

Kidney Activity

Key messages

- On 11 September 2019, a new National Kidney Offering Scheme was introduced
- The number of patients registered on the kidney transplant list this year remained similar at 3,525
- The number of deceased kidney donors fell by 25% to 1,106
- Kidney transplants from living donors fell by 60% to 422, while transplants from deceased donors fell by 22% to 1,931
- 10 kidney transplants were made possible by the paired living kidney donation programme
- There were 30 non-directed altruistic living kidney donors, leading to 60 patients benefitting from a living donor transplant

5.1 Overview

Note that the COVID-19 pandemic has affected the number of offered, retrieved and transplanted organs in 2020-2021.

The number of deceased kidney donors fell by 25% in 2020-2021 compared to 2019-2020 and the number of deceased donor kidney transplants fell by 22%. There were 3,525 patients waiting for a kidney transplant at 31 March 2021, with the number of patients on the national list consistently declining year on year.

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 2021 for a kidney only or multi-organ kidney transplant has fallen by 47% since 31 March 2012. 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.

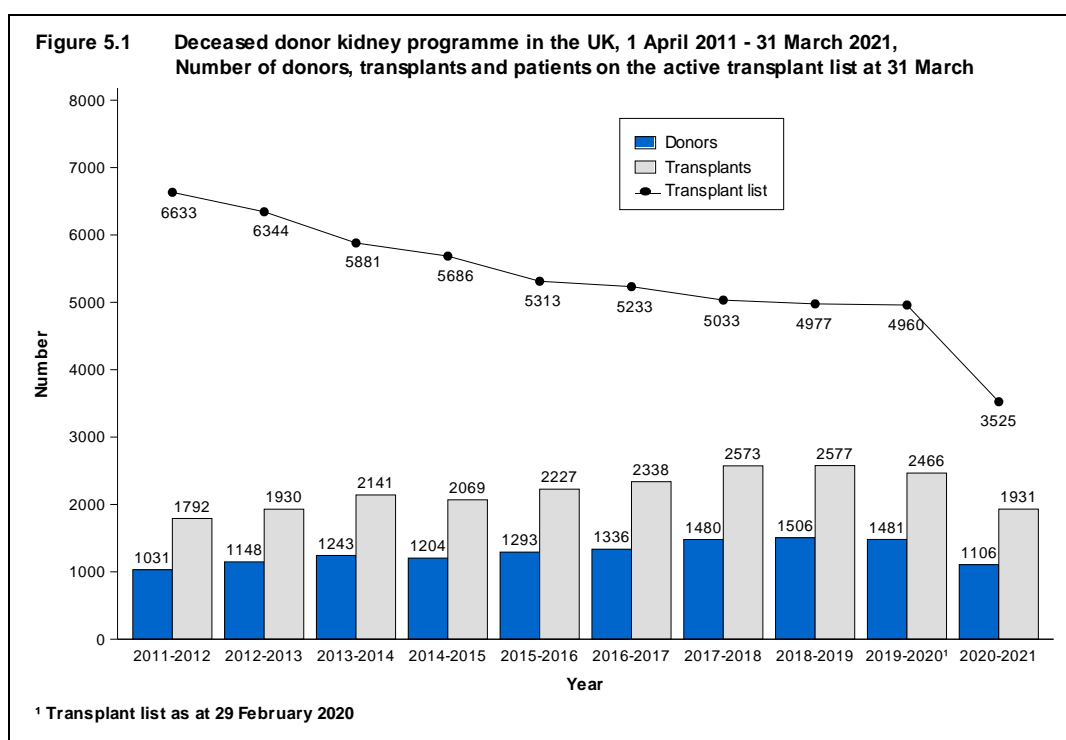


Table 5.1 shows the number of deceased and living donor kidney transplants carried out in 2020-2021 at each centre. As yet, very few kidneys from donors after circulatory death are transplanted in paediatric patients (<18 years). Donation figures for centres in London are not reported individually as 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 fell to 1,106 in 2020-2021 from 1,481 in 2019-2020 and the number of transplants fell from 2,466 to 1,931. The number of kidney donors after circulatory death fell to 405 from 618 in 2019-2020 and the number of transplants from such donors fell by 29% to 689.

