

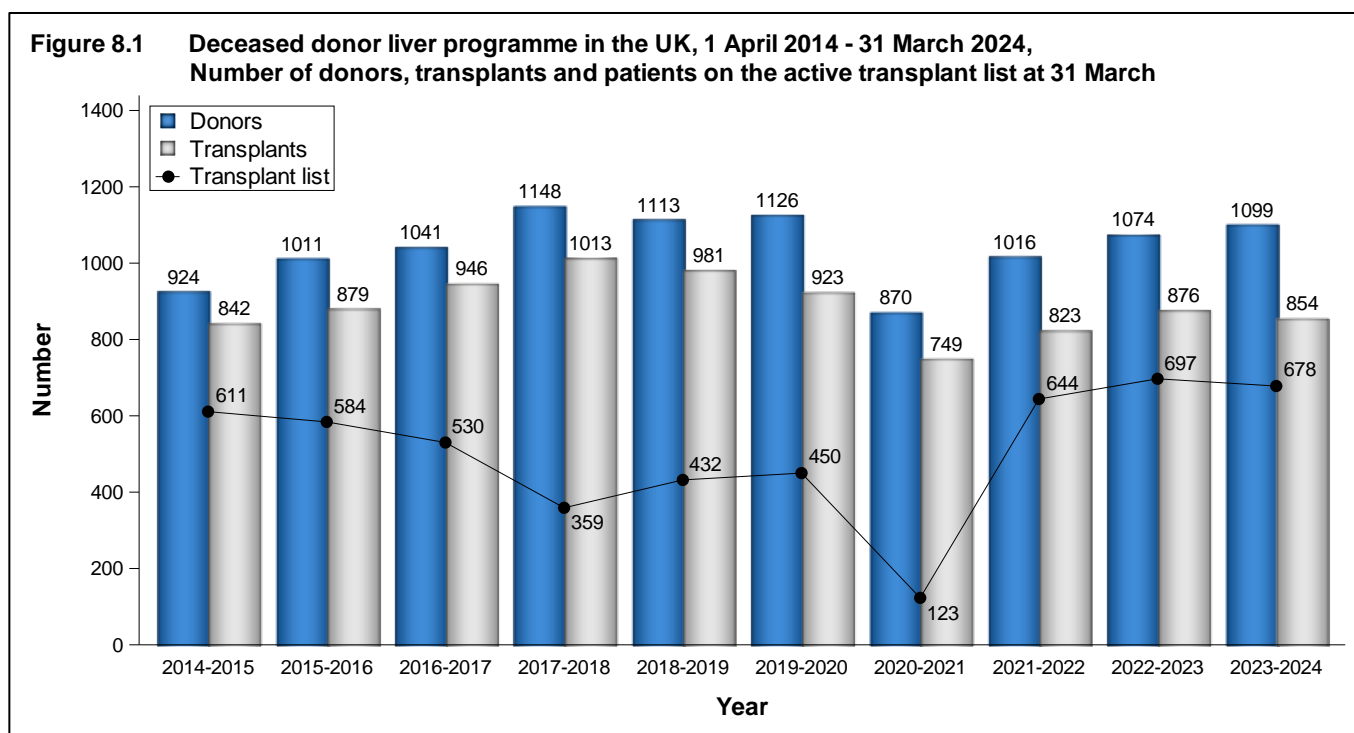
Liver Activity

Key messages

- The number of patients on the active liver transplant list at 31 March 2024 was 678, a decrease of 3% from 2023.
- The number of liver donors after brain death fell by 1% to 691, while transplants from donors after brain death fell by 6% to 587
- The number of liver donors after circulatory death increased by 9% to 408, while transplants from donors after circulatory death increased by 6% to 267 which was the highest ever number of DCD liver transplants performed in a financial year

8.1 Overview

The number of deceased liver donors and transplants in the UK in the last ten years is shown in **Figure 8.1**. There has been a decrease in the number of patients registered on the active liver transplant list between 2014-2015 and 2020-2021. However, this number has increased to 678 patients active in March 2024, higher than pre-pandemic levels. The numbers of donors has steadily increased over the last three years.



