

Kidney Activity

Key messages

- The number of patients registered on the kidney transplant list this year increased to 5,655
- The number of deceased kidney donors increased by 2% to 1,360
- Kidney transplants from living donors increased by 1% to 923, while transplants from deceased donors increased by 4% to 2,349
- 112 kidney transplants were made possible by the paired living kidney donation programme (28 2-way and 42 3-way exchanges)
- There were 83 non-directed altruistic living kidney donors, leading to 119 patients benefitting from a living donor transplant

5.1 Overview

The number of deceased kidney donors increased by 2% in 2022-2023 compared to 2021-2022 and the number of deceased donor kidney transplants increased by 4%. There were 5,655 patients waiting for a kidney transplant at 31 March 2023, with the number of patients on the national list increasing as more patients are reactivated on the list following the height of the COVID-19 pandemic.

A summary of activity for deceased donor kidney transplants and the transplant list at year end for the last ten years is shown in **Figure 5.1**. The number of patients registered on the active transplant list at 31 March 2023 for a kidney only or multi-organ kidney transplant has fallen by 4% since 31 March 2014. These registrations include patients suspended on the kidney waiting list but active on the liver waiting list for a combined liver and kidney transplant.

On 11 September 2019, a new National Kidney Offering Scheme was introduced to offer kidneys from both donors after brain death and donors after circulatory death. This is a change from the previous system where kidneys from donors after circulatory death were offered under a different scheme than kidneys from donors after brain death. The scheme has two tiers with priority going to patients who are the most difficult to match or who have waited over 7 years for a transplant.

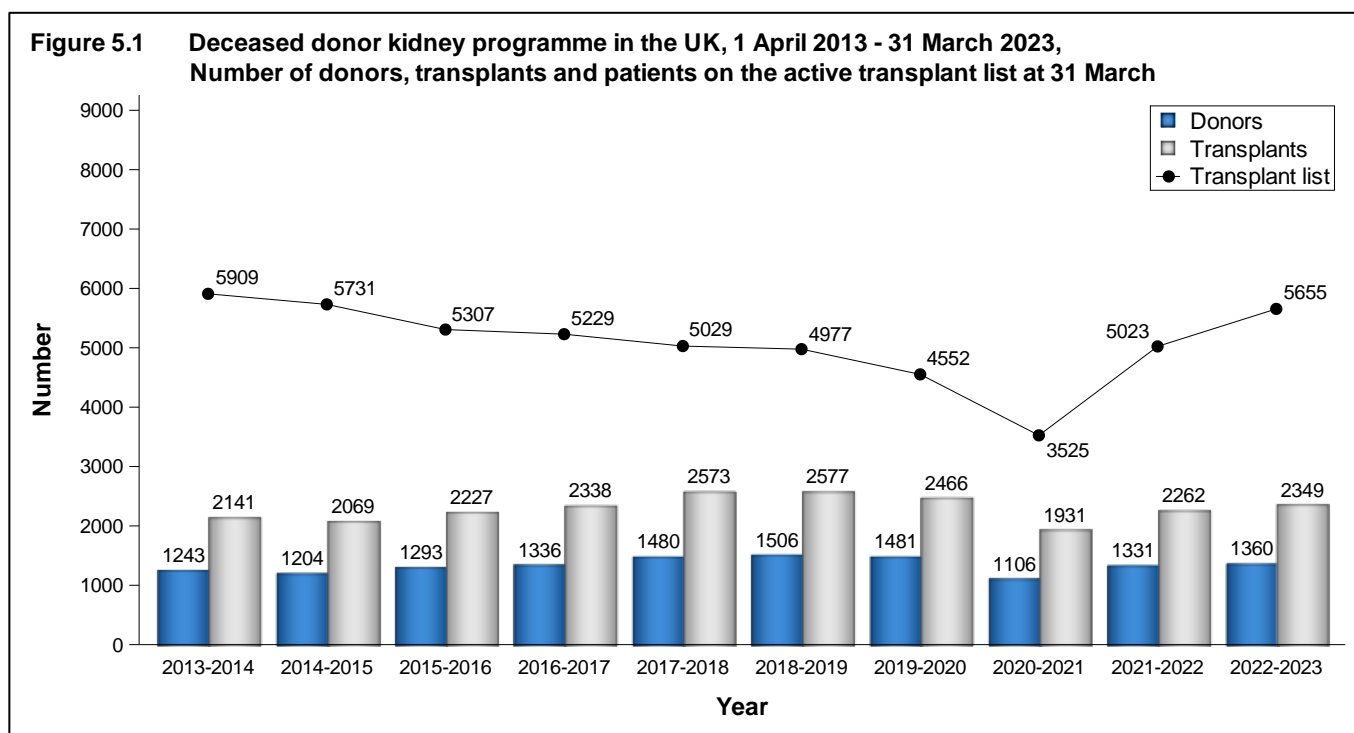


Table 5.1 shows the number of deceased and living donor kidney transplants carried out in 2022-2023 at each centre. Donation figures for centres in London are not reported individually as they have shared designated areas and donor populations. Multi-organ transplants including a kidney are included in the table.

The total number of deceased kidney donors increased to 1,360 in 2022-2023 from 1,331 in 2021-2022 and the number of transplants increased from 2,262 to 2,349. The number of kidney donors after circulatory death increased to 638 from 597 in 2021-2022 and the number of transplants from such donors increased by 8% to 1054.

