

## *Chapter 3*

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# **Adults on kidney replacement therapy (KRT) in the UK at the end of 2021**

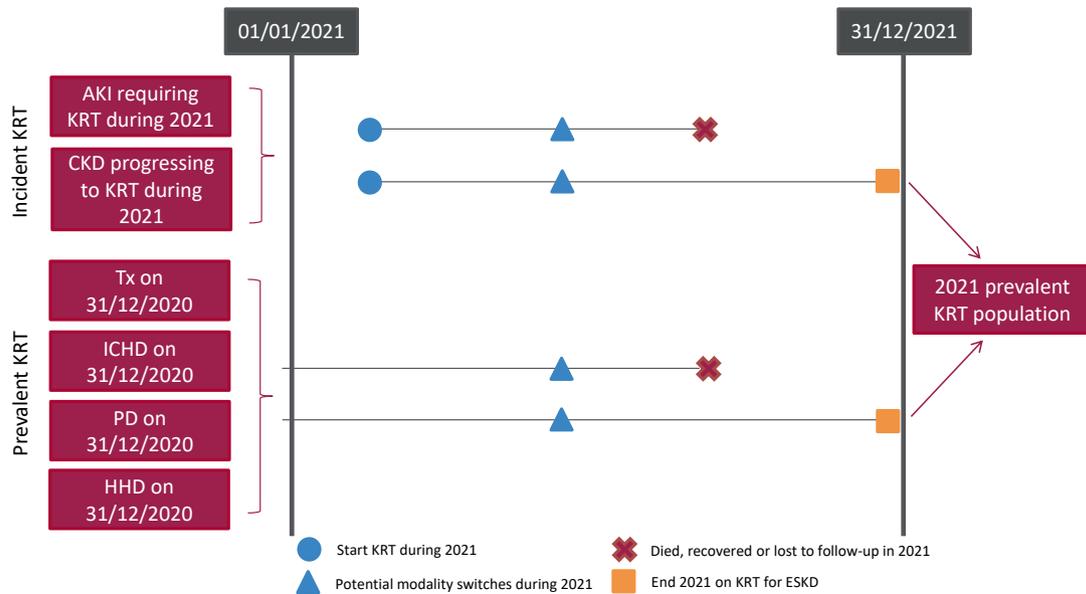
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# Introduction

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 2021 (figure 3.1). Patients may have started KRT prior to 2021 or during 2021. 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 2021 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 2021 or if they had been on KRT for  $\geq 90$  days and were on KRT at the end of 2021. 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 2021 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](http://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 2021. Aggregate numbers by modality were provided, enabling inclusion in Tables 3.1 and 3.2. Exeter is excluded from all other analyses.

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

## Key findings

- 69,497 adult patients were receiving KRT for ESKD on 31/12/2021. This represents a 1.5% increase from 2020 and approaches the 2-2.5% increase that was seen in the years before the pandemic.
- KRT prevalence was 1,307 per million population compared 1,290 per million population in 2020.
- The median age of KRT patients was 59.47 years (ICHD 66.1 years, HHD 56.0 years, PD 63.3 years and Tx 56.5 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 (56.4%) – ICHD comprised 36%, PD 5.6% and HHD 2.0% of the KRT population.
- The most common identifiable primary renal disease was glomerulonephritis (19.7%), followed by diabetes (18.7%).
- There were 2 centres above the upper 95% limit and 2 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 31/12/2020. It is expected that 3 centres would be outside the limits by chance.
- There was no cause of death data available for 37.7% of deaths. For those with data, the leading cause of death was infection amongst both patients > 65 years and < 65 years at 26.8% and 30.4% respectively, with a significant contribution from COVID related deaths.

# Analyses

## Changes to the prevalent adult KRT population

For the 68 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).

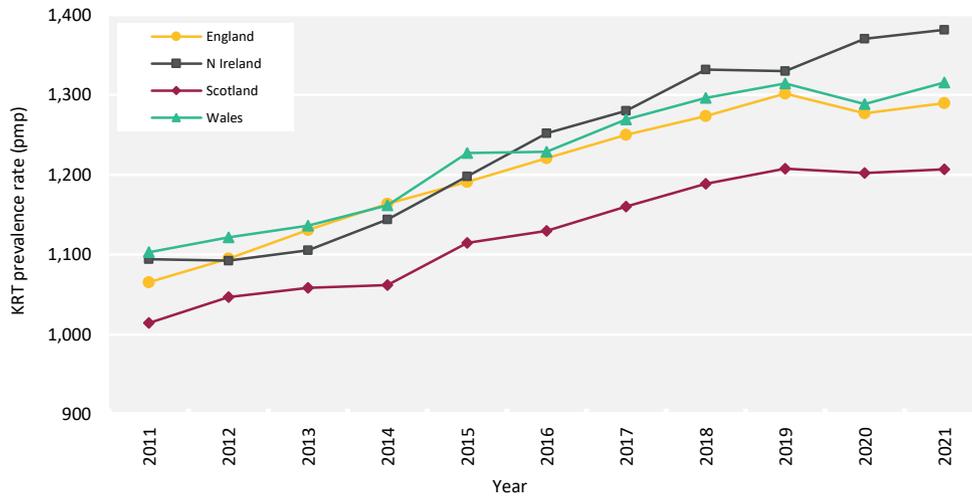
**Table 3.1** Number of prevalent adult KRT patients by year and by centre; number of KRT patients as a proportion of the catchment population

Centre	N on KRT					Estimated catchment population (millions)	2021 crude rate (pmp)
	2017	2018	2019	2020	2021		
<b>ENGLAND</b>							
Bham	3,174	3,249	3,312	3,261	3,309	2.05	1,611
Bradfd	674	688	732	724	735	0.49	1,496
Brightn	1,012	1,055	1,064	1,077	1,092	1.08	1,013
Bristol	1,473	1,471	1,487	1,476	1,497	1.22	1,225
Camb	1,336	1,387	1,456	1,509	1,629	0.94	1,739
Carlis	281	293	301	297	305	0.26	1,194
Carsh	1,696	1,752	1,781	1,850	1,907	1.63	1,170
Colchr	129	122	145	150	145	0.29	497
Covnt	966	959	1,076	1,102	1,119	0.80	1,407
Derby	555	586	654	676	689	0.56	1,227
Donc	333	330	342	341	339	0.38	903
Dorset	730	764	773	798	786	0.73	1,077
Dudley	366	360	366	372	398	0.34	1,157
EssexMS	831	844	851	885	895	0.99	900
Exeter	1,057	1,083	1,089	1,092	1,077	0.95	1,130
Glouc	511	522	531	522	546	0.51	1,070
Hull	872	880	904	914	919	0.80	1,148
Ipswi	436	428	428	426	421	0.31	1,347
Kent	1,091	1,112	1,139	1,143	1,192	1.07	1,114
L Barts	2,498	2,600	2,659	2,685	2,750	1.59	1,729
L Guys	2,166	2,231	2,321	2,317	2,322	1.01	2,307
L Kings	1,155	1,183	1,247	1,252	1,334	0.93	1,428
L Rfree	2,191	2,233	2,344	2,337	2,380	1.33	1,792
L St.G	839	834	852	852	866	0.67	1,302
L West	3,475	3,560	3,607	3,531	3,556	1.96	1,810
Leeds	1,619	1,683	1,727	1,752	1,784	1.37	1,299
Leic	2,357	2,452	2,580	2,621	2,640	2.09	1,265
Liv Ain	210	217	226	242	264	0.43	611
Liv Roy	1,253	1,271	1,258	1,208	1,207	0.81	1,486
M RI	2,052	2,066	2,048	1,986	2,077	1.33	1,556
Middlbr	904	930	953	946	955	0.81	1,183
Newc	1,116	1,153	1,172	1,197	1,226	0.95	1,286
Norwch	781	788	810	808	784	0.69	1,136
Nottm	1,184	1,197	1,217	1,210	1,220	0.93	1,313
Oxford	1,880	1,943	1,973	2,016	2,003	1.45	1,385
Plymth	541	540	535	542	548	0.40	1,365
Ports	1,746	1,763	1,881	1,899	1,941	1.75	1,109
Prestn	1,272	1,322	1,342	1,368	1,379	1.23	1,117
Redng	795	814	862	869	877	0.70	1,256
Salford	1,117	1,173	1,243	1,268	1,215	1.15	1,054
Sheff	1,442	1,482	1,489	1,490	1,496	1.13	1,319
Shrew	387	430	437	427	442	0.41	1,077

