

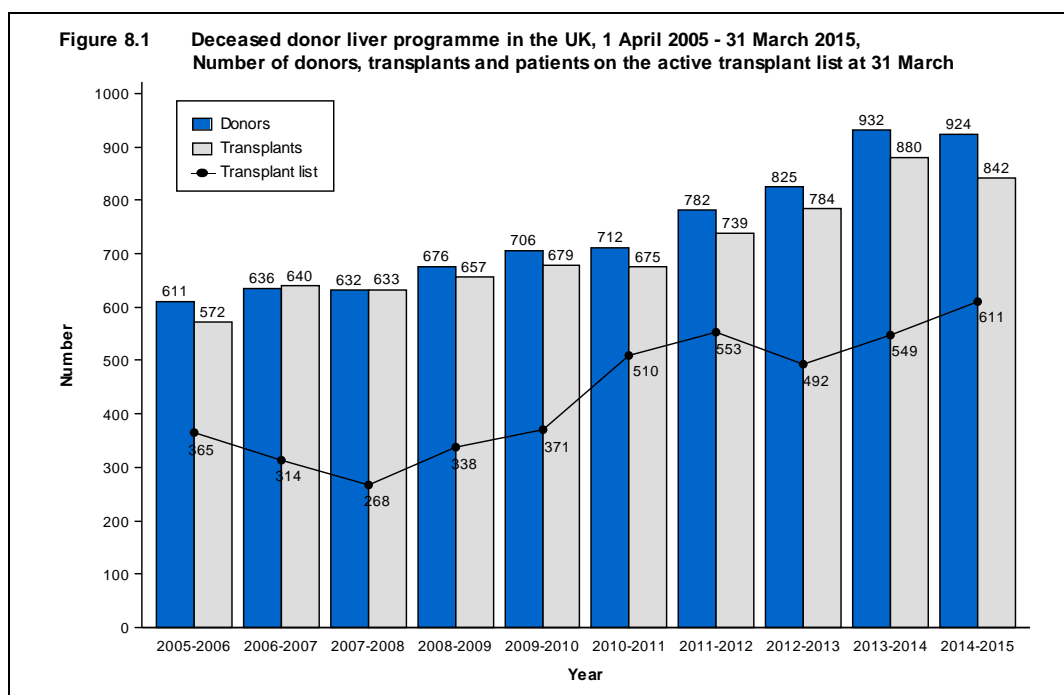
Liver Activity

Key messages

- The number of patients on the active liver transplant list at 31 March 2015 was 611, an increase of 11% from 2014
- The number of liver donors after brain death fell by 4% to 684, while transplants from donors after brain death fell by 9% to 665
- The number of liver donors after circulatory death increased by 9% to 240, while transplants from donors after circulatory death increased by 16% to 177

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**. Over this period, there has been a steady increase in the number of patients registered on the active transplant list at 31 March and a recent increase in the numbers of donors and transplants, although the most recent year has seen a decrease in numbers.



Intestinal transplants that used a liver are not included in the liver 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 the 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 zone (by any retrieval team) rather than the number of retrievals made by that centre. In 2014-2015, 924 organ donors donated their liver for transplant: 684 donors after brain death and 240 donors after circulatory death. There were 611 patients on the active transplant list at 31 March 2015, an increase of 11% from 2014.

Overall, the number of liver transplants (either whole liver or liver lobe transplants) from donors after brain death fell by 9% to 665, and donors after circulatory death increased by 16% to 177, compared with the previous financial year. Additionally, there were 38 living liver lobe donor transplants in NHS Group 1 (26) and Group 2 (12) paediatric and adult recipients, and 2 domino donor transplants in NHS Group 1 (2) adult recipients.

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. There were 94 deceased donor adult super-urgent transplants in 2014-2015, representing 12% of all adult transplants. There were 14 deceased donor paediatric super-urgent transplants in 2014-2015, representing 23% of all paediatric transplants.

