

Activity Report 2010/11

# TRANSPLANT ACTIVITY IN THE UK



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## PREFACE

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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 19 June 2011 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.

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-2009 estimates based on *ONS 2001 Census* figures and are given in **Appendix III**.

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## FOREWORD

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I am pleased to present you with the Transplant Activity report for 2010/11 which reveals another year-on-year increase in the number of deceased donors – to 1,010 – the largest number in one year in the UK.

Without our donors, the 3,740 life-saving transplants that took place – another record high and the sixth rise in succession – would not have been possible. They made a tremendous decision when they donated their organs, and in many cases tissue as well, to save the lives of others through transplantation. We are forever grateful to them and to their families for supporting their decision.

Before the implementation of the Organ Donation Taskforce recommendations, the number of deceased organ donations in the UK was in steady decline. The number of donors after brain death (DBD) has however increased over the last four years by 5%, reversing the trend which saw a 13% drop between 2001/02 and 2007/08.

Efforts to increase donation after circulatory death (DCD) have been successful with an 87% increase since 2007/08. Last year 11% more DCD donors were identified and this process continues to be vital in helping to address the need for kidney transplants in particular.

Overall, the deceased organ donation rate across the UK now stands at 16.3 per million population.

Last year saw a slight drop in the number of living organ donors to 1,045, representing a 2% decrease on the previous 12 months. 'Directed' living donations to relatives or friends dropped by 3% while the number of 'undirected' living donor transplants (also known as altruistic donor transplants) and paired and pooled donations contributed more than 60 kidney transplants between them. Living donation still contributes more than a third – 38% - of the total kidney transplant programme and remains an integral part of our strategy to save more lives.

I'm delighted to report that cornea donation and transplantation reached new heights last year. More than 5,500 corneas were donated, an 11% increase on the previous year, partly made possible through new arrangements with Moorfields Eye Hospital who now report data to the UK Transplant Registry. From the 5,091 donated corneas that were supplied to the Corneal Transplant Service (CTS) eye banks, 3,566 were transplanted – a 15% increase compared to the previous year.

Last year marked a major turning point for the Organ Donor Register (ODR) with the discovery that an inherent technical fault had led to incorrect data recording. Quite rightly this sparked an amount of public scrutiny and we are continuing to see through the recommendations made following an independent review.

In spite of this, public endorsement led to almost 675,000 more registrations last year, rising to 17,751,795 by the end of the year, a 4% increase on the year before. Alongside this overall increase, the proportion of actual organ donors and cornea

only donors who had joined the ODR before their death rose to 33% and 39% respectively. These increases demonstrate ongoing public support and recognition of the value of donation and transplantation, and this is also reflected in the high proportion of members who have indicated their willingness to allow all their organs and tissue to be donated, which last year rose to 89%.

Looking forward, working with our partners across the NHS and beyond, we will continue to strive to make more organs available for transplantation.

E. Sally Johnson  
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NHS Blood and Transplant

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## 1 SUMMARY OF TRANSPLANT ACTIVITY

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In the financial year to 31 March 2011:

- there was a 5% increase in the number of deceased donors to 1,010, the largest number there has ever been in the UK
- the number of donors after brain death increased by 2% to 637, while the number of donors after circulatory death increased by 11% to 373
- the number of living donors fell by 2% to 1,045; living donors account for more than half of the total number of organ donors
- the number of patients whose lives were saved or improved by an organ transplant increased by 1% to 3,740
- 3,564 patients had their sight restored through a cornea transplant, an increase of 15% on last year

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

- there were 7,800 patients waiting for a transplant at the end of March 2011, and a further 2,783 were temporarily suspended from transplant lists
- 511 patients died while waiting for their transplant

Some of the other key messages from this report are that there has been:

- an increase of 11% in the number of cardiothoracic organ transplants
- an increase of 1% in the number of pancreas transplants
- no change in the total number of kidney transplants despite a 1% increase in deceased donor kidney transplants
- no change in the number of liver transplants
- an increase in the consent rate for organ donation after brain death from 61% to 65%

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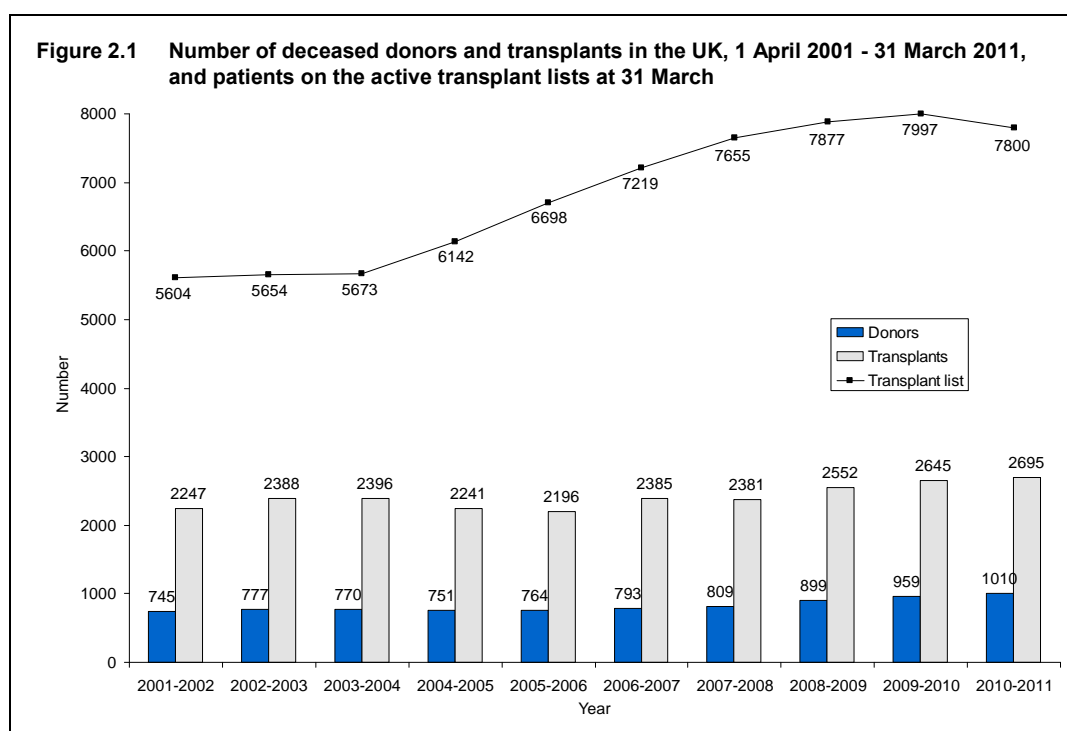
## 2 OVERVIEW OF ORGAN DONATION AND TRANSPLANTATION

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This overview summarises the main features of organ donation and transplantation activity in the UK during the financial year from 1 April 2010 to 31 March 2011.

