NHS
Blood and Transplant

Organ Donation and Transplantation

Activity Report 2012/13

Preface

This report has been produced by Statistics and Clinical Audit, NHS Blood and Transplant.

All figures quoted in this report are as reported to NHS Blood and Transplant by 20 May 2013 for the UK Transplant Registry, maintained on behalf of the transplant community and National Health Service (NHS), or for the NHS Organ Donor Register, maintained on behalf of the UK Health Departments.

Former Strategic Health Authorities have been used throughout the report for convenience in comparisons with the previous year's figures.

The information provided in the tables and figures given in Chapters 2-10 does not always distinguish between adult and paediatric transplantation. For the most part, the data also do not distinguish between patients entitled to NHS treatment (Group 1 patients) and those who are not (Group 2 patients). It should also be noted that not all cornea donors or cornea grafts are necessarily reported to NHS Blood and Transplant.

The UK definition of an organ donor is any donor from whom at least one organ has been retrieved with the intention to transplant. Organs retrieved solely for research purposes have not been counted in this Activity Report. Organ donation has been recorded to reflect the number of organs retrieved. For example, if both lungs were retrieved, two lungs are recorded even if they were both used in one transplant. Similarly, if one liver is donated, one liver is recorded even if it results in two or more transplants.

The number of donors after brain death (DBD) and donors after circulatory death (DCD) by hospital are documented in **Appendix I**. Donation and transplant rates in this report are presented per million population (pmp): population figures used throughout this report are mid-2011 estimates based on *ONS 2011 Census* figures and are given in **Appendix III.**

All charts presented in this report are available as an accompanying slide set available from www.organdonation.nhs.uk.

Acknowledgement

NHS Blood and Transplant would like to thank all those in the donation and transplantation communities responsible for providing data to the UK Transplant Registry and the Potential Donor Audit, without whom this report would not be possible. Thanks also go to NHS Blood and Transplant staff responsible for data entry and accuracy and completeness of the data.

Foreword

I am delighted to be writing this foreword to the Transplant Activity Report for 2012-13. A rise in organ donation for the fifth year in succession saw the NHS achieve a 50% increase in the number of deceased organ donors compared with 2007/8. This was a challenge few thought possible when the Organ Donation Taskforce set out its recommendations for increasing deceased donation five years ago and is a great achievement for everybody working in this field.

Without organ donors there can be no transplantation and we're grateful to the families of the 1,212 deceased donors and to each of the 1,101 living donors who made these precious donations possible.

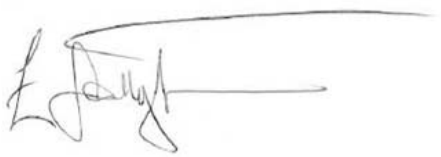
These donations ensured that for the eighth year in succession the number of people benefitting from an organ transplant increased. The lives of 4,212 patients were saved or improved by an organ transplant (a 6% increase on 2011-12).

The sharp rise in donation after circulatory death (DCD) seen in recent years continued, with 16% growth over the last year. The number of donors after brain death (DBD) increased by 8%, an improvement on the previous year's more modest 2% rise.

Living organ donors continue to play a vital role in transplantation. Although the vast majority of living organ donors gave a kidney, 33 donated part of their liver. Of the 1,068 people receiving a living donor kidney transplant, 76 were from non-directed altruistic living donors and 55 transplants were made possible by the paired living kidney donation programme. One patient benefitted from the UK's first non-directed living donor liver donation.

The number of corneas donated in 2012-2013 was 6,390, representing an increase of 9% on last year. The increase is mainly due to the Eye Retrieval Scheme (ERS) but also due to the fact that more corneas are being donated from organ donors.

With the recent publication of 'Taking Organ Transplantation to 2020 – a UK strategy' we are entering an important phase. Although we have seen year on year increases in activity, the UK can and must do more to save and improve lives through organ donation and transplantation. 57% of families consented or authorised deceased donation when approached in 2012-13. We need everyone to be proud to donate, when and if they can, if the NHS is to match the world leaders in the field of organ donation and transplantation and save even more lives in future years.



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Summary of Donor and Transplant Activity

In the financial year to 31 March 2013, compared with the previous year

- there was an 11% increase in the number of deceased donors to 1,212, the highest number ever in the UK.
- the number of donors after brain death increased by 8% to 705, while the number of donors after circulatory death increased by 16% to 507
- the number of living donors increased by 4% to 1,101; living donors account for half of the total number of organ donors
- the number of patients whose lives were saved or improved by an organ transplant increased by 6% to 4,212
- 3,697 patients had their sight restored through a cornea transplant, representing an increase of 2%

The total number of patients registered for a transplant has fallen slightly, so that:

- there were 7,332 patients waiting for a transplant at the end of March 2013, with a further 3,030 temporarily suspended from transplant lists
- 466 patients died while on the active waiting list for their transplant and a further 766 were removed from the transplant list. The removals were mostly as a result of deteriorating health and ineligibility for transplant and many of these patients would have died shortly afterwards.

Some of the other key messages from this report are that, compared with last year, there has been:

- a decrease of 3% in the number of pancreas transplants
- an increase of 4% in the total number of liver transplants
- an increase of 5% in the total number of cardiothoracic organ transplants
- an increase of 7% in the total number of kidney transplants
- an increase of 5% in the number of eligible organ donors identified to 4,302 in 2012-2013
- an increase in all key metrics of the organ donation pathway, resulting in nearly 200 additional families consenting to/ authorising donation (from 1,488 to 1,675)

Overview of Organ Donation and Transplantation

A summary of the main features of organ donation and transplantation activity in the UK during the financial year from 1 April 2012 to 31 March 2013

2.1 Summary of activity

As the total number of deceased donors and transplants continued to increase this year, the number of patients on the active transplant list at 31 March 2013 is 304 less than on the same date last year. This drop reflects an increasing number of transplants performed and a reasonably steady number of patients joining the transplant list each year. The increase in donor and transplant numbers (1 April 2003 to 31 March 2013) and the number of patients registered on the transplant lists at 31 March each year are shown in **Figure 2.1**. There were 206 more deceased donor transplants in 2012-2013 than in the previous year, representing a 7% increase. The corresponding increase in the number of deceased donors was 11%.

Figure 2.1 Number of deceased donors and transplants in the UK, 1 April 2003 - 31 March 2013, and patients on the active transplant lists at 31 March

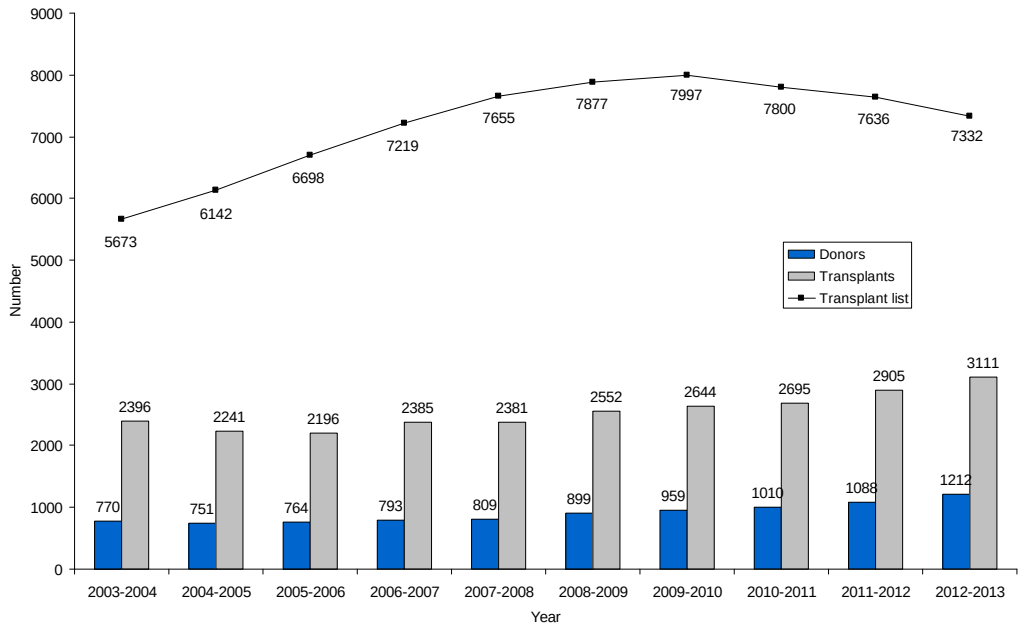
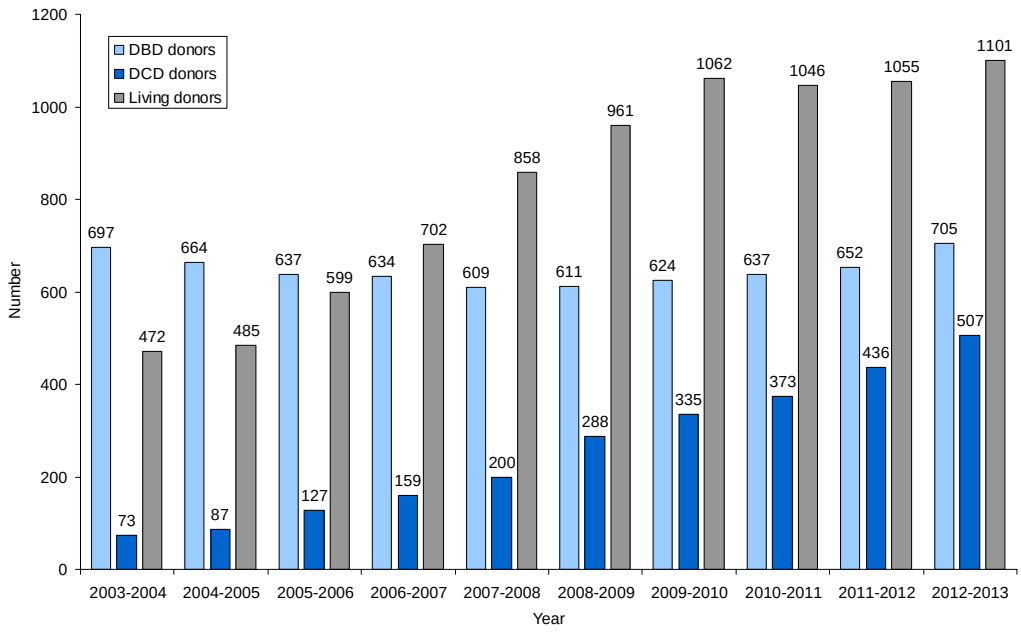


Figure 2.2 shows the number of deceased and living donors for 2003-2013. The number of deceased organ donors in the UK fell over a number of years but following the implementation of the Organ Donation Taskforce recommendations, the numbers rose and are continuing to increase. The number of donors after brain death (DBD) has increased by 16% over the last six years, reversing the trend which had seen a 13% decrease between 2003-2004 and 2007-2008. The number of donors after circulatory death (DCD) has been increasing year-on-year in an effort to bridge the gap between the number of donors and the number of patients waiting for a transplant. In particular the number of these donors has increased by 154% since 2007-2008. Living donors remained relatively stable, with 1,101 this year representing a 4% increase on last year.

Figure 2.2 Number of deceased and living donors in the UK, 1 April 2003 - 31 March 2013



2.2 Transplant list

At 31 March 2013, 7,332 patients were registered for an organ transplant in the UK on the active transplant list. A further 3,030 patients were temporarily suspended from the active national transplant list because they were unfit or otherwise unavailable for transplant. Details of numbers of patients on each of the organ transplant lists are given in **Table 2.1** for 31 March 2012 and 2013. The total number fell by 304 patients (4%) due to falls in the number of patients on the kidney and liver transplant lists.

Table 2.1 Active transplant lists in the UK at 31 March 2012 and 2013

	2012	2013	% Change
Kidney & pancreas patients	**6669**	**6387**	**-4**
Kidney	6417	6115	-5
Kidney & pancreas	193	208	+8
Pancreas	35	37	+6
Pancreas islets	24	27	+13
Cardiothoracic patients	**399**	**439**	**+10**
Heart	167	197	+18
Heart/lung	16	16	0
Lung(s)	216	226	+5
Liver patients	**534**	**472**	**-12**
Intestinal patients[1,2]	**13**	**9**	**-**
Other multi-organ patients[3]	**21**	**25**	**+19**
ALL PATIENTS	**7636**	**7332**	**-4**

Percentages not reported when fewer than 10 in either year
[1] Excludes bowel only patients see Table 9.1 in Chapter 9
[2] Three including kidney in 2012, 3 including kidney in 2013
[3] Includes patients waiting for kidney and liver transplants (18 in 2012, 18 in 2013), kidney and heart transplants (2 in 2012, 3 in 2013), liver and pancreas transplants (1 in 2012, 3 in 2013), kidney, liver and pancreas (1 in 2013)

2.3 Transplants

There was a 6% increase in the total number of organ transplants (from deceased and living donors) last year: 4,212 transplants were performed in 2012-2013 compared with 3,960 in 2011-2012 (**Table 2.2**). All multi-organ transplants are identified separately as are transplants from living donors.

The total number of kidney transplants increased by 7% in 2012-2013; kidney only transplants from donors after circulatory death increased by 12%, and the number of living donor kidney transplants increased by 6%. The total number of cardiothoracic organ transplants rose by 5%, the number of liver transplants rose by 4% and the number of pancreas transplants (including pancreas only, kidney/pancreas and pancreas islets) decreased by 3%.

Table 2.2 Transplants performed in the UK, 1 April 2011 - 31 March 2013

Transplant	2011-2012	2012-2013	% Change
DBD kidney	960	1034	+8
DCD kidney	639	716	+12
Living donor kidney	1009	1068	+6
DBD Kidney & pancreas	138	133	-4
DCD Kidney & pancreas	35	33	-6
DBD Pancreas[1]	24	33	+38
DCD Pancreas	13	5	-
Pancreas islets	30	30	0
Deceased heart	138	142	+3
Domino heart	3	0	-
Heart/lung	5	3	-
DBD Single lung	27	19	-30
DCD Single lung	4	9	-
DBD Double lung	127	134	+6
DCD Double lung	17	25	+47
Partial lung	0	1	-
DBD liver	480	520	+8
DCD liver	130	135	+4
Domino liver	5	2	-
DBD liver lobe	109	117	+7
DCD liver lobe	2	1	-
Living donor liver lobe	38	31	-18
Kidney & heart	0	3	-
Kidney & liver	18	11	-39
Liver & pancreas	7	7	-
Liver, kidney & pancreas	2	0	-
TOTAL ORGAN TRANSPLANTS	**3960**	**4212**	**+6**
Total kidney transplants[1]	**2801**	**2998**	**+7**
Total pancreas transplants[1]	**249**	**241**	**-3**
Total cardiothoracic transplants	**321**	**336**	**+5**
Total liver transplants[1]	**791**	**824**	**+4**

Percentage not reported when fewer than 10 in either year

[1] Includes intestinal transplants, 10 in 2011-2012 (9 including liver (2 including kidney)) and 8 in 2012-2013 (7 including liver), excludes bowel only transplants, see Table 9.3 in Chapter 9

Organ Donation Activity

Key messages

- **There has been an 11% increase in deceased donors (to 1,212) and a 4% increase in living organ donors (to 1,101) compared with last year**
- **Compared with 809 deceased donors in 2007-2008, there has been an increase of 50% to 1,212 in 2012-2013, meeting the target increase identified by the Organ Donation Taskforce**
- **The number of donors after brain death increased by 8% to 705 and there was a 16% increase in donors after circulatory death to 507**
- **Donors after circulatory death provide, on average, one less organ for transplantation than donors after brain death**
- **Donor characteristics are continuing to change: donors are older, more obese, and less likely to have suffered a trauma-related death, all of which have adverse effects on transplant outcomes**

3.1 Summary of activity

There was an 11% increase in the number of deceased organ donors in 2012-2013. This was a result of 8% more donors after brain death (DBD) and 16% more donors after circulatory death (DCD). The 1,212 donors represented a 50% increase over the number of organ donors in 2007-2008 (809), meeting the target increase identified by the Organ Donation Taskforce (Organs for Transplants: a report from the Organ Donation Taskforce).

The 1,212 deceased organ donors gave 4,096 organs compared with 1,088 donors and 3,726 organs in 2011-2012. This represents a 10% increase in organs donated. This is lower than the rate of increase in the number of donors because fewer organs can be used from donors after circulatory death, which is where the greatest increase was seen. In particular DCD donors do not provide hearts for transplant. **Table 3.1** shows deceased organ donors according to the organs they donated.

Nearly all deceased donors (95%) gave a kidney and of these the majority (72%) also donated at least one other organ. Only 12% of donors after brain death were single organ donors, the majority of which were kidney only donors. By contrast, 58% of donors after circulatory death were single organ donors, the majority (96%) of these donating just their kidneys.

Although the vast majority of living organ donors donated a kidney, 33 donated part of their liver. All living donations are approved by the Human Tissue Authority.

Table 3.1 Organ donors in the UK, 1 April 2012 - 31 March 2013, by organ types donated

	DBD	DCD	Living donor	**TOTAL**
Kidney only	43	280	1068	**1391**
Kidney & thoracic	7	11	-	**18**
Kidney & liver	203	107	-	**310**
Kidney & pancreas	6	24	-	**30**
Kidney, thoracic & liver	50	6	-	**56**
Kidney, thoracic & pancreas	5	2	-	**7**
Kidney, liver & pancreas	152	50	-	**202**
Kidney, thoracic, liver & pancreas	187	15	-	**202**
Thoracic only	2	4	-	**6**
Thoracic & liver	2	-	-	**2**
Thoracic & pancreas	1	-	-	**1**
Thoracic, liver & pancreas	2	-	-	**2**
Liver only	39	7	33	**79**
Liver & pancreas	5	-	-	**5**
Pancreas only	1	1	-	**2**
TOTAL	**705**	**507**	**1101**	**2313**

3.2 Organ donors

Organ donor rates per million population (pmp) for 2012-2013 are given by country and former Strategic Health Authority according to where the donor lived in **Table 3.2** while the number of deceased donors are shown based on location of the hospital in which they died in **Table 3.3**. **Table 3.4** shows the number of deceased donors by Organ Donation Services Team. **Appendix 1** shows a more detailed breakdown of the number of donors from the donating hospitals. Number and rates of utilised donors are given in Chapter 4.

Table 3.2 Organ donation rates per million population (pmp), in the UK, 1 April 2012 - 31 March 2013, by country/Strategic Health Authority of donor residence[1]

Country of donation/	DBD		DCD		**TOTAL**		Living	
Strategic Health Authority	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
North East	45	(17.3)	32	(12.3)	77	(29.6)	49	(18.8)
North West	67	(9.5)	47	(6.7)	114	(16.1)	131	(18.6)
Yorkshire and The Humber	53	(10.0)	34	(6.4)	87	(16.4)	82	(15.5)
North of England	**165**	**(11.0)**	**113**	**(7.6)**	**278**	**(18.6)**	**262**	**(17.5)**
East Midlands	32	(7.0)	36	(7.9)	68	(15.0)	56	(12.3)
West Midlands	68	(12.1)	43	(7.7)	111	(19.8)	92	(16.4)
East of England	72	(12.3)	79	(13.5)	151	(25.8)	95	(16.2)
Midlands and East	**172**	**(10.7)**	**158**	**(9.9)**	**330**	**(20.6)**	**243**	**(15.2)**
London	**77**	**(9.4)**	**49**	**(6.0)**	**126**	**(15.4)**	**177**	**(21.6)**
South East Coast	54	(12.1)	31	(6.9)	85	(19.0)	74	(16.5)
South Central	60	(14.4)	25	(6.0)	85	(20.3)	87	(20.8)
South West	52	(9.8)	64	(12.1)	116	(21.9)	76	(14.3)
South of England	**166**	**(11.9)**	**120**	**(8.6)**	**286**	**(20.5)**	**237**	**(17.0)**
England	**580**	**(10.9)**	**440**	**(8.3)**	**1020**	**(19.2)**	**919**	**(17.3)**
Isle of Man	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**	**1**	**(12.5)**
Channel Islands	**3**	**(18.8)**	**0**	**(0.0)**	**3**	**(18.8)**	**5**	**(31.3)**
Wales	**38**	**(12.4)**	**18**	**(5.9)**	**56**	**(18.3)**	**47**	**(15.4)**
Scotland	**55**	**(10.5)**	**38**	**(7.2)**	**93**	**(17.7)**	**74**	**(14.1)**
Northern Ireland	**29**	**(16.0)**	**11**	**(6.1)**	**40**	**(22.1)**	**55**	**(30.4)**
TOTAL	**705**	**(11.1)**	**507**	**(8.0)**	**1212**	**(19.1)**	**1101**	**(17.3)**

[1] Includes 94 donors (13 Deceased, 81 living) where the hospital postcode was used in place of an unknown donor postcode

Table 3.2 shows variation in the number of DBD and DCD donors pmp across the UK. There were 11.1 DBD donors pmp for the UK as a whole, but across the former English Strategic Health Authorities (SHA) this ranged between 7.0 and 17.3 pmp. However, the number of eligible donors pmp also varies and further information can be seen in Chapter 13. It should be noted that these figures are not directly comparable, however, because certain categories of patients are excluded from the Potential Donor Audit. For DCD donors the UK rate is 8.0 pmp, ranging from 5.9 to 8.3 pmp across countries of the UK and from 6.0 to 13.5 pmp in the former English SHAs. No adjustment has been made for any differences in demographics of the populations across centres or SHAs.

Table 3.3 Deceased organ donors in the UK, 1 April 2012 - 31 March 2013, by country/Strategic Health Authority of hospital of donor death

Country of donation/ Strategic Health Authority	DBD N	DCD N	**TOTAL** N
North East	54	37	91
North West	66	45	111
Yorkshire and The Humber	50	36	86
North of England	**170**	**118**	**288**
East Midlands	25	24	49
West Midlands	71	49	120
East of England	67	79	146
Midlands and East	**163**	**152**	**315**
London	**120**	**67**	**187**
South East Coast	32	22	54
South Central	48	26	74
South West	50	56	106
South of England	**130**	**104**	**234**
England	**583**	**441**	**1024**
Isle of Man	**0**	**0**	**0**
Channel Islands	**2**	**0**	**2**
Wales	**35**	**17**	**52**
Scotland	**56**	**38**	**94**
Northern Ireland	**29**	**11**	**40**
TOTAL	**705**	**507**	**1212**

Table 3.4	Deceased organ donors in the UK, 1 April 2012 - 31 March 2013, by Organ Donation Services Team		
Team	DBD N	DCD N	**TOTAL** N
Eastern	74	80	154
London	93	59	152
Midlands	85	65	150
North West	74	45	119
Northern	54	41	95
Northern Ireland	29	11	40
Scotland	56	38	94
South Central	62	39	101
South East	61	30	91
South Wales	29	16	45
South West	36	45	81
Yorkshire	52	38	90
TOTAL	**705**	**507**	**1212**

The mean number of organs retrieved per donor in 2012-2013 is given by country in **Table 3.5**. Overall for adult donors, an average of 3.9 organs were donated per DBD donor and 2.6 per DCD donor. For adult DBD donors, the rate ranged from 3.7 organs per donor in Wales to 3.9 in England and Scotland.

Table 3.5	Organs retrieved per donor, in the UK, 1 April 2012 - 31 March 2013, by country of donor residence					
Country	Adult			Paediatric		
	DBD	DCD	TOTAL	DBD	DCD	TOTAL
England	3.9	2.6	3.3	4.5	3.3	4.0
Wales	3.7	2.9	3.4	4.7	-	4.7
Scotland	3.9	2.5	3.3	7.0	-	7.0
Northern Ireland	3.8	2.4	3.4	7.0	4.0	5.5
TOTAL	**3.9**	**2.6**	**3.3**	**4.8**	**3.3**	**4.2**

3.3 Demographic characteristics

While the number of donors overall is increasing, it is important to be aware that there have been changes over time with regard to donor characteristics (**Table 3.6**). In 2012-2013, 34% of deceased donors were aged 60 years or more compared with 16% in 2003-2004 (**Figure 3.1**). In particular the proportion of these donors aged at least 70 years has increased from 2% to 12% over the same time period. The trend is similar for both DBD and DCD. The proportion of clinically obese donors (Body Mass Index (BMI) of 30 or higher) has increased from 16% to 26% in deceased donors in the last 10 years (**Figure 3.2**) and the trend was similar for both DBD and DCD donors. In addition, the proportion of all deceased donors after a trauma death has decreased from 16% to 6% over the same time period. All of these changes may have an adverse impact on the quality of the organs and the subsequent transplant outcome for the recipient.

Table 3.6 also indicates the ethnicity of deceased organ donors, highlighting that 5% of donors are from ethnic minority groups. By contrast, ethnic minority groups represent 8% of the UK population.

Table 3.6 Demographic characteristics of organ donors in the UK 1 April 2012 - 31 March 2013

		DBD		DCD		**TOTAL**	
		N	%	N	%	**N**	**%**
Age	0-17	24	3	13	3	**37**	**3**
	18-49	296	42	156	31	**452**	**37**
	50-59	187	27	125	25	**312**	**26**
	60-69	135	19	133	26	**268**	**22**
	70+	63	9	80	16	**143**	**12**
	Mean (SD)	50	(16)	54	(16)	**51**	**(16)**
BMI	0-19	38	5	34	7	**72**	**6**
	20-29	500	71	325	64	**825**	**68**
	30+	166	24	144	28	**310**	**26**
	Unknown	1	0	4	1	**5**	**0**
	Mean (SD)	27	(6)	27	(6)	**27**	**(6)**
Cause of death	Intracranial	614	87	395	78	**1009**	**83**
	Trauma	47	7	27	5	**74**	**6**
	Other	44	6	85	17	**129**	**11**
Ethnicity	White	665	94	490	97	**1155**	**95**
	Asian	13	2	8	2	**21**	**2**
	Black	17	2	3	1	**20**	**2**
	Other	9	1	6	1	**15**	**1**
	Unknown	1	0	0	0	**1**	**0**
Blood group	O	317	45	228	45	**545**	**45**
	A	284	40	200	39	**484**	**40**
	B	71	10	64	13	**135**	**11**
	AB	33	5	15	3	**48**	**4**
Donor gender	Male	341	48	307	61	**648**	**53**
	Female	364	52	200	39	**564**	**47**
TOTAL		**705**	**100**	**507**	**100**	**1212**	**100**

Figure 3.1 Age of deceased donors in the UK, 1 April 2003 - 31 March 2013

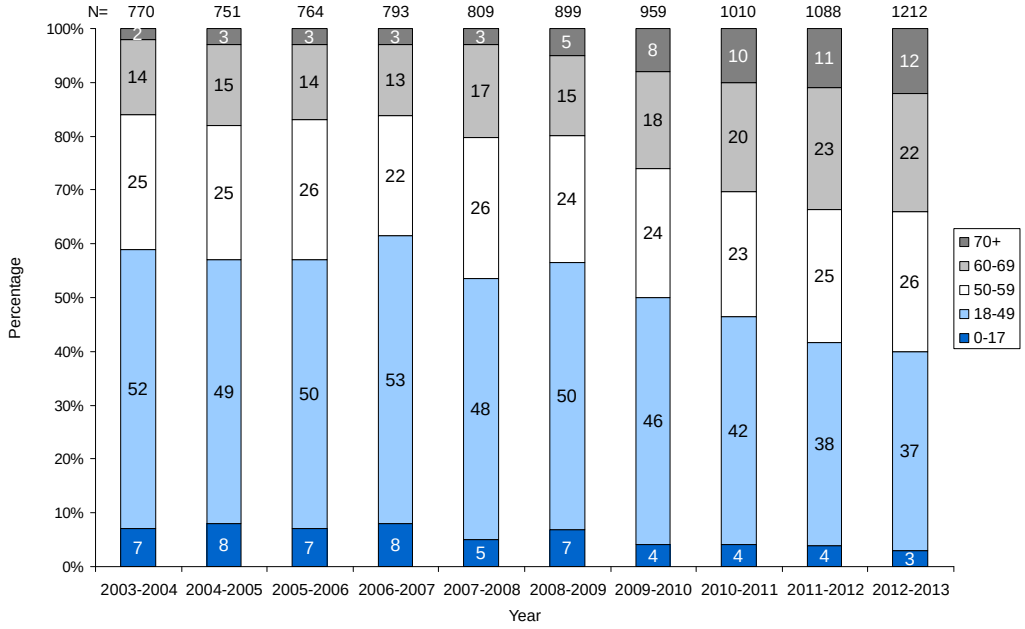
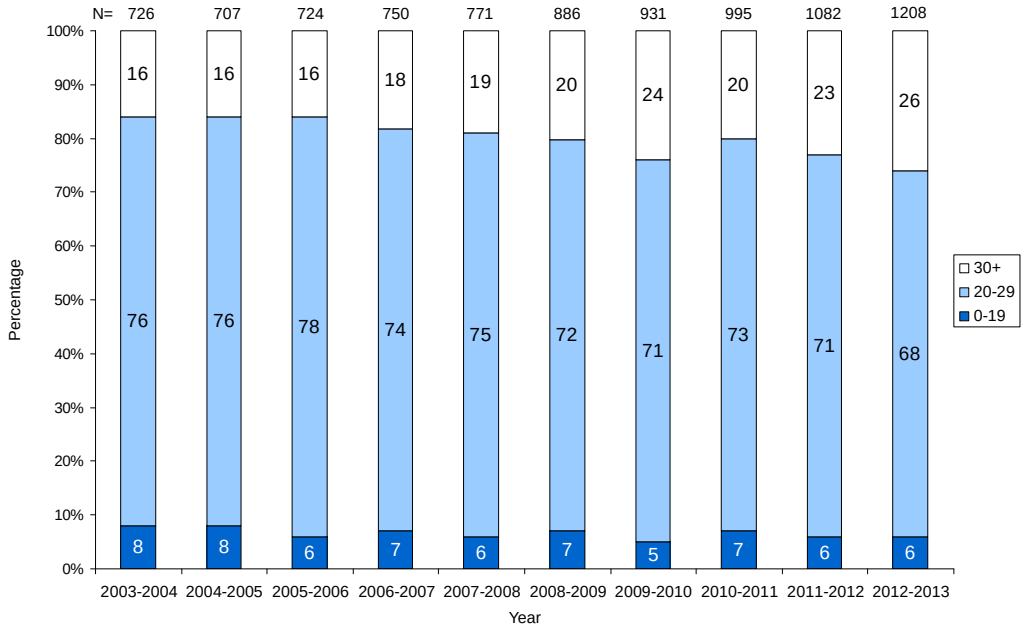


Figure 3.2 BMI of deceased donors in the UK, 1 April 2003 - 31 March 2013



Note that BMI cannot be determined for all deceased donors thus numbers indicated in Figure 3.2 are the numbers of donors for which BMI was available, not total number of donors.

The National Organ Retrieval Service and Usage of Organs

Key messages

- **National Organ Retrieval Service teams attended 726 DBD donors and 857 DCD donors; 3% of DBD donors and 41% of DCD donors attended did not proceed to donation**
- **83% of deceased donor kidneys offered to transplant centres are subsequently transplanted, compared with 61% of livers, 33% of pancreases, 28% of hearts and 22% of lungs; the remaining organs are not transplanted due to lack of suitability of the donor or organ for any patient on the transplant list**
- **The UK actual donor rate is 19.1 pmp, while the utilised donor rate is 17.7 pmp, reflecting that 8% of organ donors result in no organs being transplanted**

4.1 The National Organ Retrieval Service (NORS)

A National Organ Retrieval Service (NORS) was introduced in the UK on 1 April 2010. The service comprises nine abdominal organ retrieval teams and six cardiothoracic organ retrieval teams. These teams are based in liver and cardiothoracic transplant centres, respectively.

At any one time, 7 abdominal teams and all 6 cardiothoracic teams are on call - 24 hours per day, seven days per week. In two areas of the country, two abdominal retrieval teams share the on call responsibilities, each being on call on alternative weeks. If a team is the first on-call for a particular donor hospital, they are required to attend within an agreed timescale if at least one organ has been accepted for transplant when offered to the transplant centres in the UK. Each team has a designated area for which they are first on-call, based on the premise that the travel time to any hospital in their area should be less than three hours. There are some exceptions to this principle for remote hospitals. If a team is already retrieving when they are called to attend a donor, then a second team will be called in to retrieve, and so on.

The number of donors after brain death and donors after circulatory death that were attended by each of the teams is shown in **Table 4.1.** The table also shows the number of proceeding (actual) organ donors and the number that did not proceed to donation. Many of the potential donors after circulatory death prove unsuitable for organ donation due to a prolonged time to death in which time the organs deteriorate. The number of donors attended per team varies according to the number of potential donors identified in each of the areas, as the areas are not of equal size.

A small number of donors are attended by local kidney transplant teams. This is typically for donors after circulatory death when only the donor's kidneys have been accepted for transplant. There is no expectation that local kidney teams retrieve organs, but they are appropriately reimbursed if they are willing and able to do so.

Table 4.1 Number of actual and non-proceeding donors per retrieval team

	Donors after brain death				Donors after circulatory death			
Retrieval team	Actual	Non-proceeding	% non-proc	No. attended	Actual	Non-proceeding	% non-proc	No. attended
Abdominal								
Birmingham	94	1	1	95	69	51	43	120
Cambridge	94	5	5	99	101	45	31	146
Cardiff	36	2	5	38	17	17	50	34
King's	123	3	2	126	74	46	38	120
Leeds / Manchester	103	3	3	106	65	80	55	145
Newcastle	83	3	3	86	52	41	44	93
Oxford	57	-	-	-	44	25	36	69
Royal Free	52	2	4	54	40	28	41	68
Scotland	61	-	-	-	40	16	29	56
Abdominal total	**703**	**19**	**3**	**722**	**502**	**349**	**41**	**851**
Cardiothoracic								
Birmingham	40	21	34	61	8	11	58	19
Harefield	44	25	36	69	8	12	60	20
Manchester	44	17	28	61	3	15	83	18
Newcastle	51	11	18	62	12	14	54	26
Papworth	57	20	26	77	7	8	53	15
Scotland	19	24	56	43	-	-	-	-
Cardiothoracic total	**255**	**118**	**32**	**373**	**38**	**60**	**61**	**98**
Total donors (abdominal and/or cardiothoracic)	**705**	**21**	**3**	**726**	**507**	**350**	**41**	**857**

Note: there were 10 donors attended by a local team. St George's attended three of the local abdominal donors and Great Ormond street attended two of the local cardiothoracic donors. Five donors were attended by an overseas team.

4.2 Retrieval and usage of organs

There were 1,212 actual deceased organ donors last year, but not all organs from these donors were offered for transplantation. **Table 4.2** shows the number of organs offered, retrieved and transplanted from the 705 DBD and 507 DCD donors. The number of organs from these donors that were subsequently used for research purposes is also shown. The number of organs offered for transplant excludes those where the donor did not meet the nationally agreed age criteria for suitability for donation of that specific organ. There are no age cut-offs agreed for kidney and liver donation.

Each year, a number of actual organ donors result in no transplants. Donors resulting in at least one transplant are termed 'utilised' donors and the number of actual and utilised donors for the UK as a whole is shown in **Table 4.3**. The number of donors per million of population is also shown. Last year 8% of actual donors resulted in no organ transplants. This compares with 6% in 2011-2012.

Figures 4.1 and **4.2** show offering, retrieval and transplantation of organs, in terms of percentages. Charts start at 100% for each organ, representing all organs from the 705 DBD and 507 DCD donors. The charts indicate the proportion of those organs following the pathway through each step to transplantation e.g. meeting national donor age criteria, having consent (authorisation in Scotland), being offered out to transplant centres, being retrieved for transplant and resulting in transplantation. For example, **Figure 4.1** shows that 28% of the pancreases from the 705 DBD donors were transplanted, but that 37% of pancreases from donors within the nationally agreed age limit of 60 years were transplanted. Transplant rates of kidneys and livers are generally high, while other organs, even allowing for the agreed age limits, are less often transplanted.

Reasons for organs not being offered for transplant, being offered but not accepted and retrieved and for being retrieved but not subsequently transplanted are shown in **Table 4.4** for abdominal organs from DBD donors, **Table 4.5** for abdominal organs from DCD donors and in **Table 4.6** for cardiothoracic organs. Reasons for the medical unsuitability of a donor include infections, tumours, anatomy and disease. Non-medical reasons include donor size. Clinical unsuitability of an organ encompasses poor perfusion, prolonged ischaemia time, past history of donor and, in the case of pancreases for islets, insufficiency of viable islet yield. Reasons reported under 'other' include logistical and recipient related issues in addition to un-coded reasons reported of a miscellaneous nature.

These tables also indicate the number of organs from UK donors that were transplanted overseas. These organs were not accepted for transplant by any UK transplant centre, but were accepted for suitable recipients identified elsewhere, usually in Europe. Other than livers fulfilling an arrangement for the transplantation of super-urgent patients in the Republic of Ireland, only hearts and lungs were exported for transplant outside the UK. Organs from outside the UK are occasionally imported for transplant. In 2012/13 these were 7 hearts (including 2 from ROI) and 24 livers (including 21 from ROI).