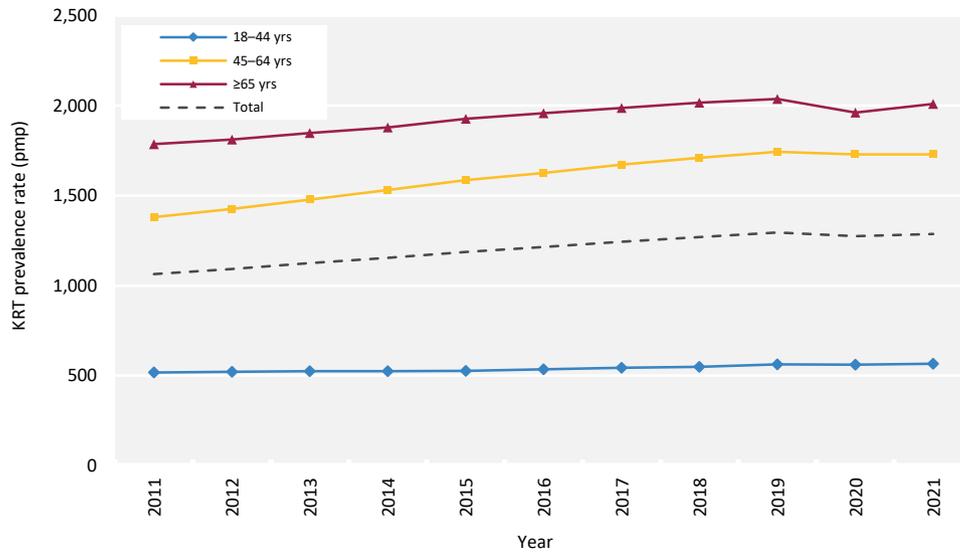
**Table 3.1** Continued

Centre	N on KRT					Estimated catchment population (millions)	2021 crude rate (pmp)
	2017	2018	2019	2020	2021		
Stevng	884	938	961	974	1,014	1.11	913
Stoke	811	806	806	813	845	0.73	1,154
Sund	544	560	570	556	547	0.55	999
Truro	425	437	450	445	461	0.36	1,287
Wirral	390	400	416	414	412	0.47	877
Wolve	583	609	614	655	691	0.55	1,259
York	557	569	582	572	581	0.49	1,196
<b>N IRELAND</b>							
Antrim	255	274	285	287	296	0.25	1,204
Belfast	844	878	881	890	911	0.53	1,706
Newry	241	252	253	264	281	0.24	1,195
Ulster	183	191	185	201	203	0.20	999
West NI	313	327	328	351	339	0.25	1,350
<b>SCOTLAND</b>							
Abrdn	563	572	558	565	578	0.50	1,155
Airdrie	466	488	524	517	504	0.46	1,098
D&Gall	135	145	149	156	154	0.12	1,257
Dundee	435	445	449	430	411	0.37	1,116
Edinb	825	862	885	889	926	0.84	1,101
Glasgw	1,772	1,813	1,854	1,848	1,865	1.37	1,357
Inverns	262	279	282	271	278	0.22	1,243
Klmarnk	337	340	359	369	365	0.29	1,249
Krkldy	304	298	295	291	295	0.27	1,078
<b>WALES</b>							
Bangor	195	203	201	216	217	0.16	1,323
Cardff	1,683	1,720	1,730	1,679	1,700	1.16	1,469
Clwyd	179	190	205	204	204	0.18	1,126
Swanse	789	825	869	850	853	0.76	1,125
Wrexm	323	314	311	323	300	0.21	1,443
<b>TOTALS</b>							
England	54,697	56,069	57,613	57,867	58,817	44.77	1,314
N Ireland	1,836	1,922	1,932	1,993	2,030	1.47	1,381
Scotland	5,099	5,242	5,355	5,336	5,376	4.45	1,207
Wales	3,169	3,252	3,316	3,272	3,274	2.49	1,315
<b>UK</b>	<b>64,801</b>	<b>66,485</b>	<b>68,216</b>	<b>68,468</b>	<b>69,497</b>	<b>53.19</b>	<b>1,307</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 patient level data, but provided aggregate numbers of patients on KRT at the end of 2021, by treatment modality  
pmp – per million population



**Figure 3.2** Adult KRT prevalence rates by country between 2011 and 2021  
pmp – per million population



**Figure 3.3** Adult KRT prevalence rates by age group between 2011 and 2021  
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 31/12/2021 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	3,309	40.7	8.4	2.1	48.8	58.9	59.2	56.7	29.6	10.8	2.9	1.5
Bradfd	735	37.4	5.0	1.0	56.6	56.7	60.0	51.2	43.7	2.7	2.4	0.0
Brightn	1,092	38.8	6.3	2.7	52.1	61.3	62.4	89.4	6.1	2.1	2.4	3.7
Bristol	1,497	31.8	5.1	1.2	61.9	59.0	61.0	88.4	4.0	5.7	1.9	1.1
Camb	1,629	21.8	1.8	1.5	75.0	58.0	63.1	90.0	5.9	2.5	1.6	3.2
Carlis	305	37.4	9.8	1.0	51.8	60.1	60.7	99.0	1.0	0.0	0.0	0.0
Carsh	1,907	46.4	7.0	1.5	45.1	61.7	61.3	65.7	17.3	11.2	5.7	3.9
Colchr	145	100.0	0.0	0.0	0.0	73.7	64.8	96.4	0.7	0.7	2.2	4.8
Covnt	1,119	33.1	7.2	2.0	57.7	59.9	62.5	77.9	16.8	5.1	0.2	0.2
Derby	689	38.0	9.6	8.0	44.4	61.8	63.1	82.3	12.2	2.9	2.5	1.6
Donc	339	51.6	3.8	1.5	43.1	62.4	61.7	93.8	3.0	1.2	2.1	0.6
Dorset	786	38.7	2.9	1.8	56.6	65.5	60.8	96.4	1.7	0.4	1.5	0.0
Dudley	398	55.3	10.1	2.5	32.2	63.6	64.8	78.6	14.6	5.8	1.0	0.0
EssexMS	895	47.9	10.4	2.3	39.3	63.1	66.3	85.3	5.9	5.3	3.4	3.9
Exeter	1,077	44.2	6.8	1.5	47.5							
Glouc	546	41.4	6.6	0.0	52.0	63.2	61.9	90.9	3.9	2.8	2.4	1.3
Hull	919	39.3	5.7	1.3	53.8	59.3	64.2	95.7	2.3	1.0	1.0	0.5
Ipswi	421	33.3	7.8	0.5	58.4	63.1	62.5	82.4	2.2	4.5	10.9	4.0
Kent	1,192	38.4	6.0	1.5	54.0	60.7	60.9	91.7	3.3	2.1	2.9	1.4
L Barts	2,750	39.8	9.4	0.9	49.9	58.0	58.9	32.3	35.3	25.3	7.2	2.3
L Guys	2,322	31.4	3.0	1.8	63.8	57.1	59.1	57.8	10.4	27.3	4.5	4.0
L Kings	1,334	50.4	7.3	2.5	39.7	59.6	60.6	42.5	14.5	38.8	4.3	1.5
L Rfree	2,380	30.9	7.3	0.4	61.4	58.5	60.5	42.5	22.8	22.6	12.1	7.5
L St.G	866	37.2	6.1	0.6	56.1	60.0	59.0	40.2	25.2	23.6	11.1	5.4
L West	3,556	36.3	6.0	1.0	56.6	61.0	61.6	38.1	36.5	19.2	6.2	0.1
Leeds	1,784	32.5	3.0	0.9	63.6	57.6	61.3	76.2	16.8	5.4	1.6	0.2
Leic	2,640	38.0	5.2	1.8	55.0	60.3	60.9	72.9	20.3	5.2	1.7	4.7
Liv Ain	264	68.6	8.3	4.9	18.2	62.4	63.3	94.2	1.2	1.9	2.7	2.3
Liv Roy	1,207	30.7	2.7	3.6	63.0	58.0	61.0	90.4	3.2	3.4	3.0	1.9
M RI	2,077	24.6	4.7	4.0	66.7	57.9	59.9	66.6	13.8	17.4	2.2	2.6
Middlbr	955	36.5	2.1	1.8	59.6	59.8	63.9	93.5	4.5	0.7	1.3	0.8
Newc	1,226	28.6	4.7	1.5	65.2	59.5	60.2	92.9	4.5	1.2	1.4	0.2
Norwch	784	36.2	5.7	1.3	56.8	62.6	60.6	96.8	1.2	0.9	1.1	3.2
Nottm	1,220	29.8	8.4	2.3	59.5	58.6	61.8	81.0	8.5	7.7	2.7	0.2
Oxford	2,003	23.1	3.3	0.9	72.6	58.4	61.3	78.9	11.2	5.1	4.8	14.3
Plymth	548	30.1	6.2	0.0	63.7	62.4	66.6	97.3	0.7	0.4	1.6	0.0
Ports	1,941	33.4	4.6	4.4	57.5	60.5	60.2	91.9	4.5	1.1	2.5	9.3
Prestn	1,379	36.3	4.0	3.0	56.6	59.6	60.9	82.5	15.9	0.9	0.7	0.0
Redng	877	34.7	5.7	1.0	58.6	60.1	62.7	64.6	23.4	5.5	6.5	6.5
Salford	1,215	33.9	6.9	2.6	56.6	58.5	61.0	76.5	17.7	3.7	2.1	0.0
Sheff	1,496	37.0	5.5	3.7	53.7	59.5	62.8	87.8	6.8	2.7	2.7	1.8
Shrew	442	41.4	11.5	8.4	38.7	61.8	64.3	90.6	3.9	2.3	3.2	1.8
Stevng	1,014	52.2	3.6	3.8	40.4	61.6	62.8	70.9	17.1	9.2	2.9	3.2
Stoke	845	31.4	12.7	4.9	51.1	59.6	63.3	89.5	5.9	2.3	2.2	3.8