### 2.1 Summary of activity

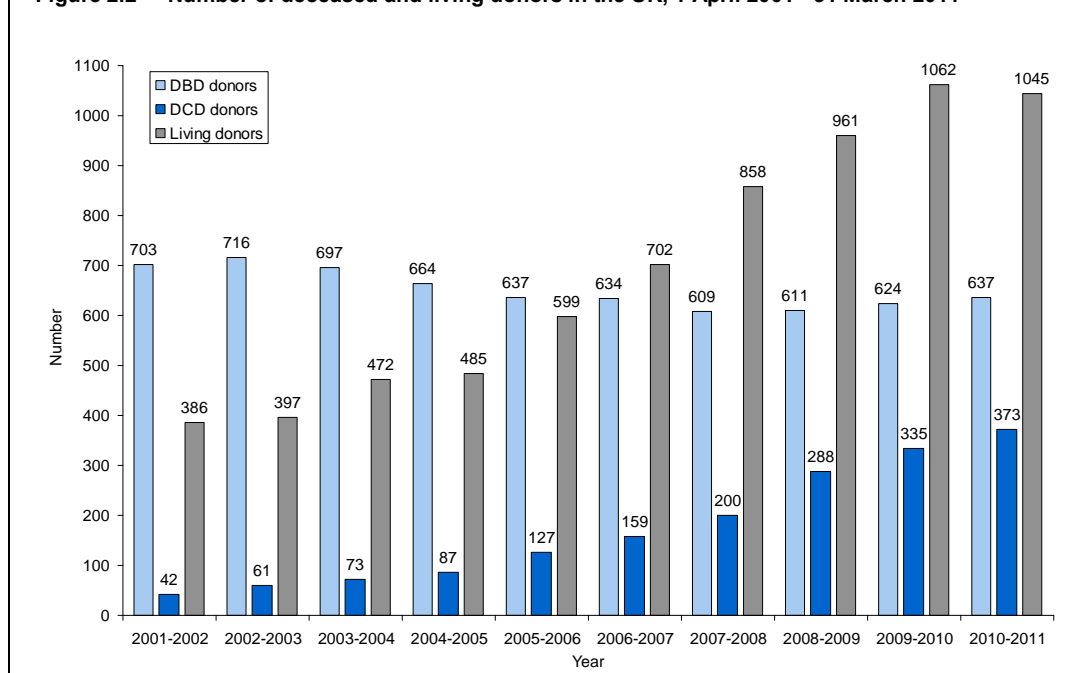
As the total number of deceased donors and transplants continued to increase this year, the number of patients waiting for a transplant at 31 March 2011 is 197 less than on the same date last year. The increase in donor and transplant numbers (1 April 2001 to 31 March 2011) and the change in the transplant lists at 31 March each year are shown in **Figure 2.1**. There were 50 more deceased donor transplants in 2010-2011 than in the previous year, representing a 2% increase. The corresponding increase in the number of deceased donors was 5%.



**Figure 2.2** shows the number of deceased and living donors for 2001-2011. The number of deceased organ donors in the UK continued to fall over a number of years but following the implementation of the Organ Donation Taskforce recommendations, the numbers are increasing. The number of donors after brain death (DBD) has increased by 5% over the last four years, reversing the trend which saw a 13% decrease between 2001/2002 and 2007/2008. The number of donors after circulatory death (DCD) has been increasing year-on-year as 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 87% since 2007/2008. Living donors fell to 1,045 this year, representing a 2% decrease on last year, but still representing a 9% increase on 2008/2009.



**Figure 2.2** Number of deceased and living donors in the UK, 1 April 2001 - 31 March 2011



## 2.2 Transplant list

At 31 March 2011, 10,583 patients were registered for an organ transplant in the UK. Of these 2,783 (26%) 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 2010 and 2011. The total number fell by 197 patients (2%), which is the first time in the last ten years that there has been a fall in the number of patients on the active transplant lists.

<b>Table 2.1 Active transplant lists in the UK at 31 March 2010 and 2011</b>			
	<b>2010</b>	<b>2011</b>	<b>% Change</b>
<b>Kidney &amp; pancreas patients</b>	<b>7226</b>	<b>6921</b>	<b>-4</b>
Kidney	6892	6599	-4
Kidney & pancreas	275	250	-9
Pancreas	42	48	+14
Pancreas islets	17	24	+14
<b>Cardiothoracic patients</b>	<b>388</b>	<b>354</b>	<b>-9</b>
Heart	122	129	+6
Heart/lung	12	13	+8
Lung(s)	254	212	-17
<b>Liver patients</b>	<b>356</b>	<b>491</b>	<b>+38</b>
<b>Intestinal patients<sup>1</sup></b>	<b>9</b>	<b>14</b>	<b>-</b>
<b>Other multi-organ patients<sup>2</sup></b>	<b>18</b>	<b>20</b>	<b>+11</b>
<b>ALL PATIENTS</b>	<b>7997</b>	<b>7800</b>	<b>-2</b>
Percentage not reported when fewer than 10 in either year			
<sup>1</sup> Excludes bowel only patients (2 including kidney in 2011)			
<sup>2</sup> Includes patients waiting for kidney and liver transplants (13 in 2010, 19 in 2011), kidney and heart transplants (3 in 2010, 1 in 2011), heart and liver transplants (1 in 2010) liver and pancreas transplants (1 in 2010)			

## 2.3 Transplants

There was a 1% increase in the total number of organ transplants (from deceased and living donors) last year: 3,740 transplants were performed in 2010-2011 compared with 3,707 in 2009-2010 (**Table 2.2**). All multi-organ transplants are identified separately as are transplants from living donors.