Table 4.2 Donation and transplantation of organs from 1212 deceased donors in the UK, 1 April 2012 – 31 March 2013

Organ	Organs meeting initial suitability criteria and offered for transplant	Organs retrieved for transplant		Organs transplanted			Organs used for research (from actual organ donors)
		N	% of offered	N	% of retrieved	% of offered	
DBD organ donors							
Kidney	1403	1291	92	1196	93	85	38
Liver	693	640	92	582	91	84	42
Pancreas[1]	475	347	73	195	56	41	65
Heart[2]	502	144	29	144	100	29	0
Lung[3]	1054	334	32	309	93	29	2
DCD organ donors							
Kidney	1012	974	96	797	82	79	96
Liver	480	185	39	136	74	28	38
Pancreas[1]	240	92	38	41	45	17	27
Lung[3]	592	75	13	59	79	10	0
Deceased organ donors							
Kidney	2415	2265	94	1993	88	83	134
Liver	1173	825	70	718	87	61	80
Pancreas[1]	715	439	61	236	54	33	92
Heart[2]	502	142	28	142	100	28	0
Lung[3]	1646	407	25	366	90	22	2

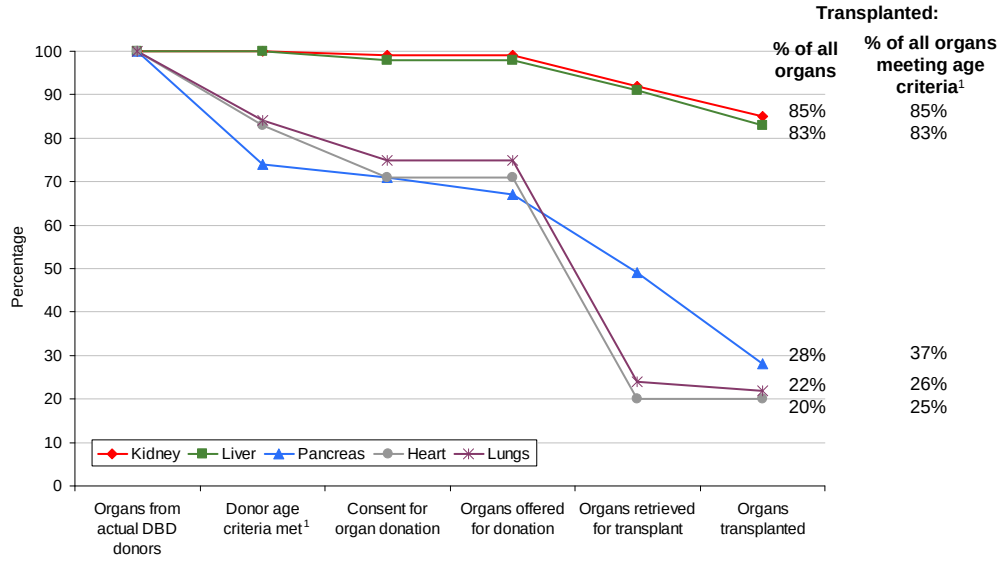
[1] Excludes donors aged > 60 years
[2] Excludes donors aged > 65 years or died due to myocardial infarction
[3] Excludes donors aged > 65 years

Table 4.3 Actual and utilised deceased donors in the UK, 1 April 2012 – 31 March 2013

	DBD (pmp)		DCD (pmp)		Total (pmp)	
Actual donors	705	(11.1)	507	(8.0)	1212	(19.1)
Utilised donors[1]	685	(10.8)	436	(6.9)	1121	(17.7)

[1] Utilised donors defined as donors where one or more organs were retrieved and transplanted

Figure 4.1 Donation and transplantation rates of organs from DBD organ donors in the UK, 1 April 2012 – 31 March 2013



[1] Hearts – in addition to age criteria, donors who died due to myocardial infarction are excluded

Figure 4.2 Donation and transplantation rates of organs from DCD organ donors in the UK, 1 April 2012 – 31 March 2013

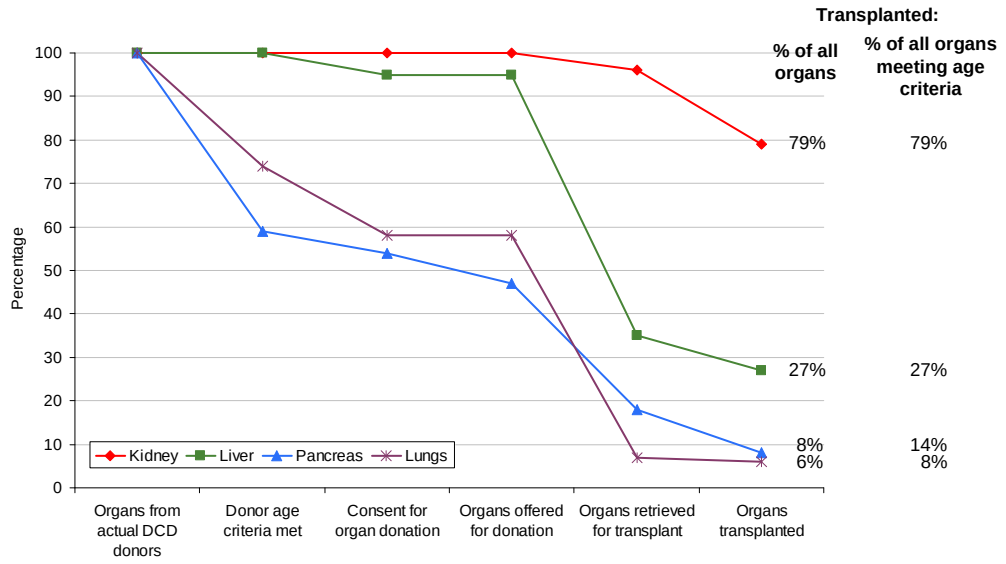


Table 4.4 Reasons for non-retrieval and non-use of abdominal organs from organ donors after brain death (DBD) in the UK, 1 April 2012 – 31 March 2013

	Kidney	Liver	Pancreas
All DBD organ donors	**705**	**705**	**705**
Donors from whom organs not offered for donation	4	12	230
Reasons for organs not being offered			
Family permission refused	3	11	19
Permission refused by coroner	1[1]	1	2
Donor unsuitable – age	0	0	183
Donor unsuitable – past history	0	0	22
Other	0	0	4
TOTAL DONORS WITH ORGANS NOT OFFERED	**4**	**12**	**230**
Organs offered for donation	**1403**	**693**	**475**
Organs not retrieved (% of organs offered for donation)	112 (8)	53 (8)	128 (27)
Reasons for non-retrieval			
Donor			
Donor unsuitable – medical	19	5	10
Donor unsuitable – non-medical	5	0	20
Donor age	4	0	11
Organ			
Organ unsuitable – clinical	37	33	50
Poor function	21	7	19
Other			
Other	26	8	18
TOTAL ORGANS NOT RETRIEVED	**112**	**53**	**128**
Organs retrieved (% of organs offered for donation)	1291 (92)	640 (92)	347 (73)
Organs transplanted in the UK	1196	575	195
Organs transplanted overseas	0	7[2]	0
Organs not transplanted	95	58	152
Reasons for organ not being transplanted			
Donor			
Donor unsuitable – medical	36	8	18
Donor unsuitable – non-medical	0	0	0
Donor age	0	0	0
Organ			
Organ unsuitable – clinical	20	36	108
Poor function	2	0	0
Other			
Other	37	14	26
TOTAL ORGANS NOT TRANSPLANTED (Number used for research)	**95 (38)**	**58 (42)**	**152 (65)**

[1] One kidney not offered for donation due to permission refused by coroner
[2] Transplanted into super-urgent patients in the Republic of Ireland

Table 4.5 Reasons for non-retrieval and non-use of abdominal organs from organ donors after circulatory death (DCD) in the UK, 1 April 2012 – 31 March 2013

	Kidney	Liver	Pancreas
All DCD organ donors	**507**	**507**	**507**
Donors from whom organs not offered for donation	1	27	267
Reasons for organs not being offered			
Family permission refused	1	17	22
Permission refused by coroner	0	10	5
Donor unsuitable – age	0	0	206
Donor unsuitable – past history	0	0	17
Other	0	0	17
TOTAL DONORS WITH ORGANS NOT OFFERED	**1**	**27**	**267**
Organs offered for donation	**1012**	**480**	**240**
Organs not retrieved (% of organs offered for donation)	38 (4)	295 (61)	148 (62)
Reasons for non-retrieval			
Donor			
Donor unsuitable – medical	1	8	7
Donor unsuitable – non-medical	4	14	17
Donor age	0	72	22
Organ			
Organ unsuitable – clinical	13	97	56
Poor function	4	23	8
Other			
Other	16	81	38
TOTAL ORGANS NOT RETRIEVED	**38**	**295**	**148**
Organs retrieved (% of organs offered for donation)	974 (96)	185 (39)	92 (38)
Organs transplanted in the UK	797	136	41
Organs transplanted overseas	0	0	0
Organs not transplanted	177	49	51
Reasons for organ not being transplanted			
Donor			
Donor unsuitable – medical	63	7	6
Donor unsuitable – non-medical	0	1	0
Donor age	1	1	0
Organ			
Organ unsuitable – clinical	56	27	33
Poor function	4	0	0
Other			
Other	53	13	12
TOTAL ORGANS NOT TRANSPLANTED (Number used for research)	**177 (96)**	**49 (38)**	**51 (27)**

Table 4.6 Reasons for non-retrieval and non-use of cardiothoracic organs from organ donors in the UK, 1 April 2012 – 31 March 2013

	Heart (DBD)	Lung (DBD)	Lung (DCD)
All organ donors	**705**	**705**	**507**
Donors from whom organs not offered for donation	203	178	211
Reasons for organs not being offered			
Family permission refused	56	45	62
Permission refused by coroner	28	20	15
Donor age >65 years	113	113	134
Donor COD of cardiac arrest or MI	6	0	0
TOTAL DONORS WITH ORGANS NOT OFFERED	**203**	**178**	**211**
Organs offered for donation	**502**	**1054**	**592**
Organs not retrieved (% of organs offered for donation)	358 (71)	720 (68)	517 (87)
Reasons for non-retrieval			
Donor			
Donor unsuitable – medical	19	43	38
Donor unsuitable – non-medical	47	45	70
Donor age	23	26	56
Organ			
Organ unsuitable – clinical	104	195	134
Poor function	116	292	136
Other			
Other	49	119	83
TOTAL ORGANS NOT RETRIEVED	**358**	**720**	**517**
Organs retrieved (% of organs offered for donation)	144 (29)	334 (32)	75 (13)
Organs transplanted in the UK	141	291	59
Organs transplanted overseas	3	18	0
Organs not transplanted	0	25	16
Reasons for organ not being transplanted			
Donor			
Donor unsuitable – medical	0	0	3
Donor unsuitable – non-medical	0	0	0
Organ			
Organ unsuitable – clinical	0	2	0
Poor function	0	4	4
Other			
Other	0	19	9
TOTAL ORGANS NOT TRANSPLANTED (Number used for research)	**0 (0)**	**25 (2)**	**16 (0)**

Kidney Activity

Key messages

- **The number of deceased kidney donors increased by 11% to 1,148**
- **Kidney transplants from living donors increased by 6% to 1,068, and transplants from deceased donors increased by 8% to 1,930**
- **55 kidney transplants were made possible by the paired living kidney donation programme**
- **Non-directed, altruistic living kidney donation resulted in 76 living donor kidney transplants**
- **The number of patients registered for a kidney this year fell by 4% from 6,633 to 6,348**

5.1 Overview

The number of deceased kidney donors increased by 11% in 2012-2013 compared to 2011-2012 and the number of deceased donor kidney transplants increased by 8%. These increases are very welcome for the 6,348 patients waiting for a kidney transplant and for the fourth year running the number of patients on the national list for a kidney transplant has declined, as a consequence of increased transplantation and broadly static listing rates.

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**. Despite the drop in the last four years, the number of patients registered on the active transplant list at 31 March 2013 for a kidney or kidney and pancreas transplant is 25% higher than the numbers on the list in 2004.

Figure 5.1 Deceased donor kidney programme in the UK, 1 April 2003 - 31 March 2013
Number of donors, transplants and patients on the active transplant list at 31 March

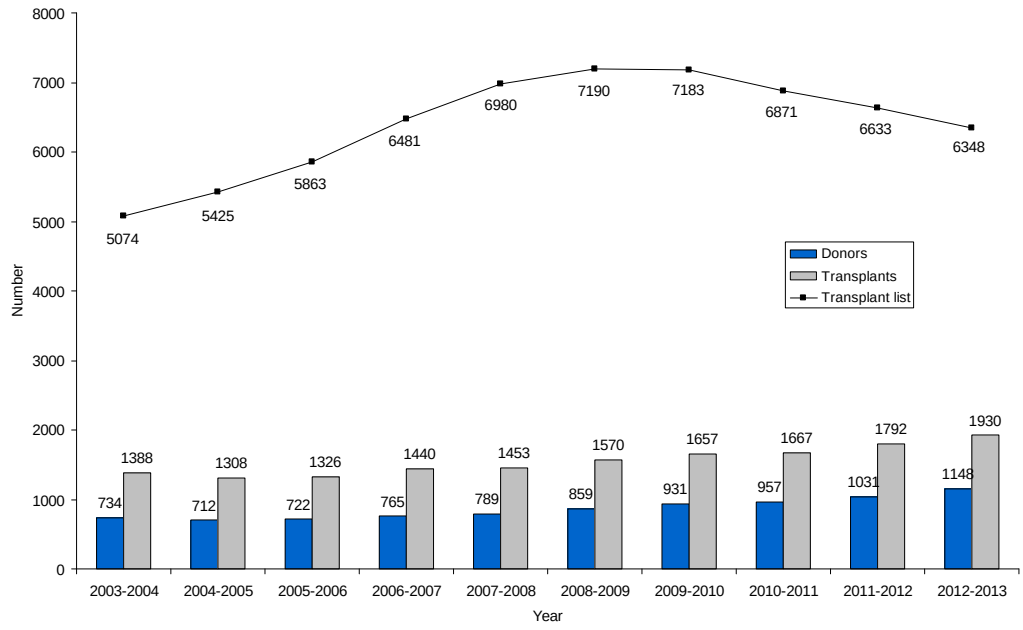


Table 5.1 shows the number of deceased and living donor kidney transplants carried out in 2012-2013 at each centre. Kidney transplants from donors after circulatory death are increasingly common and in this financial year only one adult kidney transplant centre did not perform any such transplants. As yet, very few kidneys from donors after circulatory death are transplanted in paediatric patients (<18 years). Donation figures for centres in North and South Thames 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 rose to 1,148 in 2012-2013 from 1,031 in 2011-2012 and the number of transplants increased from 1,792 to 1,930. The number of kidney donors after circulatory death increased to 495 from 419 in 2011-2012 and the number of transplants from such donors increased by 11% to 749.

Table 5.1 **Kidney donors and transplants, 1 April 2012 - 31 March 2013 (2011-2012) and transplant list at 31 March 2013 (2012) in the UK, by centre/alliance**

Centre/alliance	Deceased kidney donors				Deceased donor transplants				Living donor transplants		Active transplant list	
	DBD		DCD		DBD		DCD					
Belfast	27	(35)	10	(3)	26	(27)	0	(0)	50	(52)	155	(179)
Birmingham	62	(40)	35	(32)	73	(69)	19	(16)	73	(57)	589	(622)
Bristol	23	(19)	31	(29)	56	(27)	26	(32)	36	(42)	348	(367)
Cambridge	41	(40)	61	(40)	40	(47)	99	(76)	45	(47)	218	(223)
Cardiff	23	(25)	13	(27)	43	(41)	51	(67)	43	(39)	143	(184)
Coventry	5	(9)	13	(6)	15	(22)	8	(6)	22	(35)	108	(119)
Edinburgh	26	(37)	17	(16)	41	(59)	24	(21)	29	(24)	221	(188)
Glasgow	25	(13)	19	(12)	67	(59)	29	(24)	42	(31)	321	(314)
Great Ormond Street	0	(0)	0	(0)	10	(8)	0	(1)	13	(21)	16	(15)
Leeds	38	(33)	24	(21)	78	(75)	61	(53)	50	(46)	287	(317)
Leicester	11	(18)	8	(6)	31	(53)	5	(0)	43	(36)	311	(345)
Liverpool	34	(34)	20	(20)	37	(37)	31	(36)	31	(28)	185	(190)
Manchester	35	(36)	25	(32)	109	(107)	35	(47)	112	(77)	559	(593)
Newcastle	52	(42)	38	(34)	26	(23)	57	(49)	56	(59)	199	(222)
North Thames[1]	86	(85)	57	(31)	-	-	-	-	-	-	-	-
Royal Free	-	-	-	-	45	(42)	32	(26)	31	(43)	276	(275)
Royal London	-	-	-	-	35	(35)	27	(28)	49	(41)	243	(225)
WLRTC	-	-	-	-	71	(65)	11	(5)	72	(56)	499	(525)
Nottingham	10	(11)	15	(11)	33	(46)	31	(35)	15	(13)	156	(187)
Oxford	29	(29)	21	(14)	97	(97)	54	(40)	53	(50)	293	(308)
Plymouth	15	(11)	19	(29)	13	(9)	24	(46)	18	(12)	100	(79)
Portsmouth	23	(20)	14	(12)	34	(36)	17	(12)	27	(17)	235	(231)
Sheffield	10	(11)	12	(9)	26	(23)	13	(16)	22	(20)	203	(198)
South Thames[1]	78	(64)	43	(35)	-	-	-	-	-	-	-	-
Guy's	-	-	-	-	108	(79)	74	(25)	94	(113)	397	(420)
St George's	-	-	-	-	67	(32)	21	(13)	41	(50)	286	(307)
TOTAL	**653**	**(612)**	**495**	**(419)**	**1181**	**(1118)**	**749**	**(674)**	**1068[2,4]**	**(1009[3])**	**6348**	**(6633)**

WLRTC – West London Renal and Transplant Centre
[1] Donor figures in this area cannot be linked to individual transplant centres due to shared retrieval areas.
[2] Includes an additional 1 transplant performed at The London Clinic
[3] Includes 2 domino donors
[4] Includes 3 domino donors

5.2 Transplant list

The number of patients registered on the kidney or kidney and pancreas transplant list fell by 4% in the year: on 31 March 2013, 6,348 patients were registered as active, compared with 6,633 at the end of March 2012. The number of patients waiting for a kidney transplant represents 100 patients per million population (pmp).

Of the 6,348 patients on the active transplant list at 31 March 2013, 208 required a kidney and pancreas transplant (193 at 31 March 2012) and 1 required a kidney, liver and pancreas. Additionally, 67 patients were registered for a pancreas only or pancreatic islet transplant (60 at 31 March 2012).

The outcome of patients registered on the UK kidney and kidney/pancreas transplant list at 1 April 2012, or subsequently registered during the financial year, is shown in **Table 5.2**. A total of 3,267 patients joined the kidney transplant list last year, while a further 228 joined the kidney/pancreas transplant list.

Table 5.2 Kidney transplant list and new registrations in the UK, 1 April 2012 - 31 March 2013

Outcome of patient at 31 March 2013	Active and suspended patients at 1 April 2012		New registrations in 2012-2013[1]		**TOTAL**	
	N	**%**	**N**	**%**	**N**	**%**
Kidney transplant list						
Remained active/suspended	6195	68	2718	83	**8913**	**72**
Transplanted	2158	24	501	15	**2659**	**22**
Removed	469[2]	5	36[3]	1	**505**	**4**
Died	253	3	12	0	**265**	**2**
TOTAL	**9075**		**3267**		**12342**	
Kidney/pancreas transplant list						
Remained active/suspended	148	45	189	83	**337**	**60**
Transplanted	141	42	35	15	**176**	**31**
Removed	24	7	2	1	**26**	**5**
Died	19	6	2	1	**21**	**4**
TOTAL	**332**		**228**		**560**	

[1] Includes re-registrations for second or subsequent transplants
[2] Includes 8 patients removed from kidney list and made active on kidney/pancreas list
[3] Includes 7 patients removed from kidney list and made active on kidney/pancreas list

An indication of outcomes for patients listed for a kidney 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 20% of patients are transplanted within one year, while five years after listing 64% of patients have received a transplant.

The median (average) waiting time for a kidney only transplant is 1156 days for an adult patient and is shown by blood group in **Table 5.3** and patient ethnicity in **Table 5.4**. 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 3063 new adult kidney only registrations made in the UK, 1 April 2007 - 31 March 2008

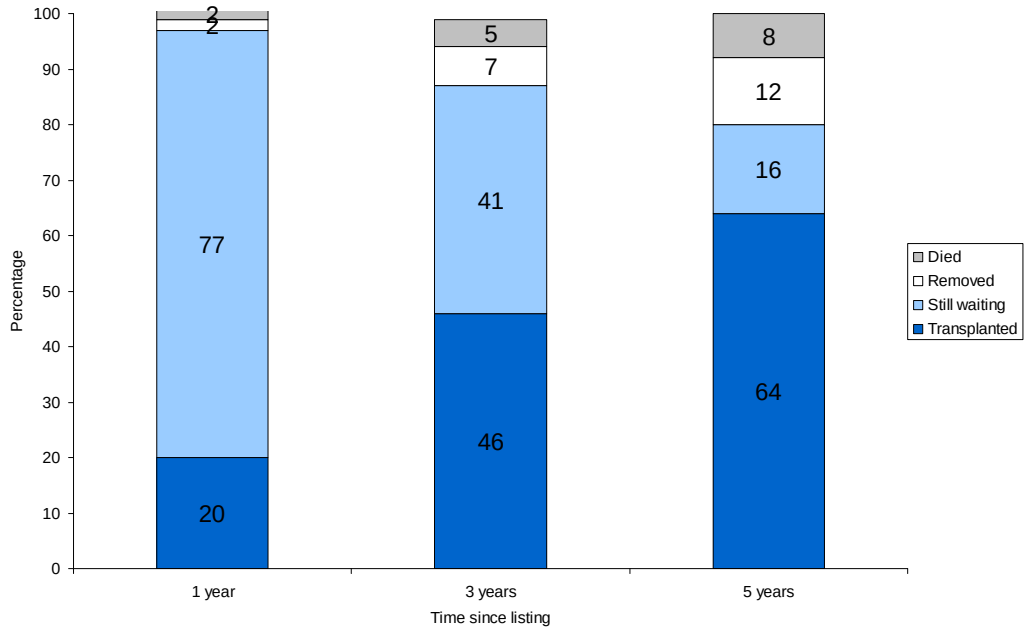


Table 5.3 Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2006 - 31 March 2010

Blood group	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult			
O	4060	1369	1328 - 1410
A	3407	926	894 - 958
B	1266	1358	1290 - 1426
AB	377	610	529 - 691
TOTAL	**9110**	**1156**	**1132 - 1180**
Paediatric			
O	168	410	293 - 527
A	113	268	180 - 356
B	47	277	44 - 510
AB	14	504	294 - 714
TOTAL	**342**	**342**	**262 - 422**

Table 5.4 Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2006 - 31 March 2010

Ethnicity	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult			
White	6904	1092	1065 - 1119
Asian	1276	1413	1335 - 1491
Black	689	1419	1315 - 1523
Other	241	1152	968 - 1336
TOTAL	**9110**	**1156**	**1132 - 1180**
Paediatric			
White	239	258	209 - 307
Asian	72	563	430 - 696
Black	21	566	350 - 782
Other	10	639	0 - 1316
TOTAL	**342**	**342**	**262 - 422**

5.3 Donor and organ supply

Of the 705 organ donors after brain death in the UK in 2012-2013, 653 (93%) were kidney donors. From these donors, 1,291 kidneys were retrieved. There were 495 kidney donors after circulatory death in 2012-2013. From these donors, 974 kidneys were retrieved. **Table 5.5** shows this activity by donor country/ former Strategic Health Authority 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 10.3 pmp, with rates across the former Strategic Health Authorities ranging from 6.2 to 16.2 pmp. The number of kidneys retrieved from donors after brain death in the UK is 20.3 pmp and varies from 12.1 to 29.2 pmp.
The overall rate for kidney donors after circulatory death is 7.8 pmp, with rates across the former Strategic Health Authorities ranging from 5.7 to 13.1 pmp. The number of kidneys retrieved from donors after circulatory death is 15.3 pmp and varies from 11.5 to 26.3 pmp.

Table 5.5 Kidney donation and retrieval rates for deceased donors in the UK, 1 April 2012 - 31 March 2013, by Country/ Strategic Health Authority

Country/Strategic Health Authority of residence	kidney donors (pmp)				Kidneys retrieved (pmp)			
	DBD		DCD		DBD		DCD	
North East	42	(16.2)	29	(11.2)	76	(29.2)	56	(21.5)
North West	63	(8.9)	47	(6.7)	126	(17.8)	90	(12.7)
Yorkshire and The Humber	50	(9.5)	34	(6.4)	100	(18.9)	67	(12.7)
North of England	**155**	**(10.4)**	**110**	**(7.4)**	**302**	**(20.2)**	**213**	**(14.2)**
East Midlands	28	(6.2)	36	(7.9)	55	(12.1)	71	(15.6)
West Midlands	64	(11.4)	42	(7.5)	128	(22.8)	82	(14.6)
East of England	68	(11.6)	77	(13.1)	135	(23.0)	154	(26.3)
Midlands and East	**160**	**(10.0)**	**155**	**(9.7)**	**318**	**(19.9)**	**307**	**(19.2)**
London	**73**	**(8.9)**	**47**	**(5.7)**	**146**	**(17.8)**	**94**	**(11.5)**
South East Coast	49	(10.9)	30	(6.7)	96	(21.4)	59	(13.2)
South Central	53	(12.7)	25	(6.0)	106	(25.4)	49	(11.7)
South West	47	(8.9)	64	(12.1)	94	(17.7)	126	(23.8)
South of England	**149**	**(10.7)**	**119**	**(8.5)**	**296**	**(21.2)**	**234**	**(16.8)**
England	**537**	**(10.1)**	**431**	**(8.1)**	**1062**	**(20.0)**	**848**	**(16.0)**
Isle of Man	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Channel Islands	**3**	**(18.8)**	**0**	**(0.0)**	**6**	**(37.5)**	**0**	**(0.0)**
Wales	**34**	**(11.1)**	**18**	**(5.9)**	**68**	**(22.2)**	**36**	**(11.8)**
Scotland	**52**	**(9.9)**	**36**	**(6.9)**	**102**	**(19.4)**	**70**	**(13.3)**
Northern Ireland	**27**	**(14.9)**	**10**	**(5.5)**	**53**	**(29.3)**	**20**	**(11.0)**
TOTAL	**653**	**(10.3)**	**495**	**(7.8)**	**1291**	**(20.3)**	**974**	**(15.3)**

[1] Includes 13 donors where the hospital postcode was used in place of an unknown donor postcode

5.4 Transplants

The number of kidney transplants by recipient country/Strategic Health Authority of residence is shown in **Table 5.6**. No adjustments have been made for potential demographic differences in populations. The deceased donor transplant rate ranged from 20.7 to 38.4 pmp across Strategic Health Authorities and overall was 27.6 pmp. The living donor transplant rate ranged from 12.9 to 20.0 pmp across the Strategic Health Authorities and overall was 16.7 pmp.

Table 5.6 Kidney only transplant rates per million population (pmp), in the UK, 1 April 2012 - 31 March 2013, by country and English Strategic Health Authority

Country/ Strategic Health Authority of residence	DBD		DCD		**TOTAL**		Living	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
North East	19	(7.3)	46	(17.7)	65	(25.0)	47	(18.1)
North West	112	(15.9)	61	(8.6)	173	(24.5)	141	(20.0)
Yorkshire and The Humber	97	(18.3)	75	(14.2)	172	(32.5)	68	(12.9)
North of England	**228**	**(15.3)**	**182**	**(12.2)**	**410**	**(27.4)**	**256**	**(17.1)**
East Midlands	65	(14.3)	40	(8.8)	105	(23.1)	66	(14.5)
West Midlands	84	(15.0)	32	(5.7)	116	(20.7)	92	(16.4)
East of England	58	(9.9)	109	(18.6)	167	(28.5)	98	(16.7)
Midlands and East	**207**	**(12.9)**	**181**	**(11.3)**	**388**	**(24.2)**	**256**	**(16.0)**
London	**216**	**(26.3)**	**99**	**(12.1)**	**315**	**(38.4)**	**159**	**(19.4)**
South East Coast	71	(15.8)	39	(8.7)	110	(24.6)	67	(15.0)
South Central	68	(16.3)	54	(12.9)	122	(29.2)	70	(16.7)
South West	76	(14.3)	56	(10.6)	132	(24.9)	70	(13.2)
South of England	**215**	**(15.4)**	**149**	**(10.7)**	**364**	**(26.1)**	**207**	**(14.8)**
England	**866**	**(16.3)**	**611**	**(11.5)**	**1477**	**(27.8)**	**878**	**(16.5)**
Isle of Man	**1**	**(12.5)**	**0**	**(0.0)**	**1**	**(12.5)**	**1**	**(12.5)**
Channel Islands	**3**	**(18.8)**	**2**	**(12.5)**	**5**	**(31.3)**	**3**	**(18.8)**
Wales	**50**	**(16.3)**	**51**	**(16.7)**	**101**	**(33.0)**	**52**	**(17.0)**
Scotland	**88**	**(16.8)**	**52**	**(9.9)**	**140**	**(26.7)**	**72**	**(13.7)**
Northern Ireland	**26**	**(14.4)**	**0**	**(0.0)**	**26**	**(14.4)**	**54**	**(29.8)**
TOTAL[1]	**1034**	**(16.3)**	**716**	**(11.3)**	**1750**	**(27.6)**	**1060**	**(16.7)**

[1] Excludes 8 recipients of a living donor kidney transplant who reside outside of the UK

The number of kidney only transplants from deceased donors at each transplant centre is shown in **Table 5.7** for adult patients only. Kidney transplants from donors after brain death include 4 en bloc kidneys and 9 double kidney transplants in 2012-2013 (4 and 4 in 2011-2012). Kidney transplants from donors after circulatory death include 5 en bloc and 43 double kidney transplants in 2012-2013 (0 and 35 in 2011-2012). This table excludes multi-organ transplants: 9 kidney and liver, 3 kidney and heart and 166 kidney and pancreas.

Table 5.7 Adult kidney only transplants from deceased donors in the UK, 1 April 2012 - 31 March 2013, by transplant centre/region

Transplant centre/region	2011-2012		2012-2013	
	DBD	DCD	DBD	DCD
Belfast	26	0	25	0
Birmingham	62	16	62	16
Bristol	21	32	46	26
Cambridge	34	68	31	99
Cardiff	36	64	40	44
Coventry	22	6	15	8
Edinburgh	41	20	21	23
Glasgow	57	24	65	29
Guys	48	16	90	63
Leeds	59	53	74	60
Leicester	53	0	31	5
Liverpool	37	36	37	31
Manchester	81	41	75	32
Newcastle	21	49	21	57
Royal Free	41	26	44	32
Royal London	35	28	35	27
Nottingham	31	35	26	29
Oxford	35	32	46	46
Plymouth	9	46	12	24
Portsmouth	36	12	34	17
Sheffield	23	16	26	13
St Georges	32	13	67	21
WLRTC	55	5	64	8
TOTAL	**895**	**638**	**987**	**710**

WLRTC – West London Renal Transplant Centre

Living donor kidney transplants increased by 6% to 1,068 in 2012-2013, representing 36% of the total kidney transplant programme. The total number of living donor adult transplants performed by each transplant centre is shown in **Table 5.8**. 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 2% increase in these transplants. In addition there are now a number of ‘non-directed’ living donor transplants (also known as altruistic donor transplants). Last year there were 76 such transplants – 69 donated a kidney to a recipient by the national Kidney Allocation Scheme for deceased donor kidneys (65 transplanted into an adult recipient and 4 transplanted into a paediatric recipient) and 7 donated a kidney to a recipient as part of an altruistic donor chain (all transplanted into an adult recipient).

In 2012-2013, there were also 55 paired living kidney donor transplants. When a potential 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. This is known as paired donation and most exchanges are between two pairs (ie two donors and their respective incompatible recipients), or between three pairs. Additionally pairs can also now donate as part of altruistic donor chains, which is where an altruistic donor chooses to participate in the paired scheme, rather than donating directly to the deceased donor list, and initiates a chain of transplants. There were 7 altruistic donor chains in 2012-2013, each resulting in two transplants (one for a paired recipient and one for a patient on the deceased donor list).

As a percentage of the number of patients on the active transplant list at 31 March 2013, the number of living donor adult transplants in the year was 16% and ranged from 9% to 31% at individual transplant centres. The high rate for Coventry is at least partly attributable to their antibody incompatible kidney transplant programme; a number of patients are referred to Coventry for such transplants.

Table 5.8 Adult living donor kidney transplants in the UK, 1 April 2011 - 31 March 2013, and percentage of active transplant list at 31 March, by transplant centre/region

Transplant centre/ region	2011-2012 Directed	Paired/ pooled	Non-directed	TOTAL N	TOTAL % list	2012-2013 Directed	Paired/ pooled	Non-directed	TOTAL N	TOTAL % list
Belfast	41	7	1	**49**	**27**	39	6	2	**47**	**31**
Birmingham	43	2	5	**50**	**8**	56	3	6	**65**	**11**
Bristol	33	1	2	**36**	**10**	29	1	2	**32**	**9**
Cambridge	43	3	1	**47**	**21**	42	1	2	**45**	**21**
Cardiff	37	0	1	**38**	**21**	40	1	1	**42**	**29**
Coventry	35	0	0	**35**	**29**	21	0	1	**22**	**20**
Edinburgh	24	0	0	**24**	**13**	22	3	4	**29**	**13**
Glasgow	26	1	1	**28**	**9**	36	1	1	**38**	**12**
Leeds	39	2	2	**43**	**14**	41	2	3	**46**	**16**
Leicester	32	3	1	**36**	**10**	37	3	3	**43**	**14**
Liverpool	27	0	1	**28**	**15**	25	2	4	**31**	**17**
Manchester	61	7	2	**70**	**12**	81	10	9	**100**	**18**
Newcastle	52	0	3	**55**	**25**	47	0	5	**52**	**27**
Royal Free	37	3	3	**43**	**16**	28	1	2	**31**	**11**
Royal London	39	1	1	**41**	**18**	47	1	1	**49**	**20**
WLRTC	54	2	0	**56**	**11**	58	8	6	**72**	**14**
Nottingham	10	1	1	**12**	**7**	11	0	3	**14**	**10**
Oxford	44	4	2	**50**	**16**	45	4	4	**53**	**18**
Plymouth	9	3	0	**12**	**15**	16	0	2	**18**	**18**
Portsmouth	14	2	1	**17**	**7**	22	1	4	**27**	**11**
Sheffield	20	0	0	**20**	**10**	21	0	1	**22**	**11**
Guy's	93	5	2	**100**	**24**	73	4	5	**82**	**21**
St George's	42	4	4	**50**	**16**	34	3	4	**41**	**14**
TOTAL	**855**	**51**	**34**[2]	**940**	**14**	**872**[1]	**55**	**75**[3]	**1002**[1]	**16**

[1] Includes 1 transplant performed at The London Clinic
[2] Includes 2 domino donor transplants
[3] Includes 3 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) is shown in **Table 5.9**. Last year Portsmouth contributed 15 non-directed donors yet only received 4 such kidneys for transplant.

Table 5.9 Altruistic kidney donors in the UK, 1 April 2011 - 31 March 2013, by donor centre

	2011-2012		2012-2013	
Donor centre	N	%	N	%
Belfast	2	6	4	5
Birmingham	1	3	1	1
Bristol	3	9	3	4
Cambridge	1	3	1	1
Cardiff	1	3	0	0
Coventry	1	3	2	3
Edinburgh	1	3	5	7
Glasgow	1	3	0	0
Guy's	4	12	4	5
Leeds	2	6	7	9
Leicester	1	3	1	1
Liverpool	0	0	3	4
Manchester	5	15	8	11
Newcastle	1	3	4	5
Nottingham	0	0	1	1
Oxford	0	0	6	8
Plymouth	2	6	5	7
Portsmouth	2	6	15	20
St George's	1	3	1	1
The Royal Free	3	9	5	7
WLRTC	2	6	0	0
Total	**34**	**100**	**76**	**100**

WLRTC – West London Renal and Transplant Centre

The number of deceased donor and living donor kidney only transplants in paediatric patients (<18 years) performed by each paediatric transplant centre is shown in **Table 5.10**. There were 66 living donor transplants and 53 deceased donor transplants in paediatric patients in 2012-2013. This table excludes multi-organ transplants: 2 kidney and liver transplants in 2012-2013 (4 in 2011-2012). The paediatric transplant list fell by 16% from 88 patients at 31 March 2012 to 74 at the end of March 2013.

Occasionally older paediatric patients are listed and/or transplanted at adult kidney transplant centres and these are indicated in **Table 5.10**.

At 31 March 2013, there were approximately 29,000 recipients with a functioning kidney transplant (including multi-organ transplants) being followed-up as reported to the UK Transplant Registry.

Table 5.10 Paediatric patient kidney only transplants in the UK, 1 April 2011 - 31 March 2013, by transplant centre

	2011-2012				2012-2013			
Paediatric transplant centre	DBD	DCD	Living donor	**TOTAL**	DBD	DCD	Living donor	**TOTAL**
Belfast	1	0	3	**4**	1	0	3	**4**
Birmingham	3	0	7	**10**	4	3	8	**15**
Bristol	6	0	6	**12**	10	0	4	**14**
Glasgow	2	0	3	**5**	2	0	4	**6**
Great Ormond Street	8	1	21	**30**	10	0	13	**23**
Guy's	11	0	13	**24**	3	0	12	**15**
Leeds	13	0	3	**16**	3	1	4	**8**
Manchester	5	0	7	**12**	6	0	12	**18**
Newcastle	0	0	4	**4**	0	0	4	**4**
Nottingham	15	0	1	**16**	7	2	1	**10**
Adult centres	1	0	1	**2**	1	0	1	**2**
TOTAL	**65**	**1**	**69**[1]	**135**	**47**	**6**	**66**[2]	**119**

[1] Includes 3 non-directed donor transplants
[2] Includes 4 non-directed donor transplants

Rates of pre-emptive kidney only transplantation are shown in **Table 5.11**. Of the 2,818 kidney only transplant recipients in 2012-2013, dialysis status at time of transplant was reported for 2,789 (99%). Of these 2,789 transplants, 601 (22%) were carried out in pre-dialysis patients.