**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	547	39.3	6.8	1.8	52.1	60.3	59.6	95.2	3.3	0.6	0.9	0.4
Truro	461	39.9	4.8	1.1	54.2	63.4	58.6	98.0	0.7	0.0	1.3	0.0
Wirral	412	46.6	4.9	1.5	47.1	61.0	64.3	96.1	1.9	1.2	0.7	0.0
Wolve	691	50.1	9.3	5.5	35.2	59.9	61.2	60.3	27.7	10.0	2.0	0.1
York	581	32.7	4.6	2.9	59.7	61.3	60.6	95.7	1.6	0.3	2.4	0.5
N IRELAND												
Antrim	296	38.9	6.1	0.7	54.4	64.9	63.2	99.6	0.0	0.4	0.0	10.5
Belfast	911	14.5	3.0	0.9	81.7	58.1	61.0	97.6	1.8	0.3	0.2	4.4
Newry	281	30.6	4.6	1.1	63.7	61.6	60.1	98.5	0.7	0.4	0.4	3.9
Ulster	203	48.8	1.5	0.0	49.8	65.8	59.1	94.1	3.9	1.5	0.5	0.0
West NI	339	31.0	1.8	0.9	66.4	59.1	60.2	99.1	0.6	0.3	0.0	1.5
SCOTLAND												
Abrdn	578	32.7	3.5	0.3	63.5	58.8	59.2					71.1
Airdrie	504	38.7	5.8	0.0	55.6	58.6	57.9					26.4
D&Gall	154	34.4	5.2	0.6	59.7	61.3	62.3					42.2
Dundee	411	36.3	3.9	1.5	58.4	60.5	63.0					69.6
Edinb	926	30.6	3.6	0.8	65.1	59.5	64.8					79.9
Glasgw	1,865	30.8	2.0	0.5	66.6	58.6	59.7					56.9
Inverns	278	33.5	4.0	0.7	61.9	58.8	59.4					55.4
Klmarnk	365	37.8	9.0	4.4	48.8	61.3	60.0					63.0
Krkldy	295	55.6	2.4	1.0	41.0	63.4	63.7					85.4
WALES												
Bangor	217	35.0	6.0	9.7	49.3	61.5	65.9	98.6	0.0	0.0	1.4	4.1
Cardff	1,700	31.2	3.4	3.0	62.4	58.8	62.2	91.0	6.2	1.2	1.6	2.5
Clwyd	204	44.1	5.4	0.0	50.5	63.1	65.7	97.3	2.1	0.5	0.0	8.3
Swanse	853	47.5	5.7	4.7	42.1	62.9	63.4	97.3	1.8	0.4	0.6	0.2
Wrexm	300	33.3	5.3	1.0	60.3	58.1	65.7	95.9	1.0	1.0	2.0	2.0
TOTALS												
England	58,817	36.4	5.9	2.1	55.6	59.7	61.2	71.9	15.1	9.5	3.5	2.8
N Ireland	2,030	26.5	3.3	0.8	69.5	60.0	60.9	97.9	1.4	0.5	0.2	4.3
Scotland	5,376	34.2	3.6	0.9	61.3	59.5	60.9					62.0
Wales	3,274	36.7	4.5	3.5	55.3	60.1	63.3	94.0	3.9	0.8	1.3	2.3
<b>UK</b>	<b>69,497</b>	<b>36.0</b>	<b>5.6</b>	<b>2.0</b>	<b>56.4</b>	<b>59.7</b>	<b>61.3</b>	<b>74.3</b>	<b>13.9</b>	<b>8.6</b>	<b>3.2</b>	<b>7.5</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

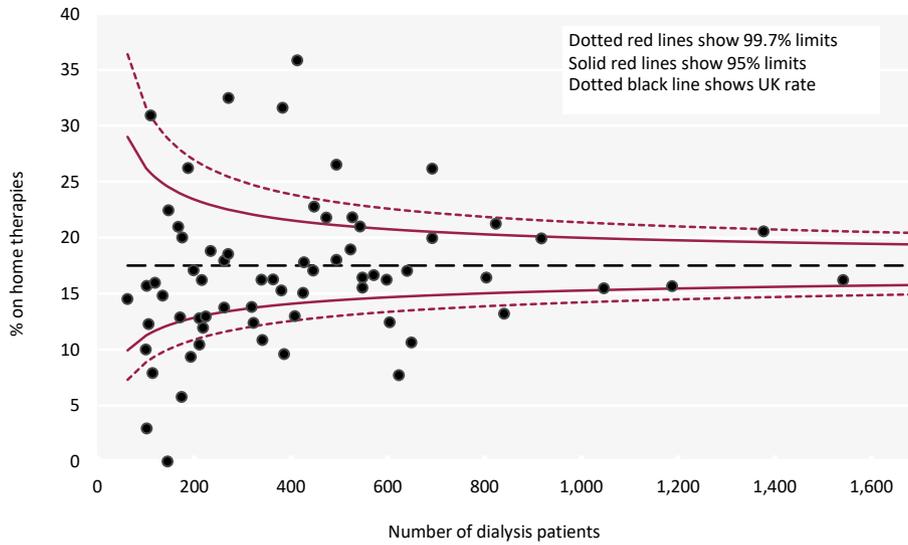
Exeter was unable to submit 2021 patient level data, but provided aggregate numbers of patients on KRT at the end of 2021, by treatment modality

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.

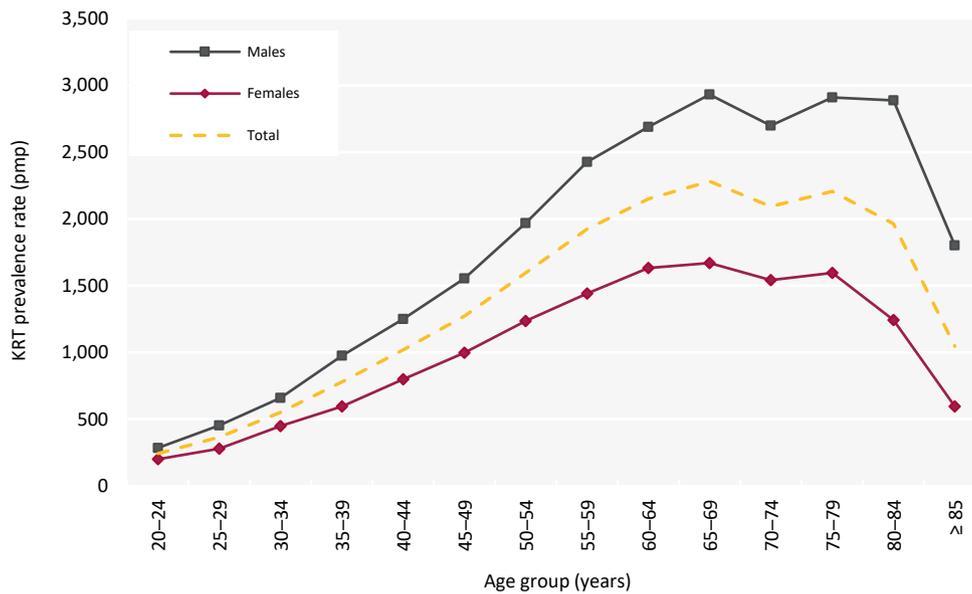
**Table 3.3** Demographics, primary renal diseases (PRDs) and prevalent treatment modality of adult patients prevalent to KRT on 31/12/2021 by age group