There was no change in the total number of kidney transplants in 2010-2011; kidney transplants from donors after brain death and donors after circulatory death increased by 1% and 3% respectively, while the number of living donor kidney transplants fell by 2%. The total number of cardiothoracic organ transplants rose by 11%, while the number of liver transplants remained constant and the number of pancreas transplants (including pancreas only, kidney/pancreas and pancreas islets) increased by 1%. The decline in the number of some organ transplants may reflect changing donor patterns which are described in Chapter 3.

**Table 2.2 Transplants performed in the UK, 1 April 2009 - 31 March 2011**

<b>Transplant</b>	<b>2009-2010</b>	<b>2010-2011</b>	<b>% Change</b>
DBD kidney	954	960	+1
DCD kidney	528	542	+3
Living donor kidney	1038	1020	-2
DBD Kidney & pancreas	138	131	-5
DCD Kidney & pancreas	22	25	+14
DBD Pancreas	30	30	0
DCD Pancreas	10	11	+10
Pancreas islets	9	13	-
Deceased heart	120	131	+9
Domino heart	1	0	-
Heart/lung	5	3	-
DBD Single lung	33	23	-30
DCD Single lung	3	0	-
DBD Double lung	97	124	+28
DCD Double lung	12	22	+83
DBD liver	472	445	-6
DCD liver	97	99	+2
Domino liver	3	4	-
DBD liver lobe	92	119	+29
DCD liver lobe	2	1	-
Living donor liver lobe	20	21	+5
Kidney & liver	15	9	-
Liver & pancreas	5	7	-
Liver & lung	1	0	-
<b>TOTAL ORGAN TRANSPLANTS</b>	<b>3707</b>	<b>3740</b>	<b>+1</b>
<b>Total kidney transplants<sup>1</sup></b>	<b>2695</b>	<b>2687</b>	<b>0</b>
<b>Total pancreas transplants<sup>1</sup></b>	<b>214</b>	<b>217</b>	<b>+1</b>
<b>Total cardiothoracic transplants</b>	<b>272</b>	<b>303</b>	<b>+11</b>
<b>Total liver transplants<sup>1</sup></b>	<b>707</b>	<b>705</b>	<b>0</b>

Percentage not reported when fewer than 10 in either year

<sup>1</sup> Includes intestinal transplants, 14 in 2009-2010 (5 including liver, 1 including kidney) and 8 in 2010-2011 (5 including liver (1 liver only), 1 including kidney), excludes bowel only transplants, see Table 9.2 in Chapter 9

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## 3 ORGAN DONATION ACTIVITY

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### Key messages

- There has been a 5% increase in deceased donors (to 1,010) and a 2% fall in living organ donors (to 1,045)
- The number of donors after brain death increased by 2% and there was an 11% increase in donors after circulatory death
- Donors after circulatory death provide, on average, one less organ for transplantation than donors after brain death
- Donor characteristics are changing: 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 a 5% increase in the number of deceased organ donors in 2010-2011. This was a result of 2% more donors after brain death (DBD) and 11% more donors after circulatory death (DCD). The 1,010 deceased organ donors gave 3,495 organs compared with 959 donors and 3,361 organs in 2009-2010. This represents a 4% increase in organs donated. This is lower than the 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 cannot provide hearts for transplant. **Table 3.1** shows deceased organ donors according to the organs they donated. On average in the UK, 3.9 organs were retrieved per DBD and 2.5 per DCD in 2010-2011.

Nearly all deceased donors (95%) gave a kidney and of these the majority (74%) 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, 57% of donors after circulatory death were single organ donors, the majority (92%) of these donating just their kidneys.

Although the vast majority of living organ donors donated a kidney, 25 donors donated part of their liver. All living organ donations are approved by the Human Tissue Authority.

**Table 3.1 Solid organ donors in the UK, 1 April 2010 - 31 March 2011, by organ types donated**

	DBD	DCD	Living donor	TOTAL
Kidney only	51	196	1020	1267
Kidney & thoracic	7	8	-	15
Kidney & liver	168	79	-	247
Kidney & pancreas	6	17	-	23
Kidney, thoracic & liver	46	3	-	49
Kidney, thoracic & pancreas	5	7	-	12
Kidney, liver & pancreas	153	38	-	191
Kidney, thoracic, liver & pancreas	166	7	-	173
Thoracic only	1	-	-	1
Thoracic & liver	2	1	-	3
Liver only	26	16	25	67
Liver & pancreas	6	1	-	7
<b>TOTAL</b>	<b>637</b>	<b>373</b>	<b>1045</b>	<b>2055</b>

### 3.2 Organ donors

Organ donor rates per million population (pmp) for 2010-2011 are given by country and Strategic Health Authority according to where the donor lived in **Table 3.2a** while the number of deceased donors are shown based on the location of the hospital in which they died in **Table 3.2b**. **Appendix 1** shows a more detailed breakdown of the donating hospitals.

