18.2	3.5	2.4	0.1
Sheff	1,488	38.7	5.5	3.6	52.2	59.7	62.7	86.1	7.9	3.1	2.9	1.9
Shrew	445	38.7	10.6	9.0	41.8	61.9	64.0	90.6	3.4	2.5	3.4	1.8
Stevng	1,066	53.5	3.9	3.4	39.2	61.5	63.3	69.7	18.5	8.9	2.9	3.1
Stoke	903	35.0	11.8	3.2	49.9	60.1	63.6	89.2	6.1	2.4	2.2	4.2

**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	562	40.4	6.4	1.8	51.4	61.0	59.4	95.5	3.0	0.7	0.7	0.2
Truro	471	42.0	3.4	0.6	53.9	62.5	60.7	97.9	0.6	0.2	1.3	0.0
Wirral	400	47.5	3.8	1.5	47.3	61.0	62.8	96.3	2.0	1.0	0.8	0.0
Wolve	722	51.8	7.9	6.0	34.3	60.4	62.0	57.4	28.3	10.4	3.9	0.1
York	608	32.4	6.6	3.6	57.4	61.1	61.8	96.3	1.3	0.3	2.0	1.3
<b>N IRELAND</b>												
Antrim	306	37.6	6.5	0.3	55.6	64.0	64.1	99.2	0.0	0.4	0.4	16.3
Belfast	926	15.0	2.4	0.9	81.7	58.4	60.8	97.2	2.2	0.2	0.3	6.0
Newry	269	28.6	3.7	1.1	66.5	61.8	59.1	98.0	1.2	0.4	0.4	5.9
Ulster	210	47.6	2.4	0.0	50.0	65.0	61.0	94.2	4.3	1.4	0.0	1.4
West NI	356	30.1	2.0	0.3	67.7	59.6	59.8	98.6	1.1	0.3	0.0	2.0
<b>SCOTLAND</b>												
Abrdn	594	31.8	4.7	0.5	63.0	57.8	58.4					
Airdrie	519	39.9	5.0	0.0	55.1	59.5	57.6					
D&Gall	148	33.8	6.1	0.7	59.5	61.1	63.5					
Dundee	399	35.1	5.0	1.3	58.6	60.7	60.7					
Edinb	976	30.1	3.9	0.9	65.1	59.1	64.1					
Glasgw	1,921	32.3	1.9	0.6	65.2	59.1	58.7					
Inverns	280	30.4	5.0	1.1	63.6	59.8	60.4					
Klmarnk	374	39.6	8.3	3.2	48.9	60.9	63.1					
Krkldy	292	55.5	4.5	1.4	38.7	63.3	62.0					
<b>WALES</b>												
Bangor	220	34.5	4.5	10.0	50.9	60.9	64.5	98.0	0.0	0.5	1.5	8.2
Cardff	1,758	32.4	3.0	2.8	61.8	58.7	62.5	90.6	6.4	1.4	1.6	4.7
Clwyd	204	41.7	5.9	4.9	47.5	62.5	66.2	96.9	2.1	1.0	0.0	6.4
Swanse	847	46.3	6.1	4.6	43.0	62.0	61.9	97.0	1.9	0.5	0.6	1.1
Wrexm	307	34.2	6.8	1.0	58.0	58.0	63.2	95.9	1.4	1.0	1.7	4.6
<b>TOTALS</b>												
England	60,045	36.9	5.6	2.1	55.4	59.9	61.4	71.1	15.6	9.7	3.6	3.2
N Ireland	2,067	26.0	3.1	0.6	70.2	60.4	60.9	97.5	1.8	0.4	0.3	6.4
Scotland	5,503	34.4	3.9	0.9	60.8	59.7	60.3					
Wales	3,336	36.8	4.4	3.7	55.1	59.9	62.8	93.6	4.1	1.1	1.2	4.1
<b>UK</b>	<b>70,951</b>	<b>36.4</b>	<b>5.4</b>	<b>2.1</b>	<b>56.2</b>	<b>59.9</b>	<b>61.3</b>	<b>73.1</b>	<b>14.5</b>	<b>9.0</b>	<b>3.4</b>	<b>3.4</b>

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

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

Exeter was unable to submit 2022 patient level data, but provided aggregate numbers of patients on KRT at the end of 2022, by treatment modality

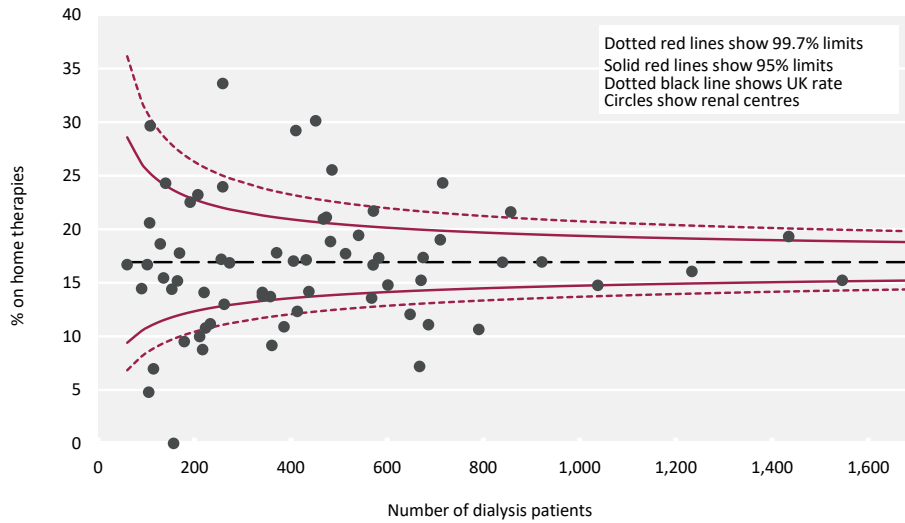
UK ethnicity distribution and completeness does not include Scotland

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.