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 2020 - 31 March 2021 (2019-2020) and transplant list at 31 March 2021 (2020)* in the UK, by centre

Centre	Deceased kidney donors				Deceased donor transplants				Living donor transplants		Active transplant list*	
	DBD		DCD		DBD		DCD					
Belfast	34	(27)	15	(19)	87	(26)	48	(18)	14	(67)	85	(79)
Birmingham	34	(46)	25	(45)	61	(91)	19	(55)	20	(45)	349	(363)
Bristol	39	(28)	18	(21)	52	(53)	28	(27)	17	(31)	129	(153)
Cambridge	24	(35)	31	(58)	104	(76)	112	(96)	10	(41)	93	(168)
Cardiff	19	(40)	10	(19)	34	(41)	16	(33)	12	(32)	87	(159)
Coventry ¹	11	(11)	4	(17)	38	(32)	20	(21)	9	(22)	76	(101)
Edinburgh	18	(24)	17	(15)	58	(72)	18	(30)	27	(48)	167	(194)
Glasgow	45	(46)	16	(19)	68	(63)	46	(42)	34	(52)	180	(251)
Leeds	40	(49)	32	(31)	70	(76)	56	(52)	27	(53)	213	(287)
Leicester	9	(25)	11	(13)	36	(48)	36	(46)	19	(49)	124	(175)
Liverpool	30	(34)	17	(23)	33	(48)	23	(24)	12	(29)	90	(141)
London ²	182	(238)	88	(162)	-	-	-	-	-	-	-	-
Great Ormond Street	-	-	-	-	6	(8)	1	(0)	8	(13)	20	(17)
Guy's	-	-	-	-	33	(122)	18	(89)	15	(92)	61	(275)
Royal Free	-	-	-	-	61	(56)	19	(31)	23	(40)	145	(238)
Royal London	-	-	-	-	35	(101)	4	(51)	16	(40)	310	(327)
St George's	-	-	-	-	43	(89)	8	(24)	14	(46)	131	(229)
WLRTC	-	-	-	-	57	(114)	27	(71)	10	(55)	82	(402)
Manchester	65	(65)	36	(49)	86	(111)	62	(71)	37	(84)	492	(463)
Newcastle	25	(54)	16	(28)	90	(62)	33	(25)	25	(56)	185	(211)
Nottingham	26	(28)	21	(17)	21	(30)	14	(20)	5	(24)	88	(130)
Oxford ¹	31	(34)	15	(28)	115	(82)	55	(78)	32	(55)	247	(245)
Plymouth	13	(21)	7	(14)	26	(27)	11	(17)	13	(15)	28	(96)
Portsmouth	35	(33)	18	(25)	11	(37)	2	(22)	7	(24)	42	(144)
Sheffield	21	(25)	8	(15)	17	(35)	13	(23)	7	(17)	101	(112)
TOTAL	701	(863)	405	(618)	1242	(1500)	689	(966)	422^{3,5}	(1039^{4,6})	3525	(4960)

* Waiting list figures are as at 31 March 2021 and 29 February 2020

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 transplant performed at London, Cromwell Hospital and 6 transplant performed at London, London Bridge Hospital (4 on behalf of NHS Hospitals)

⁴ Includes an additional 8 transplants performed at London, Cromwell Hospital and 1 transplants performed at London, London Bridge Hospital

⁵ Includes 2 domino donors

⁶ Includes 2 domino donors

5.2 Transplant list

The number of patients registered on the kidney or kidney and pancreas transplant list remained stable in the year: on 31 March 2021, 3,525 patients were registered as active, compared with 4,960 at the end of February 2020. The number of patients waiting for a kidney transplant represents 52.6 patients per million population (pmp).

Of the 3,525 patients on the active transplant list at 31 March 2021, 154 required a kidney and pancreas/islet transplant (210 at 29 February 2020).

The outcome of patients registered on the UK kidney and kidney/pancreas transplant list at 1 April 2020, or subsequently registered during the financial year, is shown in **Table 5.2**. A total of 2,693 patients joined the kidney transplant list last year, while a further 144 joined the kidney/pancreas transplant list.