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	5,363	7,799	12,759	17,304	14,647	8,824	1,724	68,420	59.7
% on KRT	7.8	11.4	18.6	25.3	21.4	12.9	2.5		
<b>Sex (%)</b>									
Male	7.6	11.2	18.4	25.4	21.6	13.1	2.6	61.3	60.0
Female	8.3	11.7	19.1	25.1	21.1	12.5	2.3	38.7	59.4
<b>Ethnicity (%)</b>									
White	7.9	10.8	18.1	25.1	21.7	13.6	2.7	74.3	60.1
Asian	8.8	13.9	19.4	23.0	23.4	9.8	1.7	13.9	59.0
Black	6.0	12.3	23.1	31.7	14.8	9.7	2.4	8.6	57.5
Other	10.0	16.8	20.6	24.0	17.2	9.2	2.1	3.2	56.0
Missing	6.9	9.5	16.7	24.4	23.7	16.2	2.6	7.5	62.3
<b>PRD (%)</b>									
Diabetes	2.8	9.0	18.0	28.9	25.6	13.6	2.1	18.7	62.0
Glomerulonephritis	9.2	14.1	21.5	26.6	18.7	8.8	1.2	19.7	57.0
Hypertension	3.1	9.2	18.8	26.7	21.0	17.0	4.1	6.3	61.9
Polycystic kidney disease	1.9	5.5	19.5	34.4	26.7	11.2	0.8	10.5	61.6
Pyelonephritis	11.0	14.8	21.6	24.6	16.3	9.5	2.3	9.4	55.8
Renal vascular disease	2.2	3.7	6.9	13.4	29.2	34.7	9.8	2.6	73.7
Other	10.0	16.8	20.6	24.0	17.2	9.2	2.1	3.2	56.0
Uncertain aetiology	6.9	11.8	17.8	21.5	21.5	16.2	4.3	14.5	61.3
Missing	6.9	9.5	16.7	24.4	23.7	16.2	2.6	7.5	62.3
<b>Modality (%)</b>									
ICHD	4.7	7.3	13.4	22.0	24.1	22.6	5.9	35.9	66.1
HHD	8.6	14.2	24.6	27.8	16.2	7.8	0.8	2.0	56.0
PD	7.9	9.5	15.1	21.2	23.3	19.3	3.7	5.6	63.3
Tx	9.8	14.1	22.1	27.7	19.7	6.3	0.3	56.5	56.5

Variation between centres in the proportion of patients prevalent to dialysis on 31/12/2021 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.

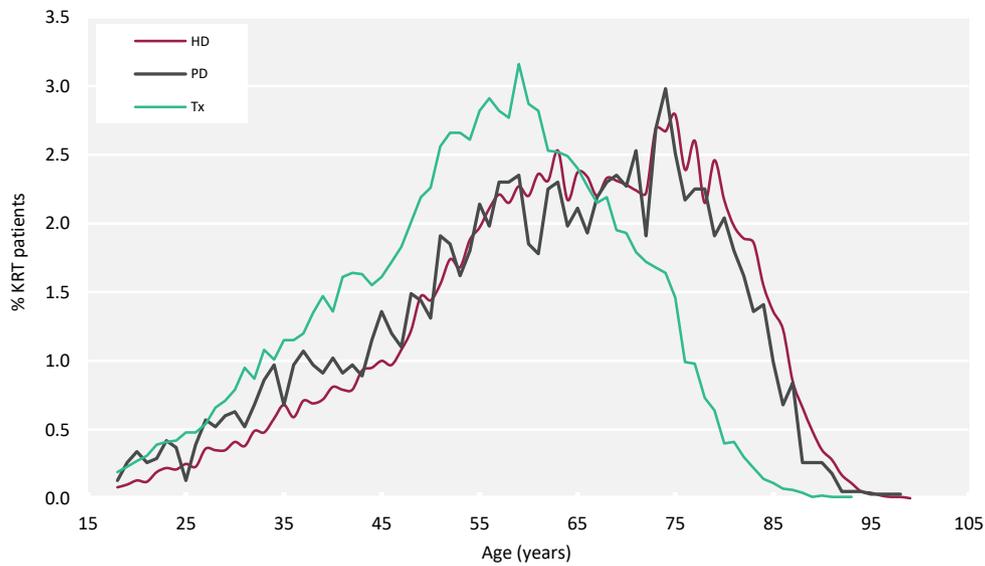


**Figure 3.4** Percentage of adult patients prevalent to dialysis on 31/12/2021 on home therapies (PD and HHD) by centre

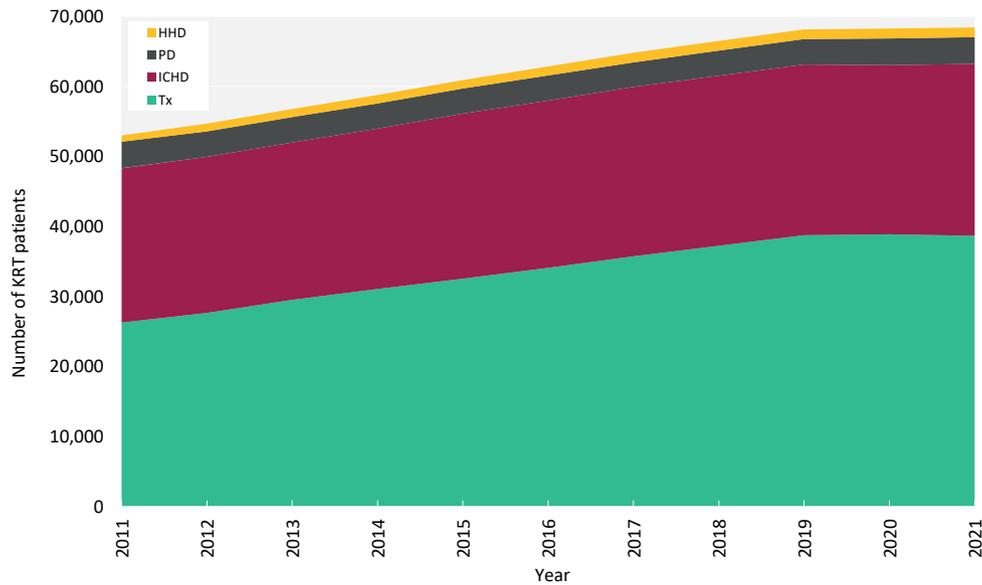


**Figure 3.5** Prevalence rates for adult patients on KRT on 31/12/2021 by age group and sex  
pmp – per million population

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 31/12/2021 by KRT modality



**Figure 3.7** Growth in numbers of prevalent adult KRT patients by treatment modality between 2011 and 2021

**Table 3.4** Change in adult KRT prevalence rates by modality between 2017 and 2021

Year	Prevalence (pmp)					% growth in prevalence				
	HD	PD	Dialysis	Tx	KRT	HD	PD	Dialysis	Tx	KRT
2017	490	67	558	687	1,244					
2018	490	68	558	711	1,269	-0.1	1.2	0.1	3.5	2.0
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	-2.0	-1.4	-1.6
2021	487	72	559	727	1,286	2.1	1.5	2.0	0.2	1.0
<b>Average annual growth 2017-2021</b>						<b>-0.1</b>	<b>1.6</b>	<b>0.1</b>	<b>1.5</b>	<b>0.8</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 2012 and 2021, in particular the increase in diabetes.