Throughout this chapter, intestinal transplants involving a kidney are not included in the kidney transplant activity reported. Any kidneys retrieved and used for such transplants are however reported in the kidney donor activity. Intestinal transplant activity is reported in Chapter 9.

Table 5.1 Kidney donors and transplants, 1 April 2022 - 31 March 2023 (2021-2022) and transplant list at 31 March 2023 (29 February 2022) in the UK, by centre

Centre	Deceased kidney donors				Deceased donor transplants				Living donor transplants		Active transplant list	
	DBD		DCD		DBD		DCD					
Belfast	33	(35)	21	(17)	28	(29)	35	(28)	63	(61)	73	(69)
Birmingham	33	(36)	57	(38)	94	(86)	63	(41)	41	(51)	392	(400)
Bristol	31	(28)	28	(28)	45	(44)	46	(37)	38	(31)	183	(164)
Cambridge	33	(25)	37	(43)	68	(57)	94	(97)	17	(26)	175	(136)
Cardiff	29	(26)	26	(14)	37	(33)	39	(30)	41	(33)	139	(127)
Coventry ¹	13	(17)	7	(16)	23	(26)	22	(27)	18	(15)	123	(108)
Edinburgh	11	(12)	25	(13)	43	(40)	23	(18)	38	(42)	185	(185)
Glasgow	42	(34)	26	(19)	50	(45)	43	(44)	58	(42)	239	(230)
Leeds	50	(49)	45	(34)	66	(52)	56	(48)	56	(52)	356	(264)
Leicester	17	(24)	22	(23)	41	(25)	43	(21)	28	(24)	233	(227)
Liverpool	25	(24)	19	(20)	50	(45)	23	(24)	25	(20)	177	(118)
London ²	193	(215)	156	(156)	-	-	-	-	-	-	-	-
Great Ormond Street	-	-	-	-	7	(7)	1	(4)	17	(29)	15	(15)
Guy's	-	-	-	-	112	(102)	80	(59)	86	(93)	394	(329)
Royal Free	-	-	-	-	70	(45)	34	(58)	33	(28)	260	(214)
Royal London	-	-	-	-	58	(96)	46	(50)	41	(38)	379	(319)
St George's	-	-	-	-	54	(62)	49	(45)	22	(33)	281	(228)
WLRTC	-	-	-	-	100	(120)	68	(63)	41	(34)	409	(400)
Manchester	74	(55)	41	(46)	105	(129)	86	(93)	76	(82)	531	(490)
Newcastle	28	(30)	19	(20)	44	(40)	41	(21)	50	(47)	247	(223)
Nottingham	19	(18)	22	(21)	26	(30)	18	(28)	19	(21)	151	(147)
Oxford ¹	38	(26)	32	(27)	75	(89)	73	(67)	58	(54)	322	(289)
Plymouth	12	(16)	8	(14)	28	(16)	15	(9)	18	(16)	114	(81)
Portsmouth	25	(37)	35	(30)	43	(43)	36	(42)	21	(24)	164	(154)
Sheffield	16	(27)	12	(18)	28	(29)	20	(18)	9	(12)	113	(106)
TOTAL	722	(734)	638	(597)	1295	(1290)	1054	(972)	923^{3,5}	(912⁴)	5655	(5023)

WLRTC - West London Renal and Transplant Centre

¹ As of 1 June 2016 Coventry and Oxford began working in partnership as a transplant network.

² Donor figures in this area cannot be linked to individual transplant centres due to shared retrieval areas.

³ Includes an additional 3 transplants performed at London, Cromwell Hospital and 6 transplants performed at London, London Bridge Hospital

⁴ Includes an additional 4 transplants performed at London, London Bridge Hospital

⁵ Includes 5 domino donors

5.2 Transplant list

The number of patients registered on the kidney or kidney and pancreas transplant list increased in the year: on 31 March 2023, 5,655 patients were registered as active, compared with 5,023 at the end of March 2022. The number of patients waiting for a kidney transplant represents 84.4 patients per million population (pmp).

Of the 5,655 patients on the active transplant list at 31 March 2023, 271 required a kidney and pancreas/islet transplant (251 at 31 March 2022).

The outcome of patients registered on the UK kidney and kidney/pancreas transplant list at 1 April 2022, or subsequently registered during the financial year, is shown in **Table 5.2**. A total of 4,370 patients joined the kidney transplant list last year, while a further 205 joined the kidney/pancreas transplant list.

Table 5.2 Kidney transplant list and new registrations in the UK, 1 April 2022 - 31 March 2023						
Outcome of patient at 31 March 2023	Active and suspended patients at 1 April 2022		New registrations in 2022-2023¹		TOTAL	
	N	%	N	%	N	%
Kidney transplant list						
Remained active/suspended	5287	64	3428	78	8715	69
Transplanted	2169	26	869	20	3038	24
Removed ²	547	7	42	1	589	5
Died	247	3	31	1	278	2
TOTAL	8250		4370		12620	
Kidney/pancreas transplant list						
Remained active/suspended	293	64	178	87	471	71
Transplanted	110	24	17	8	127	19
Removed ³	31	7	5	2	36	5
Died	21	5	5	2	26	4
TOTAL	455		205		660	

¹ Includes re-registrations for second or subsequent patients
² Includes 10 patients removed from kidney list and made active on kidney/pancreas list
³ Includes 2 patients removed from kidney/pancreas list and made active on kidney/islet list

Table 5.3 shows the active transplant list in the UK at 31 March 2023 and 2022 by country/NHS region of patient's residence. In 2023, the overall kidney transplant list rate was 84.4 pmp with rates across NHS regions ranging from 58.4 pmp to 144.8 pmp.