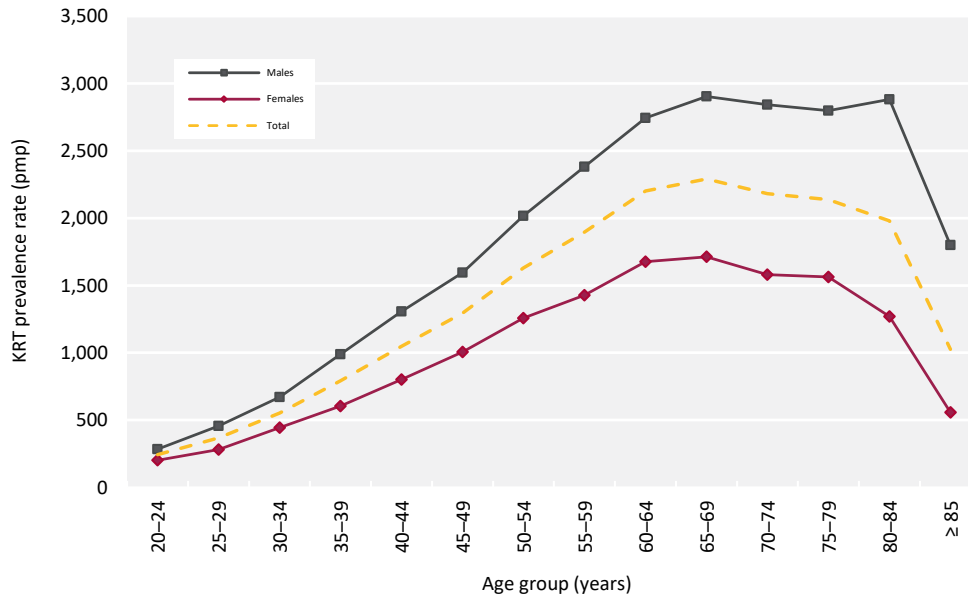
**Table 3.3** Demographics, primary renal diseases (PRDs) and prevalent treatment modality of adult patients prevalent to KRT on 31/12/2022 by age group

Characteristic	Age group (yrs)							Total	Median age (yrs)
	18–34	35–44	45–54	55–64	65–74	75–84	≥85		
<b>Total</b>									
N on KRT	5,433	8,119	12,807	17,720	14,805	9,213	1,726	69,823	59.9
% on KRT	7.8	11.6	18.3	25.4	21.2	13.2	2.5		
<b>Sex (%)</b>									
Male	7.6	11.5	18.1	25.4	21.4	13.4	2.7	61.3	60.0
Female	8.1	11.8	18.7	25.3	21.0	12.9	2.2	38.7	59.6
<b>Ethnicity (%)</b>									
White	7.8	11.1	17.7	25.2	21.5	14.1	2.6	73.5	60.3
Asian	8.9	13.7	19.9	22.4	23.2	10.1	1.8	14.3	58.9
Black	6.0	12.1	22.4	33.1	15.4	8.6	2.4	8.9	57.8
Other	10.3	16.8	20.8	25.4	16.4	8.6	1.8	3.3	55.8
Missing	6.9	10.6	16.2	23.8	23.4	16.6	2.5	8.2	61.9
<b>PRD (%)</b>									
Diabetes	2.8	8.9	18.0	28.6	25.6	13.8	2.3	18.6	62.2
Glomerulonephritis	8.9	14.7	21.1	26.5	18.4	9.3	1.1	19.9	57.0
Hypertension	3.2	9.2	19.3	27.4	20.5	16.5	3.9	6.5	61.5
Polycystic kidney disease	2.0	5.8	18.9	33.8	26.8	11.7	1.0	10.6	61.9
Pyelonephritis	10.7	15.1	20.9	24.9	16.1	9.9	2.4	9.3	56.3
Renal vascular disease	2.3	4.1	6.8	14.5	28.1	34.8	9.3	2.5	73.6
Other	16.1	14.7	17.1	20.6	18.2	11.4	1.8	18.9	56.0
Uncertain aetiology	7.0	11.8	17.3	22.0	20.7	16.7	4.5	13.7	61.3
Missing	8.2	9.7	13.8	21.5	24.7	18.4	3.7	3.8	63.7
<b>Modality (%)</b>									
ICHD	4.7	7.6	13.7	22.3	23.6	22.4	5.7	36.3	65.8
HHD	9.3	15.3	23.4	27.8	14.7	8.4	1.1	2.1	55.5
PD	7.9	10.4	14.0	21.3	23.0	19.9	3.5	5.3	63.5
Tx	9.7	14.2	21.6	27.7	19.7	6.8	0.3	56.3	56.7

Variation between centres in the proportion of patients prevalent to dialysis on 31/12/2022 and on home therapies is shown in figure 3.4 . Please visit the UKRR data portal ([ukkidney.org/audit-research/data-portals](http://ukkidney.org/audit-research/data-portals)) to identify individual kidney centres.



**Figure 3.4** Percentage of adult patients prevalent to dialysis on 31/12/2022 on home therapies (PD and HHD) by centre

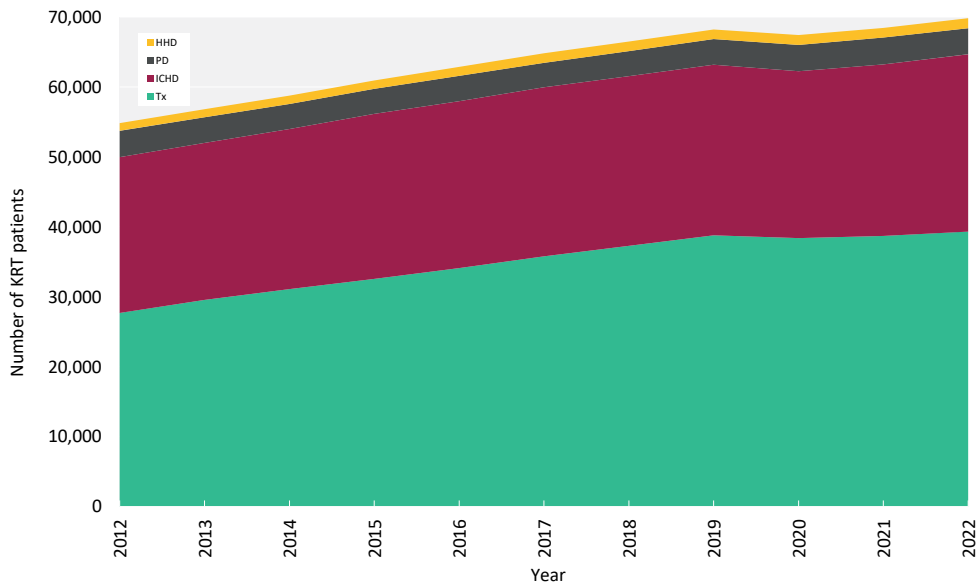


**Figure 3.5** Prevalence rates for adult patients on KRT on 31/12/2022 by age group and sex  
pmp – per million population