**Table 3.5** Treatment modality of adult patients prevalent to KRT on 31/12/2021 by primary renal disease (PRD)

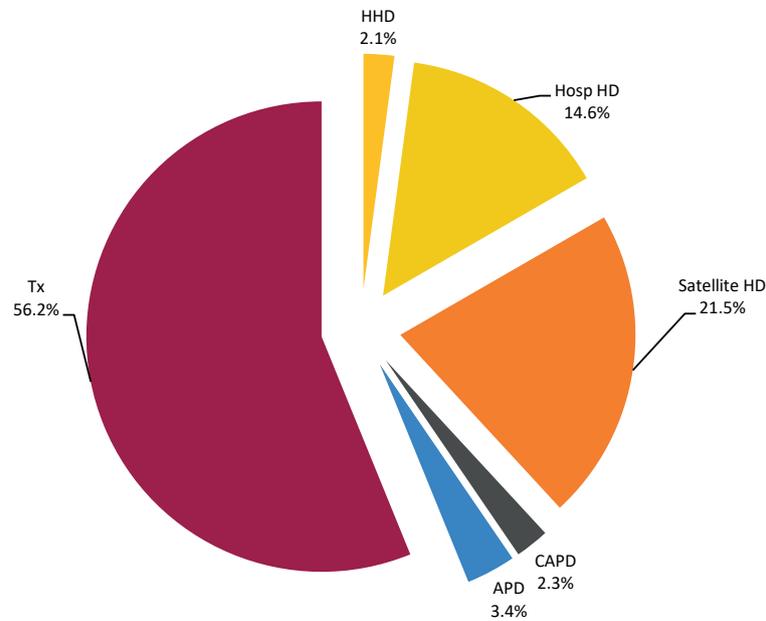
PRD	N on KRT	% KRT population	Modality (%)		
			HD	PD	Tx
Diabetes	12,328	18.7	55.9	7.0	37.0
Glomerulonephritis	13,006	19.7	26.8	4.5	68.7
Hypertension	4,191	6.3	44.9	6.3	48.8
Polycystic kidney disease	6,940	10.5	21.5	4.3	74.2
Pyelonephritis	6,192	9.4	27.7	3.5	68.8
Renal vascular disease	1,718	2.6	63.9	8.6	27.5
Other	12,159	18.4	35.2	4.5	60.4
Uncertain aetiology	9,554	14.5	38.1	6.4	55.5
<b>Total (with data)</b>	<b>66,088</b>	<b>100.0</b>	<b>37.1</b>	<b>5.3</b>	<b>57.6</b>
Missing	2,332	3.4	61.0	13.1	25.9

**Table 3.6** Change in primary renal disease (PRD) of adult patients prevalent to KRT between 2012 and 2021

PRD	Year									
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Diabetes	16.3	16.6	16.8	17.2	17.4	17.8	18.1	18.4	18.6	18.7
Glomerulonephritis	19.5	19.6	19.5	19.5	19.5	19.5	19.5	19.5	19.6	19.7
Hypertension	6.3	6.3	6.3	6.3	6.2	6.3	6.2	6.4	6.4	6.3
Polycystic kidney disease	10.0	10.2	10.2	10.3	10.3	10.3	10.4	10.4	10.5	10.5
Pyelonephritis	11.6	11.4	11.1	10.7	10.6	10.3	10.0	9.7	9.6	9.4
Renal vascular disease	3.4	3.2	3.1	3.0	3.0	3.0	2.9	2.8	2.7	2.6
Other	16.4	16.7	17.1	17.3	17.6	17.9	18.2	18.2	18.3	18.4
Uncertain aetiology	16.6	16.1	15.9	15.6	15.4	15.0	14.7	14.5	14.5	14.5
Missing	0.6	0.7	0.7	0.7	0.8	1.1	1.2	1.6	2.2	3.4

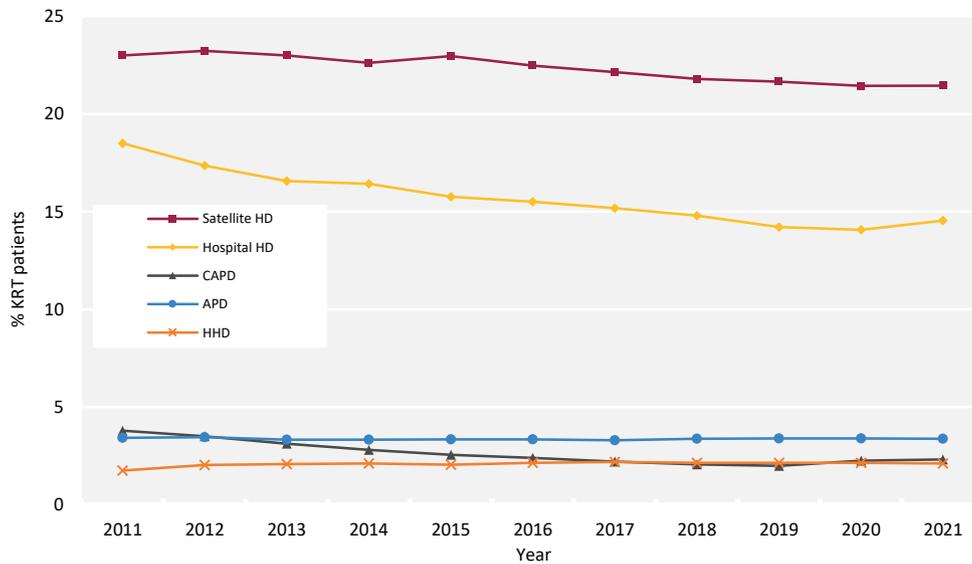
The percentages in each PRD category add up to 100% in each year; the percentages with missing PRD data are shown separately

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 31/12/2021

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 2011 and 2021

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 31/12/2021 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	1,694	34.2	5.1	83.7	4.0	28.6	51.0	16.4	3.0	13.4
Bradfd	319	34.3	5.8	88.4	2.2	73.7	12.5	11.6	7.8	3.8
Brightn	523	34.5	5.9	86.8	5.7	38.2	42.8	13.2	8.4	4.8
Bristol	571	31.6	4.7	86.5	3.2	15.1	68.3	13.5	8.1	5.4
Camb	408	26.0	1.6	92.9	5.9	34.6	52.5	7.1	4.9	2.2
Carlisle	147	31.2	5.7	79.6	2.0	46.9	30.6	20.4	4.8	15.7
Carsh	1,047	27.2	4.3	87.2	2.7	20.7	63.8	12.8	3.3	9.5
Colchr	145	6.1	3.1	100.0	0.0	69.0	31.0	0.0	0.0	0.0
Covnt	473	38.7	6.4	82.9	4.7	78.2	0.0	17.1	17.1	0.0
Derby	383	32.2	4.7	82.8	14.4	60.1	8.4	17.2	11.5	5.7
Donc	193	25.0	6.7	93.3	2.6	53.4	37.3	6.7	2.6	4.2
Dorset	341	31.8	10.4	93.3	4.1	23.8	65.4	6.7	2.4	4.1
Dudley	270	29.8	5.1	85.2	3.7	35.6	45.9	14.8	9.6	5.2
EssexMS	543	33.8	2.6	82.9	3.9	72.4	6.6	17.1	2.6	12.3
Exeter										
Glouc	262	34.0	8.0	86.3	0.0	73.7	12.6	13.7	0.8	13.0
Hull	425	22.3	5.5	87.8	2.8	42.8	42.1	12.2	7.1	5.2
Ipswi	175	17.7	2.7	81.1	1.1	74.3	5.7	18.9	10.3	7.4
Kent	548	29.1	6.8	86.9	3.3	29.2	54.4	13.1	11.0	2.2
L Barts	1,377	36.1	5.5	81.3	1.8	32.5	47.0	18.7	9.2	9.6
L Guys	841	36.4	7.5	91.7	4.9	14.0	72.8	8.3	1.8	6.5
L Kings	804	25.9	5.4	87.8	4.2	15.1	68.5	12.2	5.0	7.2
L Rfree	918	34.4	9.4	81.2	1.1	2.9	77.1	18.9	8.8	10.0
L St.G	380	41.9	8.8	86.1	1.3	28.2	56.6	14.0	2.4	11.6
L West	1,542	49.5	15.5	86.1	2.3	14.6	69.2	13.9	10.6	3.3
Leeds	649	35.2	12.3	91.8	2.5	14.6	74.7	8.2	2.0	6.2
Leic	1,188	36.2	10.0	88.4	4.0	15.2	69.2	11.6	2.0	9.6
Liv Ain	216	20.4	7.4	89.8	6.0	13.4	70.4	10.2	1.9	8.3
Liv Roy	446	23.3	9.5	92.8	9.9	28.3	54.7	7.2	3.8	3.4
M RI	692	35.5	13.9	86.0	12.1	12.9	61.0	14.0	6.4	7.7
Middlbr	386	35.1	4.7	94.8	4.4	28.8	61.7	5.2	5.2	0.0
Newc	427	33.0	8.1	86.4	4.2	57.4	24.8	13.6	1.4	12.2
Norwch	339	14.6	.	86.7	3.0	47.2	36.6	13.3	9.7	3.5
Nottm	494	35.7	5.7	79.2	5.7	31.0	42.5	20.9	5.5	15.4
Oxford	548	41.8	11.8	88.0	3.5	31.4	53.1	12.0	4.0	8.0
Plymth	199	31.5	5.6	82.9	0.0	77.9	5.0	17.1	6.0	11.1
Ports	824	30.5	9.4	89.1	10.3	18.7	60.1	10.9	3.8	7.2
Prestn	598	35.8	11.4	90.8	7.0	17.7	66.1	9.2	2.3	6.9
Redng	363	37.7	5.3	86.2	2.5	32.2	51.5	13.8	11.3	2.5
Salford	527	41.1	21.6	84.1	5.9	20.1	58.1	15.9	7.4	8.5
Sheff	692	29.1	6.2	88.2	8.1	44.5	35.6	11.9	3.8	8.1
Shrew	271	29.2	5.3	81.2	13.7	39.5	28.0	18.8	1.5	17.0
Stevng	604	32.5	7.9	94.0	6.5	50.5	37.1	6.0	2.8	3.2
Stoke	413	31.4	4.8	74.1	9.9	42.1	22.0	25.9	3.2	18.2
Sund	262	31.0	7.5	85.9	3.8	48.5	33.6	14.1	1.5	12.6
Truro	211	31.3	6.1	89.6	2.4	49.3	37.9	10.4	4.3	6.2
Wirral	218	31.0	12.7	90.8	2.8	40.8	47.3	9.2	0.9	8.3
Wolve	448	28.9	4.7	85.7	8.5	70.3	6.9	14.3	2.0	11.2
York	234	37.1	7.3	88.5	7.3	30.8	50.4	11.5	2.1	9.4