Table 5.3 Active kidney transplant list at 31 March, by Country/ NHS region of patient residence				
Country/ NHS region of residence	Kidney transplant list (pmp)			
	2023		2022	
North East and Yorkshire	732	(90.0)	595	(73.2)
North West	604	(81.4)	525	(70.8)
Midlands	957	(88.3)	946	(87.3)
East of England	371	(58.4)	309	(48.7)
London	1274	(144.8)	1108	(125.9)
South East	621	(66.8)	532	(57.3)
South West	386	(67.6)	345	(60.4)
England	4945	(87.5)	4360	(77.1)
Isle of Man	8	(100.0)	3	(37.5)
Channel Islands	9	(52.9)	4	(23.5)
Wales	185	(59.5)	163	(52.4)
Scotland	422	(77.0)	413	(75.4)
Northern Ireland	76	(40.0)	70	(36.8)
TOTAL¹	5655	(84.4)	5023	(74.9)

¹Includes patients in 2023 (2022) residing in: Unspecified UK 7 (8); Overseas 3 (2)

An indication of outcomes for adult patients listed for a kidney only transplant is summarised in **Figure 5.2**. This shows the proportion of patients transplanted or still waiting one, three and five years after joining the list. It also shows the proportion removed from the transplant list (typically because they become too unwell for transplant) and those dying while on the transplant list. Only 36% of patients are transplanted within one year, while five years after listing 77% of patients have received a transplant.

The median (average) waiting time for a kidney only transplant has fallen from 550 days reported last year to 509 days for an adult patient and is shown by blood group in **Table 5.4** and patient ethnicity in **Table 5.5**. Because of the need to match donor and recipient blood groups and tissue types, waiting times to transplant differ according to patient blood groups and ethnicity due to differences between the donor pool and patients awaiting a kidney transplant. Note that these waiting times are not adjusted for other relevant factors which may be influential and which may differ across blood or ethnic groups.

Figure 5.2 Post-registration outcome for 3435 new adult kidney only registrations made in the UK, 1 April 2017 - 31 March 2018

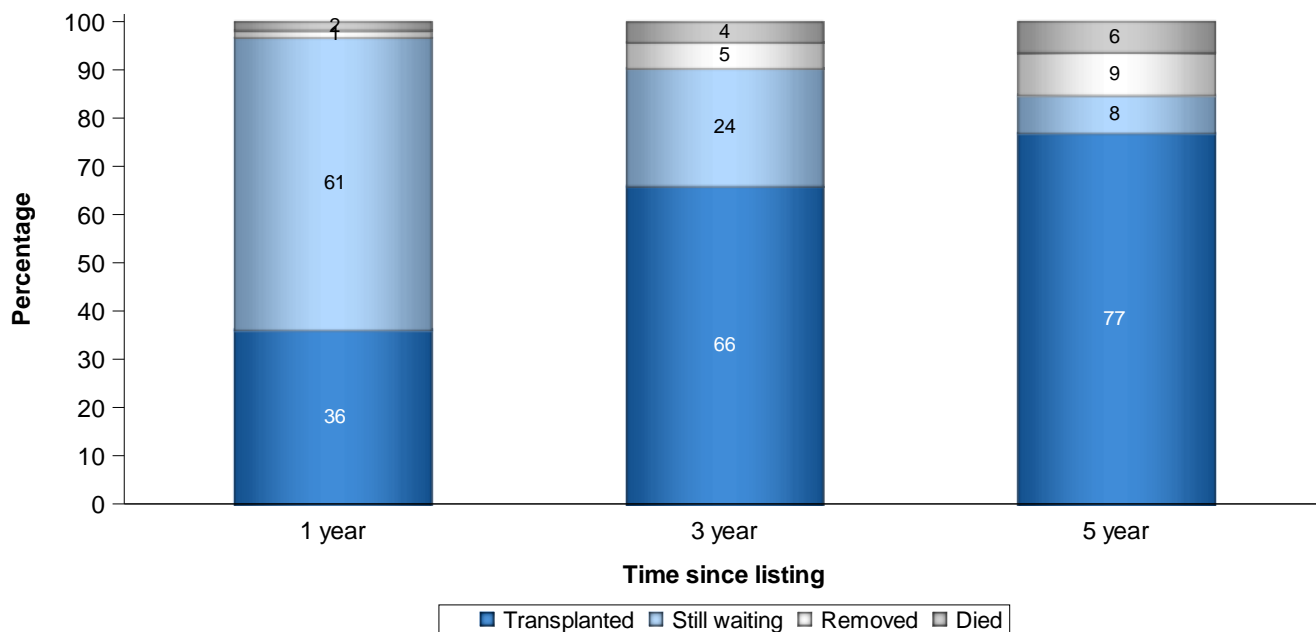


Table 5.4 Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2016 - 31 March 2020

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
O	5322	701	680 - 722
A	4045	308	294 - 322
B	1729	780	733 - 827
AB	536	158	139 - 177
TOTAL	11632	509	496 - 522
Paediatric			
O	137	347	245 - 449
A	95	212	116 - 308
B	52	459	223 - 695
AB	19	309	70 - 548
TOTAL	303	312	253 - 371