Pre-emptive transplants accounted for 40% of all paediatric kidney only transplants with reported dialysis status, compared with 21% of those in adults. Living donor transplants are more likely to be carried out before the need for dialysis than deceased donor transplants: 37% and 12% 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 5.11 Pre-emptive kidney only transplants in the UK, 1 April 2012 - 31 March 2013

	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	1697	1685	(99.3)	11.7
Living donor transplant	1002	985	(98.3)	36.1
Paediatric				
Deceased donor transplant	53	53	(100.0)	32.1
Living donor transplant	66	66	(100.0)	47.0

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 5.12.**

Table 5.12 Median cold ischaemia time for kidney only transplants in the UK, 1 April 2012 - 31 March 2013

	Number of kidney only transplants[1]	Median (hours)	Inter-quartile range[2] Q1	Q3
Adult				
DBD donor transplant	987	15.0	12.0	18.0
DCD donor transplant	710	14.2	11.1	17.0
Total	**1697**	**14.6**	**11.5**	**17.5**
Paediatric DBD donor transplant	**47**	**13.1**	**11.0**	**16.0**
TOTAL	**1744**	**14.6**	**11.5**	**17.4**

[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 are allocated on the basis of a national Kidney Allocation Scheme which incorporates HLA matching between donor and recipient. These HLA matches are based on four levels which are described in **Table 5.13**. Patients with 000 HLA-A, B, DR mismatch (Level 1) are prioritised in the schemes, whereas kidneys are rarely transplanted as a Level 4 match. More information about the allocation scheme can be found at www.odt.nhs.uk. **Table 5.14** gives the HLA mismatch group for adult and paediatric patients for DBD donor transplants but also for DCD and living donor transplants. DCD kidneys are currently allocated according to local transplant centre policies and on a local basis and consequently the levels of HLA match are inferior. For living donor transplantation, many transplants have a less good HLA match between donor and recipient. Very often there is no genetic relationship between donor and recipient.

Table 5.13 HLA mismatch groups

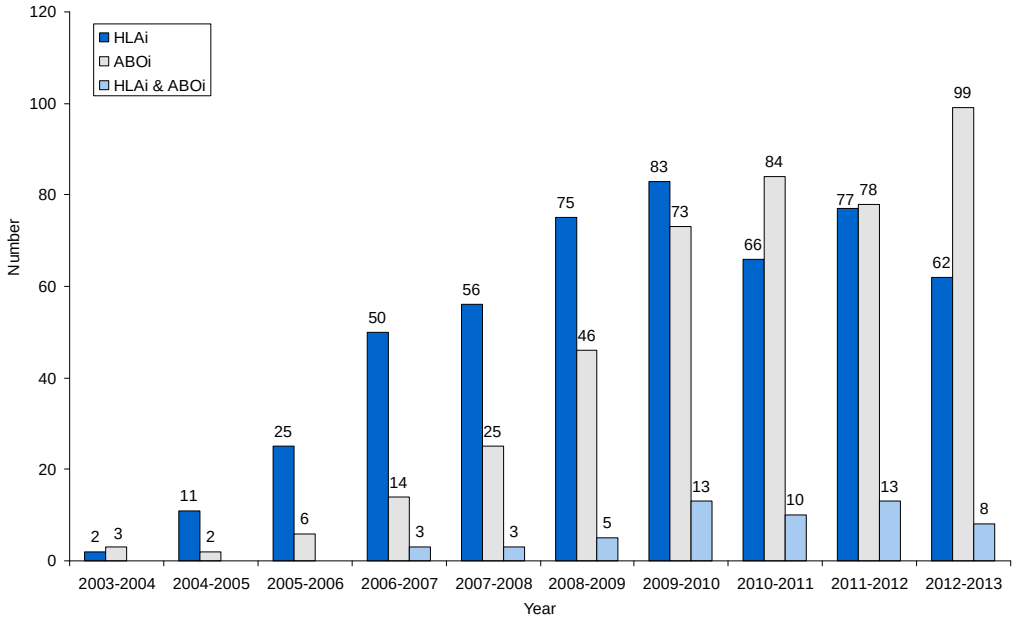
Level	HLA mismatch summary	HLA mismatch combinations included
1	000	000
2	[0 DR and 0/1 B]	100, 010, 110, 200, 210
3	[0 DR and 2 B] or [1 DR and 0/1 B]	020, 120, 220, 001, 101, 201, 011, 111, 211
4	[1 DR and 2 B] or [2 DR]	021, 121, 221, 002, 102, 202, 012, 112, 212, 022, 122, 222

Table 5.14 HLA matching for kidney only transplants in the UK, 1 April 2011 - 31 March 2013,

	DBD		DCD		Living	
	N	(%)	N	(%)	N	(%)
Adult						
Level 1	186	(19)	22	(3)	116	(12)
Level 2	343	(35)	159	(22)	150	(15)
Level 3	432	(44)	422	(59)	422	(42)
Level 4	26	(3)	107	(15)	312	(31)
Unknown					2	
Paediatric						
Level 1	7	(15)	0	(0)	7	(11)
Level 2	34	(72)	2	(33)	20	(30)
Level 3	6	(13)	2	(33)	38	(56)
Level 4	0	(0)	2	(33)	1	(2)

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 507 HLA incompatible (HLAi) transplants performed; 138 used kidneys from deceased donors and 369 used living donor kidneys while the vast majority of ABO incompatible (ABOi) transplants used living donor kidneys (423 of 430). Due to nature of reporting HLA incompatible transplants the numbers presented may be subject to change over time.

Figure 5.3 Incompatible kidney only transplants in the UK, 1 April 2003 - 31 March 2013



5.5 Demographic characteristics

The age group, sex, ethnicity and blood group of deceased donors, transplant recipients and patients on the transplant list is shown in **Table 5.15**, with comparable information for living donors and transplants in **Table 5.16**. Note that all percentages quoted are based only on data where relevant information was available. Changes made to the Kidney Allocation Scheme in 2006 mean that tissue matching criteria between donor and recipient are less strict than previously and waiting time to transplant is now more important than it was in deciding kidney allocation. These changes have an indirect benefit for patients from ethnic minority groups, who are less often a good tissue match with the predominantly white donor pool. As a result, access to transplantation is becoming more equitable.

Table 5.15 Demographic characteristics of deceased kidney donors and transplant recipients, 1 April 2012 – 31 March 2013, and transplant list patients at 31 March

	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
Age group (years)						
0 – 17	35	(3)	55	(3)	75	(1)
18 – 34	145	(13)	212	(11)	734	(12)
35 – 49	285	(25)	577	(30)	1875	(30)
50 – 59	296	(26)	507	(26)	1733	(27)
60 – 69	256	(22)	455	(24)	1446	(23)
70+	131	(11)	124	(6)	485	(8)
mean (SD)	51	(16)	50	(14)	51	(14)
Sex						
Male	613	(53)	1225	(63)	3691	(58)
Female	535	(47)	703	(36)	2656	(42)
Not reported			2		1	
Ethnicity						
White	1097	(96)	1473	(76)	4386	(69)
Asian	19	(2)	260	(13)	1074	(17)
Black	18	(2)	146	(8)	617	(10)
Chinese	4	(0)	22	(1)	90	(1)
Other	9	(1)	24	(1)	108	(2)
Not reported	1		5		73	
Blood group						
O	510	(44)	812	(42)	3314	(52)
A	467	(41)	771	(40)	1916	(30)
B	125	(11)	248	(13)	972	(15)
AB	46	(4)	99	(5)	146	(2)
Graft number						
First graft			1694	(88)	4876	(77)
Re-graft			236	(12)	1472	(23)
TOTAL	**1148**	**(100)**	**1930**	**(100)**	**6348**	**(100)**

Table 5.16 Demographic characteristics of living kidney donors and transplant recipients, 1 April 2012 - 31 March 2013

	Donors		Transplant recipients	
	N	(%)	N	(%)
Age group (years)				
0 - 17	0	(0)	66	(6)
18 - 34	206	(19)	276	(26)
35 - 49	409	(38)	332	(31)
50 - 59	254	(24)	215	(20)
60 - 69	176	(16)	151	(14)
70+	23	(2)	28	(3)
mean (SD)	47	(13)	43	(16)
Sex				
Male	528	(49)	652	(61)
Female	539	(50)	415	(39)
Not reported	1		1	
Ethnicity				
White	913	(86)	877	(82)
Asian	87	(8)	98	(9)
Black	43	(4)	50	(5)
Chinese	7	(1)	5	(0)
Other	12	(1)	13	(1)
Not reported	6		25	
Blood group				
O	584	(55)	464	(43)
A	356	(34)	435	(41)
B	101	(10)	137	(13)
AB	18	(2)	32	(3)
Not reported	9			
Graft number				
First graft			937	(88)
Re-graft			131	(12)
TOTAL	**1068**	**(100)**	**1068**	**(100)**

Pancreas Activity

Key messages

- **A new National Pancreas Allocation Scheme was introduced on 1 December 2010**
- **The number of patients waiting on the pancreas transplant list increased by 9% during the year, to 276 at 31 March 2013**
- **The number of pancreas donors after brain death increased by 11% to 359, and transplants from donors after brain death increased by 2% to 192**
- **The number of pancreas donors after circulatory death increased by 7% to 92, while transplants from donors after circulatory death decreased by 20% to 41**
- **30 islet transplants were made possible by the pancreas islet transplant programme**

6.1 Overview

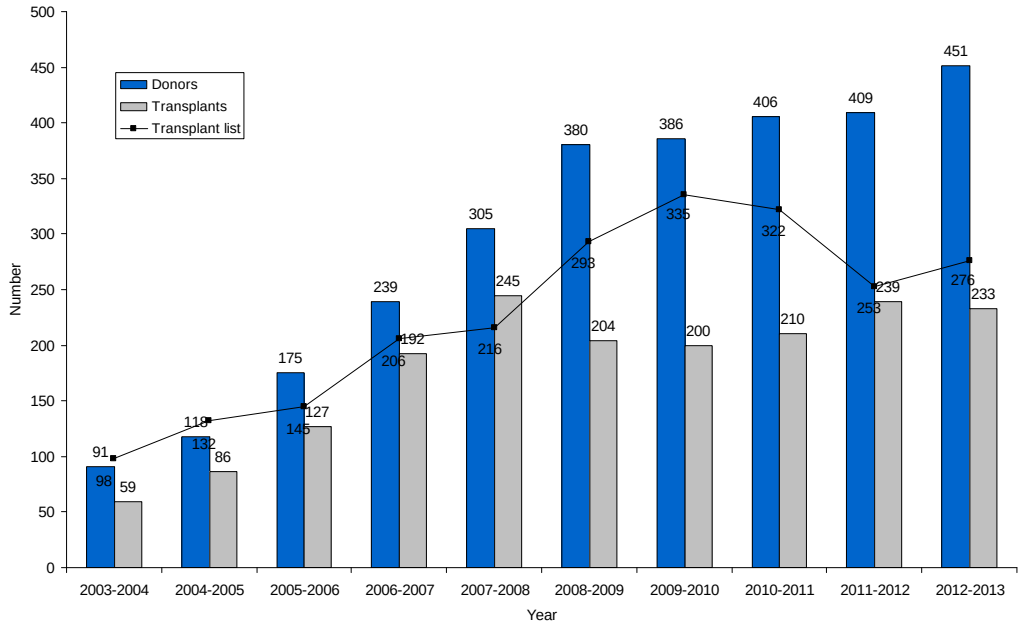
The number of patients registered on the active transplant list at 31 March for a pancreas only, simultaneous kidney/pancreas (SPK) and islet transplant has increased significantly over the last ten years from 98 patients in 2003 to 276 patients in 2013. The number of pancreas donors and transplants has also increased steadily from 91 donors resulting in 59 transplants in 2003-2004, to 451 donors and 233 transplants in 2012-2013. A summary of activity for deceased donor pancreas transplants and the transplant list for 1 April 2003 - 31 March 2013 is shown in **Figure 6.1**.

A National Pancreas Allocation Scheme was introduced on 1 December 2010. Patients are prioritised according to a points system based on a range of clinical factors. A score is calculated for every potentially suitable patient on the national active transplant list and the pancreas is allocated preferentially to the patient with the most points. This differs from the previous system in which donor organs were allocated so that transplant centres selected suitable recipients rather than individual patients being identified centrally.

Pancreases from donors after brain death and donors after circulatory death are allocated through this scheme. Patients listed for a vascularised pancreas or islet transplant are prioritised through one combined national transplant list. The scheme has reduced the incidence of long waiting patients and is improving equity in access to transplant irrespective of where in the UK each patient resides.

Throughout this chapter, intestinal transplants involving a pancreas are not included in the pancreas transplant activity reported. Any pancreases retrieved and used for such transplants are however included in the pancreas donor activity. In 2012/2013 there were 8 intestinal transplants.

Figure 6.1 Deceased pancreas and islet programme in the UK, 1 April 2003 - 31 March 2013
Number of donors, transplants and patients on the active transplant list at 31 March



6.2 Transplant list

Table 6.1 shows the number of patients on the active transplant lists at 31 March 2013 by centre. The number of patients registered on the pancreas transplant list increased by 9% in the year: on 31 March 2013, 276 patients were registered active, compared with 253 at the end of March 2012.

Of the 276 patients on the active transplant list at 31 March 2013, 208 required a SPK transplant (193 at 31 March 2012), 37 (13%) patients required a pancreas only transplant (35 at 31 March 2012), 27 (10%) were registered for a pancreas islet transplant, 3 were registered for a liver and pancreas transplant and 1 was registered for a kidney, liver and pancreas.

The outcome of patients registered on the UK pancreas transplant list at 1 April 2012, or subsequently registered during the financial year, is shown in **Table 6.2**. 56 patients joined the pancreas transplant list while 228 joined the list for kidney and pancreas.

Patients listed for a routine islet transplant are generally waiting for their first islet graft. The majority of islet transplant recipients are likely to require more than one graft to complete their treatment. To optimise transplant outcome the follow-up graft should be performed within six to twelve months of the first. Patients requiring follow-up grafts are priority listed.

Table 6.1 Patients on the pancreas transplant lists at 31 March 2013 (2012) in the UK, by centre

	Active transplant lists									
Centre	Kidney/pancreas		Pancreas alone		Islet				**TOTAL**	
					Routine		Priority			
Cambridge	27	(13)	4	(1)	-	-	-	-	**31**	**(14)**
Cardiff	4	(2)	6	(5)	-	-	-	-	**10**	**(7)**
Edinburgh	28	(21)	1	(0)	8	(0)	0	(3)	**37**	**(24)**
Guys	29	(27)	5	(6)	-	-	-	(-)	**34**	**(33)**
King's College	-	-	-	-	2	(0)	1	(0)	**3**	**(0)**
Manchester	35	(46)	2	(4)	6	(4)	0	(0)	**43**	**(54)**
Newcastle	9	(10)	4	(1)	3	(2)	1	(3)	**17**	**(16)**
Oxford	67	(65)	15	(15)	1	(4)	4	(1)	**87**	**(85)**
Royal Free	-	-	-	-	0	(4)	1	(3)	**1**	**(7)**
WLRTC	10	(9)	3	(4)	-	-	-	-	**13**	**(13)**
TOTAL	**209**[1]	**(193)**	**40**[2]	**(36**[3]**)**	**20**	**(14)**	**7**	**(10)**	**276**	**(253)**

[1] Includes one patient waiting for a kidney, pancreas and liver
[2] Includes three patients waiting for a liver and pancreas
[3] Includes one patient waiting for a liver and pancreas

Table 6.2 Pancreas transplant list and new registrations in the UK, 1 April 2012 - 31 March 2013

Outcome of patient at 31 March 2013	Active and suspended patients at 1 April 2012		New registrations in 2012-2013[1]		TOTAL	
	N	%	N	%	N	%
Pancreas transplant list						
Remained active/suspended	104	68	37	66	**141**	**67**
Transplanted	30	19	14	25	**44**	**21**
Removed	17[2]	11	1	2	**18**	**9**
Died	3	2	4	7	**7**	**3**
TOTAL	**154**		**56**		**210**	
Kidney/pancreas transplant list						
Remained active/suspended	148	45	189	83	**337**	**60**
Transplanted	141	42	35	15	**176**	**31**
Removed	24	7	2	1	**26**	**5**
Died	19	6	2	1	**21**	**4**
TOTAL	**332**		**228**		**560**	

[1] Includes re-registrations for second or subsequent transplants
[2] Includes 2 patients removed from pancreas list but active on kidney/pancreas list

An indication of longer term outcomes for patients listed for a pancreas or kidney/pancreas transplant are summarised in **Figure 6.2**. This shows the proportion of patients transplanted or still waiting six months, one year, two years and three 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. 33% of patients are transplanted within one year, while three years after listing 72% of patients have received a transplant. The median (average) waiting time for a pancreas transplant is 359 days and is shown by blood group in **Table 6.3** and ethnicity in **Table 6.4**. 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 6.2 Post-registration outcome for 285 new pancreas only and kidney/pancreas registrations made in the UK, 1 April 2009 - 31 March 2010

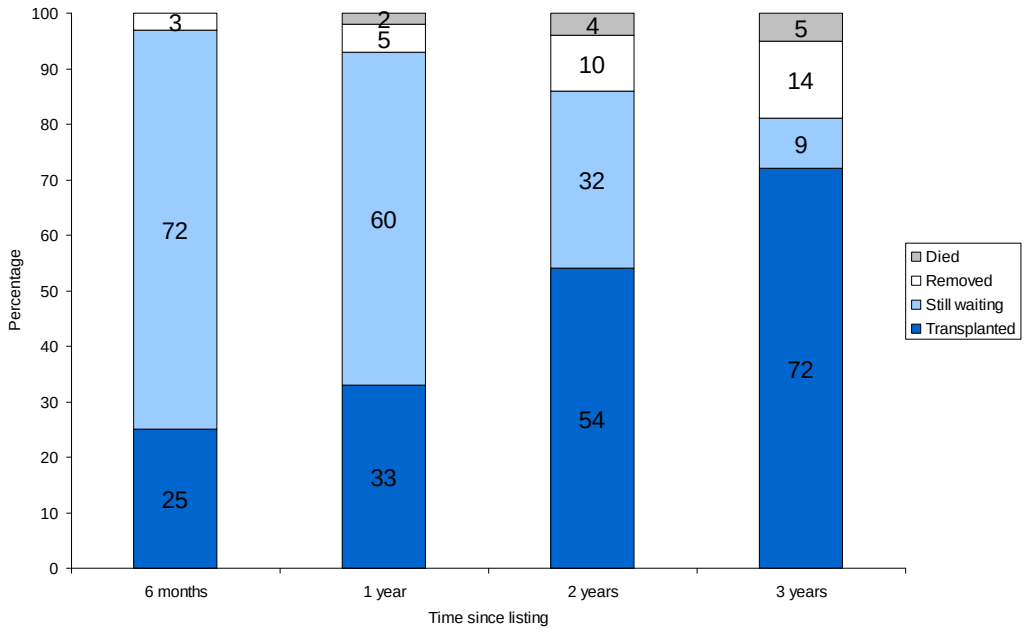


Table 6.3 Median waiting time to pancreas only and kidney/pancreas transplant in the UK, for patients registered 1 April 2007 - 31 March 2011

Blood group	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult			
O	572	418	368 - 468
A	502	311	253 - 369
B	108	264	196 - 332
AB	26	78	50 - 106
TOTAL	**1208**	**359**	**323 - 395**

Table 6.4 Median waiting time to pancreas only and kidney/pancreas transplant in the UK, for patients registered 1 April 2007 - 31 March 2011

Ethnicity	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult			
White	1108	369	331 - 407
Asian	59	370	285 - 455
Black	24	199	8 - 390
Other	17	188	141 - 235
TOTAL	**1208**	**359**	**323 - 395**

6.3 Donor and organ supply

Of the 705 organ donors after brain death in the UK in 2012-2013, 359 (51%) donated a pancreas. There were 92 pancreas donors after circulatory death in 2012-2013. **Table 6.5** shows this activity by country/Strategic Health Authority of the donor's residence. No adjustments have been made for potential demographic differences in populations.

The overall rate for pancreas donors after brain death is 5.7 pmp, with rates ranging from 3.4 to 9.2 pmp across the Strategic Health Authorities and for donors after circulatory death is 1.4 pmp, with rates ranging from 0.4 to 2.6 pmp across the Strategic Health Authorities.

Table 6.5 Pancreas donation rates for deceased donors in the UK, 1 April 2012 - 31 March 2013, by Country/Strategic Health Authority[1]

Country/ Strategic Health Authority of residence	Pancreas donors (pmp)					
	DBD		DCD		TOTAL	
North East	24	(9.2)	1	(0.4)	**25**	**(9.6)**
North West	37	(5.2)	6	(0.8)	**43**	**(6.1)**
Yorkshire and The Humber	23	(4.3)	6	(1.1)	**29**	**(5.5)**
North of England	**84**	**(5.6)**	**13**	**(0.9)**	**97**	**(6.5)**
East Midlands	16	(3.5)	9	(2.0)	**25**	**(5.5)**
West Midlands	37	(6.6)	11	(2.0)	**48**	**(8.6)**
East of England	40	(6.8)	15	(2.6)	**55**	**(9.4)**
Midlands and East	**93**	**(5.8)**	**35**	**(2.2)**	**128**	**(8.0)**
London	**37**	**(4.5)**	**13**	**(1.6)**	**50**	**(6.1)**
South East Coast	33	(7.4)	2	(0.4)	**35**	**(7.8)**
South Central	33	(7.9)	3	(0.7)	**36**	**(8.6)**
South West	18	(3.4)	14	(2.6)	**32**	**(6.0)**
South of England	**84**	**(6.0)**	**19**	**(1.4)**	**103**	**(7.4)**
England	**298**	**(5.6)**	**80**	**(1.5)**	**378**	**(7.1)**
Isle of Man	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Channel Islands	**3**	**(18.8)**	**0**	**(0.0)**	**3**	**(18.8)**
Wales	**18**	**(5.9)**	**4**	**(1.3)**	**22**	**(7.2)**
Scotland	**27**	**(5.1)**	**7**	**(1.3)**	**34**	**(6.5)**
Northern Ireland	**13**	**(7.2)**	**1**	**(0.6)**	**14**	**(7.7)**
TOTAL	**359**	**(5.7)**	**92**	**(1.4)**	**451**	**(7.1)**

[1] Includes 9 donors where the hospital postcode was used in place of an unknown donor postcode

6.4 Transplants

The number of pancreas transplants by recipient country of residence/ Strategic Health Authority is shown in **Table 6.6**. No adjustments have been made for potential demographic differences in populations. For donors after brain death the transplant rate ranged from 1.1 to 5.3 pmp across Strategic Health Authorities and overall was 3.0 pmp. For donors after circulatory death the overall rate was 0.6 pmp and ranged from 0.0 to 1.3 pmp across Strategic Health Authorities.

Table 6.6 Pancreas transplant rates per million population (pmp), in the UK, 1 April 2012 - 31 March 2013, by country and English Strategic Health Authority

Country/ Strategic Health Authority of residence	DBD		DCD		TOTAL	
	N	(pmp)	N	(pmp)	N	(pmp)
North East	6	(2.3)	0	(0.0)	**6**	**(2.3)**
North West	24	(3.4)	2	(0.3)	**26**	**(3.7)**
Yorkshire and The Humber	6	(1.1)	1	(0.2)	**7**	**(1.3)**
North of England	**36**	**(2.4)**	**3**	**(0.2)**	**39**	**(2.6)**
East Midlands	7	(1.5)	0	(0.0)	**7**	**(1.5)**
West Midlands	23	(4.1)	4	(0.7)	**27**	**(4.8)**
East of England	13	(2.2)	2	(0.3)	**15**	**(2.6)**
Midlands and East	**43**	**(2.7)**	**6**	**(0.4)**	**49**	**(3.1)**
London	**25**	**(3.0)**	**10**	**(1.2)**	**35**	**(4.3)**
South East Coast	7	(1.6)	6	(1.3)	**13**	**(2.9)**
South Central	14	(3.3)	4	(1.0)	**18**	**(4.3)**
South West	28	(5.3)	2	(0.4)	**30**	**(5.7)**
South of England	**49**	**(3.5)**	**12**	**(0.9)**	**61**	**(4.4)**
England	**153**	**(2.9)**	**31**	**(0.6)**	**184**	**(3.5)**
Isle of Man	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Channel Islands	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Wales	**10**	**(3.3)**	**8**	**(2.6)**	**18**	**(5.9)**
Scotland	**22**	**(4.2)**	**2**	**(0.4)**	**24**	**(4.6)**
Northern Ireland	**6**	**(3.3)**	**0**	**(0.0)**	**6**	**(3.3)**
TOTAL	**191**[1]	**(3.0)**	**41**	**(0.6)**	**232**[1]	**(3.7)**

[1] Excludes 1 recipient where the postcode was unknown

There were 233 deceased donor pancreas transplants in 2012-2013 representing a decrease of 3% on the 239 transplants performed in 2011-2012. Of these 233, 166 (71%) were SPK transplants, 37 (16%) were pancreas only transplants (pancreas alone (PTA) or pancreas after kidney (PAK)) and 30 (13%) were islet transplants. The number of transplants performed at each centre is shown in **Table 6.7** by transplant type and **Table 6.8** by donor type. Note that King's College and The Royal Free only perform islet transplants.

The length of time that elapses between a pancreas 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 pancreas is to work immediately and the better the long-term outcome. The median CIT for a DBD donor whole pancreas transplant is 11.5 hours (Inter-Quartile (IQ) range 10.0 – 13.6) and for a DCD donor whole pancreas transplant is 11.2 hours (IQ range 9.7 – 13.3) and overall is 11.5 hours (IQ range 9.9 – 13.5).

At 31 March 2013, there were approximately 1,500 recipients with a functioning pancreas transplant (including multi-organ transplants) being followed-up, as reported to the UK Transplant Registry.

Table 6.7 Pancreas transplants, 1 April 2012 - 31 March 2013 (2011-2012) by centre

Centre	Transplant type									
	SPK		PTA		PAK		Islet[1]			
							Routine		Priority	
Bristol	-	-	-	-	-	-	1	(0)	0	(0)
Cambridge	8	(16)	0	(0)	1	(0)	-	-	-	-
Cardiff	10	(8)	2	(4)	4	(1)	-	-	-	-
Edinburgh	20	(17)	0	(0)	0	(0)	5	(5)	5	(3)
Guys	24	(23)	2	(2)	5	(1)	-	-	-	-
King's College	-	-	-	-	-	-	1	(1)	0	(0)
Manchester	31	(27)	0	(1)	2	(0)	0	(2)	1	(0)
Newcastle	4	(2)	0	(0)	0	(3)	2	(5)	3	(5)
Oxford	59	(70)	15	(15)	1	(3)	7	(5)	0	(1)
Royal Free	-	-	-	-	-	-	3	(3)	2	(0)
WLRTC	10	(10)	0	(0)	5	(6)	-	-	-	-
TOTAL	**166**	**(173)**	**19**	**(22)**	**18**	**(14)**	**19**	**(21)**	**11**	**(9)**

WLRTC - West London Renal and Transplant Centre

Table 6.8 Pancreas transplants, 1 April 2012 - 31 March 2013 by centre

Centre	Transplant and donor type							
	SPK		PTA		Islet		**TOTAL**	
	DBD	DCD	DBD	DCD	DBD	DCD	**DBD**	**DCD**
Bristol	-	-	-	-	1	0	**1**	**0**
Cambridge	8	0	1	0	-	-	**9**	**0**
Cardiff	3	7	5	1	-	-	**8**	**8**
Edinburgh	19	1	0	0	9	1	**28**	**2**
Guys	13	11	5	2	-	-	**18**	**13**
King's College	-	-	-	-	1	0	**1**	**0**
Manchester	28	3	2	0	1	0	**31**	**3**
Newcastle	4	0	0	0	5	0	**9**	**0**
Oxford	51	8	14	2	5	2	**70**	**12**
Royal Free	-	-	-	-	5	0	**5**	**0**
WLRTC	7	3	5	0	-	-	**12**	**3**
TOTAL	**133**	**33**	**32**	**5**	**27**	**3**	**192**	**41**

WLRTC - West London Renal and Transplant Centre

6.5 Demographic characteristics

The age group, sex, ethnicity and blood group of deceased donors, transplant recipients and patients on the transplant list is shown in **Table 6.9**.

Table 6.9 Demographic characteristics of deceased pancreas donors and transplant recipients, 1 April 2012 - 31 March 2013, and transplant list patients at 31 March

	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
Age group (years)						
0 - 17	25	(6)	0	(0)	2	(1)
18 - 34	96	(21)	42	(18)	54	(20)
35 - 49	177	(39)	125	(54)	153	(55)
50 - 59	132	(29)	59	(25)	62	(22)
60 - 69	21	(5)	7	(3)	5	(2)
mean (SD)	42	(13)	43	(9)	43	(9)
Sex						
Male	237	(53)	133	(57)	143	(52)
Female	214	(47)	100	(43)	133	(48)
Ethnicity						
White	426	(94)	206	(88)	246	(89)
Asian	6	(1)	13	(6)	11	(4)
Black	12	(3)	12	(5)	9	(3)
Chinese	2	(0)	0	(0)	0	(0)
Other	5	(1)	0	(0)	6	(2)
Not reported			2	-	4	-
Blood group						
O	212	(47)	96	(41)	169	(61)
A	190	(42)	104	(45)	91	(33)
B	35	(8)	25	(11)	14	(5)
AB	14	(3)	8	(3)	2	(1)
Graft number						
First graft			210	(90)	243	(88)
Re-graft			23	(10)	33	(12)
TOTAL	**451**	**(100)**	**233**	**(100)**	**276**	**(100)**

Cardiothoracic Activity

Key messages

- **At 31 March 2013, there were 200 patients on the active heart transplant list, 226 on the lung list and 16 on the heart/lung list**
- **Of the 705 organ donors after brain death, 256 (36%) were cardiothoracic organ donors**
- **The number of heart transplants from deceased donors increased by 5% to 145 this year; two thirds of these were urgent heart transplants**
- **The number of lung or heart/lung transplants from deceased donors increased by 6% to 191**

7.1 Overview

Last year the number of heart transplants increased by 5% to 145 and the number of lung or heart/lung transplants increased by 6% to 191. There were increases in both the heart and the lung transplant lists since March 2012. The number of patients registered on the active heart transplant list at year end has increased by 89% since 2004, while the number of patients registered for a lung or heart/lung transplant has decreased by 17% since 2004.

A summary of the deceased donor cardiothoracic activity from 1 April 2003 to 31 March 2013 is shown in **Figure 7.1** for heart activity and **Figure 7.2** for lung activity. Donors who donate both heart and lung(s) are included in both figures, but heart/lung block transplants and patients active on the transplant list for a heart/lung block are only included in **Figure 7.2**.

Figure 7.1 Deceased donor heart programme in the UK, 1 April 2003 - 31 March 2013
Number of donors, transplants and patients on the active transplant list at 31 March

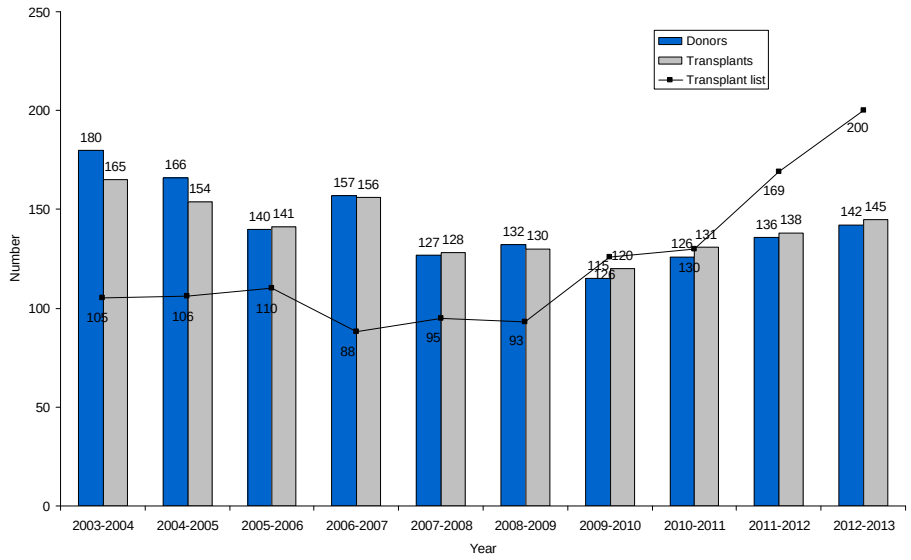
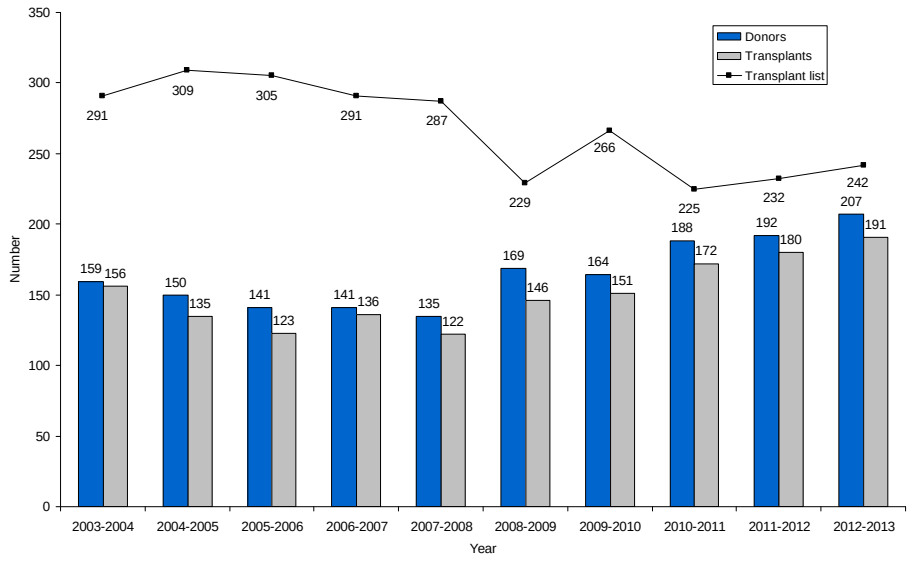


Figure 7.2 Deceased donor lung and heart/lung programme in the UK, 1 April 2003 - 31 March 2013
Number of donors, transplants and patients on the active transplant list at 31 March



7.2 Transplant list

Table 7.1 shows the number of patients on the active transplant lists at 31 March 2013 by centre. The lung transplant list accounts for 51% of the patients waiting for a cardiothoracic transplant. Overall, Harefield has the largest cardiothoracic list.

During 2012-2013, 259 patients joined the heart transplant list while 10 joined the heart/lung list and 252 joined the lung transplant list. Outcomes for patients on the list at 1 April 2012 and those joining the list during the year are shown in **Table 7.2**.

An indication of longer term outcomes for adult patients listed for a cardiothoracic organ transplant is summarised in **Figure 7.3** and **Figure 7.4**. This shows the proportion of patients transplanted or still waiting six months, one year, two years and three years after joining the non-urgent heart list or the lung list, respectively. It also shows the proportion removed from the transplant list and those dying while on the transplant list. Within six months of listing, 36% of non-urgent heart patients are transplanted while 12% have died while waiting. For patients listed for a lung transplant, only 32% are transplanted within six months, rising to 63% after three years. The patients removed from these lists may also subsequently have died.