**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
<b>N IRELAND<sup>1</sup></b>										
Antrim	135	20.0	5.7	86.7	1.5	85.2	0.0	13.3	3.7	8.2
Belfast	167	25.9	6.1	83.8	4.8	79.0	0.0	16.2	0.6	15.6
Newry	102	24.3	7.7	87.3	2.9	84.3	0.0	12.8	2.0	8.8
Ulster	102	30.4	.	97.1	0.0	97.1	0.0	2.9	0.0	2.0
West NI	114	34.1	4.3	94.7	2.6	92.1	0.0	5.3	1.8	3.5
<b>SCOTLAND<sup>2</sup></b>										
Abrdn	211	29.8	8.5	90.5	1.0	89.6	0.0	9.5	7.6	1.9
Airdrie	224	46.0	13.0	87.1	0.0	87.1	0.0	13.0	5.4	7.6
D&Gall	62	46.2	11.1	87.1	1.6	85.5	0.0	12.9	3.2	9.7
Dundee	171	30.4	4.3	90.6	3.5	87.1	0.0	9.4	1.8	7.6
Edinb	323	42.9	8.9	89.8	2.2	87.6	0.0	10.2	3.4	6.8
Glasgw	623	48.1	12.7	93.9	1.6	92.3	0.0	6.1	1.1	5.0
Inverns	106	43.5	6.7	89.6	1.9	87.7	0.0	10.4	5.7	4.7
Klmarnk	187	30.6	12.7	82.4	8.6	73.8	0.0	17.7	2.1	15.5
Krkldy	174	31.1	5.0	96.0	1.7	94.3	0.0	4.0	1.7	2.3
<b>WALES</b>										
Bangor	110	32.0	3.3	88.2	19.1	50.9	18.2	11.8	5.5	6.4
Cardff	640	28.2	6.7	90.9	8.0	10.0	73.0	9.1	4.5	4.5
Clwyd	100	20.0	4.9	89.1	0.0	89.1	0.0	9.9	7.9	2.0
Swanse	494	27.3	6.8	90.1	8.1	46.8	35.2	9.9	4.5	5.5
Wrexm	119	21.1	12.9	86.6	2.5	68.9	15.1	13.5	0.8	12.6
<b>TOTALS</b>										
England	25,578	33.6	7.7	86.6	4.7	31.7	50.2	13.4	5.4	7.8
N Ireland	620	26.9	4.7	89.2	2.6	86.6	0.0	10.8	1.6	8.4
Scotland	2,081	41.0	9.9	90.6	2.3	88.4	0.0	9.4	3.1	6.3
Wales	1,463	27.2	6.8	90.0	7.9	35.7	46.4	10.0	4.5	5.5
<b>UK</b>	<b>29,742</b>	<b>33.7</b>	<b>7.7</b>	<b>87.1</b>	<b>4.6</b>	<b>37.0</b>	<b>45.5</b>	<b>12.9</b>	<b>5.1</b>	<b>7.6</b>

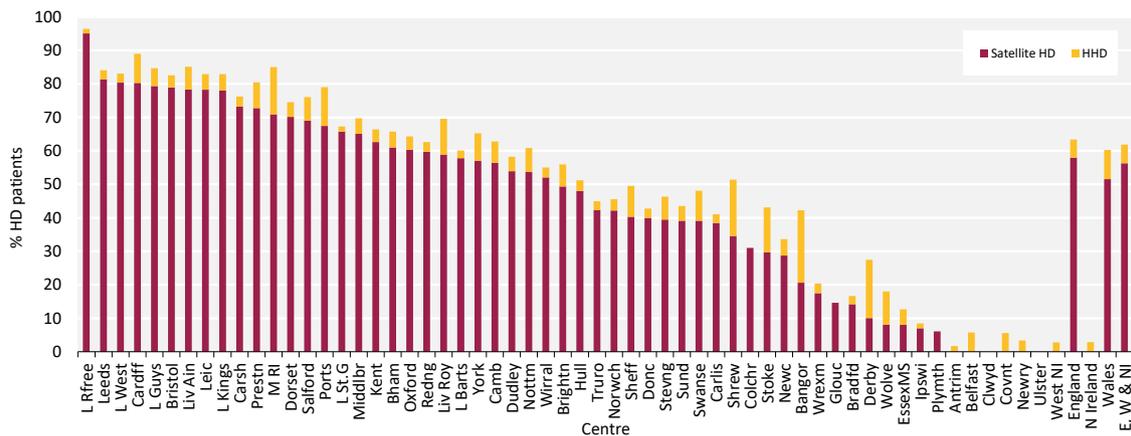
Blank cells – no data returned by the centre

<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 31/12/2021 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 31/12/2020 and followed-up for one year in 2021. 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 31/12/2020 by centre