Table 5.5 Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2016 - 31 March 2020

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
White	7799	463	448 - 478
Asian	1979	599	564 - 634
Black	1179	649	605 - 693
Other	532	584	519 - 649
TOTAL¹	11632	509	496 - 522
Paediatric			
White	157	206	147 - 265
Asian	88	449	333 - 565
Black	36	360	246 - 474
Other	17	560	397 - 723
TOTAL²	303	312	253 - 371

¹ Includes 143 patients whose ethnicity was not reported

² Includes 5 patients whose ethnicity was not reported

5.3 Donor and organ supply

Of the 772 organ donors after brain death in the UK in 2022-2023, 722 (94%) were kidney donors. From these donors, 1,428 kidneys were retrieved. There were 638 kidney donors after circulatory death in 2022-2023. From these donors, 1267 kidneys were retrieved. **Table 5.6** shows this activity by donor country/NHS region of donor's residence. No adjustments have been made for potential demographic differences in populations.

The overall rate for kidney donors after brain death is 10.8 pmp, with rates across NHS regions ranging from 8.4 to 11.9 pmp. The number of kidneys retrieved from donors after brain death in the UK is 21.3 pmp and varies from 16.3 to 23.6 pmp.

The overall rate for kidney donors after circulatory death is 9.5 pmp, with rates across NHS regions ranging from 5.6 to 11.2 pmp. The number of kidneys retrieved from donors after circulatory death is 18.9 pmp and varies from 11.1 to 22.4 pmp.

Table 5.6 Kidney donation and retrieval rates for deceased donors in the UK, 1 April 2022 - 31 March 2023, by Country/ NHS region								
Country/ NHS region of residence	Kidney donors (pmp)				Kidneys retrieved (pmp)			
	DBD		DCD		DBD		DCD	
North East and Yorkshire	97	(11.9)	79	(9.7)	192	(23.6)	157	(19.3)
North West	78	(10.5)	55	(7.4)	156	(21.0)	108	(14.6)
Midlands	91	(8.4)	104	(9.6)	177	(16.3)	208	(19.2)
East of England	60	(9.4)	71	(11.2)	120	(18.9)	142	(22.4)
London	77	(8.8)	49	(5.6)	152	(17.3)	98	(11.1)
South East	97	(10.4)	98	(10.5)	192	(20.7)	195	(21.0)
South West	65	(11.4)	50	(8.8)	129	(22.6)	96	(16.8)
England	565	(10.0)	506	(8.9)	1118	(19.8)	1004	(17.8)
Isle of Man	0	(0.0)	1	(12.5)	0	(0.0)	2	(25.0)
Channel Islands	1	(5.9)	1	(5.9)	2	(11.8)	2	(11.8)
Wales	40	(12.9)	32	(10.3)	80	(25.7)	64	(20.6)
Scotland	47	(8.6)	50	(9.1)	91	(16.6)	99	(18.1)
Northern Ireland	32	(16.8)	21	(11.1)	63	(33.2)	42	(22.1)
TOTAL¹	722	(10.8)	638	(9.5)	1428	(21.3)	1267	(18.9)

¹ Includes 64 donors with unknown UK postcode (37 DBD and 27 DCD)

5.4 Transplants

The number of kidney transplants by recipient country/NHS region of residence is shown in **Table 5.7**. No adjustments have been made for potential demographic differences in populations. The deceased donor transplant rate ranged from 24.9 to 54.5 pmp across NHS regions and overall was 33.0 pmp. The living donor transplant rate ranged from 9.5 to 14.7 pmp across NHS regions and overall was 13.5 pmp.

Table 5.7 Kidney only transplant rates per million population (pmp), in the UK, 1 April 2022 - 31 March 2023, by country and English NHS region								
Country/ NHS region of residence	DBD		DCD		TOTAL		Living	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
North East and Yorkshire	132	(16.2)	106	(13.0)	238	(29.3)	118	(14.5)
North West	122	(16.4)	93	(12.5)	215	(29.0)	83	(11.2)
Midlands	187	(17.3)	157	(14.5)	344	(31.7)	103	(9.5)
East of England	98	(15.4)	117	(18.4)	215	(33.9)	69	(10.9)
London	291	(33.1)	189	(21.5)	480	(54.5)	129	(14.7)
South East	113	(12.2)	118	(12.7)	231	(24.9)	118	(12.7)
South West	100	(17.5)	87	(15.2)	187	(32.7)	75	(13.1)
England	1043	(18.4)	867	(15.3)	1910	(33.8)	695	(12.3)
Isle of Man	1	(12.5)	2	(25.0)	3	(37.5)	4	(50.0)
Channel Islands	5	(29.4)	2	(11.8)	7	(41.2)	0	(0.0)
Wales	45	(14.5)	45	(14.5)	90	(28.9)	50	(16.1)
Scotland	81	(14.8)	60	(10.9)	141	(25.7)	95	(17.3)
Northern Ireland	28	(14.7)	35	(18.4)	63	(33.2)	57	(30.0)
TOTAL^{1,2}	1203	(17.9)	1011	(15.1)	2214	(33.0)	902	(13.5)

¹ Excludes 21 recipients of a living donor kidney who reside outside of the UK
² Includes 1 recipient with an unknown UK postcode (1 living)

The number of kidney only transplants at each transplant centre is shown in **Table 5.8** for adult patients only. Kidney transplants from donors after brain death include 2 en bloc kidneys and 12 double kidney transplants in 2022-2023 (1 and 12 in 2021-2022). Kidney transplants from donors after circulatory death include 3 en bloc and 11 double kidney transplants in 2022-2023 (3 and 18 in 2021-2022). This table excludes multi-organ transplants: 8 (6) kidney and liver, 121 (120) kidney and pancreas, 5 (7) kidney and islets, and 0 (1) kidney and heart in 2022-2023 (2020-2021).