Table 7.1 Patients on the cardiothoracic transplant lists at 31 March 2013 (2012) in the UK, by centre

Centre	Active transplant lists									
	Heart				Heart/lung		Lung		**TOTAL**	
	Non-urgent		Urgent							
Adult										
Birmingham	17	(7)	2	(0)	0	(2)	20	(16)	**39**	**(25)**
Glasgow	6	(8)	2	(1)	0	(0)	0	(0)	**8**	**(9)**
Great Ormond Street	2	(1)	0	(0)	0	(0)	2	(0)	**4**	**(1)**
Harefield	51	(39)	2	(3)	2	(2)	68	(66)	**123**	**(110)**
Manchester	13	(16)	2	(1)	0	(0)	39	(24)	**54**	**(41)**
Newcastle	37	(33)	4	(2)	2	(3)	55	(74)	**98**	**(112)**
Papworth	44	(42)	4	(2)	10	(6)	29	(23)	**87**	**(73)**
TOTAL	**170**	**(146)**	**16**	**(9)**	**14**	**(13)**	**213**	**(203)**	**413**	**(371)**
Paediatric										
Great Ormond Street	7	(7)	3	(3)	2	(3)	11	(12)	**23**	**(25)**
Newcastle	2	(1)	2	(3)	0	(0)	2	(1)	**6**	**(5)**
TOTAL	**9**	**(8)**	**5**	**(6)**	**2**	**(3)**	**13**	**(13)**	**29**	**(30)**

Table 7.2 Cardiothoracic transplant lists and new registrations in the UK, 1 April 2012 - 31 March 2013

Outcome of patient at 31 March 2013	Active and suspended patients at 1 April 2012		New registrations in 2012-2013[1]		TOTAL	
	N	%	N	%	**N**	**%**
Heart transplant list						
Remained active/suspended	85	49	122	47	**207**	**48**
Transplanted	48	28	95	37	**143**	**33**
Removed	21	12	22	8	**43**	**10**
Died	20	11	20	8	**40**	**9**
TOTAL	**174**		**259**		**433**	
Heart/lung transplant list						
Remained active/suspended	10	67	6	60	**16**	**64**
Transplanted[2]	2	13	3	30	**5**	**20**
Removed	2	13	1	10	**3**	**12**
Died	1	7	0	0	**1**	**4**
TOTAL	**15**		**10**		**25**	
Lung transplant list						
Remained active/suspended	85	40	140	56	**225**	**48**
Transplanted	85	40	90	36	**175**	**38**
Removed	14	7	5	2	**19**	**4**
Died	28	13	17	7	**45**	**10**
TOTAL	**212**		**252**		**464**	

[1] Includes re-registrations for second or subsequent transplants
[2] Heart, lung or heart/lung

Figure 7.3 Post-registration outcome for 116 new non-urgent heart only registrations made in the UK, 1 April 2009 - 31 March 2010

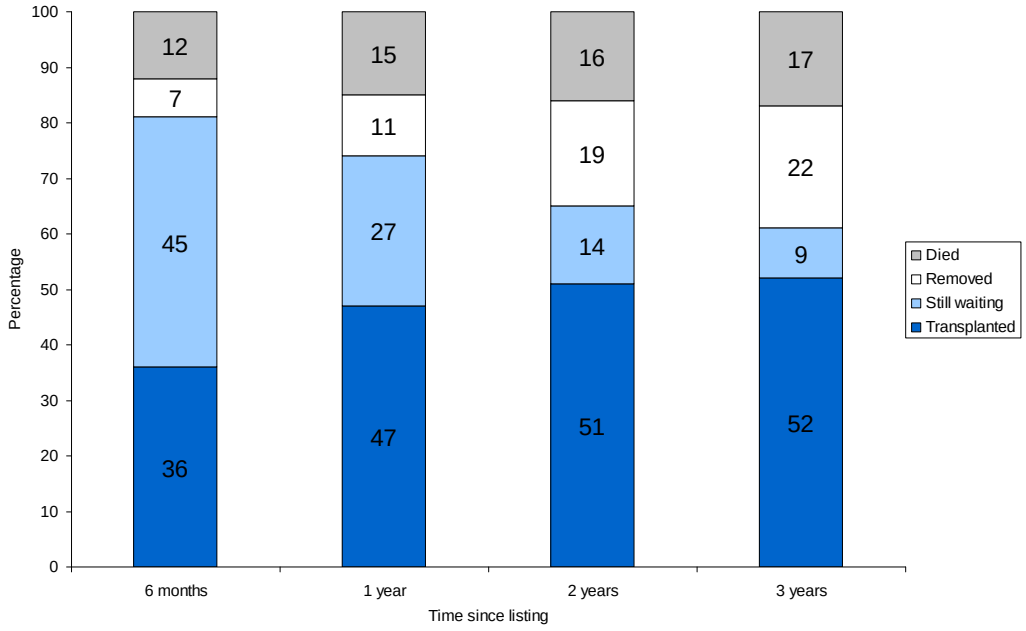


Figure 4 **Post-registration outcome for 258 new lung only registrations made in the UK, 1 April 2009 - 31 March 2010**

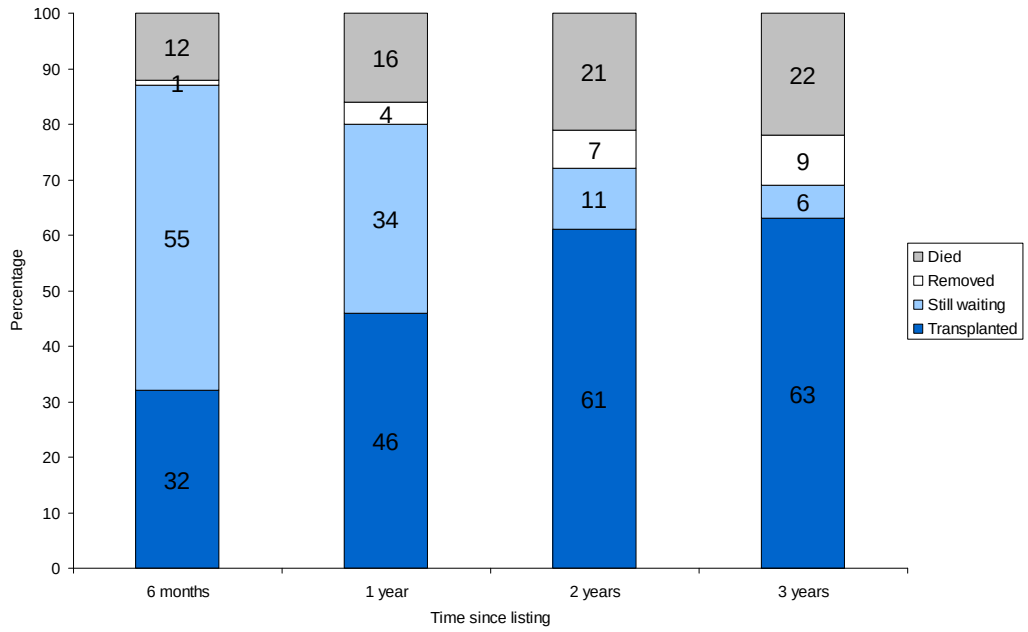


Table 7.3 and **Table 7.4** show the median waiting time to cardiothoracic transplant by blood group and ethnicity, respectively, for patients registered between April 2008 and March 2011. Median waiting time for adult non-urgent heart patients is 293 days overall, compared with 289 days for adult lung patients. The median waiting time for paediatric non-urgent heart patients is 129 days; this is not broken down by blood group or ethnicity due to low numbers. Paediatric recipients are aged less than 16 years at time of listing. 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 7.3 Median waiting time to cardiothoracic transplant in the UK, for patients registered 1 April 2008 - 31 March 2011

Blood group	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult non-urgent heart			
O[1]	108	1187	-
A	100	147	79 - 215
B	29	191	108 - 274
AB	16	148	31 - 265
TOTAL	**253**	**293**	**160 - 426**
Paediatric non-urgent heart	**49**	**129**	**0 - 429**
Adult lung			
O	310	470	388 - 552
A	240	165	121 - 209
B	65	425	285 - 565
AB	23	65	0 - 154
TOTAL	**638**	**289**	**247 - 331**

[1] Unable to estimate 95% confidence interval

Table 7.4 Median waiting time to cardiothoracic transplant in the UK, for patients registered 1 April 2008 - 31 March 2011

Ethnicity	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult non-urgent heart			
White	220	293	172 - 414
Asian	18	512	20 - 1004
Black	7	-	-
Other	8	-	-
TOTAL	**253**	**293**	**160 - 426**
Paediatric non-urgent heart	**49**	**129**	**0 - 429**
Adult lung			
White	613	286	240 - 332
Asian	13	299	95 - 503
Black	7	-	-
Other	5	-	-
TOTAL	**638**	**289**	**247 - 331**

Median waiting time not reported for fewer than 10 patients

Table 7.5 Cardiothoracic organ donors in the UK, 1 April 2012 - 31 March 2013 (2011-2012), by age group and allocation zone

Allocation zone	Type of cardiothoracic donor								TOTAL	
	Heart only		Heart & lung		Lung(s) only DBD		Lung(s) only DCD			
Adult										
Birmingham	18	(13)	7	(15)	14	(15)	7	(8)	46	(51)
Glasgow	9	(1)	2	(3)	13	(6)	4	(2)	28	(12)
Harefield	10	(9)	9	(5)	20	(23)	5	(2)	44	(39)
Manchester	9	(9)	4	(6)	16	(17)	5	(2)	34	(34)
Newcastle	12	(9)	11	(14)	29	(24)	8	(2)	60	(49)
Papworth	20	(18)	18	(26)	22	(13)	8	(5)	68	(62)
TOTAL	**78**	**(59[1])**	**51**	**(69)**	**114**	**(98)**	**37**	**(21)**	**280**	**(247)**
Paediatric										
Birmingham	4	(1)	0	(1)	0	(1)	1	(0)	5	(3)
Glasgow	0	(1)	1	(1)	0	(0)	0	(0)	1	(2)
Harefield	3	(2)	0	(0)	0	(0)	0	(0)	3	(2)
Manchester	1	(2)	0	(0)	0	(0)	0	(0)	1	(2)
Newcastle	0	(0)	3	(0)	0	(0)	0	(0)	3	(0)
Papworth	1	(3)	0	(0)	0	(0)	0	(1)	1	(4)
TOTAL	**9**	**(9)**	**4**	**(2)**	**0**	**(1)**	**1**	**(1)**	**14**	**(13)**

Paediatric donors are aged under 16 years

[1] Includes three domino heart donors

7.3 Donor and organ supply

The number of cardiothoracic organ donors classified by allocation zone of the donor hospital is summarised in **Table 7.5**. The numbers reflect the number of organs retrieved from within each zone (by any retrieval team) rather than the number of retrievals made by that centre. 37 of the 151 adult lung only donors were donors after circulatory death and there were no living donors. There were no domino heart donors. Of the 243 adult cardiothoracic donors after brain death, 32% donated only the heart, 21% heart and lung and 47% lung only. Of the 13 paediatric cardiothoracic donors after brain death, 69% donated only the heart and 31% heart and lung.

Table 7.6 shows the number of organ donors after brain death identified in each allocation zone, the number that donated cardiothoracic organs and the number of organs retrieved.

Of the 705 organ donors after brain death, 36% donated cardiothoracic organs. Overall, 95% of the 466 organs retrieved were transplanted: 100% of hearts and 92% of lungs.

Table 7.6 Cardiothoracic organ donation and retrieval rates from donors after brain death in the UK, 1 April 2012 - 31 March 2013, by donation zone

Allocation zone of donor hospital	Number of donors		Number of organs retrieved (used)				TOTAL retrieved (used)	
	DBD solid organ	Cardiothoracic	Hearts		Lungs			
Birmingham	125	43	29	(29)	41	(38)	**70**	**(67)**
Glasgow	56	25	12	(12)	30	(24)	**42**	**(36)**
Harefield	132	42	22	(22)	56	(54)	**78**	**(76)**
Manchester	73	30	14	(14)	35	(33)	**49**	**(47)**
Newcastle	125	55	26	(26)	82	(76)	**108**	**(102)**
Papworth	194	61	39	(39)	80	(74)	**119**	**(113)**
TOTAL	**705**	**256**	**142**	**(142)**	**324**	**(299)**	**466**	**(441)**

The rates per million population for cardiothoracic donors are shown in **Table 7.7** by donor country/Strategic Health Authority of residence. No adjustments have been made for potential demographic differences in populations. The overall cardiothoracic donor rate was 4.6 pmp in 2012-2013 and varied across the Strategic Health Authorities from 2.9 pmp to 8.5 pmp, while the rate in Northern Ireland was 9.4 pmp.

Table 7.7 Cardiothoracic deceased donor rates in the UK, 1 April 2012 - 31 March 2013, by Country/Strategic Health Authority[1]

Country/ Strategic Health Authority	Heart (pmp) DBD		Lungs (pmp) DBD		Lungs (pmp) DCD		Total (pmp)	
North East	9	(3.5)	14	(5.4)	4	(1.5)	22	(8.5)
North West	11	(1.6)	20	(2.8)	5	(0.7)	32	(4.5)
Yorkshire and The Humber	12	(2.3)	16	(3.0)	1	(0.2)	23	(4.3)
North of England	**32**	**(2.1)**	**50**	**(3.3)**	**10**	**(0.7)**	**77**	**(5.2)**
East Midlands	7	(1.5)	5	(1.1)	3	(0.7)	13	(2.9)
West Midlands	15	(2.7)	15	(2.7)	1	(0.2)	26	(4.6)
East of England	15	(2.6)	19	(3.2)	4	(0.7)	31	(5.3)
Midlands and East	**37**	**(2.3)**	**39**	**(2.4)**	**8**	**(0.5)**	**70**	**(4.4)**
London	**14**	**(1.7)**	**10**	**(1.2)**	**4**	**(0.5)**	**24**	**(2.9)**
South East Coast	12	(2.7)	17	(3.8)	**0**	**(0.0)**	20	(4.5)
South Central	9	(2.2)	14	(3.3)	1	(0.2)	21	(5.0)
South West	10	(1.9)	7	(1.3)	6	(1.1)	20	(3.8)
South of England	**31**	**(2.2)**	**38**	**(2.7)**	**7**	**(0.5)**	**61**	**(4.4)**
England	**114**	**(2.1)**	**137**	**(2.6)**	**29**	**(0.5)**	**232**	**(4.4)**
Isle of Man	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Channel Islands	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Wales	**10**	**(3.3)**	**6**	**(2.0)**	**2**	**(0.7)**	**16**	**(5.2)**
Scotland	**12**	**(2.3)**	**16**	**(3.0)**	**4**	**(0.8)**	**29**	**(5.5)**
Northern Ireland	**6**	**(3.3)**	**10**	**(5.5)**	**3**	**(1.7)**	**17**	**(9.4)**
TOTAL	**142**	**(2.2)**	**169**	**(2.7)**	**38**	**(0.6)**	**294**	**(4.6)**

[1] Includes 4 donors where the hospital postcode was used in place of an unknown postcode

7.4 Transplants

The number of cardiothoracic transplants by recipient country/Strategic Health Authority of residence are shown in **Table 7.8**. No adjustments have been made for potential demographic differences in populations. The transplant rate ranged from 2.5 to 9.6 pmp across Strategic Health Authorities and overall was 5.2 pmp. Lung transplants include the small number of heart/lung transplants performed.

Table 7.8 Cardiothoracic transplant rates per million population (pmp) in the UK, 1 April 2012 - 31 March 2013, by Country/ Strategic Health Authority

Country/ Strategic Health Authority	Heart (pmp) DBD		Lungs (pmp) DBD		Lungs (pmp) DCD		Total (pmp)	
North East	13	(5.0)	8	(3.1)	4	(1.5)	25	(9.6)
North West	21	(3.0)	21	(3.0)	2	(0.3)	44	(6.2)
Yorkshire and The Humber	8	(1.5)	8	(1.5)	1	(0.2)	17	(3.2)
North of England	**42**	**(2.8)**	**37**	**(2.5)**	**7**	**(0.5)**	**86**	**(5.8)**
East Midlands	10	(2.2)	11	(2.4)	**0**	**(0.0)**	21	(4.6)
West Midlands	17	(3.0)	14	(2.5)	1	(0.2)	32	(5.7)
East of England	13	(2.2)	22	(3.8)	3	(0.5)	38	(6.5)
Midlands and East	**40**	**(2.5)**	**47**	**(2.9)**	**4**	**(0.2)**	**91**	**(5.7)**
London	**10**	**(1.2)**	**16**	**(2.0)**	**4**	**(0.5)**	**30**	**(3.7)**
South East Coast	6	(1.3)	2	(0.4)	3	(0.7)	11	(2.5)
South Central	9	(2.2)	10	(2.4)	3	(0.7)	22	(5.3)
South West	12	(2.3)	11	(2.1)	6	(1.1)	29	(5.5)
South of England	**27**	**(1.9)**	**23**	**(1.6)**	**12**	**(0.9)**	**62**	**(4.4)**
England	**119**	**(2.2)**	**123**	**(2.3)**	**27**	**(0.5)**	**269**	**(5.1)**
Isle of Man	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Channel Islands	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Wales	**5**	**(1.6)**	**6**	**(2.0)**	**1**	**(0.3)**	**12**	**(3.9)**
Scotland	**13**	**(2.5)**	**15**	**(2.9)**	**4**	**(0.8)**	**32**	**(6.1)**
Northern Ireland	**5**	**(2.8)**	**8**	**(4.4)**	**2**	**(1.1)**	**15**	**(8.3)**
TOTAL[1]	**142**[2]	**(2.2)**	**152**	**(2.4)**	**34**	**(0.5)**	**328**	**(5.2)**

[1] Excludes 7 recipients who reside outside of the UK (2 DBD heart, 5 DBD lung)
[2] Excludes 1 recipient where the postcode was unknown

Table 7.9 shows cardiothoracic transplant activity for each centre. In 2012-2013, a total of 336 transplants were carried out, an increase of 5% on 2011-2012. Of these, 43% were deceased donor heart transplants. The 185 adult lung transplants include 34 (18%) from donors after circulatory death.

Table 7.9 Cardiothoracic transplants, 1 April 2012 - 31 March 2013 (2011-2012), by age group and centre

Transplant centre	Transplant type										TOTAL	
	Heart				Heart/ lung		Lung(s)					
	Non-urgent		Urgent				DBD		DCD			
Adult												
Birmingham	8	(12)	12	(10)	0	(0)	15	(15)	1	(0)	36	(37)
Glasgow	4	(5)	5	(4)	0	(0)	0	(0)	0	(0)	9	(9)
Great Ormond Street	0	(1)	1	(0)	0	(0)	1	(1)	0	(0)	2	(2)
Harefield	7	(3)	14	(6)	0	(0)	34	(39)	14	(12)	69	(60)
Manchester	8	(6)	14	(12)	0	(0)	24	(22)	2	(4)	48	(44)
Newcastle	2	(8)	20	(9)	1	(0)	46	(43)	12	(2)	81	(62)
Papworth	11	(12)	15	(20)	2	(5)	31	(30)	5	(3)	64	(70)
TOTAL	**40**	**(47[1])**	**81**	**(61)**	**3**	**(5)**	**151**	**(150)**	**34**	**(21)**	**309**	**(284)**
Paediatric												
Glasgow	0	(0)	1	(0)	0	(0)	0	(0)	0	(0)	1	(0)
Great Ormond Street	1	(5)	8	(13)	0	(0)	2	(3)	0	(0)	11	(21)
Newcastle	1	(1)	13	(14)	0	(0)	1	(1)	0	(0)	15	(16)
TOTAL	**2**	**(6)**	**22**	**(27)**	**0**	**(0)**	**3**	**(4)**	**0**	**(0)**	**27**	**(37)**

Paediatric recipients are aged under 16 years at time of transplant
[1] Includes 3 domino donor transplants

There were 81 adult urgent heart transplants in 2012-2013, representing 67% of all adult heart transplants (56% in 2011-2012). There were 22 paediatric urgent heart transplants in 2012-2013, representing 92% of all paediatric heart transplants (82% in 2011-2012). A small number of hearts and lungs were imported from outside the UK for transplantation in the UK: 2 hearts from the Republic of Ireland (ROI) and 5 from elsewhere.

The length of time that elapses between cardiothoracic organs being removed from the donor to their transplantation into the recipient is called the Cold Ischaemia Time (CIT). Generally, the shorter this time, the more likely the organ is to work immediately and the better the long-term outcome. The median CIT for a heart transplant is 3.1 hours (Inter-Quartile (IQ) range 2.5 – 3.7). The median CIT for DBD donor lung transplant is 5.0 hours (IQ range 4.1 – 6.0), for DCD donor lung transplant is 6.7 hours (IQ range 4.8 – 7.3) and overall is 5.1 hours (IQ range 4.2 – 6.3).

At 31 March 2013 there were approximately 3,700 recipients with a functioning cardiothoracic organ transplant being followed-up as reported to the UK Transplant Registry.

7.5 Demographic characteristics

The age group, sex, ethnicity and blood group of deceased donors, transplant recipients and patients on the transplant list is shown in **Table 7.10.**

Table 7.10 Age of deceased cardiothoracic donors and transplant recipients 1 April 2012 - 31 March 2013, 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	20	(7)	31	(9)	38	(9)
18 - 34	56	(19)	79	(24)	82	(19)
35 - 49	114	(39)	68	(20)	115	(26)
50 - 59	82	(28)	109	(32)	124	(28)
60 - 69	22	(7)	48	(14)	83	(19)
70+	0	(0)	1	(0)	0	(0)
mean (SD)	42	(14)	42	(18)	44	(17)
Sex						
Male	150	(51)	215	(64)	256	(58)
Female	144	(49)	121	(36)	186	(42)
Ethnicity						
White	279	(95)	311	(93)	403	(91)
Asian	5	(2)	17	(5)	23	(5)
Black	6	(2)	4	(1)	8	(2)
Chinese	0	(0)	2	(1)	1	(0)
Other	3	(1)	2	(1)	7	(2)
Not reported	1					
Blood group						
O	142	(48)	121	(36)	262	(59)
A	125	(43)	160	(48)	136	(31)
B	23	(8)	41	(12)	35	(8)
AB	4	(1)	14	(4)	9	(2)
Graft number						
First graft			332	(99)	437	(99)
Re-graft			4	(1)	5	(1)
TOTAL	**294**	**(100)**	**336**	**(100)**	**442**	**(100)**

Liver Activity

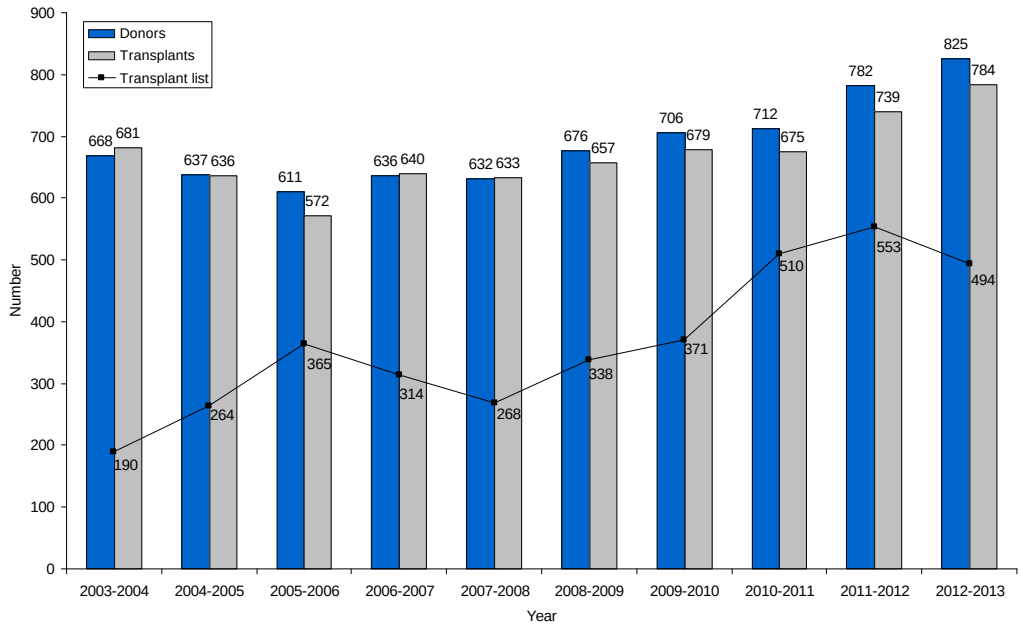
Key messages

- **The number of patients on the active liver transplant list at 31 March 2013 was 494, a decrease of 11% from 2012**
- **The number of liver donors after brain death increased by 6% to 640, and transplants from donors after brain death increased by 7% to 648**
- **The number of liver donors after circulatory death increased by 4% to 185, and transplants from donors after circulatory death increased by 3% to 136**

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**. Until this year, there had been a steady increase in the number of patients registered on the active transplant list at 31 March, and there has been a recent increase in the numbers of donors and transplants.

Figure 8.1 Deceased donor liver programme in the UK, 1 April 2003 - 31 March 2013
Number of donors, transplants and patients on the active transplant list at 31 March



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 retrieval team) rather than the number of retrievals made by that centre. In 2012-2013, 825 organ donors donated their liver for transplant: 640 donors after brain death and 185 donors after circulatory death. There were 494 patients on the active transplant list at 31 March 2013, a decrease of 11% from 2012.

Overall, the number of liver transplants from donors after brain death increased by 7% to 648, and the number of transplants from donors after circulatory death increased by 3% to 136, compared with the previous financial year. Additionally, there were 31 living liver lobe donor transplants in NHS Group 1 (17) and Group 2 (14) paediatric and adult recipients, and 2 domino donor transplants in NHS Group 1 adult recipients. One of the living donors was an altruistic non-directed donor. There were 78 adult super-urgent transplants in 2012-2013, representing 11% of all adult transplants. There were 16 paediatric super-urgent transplants in 2012-2013, representing 20% 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 2012 - 31 March 2013 (2011-2012) and transplant list patients at 31 March 2013 (2012) in the UK, by age group and centre**

Allocation zone/ transplant centre	Deceased donors						Deceased transplants						Living donor transplants		Active transplant list	
	DBD		DCD		**TOTAL**		DBD		DCD		**TOTAL**					
Adult																
Birmingham	139	(115)	53	(55)	192	(170)	124	(114)	49	(33)	173	(147)	2	(1)	76	(118)
Cambridge	87	(91)	24	(20)	111	(111)	72	(65)	13	(21)	85	(86)	0	(0)	46	(43)
Edinburgh	79	(85)	15	(14)	94	(99)	79	(86)	9	(9)	88	(95)	0	(1)	47	(55)
King's College	150	(134)	44	(53)	194	(187)	124	(113)	25	(44)	149	(157)	6	(9)	108	(123)
Leeds	79	(76)	27	(17)	106	(93)	73	(68)	22	(7)	95	(75)	1	(3)	88	(87)
Newcastle	45	(34)	5	(5)	50	(39)	40	(36)	1	(3)	41	(39)	0	(0)	22	(33)
Royal Free	45	(51)	13	(11)	58	(62)	61	(49)	13	(11)	74	(60)	2	(3)	75	(54)
TOTAL	**624**	**(586)**	**181**	**(175)**	**805**	**(761)**	**573**	**(531)**	**132**	**(128)**	**705**	**(659)**	**11**[2]	**(17)**[3]	**462**	**(513)**
Paediatric																
Birmingham	6	(1)	2	(0)	8	(1)	28	(26)	1	(1)	29	(27)	2	(2)	8	(15)
Cambridge	2	(2)	0	(0)	2	(2)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Edinburgh	2	(4)	0	(1)	2	(5)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
King's College	3	(7)	1	(2)	4	(9)	35	(37)	3	(3)	38	(40)	14	(17)	19	(15)
Leeds	1	(4)	1	(0)	2	(4)	12	(13)	0	(0)	12	(13)	6	(7)	4	(10)
Newcastle	1	(0)	0	(0)	1	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Royal Free	1	(0)	0	(0)	1	(0)	0	(0)	0	(0)	0	(0)	0	(0)	1	(0)
TOTAL	**16**	**(18)**	**4**	**(3)**	**20**	**(21)**	**75**	**(76)**	**4**	**(4)**	**79**	**(80)**	**22**[4]	**(26)**[5]	**32**	**(40)**

[1] Includes donors whose livers were retrieved by other teams
[2] Includes 4 and 5 living liver lobe transplants, and 2 and 0 domino transplants in NHS Group 1 and Group 2 recipients, respectively
[3] Includes 7 and 6 living liver lobe transplants, and 4 and 0 domino transplants in NHS Group 1 and Group 2 recipients, respectively
[4] Includes 12 and 9 living liver lobe transplants, and 1 and 0 altruistic donor transplants in NHS Group 1 and Group 2 recipients, respectively
[5] Includes 18 and 7 living liver lobe transplants, and 1 and 0 domino transplants in NHS Group 1 and Group 2 recipients, respectively

8.2 Transplant list

During 2012-2013, 998 patients joined the liver transplant list. Outcomes for patients on the list at 1 April 2012 and those joining the list during the year are shown in **Table 8.2**. Of the 998 new registrations, 125 (12%) were super-urgent.

Table 8.2 Liver transplant list and new registrations in the UK, 1 April 2012 – 31 March 2013

Outcome of patient at 31 March 2013	Active and suspended patients at 1 April 2012		New registrations in 2012-2013[1]		**TOTAL**	
	N	%	N	%	**N**	**%**
Remained active/suspended	145	26	352	35	**497**	**32**
Transplanted	283	51	534	54	**817**	**53**
Removed	91	16	61	6	**152**	**10**
Died	33	6	51	5	**84**	**5**
TOTAL	**552**		**998**		**1550**	

[1] Includes re-registrations for second or subsequent transplants

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, 64% of patients had received a liver transplant while 12% of patients had died whilst waiting or had been removed due to their condition deteriorating. 6% 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.

Figure 8.2 Post-registration outcome for 1023 new elective liver only registrations made in the UK, 1 April 2010 - 31 March 2011

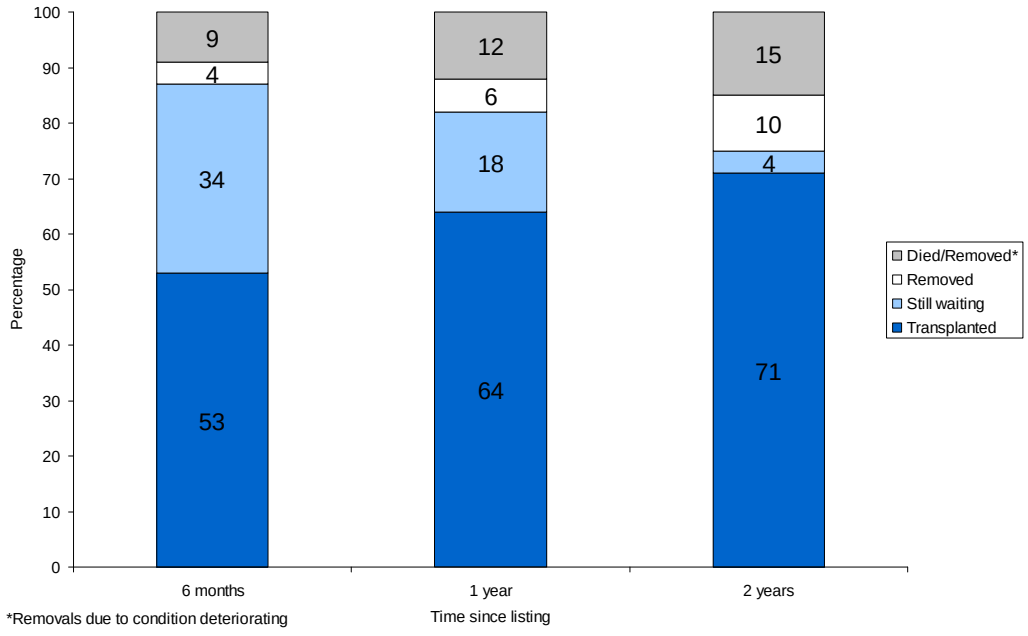


Table 8.3 and **Table 8.4** shows the median waiting time to liver transplant for adult and paediatric elective registrations, separately, including a breakdown by blood group and ethnicity for adult elective registrations only. On average, adult patients wait 147 days for a transplant while paediatric patients wait an average of 72 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.

Table 8.3 Median waiting time to liver transplant in the UK, for patients registered 1 April 2008 - 31 March 2011

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
O	1144	199	180 - 218
A	940	97	85 - 109
B	328	252	194 - 310
AB	113	58	33 - 83
TOTAL	**2525**	**147**	**137 - 157**
Paediatric	**206**	**72**	**53 - 91**

Table 8.4 Median waiting time to liver transplant in the UK, for patients registered 1 April 2008 - 31 March 2011

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
White	2199	145	134 - 156
Asian	207	144	103 - 185
Black	55	169	97 - 241
Other	61	217	55 - 379
TOTAL	**2525**	**147**	**137 - 157**
Paediatric	**206**	**72**	**53 - 91**

8.3 Donor and organ supply

Of the 1,212 organ donors, 825 (68%) donated their liver and 718 (87%) of these donated livers were transplanted; see **Table 8.5**. Of livers retrieved from donors after brain death and donors after circulatory death, 91% and 74% were transplanted, respectively.

Table 8.5 Deceased liver donation and retrieval in the UK, 1 April 2012 - 31 March 2013, 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**	
Birmingham	158	114	**272**	145	55	**200**	145	(134)	55	(49)	**200**	**(183)**
Cambridge	97	92	**189**	89	24	**113**	89	(80)	24	(16)	**113**	**(96)**
Edinburgh	93	55	**148**	81	15	**96**	81	(75)	15	(13)	**96**	**(88)**
King's College	159	103	**262**	153	45	**198**	153	(136)	45	(25)	**198**	**(161)**
Leeds	97	76	**173**	80	28	**108**	80	(73)	28	(22)	**108**	**(95)**
Newcastle	51	36	**87**	46	5	**51**	46	(43)	5	(3)	**51**	**(46)**
Royal Free	50	31	**81**	46	13	**59**	46	(41)	13	(8)	**59**	**(49)**
TOTAL	**705**	**507**	**1212**	**640**	**185**	**825**	**640**	**(582)**	**185**	**(136)**	**825**	**(718)**

The rates per million population (pmp) for liver donors are shown in **Table 8.6** 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 13.0 pmp in 2012-2013 and varied across the Strategic Health Authorities from 8.6 pmp to 16.2 pmp.

Table 8.6 Liver donor rates in the UK, 1 April 2012 - 31 March 2013, by Country/Strategic Health Authority[1]

Country/ Strategic Health Authority	Deceased donors (pmp)					
	DBD		DCD		**Total**	
North East	39	(15.0)	3	(1.2)	**42**	**(16.2)**
North West	56	(7.9)	18	(2.5)	**74**	**(10.5)**
Yorkshire and The Humber	46	(8.7)	14	(2.6)	**60**	**(11.3)**
North of England	**141**	**(9.4)**	**35**	**(2.3)**	**176**	**(11.8)**
East Midlands	29	(6.4)	10	(2.2)	**39**	**(8.6)**
West Midlands	66	(11.8)	23	(4.1)	**89**	**(15.9)**
East of England	67	(11.4)	23	(3.9)	**90**	**(15.4)**
Midlands and East	**162**	**(10.1)**	**56**	**(3.5)**	**218**	**(13.6)**
London	**72**	**(8.8)**	**20**	**(2.4)**	**92**	**(11.2)**
South East Coast	52	(11.6)	11	(2.5)	**63**	**(14.1)**
South Central	57	(13.6)	10	(2.4)	**67**	**(16.0)**
South West	47	(8.9)	30	(5.7)	**77**	**(14.5)**
South of England	**156**	**(11.2)**	**51**	**(3.7)**	**207**	**(14.8)**
England	**531**	**(10.0)**	**162**	**(3.1)**	**693**	**(13.0)**
Isle of Man	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Channel Islands	**3**	**(18.8)**	**0**	**(0.0)**	**3**	**(18.8)**
Wales	**35**	**(11.4)**	**9**	**(2.9)**	**44**	**(14.4)**
Scotland	**50**	**(9.5)**	**12**	**(2.3)**	**62**	**(11.8)**
Northern Ireland	**21**	**(11.6)**	**2**	**(1.1)**	**23**	**(12.7)**
TOTAL	**640**	**(10.1)**	**185**	**(2.9)**	**825**	**(13.0)**

[1] Includes 9 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 8.7**. No adjustments have been made for potential demographic differences in populations. The deceased donor transplant rate ranged from 9.8 to 15.7 pmp across the Strategic Health Authorities and overall was 12.1 pmp.

The number of whole, reduced and split liver transplants by urgency status of the transplant (elective, super-urgent) in 2012-2013 is shown in **Table 8.8**. 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 increased by 6% in 2012-2013. There were 784 deceased donor liver transplants performed in 2012-2013: 663 whole liver, including 8 liver and kidney; and 121 deceased liver lobe, including 3 liver and kidney. Split liver transplants accounted for 93% of liver lobe transplant activity.

Table 8.7 Liver transplant rates per million population (pmp) in the UK, 1 April 2012 - 31 March 2013, by Country/ Strategic Health Authority

Country/ Strategic Health Authority	Deceased transplants (pmp)						Living transplants (pmp)	
	DBD		DCD		**Total**			
North East	35	(13.5)	1	(0.4)	**36**	**(13.8)**	0	(0.0)
North West	61	(8.6)	14	(2.0)	**75**	**(10.6)**	2	(0.3)
Yorkshire and The Humber	42	(7.9)	11	(2.1)	**53**	**(10.0)**	3	(0.6)
North of England	**138**	**(9.2)**	**26**	**(1.7)**	**164**	**(11.0)**	**5**	**(0.3)**
East Midlands	38	(8.4)	10	(2.2)	**48**	**(10.6)**	1	(0.2)
West Midlands	69	(12.3)	19	(3.4)	**88**	**(15.7)**	1	(0.2)
East of England	59	(10.1)	9	(1.5)	**68**	**(11.6)**	1	(0.2)
Midlands and East	**166**	**(10.4)**	**38**	**(2.4)**	**204**	**(12.7)**	**3**	**(0.2)**
London	**78**	**(9.5)**	**22**	**(2.7)**	**100**	**(12.2)**	**2**	**(0.2)**
South East Coast	44	(9.8)	9	(2.0)	**53**	**(11.8)**	2	(0.4)
South Central	35	(8.4)	6	(1.4)	**41**	**(9.8)**	0	(0.0)
South West	51	(9.6)	12	(2.3)	**63**	**(11.9)**	1	(0.2)
South of England	**130**	**(9.3)**	**27**	**(1.9)**	**157**	**(11.2)**	**3**	**(0.2)**
England	**512**	**(9.6)**	**113**	**(2.1)**	**625**	**(11.8)**	**13**	**(0.2)**
Isle of Man	**2**	**(25.0)**	**0**	**(0.0)**	**2**	**(25.0)**	**0**	**(0.0)**
Channel Islands	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Wales	**18**	**(5.9)**	**9**	**(2.9)**	**27**	**(8.8)**	**1**	**(0.3)**
Scotland	**80**	**(15.2)**	**9**	**(1.7)**	**89**	**(17.0)**	**2**	**(0.4)**
Northern Ireland	**19**	**(10.5)**	**3**	**(1.7)**	**22**	**(12.2)**	**0**	**(0.0)**
TOTAL[1]	**631**	**(9.9)**	**134**	**(2.1)**	**765**	**(12.1)**	**16**	**(0.3)**

[1] Excludes 36 recipients who reside outside the UK (17 DBD, 2 DCD, 17 living)

Table 8.8 Deceased liver transplants performed in the UK, 1 April 2011 - 31 March 2013

Transplant centre	2011 - 2012 Whole liver		Reduced liver		Split liver		TOTAL		2012 - 2013 Whole liver		Reduced liver		Split liver		TOTAL	
	E	SU	E	SU	E	SU	E	SU	E	SU	E	SU	E	SU	E	SU
Birmingham	115	21	1	0	36	1	**152**	**22**	151	14	0	1	31	5	**182**	**20**
Cambridge	69	12	0	0	5	0	**74**	**12**	70	13	0	0	2	0	**72**	**13**
Edinburgh	76	11	0	0	8	0	**84**	**11**	70	12	0	0	6	0	**76**	**12**
King's College	134	19	5	6	31	2	**170**	**27**	124	16	3	4	36	4	**163**	**24**
Leeds	64	9	0	2	10	3	**74**	**14**	81	8	1	0	16	1	**98**	**9**
Newcastle	32	4	0	0	3	0	**35**	**4**	34	3	0	0	4	0	**38**	**3**
Royal Free	50	7	0	0	3	0	**53**	**7**	54	13	0	0	7	0	**61**	**13**
TOTAL	**540**	**83**	**6**	**8**	**96**	**6**	**642**	**97**	**584**	**79**	**4**	**5**	**102**	**10**	**690**	**94**

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. The median CIT for a DBD donor liver transplant is 8.8 hours (Inter-Quartile (IQ) range 7.2 – 10.5) and for a DCD donor liver transplant is 7.0 hours (IQ range 6.1 – 8.0) and overall is 8.3 hours (IQ range 6.8 – 10.0).

At 31 March 2013 there were approximately 8,800 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 8.9**.