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 31/12/2022 by KRT modality



**Figure 3.7** Growth in numbers of prevalent adult KRT patients by treatment modality between 2012 and 2022

**Table 3.4** Change in adult KRT prevalence rates by modality between 2018 and 2022

Year	Prevalence (pmp)					% growth in prevalence				
	HD	PD	Dialysis	Tx	KRT	HD	PD	Dialysis	Tx	KRT
2018	490	68	558	711	1,269					
2019	490	69	559	736	1,295	0.0	1.3	0.2	3.5	2.0
2020	477	71	548	726	1,274	-2.6	2.6	-1.9	-1.4	-1.6
2021	488	72	559	727	1,287	2.2	1.3	2.0	0.2	1.0
2022	499	69	568	733	1,302	2.3	-3.4	1.6	0.8	1.1
<b>Average annual growth 2018-2022</b>						<b>0.5</b>	<b>0.4</b>	<b>0.5</b>	<b>0.8</b>	<b>0.6</b>

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 2013 and 2022, in particular the increase in diabetes.

**Table 3.5** Treatment modality of adult patients prevalent to KRT on 31/12/2022 by primary renal disease (PRD)

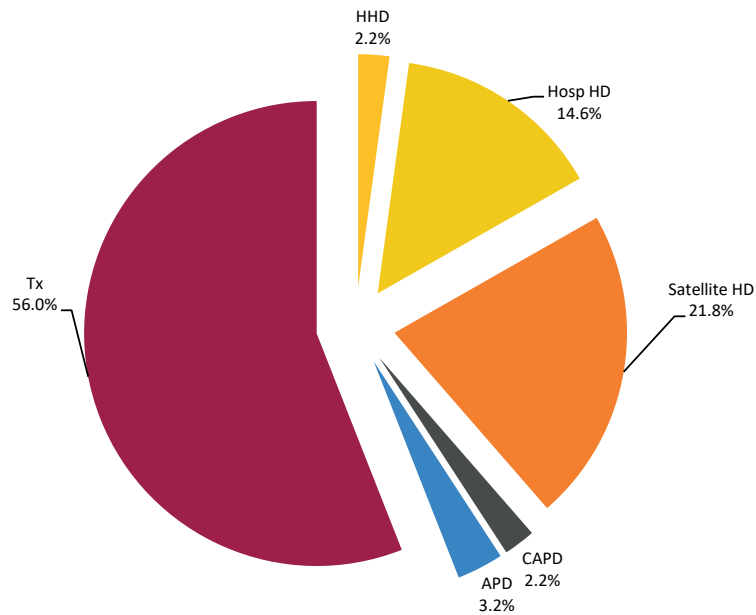
PRD	N on KRT	% KRT population	Modality (%)		
			HD	PD	Tx
Diabetes	12,514	18.6	56.5	6.5	37.0
Glomerulonephritis	13,378	19.9	27.0	4.1	69.0
Hypertension	4,398	6.5	45.0	5.9	49.0
Polycystic kidney disease	7,090	10.6	21.7	3.8	74.5
Pyelonephritis	6,235	9.3	28.5	3.4	68.2
Renal vascular disease	1,692	2.5	63.2	8.5	28.4
Other	12,659	18.9	35.2	4.4	60.3
Uncertain aetiology	9,189	13.7	39.2	6.3	54.5
<b>Total (with data)</b>	<b>67,155</b>	<b>100.0</b>	<b>37.4</b>	<b>5.0</b>	<b>57.6</b>
Missing	2,668	3.8	62.1	13.0	24.8

**Table 3.6** Change in primary renal disease (PRD) of adult patients prevalent to KRT between 2013 and 2022

PRD	Year									
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Diabetes	16.7	17.0	17.4	17.6	17.9	18.2	18.5	18.7	18.8	18.6
Glomerulonephritis	19.9	19.8	19.8	19.8	19.8	19.7	19.8	19.8	19.9	19.9
Hypertension	6.6	6.6	6.5	6.5	6.5	6.4	6.6	6.5	6.5	6.5
Polycystic kidney disease	10.2	10.2	10.3	10.3	10.4	10.4	10.4	10.6	10.5	10.6
Pyelonephritis	11.5	11.2	10.9	10.7	10.4	10.1	9.8	9.6	9.4	9.3
Renal vascular disease	3.2	3.2	3.1	3.1	3.0	2.9	2.9	2.7	2.6	2.5
Other	17.1	17.5	17.7	18.0	18.2	18.5	18.5	18.6	18.7	18.9
Uncertain aetiology	14.8	14.5	14.3	14.1	13.8	13.7	13.5	13.5	13.6	13.7
Missing	0.7	0.7	0.7	0.8	1.0	1.1	1.4	1.9	2.8	3.8

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

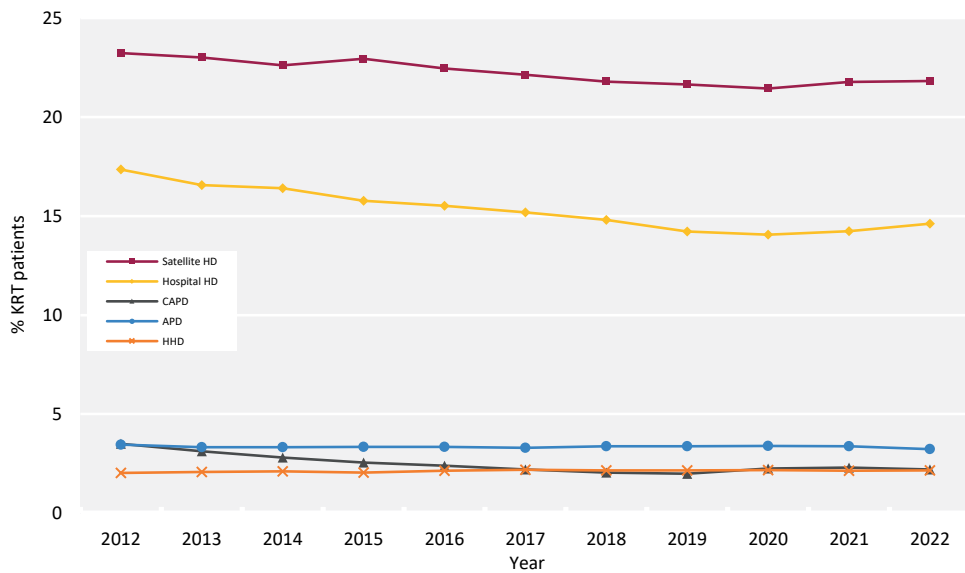
The treatment modality distribution for prevalent adult KRT patients was further divided by treatment location for HD patients – hospital unit, satellite unit or home – and for PD patients by type of PD – automated PD (APD) and continuous ambulatory PD (CAPD).



