

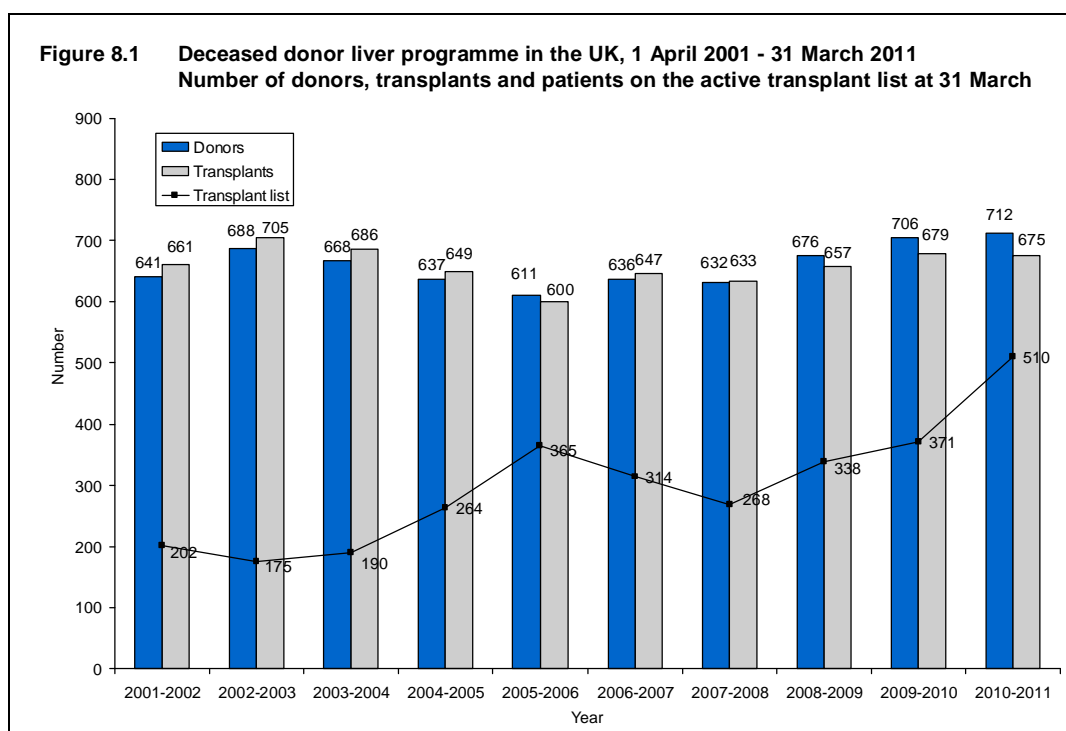
8 LIVER ACTIVITY

Key messages

- The number of patients waiting on the active liver transplant list at 31 March 2011 was 510, an increase of 37% from 2010
- There were 712 deceased liver donors, an increase of 1% on the previous year, and a 1% decrease in the number of transplants from 679 to 675
- The total number of deceased donor split liver transplants increased from 84 to 101

8.1 Overview

The number of deceased liver donors and transplants in the UK has remained relatively constant in the last ten years as 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 more dramatic increase in 2010-2011.



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. 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 zone (by any NORS team) rather than the number of retrievals made by that centre. In 2010-2011, 712 solid organ donors donated their liver for transplant: 567 donors after brain death

and 145 donors after circulatory death. There were 510 patients on the active transplant list at 31 March 2011, an increase of 37% from 2010.

Overall, the number of liver transplants from donors after brain death fell by 1% to 575, and the number of transplants from donors after circulatory death increased by 1% to 100, compared with the previous financial year. Additionally, there were 21 living liver lobe donor transplants in NHS Group 1 (14) and Group 2 (7) paediatric and adult recipients, and 4 domino donor transplants all in NHS Group 1 adult recipients. There were 73 adult super-urgent transplants in 2010-2011, representing 12% of all adult transplants. There were 24 paediatric super-urgent transplants in 2010-2011, representing 24% of all paediatric transplants.