Table 5.2 Kidney transplant list and new registrations in the UK, 1 April 2020 - 31 March 2021						
Outcome of patient at 31 March 2021	Active and suspended patients at 1 April 2020		New registrations in 2020-2021¹		TOTAL	
	N	%	N	%	N	%
Kidney transplant list						
Remained active/suspended	5724	72	2122	79	7846	73
Transplanted	1662	21	540	20	2202	21
Removed ²	325	4	8	0	333	3
Died	285	4	23	1	308	3
TOTAL	7996		2693		10689	
Kidney/pancreas transplant list						
Remained active/suspended	242	67	124	86	366	73
Transplanted	67	19	19	13	86	17
Removed ³	28	8	1	1	29	6
Died	22	6	0	0	22	4
TOTAL	359		144		503	

¹ Includes re-registrations for second or subsequent patients
² Includes 5 patients removed from kidney list and made active on kidney/pancreas list
³ Includes 5 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 2021 and 29 February 2020 by country/NHS region of patient's residence. In 2021, the overall kidney transplant list rate was 52.6 pmp with rates across NHS regions ranging from 28.9 pmp to 72.2 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)			
	2021		2020¹	
North East and Yorkshire	514	(59.8)	615	(71.5)
North West	510	(72.2)	535	(75.8)
Midlands	674	(63.6)	808	(76.2)
East of England	212	(32.5)	352	(53.9)
London	583	(65.1)	1115	(124.4)
South East	257	(28.9)	457	(51.3)
South West	209	(37.1)	333	(59.1)
England	2959	(52.6)	4215	(74.9)
Isle of Man	4	(50.0)	5	(62.5)
Channel Islands	4	(23.5)	9	(52.9)
Wales	126	(40.0)	200	(63.5)
Scotland	345	(63.2)	444	(81.3)
Northern Ireland	86	(45.5)	79	(41.8)
TOTAL²	3525	(52.6)	4960	(74.0)

¹As at 29 February 2020
²Includes patients in 2020 (2019) residing in: Unspecified UK 0 (7); Overseas 1 (1)

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 31% of patients are transplanted within one year, while five years after listing 78% of patients have received a transplant.

The median (average) waiting time for a kidney only transplant has fallen from 633 days reported last year to 589 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.