Table 8.1 Deceased and living liver donors and transplants, 1 April 2014 - 31 March 2015 (2013-2014) and transplant list patients at 31 March 2015 (2014) in the UK, by age group and centre

Allocation zone/ transplant centre	Deceased donors ¹						Deceased transplants						Living donor transplants		Active transplant list	
	DBD		DCD		TOTAL		DBD		DCD		TOTAL					
Adult																
Birmingham	140	(153)	63	(50)	203	(203)	143	(138)	49	(44)	192	(182)	2	(7)	129	(110)
Cambridge	71	(64)	27	(26)	98	(90)	59	(58)	28	(19)	87	(77)	0	(2)	59	(51)
Edinburgh	93	(92)	20	(18)	113	(110)	81	(84)	15	(11)	96	(95)	0	(0)	47	(53)
King's College	166	(152)	52	(55)	218	(207)	147	(138)	39	(36)	186	(174)	9	(5)	147	(139)
Leeds	105	(112)	43	(29)	148	(141)	75	(100)	22	(21)	97	(121)	8	(2)	86	(81)
Newcastle	31	(41)	8	(17)	39	(58)	30	(42)	5	(6)	35	(48)	0	(0)	27	(19)
Royal Free	61	(78)	19	(17)	80	(95)	72	(80)	15	(14)	87	(94)	1	(2)	71	(68)
TOTAL	667	(692)	232	(212)	899	(904)	607	(640)	173	(151)	780	(791)	20²	(18)³	566	(521)
Paediatric																
Birmingham	8	(4)	1	(1)	9	(5)	23	(29)	0	(1)	23	(30)	4	(2)	21	(13)
Cambridge	3	(2)	0	(0)	3	(2)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Edinburgh	1	(1)	2	(0)	3	(1)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
King's College	3	(3)	3	(3)	6	(6)	29	(44)	4	(1)	33	(45)	8	(7)	18	(14)
Leeds	0	(7)	1	(1)	1	(8)	6	(12)	0	(0)	6	(12)	8	(5)	6	(1)
Newcastle	1	(0)	0	(2)	1	(2)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Royal Free	1	(3)	1	(1)	2	(4)	0	(2)	0	(0)	0	(2)	0	(0)	0	(0)
TOTAL	17	(20)	8	(8)	25	(28)	58	(87)	4	(2)	62	(89)	20⁴	(14)⁵	45	(28)

¹ Includes donors whose livers were retrieved by other teams

² Includes 9 and 9 living liver lobe transplants, 2 and 0 domino transplants in NHS Group 1 and Group 2 recipients, respectively

³ Includes 10 and 4 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

⁴ Includes 17 and 3 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

⁵ Includes 13 and 0 living liver lobe transplants, 1 and 0 altruistic donor transplants in NHS Group 1 and Group 2 recipients, respectively

8.2 Transplant list

During 2014-2015, 1,206 patients joined the liver transplant list. Outcomes for patients on the list at 1 April 2014 and those joining the list during the year are shown in **Table 8.2**. There have been 141 (12%) new registrations that were super-urgent.

Table 8.2 Liver transplant list and new registrations in the UK, 1 April 2014 – 31 March 2015						
Outcome of patient at 31 March 2015	Active and suspended patients at 1 April 2014		New registrations in 2014-2015 ¹		TOTAL	
	N	%	N	%	N	%
Remained active/suspended	147	27	479	40	626	36
Transplanted	284	52	594	49	878	50
Removed	96	18	74	6	170	10
Died	21	4	59	5	80	5
TOTAL	548		1206		1754	

¹ Includes re-registrations for second or subsequent transplants

Table 8.3 shows the transplant list rate per million population in the UK, by country/Strategic Health Authority of patient's residence. At 31 March 2015, the overall rate was 9.5 pmp and ranged from 4.9 to 11.5 pmp across the Strategic Health Authorities.

Table 8.3 Active liver transplant list at 31 March, by country/ Strategic Health Authority of patient residence				
Country/ Strategic Health Authority of residence	Liver transplant list (pmp)			
	2015		2014	
North East	20	(7.7)	16	(6.1)
North West	64	(9.0)	59	(8.3)
Yorkshire and The Humber	51	(9.6)	41	(7.7)
North of England	135	(9.0)	116	(7.7)
East Midlands	25	(5.4)	32	(7.0)
West Midlands	65	(11.5)	52	(9.2)
East of England	65	(10.9)	48	(8.1)
Midlands and East	155	(9.6)	132	(8.1)
London	90	(10.7)	76	(9.0)
South East Coast	46	(10.1)	41	(9.0)
South Central	21	(4.9)	20	(4.7)
South West	47	(8.7)	48	(8.9)
South of England	114	(8.0)	109	(7.7)
England	494	(9.2)	433	(8.0)
Isle of Man	1	(12.5)	1	(12.5)
Channel Islands	1	(6.3)	0	(0.0)
Wales	22	(7.1)	16	(5.2)
Scotland	52	(9.8)	56	(10.5)
Northern Ireland	21	(11.5)	21	(11.5)
TOTAL¹	611	(9.5)	549	(8.5)

¹ Includes patients in 2015 (2014) residing in: Republic of Ireland - 2 (5); Overseas - 18 (17)

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, 68% of patients had received a liver transplant while 11% 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, as a result of non-compliance or at the request of the patient or family.