**Figure 3.8** Detailed treatment modality of adult patients prevalent to KRT on 31/12/2022

No Scottish centres were included because data on satellite HD were not available

APD – automated PD; CAPD – continuous ambulatory PD



**Figure 3.9** Detailed dialysis modality changes in prevalent adult KRT patients between 2012 and 2022

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 31/12/2022 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	1,753	31.9	5.1	84.2	3.8	28.0	52.5	15.8	2.6	13.2
Bradfd	358	36.7	8.2	88.8	2.5	75.1	11.2	11.2	6.4	4.8
Brightn	514	35.5	5.4	89.1	6.8	39.1	43.2	10.9	6.8	4.1
Bristol	568	29.1	5.1	89.1	2.6	18.0	68.5	10.9	6.2	4.8
Camb	414	22.0	0.8	93.2	5.6	36.5	51.2	6.8	5.1	1.7
Carlis	140	30.4	8.2	80.0	4.3	47.9	27.9	20.0	5.0	15.0
Carsh	1,038	31.1	4.2	87.7	2.4	20.8	64.5	12.3	3.8	8.5
Colchr	157	17.9	2.0	100.0	0.0	73.3	26.8	0.0	0.0	0.0
Covnt	468	38.1	7.7	82.9	3.9	79.1	0.0	17.1	8.8	8.3
Derby	411	26.6	4.6	85.6	14.8	63.5	7.3	14.4	10.5	3.9
Donc	223	30.0	4.1	93.3	4.0	58.3	30.9	6.7	0.9	5.8
Dorset	361	26.7	10.0	94.7	3.9	23.8	67.0	5.3	2.5	2.8
Dudley	256	29.4	3.9	88.3	5.5	16.0	66.8	11.7	7.8	3.9
EssexMS	541	29.5	3.0	84.8	4.3	74.7	5.9	15.2	2.2	12.6
Exeter										
Glouc	262	37.5	3.8	87.8	0.8	70.6	16.4	12.2	0.8	11.5
Hull	432	19.4	3.3	86.8	3.9	38.4	44.4	13.2	10.0	3.2
Ipswi	153	13.0	.	85.6	0.0	79.1	6.5	14.4	8.5	3.3
Kent	571	31.0	5.2	87.0	3.7	34.9	48.5	13.0	12.1	0.9
L Barts	1,435	35.2	6.7	83.8	3.1	36.2	44.5	16.2	6.3	9.9
L Guys	791	31.3	5.1	94.1	4.7	15.2	74.2	5.9	1.1	4.8
L Kings	840	26.7	4.6	87.7	4.6	17.7	65.4	12.3	4.2	8.1
L Rfree	922	33.5	9.1	84.1	1.0	5.2	77.9	15.9	6.9	9.0
L St.G	371	39.9	4.6	83.6	1.4	18.1	64.2	16.4	2.4	14.0
L West	1,546	50.1	13.2	87.3	2.5	15.9	68.9	12.7	11.3	1.4
Leeds	686	38.3	12.7	92.1	3.2	11.4	77.6	7.9	2.3	5.5
Leic	1,234	36.6	9.3	87.8	3.9	15.1	68.9	12.2	2.4	9.7
Liv UH	675	26.4	6.1	91.0	8.3	23.0	59.7	9.0	2.5	6.5
M RI	716	36.5	12.1	87.3	11.6	15.2	60.5	12.7	4.6	8.1
Middlbr	386	32.1	6.8	94.3	5.2	28.5	60.6	5.7	5.7	0.0
Newc	438	32.5	8.1	90.2	4.3	59.4	26.5	9.8	1.4	8.5
Norwch	341	12.4	.	88.9	2.9	52.5	33.4	11.1	8.2	2.9
Nottm	486	34.3	8.0	80.7	6.2	31.9	42.6	19.3	5.1	14.2
Oxford	583	38.9	7.8	87.1	4.5	32.4	50.3	12.9	3.8	9.1
Plymth	207	40.4	8.0	78.3	1.5	72.0	4.8	21.7	5.8	15.9
Ports	857	30.8	9.5	87.5	9.1	18.1	60.3	12.5	6.5	6.0
Prestn	602	37.3	12.0	91.5	6.3	22.1	63.1	8.5	5.5	3.0
Redng	406	39.1	5.3	86.2	3.2	30.8	52.2	13.8	11.6	2.2
Salford	572	43.8	18.6	83.7	5.4	22.7	55.6	16.3	7.3	8.9
Sheff	711	27.5	6.0	88.5	7.5	46.3	34.7	11.5	4.1	7.5
Shrew	259	27.0	6.6	81.9	15.4	38.2	28.2	18.2	1.5	16.6
Stevng	648	27.3	6.7	93.5	5.6	22.5	65.4	6.5	3.4	3.1
Stoke	452	26.5	5.6	76.3	6.4	45.8	24.1	23.7	1.3	22.4
Sund	273	26.0	9.6	86.8	3.7	48.4	34.8	13.2	2.6	10.6
Truro	217	29.2	3.9	92.6	1.4	47.9	43.3	7.4	3.2	4.2
Wirral	211	30.3	11.8	92.9	2.8	38.4	51.7	7.1	0.5	6.6
Wolve	474	25.1	4.9	88.0	9.1	73.8	5.1	12.0	3.2	8.2
York	259	37.9	11.2	84.6	8.5	25.5	50.6	15.4	5.4	10.0
N IRELAND <sup>1</sup>										
Antrim	136	22.2	4.0	85.3	0.7	84.6	0.0	14.7	4.4	9.6
Belfast	169	25.0	2.4	87.0	4.7	82.3	0.0	13.0	0.0	11.8
Newry	90	28.1	3.4	88.9	3.3	85.6	0.0	11.1	4.4	4.4