Table 8.9 Age of deceased liver donors and transplant recipients 1 April 2012 - 31 March 2013, 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	30	(4)	83	(11)	35	(7)
18 - 34	115	(14)	74	(9)	40	(8)
35 - 49	225	(27)	182	(23)	126	(26)
50 - 59	213	(26)	258	(33)	164	(33)
60 - 69	175	(21)	181	(23)	126	(26)
70+	67	(8)	6	(1)	3	(1)
mean (SD)	50	(16)	46	(18)	48	(16)
Sex						
Male	428	(52)	483	(62)	287	(58)
Female	397	(48)	301	(38)	206	(42)
Ethnicity						
White	776	(94)	666	(85)	409	(83)
Asian	19	(2)	76	(10)	46	(9)
Black	17	(2)	17	(2)	19	(4)
Chinese	3	(0)	8	(1)	3	(1)
Other	10	(1)	16	(2)	15	(3)
Not reported			1		2	
Blood group						
O	366	(44)	306	(39)	309	(63)
A	340	(41)	341	(43)	118	(24)
B	86	(10)	95	(12)	64	(13)
AB	33	(4)	42	(5)	3	(1)
Graft number						
First graft			713	(91)	452	(91)
Re-graft			71	(9)	42	(9)
TOTAL	**825**	**(100)**	**784**	**(100)**	**494**	**(100)**

Intestinal Activity

Key messages

- **15 patients were registered for an intestinal transplant in 2012-2013 (13 adults, 2 paediatric patients)**
- **14 intestinal transplants were carried out in 2012-2013 (22 in the previous year)**
- **On average, patients wait just under six months for transplant**

9.1 Overview

Over the last two years (between 1 April 2011 and 31 March 2013), the number of intestinal transplants fell with 22 transplants carried out in 2011-2012 compared to 14 in 2012-2013.

During 2012-2013, there were 15 patients registered for an intestinal transplant. As at 31 March 2013, 5 (33%) patients remained active/suspended, 7 (47%) had received transplant and 3 (20%) died on the transplant list.

9.2 Transplant list

In 2012-2013, there were 15 registrations for an intestinal transplant. The outcome of these registrations for paediatric and adult patients, as at 31 March 2013, broken down by transplant centre can be found in **Table 9.1**.

Table 9.1 Outcome of intestinal registrations in the UK, 1 April 2012 and 13 March 2013

Transplant centre	Outcome of registrations as at 31 March 2013								TOTAL
	Transplanted		Died		Removed		Active/Susp		
	N	%	N	%	N	%	N	%	
Adult									
Cambridge	3	43	1	14	0	0	3	43	7
Oxford	4	67	0	0	0	0	2	33	6
TOTAL	**7**	**54**	**1**	**8**	**0**	**0**	**5**	**38**	**13**
Paediatric									
Birmingham	0	0	2	100	0	0	0	0	2
TOTAL	**0**	**0**	**2**	**100**	**0**	**0**	**0**	**0**	**2**

Table 9.2 shows median waiting time to intestinal transplant by registration type. On average, patients wait 169 days for a transplant.

Table 9.2 Median waiting time to intestinal transplant in the UK, for patients registered 1 April 2009 - 31 March 2012

Registration type	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Bowel only[1]	30	171	105 – 237
Liver, bowel and pancreas[1]	30	168	109 – 227
Bowel and pancreas[1]	20	59	0 – 323
TOTAL	**80**	**169**	**126 – 212**

[1] May also include any of; stomach, spleen, abdominal wall, kidney

9.3 Transplants

Table 9.3 shows intestinal transplant activity by transplant centre and transplant type for financial years 2011-2012 and 2012-2013. In 2012-2013, there were a total of 15 transplants, 11 adult and 4 paediatric transplants.

Table 9.3 Intestinal failure transplants in the UK, 1 April 2012 - 31 March 2013 (2011-2012), by age group, centre and type

Transplant centre	Transplant type LO		BO		LBP		MV		MMV		TOTAL	
Adult												
Cambridge	0	(0)	0	(1)	1	(1)	4	(6)	1	(1)	6	(9)
Oxford	0	(0)	5	(5)	0	(0)	0	(0)	0	(0)	5	(5)
TOTAL	**0**	**(0)**	**5**	**(6)**	**1**	**(1)**	**4**	**(6)**	**1**	**(1)**	**11**	**(14)**
Paediatric												
Birmingham	0	(0)	1	(4)	1	(2)	0	(0)	0	(0)	2	(6)
King's College	0	(0)	1	(2)	1	(0)	0	(0)	0	(0)	2	(2)
TOTAL	**0**	**(0)**	**2**	**(6)**	**2**	**(2)**	**0**	**(0)**	**0**	**(0)**	**4**	**(8)**

LO = Liver only - liver or part thereof
BO = Bowel only (with or without large bowel)
LBP = Liver, bowel and pancreas - liver or part thereof, small bowel (with or without large bowel), pancreas
MV = Multivisceral - liver or part thereof, small bowel (with or without large bowel), pancreas, stomach and/or spleen and/or abdominal wall and/or kidney
MMV = Modified multivisceral - small bowel (with or without large bowel), pancreas, stomach and/or spleen and/or abdominal wall and/or kidney

Cornea Activity

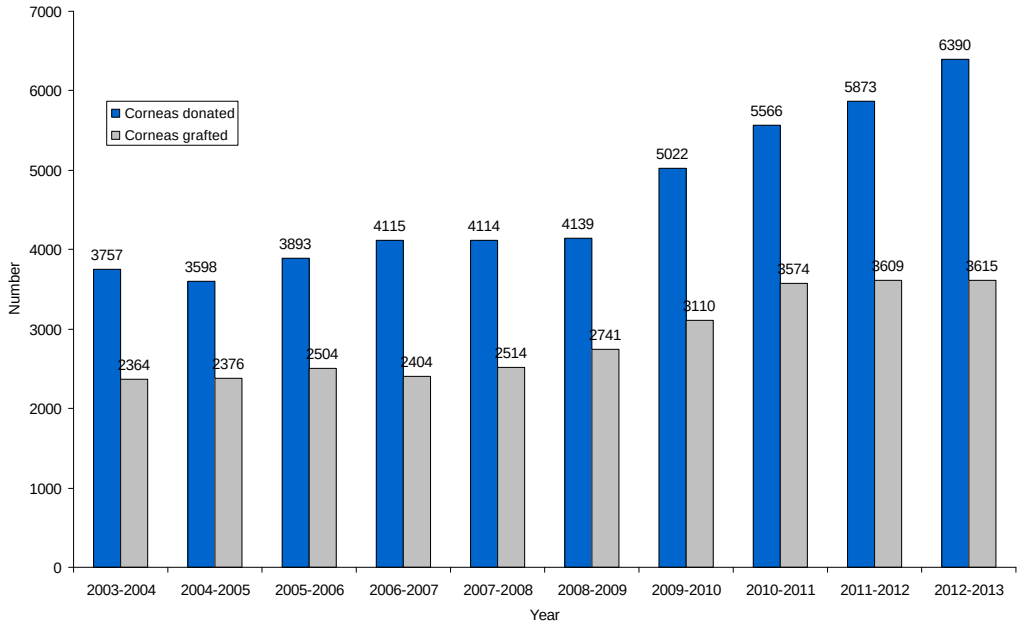
Key messages

- **5,978 corneas were supplied to the Corneal Transplant Service (CTS) eye banks, representing a 10% increase over last year**
- **The number of transplants remained stable at 3,615, meeting demand**
- **Corneas were retrieved from 31% of organ donors after brain death and 32% of organ donors after circulatory death**
- **36% of cornea only donors were 80 years of age or over**

10.1 Overview

The number of corneas donated in 2012-2013 was 6,390, representing an increase of 9% on last year, as shown in **Figure 10.1**. Additionally, 370 sclera were issued and used. The increase is mainly due to the Eye Retrieval Scheme (ERS) but also due to the fact that more corneas are being donated from organ donors. The ERS consists of 10 teams embedded in the selected trust/boards across the UK, that are funded by NHSBT for the purpose of promoting, procuring and retrieving ocular tissue for clinical use. **It should be noted that not all cornea donors and transplants in the UK are reported to the UK Transplant Registry and thus the data reported are not the full national data.**

Figure 10.1 Cornea programme in the UK, 1 April 2003 - 31 March 2013
Number of corneas donated and corneas grafted



In 2012-2013 there were 3,217 tissue donors, of whom 2,840 donated corneas and 377 donated corneas and solid organs: see **Table 10.1**. Compared to 2011-2012, the number of cornea only donors increased by 9%, and the number of cornea and solid organ donors increased by 5%. In 2012-2013, corneas were retrieved from 31% of organ donors after brain death compared with 34% in 2011-2012. Of the 507 organ donors after circulatory death in 2012-2013, 160 (32%) also donated corneas (the same rate as in 2011-2012).

Table 10.1 also shows the number and rate per million population (pmp) of donors in 2012-2013 by country and former English Strategic Health Authority (SHA), with figures for 2011-2012 in parentheses. No adjustments have been made for potential demographic differences in populations. England had the highest cornea donor rate in the UK in 2012-2013 (53.9 pmp). In 2012-2013, the cornea donor rate increased in England and Scotland but fell in Wales and Northern Ireland. Across the SHAs the cornea donor rate varied markedly from 16.5 pmp to 117.6 pmp, reflecting locations of the Eye Retrieval Scheme Trusts.

Table 10.1 Cornea donor rates per million population, pmp, in the UK, 1 April 2012 - 31 March 2013 (2011 - 2012), by country and English Strategic Health Authority

Country of residence/ Strategic Health Authority	Cornea only		Solid organ and cornea		**TOTAL**		**TOTAL pmp**	
North East	224	(191)	19	(22)	243	(213)	93.5	(81.9)
North West	799	(681)	31	(25)	830	(706)	117.6	(100)
Yorkshire and The Humber	91	(78)	24	(18)	115	(96)	21.7	(18.1)
North of England	**1114**	**(950)**	**74**	**(65)**	**1188**	**(1015)**	**79.5**	**(67.9)**
East Midlands	213	(214)	18	(18)	231	(232)	50.9	(51.1)
West Midlands	72	(53)	35	(26)	107	(79)	19.1	(14.1)
East of England	178	(151)	45	(36)	223	(187)	38.1	(31.9)
Midlands and East	**463**	**(418)**	**98**	**(80)**	**561**	**(498)**	**35.0**	**(31.1)**
London	**125**	**(155)**	**56**	**(60)**	**181**	**(215)**	**22.1**	**(26.2)**
South East Coast	55	(84)	19	(22)	74	(106)	16.5	(23.7)
South Central	281	(277)	30	(30)	311	(307)	74.4	(73.4)
South West	502	(438)	46	(37)	548	(475)	103.4	(89.6)
South of England	**838**	**(799)**	**95**	**(89)**	**933**	**(888)**	**66.8**	**(63.6)**
England	**2540**	**(2322)**	**323**	**(294)**	**2863**	**(2616)**	**53.9**	**(49.3)**
Isle of Man	**0**	**(0)**	**0**	**(0)**	**0**	**(0)**	**0.0**	**(0.0)**
Channel Islands	**0**	**(0)**	**0**	**(0)**	**0**	**(0)**	**0.0**	**(0.0)**
Wales	**93**	**(113)**	**21**	**(28)**	**114**	**(141)**	**37.3**	**(46.1)**
Scotland	**160**	**(137)**	**23**	**(21)**	**183**	**(158)**	**34.9**	**(30.1)**
Northern Ireland	**43**	**(44)**	**9**	**(16)**	**52**	**(60)**	**28.7**	**(33.1)**
TOTAL[1]	**2840**	**(2617)**	**377**	**(360)**	**3217**	**(2977)**	**50.7**	**(46.9)**

[1] Includes UK recipients where the postcode was unspecified and non-UK recipients

10.2 Donor and tissue supply

In 2012-2013, 93.6% (92.8% in 2011-2012) of retrieved corneas reported to the UK Transplant Registry were supplied to the Corneal Transplant Service (CTS) Eye Banks in Bristol and Manchester. **Table 10.2** shows the number of corneas supplied to, and taken from, the CTS Eye Banks for those centres that supplied more than 25 corneas in 2012-2013. The difference between the number supplied and number taken is also shown, together with the number of corneas that were deemed suitable for a penetrating keratoplasty (PK). Corneas that are not suitable for PK may be suitable for other types of corneal transplant. Centres with a negative balance have taken more corneas than they supplied to the CTS Eye Banks.

Of the 5,978 corneas supplied to the CTS Eye Banks, 3,610 (60%) were suitable for a PK. This was a decrease compared with 2011-2012, when 63% of corneas supplied to the CTS Eye Banks were suitable for a PK.

Table 10.2 Corneas supplied to and taken from the CTS Eye Banks, 1 April 2012 - 31 March 2013

Centre	Corneas supplied	Suitable for PK (%)		Corneas taken	Balance
ERS Preston	487	245	(50)	11	476
ERS Royal Devon	459	227	(49)	15	444
ERS Merseyside	456	254	(56)	138	318
ERS Newcastle	352	212	(60)	48	304
ERS Nottingham	350	237	(68)	169	181
ERS Southampton	299	159	(53)	48	251
ERS Norfolk	296	198	(67)	30	266
ERS Bolton	265	153	(58)	21	244
ERS Bristol	252	157	(62)	110	142
ERS Glasgow	234	173	(74)	162	72
Manchester, Royal Eye Hospital	205	141	(69)	186	19
Oxford, John Radcliffe Hospital	144	91	(63)	25	119
Middlesbrough, James Cook University Hospital	124	76	(61)	8	116
Belfast, Royal Victoria Hospital	83	56	(67)	40	43
East Grinstead, Queen Victoria Hospital	83	44	(53)	56	27
Blackburn, Royal Infirmary	82	49	(60)	0	82
Barnstaple, North Devon District Hospital	78	47	(60)	2	76
Cardiff, University of Wales Hospital	70	47	(67)	19	51
Newport, Royal Gwent Hospital	60	36	(60)	6	54
Leicester, Royal Infirmary	58	30	(52)	82	-24
Yeovil District Hospital	48	24	(50)	0	48
Portsmouth, Queen Alexandra Hospital	44	26	(59)	21	23
Plymouth, Royal Eye Infirmary	42	27	(64)	34	8
Stoke, North Staffordshire Royal Infirmary	42	32	(76)	18	24
Cambridge, Addenbrookes Hospital	40	24	(60)	51	-11
Dundee, Ninewells Hospital	38	33	(87)	4	34
Dorset, County Hospital	36	17	(47)	0	36
Salisbury, District Hospital	36	16	(44)	0	36
Coventry & Warwickshire Hospital	36	23	(64)	31	5
Taunton, Taunton & Somerset Hospital	34	19	(56)	4	30
Birmingham, Birmingham & Midland Eye Centre	33	24	(73)	86	-53
Reading, Royal Berkshire Hospital	32	21	(66)	42	-10
Edinburgh, Royal Infirmary	30	23	(77)	0	30
Sheffield, Northern General Hospital	28	16	(57)	0	28
Leeds, St James University Hospital	52	39	(75)	125	-73
Aberdeen, Royal Infirmary	26	19	(73)	32	-6
Eye retrieval scheme centres	**3450**	**2015**	**(58)**	**752**	**2698**
Centres supplying more than 25 corneas	**1584**	**1000**	**(63)**	**872**	**712**
All other centres	**944**	**595**	**(63)**	**1798**	**-854**
TOTAL	**5978**	**3610**	**(60)**	**3422**	**2556**

PK - Penetrating keratoplasty

10.3 CTS Eye Bank activity

The activity levels for the Bristol and Manchester Eye Banks are shown in **Table 10.3**. The numbers of corneas received by the CTS Eye Banks increased in 2012-2013 by 10%, and the number of corneas issued increased by 2%. In 2012-2013, 5,978 corneas were received into the CTS Eye Banks, of which 3,651 (61%) were subsequently issued for grafting. The remaining corneas were unsuitable for transplantation.

Table 10.3 Corneas received into the Bristol and Manchester Eye Banks, 1 April 2012 - 31 March 2013 (2011-2012), by year

	Total received		Number issued[1]		% issued		Difference between number received and issued	
Bristol	2472	(2361)	1458	(1514)	59	(64)	1014	(847)
Manchester	3506	(3082)	2193	(2061)	63	(67)	1313	(1021)
Total	**5978**	**(5443)**	**3651**	**(3575)**	**61**	**(66)**	**2327**	**(1868)**

[1] Number issued of those received in each year

The outcome of corneas received into the CTS Eye Banks is given in **Table 10.4**. Of the corneas supplied to the Eye Banks in 2012-2013, 56% were issued and used and 5% were issued but not used. Of the corneas supplied to the Eye Banks, 11% were unsuitable because of medication contraindications, 18% were unsuitable due to tissue quality and 4% were discarded because of bacterial or fungal contamination. 5% of corneas became outdated, that is, they exceeded 28 days storage. Corneas that were unsuitable for transplantation were, where possible, used for research when permission had been given by the relatives.

10.4 Transplants

Corneal transplant activity by country of residence and former Strategic Health Authority in England for the years 2011-2012 and 2012-2013 is detailed in **Table 10.5** for corneas supplied through the CTS Eye Banks and others that have been reported to the UK Transplant Registry by Moorfields Eye Bank. Corneas from the East Grinstead Eye Bank will be reported to the UK Transplant Registry during 2013-2014. No adjustments have been made for potential demographic differences in populations. The overall transplant rate was 56.8 pmp in 2011-2012; this increased to 58.2 pmp in 2012-2013. The transplant rates increased in England, Scotland and Wales, but fell in Northern Ireland. England had the highest transplant rate in the UK: 60.3 pmp, this ranged from 41.4 pmp to 74.7 pmp across the SHAs.

Table 10.4 Outcome of corneas received into the Bristol and Manchester Eye Banks, 1 April 2012 - 31 March 2013 (2011 - 2012), by year

Outcome of cornea	Bristol				Manchester				TOTAL			
	N		%		N		%		N		%	
Total used	**1329**	**(1416)**	**54**	**(60)**	**2037**	**(1923)**	**58**	**(62)**	**3366**	**(3339)**	**56**	**(61)**
Not used												
Issued, not used	129	(98)	5	(4)	156	(138)	4	(4)	285	(236)	5	(4)
Unsuitable – tissue quality	555	(434)	22	(18)	504	(343)	14	(11)	1059	(777)	18	(14)
Medical reason – virology[1]	87	(79)	4	(3)	115	(148)	3	(5)	202	(227)	3	(4)
Medical reason – other[2]	206	(204)	8	(9)	268	(206)	8	(7)	474	(410)	8	(8)
Contaminated	96	(120)	4	(5)	167	(151)	5	(5)	263	(271)	4	(5)
Other/not reported	57	(10)	2	(<1)	216	(146)	6	(5)	273	(156)	5	(3)
Total not used	**1143**	**(945)**	**46**	**(40)**	**1469**	**(1159)**	**42**	**(38)**	**2612**	**(2104)**	**44**	**(39)**
TOTAL	**2472**	**(2361)**			**3506**	**(3082)**			**5978**	**(5443)**		

[1] Positive or missing serology tests
[2] Other medical contraindications

Table 10.5 Cornea transplants[1] performed per million population (pmp) in the UK, 1 April 2011 - 31 March 2013, by country/Strategic Health Authority

Country of residence/ Strategic Health Authority	Number of transplants (pmp)			
	2011-2012		2012-2013	
North East	107	(41.2)	108	(41.5)
North West	515	(72.9)	522	(73.9)
Yorkshire and The Humber	415	(78.4)	395	(74.7)
North of England	**1037**	**(69.4)**	**1025**	**(68.6)**
East Midlands	257	(56.6)	307	(67.6)
West Midlands	322	(57.4)	275	(49.0)
East of England	350	(59.7)	337	(57.5)
Midlands and East	**929**	**(58.0)**	**919**	**(57.4)**
London	**490**	**(59.8)**	**543**	**(66.2)**
South East Coast	254	(56.7)	309	(69.0)
South Central	248	(59.3)	173	(41.4)
South West	227	(42.8)	234	(44.2)
South of England	**729**	**(52.2)**	**716**	**(51.3)**
England	**3185**	**(60.0)**	**3203**	**(60.3)**
Isle of Man	**1**	**(12.5)**	**2**	**(25.0)**
Channel Islands	**4**	**(25.0)**	**4**	**(25.0)**
Wales	**97**	**(31.7)**	**137**	**(44.8)**
Scotland	**196**	**(37.3)**	**243**	**(46.3)**
Northern Ireland	**85**	**(47.0)**	**69**	**(38.1)**
TOTAL[2]	**3608**	**(56.8)**	**3697**	**(58.2)**

[1] Corneas supplied through the CTS Eye Banks, Moorfields Eye Bank and East Grinstead Eye Bank
[2] Includes UK recipients where the postcode was unspecified and non-UK recipients

10.5 Demographic characteristics

The age group, sex and ethnicity of cornea donors and transplant recipients are shown in **Table 10.6**. Of the 2,840 cornea only donors, 36% were aged ≥80 years compared with 34% last year.

Table 10.6 Age of deceased cornea donors and transplant recipients 1 April 2012 - 31 March 2013, in the UK

	Cornea only donors		Solid organ and cornea donors		Transplant recipients	
	N	(%)	N	(%)	N	(%)
Age group (years)						
0 - 17	12	(0)	2	(1)	89	(2)
18 - 34	41	(1)	29	(8)	561	(15)
35 - 49	135	(5)	79	(21)	508	(14)
50 - 59	222	(8)	101	(27)	389	(11)
60 - 69	580	(20)	98	(26)	626	(17)
70-79	834	(29)	64	(17)	836	(23)
80+	1016	(36)	3	(1)	688	(19)
mean (SD)	73	(14)	56	(14)	59	(21)
Sex						
Male	1717	(60)	195	(52)	1974	(53)
Female	1122	(40)	181	(48)	1723	(47)
Not reported	2		1			
Ethnicity						
White	2532	(99)	330	(96)	3126	(85)
Asian	12	(0)	2	(1)	337	(9)
Black	4	(0)	6	(2)	147	(4)
Chinese	2	(0)	3	(1)	9	(0)
Other	4	(0)	3	(1)	27	(1)
Not reported	286		33		51	
TOTAL	**2840**	**(100)**	**377**	**(100)**	**3697**	**(100)**

Survival Rates Following Transplantation

This chapter shows graft survival rates over time for kidney, pancreas and cornea transplants, and patient survival estimates for kidney, pancreas, cardiothoracic, liver and intestinal transplants, performed in the UK. Separate estimates are presented for adult and paediatric patients (using organ specific age definitions) and for transplants from donors after brain death and donors after circulatory death.

In all cases, the Kaplan-Meier estimate of the survivor function was used to provide the survival rate and groups (years) were compared using the log-rank test. The analyses do not take account of risk factors which may change over time. Graft survival is defined as time from transplant to graft failure, censoring for death with a functioning graft and grafts still functioning at time of analysis. Patient survival is defined as time from transplant to patient death, censoring for patients still alive at time of analysis.

11.1 Kidney graft and patient survival

11.1.1 Adult kidney recipients - donor after brain death (DBD)

Figure 11.1 shows long-term graft survival in adult (≥18 years) recipients for first kidney only transplant from donors after brain death. **Table 11.1** shows the graft survival estimates and confidence intervals for one, two, five and ten years post-transplant. There have been significant improvements in one, two and five year survival over the time periods shown, p<0.01 in each case. **Table 11.2** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There have been significant improvements in one and two year survival over the time periods shown, p<0.03 in each case.

Figure 11.1 Long-term graft survival after first adult kidney only transplant from donors after brain death, 1 January 1999 – 31 December 2011

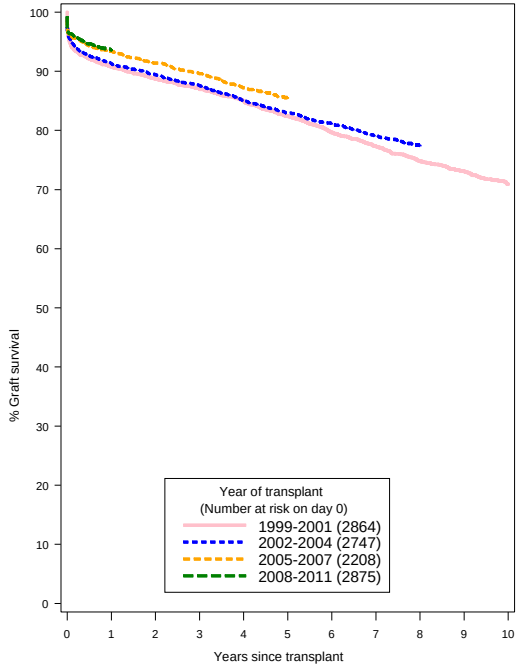


Table 11.1 Graft survival after first adult kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	2864	91	(90-92)	89	(88-90)	82	(81-84)	71	(69-73)
2002-2004	2747	91	(90-92)	89	(88-91)	83	(82-84)		
2005-2007	2208	93	(92-94)	91	(90-92)	85	(84-87)		
2008-2011	2875	94	(93-94)						

Table 11.2 Patient survival after first adult kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	2869	95	(94-96)	93	(92-94)	87	(86-88)	74	(73-76)
2002-2004	2748	96	(95-96)	94	(93-95)	88	(87-89)		
2005-2007	2210	97	(96-98)	95	(94-96)	89	(88-91)		
2008-2011	2875	96	(96-97)						

11.1.2 Adult kidney recipients - donor after circulatory death (DCD)

Long-term graft survival in adult recipients for kidney transplants from donors after circulatory death is shown in **Figure 11.2**. **Table 11.3** shows the graft survival estimates and confidence intervals for one, two, five and ten years post-transplant. There has been a significant improvement in one, two and five year survival over the time periods shown, p<0.001 in each case. One year patient survival is comparable for DBD and DCD donor transplants in the most recent time periods. **Table 11.4** shows the patient survival estimates and confidence intervals for each time period analysed. There were no statistically significant changes in patient survival over time (p>0.1).

Figure 11.2 Long-term graft survival after first adult kidney only transplant from donors after circulatory death, 1 January 1999 – 31 December 2011

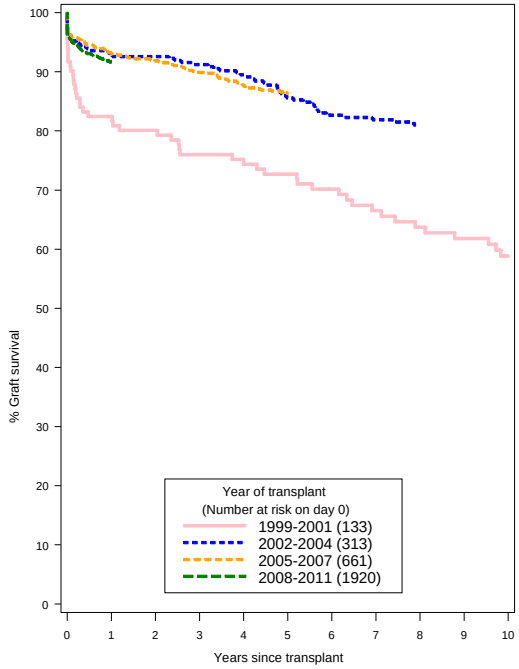


Table 11.3 Graft survival after first adult kidney only transplant from a DCD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	133	82	(75-88)	80	(72-86)	73	(64-80)	59	(49-67)
2002-2004	313	93	(89-95)	93	(89-95)	86	(81-89)		
2005-2007	661	93	(91-95)	92	(89-94)	86	(83-89)		
2008-2011	1920	92	(90-93)						

Table 11.4 Patient survival after first adult kidney only transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	133	91	(85-95)	90	(83-94)	84	(76-89)	68	(59-75)
2002-2004	314	97	(94-98)	95	(92-97)	87	(83-91)		
2005-2007	661	95	(93-97)	93	(91-95)	87	(84-89)		
2008-2011	1921	95	(94-96)						

11.1.3 Adult kidney recipients - living donor

Long-term graft survival in adult recipients for living donor kidney transplants in the UK is shown in **Figure 11.3**. **Table 11.5** shows graft survival estimates and confidence intervals for each time period analysed. There has been a significant improvement in one year graft survival over the time periods shown, p=0.02. **Table 11.6** shows the patient survival estimates and confidence intervals for one, two, five and ten years post transplant. There were no statistically significant changes in patient survival over time (p>0.1).

Figure 11.3 Long-term graft survival after first adult living donor kidney only transplant in the UK, 1 January 1999 – 31 December 2011

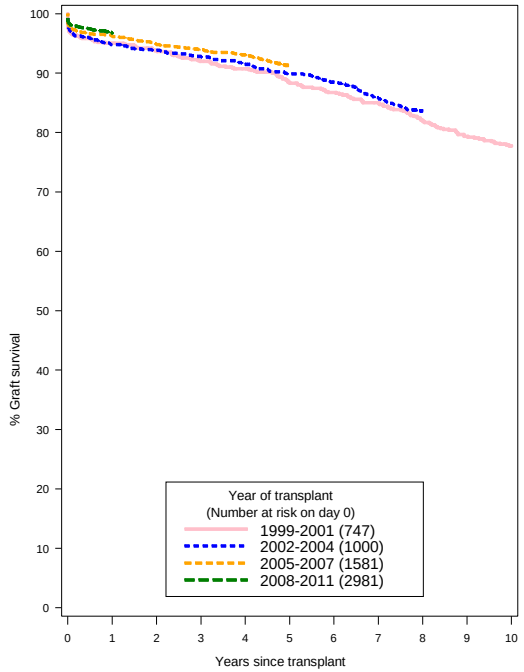


Table 11.5 Graft survival after first adult living donor kidney transplant

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	747	95	(93-96)	94	(92-95)	88	(86-91)	78	(74-81)
2002-2004	1000	95	(93-96)	94	(92-95)	90	(88-92)		
2005-2007	1581	96	(95-97)	95	(94-96)	91	(90-93)		
2008-2011	2981	97	(96-97)						

Table 11.6 Patient survival after first adult living donor kidney transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	748	98	(97-99)	97	(96-98)	95	(93-96)	90	(87-92)
2002-2004	1000	98	(97-99)	98	(96-98)	95	(94-97)		
2005-2007	1580	99	(98-99)	98	(97-99)	96	(94-97)		
2008-2011	2981	99	(98-99)						

11.1.4 Paediatric kidney recipients - donor after brain death (DBD)

Figure 11.4 shows long-term graft survival in paediatric (<18 years) recipients for first kidney only transplants from donors after brain death. Graft survival estimates and confidence intervals are shown for each time period analysed in **Table 11.7**. There has been a significant improvement in one year survival over the time periods shown, p=0.01. **Table 11.8** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant changes in patient survival over time (p>0.1).

Figure 11.4 Long-term graft survival after first paediatric kidney only transplant from donors after brain death, 1 January 1999 – 31 December 2011

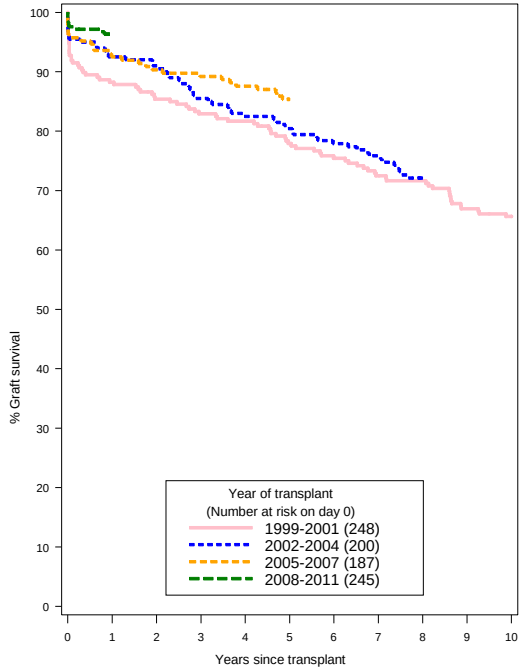


Table 11.7 Graft survival after first paediatric kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	248	88	(84-92)	85	(80-89)	78	(72-83)	66	(59-71)
2002-2004	200	93	(88-95)	91	(86-94)	80	(74-85)		
2005-2007	187	92	(88-95)	90	(85-94)	85	(79-90)		
2008-2011	245	96	(93-98)						

Table 11.8 Patient survival after first paediatric kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	248	99	(97-100)	99	(97-100)	98	(95-99)	96	(93-98)
2002-2004	201	100	(-)	100	(-)	98	(95-99)		
2005-2007	188	99	(96-100)	99	(96-100)	99	(96-100)		
2008-2011	245	100	(97-100)						

11.1.5 Paediatric kidney recipients - living donor

Long-term graft survival in paediatric recipients for living donor kidney transplants in the UK is shown in **Figure 11.5**. **Table 11.9** shows graft survival estimates and confidence intervals for each time period analysed. There has been a significant improvement in two and five year survival over the time periods shown, p<0.03. **Table 11.10** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant differences in patient survival over time (p>0.05). There were insufficient paediatric recipients of first kidney only transplants from donors after circulatory death to permit reliable analysis.

Figure 11.5 Long-term graft survival after first paediatric living donor kidney only transplant in the UK, 1 January 1999 – 31 December 2011

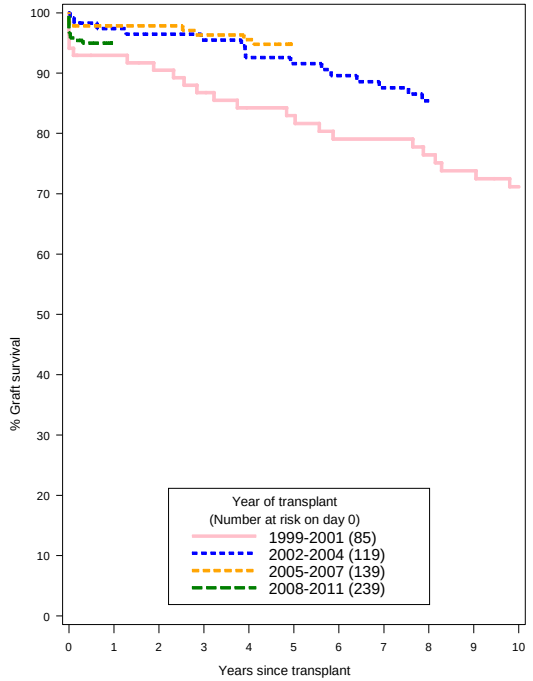


Table 11.9 Graft survival after first paediatric living donor kidney transplant

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	85	93	(85-97)	90	(82-95)	83	(73-90)	71	(60-80)
2002-2004	119	97	(92-99)	96	(91-99)	92	(84-96)		
2005-2007	139	98	(93-99)	98	(93-99)	95	(89-97)		
2008-2011	239	95	(91-97)						

Table 11.10 Patient survival after first paediatric living donor kidney transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	86	98	(91-99)	96	(89-99)	95	(88-98)	93	(84-97)
2002-2004	119	97	(92-99)	97	(92-99)	96	(91-99)		
2004-2006	139	100	(-)	100	(-)	100	(-)		
2008-2011	239	99	(96-100)						

11.2 Pancreas graft and patient survival

11.2.1 Simultaneous kidney/pancreas transplants - donor after brain death (DBD)

National pancreas follow-up data are only available for transplants performed since 1 January 2001. There are insufficient data available to analyse long-term survival. **Figure 11.6** shows pancreas graft survival in recipients receiving their first simultaneous kidney/pancreas (SPK) transplant performed from donors after brain death, 2002 - 2004, 2005 - 2007 and 2008 - 2011. Graft and patient survival estimates and confidence intervals are shown at one year, two years and five years in **Table 11.11** and **Table 11.12** respectively. Results relate to adults only as there are no paediatric pancreas transplant recipients.

Figure 11.6 Pancreas graft survival after first SPK transplant from donors after brain death, 1 January 2002 – 31 December 2011

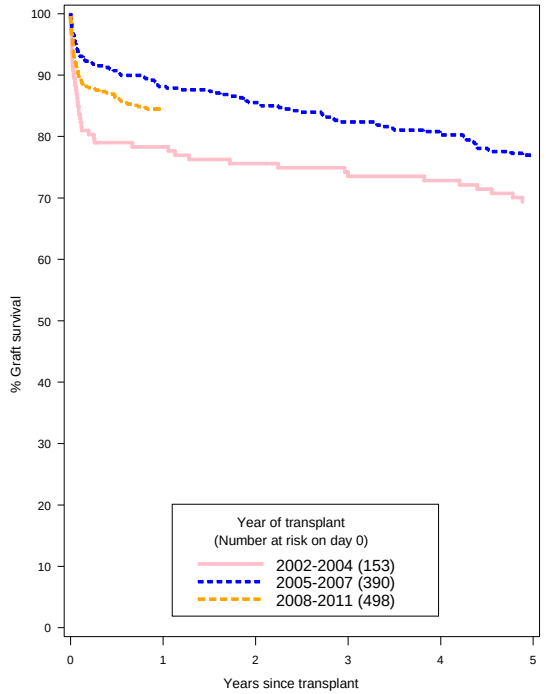


Table 11.11 Graft survival after first SPK transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year	
2002-2004	153	78	(71-84)	76	(68-82)	69	(61-76)
2005-2007	390	88	(84-91)	86	(82-89)	77	(72-81)
2008-2011	498	84	(81-87)				

Table 11.12 Patient survival after first SPK transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year	
2002-2004	153	91	(85-95)	90	(83-94)	83	(76-88)
2005-2007	393	95	(93-97)	94	(91-96)	90	(86-92)
2008-2011	500	96	(94-98)				

11.2.2 Simultaneous kidney/pancreas transplants - donor after circulatory death (DCD)

The majority of simultaneous kidney/pancreas (SPK) transplants from a DCD have been performed since 1 January 2007, so there are insufficient data available to analyse long-term survival. **Figure 11.7** shows pancreas graft survival in recipients receiving their first SPK transplant performed from donors after circulatory death, 2008 - 2011. Graft and patient survival estimates and confidence intervals are shown at one year in **Table 11.13** and **Table 11.14** respectively. Results are for adult patients only.