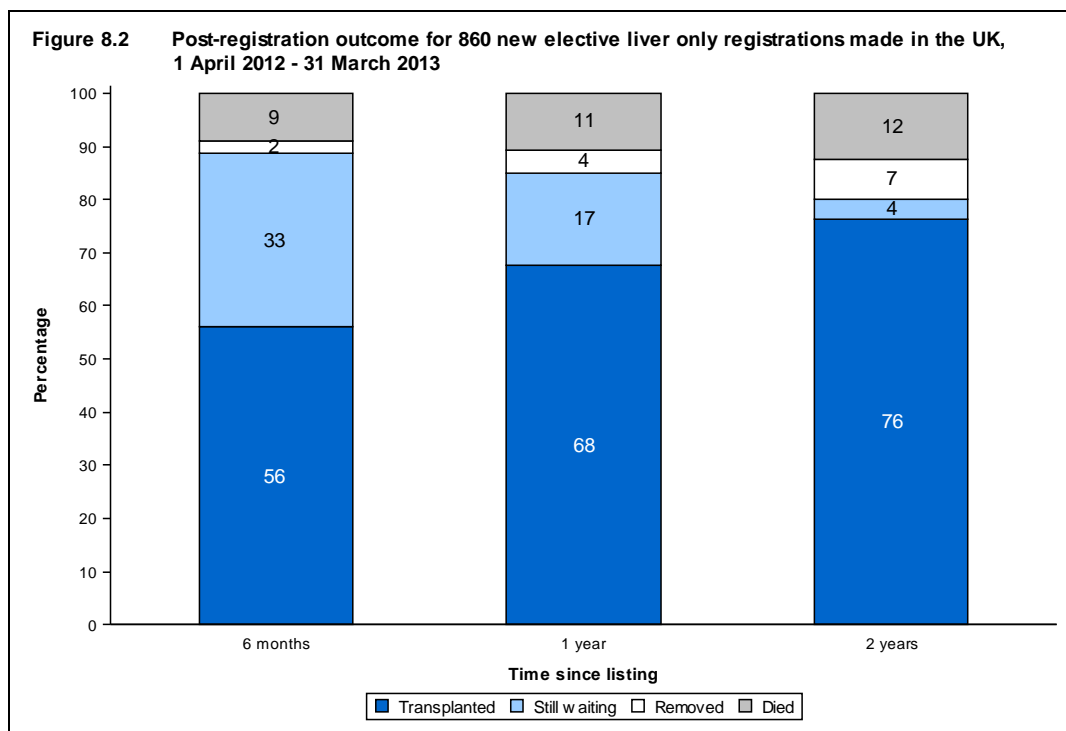


Table 8.4 and **Table 8.5** show the median waiting time to liver transplant for adult and paediatric elective registrations, separately, including a breakdown by blood group and ethnicity for adult elective registrations only. On average, adult patients wait 137 days for a transplant while paediatric patients wait an average of 74 days. 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.

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
O	1145	222	200 - 244
A	951	82	73 - 91
B	287	153	111 - 195
AB	90	59	39 - 79
TOTAL	2473	137	126 - 148
Paediatric	217	74	58 - 90

Table 8.5 Median waiting time to liver transplant in the UK, for patients registered 1 April 2010 - 31 March 2013			
Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
White	2183	135	124 - 146
Asian	178	150	101 - 199
Black	60	235	107 - 363
Other	52	108	77 - 139
TOTAL	2473	137	126 - 148
Paediatric	217	74	58 - 90