**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	105	14.3	1.3	95.2	0.0	95.2	0.0	4.8	1.0	2.9
West NI	115	20.5	1.4	93.9	0.9	93.0	0.0	6.1	0.0	4.4
<b>SCOTLAND<sup>2</sup></b>										
Abrdn	220	33.6	11.5	87.3	1.4	85.9	0.0	12.7	8.6	3.2
Airdrie	233	40.5	14.3	88.8	0.0	88.8	0.0	11.2	6.0	5.2
D&Gall	60	48.1	12.1	85.0	1.7	83.3	0.0	15.0	1.7	13.3
Dundee	165	31.1	3.3	87.9	3.0	84.9	0.0	12.1	2.4	6.1
Edinb	341	37.4	9.4	88.9	2.6	86.2	0.0	11.1	3.8	7.3
Glasgw	668	47.0	13.0	94.5	1.7	92.8	0.0	5.5	1.4	4.2
Inverns	102	22.0	11.5	86.3	2.9	83.3	0.0	13.7	10.8	2.9
Klmarnk	191	25.3	6.0	83.8	6.3	77.5	0.0	16.2	3.7	12.6
Krkldy	179	32.9	6.8	92.7	2.2	90.5	0.0	7.3	1.7	5.6
<b>WALES</b>										
Bangor	108	28.6	3.4	90.7	20.4	54.6	15.7	9.3	0.9	8.3
Cardff	671	22.8	4.9	92.1	7.3	11.0	73.8	7.9	4.5	3.4
Clwyd	107	19.6	5.4	88.8	9.4	79.4	0.0	11.2	9.4	1.9
Swanse	483	25.1	6.3	89.2	8.1	47.0	34.2	10.8	5.0	5.8
Wrexm	129	17.9	3.2	83.7	2.3	50.4	31.0	16.3	1.6	14.7
<b>TOTALS</b>										
England	26,218	33.0	7.1	87.4	4.8	31.9	50.8	12.6	5.1	7.5
N Ireland	615	22.8	2.6	89.6	2.1	87.5	0.0	10.4	1.8	7.3
Scotland	2,159	38.4	10.3	90.0	2.2	87.8	0.0	10.0	3.8	5.9
Wales	1,498	23.2	5.2	90.1	8.2	34.1	47.9	9.9	4.5	5.4
<b>UK</b>	<b>30,490</b>	<b>32.8</b>	<b>7.1</b>	<b>87.8</b>	<b>4.7</b>	<b>37.0</b>	<b>46.0</b>	<b>12.2</b>	<b>4.9</b>	<b>7.2</b>

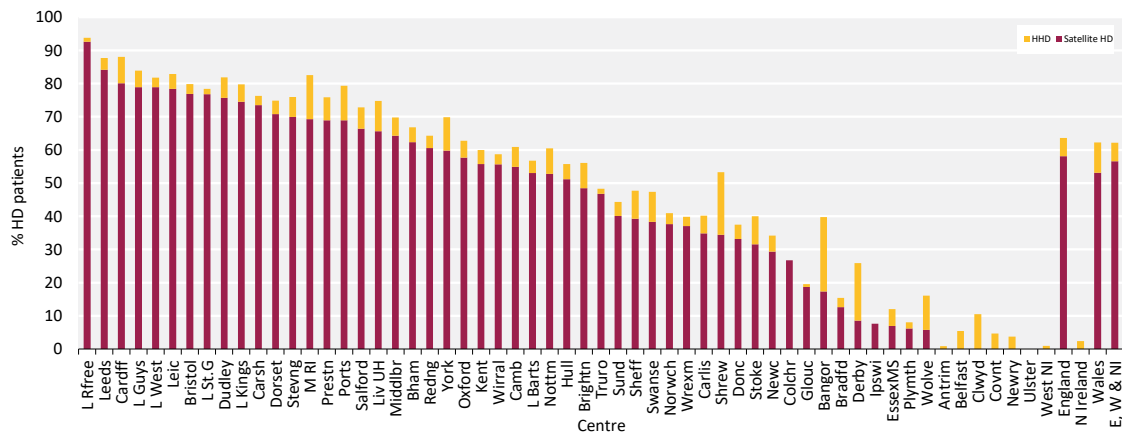
Blank cells – no data returned by the centre

<sup>1</sup>There were no satellite units in Northern Ireland

<sup>2</sup>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 31/12/2022 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 31/12/2021 and followed-up for one year in 2022. 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 31/12/2021 by centre