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.

Table 8.1 Deceased and living liver donors and transplants, 1 April 2010 - 31 March 2011 (2009-2010) and transplant list patients at 31 March 2011 (2010) in the UK, by age group and centre

Donation zone/ transplant centre	Deceased donors						Deceased transplants						Living donor transplants		Active transplant list	
	DBD		DCD		TOTAL		DBD		DCD		TOTAL					
Adult																
Birmingham	119	(107)	38	(22)	157	(129)	115	(100)	28	(29)	143	(129)	1	(1)	75	(62)
Cambridge	77	(69)	20	(18)	97	(87)	61	(61)	15	(9)	76	(70)	0	(0)	61	(39)
Edinburgh	60	(55)	10	(7)	70	(62)	71	(67)	9	(7)	80	(74)	1	(0)	46	(38)
King's College	115	(128)	49	(50)	164	(178)	96	(120)	31	(36)	127	(156)	6	(6)	143	(86)
Leeds	98	(96)	13	(16)	111	(112)	73	(81)	9	(4)	82	(85)	3	(2)	75	(61)
Newcastle	26	(33)	3	(0)	29	(33)	32	(33)	3	(0)	35	(33)	0	(0)	35	(23)
Royal Free	48	(68)	7	(15)	55	(83)	43 ¹	(51)	3	(9)	46 ¹	(60)	1	(3)	43	(35 ¹)
TOTAL	543	(556)	140	(128)	683	(684)	490	(513)	98	(94)	588	(607)	12²	(12³)	478	(344)
Paediatric																
Birmingham	2	(4)	1	(2)	3	(6)	35	(22)	1	(1)	36	(23)	1	(0)	7	(4)
Cambridge	3	(1)	1	(0)	4	(1)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Edinburgh	6	(1)	1	(0)	7	(1)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
King's College	5	(5)	0	(1)	5	(6)	35	(32)	1	(4)	36	(36)	10	(10)	20	(18)
Leeds	2	(2)	2	(3)	4	(5)	14	(12)	0	(0)	14	(12)	2	(1)	5	(4)
Newcastle	4	(1)	0	(0)	4	(1)	0	(1)	0	(0)	0	(1)	0	(0)	0	(0)
Royal Free	2	(1)	0	(1)	2	(2)	0	(0)	0	(0)	0	(0)	0	(0)	0	(1)
TOTAL	24	(15)	5	(7)	29	(22)	85	(67)	2	(5)	87	(72)	13⁴	(11⁵)	32	(27)

¹ Includes 1 patient aged 16

² Includes 3 and 5 living liver lobe transplants, and 4 and 0 domino transplants in NHS Group 1 and Group 2 recipients, respectively

³ Includes 4 and 5 living liver lobe transplants, and 3 and 0 domino transplants in NHS Group 1 and Group 2 recipients, respectively

⁴ Includes 11 and 2 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

⁵ Includes 4 and 7 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

8.2 Transplant list

During 2010-2011, 1,098 patients joined the liver transplant list. Outcomes for patients on the list at 1 April 2010 and those joining the list during the year are shown in **Table 8.2**.

Table 8.2 Liver transplant list and new registrations in the UK, 1 April 2010 – 31 March 2011

Outcome of patient at 31 March 2011	Active and suspended patients at 1 April 2010		New registrations in 2010-2011 ¹		TOTAL	
	N	%	N	%	N	%
	Remained active/suspended	91	24	435	40	526
Transplanted	187	50	514	47	701	48
Removed	55	15	73	7	128	9
Died	40	11	76	7	116	8
TOTAL	373		1098		1471	

¹ Includes re-registrations for second or subsequent transplants

An indication of longer term outcomes for patients listed for an elective 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 or were removed due to their condition deteriorating. At one year post-registration, 67% of patients had received a liver transplant while 15% of patients had either died whilst waiting or had been removed due to their condition deteriorating. 9% 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.