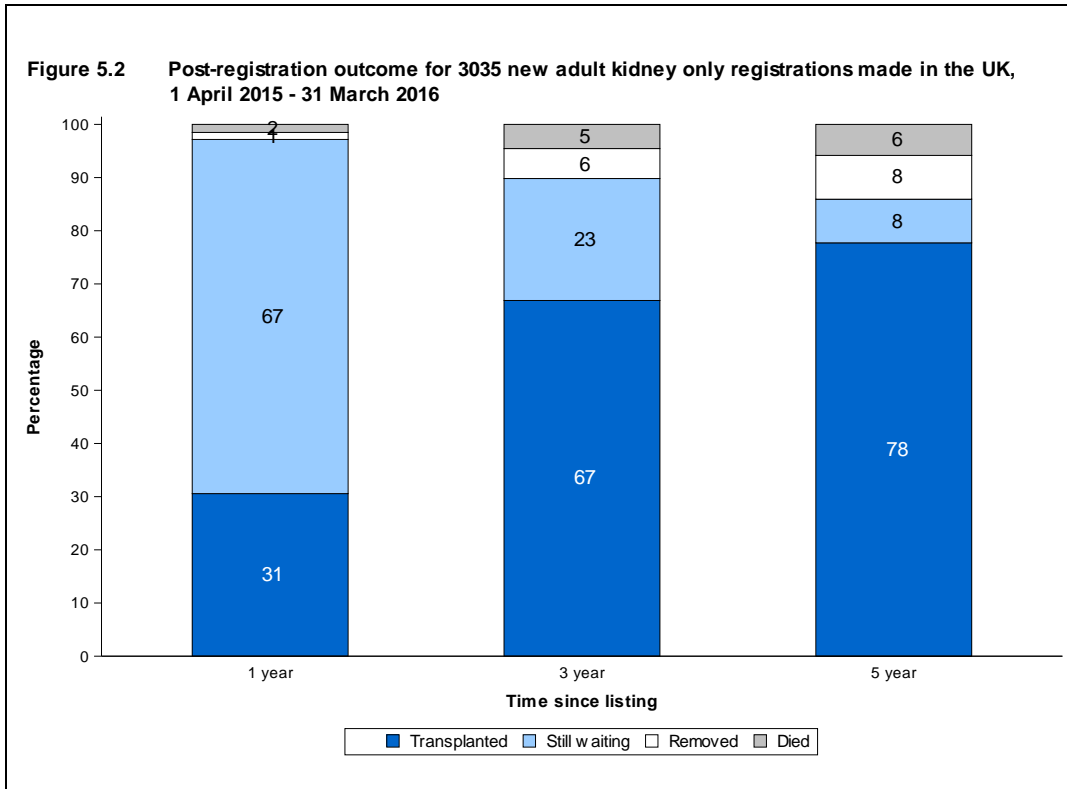


Table 5.4 Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2014 - 31 March 2018, by blood group

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
O	4782	762	742 - 782
A	3719	399	383 - 415
B	1494	853	804 - 902
AB	477	182	163 - 201
TOTAL	10472	589	575 - 603
Paediatric			
O	112	275	126 - 424
A	94	251	199 - 303
B	35	352	206 - 498
AB	19	174	62 - 286
TOTAL	260	258	188 - 328

Table 5.5 Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2013 - 31 March 2017, by ethnicity

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
White	7200	527	511 - 543
Asian	1749	682	643 - 721
Black	1009	824	770 - 878
Other	399	678	596 - 760
TOTAL¹	10472	589	575 - 603
Paediatric			
White	147	202	141 - 263
Asian	78	399	322 - 476
Black	18	628	161 - 1095
Other	16	501	305 - 697
TOTAL²	260	258	188 - 328

¹ Includes 115 patients whose ethnicity was not reported

² Includes 1 patients whose ethnicity was not reported

5.3 Donor and organ supply

Of the 766 organ donors after brain death in the UK in 2020-2021, 701 (92%) were kidney donors. From these donors, 1,380 kidneys were retrieved. There were 405 kidney donors after circulatory death in 2020-2021. From these donors, 799 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 10.5 pmp, with rates across NHS regions ranging from 7.5 to 13.0 pmp. The number of kidneys retrieved from donors after brain death in the UK is 20.6 pmp and varies from 14.7 to 25.9 pmp.

The overall rate for kidney donors after circulatory death is 6.0 pmp, with rates across NHS regions ranging from 3.9 to 7.8 pmp. The number of kidneys retrieved from donors after circulatory death is 11.9 pmp and varies from 7.7 to 15.6 pmp.

Table 5.6 Kidney donation and retrieval rates for deceased donors in the UK, 1 April 2020 - 31 March 2021, by Country/ NHS region								
Country/ NHS region of residence	Kidney donors (pmp)				Kidneys retrieved (pmp)			
	DBD		DCD		DBD		DCD	
North East and Yorkshire	91	(10.6)	57	(6.6)	181	(21.0)	113	(13.1)
North West	73	(10.3)	45	(6.4)	140	(19.8)	89	(12.6)
Midlands	88	(8.3)	66	(6.2)	171	(16.1)	129	(12.2)
East of England	63	(9.6)	51	(7.8)	125	(19.1)	102	(15.6)
London	67	(7.5)	35	(3.9)	132	(14.7)	69	(7.7)
South East	107	(12.0)	49	(5.5)	210	(23.6)	93	(10.4)
South West	73	(13.0)	37	(6.6)	146	(25.9)	74	(13.1)
England	562	(10.0)	340	(6.0)	1105	(19.6)	669	(11.9)
Isle of Man	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Channel Islands	1	(5.9)	0	(0.0)	2	(11.8)	0	(0.0)
Wales	35	(11.1)	14	(4.4)	69	(21.9)	28	(8.9)
Scotland	60	(11.0)	30	(5.5)	119	(21.8)	60	(11.0)
Northern Ireland	33	(17.5)	15	(7.9)	65	(34.4)	30	(15.9)
TOTAL¹	701	(10.5)	405	(6.0)	1380	(20.6)	799	(11.9)

¹ Includes 16 donors with unknown UK postcode

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 16.7 to 36.0 pmp across NHS regions and overall was 27.4 pmp. The living donor transplant rate ranged from 4.4 to 7.6 pmp across NHS regions and overall was 6.2 pmp.