Intestinal transplants that used a liver are not included in the liver transplant activity reported. However, any livers retrieved and used for such transplants are included in the liver donor activity. Liver only transplants in intestinal failure patients are included in the liver transplant activity. Intestinal transplant activity is reported in Chapter 9.

The number of deceased donors, deceased and living donor transplants, and patients on the active transplant list, by centre, is shown in **Table 8.1**. The numbers of liver donors reflect the number of organs retrieved from within each centre's allocation zone (by any retrieval team) rather than the number of retrievals made by that centre. In 2023-2024, 1099 organ donors donated their liver for transplant: 691 donors after brain death and 408 donors after circulatory death. There were 678 patients on the active transplant list at 31 March 2024, a decrease of 3% from 31 March 2023.

Overall, the number of liver transplants (either whole liver or liver lobe transplants) from donors after brain death fell by 6% to 587 whilst the number of liver transplants from donors after circulatory death increased by 6% to 267, compared with the previous financial year. Additionally, there were 31 living liver lobe donor transplants (NHS Group 1: 21 and Group 2: 10).

Patients are prioritised as super-urgent if they require a new liver as soon as possible due to rapid failure of the native organ. Other patients are referred to as elective. In 2023-2024, there were 81 deceased donor adult super-urgent transplants, representing 10% of all adult deceased donor transplants and 15 deceased donor paediatric super-urgent transplants, representing 24% of all paediatric deceased donor transplants.

Table 8.1 Deceased and living liver donors and transplants, 1 April 2023 - 31 March 2024 (2022-2023) and transplant list patients at 31 March 2024 (2023) in the UK, by age group and centre

Allocation zone/ transplant centre	Deceased donors ¹						Deceased donor transplants						Living donor transplants		Active transplant list	
	DBD		DCD		TOTAL		DBD		DCD		TOTAL					
Adult																
Birmingham	122	(134)	57	(79)	179	(213)	127	(136)	32	(57)	159	(193)	0	(0)	187	(189)
Cambridge	63	(64)	56	(55)	119	(119)	64	(55)	52	(55)	116	(110)	0	(0)	45	(57)
Edinburgh	92	(85)	58	(46)	150	(131)	43	(45)	33	(26)	76	(71)	0	(0)	48	(51)
King's College	181	(162)	106	(86)	287	(248)	112	(115)	55	(51)	167	(166)	1	(1)	182	(195)
Leeds	130	(141)	79	(59)	209	(200)	79	(86)	36	(26)	115	(112)	2	(6)	88	(91)
Newcastle	35	(35)	20	(14)	55	(49)	22	(22)	25	(14)	47	(36)	0	(0)	11	(24)
Royal Free	52	(63)	28	(25)	80	(88)	80	(86)	31	(17)	111	(103)	0	(1)	53	(50)
TOTAL	675	(684)	404	(364)	1079	(1048)	527	(545)	264	(246)	791	(791)	6^{2,6}	(15)^{3,7}	614	(657)
Paediatric																
Birmingham	4	(5)	0	(4)	4	(9)	20	(27)	1	(1)	21	(28)	0	(0)	19	(10)
Cambridge	0	(4)	0	(0)	0	(4)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Edinburgh	5	(2)	1	(1)	6	(3)	1	(1)	0	(0)	1	(1)	0	(0)	0	(0)
King's College	2	(4)	1	(5)	3	(9)	26	(33)	2	(5)	28	(38)	14	(13)	33	(23)
Leeds	1	(1)	1	(0)	2	(1)	12	(18)	0	(0)	12	(18)	11	(7)	12	(6)
Newcastle	1	(0)	0	(0)	1	(0)	1	(0)	0	(0)	1	(0)	0	(0)	0	(1)
Royal Free	3	(0)	1	(0)	4	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	16	(16)	4	(10)	20	(26)	60	(79)	3	(6)	63	(85)	25⁴	(20)⁵	64	(40)

¹ Includes donors whose livers were retrieved by other teams

² Includes 2 and 4 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

³ Includes 8 and 7 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

⁴ Includes 19 and 6 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

⁵ Includes 13 and 7 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

⁶ Includes 1 transplants at London Cromwell and 2 transplants at London Bridge involving private patients

⁷ Includes 4 transplants at London Cromwell and 3 transplants at London Bridge involving private patients

8.2 Transplant list

During 2023-2024, 1,148 patients joined the liver transplant list. Outcomes for patients on the list at 1 April 2023 and those joining the list during the year are shown in **Table 8.2**. There have been 120 (10%) new registrations that were super-urgent.