**Table 3.2a Organ donor rates per million population (pmp), in the UK, 1 April 2010 - 31 March 2011, by country and English Strategic Health Authority of donor residence<sup>1</sup>**

Country/ Strategic Health Authority of residence	DBD		DCD		TOTAL		Living	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
North East	33	(12.8)	22	(8.5)	55	(21.3)	36	(14.0)
North West	52	(7.5)	40	(5.8)	92	(13.3)	105	(15.2)
Yorkshire and The Humber	49	(9.3)	35	(6.7)	84	(16.0)	61	(11.6)
East Midlands	37	(8.3)	23	(5.2)	60	(13.5)	85	(19.1)
West Midlands	50	(9.2)	37	(6.8)	87	(16.0)	90	(16.6)
East of England	57	(9.9)	45	(7.8)	102	(17.7)	100	(17.3)
London	66	(8.5)	28	(3.6)	94	(12.1)	170	(21.9)
South East Coast	55	(12.7)	24	(5.5)	79	(18.2)	75	(17.3)
South Central	50	(12.2)	21	(5.1)	71	(17.3)	80	(19.5)
South West	45	(8.6)	49	(9.4)	94	(18.0)	75	(14.3)
<b>England</b>	<b>494</b>	<b>(9.5)</b>	<b>324</b>	<b>(6.3)</b>	<b>818</b>	<b>(15.8)</b>	<b>877</b>	<b>(16.9)</b>
<b>Isle of Man</b>	<b>1</b>	<b>(12.5)</b>	<b>0</b>	<b>(0.0)</b>	<b>1</b>	<b>(12.5)</b>	<b>3</b>	<b>(37.5)</b>
<b>Channel Islands</b>	<b>2</b>	<b>(13.3)</b>	<b>0</b>	<b>(0.0)</b>	<b>2</b>	<b>(13.3)</b>	<b>11</b>	<b>(73.3)</b>
<b>Wales</b>	<b>53</b>	<b>(17.7)</b>	<b>30</b>	<b>(10.0)</b>	<b>83</b>	<b>(27.7)</b>	<b>44</b>	<b>(14.7)</b>
<b>Scotland</b>	<b>49</b>	<b>(9.4)</b>	<b>17</b>	<b>(3.3)</b>	<b>66</b>	<b>(12.7)</b>	<b>59</b>	<b>(11.4)</b>
<b>Northern Ireland</b>	<b>38</b>	<b>(21.2)</b>	<b>2</b>	<b>(1.1)</b>	<b>40</b>	<b>(22.3)</b>	<b>51</b>	<b>(28.5)</b>
<b>TOTAL</b>	<b>637</b>	<b>(10.3)</b>	<b>373</b>	<b>(6.0)</b>	<b>1010</b>	<b>(16.3)</b>	<b>1045</b>	<b>(16.8)</b>

<sup>1</sup> Includes 29 donors (11 deceased, 18 living) where the hospital postcode was used where postcode of donor residence was not known

**Table 3.2a** shows variation in the number of DBD and DCD pmp across the UK. There are 10.3 DBD pmp for the UK as a whole, but across the English Strategic Health Authorities (SHA) this ranges between 7.5 and 12.8 pmp. However, the number of potential 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, due to exclusions from the Potential Donor Audit. For DCD the UK rate is 6.0 pmp, ranging from 0.0 to 10.0 pmp across countries of the UK and from 3.6 to 9.4 pmp in the English SHAs. No adjustment has been made for any differences in demographics of the populations across centres or SHAs.

<b>Table 3.2b Deceased organ donors in the UK, 1 April 2010 - 31 March 2011, by country and English Strategic Health Authority of hospital of donor death</b>			
<b>Country of donation/ Strategic Health Authority</b>	<b>DBD N</b>	<b>DCD N</b>	<b>TOTAL N</b>
North East	35	25	60
North West	66	39	105
Yorkshire and The Humber	45	34	79
East Midlands	31	16	47
West Midlands	55	35	90
East of England	49	46	95
London	107	42	149
South East Coast	36	18	54
South Central	47	20	67
South West	38	51	89
<b>England</b>	<b>509</b>	<b>326</b>	<b>835</b>
<b>Isle of Man</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Channel Islands</b>	<b>2</b>	<b>0</b>	<b>2</b>
<b>Wales</b>	<b>39</b>	<b>27</b>	<b>66</b>
<b>Scotland</b>	<b>49</b>	<b>18</b>	<b>67</b>
<b>Northern Ireland</b>	<b>38</b>	<b>2</b>	<b>40</b>
<b>TOTAL</b>	<b>637</b>	<b>373</b>	<b>1010</b>

The mean number of organs retrieved per donor in 2010-2011 is given by country in **Table 3.3**. Overall for adult donors, an average of 3.9 organs were donated per DBD and 2.5 per DCD. For adult DBD, the rate ranged from 3.4 organs per donor in Wales to 4.2 in Scotland.

<b>Table 3.3 Organs retrieved per donor, in the UK, 1 April 2010 - 31 March 2011, by country</b>						
<b>Country/ Strategic Health Authority of residence</b>	<b>Mean organs retrieved</b>					
	<b>DBD</b>	<b>Adult DCD</b>	<b>TOTAL</b>	<b>DBD</b>	<b>Paediatric DCD</b>	<b>TOTAL</b>
England	3.9	2.5	<b>3.4</b>	4.2	3.3	<b>3.9</b>
Wales	3.4	2.6	<b>3.1</b>	3.0	-	<b>3.0</b>
Scotland	4.2	2.7	<b>3.8</b>	4.6	3.0	<b>4.3</b>
Northern Ireland	4.1	4.0	<b>4.1</b>	5.5	-	<b>5.5</b>
<b>TOTAL</b>	<b>3.9</b>	<b>2.5</b>	<b>3.4</b>	<b>4.4</b>	<b>3.3</b>	<b>4.1</b>