8.3 Donor and organ supply

Of the 1,282 organ donors, 924 (72%) donated their liver and 812 (88%) of these donated livers were used; see **Table 8.6**. Of livers retrieved from donors after brain death and donors after circulatory death, 93% and 74% were transplanted, respectively. 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 2014 - 31 March 2015, by allocation zone												
Allocation zone	Number of donors						Number of livers retrieved (used)					
	Solid organ			Liver			DBD	DCD	TOTAL	DBD	DCD	TOTAL
	DBD	DCD	TOTAL	DBD	DCD	TOTAL						
Birmingham	163	111	274	148	64	212	148	(140)	64	(53)	212	(193)
Cambridge	78	62	140	74	27	101	74	(68)	27	(19)	101	(87)
Edinburgh	106	52	158	94	22	116	94	(86)	22	(17)	116	(103)
King's College	191	107	298	169	55	224	169	(152)	55	(33)	224	(185)
Leeds	120	103	223	105	44	149	105	(101)	44	(36)	149	(137)
Newcastle	42	30	72	32	8	40	32	(31)	8	(6)	40	(37)
Royal Free	72	45	117	62	20	82	62	(57)	20	(13)	82	(70)
TOTAL	772	510	1282	684	240	924	684	(635)	240	(177)	924	(812)

The rates per million population (pmp) for liver donors are shown in **Table 8.7** by donor country/Strategic Health Authority of residence. No adjustments have been made for potential demographic differences in populations. The overall deceased liver donor rate was 14.4 pmp in 2014-2015 and varied across the Strategic Health Authorities from 11.9 pmp to 17.5 pmp.

Table 8.7 Liver donor rates in the UK, 1 April 2014 - 31 March 2015, by country/ Strategic Health Authority						
Country/ Strategic Health Authority	DBD		Deceased donors (pmp)		Total	
			DCD			
North East	23	(8.8)	8	(3.1)	31	(11.9)
North West	67	(9.4)	19	(2.7)	86	(12.1)
Yorkshire and The Humber	45	(8.4)	22	(4.1)	67	(12.5)
North of England	135	(9.0)	49	(3.3)	184	(12.2)
East Midlands	45	(9.8)	21	(4.6)	66	(14.3)
West Midlands	50	(8.8)	19	(3.4)	69	(12.2)
East of England	65	(10.9)	27	(4.5)	92	(15.5)
Midlands and East	160	(9.9)	67	(4.1)	227	(14.0)
London	91	(10.8)	31	(3.7)	122	(14.5)
South East Coast	59	(13.0)	18	(4.0)	77	(16.9)
South Central	44	(10.4)	7	(1.6)	51	(12.0)
South West	69	(12.8)	25	(4.6)	94	(17.5)
South of England	172	(12.1)	50	(3.5)	222	(15.7)
England	558	(10.4)	197	(3.7)	755	(14.0)
Isle of Man	4	(50.0)	0	(0.0)	4	(50.0)
Channel Islands	1	(6.3)	0	(0.0)	1	(6.3)
Wales	34	(11.0)	21	(6.8)	55	(17.9)
Scotland	61	(11.4)	16	(3.0)	77	(14.4)
Northern Ireland	26	(14.2)	6	(3.3)	32	(17.5)
TOTAL¹	684	(10.6)	240	(3.7)	924	(14.4)

¹ Includes 18 donors where the hospital postcode was used in place of an unknown donor postcode

8.4 Transplants

The number of liver transplants by recipient country/Strategic Health Authority 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 9.4 to 14.8 pmp across the Strategic Health Authorities and overall was 12.8 pmp.

Table 8.8 Liver transplant rates per million population (pmp) in the UK, 1 April 2014 - 31 March 2015, by country/ Strategic Health Authority								
Country/ Strategic Health Authority	Deceased transplants (pmp)						Living transplants (pmp)	
	DBD		DCD		Total			
North East	23	(8.8)	4	(1.5)	27	(10.3)	2	(0.8)
North West	82	(11.5)	17	(2.4)	99	(13.9)	6	(0.8)
Yorkshire and The Humber	36	(6.7)	14	(2.6)	50	(9.4)	6	(1.1)
North of England	141	(9.4)	35	(2.3)	176	(11.7)	14	(0.9)
East Midlands	37	(8.0)	11	(2.4)	48	(10.4)	4	(0.9)
West Midlands	62	(10.9)	22	(3.9)	84	(14.8)	0	(0.0)
East of England	53	(8.9)	26	(4.4)	79	(13.3)	1	(0.2)
Midlands and East	152	(9.4)	59	(3.6)	211	(13.0)	5	(0.3)
London	90	(10.7)	21	(2.5)	111	(13.2)	2	(0.2)
South East Coast	38	(8.4)	17	(3.7)	55	(12.1)	0	(0.0)
South Central	36	(8.5)	8	(1.9)	44	(10.4)	1	(0.2)
South West	55	(10.2)	12	(2.2)	67	(12.5)	0	(0.0)
South of England	129	(9.1)	37	(2.6)	166	(11.7)	1	(0.1)
England	512	(9.5)	152	(2.8)	664	(12.3)	22	(0.4)
Isle of Man	2	(25.0)	0	(0.0)	2	(25.0)	0	(0.0)
Channel Islands	2	(12.5)	0	(0.0)	2	(12.5)	0	(0.0)
Wales	22	(7.1)	6	(1.9)	28	(9.1)	1	(0.3)
Scotland	87	(16.3)	16	(3.0)	103	(19.3)	2	(0.4)
Northern Ireland	23	(12.6)	2	(1.1)	25	(13.7)	1	(0.5)
TOTAL¹	648	(10.1)	176	(2.7)	824	(12.8)	26²	(0.4)