Country/ NHS region of residence	DBD		DCD		TOTAL		Living	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
North East and Yorkshire	175	(20.3)	98	(11.4)	273	(31.7)	60	(7.0)
North West	100	(14.2)	78	(11.0)	178	(25.2)	42	(5.9)
Midlands	156	(14.7)	98	(9.2)	254	(24.0)	58	(5.5)
East of England	126	(19.3)	109	(16.7)	235	(36.0)	30	(4.6)
London	167	(18.6)	55	(6.1)	222	(24.8)	52	(5.8)
South East	105	(11.8)	44	(4.9)	149	(16.7)	39	(4.4)
South West	94	(16.7)	52	(9.2)	146	(25.9)	43	(7.6)
England	923	(16.4)	534	(9.5)	1457	(25.9)	324	(5.8)
Isle of Man	2	(25.0)	0	(0.0)	2	(25.0)	0	(0.0)
Channel Islands	1	(5.9)	3	(17.6)	4	(23.5)	1	(5.9)
Wales	36	(11.4)	16	(5.1)	52	(16.5)	17	(5.4)
Scotland	116	(21.2)	58	(10.6)	174	(31.9)	61	(11.2)
Northern Ireland	86	(45.5)	47	(24.9)	133	(70.4)	13	(6.9)
TOTAL^{1,2}	1171	(17.5)	664	(9.9)	1835	(27.4)	416	(6.2)

¹ Excludes 1 recipient of a deceased donor kidney and 6 recipients of a living donor kidney who reside outside of the UK
² Includes 16 recipients with an unknown UK postcode

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 no en bloc kidneys and 6 double kidney transplants in 2020-2021 (5 and 17 in 2019-2020). Kidney transplants from donors after circulatory death include 4 en bloc and 5 double kidney transplants in 2020-2021 (3 and 21 in 2019-2020). This table excludes multi-organ transplants: 7 kidney and liver, 83 kidney and pancreas, and 5 kidney and islets in 2020-2021.

**Table 5.8 Adult kidney only transplants in the UK,
1 April 2019 - 31 March 2021, by transplant centre**

Transplant centre	2019-2020			TOTAL	2020-2021			TOTAL
	DBD	DCD	Living donor		DBD	DCD	Living donor	
Belfast	25	18	63	106	87	47	8	142
Birmingham	83	53	40	176	52	17	15	84
Bristol	49	27	27	103	49	26	14	89
Cambridge	64	84	41	189	82	105	10	197
Cardiff	34	30	31	95	29	14	12	55
Coventry ¹	32	21	22	75	38	20	9	67
Edinburgh	50	27	48	125	51	13	27	91
Glasgow	63	42	50	155	63	44	30	137
Guy's	88	82	78	248	29	13	4	46
Leeds	74	52	46	172	66	56	22	144
Leicester	48	46	49	143	36	36	19	91
Liverpool	48	24	29	101	33	23	12	68
Manchester	89	64	70	223	75	57	34	166
Newcastle	54	24	54	132	88	32	22	142
Nottingham	28	20	18	66	16	14	4	34
Oxford ¹	48	65	55	168	95	53	32	180
Plymouth	27	17	14	58	26	11	13	50
Portsmouth	37	22	24	83	11	2	7	20
Sheffield	35	23	17	75	17	13	7	37
St George's	89	24	46	159	43	8	14	65
The Royal Free	54	31	40	125	59	19	23	101
The Royal London	101	50	40	191	35	4	16	55
WLRTC	106	69	55	230	56	27	10	93
TOTAL	1326	915	966²	3207	1136	654	372³	2163

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 8 transplants performed at London Cromwell Hospital and 1 transplants performed at London Bridge Hospital

³ Includes 3 transplants performed at London Cromwell Hospital and 5 transplants performed at London Bridge Hospital (4 on behalf of NHS Hospitals)

Living donor kidney transplants fell by 59% to 422 in 2020-2021, representing 19% 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 53% decrease in these transplants. In addition there are now a number of 'non-directed' living donor transplants (also known as altruistic donor transplants). Last year 30 such donors donated a kidney to a recipient, all 30 were transplanted into an adult recipient. Of the 30 non-directed altruistic donors, 24 went into an altruistic donor chain (18 short (2 transplants each) and 6 long chains (3 transplants each)) benefiting 30 adult patients in the paired/pooled scheme. The kidneys from the paired donors of these recipients led to 24 adult patients on the deceased donor transplant list. Thus 24 non-directed altruistic donors creating chains benefited 54 adult patients in total.