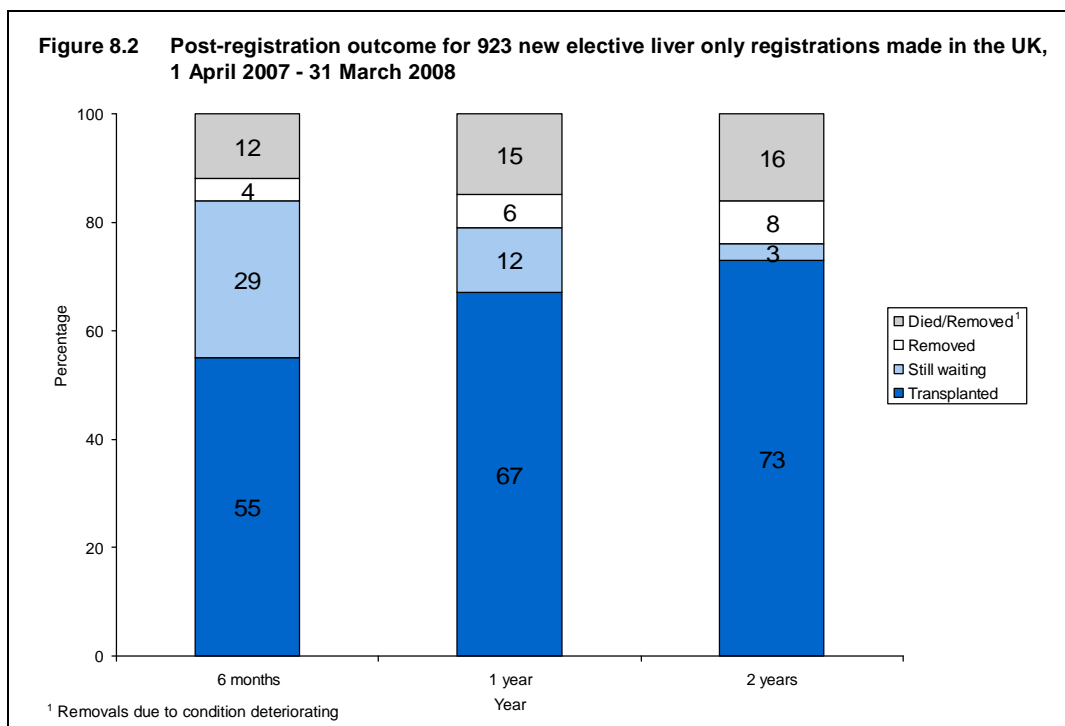


Table 8.3 shows the median waiting time to liver transplant for adult and paediatric elective registrations, separately, and for adult elective registrations only by blood group. On average, adult patients wait 136 days for a transplant while paediatric patients wait an average of 77 days.

Table 8.3 Median waiting time to elective liver transplant in the UK, for patients registered 1 April 2006 - 31 March 2009

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
O	965	158	142 - 174
A	806	100	88 - 112
B	283	206	158 - 254
AB	93	89	62 - 116
TOTAL	2147	136	127 - 145
Paediatric	194	77	59 - 95

8.3 Donor and organ supply

Of the 1,010 solid organ donors, 712 (70%) donated their liver and 624 (88%) of these donated livers were transplanted; see **Table 8.4**. Of livers retrieved from donors after brain death and donors after circulatory death, 92% and 69% were transplanted, respectively.

**Table 8.4 Deceased liver organ donation and retrieval rates in the UK,
1 April 2010 - 31 March 2011, by donation zone**

Donation 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	134	96	230	121	39	160	121	(114)	39	(27)	160	(141)
Cambridge	97	55	152	80	21	101	80	(73)	21	(14)	101	(87)
Edinburgh	75	24	99	66	11	77	66	(64)	11	(8)	77	(72)
King's College	134	93	227	120	49	169	120	(106)	49	(29)	169	(135)
Leeds	108	61	169	100	15	115	100	(92)	15	(14)	115	(106)
Newcastle	34	24	58	30	3	33	30	(30)	3	(2)	33	(32)
Royal Free	55	20	75	50	7	57	50	(45)	7	(6)	57	(51)
TOTAL	637	373	1010	567	145	712	567	(524)	145	(100)	712	(624)

The rates per million population (pmp) for liver donors are shown in **Table 8.5** 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 11.5 pmp in 2010-2011 and varied across the Strategic Health Authorities from 8.1 to 14.4 pmp.