**Table 5.8 Adult kidney only transplants in the UK,
1 April 2021 - 31 March 2023, by transplant centre**

Transplant centre	2021-2022				2022-2023			
	DBD	DCD	Living donor	TOTAL	DBD	DCD	Living donor	TOTAL
Belfast	29	28	60	117	28	35	60	123
Birmingham	80	41	42	163	84	58	34	176
Bristol	39	35	22	96	41	45	34	120
Cambridge	49	91	26	166	56	87	17	160
Cardiff	29	29	31	89	33	36	41	110
Coventry ¹	26	27	15	68	23	22	18	63
Edinburgh	32	15	42	89	31	17	37	85
Glasgow	44	44	38	126	47	41	52	140
Guy's	79	50	73	202	89	71	75	235
Leeds	50	47	48	145	63	56	49	168
Leicester	25	21	24	70	41	43	28	112
Liverpool	45	24	20	89	50	23	25	98
Manchester	105	83	68	256	84	81	66	231
Newcastle	35	21	44	100	39	38	48	125
Nottingham	26	25	17	68	25	18	13	56
Oxford ¹	54	56	53	163	52	64	58	174
Plymouth	16	9	16	41	28	15	18	61
Portsmouth	43	42	24	109	43	36	21	100
Sheffield	29	18	12	59	28	20	9	57
St George's	62	45	33	140	54	49	22	125
The Royal Free	45	58	28	131	70	34	33	137
The Royal London	96	50	38	184	58	46	40	144
WLRTC	115	62	32	209	96	66	41	203
TOTAL	1153	921	810²	2884²	1163	1001	848³	3012³

WLRTC - West London Renal and Transplant Centre

¹ As of 1 June 2016 Coventry and Oxford began working in partnership as a transplant network.

² Includes 4 transplants performed at London Bridge Hospital

³ Includes 3 transplants performed at London Cromwell Hospital and 6 transplants performed at London Bridge Hospital

Living donor kidney only transplants increased by 1% to 923 in 2022-2023, representing 28% of the total kidney transplant programme. The total number of living donor adult transplants performed by each transplant centre is shown in **Table 5.9**. Also shown is the number as a percentage of patients listed at the end of the year, to indicate the size of the living donor programme relative to the centre's transplant list.

Most living donor transplants are 'directed'. This means that a kidney is donated to a specific recipient known to the donor - a close family member or friend. There has been a 4% increase in these transplants. In addition, there are a number of 'non-directed' living donor transplants (also known as altruistic donor transplants). Last year 83 such donors donated a kidney to a recipient, 81 of which were transplanted into an adult recipient. Of the 83 non-directed altruistic donors, 49 went into an altruistic donor chain (28 short (2 transplants each) and 21 long chains (3 transplants each)), benefiting 69 adult patients in the paired/pooled scheme. The kidneys from the paired donors of these recipients led to 45 adult patients on the deceased donor transplant list. Thus 83 non-directed altruistic donors created chains benefiting 119 patients in total (114 adult and 5 paediatric patients).

When a potential living donor and recipient are biologically incompatible (blood group or tissue type), they may consider joining a list of others in the same situation with the hope that an exchange of kidneys between them can lead to a compatible living donor transplant. The scheme also includes compatible pairs that would like a better match. This type of exchange is known as paired donation and most exchanges are between two pairs (i.e. two donors and their respective incompatible recipients), or between three pairs. In 2022-2023, there were 103 paired living kidney donor transplants (102 adult and 1 paediatric recipients).

As a percentage of the number of patients on the active transplant list at 31 March 2023, the number of living donor adult transplants in the year was 15% and ranged from 8% to 82% at individual transplant centres.

Table 5.9 Adult living donor kidney transplants in the UK, 1 April 2022 - 31 March 2023, and percentage of active transplant list at 31 March, by transplant centre/region

Transplant centre	Directed	Non-directed (altruistic) to waiting list	Paired/pooled exchanges	Altruistic donor chain	TOTAL	
					N	% list
Belfast	40	1	13	6	60	82
Birmingham	22	5	2	5	34	9
Bristol	24	0	5	5	34	19
Cambridge	12	0	4	1	17	10
Cardiff	30	2	4	5	41	29
Coventry ¹	9	0	2	7	18	15
Edinburgh	31	0	1	5	37	20
Glasgow	35	1	8	8	52	22
Guy's	51	2	13	9	75	20
Leeds	34	3	5	7	49	14
Leicester	22	1	2	3	28	12
Liverpool	17	2	2	4	25	14
Manchester	47	3	7	9	66	13
Newcastle	37	5	5	1	48	20
Nottingham	8	2	2	1	13	10
Oxford ¹	41	2	10	5	58	18
Plymouth	10	1	3	4	18	16
Portsmouth	12	3	2	4	21	13
Sheffield	6	0	2	1	9	8
St George's	17	0	1	4	22	8
The Royal Free	32	0	0	1	33	13
The Royal London	23	2	6	9	40	11
WLRTC	27	2	3	9	41	10
TOTAL²	595	37³	102	114	848	15

¹ As of 1 June 2016 Coventry and Oxford began working in partnership as a transplant network.