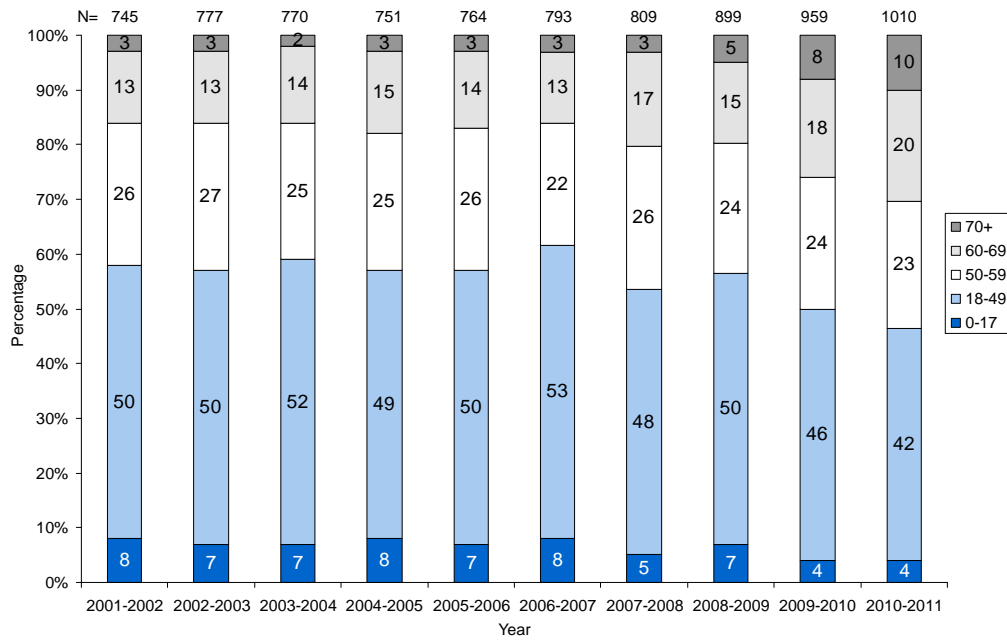
### 3.3 Demographic characteristics

While the number of donors overall is increasing, it is important to be aware that there are changes over time with regard to donor characteristics (**Table 3.4**). In 2010-2011, 30% of deceased donors were aged at least 60 years or more compared with 16% in 2001-2002 (**Figure 3.1**). In particular the proportion of these donors aged at least 70 years has increased from 3% to 10% 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 12% to 20% in deceased donors in the last 10 years (**Figure 3.2**) and the trend is similar for both DBD and DCD. In addition, the proportion of all deceased donors after a trauma death has decreased from 18% to 7% 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.

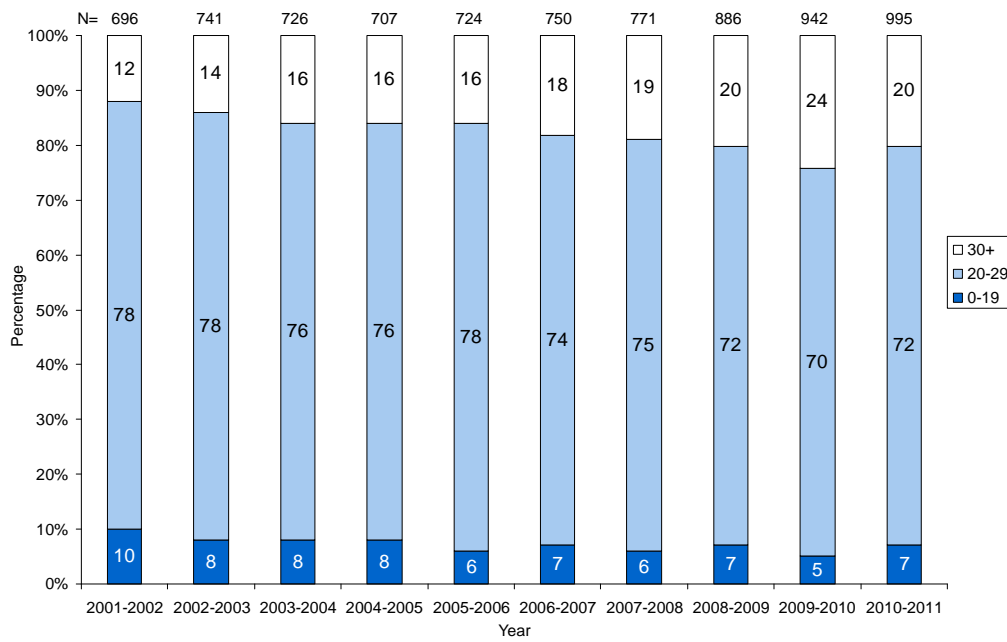
**Table 3.4** also indicates the ethnicity of deceased organ donors, highlighting that 4% of donors are from ethnic minority groups. By contrast, ethnic minority groups represent 8% of the UK population.

<b>Table 3.4</b>		<b>Demographic characteristics of organ donors in the UK</b>					
		<b>1 April 2010 - 31 March 2011</b>					
		DBD		DCD		TOTAL	
		N	%	N	%	N	%
Age	0-17	31	5	13	3	<b>44</b>	<b>4</b>
	18-49	301	47	124	33	<b>425</b>	<b>42</b>
	50-59	150	24	87	23	<b>237</b>	<b>23</b>
	60-69	111	17	94	25	<b>205</b>	<b>20</b>
	70+	44	7	55	15	<b>99</b>	<b>10</b>
BMI	0-19	49	8	20	5	<b>69</b>	<b>7</b>
	20-29	467	73	256	69	<b>723</b>	<b>72</b>
	30+	119	19	84	23	<b>203</b>	<b>20</b>
	Unknown	2	0	13	3	<b>15</b>	<b>1</b>
Cause of death	Intracranial	546	86	276	74	<b>822</b>	<b>81</b>
	Trauma	39	6	33	9	<b>72</b>	<b>7</b>
	Other	52	8	64	17	<b>116</b>	<b>11</b>
Ethnicity	White	608	95	360	97	<b>968</b>	<b>96</b>
	Asian	8	1	5	1	<b>13</b>	<b>1</b>
	Black	7	1	2	1	<b>9</b>	<b>1</b>
	Other	14	2	6	2	<b>20</b>	<b>2</b>
Blood group	O	271	43	186	50	<b>457</b>	<b>45</b>
	A	275	43	143	38	<b>418</b>	<b>41</b>
	B	66	10	31	8	<b>97</b>	<b>10</b>
	AB	25	4	13	3	<b>38</b>	<b>4</b>
<b>TOTAL</b>		<b>637</b>	<b>100</b>	<b>373</b>	<b>100</b>	<b>1010</b>	<b>100</b>

**Figure 3.1 Age of deceased donors in the UK, 1 April 2001 - 31 March 2011**



**Figure 3.2 BMI of deceased donors in the UK, 1 April 2001 - 31 March 2011**





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## 4 NATIONAL ORGAN RETRIEVAL SERVICE