Table 8.2 Liver transplant list and new registrations in the UK, 1 April 2023 - 31 March 2024						
Outcome of patient at 31 March 2024	Active and suspended patients at 1 April 2023		New registrations in 2023-2024¹		TOTAL	
	N	%	N	%	N	%
	Remained active/suspended	327	40	478	42	805
Transplanted	319	39	565	49	884	45
Removed ²	138	17	67	6	205	10
Died ³	31	4	38	3	69	4
TOTAL	815		1148		1963	

¹ Includes re-registrations for second or subsequent transplant
² Includes 16 patients removed and re-registered at a different centre or on different pathway
³ Includes patients removed due to deteriorating condition

Table 8.3 shows the active transplant list in the UK at 31 March 2024 and 2023 by country/NHS region of patient's residence. At 31 March 2024, the overall rate was 10.0 pmp and ranged from 7.5 to 11.8 pmp across English NHS regions.

Table 8.3 Active liver transplant list at 31 March by Country/NHS region of patient residence				
Country/ NHS region of residence	Liver transplant list (pmp)			
	2024		2023	
North East and Yorkshire	68	(8.3)	73	(8.9)
North West	84	(11.2)	78	(10.4)
Midlands	129	(11.8)	121	(11.0)
East of England	54	(8.4)	64	(10.0)
London	86	(9.7)	84	(9.5)
South East	70	(7.5)	73	(7.8)
South West	56	(9.7)	70	(12.2)
England	547	(9.6)	563	(9.9)
Isle of Man	0	(0.0)	1	(12.5)
Channel Islands	0	(0.0)	0	(0.0)
Wales	31	(9.9)	32	(10.2)
Scotland	51	(9.4)	55	(10.1)
Northern Ireland	40	(20.9)	38	(19.9)
TOTAL¹	678	(10.0)	697	(10.3)

¹Includes patients in 2024 (2023) residing in: Unspecified UK 1 (1); Republic of Ireland 6 (5); Overseas 2 (2)

An indication of longer term outcomes for patients listed for a liver transplant is summarised in **Figure 8.2**. This shows the proportion of patients transplanted or still waiting six months, one year and two years after joining the transplant list. It also shows the proportion removed from the transplant list and those dying while on the transplant list (which includes those patients removed due to condition deteriorated). At one year post-registration, 60% of patients had received a liver transplant while 8% of patients had died whilst waiting or had been removed due to their condition deteriorating. 4% had been removed for other reasons such as the patient's condition improving, or as a result of non-compliance or at the request of the patient or family.

Figure 8.2 Post-registration outcome for 1113 new elective liver only registrations made in the UK, 1 April 2021 - 31 March 2022