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 2020-2021, there were 22 paired living kidney donor transplants (21 adult and 1 paediatric recipients). Due to the pandemic, of the 4 scheduled matching runs in 2020-2021, only 1 took place.

As a percentage of the number of patients on the active transplant list at 31 March 2021, the number of living donor adult transplants in the year was 11% and ranged from 5% to 46% at individual transplant centres.

Table 5.9 Adult living donor kidney transplants in the UK, 1 April 2020 - 31 March 2021, and percentage of active transplant list at 31 March 2021, by transplant centre						
Transplant centre	2020-2021				TOTAL	
	Directed	Non-directed (altruistic) to waiting list	Paired/pooled exchanges	Altruistic donor chain	N	% list
Belfast	5	0	0	3	8	9
Birmingham	8	1	3	3	15	5
Bristol	13	0	0	1	14	12
Cambridge	9	1	0	0	10	11
Cardiff	8	0	2	2	12	14
Coventry ¹	8	0	1	0	9	12
Edinburgh	18	1	3	5	27	16
Glasgow	19	2	2	7	30	17
Guy's	3	0	0	1	4	9
Leeds	19	0	1	2	22	11
Leicester	19	0	0	0	19	15
Liverpool	8	1	0	3	12	13
Manchester	28	1	2	3	34	7
Newcastle	15	1	2	4	22	12
Nottingham	2	0	0	2	4	5
Oxford ¹	26	0	2	4	32	13
Plymouth	10	0	0	3	13	46
Portsmouth	6	0	0	1	7	17
Sheffield	7	0	0	0	7	7
St George's	12	0	1	1	14	11
The Royal Free	18	0	2	3	23	16
The Royal London	12	0	0	4	16	5
WLRTC	8	0	0	2	10	12
TOTAL²	289	8³	21	54	372	11

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 3 transplant performed at London Cromwell Hospital and 5 transplant performed at London Bridge (4 on behalf of NHS Hospitals)
³ Includes 2 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 2019 - 31 March 2021, by donor centre

Donor centre	2019-2020				2020-2021			
	Donation to Transplant list	Chain	Total	%	Donation to Transplant list	Chain	Total	%
Belfast	6	7	13	14	0	2	2	7
Birmingham	1	0	1	1	1	3	4	13
Bristol	1	2	3	3	0	1	1	3
Cambridge	1	2	3	3	0	0	0	0
Cardiff	1	1	2	2	0	2	2	7
Coventry ¹	0	2	2	2	0	0	0	0
Edinburgh	4	5	9	9	1	1	2	7
Glasgow	2	2	4	4	1	0	1	3
Guy's	3	7	10	10	0	3	3	10
Leeds	3	2	5	5	0	1	1	3
Leicester	1	0	1	1	0	0	0	0
Liverpool	2	0	2	2	0	0	0	0
Manchester	4	2	6	6	2	4	6	20
Newcastle	1	1	2	2	0	2	2	7
Nottingham	2	1	3	3	0	0	0	0
Oxford ¹	4	2	6	6	0	1	1	3
Plymouth	3	0	3	3	0	1	1	3
Portsmouth	4	6	10	10	1	2	3	10
Sheffield	0	0	0	0	0	0	0	0
St George's	0	0	0	0	0	1	1	3
The Royal Free	2	1	3	3	0	0	0	0
The Royal London	2	2	4	4	0	0	0	0
WLRTC	2	2	4	4	0	0	0	0
Total donors	49	47	96	100	6	24	30	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 50 living donor transplants and 46 deceased donor transplants in paediatric patients in 2020-2021. The paediatric transplant list has increased by 19% from 111 patients at 29 February 2020 to 112 at the end of March 2021.

Occasionally older paediatric patients are listed and/or transplanted at adult kidney transplant centres and these are indicated in **Table 5.11**.