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### 4.1 Introduction

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

Each of the thirteen teams is on call 24 hours per day, seven days per week. 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**

Retrieval team	Donors after brain death				Donors after circulatory death			
	Actual	Non-proceeding	% non-proc	No. attended	Actual	Non-proceeding	% non-proc	No. attended
<b>Abdominal</b>								
Birmingham / Cardiff	120	0	0	120	88	54	38	142
Cambridge	61	1	2	62	55	32	37	87
King's	128	3	2	131	65	64	50	129
Leeds / Manchester	106	4	4	110	67	57	46	124
Newcastle	68	2	3	70	32	23	42	55
Royal Free / Oxford	102	5	5	107	39	32	45	71
Scotland	51	1	2	52	17	8	32	25
<b>Abdominal total</b>	<b>636</b>	<b>16</b>	<b>2</b>	<b>652</b>	<b>363</b>	<b>270</b>	<b>43</b>	<b>633</b>
<b>Cardiothoracic</b>								
Birmingham	41	19	32	60	0	1	100	1
Harefield	44	32	42	76	11	23	68	34
Manchester	31	27	47	58	2	1	33	3
Newcastle	41	11	21	52	9	9	50	18
Papworth	40	26	39	66	4	11	73	15
Scotland	22	14	39	36	0	12	100	12
<b>Cardiothoracic total</b>	<b>219</b>	<b>129</b>	<b>37</b>	<b>348</b>	<b>26</b>	<b>57</b>	<b>69</b>	<b>83</b>
<b>Total donors (abdominal and/or cardiothoracic)</b>	<b>637</b>	<b>16</b>	<b>2</b>	<b>-</b>	<b>373</b>	<b>284</b>	<b>43</b>	<b>-</b>

Note: there were 18 actual donors attended by a local team. Of the local abdominal donors, Plymouth attended four, Nottingham and Liverpool attended two, and Sheffield and Bristol each attended one. Of the cardiothoracic donors, six were attended by Great Ormond Street Hospital and two were attended by an overseas retrieval team.

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## 5 KIDNEY ACTIVITY

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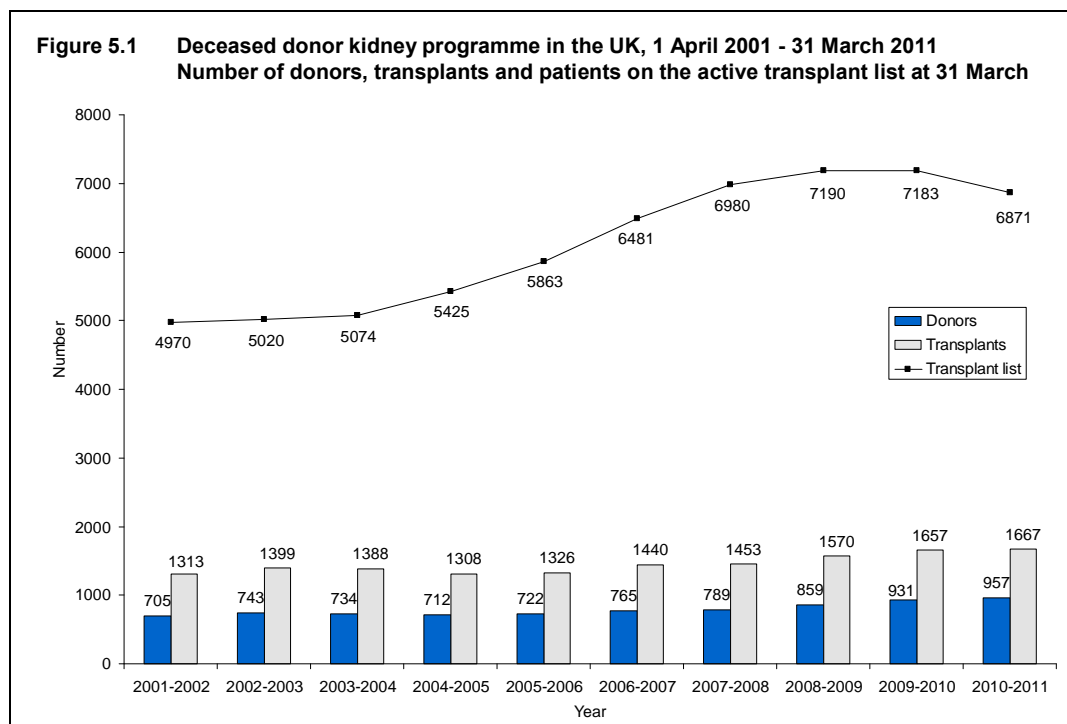
### Key messages

- The number of deceased kidney donors increased by 3% to 957
- Kidney transplants from living donors decreased by 2% to 1,020, while transplants from deceased donors increased by 1% to 1,667
- 39 kidney transplants were made possible by the paired living kidney donation programme
- Non-directed altruistic living kidney donation resulted in 25 living donor kidney transplants
- The number of patients registered on the kidney transplant list this year fell by 4% from 7,183 to 6,871.

### 5.1 Overview

The number of deceased kidney donors increased by 3% in 2010-2011 compared to 2009-2010 and the number of deceased donor kidney transplants increased by 1%. These increases are very welcome for the 6871 patients waiting for a kidney transplant and for the second year running the number of patients on the national list for a kidney transplant has declined. This is unlikely to reflect a true decline in demand for transplantation, however, since if there was an unlimited supply of organs for transplant, many more patients with kidney failure could receive a transplant than is currently the case.

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 slight drop in the last two years, the number of patients registered on the active transplant list at 31 March 2011 for a kidney or kidney and pancreas transplant has risen by 38% since 2002.



**Table 5.1** shows the number of deceased and living donor kidney transplants carried out in 2010-2011 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 957 in 2010-2011 from 931 in 2009-2010 and the number of transplants increased from 1657 to 1667. The number of kidney donors after circulatory death increased to 355 from 328 in 2009-2010 and the number of transplants from such donors increased by 3% to 567.