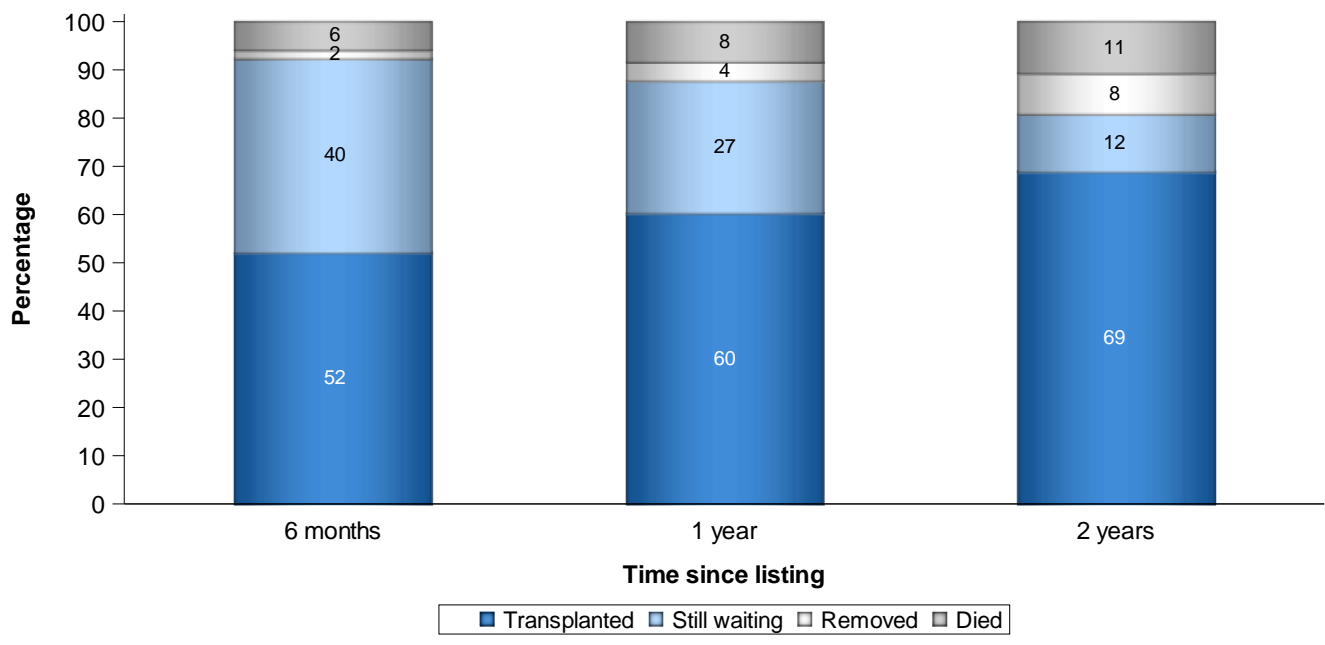


Table 8.4 and **Table 8.5** show the median waiting time to liver transplant for adult and paediatric elective registrations, separately, including a breakdown by blood group and ethnicity for adult elective registrations only. On average, adult patients wait 146 days for a transplant while paediatric patients wait an average of 108 days. Note that these waiting times are not adjusted for other relevant factors which may be influential and differ across blood or ethnic groups.

Table 8.4 Median waiting time to liver transplant in the UK, for patients registered 1 April 2021 - 31 March 2023

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
O	914	238	203 - 273
A	798	90	74 - 106
B	246	154	101 - 207
AB	63	21	8 - 34
TOTAL	2021	146	129 - 163
Paediatric	145	108	66 - 150

Table 8.5 Median waiting time to liver transplant in the UK, for patients registered 1 April 2021 - 31 March 2023

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
White	1658	141	124 - 158
Asian	167	100	48 - 152
Black	58	243	118 - 368
Other	36	500	209 - 791
TOTAL¹	2021	146	129 - 163
Paediatric	145	108	66 - 150

¹ Includes 102 patients whose ethnicity was not reported

8.3 Donor and organ supply

Of the 1,510 actual organ donors, 1,099 (73%) donated their liver and 826 (75%) of these donated livers were used; see **Table 8.6**. Of livers retrieved from donors after brain death and donors after circulatory death, 81% and 64% were transplanted, respectively. Segments from one liver can be used in more than one transplant, see **Table 8.9**.

Table 8.6 Deceased liver donation and retrieval in the UK, 1 April 2023 - 31 March 2024, by allocation zone

Allocation zone	Number of donors						Number of livers retrieved (used)						
	Solid organ			Liver			DBD			DCD			
	DBD	DCD	TOTAL	DBD	DCD	TOTAL	DBD	DCD	TOTAL	DBD	DCD	TOTAL	
Birmingham	144	126	270	126	57	183	126	(104)	183	57	(40)	183	(144)
Cambridge	65	86	151	63	56	119	63	(52)	119	56	(41)	119	(93)
Edinburgh	108	100	208	97	59	156	97	(78)	156	59	(39)	156	(117)
King's College	207	195	402	183	107	290	183	(154)	290	107	(62)	290	(216)
Leeds	145	126	271	131	80	211	131	(104)	211	80	(50)	211	(154)
Newcastle	41	35	76	36	20	56	36	(27)	56	20	(13)	56	(40)
Royal Free	62	70	132	55	29	84	55	(44)	84	29	(18)	84	(62)
TOTAL	772	738	1510	691	408	1099	691	(563)	1099	408	(263)	1099	(826)