Table 5.11 Paediatric patient kidney transplants in the UK, 1 April 2018 - 31 March 2020, by transplant centre								
Paediatric transplant centre	2019-2020				2020-2021			
	DBD	DCD	Living donor	TOTAL	DBD	DCD	Living donor	TOTAL
Belfast	1	0	4	5	0	1	6	7
Birmingham	7	2	5	14	7	2	5	14
Bristol	4	0	4	8	3	2	3	8
Glasgow	0	0	2	2	5	2	4	11
Great Ormond Street	8	0	13	21	6	1	8	15
Guy's	6	0	14	20	1	2	11	14
Leeds	2	0	7	9	4	0	5	9
Manchester	2	1	14	17	3	1	3	7
Newcastle	3	1	2	6	1	0	3	4
Nottingham	2	0	6	8	5	0	1	6
Adult centres	1	2	2	5	0	0	1	1
TOTAL	36	6	73¹	115	35	11	50²	96

¹ Includes 1 paired living donor transplant
² Includes 1 non-directed donor transplant, 3 paired living donor transplants and 4 altruistic donor chain (1 as a patient on transplant list at end of chain)

At 31 March 2021, there were approximately 42,000 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 2,258 kidney only transplant recipients in 2020-2021, dialysis status at time of transplant was reported for 2,143 (95%). Of these 2,143 transplants, 442 (21%) were carried out in pre-dialysis patients.

Pre-emptive transplants accounted for 26% 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: 34% and 16% 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 2020 - 31 March 2021

	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	1790	1715 (95.8)	17.0
Living donor transplant	372	337 (90.6)	36.8
Paediatric			
Deceased donor transplant	46	43 (93.5)	16.3
Living donor transplant	50	48 (96.0)	35.4

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 2020 - 31 March 2021

	Number of kidney only transplants ¹	Median (hours)	Inter-quartile range ²	
			Q1	Q3
Adult				
DBD donor transplant	1136	13.0	10.2	17.3
DCD donor transplant	654	13.3	10.3	17.0
Total	1790	13.1	10.2	17.1
Paediatric				
DBD donor transplant	35	12.9	10.6	14.2
DCD donor transplant	11	9.7	9.2	11.0
Total	46	12.4	9.6	14.1
TOTAL	1836	13.1	10.2	17.0

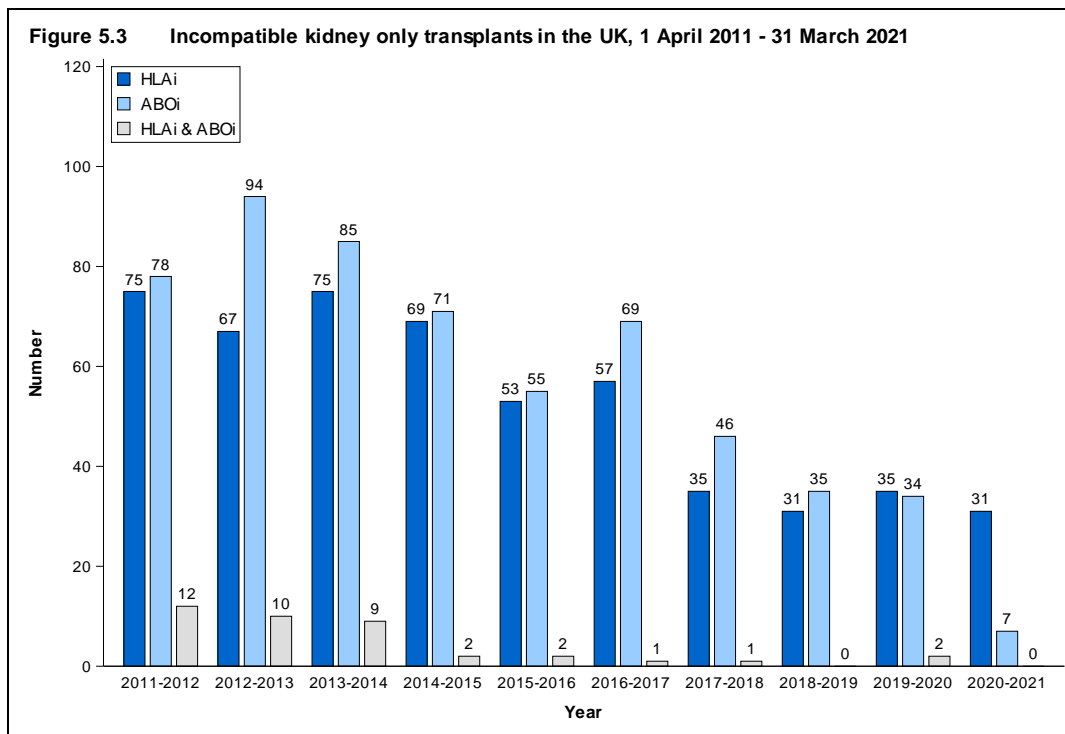
¹ Not all cold ischaemia times are reported
² 25% of times are shorter than Q1, 25% are longer than Q3