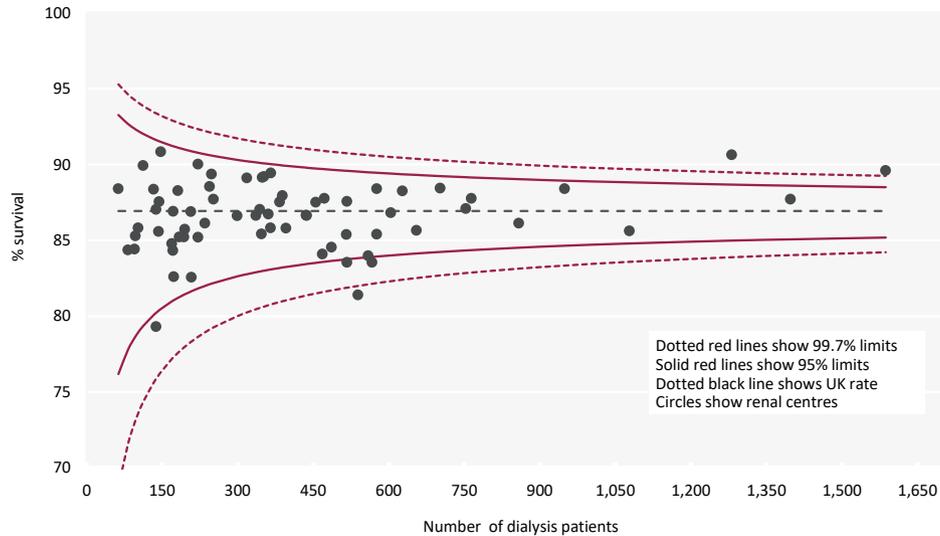
Centre	Age-adjusted survival				Case-mix adjusted survival <sup>1</sup>			
	N on dialysis	1 yr (%)	Lower 95% limit	Upper 95% limit	N on dialysis	1 yr (%)	Lower 95% limit	Upper 95% limit
D&Gall	63	88.4	76.2	93.3				
Newry	82	84.4	77.8	92.7	79	83.0	80.3	94.5
Clwyd	95	84.4	78.6	92.4	95	87.6	81.3	94.1
Inverns	97	85.3	78.7	92.3				
Bangor	102	85.8	78.9	92.2	102	89.0	81.7	94.0
Ulster	112	89.9	79.3	92.0	108	88.3	81.9	93.9
Antrim	133	88.4	80.1	91.7	125	87.1	82.6	93.6
West NI	138	87.0	80.2	91.6	124	84.7	82.5	93.6
Wrexm	138	79.3	80.2	91.6	138	82.4	82.9	93.5
Carlisle	143	85.6	80.4	91.5	140	87.4	83.0	93.4
Colchr	144	87.6	80.4	91.5	142	90.0	83.1	93.4
Krkcldy	147	90.8	80.5	91.5				
Ipswi	169	84.8	81.0	91.2	164	87.8	83.6	93.2
Truro	171	84.3	81.0	91.2	168	87.9	83.6	93.2
Dundee	172	86.9	81.0	91.2				
Plymth	173	82.6	81.1	91.2	173	87.0	83.7	93.1
Klmarnk	181	88.3	81.2	91.1				
Liv Ain	184	85.2	81.3	91.1	160	87.7	83.5	93.2
Belfast	193	85.2	81.4	91.0				
Donc	195	85.7	81.4	91.0	193	88.1	84.1	92.9
Abrdn	207	86.9	81.6	90.9				
Wirral	208	82.6	81.6	90.9	207	86.5	84.3	92.8
York	221	90.0	81.8	90.8	221	91.7	84.5	92.7
Airdrie	221	85.2	81.8	90.8				
Glouc	235	86.1	82.0	90.7	233	88.8	84.6	92.7
Dudley	244	88.5	82.1	90.6	244	90.5	84.8	92.6
Shrew	248	89.4	82.1	90.6	248	91.6	84.8	92.6
Sund	252	87.7	82.2	90.6	251	91.1	84.8	92.6
Bradfd	299	86.6	82.6	90.3	297	89.1	85.2	92.3
Edinb	318	89.1	82.8	90.2				
Norwch	336	86.6	82.9	90.1	331	87.8	85.5	92.2
Redng	344	87.0	82.9	90.1	344	90.0	85.6	92.2
Middlbr	347	85.4	83.0	90.1	347	88.4	85.6	92.1
Dorset	349	89.2	83.0	90.1	349	90.8	85.6	92.1
Derby	352	89.2	83.0	90.1	352	91.2	85.6	92.1
Camb	361	86.7	83.1	90.0	361	88.3	85.7	92.1
Stoke	365	85.8	83.1	90.0	364	88.3	85.7	92.1
L St.G	366	89.4	83.1	90.0	359	91.7	85.7	92.1
Newc	383	87.5	83.2	90.0	383	90.4	85.8	92.0
Hull	389	87.9	83.2	89.9	389	89.8	85.8	92.0
Wolve	396	85.8	83.2	89.9	395	88.7	85.8	92.0
Liv Roy	436	86.7	83.4	89.8	406	89.2	85.9	92.0
Covnt	437	86.6	83.4	89.8	433	88.1	86.0	91.9
Nottm	455	87.5	83.5	89.7	454	90.2	86.1	91.8
Kent	468	84.1	83.6	89.7	468	86.3	86.2	91.8
Swanse	472	87.8	83.6	89.7	472	90.5	86.2	91.8
Brightn	486	84.5	83.6	89.7	476	86.7	86.2	91.8
Bristol	516	85.4	83.7	89.6	510	88.5	86.3	91.7
EssexMS	517	87.6	83.8	89.6	515	89.7	86.3	91.7
Oxford	517	83.6	83.8	89.6	511	87.2	86.3	91.7
Salford	539	81.4	83.8	89.5	539	86.2	86.4	91.6
Prestn	559	84.0	83.9	89.5	540	87.9	86.4	91.6
Glasgw	567	83.5	83.9	89.5				
Stevng	576	85.4	83.9	89.5	573	88.3	86.5	91.6

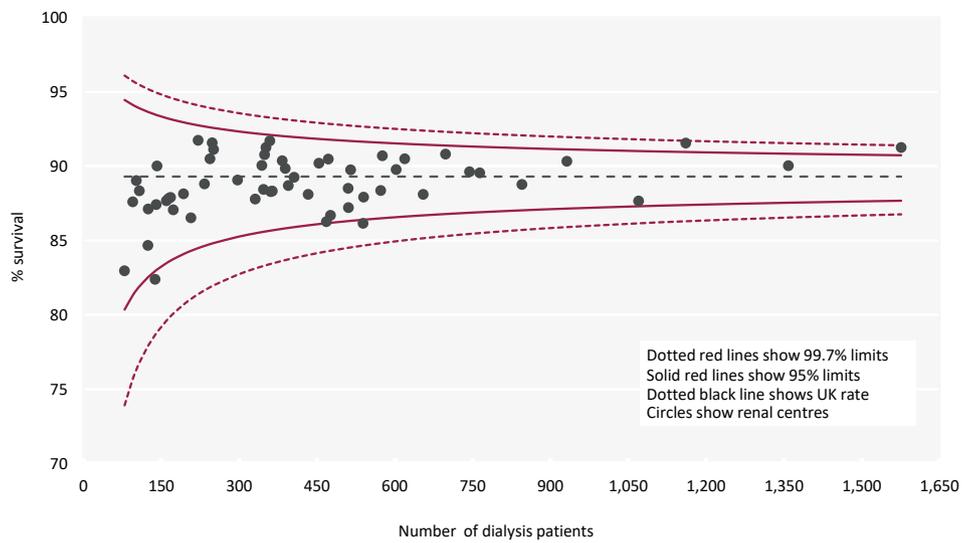
**Table 3.8** Continued

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
Cardiff	576	88.4	83.9	89.5	576	90.7	86.5	91.6
Leeds	604	86.8	84.0	89.4	603	89.8	86.6	91.5
M RI	627	88.3	84.1	89.4	619	90.5	86.6	91.5
Sheff	655	85.7	84.1	89.3	655	88.1	86.7	91.4
L Kings	702	88.4	84.2	89.2	698	90.8	86.8	91.4
Ports	753	87.1	84.3	89.2	744	89.6	86.9	91.3
L Guys	764	87.8	84.4	89.1	764	89.5	86.9	91.3
L Rfree	858	86.1	84.5	89.0	845	88.8	87.0	91.2
Carsh	949	88.4	84.6	88.9	932	90.3	87.1	91.1
Leic	1,078	85.6	84.8	88.8	1,070	87.7	87.3	91.0
L Barts	1,281	90.6	85.0	88.7	1,161	91.5	87.4	90.9
L West	1,398	87.7	85.1	88.6	1,359	90.0	87.5	90.8
Bham	1,587	89.6	85.2	88.5	1,576	91.3	87.7	90.7

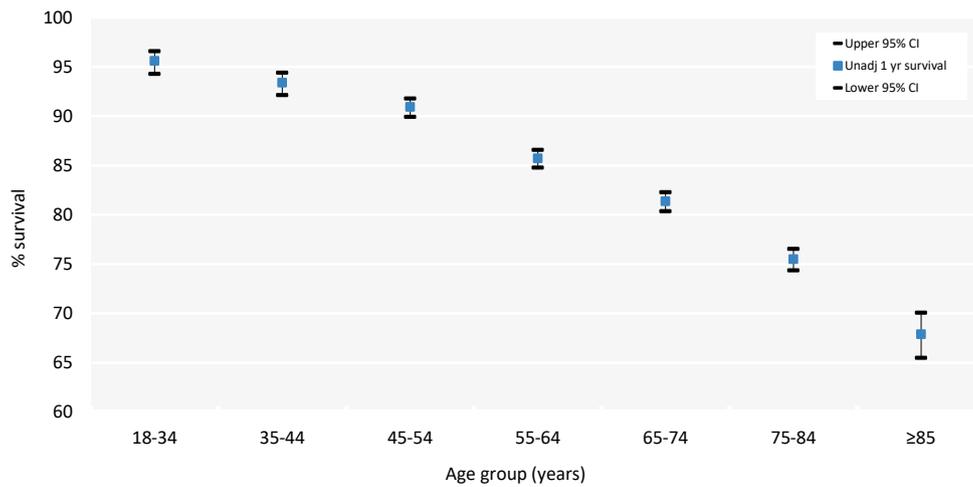
Centres are ordered by increasing number of patients