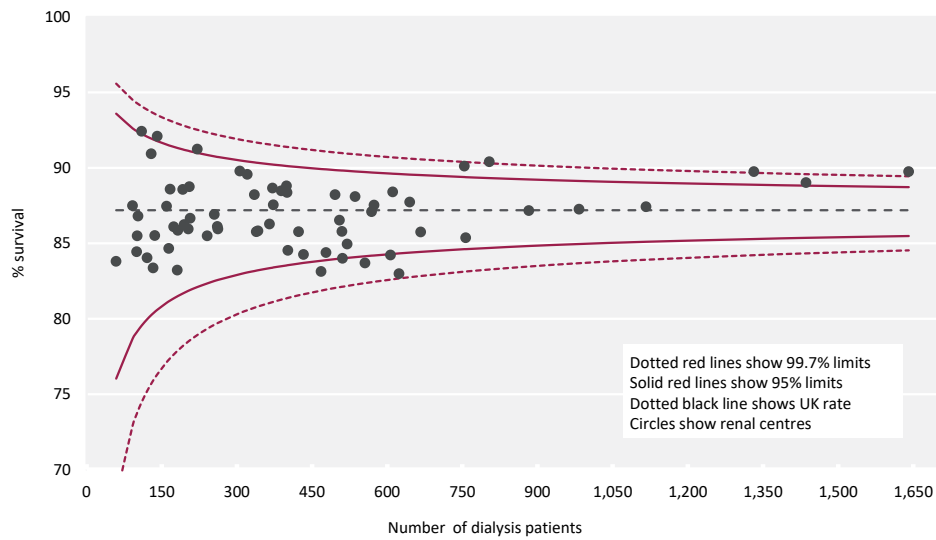
Centre	Age-adjusted survival				Case-mix adjusted survival <sup>1</sup>			
	N on dialysis	1 yr (%)	Lower 95% limit	Upper 95% limit	N on dialysis	1 yr (%)	Lower 95% limit	Upper 95% limit
D&Gall	59	83.8	76.0	93.6				
Clwyd	92	87.5	78.7	92.6	92	89.8	82.2	94.8
Newry	100	84.4	79.1	92.4	86	83.8	81.8	94.9
Inverns	101	85.5	79.2	92.4				
Bangor	103	86.8	79.2	92.4	103	90.3	82.7	94.6
Ulster	110	92.4	79.6	92.3	106	91.2	82.8	94.5
Wrexm	121	84.0	80.0	92.1	121	87.5	83.4	94.3
West NI	129	90.9	80.2	91.9	119	89.0	83.3	94.4
Carlis	133	83.4	80.4	91.9	130	86.9	83.7	94.2
Colchr	136	85.5	80.5	91.8	134	89.2	83.8	94.2
Antrim	141	92.1	80.6	91.8	121	92.1	83.4	94.3
Dundee	160	87.5	81.1	91.5				
Ipswi	164	84.7	81.2	91.5	157	87.9	84.4	93.9
Krkldy	167	88.6	81.2	91.5				
Klmarnk	174	86.1	81.4	91.4				
Plymth	181	83.2	81.5	91.3	181	87.8	84.9	93.7
Donc	182	85.9	81.5	91.3	180	89.0	84.8	93.7
Belfast	192	88.6	81.7	91.2				
Truro	195	86.2	81.7	91.2	189	90.1	85.0	93.6
Abrdn	203	86.0	81.9	91.1				
Wirral	205	88.8	81.9	91.1	204	92.1	85.2	93.5
Airdrie	207	86.7	81.9	91.1				
York	221	91.2	82.1	91.0	221	92.9	85.5	93.4
Glouc	241	85.5	82.3	90.9	236	89.0	85.6	93.3
Shrew	255	86.9	82.5	90.8	255	90.1	85.8	93.2
Sund	261	86.1	82.6	90.7	259	90.3	85.9	93.2
Dudley	262	85.9	82.6	90.7	262	88.9	85.9	93.2
Bradfd	306	89.8	83.0	90.5	305	92.6	86.3	93.0
Edinb	321	89.6	83.1	90.4				
Dorset	335	88.2	83.2	90.4	334	90.9	86.4	92.9
Norwch	339	85.8	83.2	90.3	332	88.4	86.4	92.9
Redng	342	85.8	83.2	90.3	342	89.8	86.5	92.9
Middlbr	365	86.3	83.4	90.2	363	89.3	86.6	92.8
L St.G	371	88.7	83.4	90.2	365	91.8	86.6	92.8
Derby	373	87.5	83.4	90.2	372	90.3	86.7	92.8
Camb	389	88.5	83.5	90.2	388	90.8	86.8	92.7
Stoke	399	88.8	83.5	90.1	395	91.2	86.8	92.7
Hull	400	88.4	83.5	90.1	400	90.7	86.8	92.7
Newc	402	84.5	83.6	90.1	402	88.8	86.8	92.7
Wolve	423	85.8	83.7	90.1	422	89.4	86.9	92.6
Covnt	433	84.3	83.7	90.0	426	87.0	86.9	92.6
Swanse	468	83.1	83.8	89.9	468	87.3	87.1	92.5
Nottm	478	84.4	83.9	89.9	478	88.6	87.1	92.5
Brightn	496	88.2	84.0	89.9	487	90.8	87.2	92.5
Kent	505	86.5	84.0	89.8	505	89.3	87.2	92.5
Salford	510	85.8	84.0	89.8	510	90.1	87.2	92.4
Oxford	511	84.0	84.0	89.8	504	88.2	87.2	92.5
EssexMS	520	84.9	84.0	89.8	517	88.6	87.3	92.4
Bristol	536	88.1	84.1	89.8	526	91.4	87.3	92.4
Prestn	556	83.7	84.1	89.7	556	88.2	87.4	92.4
Glasgw	569	87.1	84.2	89.7				
Stevng	574	87.5	84.2	89.7	566	90.6	87.4	92.3
Cardff	607	84.2	84.3	89.6	607	88.0	87.5	92.3
Leeds	611	88.4	84.3	89.6	610	91.2	87.5	92.3

**Table 3.8** Continued

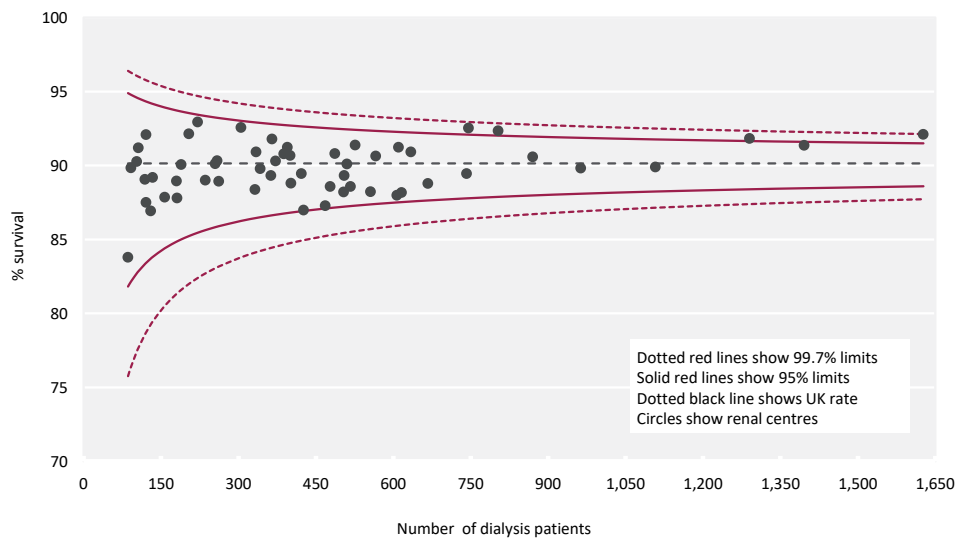
Centre	Age-adjusted survival				Case-mix adjusted survival <sup>1</sup>			
	N on dialysis	1 yr (%)	Lower 95% limit	Upper 95% limit	N on dialysis	1 yr (%)	Lower 95% limit	Upper 95% limit
Liv UH	624	83.0	84.3	89.6	616	88.2	87.5	92.3
M RI	645	87.7	84.4	89.6	634	90.9	87.6	92.2
Sheff	667	85.8	84.4	89.5	667	88.8	87.6	92.2
L Kings	754	90.1	84.6	89.4	746	92.5	87.8	92.1
Ports	757	85.4	84.6	89.4	742	89.4	87.8	92.1
L Guys	804	90.4	84.7	89.3	803	92.3	87.9	92.0
L Rfree	883	87.2	84.8	89.2	870	90.6	88.0	92.0
Carsh	983	87.3	85.0	89.1	963	89.8	88.1	91.9
Leic	1,117	87.4	85.1	89.0	1,108	89.9	88.2	91.8
L Barts	1,332	89.7	85.3	88.9	1,290	91.8	88.4	91.7
L West	1,436	89.0	85.4	88.8	1,396	91.4	88.5	91.6
Bham	1,641	89.8	85.5	88.7	1,627	92.1	88.6	91.5