² Includes 3 directed transplants performed at London Cromwell and 5 at London Bridge and 1 altruistic donor chain at London Bridge

³ Includes 5 domino donor transplants

Non-directed, altruistic donor kidneys are matched to a suitable recipient on a national basis and thus are rarely used in the transplant centre responsible for the 'work-up' of the donor. The number of non-directed donors according to donor hospital (rather than transplant hospital) and whether the altruistic donor donated as part of a chain within the paired/ pooled scheme or directly to the deceased donor list is shown in **Table 5.10**.

Table 5.10 Non-directed altruistic kidney donors in the UK, 1 April 2021 - 31 March 2023, by donor centre									
Donor centre	Transplant list	2021-2022 Donation to			%	2022-2023 Donation to			%
		Chain	Total			Chain	Total		
Belfast	8	5	13	18	7	4	11	13	
Birmingham	0	2	2	3	1	2	3	4	
Bristol	1	0	1	1	1	2	3	4	
Cambridge	0	0	0	0	0	0	0	0	
Cardiff	3	0	3	4	1	3	4	5	
Coventry ¹	0	1	1	1	0	1	1	1	
Edinburgh	3	2	5	7	1	1	2	2	
Glasgow	1	2	3	4	2	3	5	6	
Guy's	4	9	13	18	4	6	10	12	
Leeds	2	3	5	7	4	4	8	10	
Leicester	1	0	1	1	1	0	1	1	
Liverpool	0	0	0	0	0	0	0	0	
Manchester	2	0	2	3	1	1	2	2	
Newcastle	1	0	1	1	0	4	4	5	
Nottingham	0	1	1	1	1	3	4	5	
Oxford ¹	0	3	3	4	2	2	4	5	
Plymouth	1	3	4	6	4	1	5	6	
Portsmouth	1	4	5	7	2	8	10	12	
Sheffield	1	0	1	1	1	2	3	4	
St George's	2	0	2	3	1	0	1	1	
The Royal Free	0	1	1	1	0	0	0	0	
The Royal London	0	4	4	6	0	2	2	2	
WLRTC	0	0	0	0	0	0	0	0	
Total donors	31	40	71	100	34	49	83	100	

WLRTC - West London Renal and Transplant Centre
¹ As of 1 June 2016 Coventry and Oxford began working in partnership as a transplant network.

The number of deceased donor and living donor transplants in paediatric patients (<18 years) performed by each paediatric transplant centre is shown in **Table 5.11**. There were 75 living donor transplants and 50 deceased donor transplants in paediatric patients in 2022-2023. The paediatric transplant list has fallen by 1% from 105 patients at 31 March 2022 to 104 at the end of March 2023.

Table 5.11 Paediatric kidney only transplants in the UK, 1 April 2021 - 31 March 2023, by transplant centre								
Transplant centre	2021-2022				2022-2023			
	DBD	DCD	Living donor	TOTAL	DBD	DCD	Living donor	TOTAL
Belfast	0	0	1	1	0	0	3	3
Birmingham	5	0	9	14	10	5	7	22
Bristol	5	2	9	16	4	1	4	9
Glasgow	1	0	4	5	3	2	6	11
Great Ormond Street	7	4	29	40	7	1	17	25
Guy's	5	2	20	27	6	0	11	17
Leeds	1	1	4	6	3	0	7	10
Manchester	8	3	14	25	5	1	10	16
Newcastle	1	0	3	4	0	0	2	2
Nottingham	4	3	4	11	1	0	6	7
Adult centres	0	0	5	5	1	0	2	3
TOTAL	37	15	102¹	154	40	10	75²	125

¹ Includes 4 non-directed donor transplants, 3 paired living donor transplants and 3 altruistic donor chain (3 as a patient on transplant list at end of chain)

² Includes 2 non-directed donor transplants, 5 paired living donor transplants and 5 altruistic donor chain (4 as a patient on transplant list at end of chain)

At 31 March 2023, there were approximately 44,200 recipients with a functioning kidney transplant (including multi-organ transplants) being followed-up as reported to the UK Transplant Registry.

Rates of pre-emptive kidney only transplantation are shown in **Table 5.12**. Of the 3,137 kidney only transplant recipients in 2022-2023, dialysis status at time of transplant was reported for 2,520 (80%). Of these 2,520 transplants, 496 (20%) were carried out in pre-dialysis patients.

Pre-emptive transplants accounted for 22% of all paediatric kidney only transplants with reported dialysis status, compared with 20% of those in adults. Living donor transplants are more likely to be carried out before the need for dialysis than deceased donor transplants: 39% and 13% respectively. This is because a living donor transplant can often be carried out more quickly than a deceased donor kidney transplant as the latter often necessitates a long waiting time.