Figure 11.7 Pancreas graft survival after first SPK transplant from donors after circulatory death, 1 January 2008 – 31 December 2011

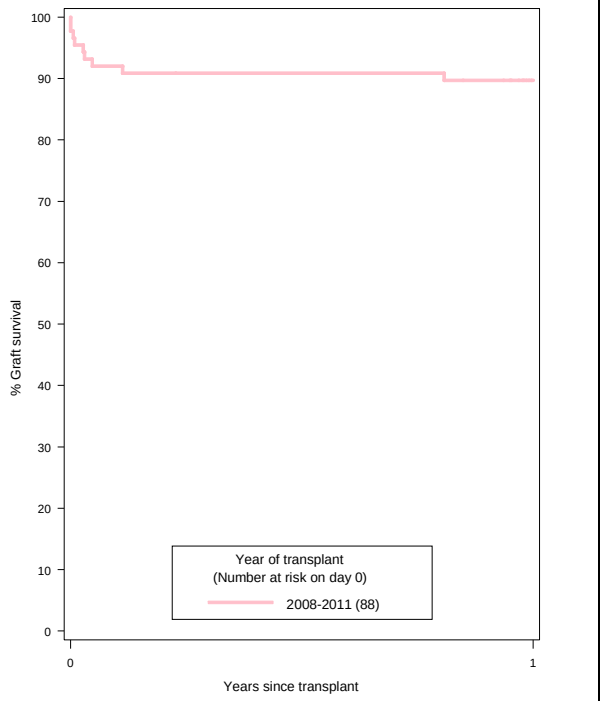


Table 11.13 Graft survival after first SPK transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year	
2008-2011	88	90	(81-95)

Table 11.14 Patient survival after first SPK transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year	
2008-2011	89	98	(91-99)

11.2.3 Pancreas only transplants - donor after brain death (DBD)

Figure 11.8 shows pancreas graft survival in recipients receiving their first pancreas only transplant performed from donors after brain death, 2002 - 2004, 2005 - 2007 and 2008 - 2011. Graft and patient survival estimates and confidence intervals are shown at one year, two years and five years in **Table 11.15** and **Table 11.16** respectively. Results are for adult patients only.

Figure 11.8 Pancreas graft survival after pancreas only transplant from donors after brain death, 1 January 2002 – 31 December 2011

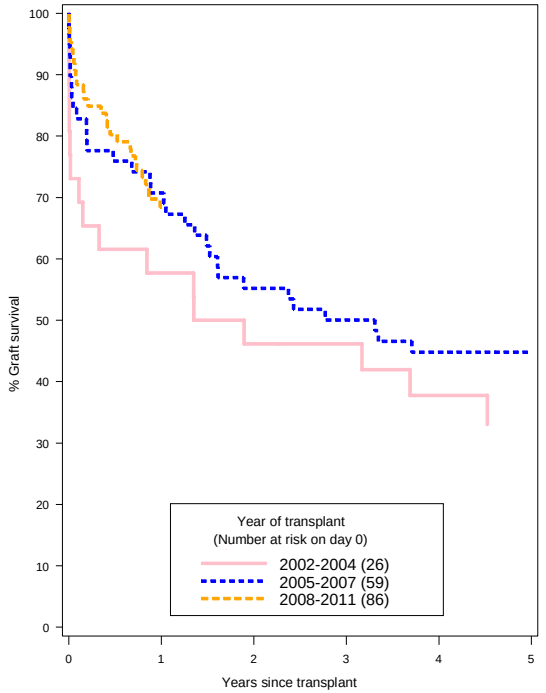


Table 11.15 Graft survival after first pancreas only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year	
2002-2004	26	58	(37-74)	46	(27-64)	33	(16-51)
2005-2007	59	71	(57-81)	55	(42-67)	45	(32-57)
2008-2011	86	68	(57-77)				

Table 11.16 Patient survival after first pancreas only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year	
2002-2004	26	100	(-)	100	(-)	77	(50-91)
2005-2007	60	97	(87-99)	95	(84-98)	92	(81-97)
2008-2011	90	94	(85-97)				

11.2.4 Pancreas only transplants - donor after circulatory death (DCD)

Figure 11.9 shows pancreas graft survival in recipients receiving their first pancreas only transplant performed from donors after circulatory death, 2008 - 2011. Graft and patient survival estimates and confidence intervals are shown at one year in **Table 11.17** and **Table 11.18** respectively. Results are for adult patients only.

Figure 11.9 Pancreas graft survival after pancreas only transplant from donors after circulatory death, 1 January 2008 – 31 December 2011

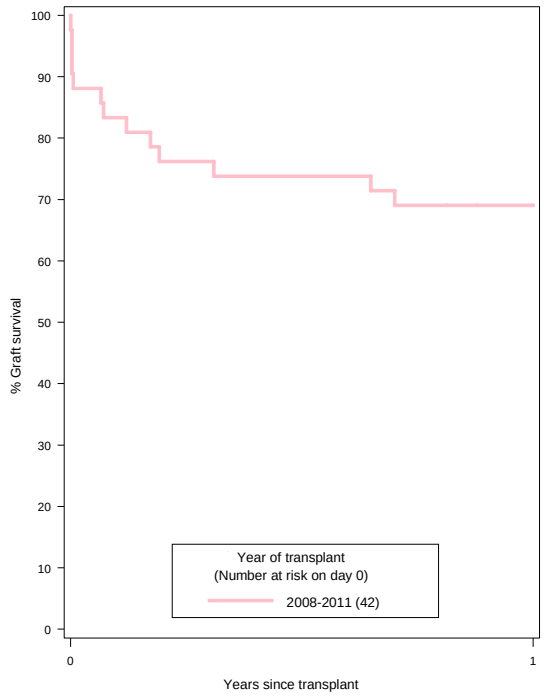


Table 11.17 Graft survival after first pancreas only transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year	
2008-2011	42	69	(53-81)

Table 11.18 Patient survival after first pancreas only transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year	
2008-2011	43	98	(84-100)

11.3 Cardiothoracic patient survival

11.3.1 Adult heart recipients

Long-term patient survival for adult (≥16 years) recipients after first heart only transplants is shown in **Figure 11.10**. Domino and deceased donor (DBD only) transplants are included as well as urgent patients. **Table 11.19** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant changes in survival rates over the time periods analysed (p>0.1).

Figure 11.10 Long-term patient survival after first adult heart only transplant in the UK, 1 January 1999 – 31 December 2011

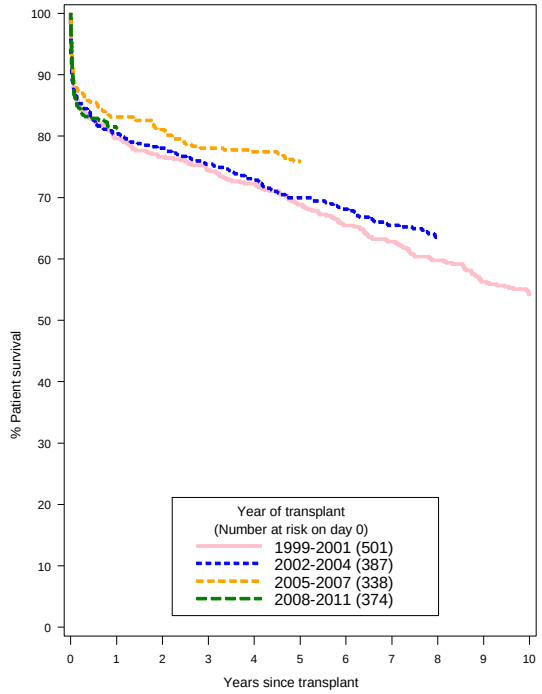


Table 11.19 Patient survival after first adult heart only transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	501	80	(76-83)	77	(73-80)	69	(65-73)	54	(50-58)
2002-2004	387	80	(76-84)	78	(74-82)	70	(65-74)		
2005-2007	338	83	(79-87)	81	(76-85)	76	(71-80)		
2008-2011	374	81	(77-85)						

11.3.2 Adult heart/lung block recipients

Patient survival for adult recipients after first heart/lung block transplants is shown in **Figure 11.11**. Patient survival estimates and confidence intervals for each time period analysed are shown in **Table 11.20**. There were no statistically significant differences in patient survival over time (p>0.2).

Figure 11.11 Long-term patient survival after first adult heart/lung block transplant in the UK, 1 January 1999 – 31 December 2011

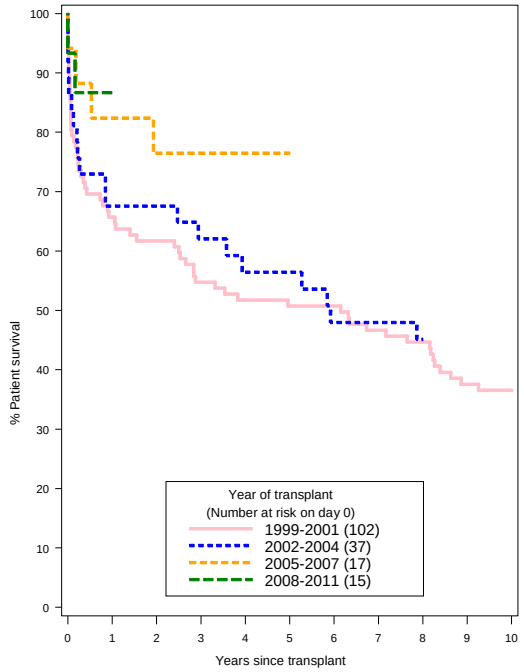


Table 11.20 Patient survival after first adult heart/lung block transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	102	66	(56-74)	62	(52-70)	51	(41-60)	37	(27-46)
2002-2004	37	68	(50-80)	68	(50-80)	56	(39-71)		
2005-2007	17	82	(55-94)	76	(49-90)	76	(49-90)		
2008-2011	15	87	(56-96)						

11.3.3 Adult lung recipients – donors after brain death (DBD)

Patient survival for adult recipients after first lung only transplant from donors after brain death is shown in **Figure 11.12**, with survival estimates and confidence intervals shown in **Table 11.21**. There were no statistically significant differences in patient survival over time (p>0.08).

Figure 11.12 Long-term patient survival after first adult lung only transplant from donors after brain death, 1 January 1999 – 31 December 2011

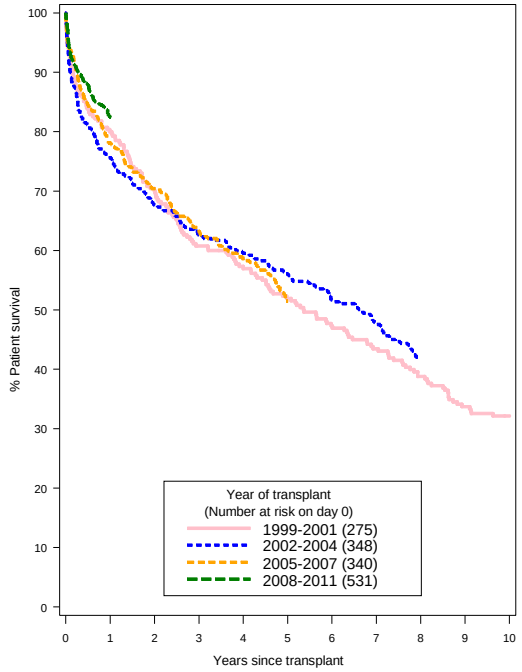


Table 11.21 Patient survival after first adult lung only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	275	80	(75-84)	70	(64-75)	52	(46-58)	32	(27-38)
2002-2004	348	76	(71-80)	68	(62-72)	56	(51-61)		
2005-2007	340	78	(73-82)	70	(65-75)	51	(46-57)		
2008-2011	531	82	(79-85)						

11.3.4 Adult lung recipients – donors after circulatory death (DCD)

The majority of lung transplants from a DCD have been performed since 1 January 2007, so there are insufficient data available to analyse long-term patient survival. Patient survival for adult recipients after first lung only transplant from donors after circulatory death is shown in **Figure 11.13**, with survival estimates and confidence intervals shown in **Table 11.22**.

Figure 11.13 Patient survival after first adult lung only transplant from donors after circulatory death, 1 January 2008 – 31 December 2011

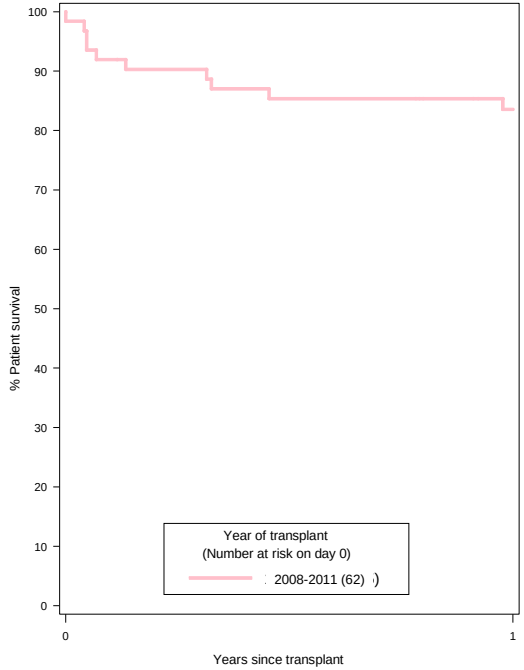


Table 11.22 Patient survival after first adult lung only transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year	
2008-2011	62	84	(72-91)

11.3.5 Paediatric heart recipients

Long-term patient survival for paediatric recipients after first heart only transplant is shown in **Figure 11.14**. Domino and deceased donor transplants (DBD donors only) are included as well as transplants for urgent patients. **Table 11.23** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There have been significant improvements in two year survival over the time periods shown, p<0.02. The number of paediatric lung and heart/lung transplant recipients was too small for analysis.

Figure 11.14 Long-term patient survival after first paediatric heart only transplant in the UK, 1 January 1999 – 31 December 2011

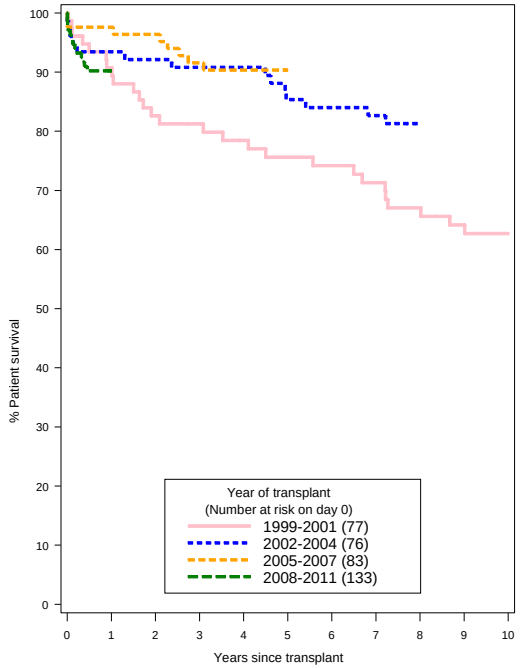


Table 11.23 Patient survival after first paediatric heart only transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	77	91	(82-95)	83	(72-90)	76	(64-84)	63	(50-73)
2002-2004	76	93	(85-97)	92	(83-96)	85	(75-92)		
2005-2007	83	98	(91-99)	96	(89-99)	90	(82-95)		
2008-2011	133	90	(84-94)						

11.4 Liver patient survival

11.4.1 Adult recipients - donor after brain death (DBD)

Long-term patient survival for adult (≥17 years) recipients after first elective liver only transplants from donors after brain death is shown in **Figure 11.15**. **Table 11.24** shows patient survival estimates at one, two, five and ten years post-transplant. There have been significant improvements in one, two and five year patient survival over the time periods analysed, p<0.001, p<0.04 and p<0.03, respectively.

Figure 11.15 Long-term patient survival after first elective adult liver only transplant from donors after brain death, 1 January 1999 – 31 December 2011

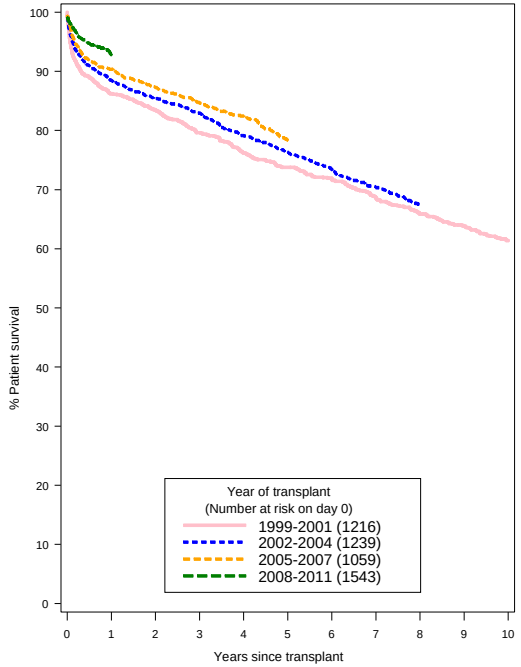


Table 11.24 Patient survival after first elective adult liver only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	1216	86	(84-88)	83	(81-85)	74	(71-76)	61	(59-64)
2002-2004	1239	89	(87-90)	85	(83-87)	76	(74-79)		
2005-2007	1059	90	(88-92)	87	(85-89)	78	(76-81)		
2008-2011	1543	93	(91-94)						

11.4.2 Adult recipients - donor after circulatory death (DCD)

Patient survival for adult (≥17 years) recipients after first elective liver only transplants from donors after circulatory death is shown in **Figure 11.16**. The majority of these liver transplants have been performed since 1 January 2002, so it is not possible to estimate long term patient survival. **Table 11.25** shows patient survival estimates at one, two and three years post transplant.

Figure 11.16 Liver patient survival after first elective adult liver only transplant from donors after circulatory death, 1 January 2005 – 31 December 2010

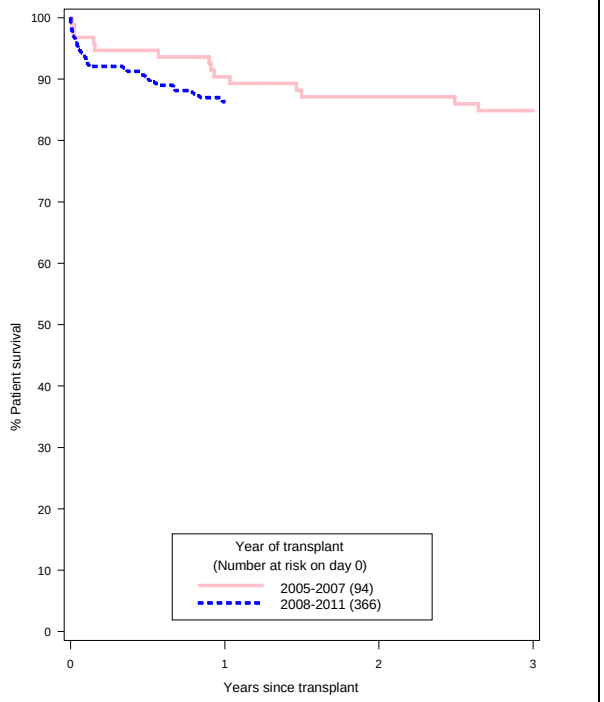


Table 11.25 Patient survival after first elective adult liver only transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Three year	
2005-2007	94	90	(82-95)	87	(78-92)	85	(76-91)
2008-2011	366	86	(82-89)				

11.4.3 Paediatric recipients - donor after brain death (DBD)

Figure 11.17 and **Table 11.26** show long-term patient survival estimates for first elective liver only transplants from donors after brain death in paediatric (<17 years) recipients. There have been no significant improvements in patient survival over the time period analysed (p>0.05). The number of paediatric transplants from donors after circulatory death was too small to estimate patient survival.

Figure 11.17 Long-term patient survival after first elective paediatric liver only transplant from donors after brain death, 1 January 1999 – 31 December 2011

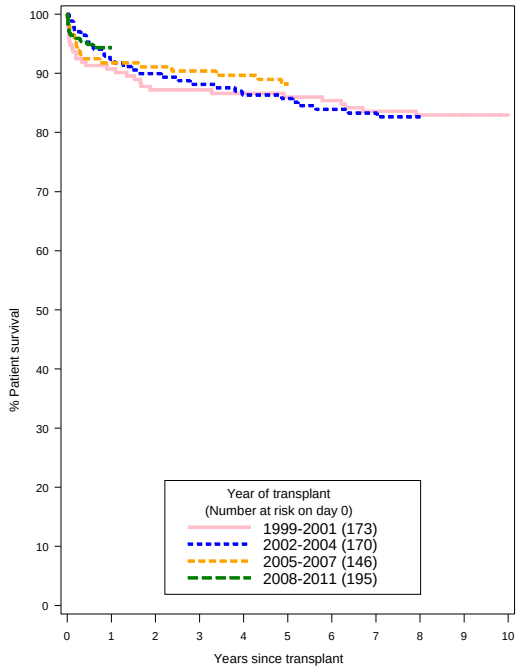


Table 11.26 Patient survival after first elective paediatric liver only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
1999-2001	173	91	(85-94)	87	(81-91)	86	(80-90)	83	(76-88)
2002-2004	170	92	(87-95)	90	(84-94)	86	(79-90)		
2005-2007	146	92	(86-95)	91	(85-95)	88	(82-92)		
2008-2011	195	94	(90-97)						

11.5 Intestinal patient survival

The majority of intestinal transplants have been performed since 1 January 2006, so there are insufficient data available to analyse long-term patient survival. **Figure 11.18** and **Table 11.27** show one-year patient survival estimates for recipients receiving their first intestinal transplant, 2007 – 2011, by recipient age group.

Figure 11.18 Patient survival after first intestinal graft in the UK, 1 January 2007 – 31 December 2011

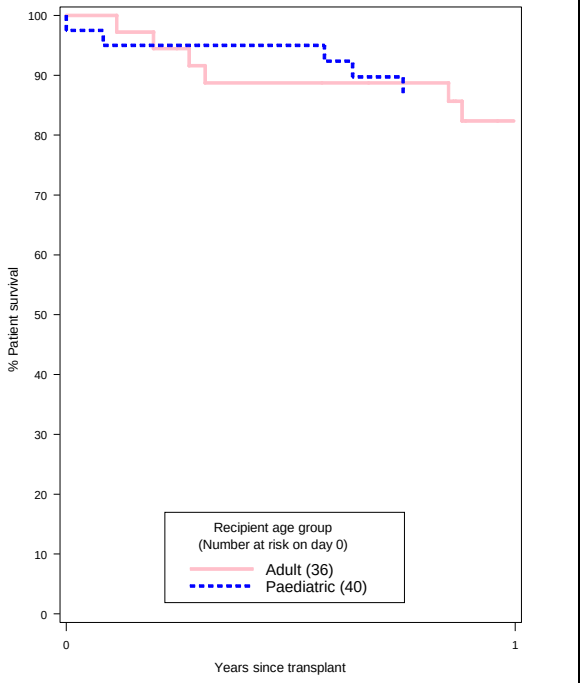


Table 11.27 Patient survival after first intestinal transplant in the UK, 1 January 2007 - 31 December 2011

Recipient age group	No. at risk on day 0	% Patient survival One year	(95% confidence interval)
Adult	36	82	(65-92)
Paediatric	40	87	(72-94)

11.6 Cornea graft survival

Good quality cornea follow-up data were only available for transplants performed since 1 April 1999. There are insufficient data available to analyse long-term survival effects. **Figure 11.19** shows graft survival estimates for first penetrating keratoplasty (PK) for grafts 2002 - 2004, 2005 - 2007 and 2008 - 2011. Graft survival estimates and confidence intervals are shown by transplant year at one, two and five years in **Table 11.28.**

Figure 11.19 Cornea graft survival after first PKP graft in the UK, 1 January 2002 – 31 December 2011

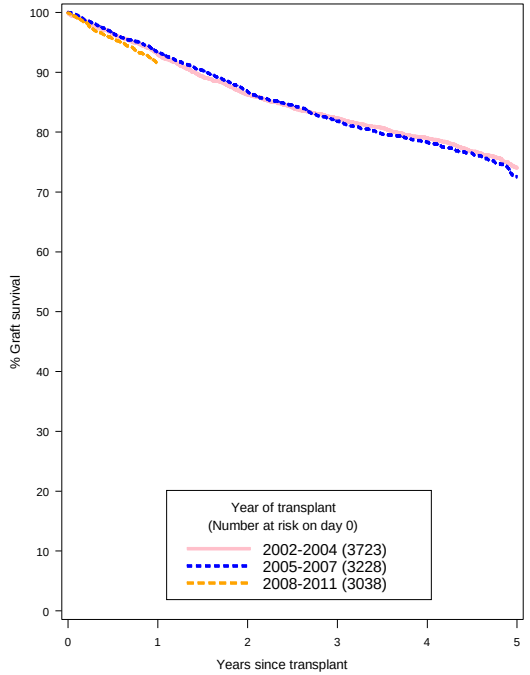


Table 11.28 Cornea graft survival after first PK in the UK

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year	
2002-2004	3723	93	(92-94)	86	(85-87)	74	(72-76)
2005-2007	3228	93	(92-94)	87	(86-88)	73	(71-74)
2008-2011	3038	91	(90-92)				

NHS Organ Donor Register

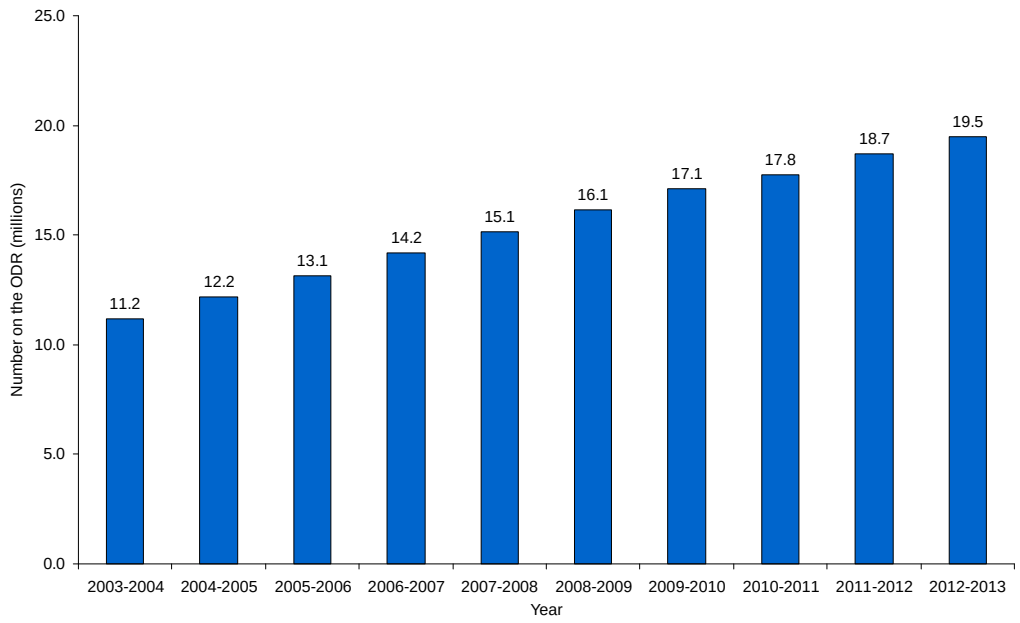
Key messages

- **19.5 million people on the ODR at March 2013 (31% of UK population)**
- **38% of 1,212 deceased organ donors last year were on the ODR**
- **58% of 1,011,929 registrations last year were through the Driver and Vehicle Licensing Agency (DVLA)**

By the end of March 2013 the NHS Organ Donor Register (ODR) held just over 19.5 million registrations with 1,011,929 registrations made last year. A summary of the number of registrations at the end of each financial year from 31 March 2004 to 31 March 2013 is shown in **Figure 12.1**. During the year, data on the register were continually reviewed and validated with people known to have died, withdrawn from the list and duplicate registrations resolved. In particular, 38,000 Scottish registrations were removed in 2012 as they were identified as duplicates.

Of the 1,212 deceased organ donors in 2012-2013, 38% were registered on the ODR compared with 37% of organ donors in 2011-2012. Similarly, 40% of cornea-only donors in 2012-2013 were registered on the ODR, compared with 41% in 2011-2012.

Figure 12.1 Number on the NHS Organ Donor Register at 31 March



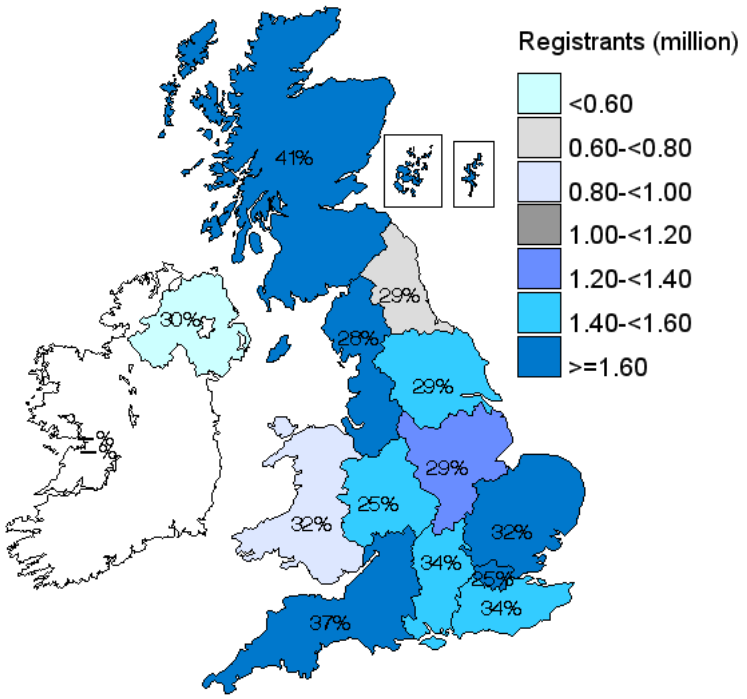
Those registered on the ODR come from all parts of the UK. **Table 12.1** shows the percentage of the population registered in each country/ former Strategic Health Authority at 31 March 2013, and the number of registrants. This information is also illustrated in **Figure 12.2**. No adjustment has been made for any differences in demographics of the populations.

Table 12.1 Registrants on the NHS Organ Donor Register at 31 March 2013, by Country/ Strategic Health Authority

Country/ Strategic Health Authority	Registrants		
	N	pmp	Proportion of population registered
North East	755,921	290,739	29%
North West	1,984,553	281,098	28%
Yorkshire and The Humber	1,531,130	289,439	29%
North of England	**4,271,604**	**285,726**	**29%**
East Midlands	1,312,714	289,144	29%
West Midlands	1,409,906	251,320	25%
East of England	1,866,425	318,503	32%
Midlands and East	**4,589,045**	**286,636**	**29%**
London	**2,038,210**	**248,562**	**25%**
South East Coast	1,528,416	341,164	34%
South Central	1,406,750	336,543	34%
South West	1,944,205	366,831	37%
South of England	**4,879,371**	**349,525**	**35%**
England	**15,778,230**	**297,086**	**30%**
Isle of Man	**11,115**	**138,938**	**14%**
Channel Islands	**14,347**	**89,669**	**9%**
Wales	**968,751**	**316,585**	**32%**
Scotland	**2,146,307**	**408,820**	**41%**
Northern Ireland	**548,291**	**302,923**	**30%**
TOTAL[1]	**19,532,806**	**307,749**	**31%**

[1] Includes 65,765 registrants where the postcode was unknown

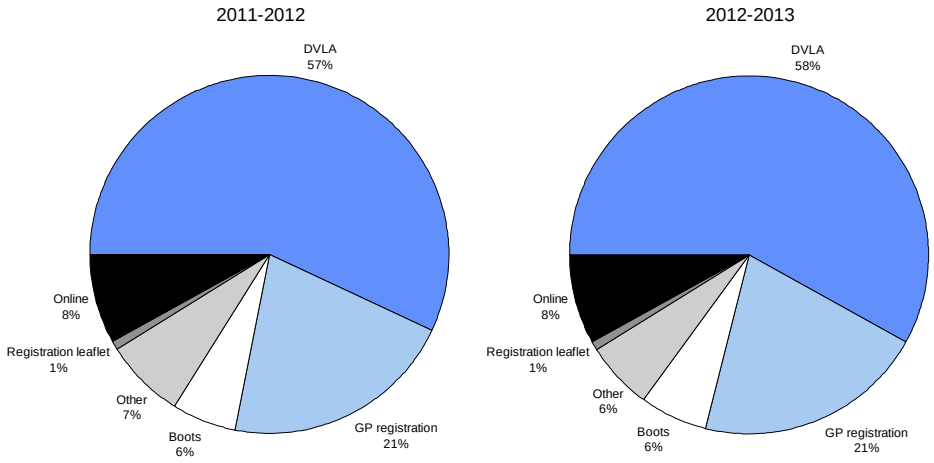
Figure 12.2 Proportion of population registered on the NHS Organ Donor Register by 31 March 2013, by Strategic Health Authority



There are a number of registration routes: Health Department registration leaflets readily available in the community; campaigns in both national and regional newspapers and by community groups; the European Health Insurance Card; when registering as a patient with a General Practitioner (via the Family Health Services Authorities); with driving licence applications and reminders (via the Driver and Vehicle Licensing Agency (DVLA)); from the Passport Agency when applying for a new passport; when applying for a Boots Advantage Card; online registrations via the Organ Donation and Transplantation (ODT) website (www.organdonation.nhs.uk) and by telephone.

The source of applications for registration on the ODR is illustrated in **Figure 12.3**. This figure shows that 21% of registrations in 2012-2013 arrived by means of registering through a GP, 58% from driving licence applications and reminders through the DVLA and 8% online through the ODT website.

Figure 12.3 Source of applications for registration on the NHS Organ Donor Register, 1 April 2011 - 31 March 2013



At the end of March 2013, 88% of registrants, where the information was available, indicated a willingness to donate all organs and tissue (kidneys, pancreas, heart, lungs, liver and corneas). However, of those who were not willing to donate all organs, the majority (88%) did not wish to donate their corneas. Of the restricted registrations, only 7% (less than 1% of the total register) did not wish to donate their kidneys. Willingness to donate, by organ type, is shown in **Table 12.2**.

Table 12.2 Preparedness of those registered on the NHS Organ Donor Register at 31 March 2013 to donate different organs[1]

Registrants prepared to donate all organs 88%

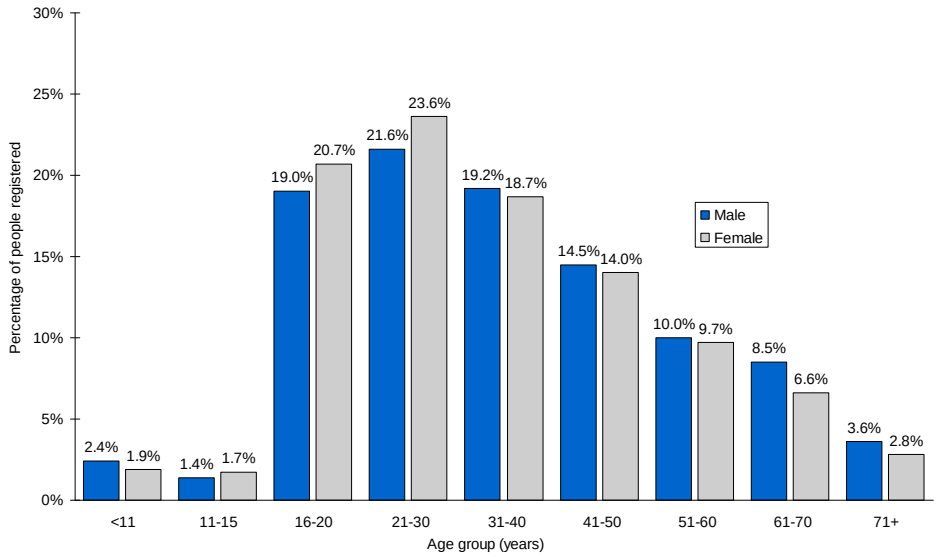
Of those not prepared to donate all organs ('restricted donors'):

Not prepared to donate:	% of 'Restricted donors'	% of all registrants
Kidney	7	0.8
Pancreas	24	2.8
Heart	24	2.8
Lungs	22	2.6
Liver	13	1.6
Corneas	88	10.4

[1] This information was not available for approximately 7% of the total register

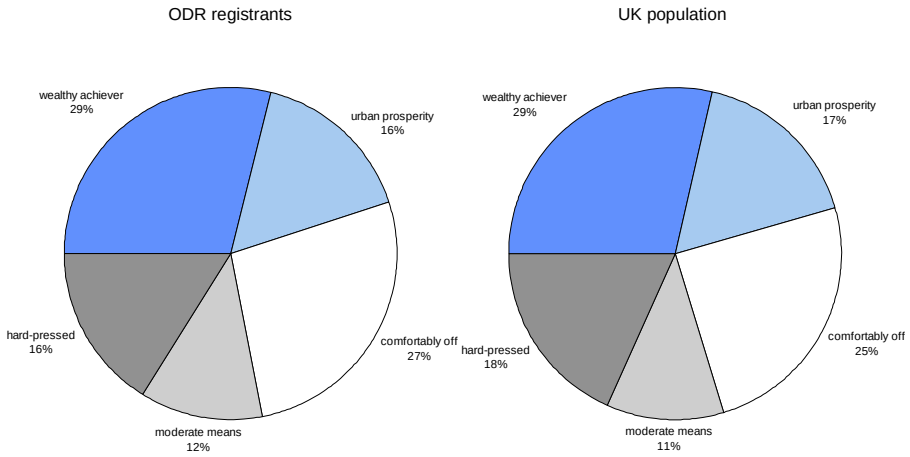
People of all ages are eligible for organ donor registration: the distribution of age by sex at time of registration is shown in **Figure 12.4**. The highest proportion of registrations (22% of males and 24% of females) are in the 21-30 years age group. The lowest proportions are in the under 11 and 11-15 age groups. Of all people registered on the NHS Organ Donor Register, 48% are male and 52% are female.

Figure 12.4 Age and gender of people registered on the NHS Organ Donor Register by 31 March 2013



The breakdown of registrants on the ODR during 2012-2013 by socio-economic group (using the ACORN[1] classification, based on postcode) is shown in **Figure 12.5**, where it is compared with the general UK population. Though having basically similar distributions, there were proportionately more 'wealthy achievers' and less 'hard pressed' on the ODR than in the general population.

Figure 12.5 Registrants on the NHS Organ Donor Register, 1 April 2012 - 31 March 2013, and the general population, by socio-economic group



[1] ACORN data supplied by CACI Ltd.