**Table 5.1 Kidney donors and transplants, 1 April 2010 - 31 March 2011 (2009-2010) and transplant list at 31 March 2011 (2010) in the UK, by centre/region**

Centre/region	Deceased kidney donors				Deceased donor transplants				Living donor transplants		Active transplant list	
	DBD		DCD		DBD		DCD					
Belfast	36	(17)	2	(0)	26	(42)	0	(0)	46	(20)	176	(197)
Birmingham	47	(45)	24	(16)	69	(70)	9	(16)	54	(81)	670	(647)
Bristol	18	(15)	26	(17)	45	(46)	36	(19)	44	(41)	324	(356)
Cambridge	32	(22)	35	(47)	53	(47)	74	(85)	45	(43)	242	(273)
Cardiff	30	(22)	22	(10)	50	(34)	40	(20)	39	(38)	198	(224)
Coventry	5	(12)	10	(3)	19	(10)	10	(5)	34	(34)	130	(137)
Edinburgh	34	(26)	11	(8)	52	(68)	16	(15)	28	(26)	245	(281)
Glasgow	15	(21)	7	(8)	53	(64)	11	(13)	25	(23)	308	(303)
Great Ormond Street	0	(0)	0	(0)	10	(12)	1	(0)	9	(23)	16	(18)
Leeds	27	(38)	21	(24)	50	(44)	51	(41)	38	(43)	336	(360)
Leicester	14	(9)	3	(2)	38	(36)	2	(0)	54	(42)	379	(398)
Liverpool	29	(31)	23	(19)	33	(32)	35	(31)	26	(32)	227	(244)
Manchester	37	(47)	19	(27)	104	(82)	19	(50)	78	(70)	602	(590)
Newcastle	33	(35)	26	(21)	35	(37)	49	(40)	53	(44)	218	(250)
North Thames <sup>1</sup>	82	(96)	34	(50)	-	-	-	-	-	-	-	-
Royal Free	-	-	-	-	26	(34)	25	(28)	38	(43)	267	(251)
Royal London	-	-	-	-	48	(59)	18	(30)	46	(45)	243	(259)
WLRTC	-	-	-	-	75	(98)	18	(24)	70	(84)	465	(451)
Nottingham	13	(11)	10	(5)	67	(46)	20	(8)	26	(16)	215	(260)
Oxford	39	(33)	10	(8)	90	(98)	53	(30)	48	(52)	376	(424)
Plymouth	12	(22)	19	(20)	2	(13)	23	(34)	12	(18)	102	(89)
Portsmouth	12	(23)	11	(10)	22	(20)	17	(20)	18	(19)	209	(233)
Sheffield	17	(12)	13	(6)	36	(20)	12	(8)	19	(23)	195	(229)
South Thames <sup>1</sup>	70	(66)	29	(27)	-	-	-	-	-	-	-	-
Guy's	-	-	-	-	70	(69)	18	(19)	117	(122)	431	(426)
St George's	-	-	-	-	27	(26)	10	(14)	53	(53)	297	(283)
<b>TOTAL</b>	<b>602</b>	<b>(603)</b>	<b>355</b>	<b>(328)</b>	<b>1100</b>	<b>(1107)</b>	<b>567</b>	<b>(550)</b>	<b>1020</b>	<b>(1038<sup>2</sup>)</b>	<b>6871</b>	<b>(7183)</b>

WLRTC - West London Renal and Transplant Centre

<sup>1</sup> Donor figures in this area cannot be linked to individual transplant centres due to shared designated areas.

<sup>2</sup> Includes an additional 3 transplants performed at The London Clinic

## 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 2011, 6,871 patients were registered as active, compared with 7,183 at the end of March 2010. The number of patients waiting for a kidney transplant represents 111 patients per million population (pmp).

Of the 6,871 patients on the active transplant list at 31 March 2011, 250 required a kidney and pancreas transplant (275 at 31 March 2010). Additionally, 72 patients were registered for a pancreas only or pancreas islet transplant (60 at 31 March 2010).

The outcome of patients registered on the UK kidney and kidney/pancreas transplant list at 1 April 2010, or subsequently registered during the financial year, is shown in **Table 5.2**. A total of 3,103 patients joined the kidney transplant list last year, while a further 198 joined the kidney/pancreas transplant list.

**Table 5.2**      **Kidney transplant list and new registrations in the UK,  
1 April 2010 - 31 March 2011**

Outcome of patient at 31 March 2011	Active and suspended patients at 1 April 2010		New registrations in 2010-2011 <sup>1</sup>		TOTAL	
	N	%	N	%	N	%
<b>Kidney transplant list</b>						
Remained active/suspended	6603	72	2589	83	<b>9192</b>	<b>75</b>
Transplanted	1918	21	453	15	<b>2371</b>	<b>19</b>
Removed	433 <sup>2</sup>	5	35 <sup>3</sup>	1	<b>468</b>	<b>4</b>
Died	262	3	26	1	<b>288</b>	<b>2</b>
<b>TOTAL</b>	<b>9216</b>		<b>3103</b>		<b>12319</b>	
<b>Kidney/pancreas transplant list</b>						
Remained active/suspended	216	55	157	79	<b>373</b>	<b>63</b>
Transplanted	129	33	33	17	<b>162</b>	<b>28</b>
Removed	24	6	5	3	<b>29</b>	<b>5</b>
Died	21	5	3	2	<b>24</b>	<b>4</b>
<b>TOTAL</b>	<b>390</b>		<b>198</b>		<b>588</b>	