¹ Excludes 32 recipients who reside outside the UK (17 DBD, 1 DCD, 14 Living).
² Includes 2 domino donor transplants.

The number of whole, reduced and split liver transplants by urgency status of the transplant (elective, super-urgent) in 2014-2015 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 dropped by 4% in 2014-2015. There were 842 deceased donor liver transplants performed in 2014-2015: 10 reduced liver, 80 split liver, 752 whole liver, including 12 liver and kidney, and 1 liver and pancreas; and 90 deceased liver lobe, including 2 liver and kidney. Split liver transplants accounted for 89% of liver lobe transplant activity.

Table 8.9 Deceased liver transplants performed in the UK, 1 April 2013 - 31 March 2015																	
Transplant centre	2013 - 2014								2014 - 2015								
	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	148	24	2	1	31	6	181	31	164	23	1	1	25	1	190	25	
Cambridge	63	11	0	0	3	0	66	11	72	9	0	0	5	1	77	10	
Edinburgh	70	14	0	0	11	0	81	14	84	8	0	0	4	0	88	8	
King's College	141	22	2	3	47	4	190	29	154	24	1	7	27	6	182	37	
Leeds	99	13	1	0	19	1	119	14	88	10	0	0	5	0	93	10	
Newcastle	37	10	0	0	1	0	38	10	28	5	0	0	2	0	30	5	
Royal Free	78	12	0	0	6	0	84	12	70	13	0	0	4	0	74	13	
TOTAL	636	106	5	4	118	11	759	121	660	92	2	8	72	8	734	108	

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 Cold Ischaemia Time (CIT). Generally, the shorter this time, the more likely the liver is to work immediately and the better the long-term outcome. In 2014-2015, the median CIT for a DBD donor whole liver only transplant was 8.6 hours (Inter-Quartile (IQ) range 7.0 – 10.7) and for a DCD donor whole liver only transplant was 7.7 hours (IQ range 6.8 – 8.8) and overall is 8.2 hours (IQ range 6.9 – 10.3).

At 31 March 2015 there were approximately 8,700 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 is shown in **Table 8.10**.

Table 8.10 Demographic characteristics of deceased liver donors and transplant recipients 1 April 2014 - 31 March 2015, and transplant list patients at 31 March in the UK						
	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
Age group (years)						
0 – 17	38	(4)	69	(8)	47	(8)
18 – 34	161	(17)	93	(11)	54	(9)
35 – 49	230	(25)	180	(21)	119	(19)
50 – 59	223	(24)	245	(29)	224	(37)
60 – 69	179	(19)	245	(29)	157	(26)
70+	93	(10)	10	(1)	10	(2)
mean (SD)	49	(17)	48	(17)	49	(17)
Sex						
Male	496	(54)	539	(64)	363	(59)
Female	428	(46)	303	(36)	248	(41)
Ethnicity						
White	858	(93)	723	(86)	512	(84)
Asian	25	(3)	65	(8)	60	(10)
Black	16	(2)	30	(4)	20	(3)
Chinese	2	(0)	13	(2)	4	(1)
Other	23	(2)	11	(1)	15	(2)
Blood group						
O	448	(48)	375	(45)	347	(57)
A	353	(38)	337	(40)	179	(29)
B	95	(10)	92	(11)	80	(13)
AB	28	(3)	38	(5)	5	(1)
Graft number						
First graft			758	(90)	565	(92)
Re-graft			84	(10)	46	(8)
TOTAL	924	(100)	842	(100)	611	(100)