The rates per million population (pmp) for liver donors are shown in **Table 8.7** by donor country/NHS region of residence. No adjustments have been made for potential demographic differences in populations. The overall deceased liver donor rate was 16.3 pmp in 2023-2024 and ranged from 10.8 pmp to 20.3 pmp across English NHS regions.

Table 8.7 Liver donation rates for deceased donors in the UK, 1 April 2023 - 31 March 2024, by Country/ NHS region						
Country/ NHS region of residence	DBD		Liver donors (pmp) DCD		TOTAL	
	North East and Yorkshire	99	(12.0)	68	(8.3)	167
North West	62	(8.2)	27	(3.6)	89	(11.8)
Midlands	87	(7.9)	49	(4.5)	136	(12.4)
East of England	65	(10.2)	57	(8.9)	122	(19.1)
London	59	(6.7)	37	(4.2)	96	(10.8)
South East	103	(11.0)	55	(5.9)	158	(16.8)
South West	62	(10.8)	36	(6.3)	98	(17.0)
England	537	(9.4)	329	(5.8)	866	(15.2)
Isle of Man	1	(12.5)	0	(0.0)	1	(12.5)
Channel Islands	0	(0.0)	0	(0.0)	0	(0.0)
Wales	32	(10.2)	12	(3.8)	44	(14.1)
Scotland	56	(10.3)	34	(6.2)	90	(16.5)
Northern Ireland	28	(14.7)	12	(6.3)	40	(20.9)
TOTAL¹	691	(10.2)	408	(6.0)	1099	(16.3)

¹ Includes 48 donors (37 DBD and 21 DCD) with unknown UK postcode

8.4 Transplants

The number of liver transplants by recipient country/NHS region of residence are shown in **Table 8.8**. No adjustments have been made for potential demographic differences in populations. The deceased donor transplant rate ranged from 9.7 to 17.0 pmp across English NHS regions and overall was 12.6 pmp.

Table 8.8 Liver transplant rates per million population (pmp), in the UK, 1 April 2023 - 31 March 2024, 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	73	(8.9)	42	(5.1)	115	(14.0)	4	(0.5)
North West	55	(7.3)	18	(2.4)	73	(9.7)	6	(0.8)
Midlands	104	(9.5)	32	(2.9)	136	(12.4)	2	(0.2)
East of England	66	(10.3)	43	(6.7)	109	(17.0)	2	(0.3)
London	79	(8.9)	33	(3.7)	112	(12.6)	1	(0.1)
South East	62	(6.6)	30	(3.2)	92	(9.8)	3	(0.3)
South West	54	(9.4)	19	(3.3)	73	(12.7)	0	(0.0)
England	493	(8.6)	217	(3.8)	710	(12.4)	18	(0.3)
Isle of Man	3	(37.5)	1	(12.5)	4	(50.0)	0	(0.0)
Channel Islands	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Wales	25	(8.0)	6	(1.9)	31	(9.9)	0	(0.0)
Scotland	50	(9.2)	34	(6.2)	84	(15.4)	1	(0.2)
Northern Ireland	10	(5.2)	9	(4.7)	19	(9.9)	0	(0.0)
TOTAL^{1,2}	582	(8.6)	267	(3.9)	849	(12.6)	20	(0.3)

¹ Excludes 16 recipients who reside outside the UK (5 DBD, 11 Living)
² Includes 2 (1 DBD and 1 living) recipients with an unknown UK postcode

The number of whole, reduced and split liver transplants by urgency status of the transplant (elective, super-urgent) in 2023-2024 is shown in **Table 8.9**. The term 'reduced' is used when only one lobe of the liver is transplanted and the term 'split' applies when both lobes of the liver are transplanted into two different recipients.