**Table 8.5 Deceased liver donation rates per million population (pmp) in the UK,
1 April 2010 - 31 March 2011, by country/ Strategic Health Authority¹**

Country/ Strategic Health Authority of residence	Deceased donors (pmp)					
	DBD		DCD		Total	
North East	29	(11.2)	1	(0.4)	30	(11.6)
North West	46	(6.7)	10	(1.4)	56	(8.1)
Yorkshire and The Humber	44	(8.4)	8	(1.5)	52	(9.9)
East Midlands	32	(7.2)	11	(2.5)	43	(9.7)
West Midlands	45	(8.3)	16	(2.9)	61	(11.2)
East of England	49	(8.5)	15	(2.6)	64	(11.1)
London	59	(7.6)	15	(1.9)	74	(9.5)
South East Coast	49	(11.3)	10	(2.3)	59	(13.6)
South Central	46	(11.2)	13	(3.2)	59	(14.4)
South West	38	(7.3)	24	(4.6)	62	(11.9)
England	437	(8.4)	123	(2.4)	560	(10.8)
Isle of Man	1	(12.5)	0	(0.0)	1	(12.5)
Channel Islands	2	(13.3)	0	(0.0)	2	(13.3)
Wales	48	(16.0)	13	(4.3)	61	(20.3)
Scotland	45	(8.7)	8	(1.5)	53	(10.2)
Northern Ireland	34	(19.0)	1	(0.6)	35	(19.6)
TOTAL	567	(9.1)	145	(2.3)	712	(11.5)

¹ Includes 8 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 8.6**. No adjustments have been made for potential demographic differences in populations. The deceased donor transplant rate ranged from 7.6 to 13.2 pmp across the Strategic Health Authorities and overall was 10.5 pmp.

The number of whole, reduced and split liver transplants by urgency status of the transplant (elective, super-urgent) in 2010-2011 is shown in **Table 8.7**. 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 fell by 1% in 2010-2011. There were 675 deceased donor liver transplants performed in 2010-2011: 551 whole liver, including 5 liver and kidney, and 124 deceased liver lobe, including 4 liver and kidney. Split liver transplants accounted for 81% of liver lobe transplant activity.

Country/ Strategic Health Authority of residence	Deceased transplants (pmp)						Living transplants (pmp)	
	DBD		DCD		Total			
North East	31	(12.0)	3	(1.2)	34	(13.2)	0	(0.0)
North West	55	(8.0)	10	(1.4)	65	(9.4)	1	(0.1)
Yorkshire and The Humber	49	(9.3)	7	(1.3)	56	(10.6)	3	(0.6)
East Midlands	40	(9.0)	2	(0.4)	42	(9.4)	0	(0.0)
West Midlands	52	(9.6)	7	(1.3)	59	(10.9)	1	(0.2)
East of England	54	(9.4)	9	(1.6)	63	(10.9)	0	(0.0)
London	73	(9.4)	11	(1.4)	84	(10.8)	5	(0.6)
South East Coast	23	(5.3)	10	(2.3)	33	(7.6)	0	(0.0)
South Central	34	(8.3)	10	(2.4)	44	(10.7)	1	(0.2)
South West	32	(6.1)	10	(1.9)	42	(8.0)	0	(0.0)
England	443	(8.6)	79	(1.5)	522	(10.1)	11	(0.2)
Isle of Man	1	(12.5)	0	(0.0)	1	(12.5)	0	(0.0)
Channel Islands	0	(0.0)	0	(0.0)	0	(0.0)	1	(6.7)
Wales	18	(6.0)	6	(2.0)	24	(8.0)	0	(0.0)
Scotland	75	(14.5)	9	(1.7)	84	(16.2)	3	(0.6)
Northern Ireland	17	(9.5)	4	(2.2)	21	(11.7)	0	(0.0)
TOTAL¹	555²	(8.9)	98	(1.6)	653²	(10.5)	15	(0.2)