Table 5.12 Pre-emptive kidney only transplants in the UK, 1 April 2022 - 31 March 2023

	Number of kidney only transplants	Number of transplants with known dialysis status at transplant (% of all)	Percentage of patients transplanted prior to the need for dialysis (of those with known status)
Adult			
Deceased donor transplant	2164	1810 (83.6)	12.7
Living donor transplant	848	628 (74.1)	39.6
Paediatric			
Deceased donor transplant	50	32 (64.0)	9.4
Living donor transplant	75	50 (66.7)	30.0

The length of time that elapses between a kidney being removed from the donor to its transplantation into the recipient is called cold ischaemia time (CIT). Generally, the shorter this time, the more likely the kidney is to work immediately and the better the long-term outcome. The factors which determine CIT include a) transportation of the kidney from the retrieval hospital to the hospital where the transplant is performed, b) the need to tissue type the donor and cross-match the donor and potential recipients, c) the occasional necessity of moving the kidney to another hospital if a transplant cannot go ahead, d) contacting and preparing the recipient for the transplant and e) access to the operating theatre. Median CITs are shown in addition to inter-quartile ranges in **Table 5.13**.

Table 5.13 Median cold ischaemia time for kidney only transplants in the UK, 1 April 2022 - 31 March 2023

	Number of kidney only transplants ¹	Median (hours)	Inter-quartile range ²	
			Q1	Q3
Adult				
DBD donor transplant	1163	12.9	10.0	17.8
DCD donor transplant	1001	13.0	10.2	17.5
Total	2164	13.0	10.1	17.7
Paediatric				
DBD donor transplant	40	11.3	9.7	13.4
DCD donor transplant	10	11.2	10.6	11.7
Total	50	11.2	10.2	12.4
TOTAL	2214	12.9	10.1	17.5

¹ Not all cold ischaemia times are reported

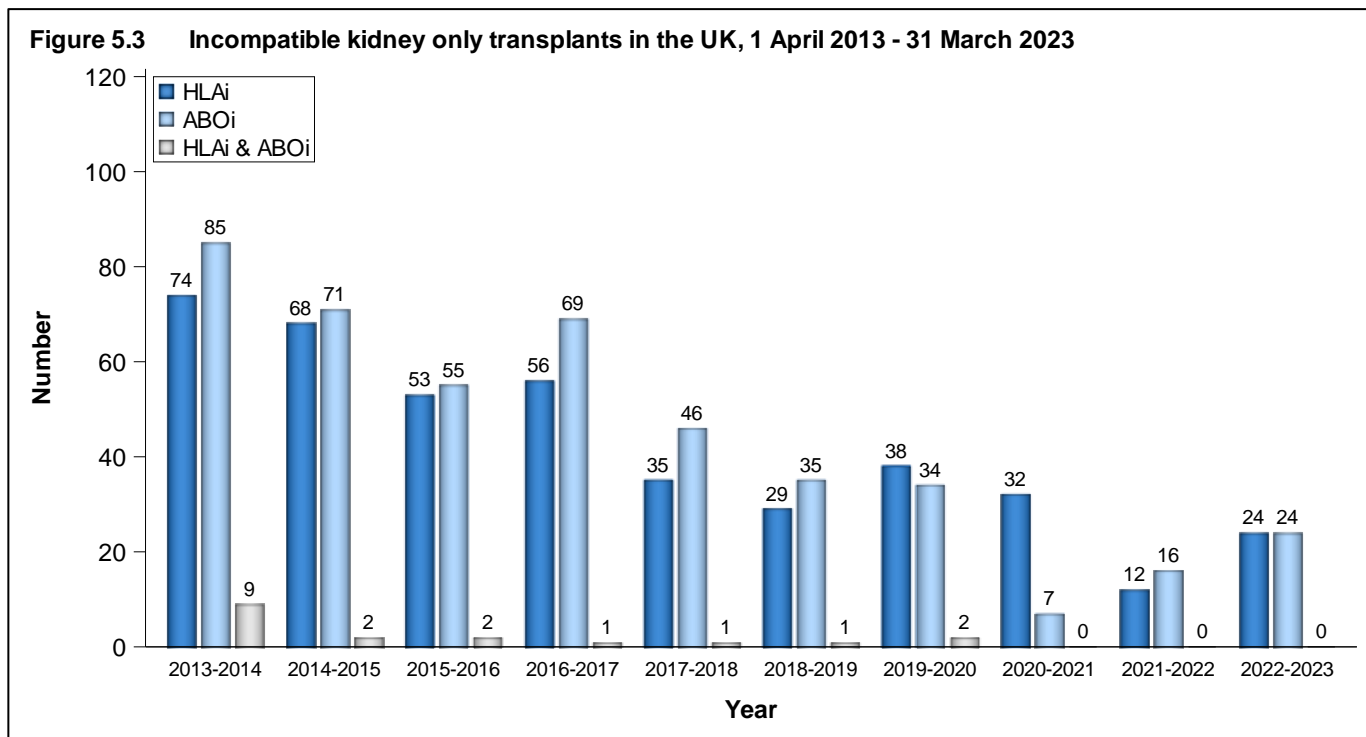
² 25% of times are shorter than Q1, 25% are longer than Q3

Kidneys from donors after brain death and some kidneys from donors after circulatory death are allocated on the basis of a national Kidney Offering Scheme which incorporates HLA matching between donor and recipient. These HLA matches are based on four levels which are described in **Table 5.14**. Prior to 11 September 2019 patients with 000 HLA-A, B, DR mismatch (Level 1) were prioritised in the scheme, whereas kidneys were rarely transplanted as a Level 4 match. Under the new scheme, Level 4 matches are only permitted for difficult to match patients. More information about the allocation scheme can be found at www.odt.nhs.uk. **Table 5.15** gives the HLA mismatch group for adult and paediatric patients for DBD donor transplants but also for DCD and living donor transplants. For living donor transplantation, many transplants have a poorer HLA match between donor and recipient than deceased donor transplantation. Very often there is no genetic relationship between donor and recipient.