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

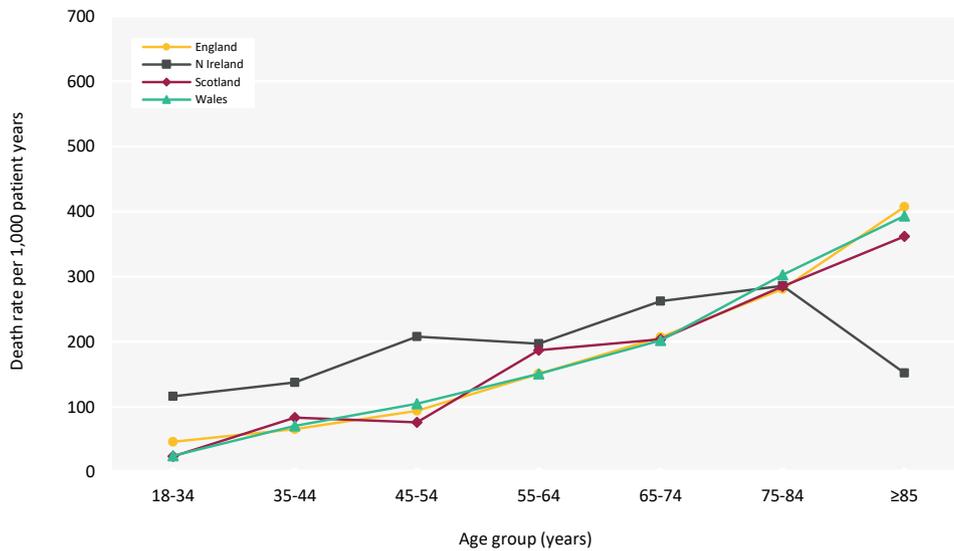
**Figure 3.11** 1 year survival (adjusted to age 60 years) of adult patients prevalent to dialysis on 31/12/2020 by centre



**Figure 3.12** 1 year survival (adjusted to 60 years, male and median comorbidity score) of adult patients prevalent to dialysis on 31/12/2020 by centre

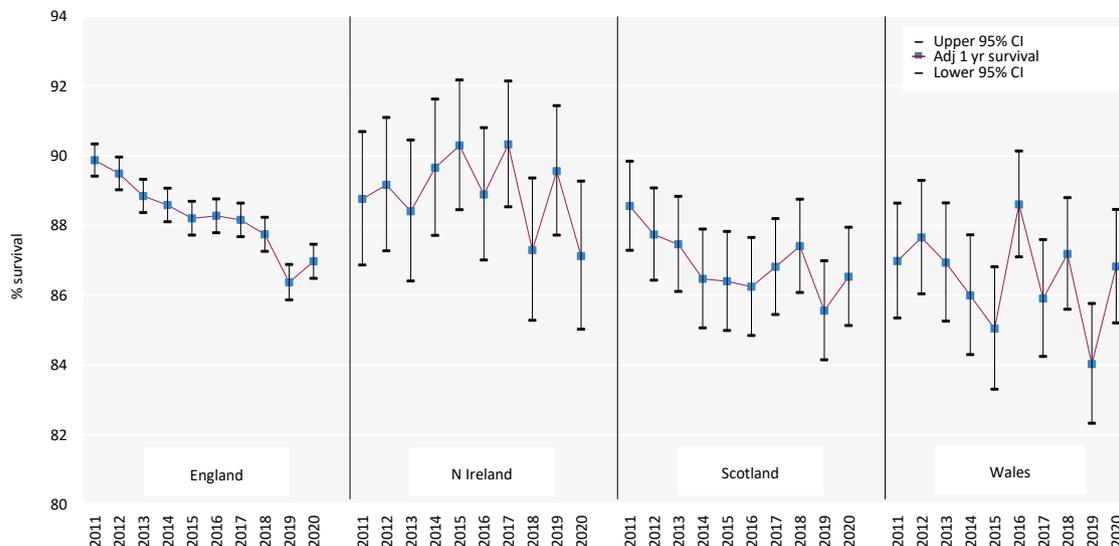


**Figure 3.13** 1 year survival (unadjusted) of adult patients prevalent to dialysis on 31/12/2020 by age group  
CI – confidence interval



**Figure 3.14** 1 year death rate per 1,000 patient years for adult patients prevalent to dialysis on 31/12/2020 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 2011 and 2020

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 31/12/2020 followed-up for 1 year compared with the general population and with previous analyses in the 1998–2001 cohort

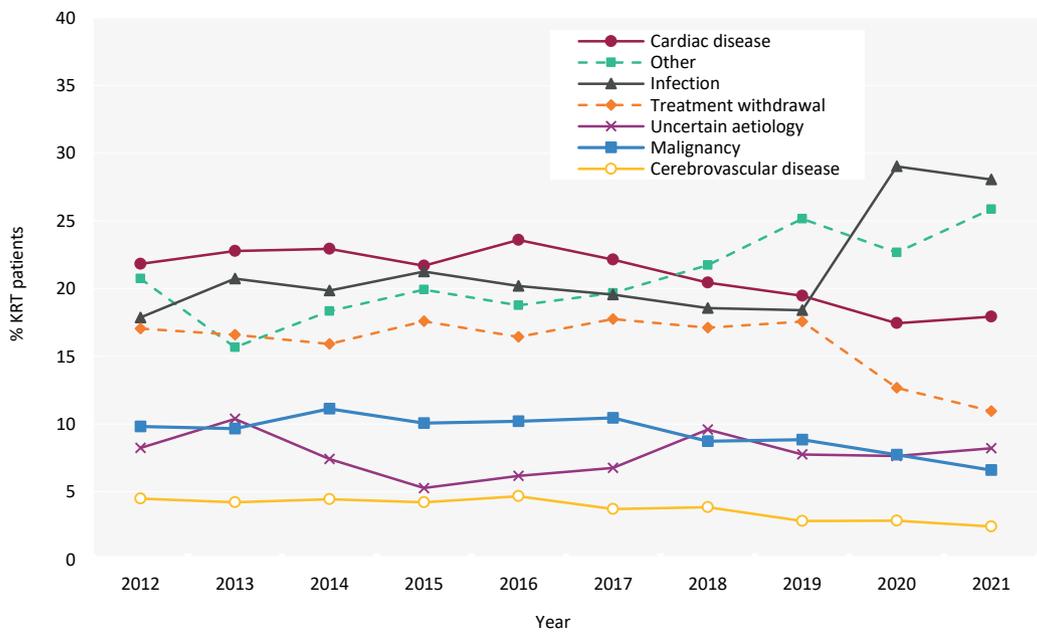
Age group (yrs)	UK population mid-2021 (thousands)	UK deaths in 2021	Death rate per 1,000 population	Expected number of deaths in UKRR population	UKRR deaths in 2021	UKRR death rate per 1,000 prevalent KRT patients	Relative risk of death in 2021	Relative risk of death 1998–2001 cohort
20-24	4,035	1,601	0.4	0	7	7	18.7	41.1
25-29	4,367	2,178	0.5	1	20	13	25.0	41.8
30-34	4,655	3,255	0.7	2	60	24	33.7	31.2
35-39	4,477	4,929	1.1	4	82	25	22.4	26.0
40-44	4,227	6,908	1.6	7	130	31	19.1	22.6
45-49	4,215	10,693	2.5	14	212	40	15.7	19.0
50-54	4,641	17,332	3.7	27	346	48	12.7	12.8
55-59	4,574	25,060	5.5	46	591	71	12.9	10.1
60-64	3,956	33,867	8.6	68	783	99	11.5	10.4
65-69	3,354	44,434	13.2	92	781	112	8.5	7.9
70-74	3,345	68,579	20.5	133	1,025	158	7.7	7.2
75-79	2,490	86,264	34.6	159	982	214	6.2	5.3
80-84	1,698	105,622	62.2	179	839	291	4.7	4.0
≥85	1,649	252,104	152.9	214	542	388	2.0	3.0
<b>Total</b>	<b>51,683</b>	<b>662,826</b>	<b>12.8</b>	<b>945</b>	<b>6,400</b>	<b>100</b>	<b>6.8</b>	<b>7.7</b>

## Cause of death in adult KRT patients

Cause of death was analysed in prevalent patients receiving KRT on 31/12/2020 and followed-up for one year in 2021. 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.

**Table 3.10** Cause of death in adult patients prevalent to KRT on 31/12/2020 followed-up in 2021 by age group

Cause of death	KRT all ages		KRT <65 yrs		KRT ≥65 yrs	
	N	%	N	%	N	%
Cardiac disease	715	17.9	283	20.7	432	16.5
Cerebrovascular disease	97	2.4	42	3.1	55	2.1
Infection	1,119	28.1	416	30.4	703	26.8
Malignancy	263	6.6	86	6.3	177	6.8
Treatment withdrawal	437	11.0	72	5.3	365	13.9
Other	1,032	25.9	351	25.6	681	26.0
Uncertain aetiology	327	8.2	120	8.8	207	7.9
<b>Total (with data)</b>	<b>3,990</b>	<b>100.0</b>	<b>1,370</b>	<b>100.0</b>	<b>2,620</b>	<b>100.0</b>
Missing	2,411	37.7	862	38.6	1,549	37.2



**Figure 3.16** Cause of death between 2012 and 2021 for adult patients prevalent to KRT at the beginning of the year