Centres are ordered by increasing number of patients

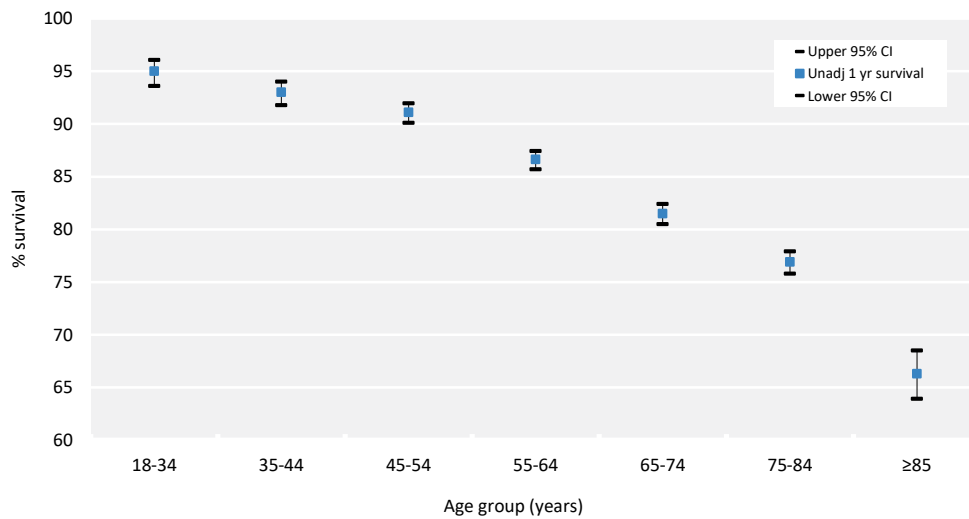
<sup>1</sup>Centres excluded if <85% comorbidity data were available – this included Belfast and all Scottish kidney centres



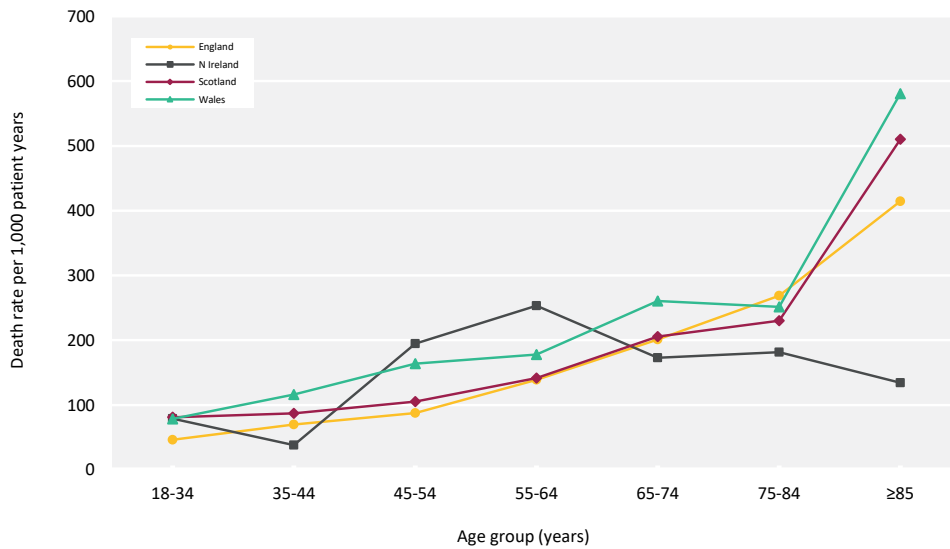
**Figure 3.11** 1 year survival (adjusted to age 60 years) of adult patients prevalent to dialysis on 31/12/2021 by centre



**Figure 3.12** 1 year survival (adjusted to 60 years, male and median comorbidity score) of adult patients prevalent to dialysis on 31/12/2021 by centre