¹ Excludes 32 recipients who reside outside of the UK (20 DBD, 2 DCD, 10 living)
² Includes 1 UK recipient where the postcode was unspecified

Table 8.7 Deceased donor liver transplants performed in the UK, 1 April 2009 - 31 March 2011

Transplant centre	2009 - 2010								2010 - 2011							
	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	96	25	0	1	29	1	125	27	104	23	2	4	40	6	146	33
Cambridge	63	4	0	0	3	0	66	4	69	4	0	0	3	0	72	4
Edinburgh	54	12	0	0	8	0	62	12	63	9	0	0	8	0	71	9
King's College	132	26	3	7	23	1	158	34	103	22	6	5	25	2	134	29
Leeds	72	6	1	2	16	0	89	8	73	7	3	3	10	0	86	10
Newcastle	24	9	0	0	1	0	25	9	26	7	0	0	2	0	28	7
Royal Free	51	7	0	0	2	0	53	7	36	5	0	0	5	0	41	5
TOTAL	492	89	4	10	82	2	578	101	474	77	11	12	93	8	578	97

E=Elective, SU=Super-urgent

Birmingham, King's College and Leeds transplant paediatric patients

At 31 March 2011 there were approximately 8,500 recipients with a functioning liver transplant (or multi-organ transplant including the liver) being followed-up, as reported to the UK Transplant Registry.

8.5 Demographic characteristics

The ethnicity of liver donors, transplant recipients and transplant list patients is shown in **Table 8.8**. In 2010-2011, the proportion of ethnic minority patients waiting on the transplant list was much greater than that of ethnic minority donors, 19% compared with 4%, respectively. Of transplant recipients, 16% were from ethnic minority groups.

Table 8.8 Ethnicity of deceased liver donors and recipients 1 April 2009 - 31 March 2011 and transplant, list patients at 31 March in the UK

Ethnicity	Donors				Transplant recipients				Active transplant list patients			
	2009-2010		2010-2011		2009-2010		2010-2011		2010		2011	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
White	673	(95.3)	680	(95.5)	566	(83.5)	563	(83.7)	307	(83.0)	411	(80.9)
Asian	9	(1.3)	9	(1.3)	78	(11.5)	64	(9.5)	41	(11.1)	55	(10.8)
Black	9	(1.3)	6	(0.8)	21	(3.1)	25	(3.7)	8	(2.2)	18	(3.5)
Chinese	2	(0.3)	2	(0.3)	4	(0.6)	6	(0.9)	1	(0.3)	4	(0.8)
Other	13	(1.8)	15	(2.1)	9	(1.3)	15	(2.2)	13	(3.5)	20	(3.9)
Not reported	0	-	0	-	1	-	2	-	1	-	2	-
TOTAL	706		712		679		675		371		510	

The age and sex distribution of donors and recipients in 2010-2011, and patients on the transplant list at 31 March 2011, are shown in **Table 8.9**. Of the 737 donors, 7% were aged ≥ 70 years, compared with only 2% of the transplant list and 1% of transplant recipients.

Table 8.9 Age of deceased liver donors and transplant recipients 1 April 2010 - 31 March 2011, and transplant list patients at 31 March in the UK						
Age group (years)	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
0 - 17	38	(5)	91	(13)	33	(6)
18 - 34	121	(17)	67	(10)	47	(9)
35 - 49	212	(30)	154	(23)	95	(19)
50 - 59	164	(23)	215	(32)	185	(36)
60 - 69	125	(18)	139	(21)	141	(28)
70+	52	(7)	8	(1)	9	(2)
Not reported	0	-	1	-	0	-
TOTAL	712	(100)	675	(100)	510	(100)
% Male		(53)		(59)		(62)