Table 5.14 HLA mismatch groups		
Level	HLA mismatch summary	HLA mismatch combinations included
1	000	000
2	[0 DR and 0/1 B]	100, 010, 110, 200, 210, 001, 101, 201
3	[0 DR and 2 B] or [1 DR and 0/1 B]	020, 120, 220, 011, 111, 211
4	[1 DR and 2 B] or [2 DR]	021, 121, 221, 002, 102, 202, 012, 112, 212, 022, 122, 222

Table 5.15 HLA matching for kidney only transplants in the UK, 1 April 2022 - 31 March 2023						
	DBD		DCD		Living	
	N	%	N	%	N	%
Adult						
Level 1 (Best match)	37	(3)	20	(2)	61	(9)
Level 2	297	(26)	216	(22)	102	(16)
Level 3	560	(48)	551	(55)	313	(48)
Level 4	267	(23)	210	(21)	180	(27)
Not reported	2	-	4	-	192	-
Paediatric						
Level 1 (Best match)	4	(10)	0	(0)	9	(17)
Level 2	25	(63)	5	(50)	16	(30)
Level 3	9	(23)	4	(40)	29	(54)
Level 4	2	(5)	1	(10)	0	(0)
Not reported	0	-	0	-	21	-

Often potential living donors and their recipients are HLA or blood group incompatible. Increasingly it is possible to proceed with transplantation across the incompatibilities with appropriate management. The number of HLA and ABO blood group incompatible transplants over the last ten years is shown in **Figure 5.3**. Of the 421 HLA incompatible (HLAi) transplants performed; 200 were deceased donor transplants and 221 were living donor transplants, whilst the vast majority of ABO incompatible (ABOi) transplants were living donor transplants (440 of 442). Due to the nature of reporting HLA incompatible transplants, the numbers presented may be subject to change over time.



5.5 Demographic characteristics

The age group, sex, ethnicity and blood group of deceased donors, transplant recipients and patients on the transplant list are shown in **Table 5.16** and for living donors and transplants in **Table 5.17**. Note that all percentages quoted are based only on data where relevant information was available.

Table 5.16 Demographic characteristics of deceased kidney donors and transplant recipients, 1 April 2022 - 31 March 2023, and transplant list patients at 31 March							
		Donors		Transplant recipients		Active transplant list patients	
		N	(%)	N	(%)	N	(%)
Age (years)	0-17	39	(3)	51	(2)	104	(2)
	18-34	172	(13)	312	(13)	624	(11)
	35-49	322	(24)	572	(24)	1600	(28)
	50-59	342	(25)	619	(26)	1630	(29)
	60-69	310	(23)	544	(23)	1302	(23)
	70+	175	(13)	251	(11)	395	(7)
	mean (SD)	52	(16)	52	(15)	51	(14)
Sex	Male	775	(57)	1449	(62)	3393	(60)
	Female	585	(43)	900	(38)	2241	(40)
	Unknown	0	-	0	-	21	-
Ethnicity	White	1233	(93)	1552	(67)	3458	(63)
	Asian	50	(4)	402	(17)	1125	(21)
	Black	24	(2)	271	(12)	711	(13)
	Other	23	(2)	83	(4)	187	(3)
	Unknown	30	-	41	-	174	-
Blood group	O	636	(47)	997	(42)	2996	(53)
	A	560	(41)	940	(40)	1429	(25)
	B	126	(9)	290	(12)	1105	(20)
	AB	36	(3)	122	(5)	125	(2)
	Unknown ¹	2	-	0	-	0	-
Graft number	First graft	-	-	1962	(84)	4535	(80)
	Re-graft	-	-	387	(16)	1120	(20)
TOTAL		1360	(100)	2349	(100)	5655	(100)

¹ 2 donors had an indeterminate blood group

Table 5.17 Demographic characteristics of living kidney donors and transplant recipients, 1 April 2022 - 31 March 2023

		Donors		Transplant recipients	
		N	(%)	N	(%)
Age (years)	0-17	0	(0)	75	(8)
	18-34	155	(17)	197	(21)
	35-49	347	(38)	271	(29)
	50-59	233	(25)	211	(23)
	60-69	158	(17)	131	(14)
	70+	30	(3)	38	(4)
	Mean (SD)	48	(12)	43	(17)
Sex	Male	435	(47)	545	(59)
	Female	488	(53)	374	(41)
	Unknown	0	-	4	-
Ethnicity	White	798	(87)	730	(82)
	Asian	74	(8)	90	(10)
	Black	19	(2)	32	(4)
	Other	30	(3)	41	(5)
	Unknown	2	-	30	-
Blood group	O	543	(59)	419	(45)
	A	279	(30)	350	(38)
	B	76	(8)	120	(13)
	AB	24	(3)	34	(4)
	Unknown	1	-	0	-
Graft number	First graft	-	-	801	(87)
	Re-graft	-	-	122	(13)
TOTAL		923	(100)	923	(100)