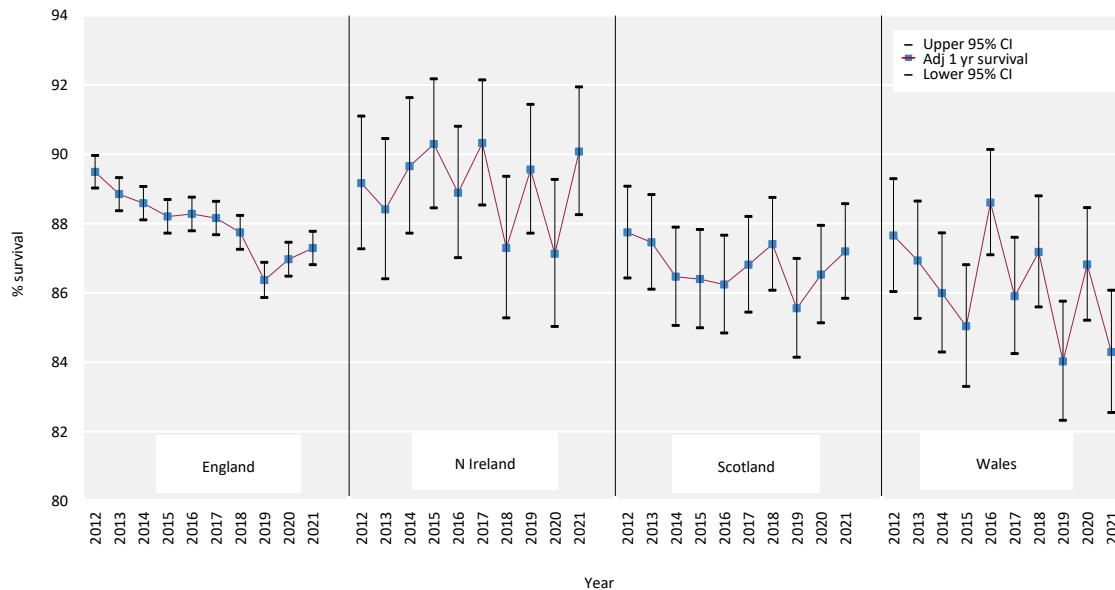


**Figure 3.13** 1 year survival (unadjusted) of adult patients prevalent to dialysis on 31/12/2021 by age group  
 CI – confidence interval



**Figure 3.14** 1 year death rate per 1,000 patient years for adult patients prevalent to dialysis on 31/12/2021 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 2012 and 2021  
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 31/12/2021 followed-up for 1 year compared with the general population and with previous analyses in the 1998–2001 cohort

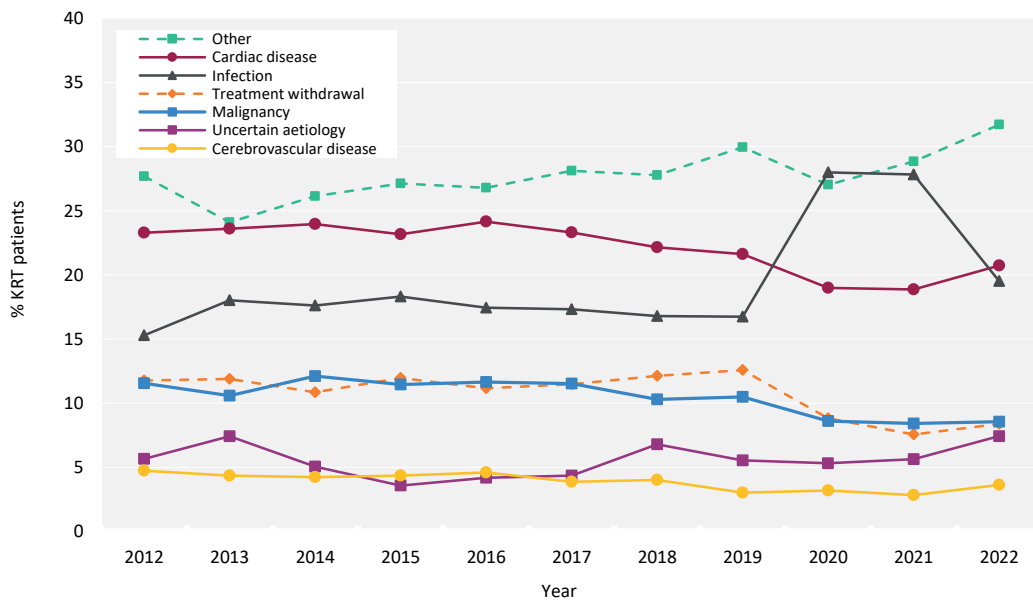
Age group (yrs)	UK population mid-2022 (thousands)	UK deaths in 2022	Death rate per 1,000 population	Expected number of deaths in UKRR population	UKRR deaths in 2022	UKRR death rate per 1,000 prevalent KRT patients	Relative risk of death in 2022	Relative risk of death 1998-2001 cohort
20-24	4,010	1,504	0.4	0	8	8	21.8	41.1
25-29	4,400	2,129	0.5	1	21	13	27.4	41.8
30-34	4,599	3,091	0.7	2	54	21	31.7	31.2
35-39	4,435	4,674	1.1	4	83	24	22.8	26.0
40-44	4,279	6,428	1.5	6	113	27	17.7	22.6
45-49	4,056	9,951	2.5	13	180	34	13.9	19.0
50-54	4,555	15,735	3.5	25	301	42	12.0	12.8
55-59	4,611	24,097	5.2	45	554	65	12.5	10.1
60-64	4,079	31,244	7.7	63	674	83	10.8	10.4
65-69	3,447	43,796	12.7	92	850	118	9.3	7.9
70-74	3,229	62,576	19.4	126	991	153	7.9	7.2
75-79	2,748	89,603	32.6	163	982	196	6.0	5.3
80-84	1,736	102,642	59.1	172	815	280	4.7	4.0
≥85	1,718	255,078	148.5	212	587	412	2.8	3.0
<b>Total</b>	<b>51,902</b>	<b>652,548</b>	<b>12.6</b>	<b>922</b>	<b>6,213</b>	<b>96</b>	<b>6.7</b>	<b>7.7</b>

## Cause of death in adult KRT patients

Cause of death was analysed in prevalent patients receiving KRT on 31/12/2021 and followed-up for one year in 2022. 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 31/12/2021 followed-up in 2022 by age group

Cause of death	KRT all ages		KRT <65 yrs		KRT ≥65 yrs	
	N	%	N	%	N	%
Cardiac disease	1,159	20.7	421	24.1	738	19.2
Cerebrovascular disease	203	3.6	72	4.1	131	3.4
Infection	1,092	19.5	300	17.2	792	20.6
Malignancy	479	8.6	148	8.5	331	8.6
Treatment withdrawal	470	8.4	89	5.1	381	9.9
Other	1,773	31.7	567	32.4	1,206	31.4
Uncertain aetiology	416	7.4	152	8.7	264	6.9
<b>Total (with data)</b>	<b>5,592</b>	<b>100.0</b>	<b>1,749</b>	<b>100.0</b>	<b>3,843</b>	<b>100.0</b>
Missing	623	10.0	241	12.1	382	9.0



**Figure 3.16** Cause of death between 2012 and 2022 for adult patients prevalent to KRT at the beginning of the year