Overall, the number of deceased donor liver transplants decreased by 3% in 2023-2024. There were 854 deceased donor liver transplants performed in 2023-2024: 844 liver only transplants (769 whole liver, 56 split liver and 19 reduced liver lobes) and 10 simultaneous liver and kidney. Split liver transplants accounted for 75% of liver only lobe transplant activity.

Table 8.9 Deceased liver transplants performed in the UK, 1 April 2022 - 31 March 2024

Transplant centre	2022-2023								2023-2024							
	Whole liver		Reduced liver		Split liver		TOTAL		Whole liver		Reduced liver		Split liver		TOTAL	
	E	SU	E	SU	E	SU	E	SU	E	SU	E	SU	E	SU	E	SU
Birmingham	174	25	5	4	11	2	190	31	140	19	5	2	14	0	159	21
Cambridge	91	16	0	0	3	0	94	16	99	13	0	0	4	0	103	13
Edinburgh	66	6	0	0	0	0	66	6	63	14	0	0	0	0	63	14
King's College	149	14	6	11	21	3	176	28	156	9	4	4	18	4	178	17
Leeds	101	11	4	2	10	2	115	15	100	12	3	1	11	0	114	13
Newcastle	29	7	0	0	0	0	29	7	42	6	0	0	0	0	42	6
Royal Free	75	18	0	0	10	0	85	18	94	12	0	0	5	0	99	12
TOTAL	685	97	15	17	55	7	755	121	694	85	12	7	52	4	758	96

E=Elective, SU=Super-urgent
 Birmingham, King's College and Leeds transplant paediatric patients

The length of time that elapses between a liver being removed from the donor to its transplantation into the recipient is called the total preservation time. Generally, the shorter this time, the more likely the liver is to work immediately and the better the long-term outcome. In 2023-2024, the median total preservation time for a DBD donor whole liver only transplant was 8.9 hours (Inter-Quartile (IQ) range 7.5 – 10.5) and for a DCD donor whole liver only transplant was 7.5 hours (IQ range 5.9 – 9.0) and overall was 8.5 hours (IQ range 6.8 – 10.1). Please note some of the reported total preservation times may include the use of donor organ maintenance systems.

At 31 March 2024 there were approximately 12,000 recipients with a functioning liver transplant (or multi-organ including the liver) being followed-up as reported to the UK Transplant Registry.

8.5 Demographic characteristics

The age group, sex, ethnicity and blood group of liver donors, transplant recipients and transplant list patients are shown in **Table 8.10** along with the liver graft number for transplant recipients and patients active on the transplant list.

Table 8.10 Demographic characteristics of deceased liver donors and transplant recipients, 1 April 2023 - 31 March 2024, and transplant list patients at 31 March							
		Donors		Transplant recipients		Active transplant list patients	
		N	(%)	N	(%)	N	(%)
Age (years)	0-17	33	(3)	64	(7)	68	(10)
	18-34	160	(15)	94	(11)	103	(15)
	35-49	254	(23)	155	(18)	183	(27)
	50-59	260	(24)	234	(27)	175	(26)
	60-69	257	(23)	292	(34)	137	(20)
	70+	135	(12)	15	(2)	12	(2)
	Mean (SD)	51	(17)	49	(17)	44	(18)
Sex	Male	626	(57)	540	(63)	374	(55)
	Female	473	(43)	314	(37)	304	(45)
Ethnicity	White	997	(93)	699	(85)	523	(81)
	Asian	44	(4)	76	(9)	78	(12)
	Black	17	(2)	31	(4)	28	(4)
	Other	11	(1)	15	(2)	17	(3)
	Unknown	30	-	33	-	32	-
Blood group	O	568	(52)	399	(47)	344	(51)
	A	393	(36)	320	(37)	229	(34)
	B	108	(10)	104	(12)	93	(14)
	AB	29	(3)	31	(4)	12	(2)
	Unknown	1	-	0	-	0	-
Graft number	First graft	-	-	788	(92)	612	(90)
	Re-graft	-	-	66	(8)	66	(10)
TOTAL		1099	(100)	854	(100)	678	(100)