National Potential Donor Audit

Key messages

- **There were 28,966 audited deaths reported through the Potential Donor Audit in the financial year to 31 March 2013, including 1,125 (93%) of the 1,212 deceased organ donors**
- **The neurological death testing rate has increased since last year from 74% to 78% and improvements have been observed in the overall referral rate of potential donors (from 60% to 68%), the rate of approach to donor families (from 66% to 68%) and the proportion of approaches involving a Specialist Nurse – Organ Donation (from 63% to 71%)**
- **An increase in the overall consent/ authorisation rate has been observed since last year (from 55% to 57%), partly due to an increase in the consent/ authorisation rate for patients from ethnic minority groups (from 24% to 33%). However, a significant difference in the consent/ authorisation rates for white patients and patients from ethnic minority groups is still apparent (61% and 33%, respectively)**
- **The consent/ authorisation rate is 88% when a patient's wish is known at the time of potential donation, but 105 families overruled their loved one's known wish to be an organ donor**

13.1 Introduction

In this chapter, summary data from the national Potential Donor Audit (PDA) are shown for 1 April 2012 to 31 March 2013 and data from the previous two financial years are also provided for comparison purposes. The data comprise all audited patient deaths in UK Intensive Care Units (ICUs) and emergency departments, excluding cardiothoracic ICUs and patients aged 76 years and over, in the time period. The data are based on information received by 6 June 2013. **The number of solid organ donors reported in this chapter will differ from that shown in the rest of the report, due to the national PDA excluding specific patients**.

13.2 Definitions

All data shown in this chapter use the following definitions.

Eligible donors after brain death (DBD) are defined as patients for whom death was confirmed following neurological tests and who had no absolute medical contraindications to solid organ donation.

Eligible donors after circulatory death (DCD) are defined as patients who had treatment withdrawn and death was anticipated within four hours, with no absolute medical contraindications to solid organ donation.

Absolute medical contraindications are currently defined as known HIV positive, known or suspected CJD, active untreated tuberculosis, any malignancy within the past 12 months (excluding brain tumour) and multi-organ failure.

Imminent death anticipated patients who are not confirmed dead using neurological criteria, receiving assisted ventilation, a clinical decision to withdraw treatment has been made and death is anticipated within four hours.

The referral rate is the percentage of patients for whom neurological death was suspected, or imminent death was anticipated, that were discussed with the Specialist Nurse - Organ Donation (SN-OD).

The approach rate is the percentage of eligible donor families approached for consent to/authorisation for donation.

The proportion of approaches involving a SN-OD is the percentage of eligible donor families approached where a SN-OD was involved.

The consent/authorisation rate is the percentage of eligible donor families approached about donation that consented to/ authorised donation.

13.3 Breakdown of audited deaths in ICUs and emergency departments

In the 12-month period there were a total of 28,966 audited patient deaths in the UK. **Figures 13.1** and **13.2** show a detailed breakdown from the number of audited patient deaths to the number of solid organ donors for potential DBD and DCD, respectively. In total, 4534 patients meeting the PDA criteria died in circumstances that would enable donation.

Table 13.1 shows the key percentages calculated from the flow chart information. Consent/ authorisation rates have also been provided for cases where the SN-OD was/was not involved in the approach to the family and/or whether the patient's wish to be a donor was known at the time of potential donation. **Figure 13.3** uses the flow chart information to illustrate the stages where opportunities are lost pre-donation.

Figure 13.1 Donation after brain death

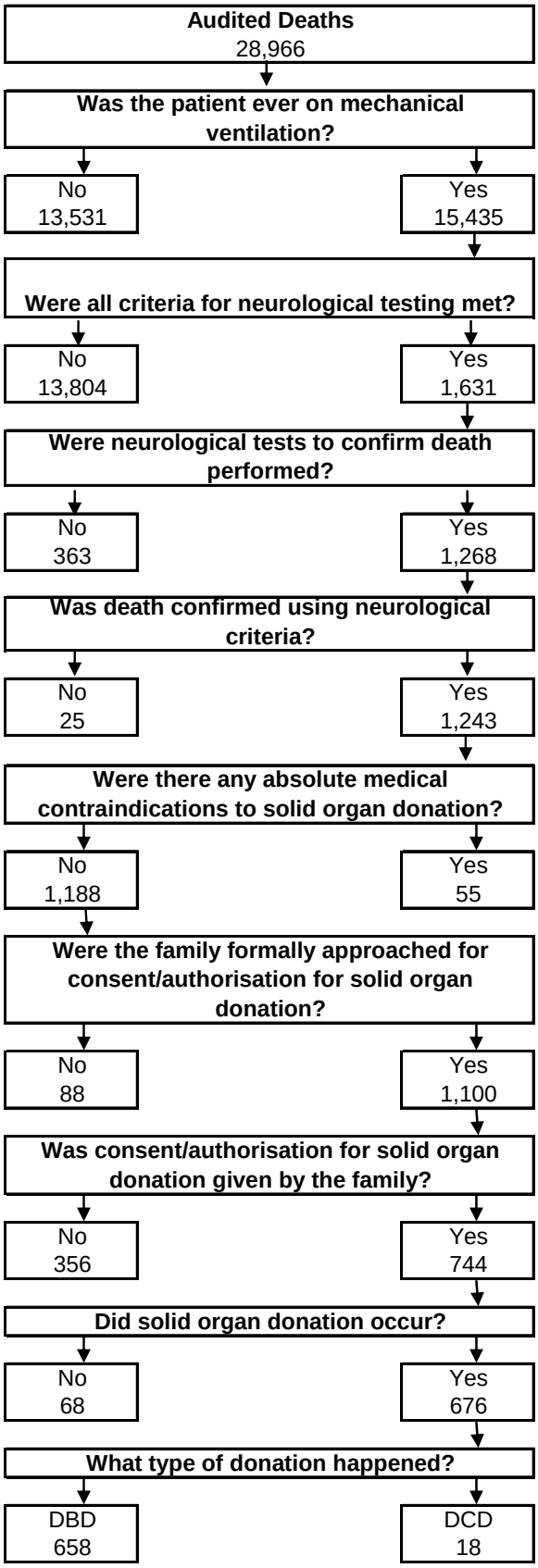


Figure 13.2 Donation after circulatory death

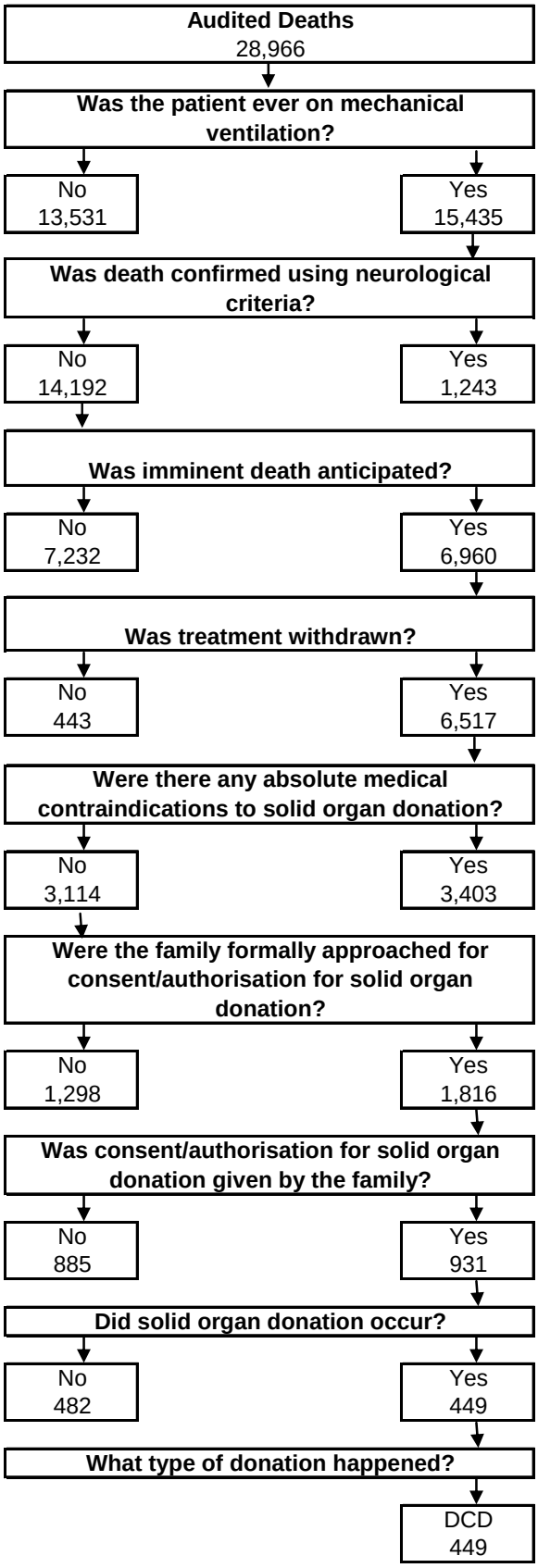
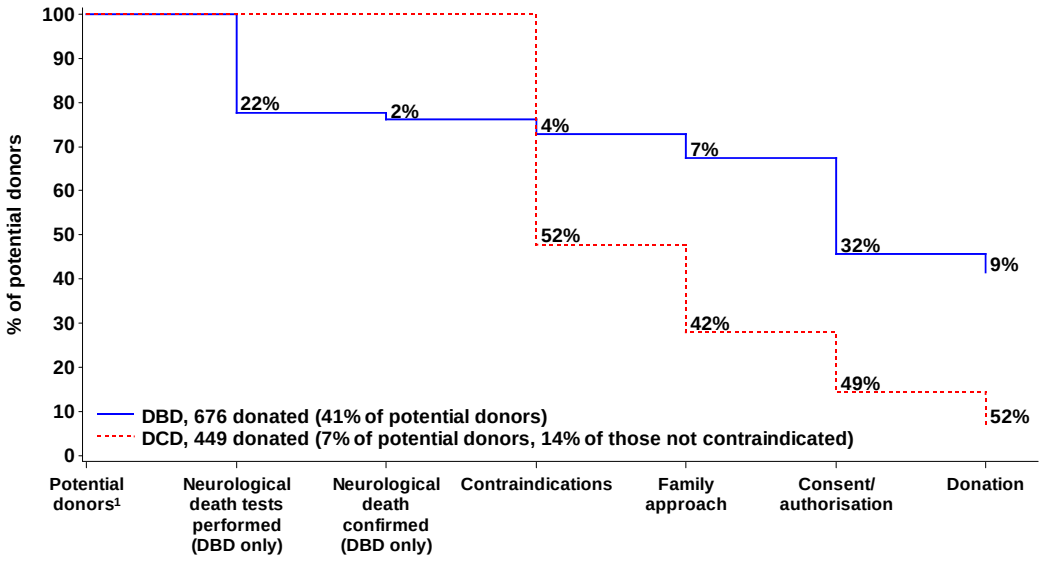


Table 13.1 Summary of key percentages, 1 April 2012 to 31 March 2013

	DBD	DCD	ALL
Neurological death testing rate	77.7%		
Referral rate	91.5%	62.4%	67.9%
Approach rate	92.6%	58.3%	67.8%
Proportion of approaches involving a SN-OD	78.9%	66.7%	71.3%
Consent/authorisation rate	67.6%	51.3%	57.4%
- when SN-OD not involved in approach	52.2%	30.8%	36.7%
- when SN-OD involved in approach	71.8%	61.5%	65.8%
- when patient on ODR and status known at time of potential donation	95.0%	79.7%	86.2%
- when patient's wish (by any method) is known at time of potential donation[1]	95.6%	83.5%	88.4%
- when SN-OD involved in approach and patient known to be on ODR at time of potential donation	95.0%	83.0%	88.2%

[1] 105 families overruled their loved one's known wish to be an organ donor

Figure 13.3 Stages at which potential organ donors lose the opportunity to become actual donors, 1 April 2012 to 31 March 2013



[1] Potential DBD donor - A patient who meets all four criteria for neurological death testing
Potential DCD donor - A patient who had treatment withdrawn and death was anticipated within four hours

13.4 Eligible donors

The number of eligible donors (as defined earlier) and rates per million population (pmp) are shown in **Table 13.2**, by country and former English Strategic Health Authority (SHA). The number of actual donors pmp can be found in Table 3.2 of Chapter 3. Eligible DBD ranged from 10.6 pmp in East Midlands SHA to 30.4 pmp in Northern Ireland. Eligible DCD ranged from 39.5 pmp in South East Coast SHA to 86.5 pmp in North East SHA. Across the countries, the number of eligible donors ranged from 66.0 pmp in Scotland to 79.7 eligible donors pmp in Wales. Overall, there were 1,188 eligible DBD (18.7 pmp) and 3,114 eligible DCD (49.1 pmp) in the UK. **Tables 13.3** and **13.4** show more detailed information by country and English SHA for DBD and DCD data, respectively.

Table 13.2 Eligible donor rates per million population (pmp), in the UK, 1 April 2012 to 31 March 2013, by country and English Strategic Health Authority

	Eligible DBD		Eligible DCD		**TOTAL**	
Country/ Strategic Health Authority of donation	N	(pmp)	N	(pmp)	**N**	**(pmp)**
North East	76	(29.2)	225	(86.5)	**301**	**(115.8)**
North West	102	(14.4)	295	(41.8)	**397**	**(56.2)**
Yorkshire and the Humber	85	(16.1)	264	(49.9)	**349**	**(66.0)**
North of England	**263**	**(17.6)**	**784**	**(52.4)**	**1047**	**(70.0)**
East Midlands	48	(10.6)	194	(42.7)	**242**	**(53.3)**
West Midlands	108	(19.3)	319	(56.9)	**427**	**(76.1)**
East of England	112	(19.1)	320	(54.6)	**432**	**(73.7)**
Midlands and East	**268**	**(16.7)**	**833**	**(52.0)**	**1101**	**(68.8)**
London	**248**	**(30.2)**	**359**	**(43.8)**	**607**	**(74.0)**
South East Coast	64	(14.3)	177	(39.5)	**241**	**(53.8)**
South Central	70	(16.7)	212	(50.7)	**282**	**(67.5)**
South West	70	(13.2)	264	(49.8)	**334**	**(63.0)**
South of England	**204**	**(14.6)**	**653**	**(46.8)**	**857**	**(61.4)**
England	**983**	**(18.5)**	**2629**	**(49.5)**	**3612**	**(68.0)**
Isle of Man	**0**	**(0.0)**	**1**	**(12.5)**	**1**	**(12.5)**
Channel Islands	**5**	**(31.3)**	**10**	**(62.5)**	**15**	**(93.8)**
Wales	**66**	**(21.6)**	**178**	**(58.2)**	**244**	**(79.7)**
Scotland	**79**	**(15.0)**	**215**	**(41.0)**	**294**	**(56.0)**
Northern Ireland	**55**	**(30.4)**	**81**	**(44.8)**	**136**	**(75.1)**
TOTAL	**1188**	**(18.7)**	**3114**	**(49.1)**	**4302**	**(67.8)**

Table 13.3 DBD key metrics from the Potential Donor Audit, 1 April 2012 to 31 March 2013, by country and English Strategic Health Authority

Country/ Strategic Health Authority of donation	Number of patients where neurological death was suspected	Neurological death testing rate (%)	DBD referral rate (%)	Number of eligible DBD donors	Number of eligible DBD donors whose family were approached	DBD approach rate (%)	Percentage of DBD approaches that involved a SN-OD (%)	DBD consent/ authorisation rate (%)
North East	86	88.4	97.7	76	76	100.0	75.0	72.4
North West	147	73.5	95.2	102	96	94.1	88.5	72.9
Yorkshire and the Humber	118	77.1	89.0	85	79	92.9	74.7	68.4
North of England	**351**	**78.3**	**93.7**	**263**	**251**	**95.4**	**80.1**	**71.3**
East Midlands	82	65.9	81.7	48	42	87.5	78.6	61.9
West Midlands	158	77.2	90.5	108	101	93.5	55.4	67.3
East of England	136	86.0	94.9	112	106	94.6	81.1	71.7
Midlands and East	**376**	**77.9**	**90.2**	**268**	**249**	**92.9**	**70.3**	**68.3**
London	**332**	**79.8**	**96.7**	**248**	**219**	**88.3**	**91.3**	**58.4**
South East Coast	85	77.6	92.9	64	58	90.6	81.0	65.5
South Central	102	74.5	87.3	70	65	92.9	92.3	73.8
South West	99	77.8	91.9	70	68	97.1	60.3	75.0
South of England	**286**	**76.6**	**90.6**	**204**	**191**	**93.6**	**77.5**	**71.7**
England	**1345**	**78.2**	**92.8**	**983**	**910**	**92.6**	**79.6**	**67.5**
Isle of Man	**2**	**50.0**	**50.0**	**0**	**0**			
Channel Islands	**8**	**75.0**	**87.5**	**5**	**5**	**100.0**	**0.0**	**40.0**
Wales	**87**	**78.2**	**85.1**	**66**	**63**	**95.5**	**68.3**	**65.1**
Scotland	**116**	**72.4**	**86.2**	**79**	**73**	**92.4**	**74.0**	**78.1**
Northern Ireland	**73**	**78.1**	**86.3**	**55**	**49**	**89.1**	**87.8**	**61.2**
TOTAL	**1631**	**77.7**	**91.5**	**1188**	**1100**	**92.6**	**78.9**	**67.6**

Table 13.4 DCD key metrics from the Potential Donor Audit, 1 April 2012 to 31 March 2013, by country and English Strategic Health Authority

Country/ Strategic Health Authority of donation	Number of patients for whom imminent death was anticipated	DCD referral rate (%)	Number of eligible DCD donors	Number of eligible DCD donors whose family were approached	DCD approach rate (%)	Percentage of DCD approaches that involved a SN-OD (%)	DCD consent/ authorisation rate (%)
North East	390	81.8	225	92	40.9	60.9	60.9
North West	899	70.2	295	179	60.7	79.9	53.1
Yorkshire and the Humber	668	67.4	264	157	59.5	63.1	46.5
North of England	**1957**	**71.5**	**784**	**428**	**54.6**	**69.6**	**52.3**
East Midlands	467	47.1	194	95	49.0	55.8	44.2
West Midlands	610	58.7	319	183	57.4	54.1	48.1
East of England	471	79.4	320	194	60.6	75.8	54.1
Midlands and East	**1548**	**61.5**	**833**	**472**	**56.7**	**63.3**	**49.8**
London	**761**	**69.5**	**359**	**226**	**63.0**	**84.1**	**51.3**
South East Coast	473	55.8	177	102	57.6	86.3	53.9
South Central	394	52.0	212	113	53.3	76.1	49.6
South West	650	60.9	264	191	72.3	40.3	59.7
South of England	**1517**	**57.0**	**653**	**406**	**62.2**	**61.8**	**55.4**
England	**5783**	**64.8**	**2629**	**1532**	**58.3**	**67.8**	**52.2**
Isle of Man	**4**	**25.0**	**1**	**0**	**0.0**		
Channel Islands	**20**	**10.0**	**10**	**2**	**20.0**	**0.0**	**0.0**
Wales	**432**	**63.2**	**178**	**98**	**55.1**	**66.3**	**40.8**
Scotland	**483**	**41.2**	**215**	**140**	**65.1**	**52.9**	**50.7**
Northern Ireland	**238**	**51.7**	**81**	**44**	**54.3**	**79.5**	**45.5**
TOTAL	**6960**	**62.4**	**3114**	**1816**	**58.3**	**66.7**	**51.3**

Tables 13.5 and **13.6** show more detailed information on the key metrics by Organ Donation Services Team (ODST) for DBD and DCD data, respectively. Specialist Nurses for Organ Donation (SN-ODs) work within an ODST, which covers an area of the UK. As seen in **Table 13.5**, the neurological death testing rate was highest for the Northern team, the DBD referral rate was highest for the Northern team, the DBD approach rate was highest for the Northern team and the proportion of DBD approaches involving a SN-OD was highest for the South Central team. **Table 13.6** indicates that for DCD patients, the highest referral rate was for the Northern team, the highest approach rate was for the South West team and the proportion of DCD approaches involving a SN-OD was highest for the London team. No account has been taken of the demographics of the populations within the teams which may impact on the rates presented.

Table 13.5 DBD key metrics from the Potential Donor Audit, 1 April 2012 to 31 March 2013, by Organ Donation Services Team (ODST)

ODST	Number of patients where neurological death was suspected	Neurological death testing rate (%)	DBD referral rate (%)	Number of eligible DBD donors	Number of eligible DBD donors whose family were approached	DBD approach rate (%)	Percentage of DBD approaches that involved a SN-OD (%)	DBD consent/ authorisation rate (%)
Eastern	146	86.3	94.5	121	115	95.0	82.6	72.2
London	260	81.5	96.5	199	175	87.9	91.4	57.1
Midlands	207	74.9	87.9	136	125	91.9	57.6	65.6
North West	162	75.9	93.8	116	110	94.8	89.1	72.7
Northern	88	86.4	97.7	76	76	100.0	75.0	72.4
Northern Ireland	73	78.1	86.3	55	49	89.1	87.8	61.2
Scotland	116	72.4	86.2	79	73	92.4	74.0	78.1
South Central	126	73.8	88.9	85	79	92.9	92.4	78.5
South East	165	75.8	94.5	118	107	90.7	85.0	63.6
South Wales	75	74.7	84.0	54	51	94.4	62.7	64.7
South West	80	76.3	90.0	56	54	96.4	51.9	68.5
Yorkshire	133	75.2	88.7	93	86	92.5	75.6	66.3
TOTAL	**1631**	**77.7**	**91.5**	**1188**	**1100**	**92.6**	**78.9**	**67.6**

Table 13.6 DCD key metrics from the Potential Donor Audit, 1 April 2012 to 31 March 2013, by Organ Donation Services Team (ODST)

ODST	Number of patients for whom imminent death was anticipated	DCD referral rate (%)	Number of eligible DCD donors	Number of eligible DCD donors whose family were approached	DCD approach rate (%)	Percentage of DCD approaches that involved a SN-OD (%)	DCD consent/ authorisation rate (%)
Eastern	488	79.3	327	197	60.2	75.6	54.3
London	594	71.9	303	189	62.4	85.2	51.9
Midlands	916	53.9	441	246	55.8	52.0	46.7
North West	964	71.0	302	198	65.6	79.3	50.0
Northern	426	81.2	254	101	39.8	58.4	62.4
Northern Ireland	238	51.7	81	44	54.3	79.5	45.5
Scotland	483	41.2	215	140	65.1	52.9	50.7
South Central	513	54.4	268	146	54.5	74.0	50.7
South East	660	55.8	243	141	58.0	83.0	51.8
South Wales	350	59.1	152	77	50.7	68.8	42.9
South West	565	60.7	225	166	73.8	36.7	61.4
Yorkshire	763	63.8	303	171	56.4	64.3	44.4
TOTAL	**6960**	**62.4**	**3114**	**1816**	**58.3**	**66.7**	**51.3**

Table 13.7 shows key metrics separately for patients meeting the PDA criteria who were referred in an ICU or an emergency department (irrespective of where the patient died), for DBD and DCD, respectively. Note that the total number of patients in this table and the associated rates do not match the other tables throughout this chapter as Table 13.7 is based on the subset of patients who were referred to the ODST.

Table 13.8 shows key metrics separately for adult and paediatric patients, for DBD and DCD, respectively. Note that of the 96 paediatric patients for whom neurological death was suspected, tests were not performed on 38 patients, 5 of whom were less than two months post term.

Table 13.7 DBD and DCD key metrics from the Potential Donor Audit, 1 April 2012 to 31 March 2013, by unit where patient referred from, for patients who met the PDA criteria and were referred

Eligible donor type	Unit where patient was referred from	Number of patients who were referred[1]	Neurological death testing rate (%)	Number of eligible donors	Number of eligible donors whose family were approached	Approach rate (%)	Percentage of approaches involving a SN-OD (%)	Consent/ authorisation rate (%)	Number of actual donors[2]
DBD	Critical care	1322	83.3	1029	959	93.2	81.0	67.2	582
	Emergency department	171	76.0	125	120	96.0	75.8	82.5	94
	TOTAL	**1493**	**82.5**	**1154**	**1079**	**93.5**	**80.4**	**68.9**	**676**
DCD	Critical care	4036		2143	1524	71.1	69.9	53.7	389
	Emergency department	308		243	206	84.8	70.9	54.9	60
	TOTAL	**4344**		**2386**	**1730**	**72.5**	**70.1**	**53.8**	**449**

[1] DBD referral criteria: patients where neurological death was suspected; DCD referral criteria: patients for whom imminent death was anticipated
[2] Actual donors resulting from eligible DBD donors includes 16 DCD donors referred from critical care and 2 DCD donors referred from emergency departments

Table 13.8 DBD and DCD key metrics from the Potential Donor Audit, 1 April 2012 to 31 March 2013, by age group

Eligible donor type	Age group	Number of patients who met referral criteria[1]	Neurological death testing rate (%)	Referral rate (%)	Number of eligible donors	Number of eligible donors whose family were approached	Approach rate (%)	Percentage of approaches involving a SN-OD (%)	Consent/ authorisation rate (%)	Number of actual donors[2]
DBD	Adult (>=18)	1535	78.8	92.2	1137	1056	92.9	79.6	68.0	652
	Paediatric (<18)	96	60.4	80.2	51	44	86.3	61.4	59.1	24
	TOTAL	**1631**	**77.7**	**91.5**	**1188**	**1100**	**92.6**	**78.9**	**67.6**	**676**
DCD	Adult (>=18)	6664		63.1	2969	1744	58.7	67.4	52.2	436
	Paediatric (<18)	296		47.3	145	72	49.7	50.0	29.2	13
	TOTAL	**6960**		**62.4**	**3114**	**1816**	**58.3**	**66.7**	**51.3**	**449**

[1] DBD referral criteria: patients where neurological death was suspected; DCD referral criteria: patients for whom imminent death was anticipated
[2] Actual donors resulting from eligible DBD donors includes 18 DCD donors aged 18 years and over

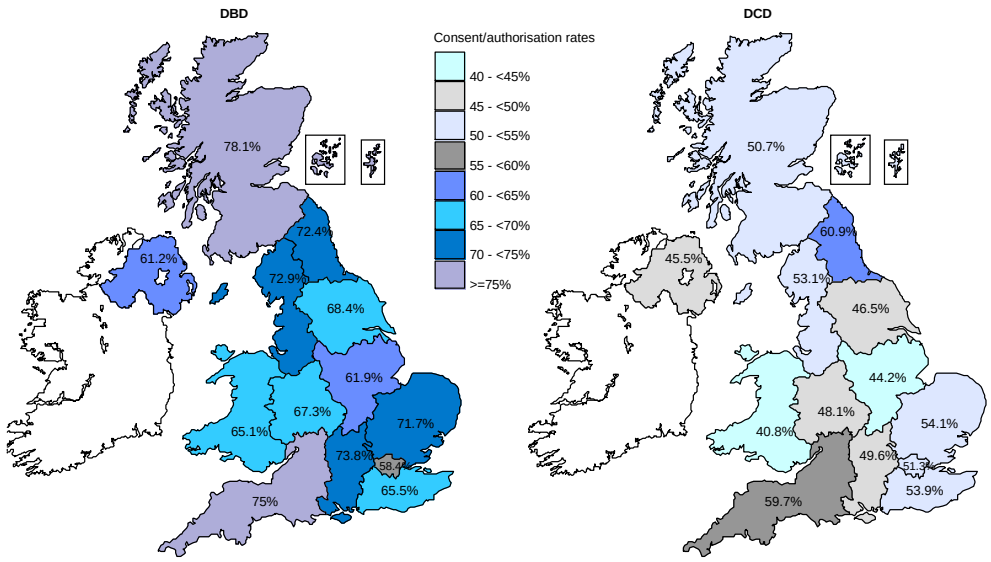
13.5 Consent/ authorisation rates

The overall DBD consent/ authorisation rate was 67.6% and the 95% confidence limits for this percentage are 64.8% - 70.4%. For DCD, the overall rate was 51.3% and the 95% confidence limits are 49.0% - 53.6%.

Consent/ authorisation rates by English SHA or country are illustrated in **Figure 13.4** and by Organ Donation Services Team in **Figure 13.5** for both DBD and DCD. Caution should be applied when interpreting these consent/ authorisation rates as no adjustment has been made for the mix of patients in terms of age, sex and ethnicity.

Across the English SHA and countries, the DBD consent/ authorisation rates range from 58.4% in London to 78.1% in Scotland. DCD consent/ authorisation rates range from 40.8% in Wales to 60.9% in the North East.

Figure 13.4 Consent/authorisation rates by English SHA/country



Across the Organ Donation Services Teams, the DBD consent/authorisation rates range from 57.1% in the London team to 78.5% in the South Central team. DCD consent/authorisation rates range from 42.9% in the South Wales team to 62.4% in the Northern team.

Figure 13.5 Consent/authorisation rates by Organ Donation Services Team

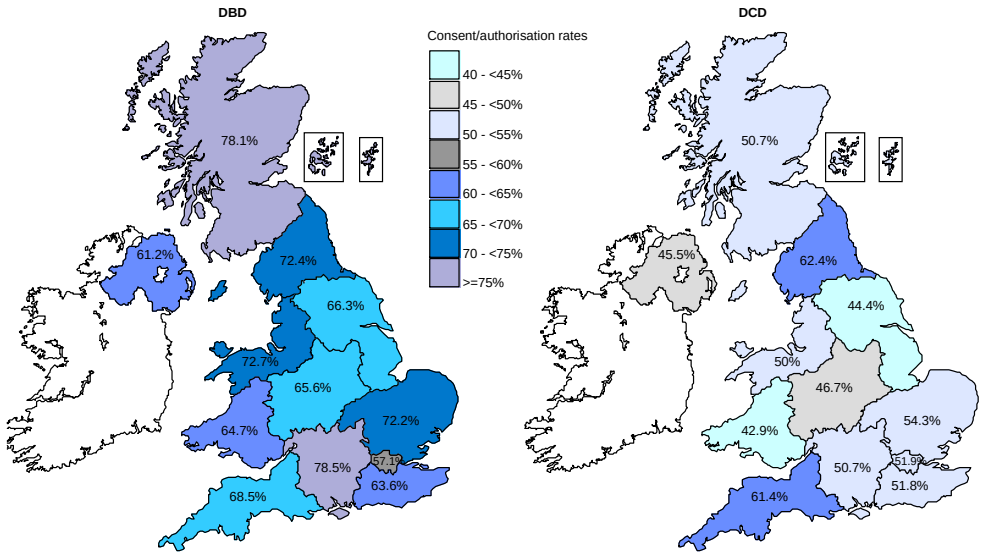


Table 13.9 shows the consent/ authorisation rate separately for white patients and patients from ethnic minority groups. The DBD consent/ authorisation rates for white patients and patients from ethnic minority groups were 72.5% and 35.5%, respectively. A smaller, but still significant, difference was observed for DCD consent/ authorisation rates: 54.3% and 31.0%, respectively. (Note that there were an additional 22 DBD and 99 DCD families approached where the ethnicity was not known or not reported.)

Scotland and Northern Ireland each accounted for only 1% of families from ethnic minority groups approached for a decision about organ donation, whereas London accounted for 42%. Most teams had a very small proportion, therefore accounting for some of the variation observed in overall consent/ authorisation rates between teams. Note that consent/ authorisation rates have not been provided where the number of families approached is less than ten.

Table 13.9 DBD and DCD consent/authorisation rates from the Potential Donor Audit, 1 April 2012 to 31 March 2013, by Organ Donation Services Team (ODST) and ethnicity

	White eligible donors					Eligible donors from ethnic minority groups					All
ODST	Number of eligible DBD donors whose family were approached	DBD consent/ authorisation rate (%)	Number of eligible DCD donors whose family were approached	DCD consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)	Number of eligible DBD donors whose family were approached	DBD consent/ authorisation rate (%)	Number of eligible DCD donors whose family were approached	DCD consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)	Overall consent/ authorisation rate (%) [1]
Eastern	100	75.0	182	56.6	**63.1**	13	46.2	6	-	**52.6**	**60.9**
London	121	66.9	138	58.7	**62.5**	53	35.8	46	32.6	**34.3**	**54.4**
Midlands	105	71.4	209	50.7	**57.6**	14	28.6	17	11.8	**19.4**	**53.1**
North West	103	75.7	177	53.1	**61.4**	6	-	10	20.0	**18.8**	**58.1**
Northern	71	76.1	90	67.8	**71.4**	3	-	2	-	**-**	**66.7**
Northern Ireland	45	62.2	44	45.5	**53.9**	3	-	0	-	**-**	**53.8**
Scotland	71	80.3	129	53.5	**63.0**	1	-	2	-	**-**	**60.1**
South Central	70	85.7	128	54.7	**65.7**	8	-	8	-	**31.3**	**60.4**
South East	90	66.7	133	53.4	**58.7**	15	46.7	7	-	**36.4**	**56.9**
South Wales	47	66.0	68	44.1	**53.0**	2	-	2	-	**-**	**51.6**
South West	53	69.8	152	61.2	**63.4**	0	-	4	-	**-**	**63.2**
Yorkshire	78	70.5	154	47.4	**55.2**	6	-	9	-	**26.7**	**51.8**
TOTAL	**954**	**72.5**	**1604**	**54.3**	**61.1**	**124**	**35.5**	**113**	**31.0**	**33.3**	**57.4**

[1] Includes 121 families approached where the ethnicity was not known or not reported

13.6 Specialist Nurse - Organ Donation (SN-OD) involvement

Table 13.10 shows the proportion of family approaches that involved a SN-OD, for DBD and DCD separately, and overall. Nationally, 78.9% of DBD and 66.7% of DCD family approaches involved a SN-OD, but there is wide variation between teams. **Table 13.11** shows the effect on the consent/ authorisation rate when a SN-OD is involved or not involved in the approach to a family for a decision about organ donation. Evidence shows that the family are more likely to consent to/ authorise donation when a trained SN-OD is involved in the approach and this is particularly apparent for eligible DCD donors. Again, there is wide variation between teams.

Caution should be applied when interpreting these rates as no account has been taken of approaches initiated by the family, ODR status or ethnicity.

Table 13.10 Percentage of family approaches involving a Specialist Nurse - Organ Donation (SN-OD) from the Potential Donor Audit, 1 April 2012 to 31 March 2013, by Organ Donation Services Team (ODST)

	DBD			DCD			All
ODST	Number of eligible donors whose family were approached	Number of eligible donors where SN-OD involved in approach	Percentage of approaches that involved a SN-OD (%)	Number of eligible donors whose family were approached	Number of eligible donors where SN-OD involved in approach	Percentage of approaches that involved a SN-OD (%)	Overall percentage of DBD/DCD approaches that involved a SN-OD (%)
Eastern	115	95	82.6	197	149	75.6	**78.2**
London	175	160	91.4	189	161	85.2	**88.2**
Midlands	125	72	57.6	246	128	52.0	**53.9**
North West	110	98	89.1	198	157	79.3	**82.8**
Northern	76	57	75.0	101	59	58.4	**65.5**
Northern Ireland	49	43	87.8	44	35	79.5	**83.9**
Scotland	73	54	74.0	140	74	52.9	**60.1**
South Central	79	73	92.4	146	108	74.0	**80.4**
South East	107	91	85.0	141	117	83.0	**83.9**
South Wales	51	32	62.7	77	53	68.8	**66.4**
South West	54	28	51.9	166	61	36.7	**40.5**
Yorkshire	86	65	75.6	171	110	64.3	**68.1**
TOTAL	**1100**	**868**	**78.9**	**1816**	**1212**	**66.7**	**71.3**

Table 13.11 DBD and DCD consent/authorisation rates with/without SN-OD involvement from the Potential Donor Audit, 1 April 2012 to 31 March 2013, by Organ Donation Services Team (ODST)

	SN-OD involved in approach					SN-OD not involved in approach					All
ODST	Number of eligible DBD donors whose family were approached	DBD consent/ authorisation rate (%)	Number of eligible DCD donors whose family were approached	DCD consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)	Number of eligible DBD donors whose family were approached	DBD consent/ authorisation rate (%)	Number of eligible DCD donors whose family were approached	DCD consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)
Eastern	95	72.6	149	65.8	**68.4**	20	70.0	48	18.8	**33.8**	**60.9**
London	160	56.9	161	50.9	**53.9**	15	60.0	28	57.1	**58.1**	**54.4**
Midlands	72	69.4	128	63.3	**65.5**	53	60.4	118	28.8	**38.6**	**53.1**
North West	98	77.6	157	61.8	**67.8**	12	33.3	41	4.9	**11.3**	**58.1**
Northern	57	75.4	59	67.8	**71.6**	19	63.2	42	54.8	**57.4**	**66.7**
Northern Ireland	43	67.4	35	57.1	**62.8**	6	16.7	9	0.0	**6.7**	**53.8**
Scotland	54	88.9	74	74.3	**80.5**	19	47.4	66	24.2	**29.4**	**60.1**
South Central	73	82.2	108	61.1	**69.6**	6	33.3	38	21.1	**22.7**	**60.4**
South East	91	67.0	117	59.0	**62.5**	16	43.8	24	16.7	**27.5**	**56.9**
South Wales	32	75.0	53	49.1	**58.8**	19	47.4	24	29.2	**37.2**	**51.6**
South West	28	78.6	61	78.7	**78.7**	26	57.7	105	51.4	**52.7**	**63.2**
Yorkshire	65	76.9	110	57.3	**64.6**	21	33.3	61	21.3	**24.4**	**51.8**
TOTAL	**868**	**71.8**	**1212**	**61.5**	**65.8**	**232**	**52.2**	**604**	**30.8**	**36.7**	**57.4**

13.7 Comparison with previous years

Table 13.12 shows the key metrics from the PDA for the last three financial years. An increase has been observed in the neurological death testing rate, but 22% of patients who met the criteria were not tested in 2012-2013. Details, such as the reasons for not testing, can be found in the accompanying PDA Annual Report available at http://www.organdonation.nhs.uk/statistics/potential_donor_audit/. Increases have been observed in the rates of referral to the SN-ODs, especially for DCD. The DBD approach rate has remained static at 93%, but an increase has been observed in the DCD approach rate. Increases have also been observed in the proportion of approaches involving a SN-OD for both DBD and DCD. A slight increase in the DBD consent/ authorisation rate has been observed, but there has been no real change for DCD. However, the actual number of families consenting to/ authorising donation has increased, especially for DCD. Overall, approximately 300 more families consented to/ authorised donation in 2012-2013 compared with 2010-2011, and approximately 200 more compared with 2011-2012.