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 2020, 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 2020 - 31 March 2021						
	DBD		DCD		Living	
	N	(%)	N	(%)	N	(%)
Adult patients						
Level 1 (Best match)	23	(2)	13	(2)	25	(8)
Level 2	361	(32)	197	(30)	56	(18)
Level 3	473	(42)	290	(44)	138	(45)
Level 4	279	(25)	154	(24)	88	(29)
Not reported	0		0		65	
Paediatric patients						
Level 1 (Best match)	3	(9)	3	(27)	5	(12)
Level 2	26	(74)	6	(55)	20	(47)
Level 3	6	(17)	1	(9)	18	(42)
Level 4	0	(0)	1	(9)	0	(0)
Not reported	0		0		7	

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 528 HLA incompatible (HLAi) transplants performed; 212 were deceased donor transplants and 316 were living donor transplants, whilst the vast majority of ABO incompatible (ABOi) transplants were living donor transplants (570 of 574). 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 2020 - 31 March 2021, and transplant list patients at 31 March						
Age group (years)	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
0 - 17	41	(4)	46	(2)	115	(3)
18 - 34	183	(17)	280	(15)	449	(13)
35 - 49	279	(25)	460	(24)	1002	(28)
50 - 59	324	(29)	565	(29)	1002	(28)
60 - 69	195	(18)	423	(22)	746	(21)
70+	84	(8)	157	(8)	211	(6)
Mean (SD)	49	(16)	50	(15)	50	(15)
Male	612	(55)	1191	(62)	2150	(61)
Female	494	(45)	740	(38)	1369	(39)
Not reported	0	-	0	-	6	-
White	996	(93)	1366	(72)	2327	(67)
Asian	28	(3)	297	(16)	662	(19)
Black	15	(1)	170	(9)	351	(10)
Chinese	4	(0)	23	(1)	32	(1)
Other	30	(3)	49	(3)	92	(3)
Not reported	33	-	26	-	61	-
O	516	(47)	837	(43)	1929	(55)
A	445	(40)	756	(39)	831	(24)
B	121	(11)	266	(14)	679	(19)
AB	23	(2)	72	(4)	86	(2)
Not reported	1	-	0	-	0	-
First graft			1617	(84)	2759	(78)
Re-graft			314	(16)	766	(22)
TOTAL	1106	(100)	1931	(100)	3525	(100)

Table 5.17 Demographic characteristics of living kidney donors and transplant recipients, 1 April 2020 - 31 March 2021

Age group (years)	Donors		Transplant recipients	
	N	(%)	N	(%)
0 - 17	0	(0)	50	(12)
18 - 34	76	(18)	101	(24)
35 - 49	141	(33)	95	(23)
50 - 59	124	(29)	84	(20)
60 - 69	71	(17)	71	(17)
70+	10	(2)	21	(5)
Mean (SD)	48	(12)	42	(19)
Male	210	(50)	260	(62)
Female	212	(50)	162	(38)
White	369	(87)	340	(82)
Asian	33	(8)	40	(10)
Black	8	(2)	16	(4)
Chinese	2	(0)	4	(1)
Other	10	(2)	15	(4)
Not reported	0	-	7	-
O	252	(60)	183	(43)
A	129	(31)	169	(40)
B	35	(8)	54	(13)
AB	6	(1)	16	(4)
First graft			372	(88)
Re-graft			50	(12)
TOTAL	422	(100)	422	(100)