Table 13.12 DBD and DCD key metrics from the Potential Donor Audit, by financial year

Eligible donor type	Financial year	Number of patients who met referral criteria [1]	Neurological death testing rate (%)	Referral rate (%)	Number of eligible donors	Number of eligible donors whose family were approached	Approach rate (%)	Proportion of family approaches involving a SN-OD (%)	Number of families who consented to/ authorised donation	Consent/ authorisation rate (%)	Number of actual donors [2]
DBD	**2010-2011**	1676	72.1	84.5	1144	1059	92.6	67.5	683	64.5	617
	2011-2012	1661	74.2	90.7	1169	1090	93.2	71.1	694	63.7	636
	2012-2013	1631	77.7	91.5	1188	1100	92.6	78.9	744	67.6	676
DCD	**2010-2011**	7221		44.3	2883	1359	47.1	53.5	693	51.0	342
	2011-2012	6902		52.6	2933	1598	54.5	57.9	794	49.7	390
	2012-2013	6960		62.4	3114	1816	58.3	66.7	931	51.3	449
TOTAL	**2010-2011**	**8897**		**51.9**	**4027**	**2418**	**60.0**	**59.6**	**1376**	**56.9**	**959**
	2011-2012	8563		60.0	4102	2688	65.5	63.2	1488	55.4	1026
	2012-2013	8591		67.9	4302	2916	67.8	71.3	1675	57.4	1125

[1] DBD referral criteria: patients where neurological death was suspected; DCD referral criteria: patients for whom imminent death was anticipated
[2] Actual donors resulting from eligible DBD donors includes 6 DCD donors in 2010-2011, 11 DCD donors in 2011-2012 and 18 DCD donors in 2012-2013

Appendices

Appendix I provides details of the 1,212 deceased organ donors reported in 2012-2013. Details are given for each donating hospital and the hospitals have been grouped by former English Strategic Health Authority and country. This appendix does not reflect regional retrieval rates: for example, in Wales three of the donating hospitals reported are listed under Liverpool for kidney retrievals.

The number of donors by donor country/ former Strategic Health Authority of residence is given for donors after brain death in **Appendix IIA** and donors after circulatory death in **Appendix IIB**.

The populations used for country/ former Strategic Health Authority per million population are given in **Appendix III** these populations are mid-2011 estimates based on *ONS 2011 Census* figures.

Appendix 1 Deceased solid organ donors and donated organs in the UK, 1 April 2012 - 31 March 2013 (2011-2012), by donating hospital

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
East Midlands													
Boston, Pilgrim Hospital	1	(3)	0	(0)	1	(3)	1	(2)	2	1	0	1	1
Chesterfield, Chesterfield Royal Hospital	1	(2)	0	(0)	1	(2)	1	(1)	1	0	0	1	0
Derby, Royal Derby Hospital	2	(5)	2	(2)	4	(7)	3	(4)	8	1	0	3	2
Kettering, Kettering General Hospital	7	(3)	1	(3)	8	(6)	7	(3)	14	1	6	6	3
Leicester, Glenfield General Hospital	1	(0)	2	(0)	3	(0)	2	(0)	6	0	0	2	1
Leicester, Leicester Royal Infirmary	4	(9)	2	(1)	6	(10)	4	(9)	10	1	0	5	3
Lincoln, Lincoln County Hospital	0	(1)	2	(3)	2	(4)	0	(1)	3	0	0	0	0
Northampton, Northampton General Hospital	0	(2)	2	(1)	2	(3)	1	(2)	3	0	0	1	0
Nottingham, Nottingham City Hospital	1	(0)	1	(1)	2	(1)	0	(1)	2	0	0	1	0
Nottingham, Nottingham University Hospital	5	(6)	10	(6)	15	(12)	9	(8)	30	1	2	8	3
Sutton-In-Ashfield, King's Mill Hospital	3	(1)	2	(2)	5	(3)	4	(3)	10	1	2	2	4
Total	**25**	**(32)**	**24**	**(19)**	**49**	**(51)**	**32**	**(34)**	**89**	**6**	**10**	**30**	**17**
East of England													
Basildon, Basildon Hospital	5	(3)	3	(0)	8	(3)	4	(3)	14	0	0	5	1
Bedford, Bedford Hospital	3	(2)	3	(9)	6	(11)	3	(4)	12	1	2	3	1
Bury St Edmunds, West Suffolk Hospital	1	(1)	3	(2)	4	(3)	2	(1)	8	0	0	2	1
Cambridge, Addenbrooke's Hospital	20	(17)	25	(14)	45	(31)	28	(20)	86	7	14	23	17
Chelmsford, Broomfield Hospital	6	(1)	0	(0)	6	(1)	6	(1)	12	2	4	6	4
Colchester, Colchester General Hospital	0	(1)	6	(0)	6	(1)	2	(1)	12	0	0	1	1
Great Yarmouth, James Paget Hospital	3	(3)	7	(2)	10	(5)	4	(4)	20	0	0	4	1
Harlow, Princess Alexandra Hospital	5	(1)	0	(0)	5	(1)	5	(1)	10	0	6	5	4
Huntingdon, Hinchingbrooke Hospital	1	(1)	1	(3)	2	(4)	1	(0)	4	0	0	1	0
Ipswich, Ipswich Hospital	2	(3)	4	(3)	6	(6)	4	(5)	12	1	2	3	3
Kings Lynn, The Queen Elizabeth Hospital	1	(0)	2	(0)	3	(0)	2	(0)	6	0	0	2	0
Luton, Luton And Dunstable Hospital	4	(4)	5	(3)	9	(7)	6	(7)	18	0	0	6	3
Norwich, Norfolk And Norwich University Hospital	6	(7)	10	(4)	16	(11)	10	(8)	30	1	8	11	8
Papworth, Papworth Hospital	1	(2)	3	(1)	4	(3)	2	(2)	8	0	2	2	0
Peterborough, Peterborough City Hospital	0	(2)	1	(0)	1	(2)	1	(2)	2	0	0	1	1
Stevenage, Lister Hospital	3	(2)	3	(2)	6	(4)	4	(3)	12	0	2	4	1
Watford, Watford General Hospital	1	(4)	1	(1)	2	(5)	2	(5)	4	0	2	2	1
Welwyn Garden City, Queen Elizabeth Hospital	1	(3)	0	(0)	1	(3)	1	(3)	2	0	0	1	1
Westcliff On Sea, Southend Hospital	4	(3)	2	(0)	6	(3)	5	(2)	12	0	2	5	1
Total	**67**	**(60)**	**79**	**(44)**	**146**	**(104)**	**92**	**(72)**	**284**	**12**	**44**	**87**	**49**

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
London													
Barnet, Barnet General Hospital	0	(1)	3	(0)	3	(1)	1	(1)	6	0	0	0	1
Carshalton, St Helier Hospital	1	(2)	0	(0)	1	(2)	1	(2)	2	0	0	1	1
Chelsea, Chelsea And Westminster Hospital	1	(1)	1	(0)	2	(1)	1	(1)	4	0	0	1	1
Croydon, Mayday University Hospital	0	(4)	1	(0)	1	(4)	1	(4)	2	0	2	0	0
Enfield, Chase Farm Hospital	1	(0)	2	(0)	3	(0)	3	(0)	6	0	0	3	1
Evelina Childrens Hospital	1	(0)	0	(1)	1	(1)	1	(0)	2	0	0	1	0
Harefield, Harefield Hospital	1	(1)	4	(1)	5	(2)	3	(2)	10	0	0	3	1
Harrow, Northwick Park Hospital	6	(3)	1	(1)	7	(4)	6	(2)	12	0	0	7	2
Ilford, King George Hospital	1	(0)	1	(0)	2	(0)	0	(0)	2	0	0	1	0
Isleworth, West Middlesex University Hospital	3	(2)	0	(0)	3	(2)	3	(1)	6	0	2	3	2
Kingston, Kingston Hospital	2	(1)	1	(0)	3	(1)	3	(0)	6	0	2	3	1
London, Charing Cross Hospital	3	(10)	2	(2)	5	(12)	4	(11)	10	0	0	4	3
London, Great Ormond Street Hospital For Children	0	(2)	1	(3)	1	(5)	0	(4)	2	0	0	0	0
London, Hammersmith Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
London, Heart Hospital	0	(1)	0	(1)	0	(2)	0	(2)	0	0	0	0	0
London, King's College Hospital	22	(8)	13	(5)	35	(13)	26	(13)	67	6	16	26	15
London, National Hospital For Neurology And Neurosurgery	15	(10)	1	(4)	16	(14)	14	(11)	32	2	2	14	9
London, Newham General Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
London, North Middlesex Hospital	1	(2)	1	(0)	2	(2)	1	(2)	4	1	0	1	0
London, Queen Elizabeth Hospital	3	(0)	3	(0)	6	(0)	5	(0)	12	0	0	4	2
London, Royal Brompton Hospital	1	(0)	0	(1)	1	(1)	1	(1)	2	0	0	1	1
London, Royal Free Hospital	4	(4)	1	(1)	5	(5)	4	(3)	9	1	0	4	2
London, St George's Hospital	19	(19)	2	(4)	21	(23)	19	(22)	38	5	13	18	15
London, St Mary's Hospital	2	(3)	4	(1)	6	(4)	4	(3)	10	1	2	3	3
London, St Thomas' Hospital	3	(5)	2	(5)	5	(10)	4	(4)	10	0	0	3	2
London, The London Chest Hospital	0	(1)	1	(3)	1	(4)	1	(3)	2	0	0	1	0
London, The Royal London Hospital (Whitechapel)	12	(18)	5	(4)	17	(22)	15	(19)	33	5	4	14	11
London, The Whittington Hospital	0	(2)	1	(0)	1	(2)	0	(2)	2	0	0	0	0
London, University College Hospital	1	(0)	1	(1)	2	(1)	0	(1)	4	0	0	0	0
London, University Hospital Lewisham	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0
London, Whipps Cross Hospital	1	(0)	3	(2)	4	(2)	3	(1)	8	0	2	3	2
Orpington, Princess Royal University Hospital	2	(0)	1	(0)	3	(0)	3	(0)	6	0	0	3	0
Romford, Queens Hospital	12	(7)	9	(8)	21	(15)	12	(10)	38	1	6	12	6
Southall, Ealing Hospital	0	(0)	1	(0)	1	(0)	0	(0)	2	0	0	0	0
Stanmore, Royal National Orthopaedic Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Uxbridge, Hillingdon Hospital	2	(3)	1	(0)	3	(3)	2	(3)	6	0	0	2	0
Total	**120**	**(113)**	**67**	**(49)**	**187**	**(162)**	**141**	**(131)**	**355**	**22**	**51**	**136**	**81**

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
North East													
Ashington, Wansbeck Hospital	2	(2)	3	(3)	5	(5)	2	(2)	9	0	0	2	0
Darlington, Darlington Memorial Hospital	3	(0)	2	(5)	5	(5)	3	(1)	10	0	0	3	0
Durham, University Hospital Of North Durham	4	(4)	0	(0)	4	(4)	4	(4)	7	1	0	4	1
Gateshead, Queen Elizabeth Hospital	1	(2)	4	(2)	5	(4)	1	(1)	10	0	2	0	0
Hartlepool, University Hospital Of Hartlepool	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	1	0
Middlesbrough, The James Cook University Hospital	13	(5)	5	(8)	18	(13)	14	(7)	30	3	9	14	11
Newcastle, Freeman Hospital	2	(1)	2	(3)	4	(4)	2	(2)	8	0	0	2	0
Newcastle, Royal Victoria Infirmary	23	(19)	11	(4)	34	(23)	25	(19)	63	7	30	21	18
North Shields, North Tyneside General Hospital	0	(1)	5	(0)	5	(1)	1	(1)	8	0	0	2	0
Northallerton, Friarage Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0
South Shields, South Tyneside District General Hospital	0	(2)	3	(1)	3	(3)	0	(1)	4	0	0	0	0
Stockton-On-Tees, University Hospital Of North Tees	3	(2)	1	(2)	4	(4)	3	(1)	5	1	4	2	2
Sunderland, Sunderland Royal Hospital	2	(3)	1	(3)	3	(6)	2	(3)	6	1	2	2	1
Total	**54**	**(42)**	**37**	**(32)**	**91**	**(74)**	**58**	**(43)**	**162**	**13**	**47**	**53**	**33**
North West													
Ashton-Under-Lyne, Tameside General Hospital	1	(2)	0	(1)	1	(3)	1	(2)	2	1	0	1	1
Barrow-In-Furness, Furness General Hospital	3	(1)	0	(0)	3	(1)	3	(0)	6	0	0	3	2
Blackburn, Royal Blackburn Hospital	2	(3)	0	(3)	2	(6)	1	(3)	4	0	2	1	0
Blackpool, Blackpool Victoria Hospital	2	(1)	1	(2)	3	(3)	1	(1)	4	0	1	2	1
Bolton, Royal Bolton Hospital	1	(1)	1	(3)	2	(4)	1	(3)	4	0	0	1	0
Bury, Fairfield General Hospital	3	(0)	2	(2)	5	(2)	3	(1)	10	0	2	3	2
Carlisle, Cumberland Infirmary	0	(0)	3	(2)	3	(2)	2	(1)	6	0	2	1	1
Chester, Countess Of Chester Hospital	0	(1)	0	(1)	0	(2)	0	(0)	0	0	0	0	0
Crewe, Leighton Hospital	0	(1)	2	(3)	2	(4)	1	(2)	4	0	0	1	0
Lancaster, Royal Lancaster Infirmary	1	(3)	1	(0)	2	(3)	0	(3)	2	0	0	1	0
Liverpool, Alder Hey Children's Hospital	1	(1)	0	(0)	1	(1)	1	(1)	2	1	0	1	1
Liverpool, Liverpool Heart And Chest Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Liverpool, Royal Liverpool University Hospital	4	(3)	2	(2)	6	(5)	5	(2)	12	0	0	4	3
Liverpool, University Hospital Aintree	2	(2)	2	(1)	4	(3)	2	(3)	8	2	0	1	1
Liverpool, Walton Centre For Neurology And Neurosurgery	8	(10)	1	(4)	9	(14)	8	(9)	16	2	2	9	5
Macclesfield, Macclesfield District General Hospital	0	(1)	2	(0)	2	(1)	1	(1)	4	0	0	1	0
Manchester, Manchester Royal Infirmary	3	(6)	2	(0)	5	(6)	4	(6)	10	0	3	4	2
Manchester, North Manchester General Hospital	0	(0)	2	(2)	2	(2)	0	(1)	3	0	0	0	0
Manchester, Royal Manchester Children's Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0
Manchester, Trafford General Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	2	1	1

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Manchester, Wythenshawe Hospital	1	(5)	0	(2)	1	(7)	1	(3)	2	0	0	1	1
Oldham, Royal Oldham Hospital (Rochdale Road)	1	(1)	0	(1)	1	(2)	1	(2)	2	0	1	1	1
Prescot, Whiston Hospital	4	(2)	3	(1)	7	(3)	4	(2)	12	0	4	4	2
Preston, Royal Preston Hospital	5	(6)	4	(7)	9	(13)	8	(10)	16	1	4	8	4
Salford, Salford Royal	12	(6)	9	(9)	21	(15)	14	(7)	39	2	7	14	8
Southport, Southport District General Hospital	1	(4)	0	(0)	1	(4)	1	(4)	2	0	0	1	0
Stockport, Stepping Hill Hospital	1	(1)	0	(0)	1	(1)	0	(1)	2	0	0	0	0
Warrington, Warrington Hospital	3	(0)	3	(1)	6	(1)	4	(0)	12	0	2	4	2
Whitehaven, West Cumberland Hospital	0	(1)	1	(2)	1	(3)	0	(1)	2	0	0	0	0
Wigan, Royal Albert Edward Infirmary	1	(3)	3	(0)	4	(3)	2	(3)	8	0	1	2	1
Wirral, Arrowe Park Hospital	5	(3)	1	(3)	6	(6)	3	(3)	12	2	4	3	2
Total	**66**	**(71)**	**45**	**(52)**	**111**	**(123)**	**73**	**(78)**	**208**	**11**	**37**	**73**	**41**
South Central													
Aylesbury, Stoke Mandeville Hospital	0	(4)	2	(1)	2	(5)	0	(4)	4	0	0	0	0
Basingstoke, North Hampshire Hospital	1	(0)	1	(1)	2	(1)	1	(0)	4	0	0	1	0
Milton Keynes, Milton Keynes General Hospital	3	(1)	1	(0)	4	(1)	3	(1)	8	1	2	3	1
Newport, St Mary's Hospital	0	(1)	1	(1)	1	(2)	1	(2)	2	0	0	1	1
Oxford, John Radcliffe Hospital	16	(15)	4	(5)	20	(20)	14	(19)	34	3	3	17	10
Portsmouth, Queen Alexandra Hospital	5	(8)	3	(2)	8	(10)	5	(10)	14	0	0	6	2
Reading, Royal Berkshire Hospital	3	(1)	4	(1)	7	(2)	3	(2)	12	2	0	4	2
Slough, Wexham Park Hospital	1	(3)	2	(1)	3	(4)	1	(4)	4	0	0	2	0
Southampton, Southampton University Hospitals	14	(9)	8	(5)	22	(14)	19	(12)	44	3	16	19	12
Winchester, Royal Hampshire County Hospital	2	(1)	0	(1)	2	(2)	2	(1)	4	0	0	2	0
Wycombe, Wycombe General Hospital	3	(1)	0	(0)	3	(1)	3	(1)	4	0	2	3	3
Total	**48**	**(44)**	**26**	**(18)**	**74**	**(62)**	**52**	**(56)**	**134**	**9**	**23**	**58**	**31**
South East Coast													
Ashford, William Harvey Hospital	4	(3)	1	(2)	5	(5)	2	(3)	6	0	0	3	2
Brighton, Royal Sussex County Hospital	4	(3)	4	(2)	8	(5)	6	(3)	16	1	4	6	4
Camberley, Frimley Park Hospital	3	(1)	4	(3)	7	(4)	3	(2)	10	0	0	4	1
Canterbury, Kent And Canterbury Hospital	0	(1)	1	(0)	1	(1)	0	(0)	2	0	0	0	0
Chertsey, St Peter's Hospital	1	(3)	1	(1)	2	(4)	1	(3)	2	0	0	2	0
Chichester, St Richard's Hospital	2	(1)	1	(0)	3	(1)	3	(1)	6	1	2	3	1
Dartford, Darent Valley Hospital	2	(0)	3	(1)	5	(1)	2	(1)	10	1	2	2	0
Eastbourne, Eastbourne District General Hospital	1	(3)	1	(2)	2	(5)	1	(4)	4	1	0	1	1
Gillingham, Medway Hospital	4	(4)	1	(0)	5	(4)	3	(4)	5	1	0	4	2

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Guildford, Royal Surrey County Hospital	1	(2)	0	(2)	1	(4)	1	(2)	2	1	2	1	1
Hastings, Conquest Hospital	1	(2)	0	(1)	1	(3)	1	(3)	2	0	0	1	0
Haywards Heath, Hurstwood Park Hospital	3	(3)	1	(0)	4	(3)	4	(3)	8	1	4	4	3
Haywards Heath, Princess Royal Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	2	1	0
Maidstone, Maidstone District General Hospital	2	(0)	1	(3)	3	(3)	2	(2)	6	0	0	2	2
Margate, Queen Elizabeth The Queen Mother Hospital	0	(1)	0	(0)	0	(1)	0	(0)	0	0	0	0	0
Redhill, East Surrey Hospital	2	(1)	1	(1)	3	(2)	3	(1)	6	0	2	3	1
Tunbridge Wells, Kent And Sussex Hospital	0	(2)	0	(1)	0	(3)	0	(2)	0	0	0	0	0
Tunbridge Wells, Tunbridge Wells Hospital	0	(0)	2	(0)	2	(0)	1	(0)	4	0	0	1	0
Worthing, Worthing Hospital	1	(4)	0	(1)	1	(5)	1	(3)	2	0	0	1	1
Total	**32**	**(34)**	**22**	**(20)**	**54**	**(54)**	**35**	**(37)**	**93**	**7**	**18**	**39**	**19**
South West													
Barnstaple, North Devon District Hospital	2	(0)	3	(2)	5	(2)	3	(2)	10	0	2	3	1
Bath, Royal United Hospital	4	(0)	4	(3)	8	(3)	5	(1)	16	2	2	5	1
Bournemouth, Royal Bournemouth General Hospital	2	(3)	4	(1)	6	(4)	5	(2)	12	0	0	5	2
Bristol, Bristol Royal Hospital For Children	0	(3)	2	(0)	2	(3)	2	(3)	4	0	2	2	2
Bristol, Bristol Royal Infirmary	4	(3)	3	(5)	7	(8)	4	(6)	13	0	0	4	1
Bristol, Frenchay Hospital	7	(11)	9	(11)	16	(22)	11	(17)	32	1	8	10	6
Bristol, Southmead Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0
Cheltenham, Cheltenham General Hospital	2	(0)	2	(1)	4	(1)	1	(0)	8	0	0	1	1
Dorchester, Dorset County Hospital	2	(0)	3	(3)	5	(3)	3	(1)	8	1	2	4	1
Exeter, Royal Devon And Exeter Hospital (Wonford)	1	(0)	0	(2)	1	(2)	1	(1)	2	1	0	1	1
Gloucester, Gloucestershire Royal Hospital	5	(0)	5	(3)	10	(3)	7	(1)	18	2	0	7	4
Plymouth, Derriford Hospital	8	(4)	7	(15)	15	(19)	13	(12)	30	0	6	12	6
Poole, Poole General Hospital	2	(0)	3	(1)	5	(1)	3	(1)	10	0	0	3	1
Salisbury, Salisbury District Hospital	0	(0)	0	(2)	0	(2)	0	(1)	0	0	0	0	0
Swindon, Great Western Hospital	7	(2)	4	(4)	11	(6)	7	(3)	21	1	2	7	2
Taunton, Taunton And Somerset Hospital (Musgrove Park)	1	(2)	2	(2)	3	(4)	1	(3)	6	0	0	1	0
Torquay, Torbay Hospital	0	(3)	1	(5)	1	(8)	0	(6)	2	0	0	0	0
Truro, Royal Cornwall Hospital (Treliske)	1	(2)	1	(3)	2	(5)	1	(5)	4	1	0	1	1
Weston-Super-Mare, Weston General Hospital	0	(1)	1	(1)	1	(2)	1	(1)	2	0	0	1	0
Yeovil, Yeovil District Hospital	2	(1)	2	(1)	4	(2)	3	(1)	6	0	2	3	2
Total	**50**	**(35)**	**56**	**(66)**	**106**	**(101)**	**71**	**(67)**	**204**	**9**	**26**	**70**	**32**
West Midlands													
Birmingham, Birmingham Children's Hospital	4	(1)	0	(0)	4	(1)	4	(0)	8	3	0	3	2

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Birmingham, Birmingham Heartlands Hospital	3	(1)	1	(0)	4	(1)	3	(1)	8	0	2	3	0
Birmingham, City Hospital	3	(2)	0	(1)	3	(3)	3	(2)	6	0	1	3	2
Birmingham, Queen Elizabeth Hospital Birmingham	18	(12)	8	(7)	26	(19)	25	(17)	51	8	16	24	17
Coventry, University Hospital	4	(8)	13	(5)	17	(13)	11	(9)	34	0	2	10	5
Dudley, Russells Hall Hospital	1	(0)	1	(1)	2	(1)	2	(0)	3	0	2	2	0
Hereford, The County Hospital	2	(2)	3	(2)	5	(4)	3	(2)	8	0	2	3	3
Nuneaton, George Eliot Hospital	1	(1)	0	(1)	1	(2)	1	(1)	2	0	0	1	1
Redditch, The Alexandra Hospital	2	(1)	2	(3)	4	(4)	2	(3)	8	0	2	2	1
Shrewsbury, Royal Shrewsbury Hospital	1	(0)	1	(1)	2	(1)	2	(1)	4	1	0	2	2
Solihull, Solihull Hospital	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0
Stafford, Stafford Hospital	1	(2)	0	(0)	1	(2)	1	(2)	2	0	0	1	1
Stoke, North Staffordshire Royal Infirmary	0	(8)	0	(8)	0	(16)	0	(13)	0	0	0	0	0
Stoke-On-Trent, University Hospital North Staffordshire	14	(0)	10	(1)	24	(1)	22	(1)	48	2	2	22	11
Sutton Coldfield, Good Hope District General Hosp.	3	(2)	1	(2)	4	(4)	3	(3)	8	3	2	3	2
Telford, The Princess Royal Hospital	1	(1)	2	(0)	3	(1)	1	(1)	4	0	2	2	0
Walsall, Manor Hospital	0	(2)	1	(2)	1	(4)	0	(2)	2	0	0	0	0
Warwick, Warwick Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0
West Bromwich, Sandwell General Hospital	2	(1)	0	(0)	2	(1)	2	(1)	4	0	0	2	1
Wolverhampton, New Cross Hospital	6	(4)	1	(2)	7	(6)	5	(5)	10	0	0	7	1
Worcester, Worcestershire Royal Hospital	5	(3)	5	(2)	10	(5)	6	(4)	18	0	0	7	3
Total	**71**	**(51)**	**49**	**(40)**	**120**	**(91)**	**96**	**(69)**	**228**	**17**	**33**	**97**	**52**
Yorkshire and the Humber													
Barnsley, Barnsley District General Hospital	2	(0)	2	(0)	4	(0)	1	(0)	8	1	0	1	1
Bradford, Bradford Royal Infirmary	4	(6)	2	(1)	6	(7)	3	(6)	12	0	2	3	1
Cottingham, Castle Hill Hospital	0	(0)	1	(0)	1	(0)	0	(0)	2	0	0	0	0
Dewsbury, Dewsbury And District Hospital	1	(1)	2	(1)	3	(2)	1	(1)	6	0	0	1	0
Doncaster, Doncaster Royal Infirmary	2	(3)	1	(2)	3	(5)	1	(4)	6	0	0	1	0
Grimsby, Diana Princess Of Wales Hospital	2	(0)	0	(0)	2	(0)	2	(0)	4	1	0	2	1
Halifax, Calderdale Royal Hospital	3	(2)	0	(0)	3	(2)	3	(2)	6	0	2	3	1
Harrogate, Harrogate District Hospital	1	(1)	2	(1)	3	(2)	1	(0)	6	0	0	1	1
Huddersfield, Huddersfield Royal Infirmary	2	(5)	4	(3)	6	(8)	4	(6)	12	1	2	2	3
Hull, Hull Royal Infirmary	3	(5)	1	(4)	4	(9)	3	(5)	8	0	2	3	2
Leeds, Leeds General Infirmary	11	(9)	5	(3)	16	(12)	14	(9)	31	2	9	14	7
Leeds, St James's University Hospital	2	(2)	2	(3)	4	(5)	3	(1)	8	2	2	3	2
Rotherham, Rotherham District General Hospital	0	(1)	1	(3)	1	(4)	1	(1)	2	0	0	1	0
Scarborough, Scarborough General Hospital	3	(1)	0	(0)	3	(1)	2	(1)	6	0	2	1	1

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Scunthorpe, Scunthorpe General Hospital	0	(1)	0	(1)	0	(2)	0	(1)	0	0	0	0	0
Sheffield, Northern General Hospital	2	(1)	5	(2)	7	(3)	4	(2)	12	1	4	4	1
Sheffield, Royal Hallamshire Hospital	4	(3)	3	(1)	7	(4)	3	(2)	12	1	4	4	1
Sheffield, Sheffield Children's Hospital	0	(1)	0	(1)	0	(2)	0	(2)	0	0	0	0	0
Wakefield, Pinderfields General Hospital	3	(2)	4	(2)	7	(4)	4	(2)	12	0	0	5	1
Worksop, Bassetlaw District General Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	0
York, York District Hospital	4	(1)	1	(1)	5	(2)	3	(1)	10	1	2	3	2
Total	**50**	**(45)**	**36**	**(29)**	**86**	**(74)**	**54**	**(46)**	**165**	**10**	**31**	**53**	**25**
Channel Islands													
Guernsey, Princess Elizabeth Hospital	0	(2)	0	(1)	0	(3)	0	(2)	0	0	0	0	0
St Helier, Jersey General Hospital	2	(0)	0	(0)	2	(0)	2	(0)	4	0	0	2	2
Total	**2**	**(2)**	**0**	**(1)**	**2**	**(3)**	**2**	**(2)**	**4**	**0**	**0**	**2**	**2**
Isle of Man													
Douglas, Nobles I-O-M Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0
Total	**0**	**(2)**	**0**	**(0)**	**0**	**(2)**	**0**	**(2)**	**0**	**0**	**0**	**0**	**0**
England	**585**	**(531)**	**441**	**(370)**	**1026**	**(901)**	**706**	**(637)**	**1926**	**116**	**320**	**698**	**382**
Northern Ireland													
Belfast, Antrim Hospital	2	(1)	1	(0)	3	(1)	2	(1)	6	1	0	2	1
Belfast, Mater Infirmorum Hospital	0	(1)	1	(0)	1	(1)	0	(1)	2	0	0	0	0
Belfast, Royal Victoria Hospital	13	(16)	3	(2)	16	(18)	11	(16)	28	4	14	7	7
Belfast, The Ulster Hospital	2	(3)	3	(1)	5	(4)	4	(4)	9	0	2	4	2
Coleraine, Causeway Hospital	3	(3)	1	(0)	4	(3)	2	(1)	8	0	2	2	1
Enniskillen, Erne Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0
Londonderry, Altnagelvin Area Hospital	2	(9)	0	(0)	2	(9)	2	(9)	4	0	2	2	1
Portadown, Craigavon Area Hospital	7	(1)	2	(0)	9	(1)	7	(0)	16	1	6	7	3
Total	**29**	**(36)**	**11**	**(3)**	**40**	**(39)**	**28**	**(34)**	**73**	**6**	**26**	**24**	**15**
Scotland													
Aberdeen, Aberdeen Royal Infirmary	3	(2)	5	(1)	8	(3)	4	(3)	13	1	6	4	1
Airdrie, Monklands District General Hospital	2	(1)	1	(0)	3	(1)	2	(1)	6	0	0	1	2
Ayr, The Ayr Hospital	1	(0)	2	(0)	3	(0)	3	(0)	6	0	2	2	2
Dumfries, Dumfries And Galloway Royal Infirmary	1	(0)	2	(2)	3	(2)	2	(1)	6	0	0	2	0
Dundee, Ninewells Hospital	5	(9)	2	(1)	7	(10)	5	(10)	12	1	4	6	3

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Dunfermline, Queen Margaret Hospital	0	(3)	0	(3)	0	(6)	0	(3)	0	0	0	0	0
East Kilbride, Hairmyres Hospital	2	(0)	0	(1)	2	(1)	2	(1)	4	0	2	2	1
Edinburgh, Royal Hospital For Sick Children	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Edinburgh, Royal Infirmary Of Edinburgh	2	(4)	5	(3)	7	(7)	5	(4)	13	0	2	4	1
Edinburgh, Western General Hospital	11	(10)	1	(6)	12	(16)	8	(14)	22	5	2	9	7
Glasgow, Victoria Infirmary	3	(1)	0	(0)	3	(1)	3	(1)	5	1	0	3	1
Glasgow, Golden Jubilee National Hospital	1	(0)	1	(2)	2	(2)	2	(2)	4	0	0	1	1
Glasgow, Royal Hospital For Sick Children	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0
Glasgow, Southern General Hospital	4	(2)	4	(1)	8	(3)	5	(2)	16	1	4	5	3
Glasgow, Western Infirmary	1	(0)	0	(2)	1	(2)	1	(0)	2	0	2	0	1
Greenock, Inverclyde Royal Hospital	4	(0)	2	(1)	6	(1)	4	(1)	10	1	4	5	2
Glasgow, Golden Jubilee National Hospital	1	(2)	1	(0)	2	(2)	1	(2)	2	0	0	2	0
Inverness, Raigmore Hospital	4	(2)	0	(0)	4	(2)	4	(2)	8	1	2	4	3
Kilmarnock, Crosshouse Hospital	1	(0)	1	(0)	2	(0)	1	(0)	4	0	0	1	0
Kirkcaldy, Victoria Hospital	0	(1)	2	(0)	2	(1)	1	(1)	2	0	2	1	0
Larbert, Forth Valley Royal Hospital	2	(2)	1	(0)	3	(2)	2	(2)	6	0	1	2	1
Livingston, St John's Hospital	1	(3)	3	(2)	4	(5)	2	(3)	7	0	0	1	1
Melrose, Borders General Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Paisley, Royal Alexandra Hospital	4	(5)	0	(0)	4	(5)	3	(3)	6	1	3	3	1
Perth, Perth Royal Infirmary	2	(2)	1	(0)	3	(2)	3	(1)	6	0	2	3	2
Stirling, Stirling Royal Infirmary	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Wishaw, Wishaw General Hospital	1	(1)	4	(2)	5	(3)	2	(1)	10	0	0	2	1
Total	**56**	**(53)**	**38**	**(28)**	**94**	**(81)**	**65**	**(62)**	**170**	**12**	**38**	**63**	**34**
Wales													
Abergavenny, Nevill Hall Hospital	0	(1)	0	(1)	0	(2)	0	(1)	0	0	0	0	0
Aberystwyth, Bronglais Hospital	1	(1)	1	(1)	2	(2)	1	(1)	4	0	2	1	1
Bangor, Ysbyty Gwynedd District General Hospital	1	(2)	0	(1)	1	(3)	1	(3)	2	0	1	1	0
Bodelwyddan, Glan Clwyd District General Hospital	1	(2)	2	(3)	3	(5)	2	(4)	6	0	0	2	1
Bridgend, Princess Of Wales Hospital	2	(7)	1	(1)	3	(8)	3	(6)	6	1	0	3	1
Cardiff, University Of Wales Hospital	11	(7)	5	(14)	16	(21)	14	(14)	32	4	10	14	8
Carmarthen, Glangwili General Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	0
Haverford West, Withybush General Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Llanelli, Prince Philips Hospital	0	(1)	0	(2)	0	(3)	0	(0)	0	0	0	0	0
Merthyr Tydfil, Prince Charles Hospital	1	(2)	1	(1)	2	(3)	0	(2)	4	0	0	0	0
Newport, Royal Gwent Hospital	6	(1)	1	(4)	7	(5)	4	(3)	12	0	0	5	3
Pontypridd, Royal Glamorgan Hospital	1	(2)	1	(1)	2	(3)	2	(2)	4	0	0	2	0

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Swansea, Morriston Hospital	4	(3)	3	(5)	7	(8)	2	(5)	8	0	2	5	1
Swansea, Singleton Hospital	0	(1)	0	(0)	0	(1)	0	(0)	0	0	0	0	0
Wrexham, Maelor General Hospital	6	(1)	2	(1)	8	(2)	6	(1)	16	3	0	6	5
Total	**35**	**(32)**	**17**	**(35)**	**52**	**(67)**	**36**	**(43)**	**96**	**8**	**15**	**40**	**20**

Appendix IIA Numbers of donors after brain death and organs retrieved in the UK, 1 April 2012 - 31 March 2013, by country/ SHA

Country/ Strategic Health Authority	Donors				Organs				
	All donors	pmp	Multi-organ donors	pmp	Kidney	Heart	Lung	Liver	Pancreas
North East	45	17.3	41	15.8	76	9	27	39	24
North West	67	9.5	55	7.8	126	11	37	56	37
Yorkshire and The Humber	53	10.0	43	8.1	100	12	28	46	23
East Midlands	32	7.0	28	6.2	55	7	10	29	16
West Midlands	68	12.1	63	11.2	128	15	29	66	37
East of England	72	12.3	67	11.4	135	15	38	67	40
London	77	9.4	69	8.4	146	14	20	72	37
South East Coast	54	12.1	50	11.2	96	12	34	52	33
South Central	60	14.4	53	12.7	106	9	26	57	33
South West	52	9.8	43	8.1	94	10	14	47	18
England	**580**	**10.9**	**512**	**9.6**	**1062**	**114**	**263**	**531**	**298**
Isle of Man	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Channel Islands	**3**	**18.8**	**3**	**18.8**	**6**	**0**	**0**	**3**	**3**
Wales	**38**	**12.4**	**31**	**10.1**	**68**	**10**	**11**	**35**	**18**
Scotland	**55**	**10.5**	**50**	**9.5**	**102**	**12**	**30**	**50**	**27**
Northern Ireland	**29**	**16.0**	**24**	**13.3**	**53**	**6**	**20**	**21**	**13**
TOTAL	**705**	**11.1**	**620**	**9.8**	**1291**	**142**	**324**	**640**	**359**

Appendix IIB Numbers of donors after circulatory death and organs retrieved in the UK, 1 April 2012 - 31 March 2013, by country/ SHA

Country/ Strategic Health Authority	Donors				Organs				
	All donors	pmp	Multi-organ donors	pmp	Kidney	Heart	Lung	Liver	Pancreas
North East	32	12.3	4	1.5	56	0	8	3	1
North West	47	6.7	21	3.0	90	0	9	18	6
Yorkshire and The Humber	34	6.4	16	3.0	67	0	2	14	6
East Midlands	36	7.9	16	3.5	71	0	6	10	9
West Midlands	43	7.7	24	4.3	82	0	2	23	11
East of England	79	13.5	28	4.8	154	0	8	23	15
London	49	6.0	25	3.0	94	0	8	20	13
South East Coast	31	6.9	10	2.2	59	0	0	11	2
South Central	25	6.0	10	2.4	49	0	2	10	3
South West	64	12.1	33	6.2	126	0	12	30	14
England	**440**	**8.3**	**187**	**3.5**	**848**	**0**	**57**	**162**	**80**
Isle of Man	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Channel Islands	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Wales	**18**	**5.9**	**9**	**2.9**	**36**	**0**	**4**	**9**	**4**
Scotland	**38**	**7.2**	**16**	**3.0**	**70**	**0**	**8**	**12**	**7**
Northern Ireland	**11**	**6.1**	**3**	**1.7**	**20**	**0**	**6**	**2**	**1**
TOTAL	**507**	**8.0**	**215**	**3.4**	**974**	**0**	**75**	**185**	**92**

Appendix III	Populations for SHA's, 2012-2013 Mid-2011 estimates based on ONS 2011 Census figures
SHA	**Retrieval population million**
North East	2.60
North West	7.06
Yorkshire and The Humber	5.29
East Midlands	4.54
West Midlands	5.61
East of England	5.86
London	8.20
South East Coast	4.48
South Central	4.18
South West	5.30
England	**53.11**
Isle of Man	**0.08**
Channel Islands	**0.16**
Wales	**3.06**
Scotland	**5.25**
Northern Ireland	**1.81**
TOTAL	**63.47**

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