<sup>1</sup> Includes re-registrations for second or subsequent transplants

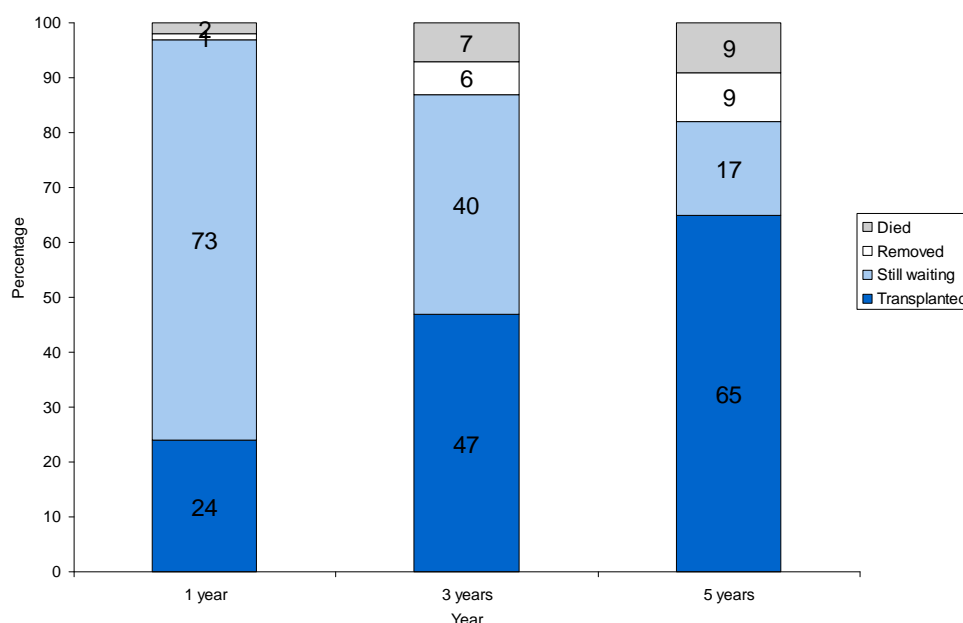
<sup>2</sup> Includes 11 patients removed from kidney list and made active on kidney/pancreas list

<sup>3</sup> Includes 11 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 24% of patients are transplanted within one year, while five years after listing 65% of patients have received a transplant.

The median (average) waiting time for a kidney transplant is 1153 days for an adult patient and 307 days for a paediatric patient and is shown by blood group in **Table 5.3**. Because of the need to match donor and recipient blood groups, waiting times to transplant differ according to patient blood groups.

**Figure 5.2** Post-registration outcome for 2666 new adult kidney only registrations made in the UK, 1 April 2005 - 31 March 2006



**Table 5.3** Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2004 - 31 March 2008

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
<b>Adult</b>			
O	3919	1381	1344 - 1418
A	3219	925	890 - 960
B	1163	1329	1252 - 1406
AB	353	655	572 - 738
<b>TOTAL</b>	<b>8654</b>	<b>1153</b>	<b>1127 - 1179</b>
<b>Paediatric</b>			
O	160	354	265 - 443
A	115	271	171 - 371
B	51	310	167 - 453
AB	15	388	0 - 1065
<b>TOTAL</b>	<b>341</b>	<b>307</b>	<b>247 - 367</b>

### 5.3 Donor and organ supply

Of the 637 organ donors after brain death in the UK in 2010-2011, 602 (95%) were kidney donors. From these donors, 1,192 kidneys were retrieved. There were 355 kidney donors after circulatory death in 2010-2011. From these donors, 697 kidneys were retrieved. **Table 5.4** shows this activity by donor country/ Strategic Health Authority of residence. No adjustments have been made for potential demographic differences in populations.

The overall rate for kidney donors after brain death is 9.7 pmp, with rates across the strategic health authorities ranging from 7.1 to 12.0 pmp. The number of kidneys retrieved in the UK is 19.2 pmp and varies from 13.8 to 23.9 pmp.

The overall rate for kidney donors after circulatory death is 5.7 pmp, with rates across the strategic health authorities ranging from 3.5 to 8.6 pmp. The number of kidneys retrieved from donors after circulatory death is 11.2 pmp and varies from 6.8 to 16.8 pmp across the strategic health authorities.

<b>Table 5.4      Kidney donor and retrieval rates for deceased donors in the UK, 1 April 2010 - 31 March 2011, by Country/ Strategic Health Authority<sup>1</sup></b>								
<b>Country/ Strategic Health Authority of residence</b>	<b>Kidney donors (pmp)</b>				<b>Kidneys retrieved (pmp)</b>			
	<b>DBD</b>		<b>DCD</b>		<b>DBD</b>		<b>DCD</b>	
North East	30	(11.6)	21	(8.1)	60	(23.3)	40	(15.5)
North West	49	(7.1)	40	(5.8)	95	(13.8)	79	(11.4)
Yorkshire and The Humber	46	(8.7)	34	(6.5)	90	(17.1)	68	(12.9)
East Midlands	36	(8.1)	20	(4.5)	71	(16.0)	39	(8.8)
West Midlands	47	(8.7)	37	(6.8)	94	(17.3)	73	(13.4)
East of England	55	(9.5)	44	(7.6)	110	(19.1)	86	(14.9)
London	62	(8.0)	27	(3.5)	124	(16.0)	53	(6.8)
South East Coast	52	(12.0)	20	(4.6)	102	(23.5)	39	(9.0)
South Central	49	(12.0)	19	(4.6)	98	(23.9)	37	(9.0)
South West	41	(7.8)	45	(8.6)	82	(15.7)	88	(16.8)
<b>England</b>	<b>467</b>	<b>(9.0)</b>	<b>307</b>	<b>(5.9)</b>	<b>926</b>	<b>(17.9)</b>	<b>602</b>	<b>(11.6)</b>
<b>Isle of Man</b>	<b>1</b>	<b>(12.5)</b>	<b>0</b>	<b>(0.0)</b>	<b>2</b>	<b>(25.0)</b>	<b>0</b>	<b>(0.0)</b>
<b>Channel Islands</b>	<b>2</b>	<b>(13.3)</b>	<b>0</b>	<b>(0.0)</b>	<b>4</b>	<b>(26.7)</b>	<b>0</b>	<b>(0.0)</b>
<b>Wales</b>	<b>47</b>	<b>(15.7)</b>	<b>29</b>	<b>(9.7)</b>	<b>93</b>	<b>(31.0)</b>	<b>57</b>	<b>(19.0)</b>
<b>Scotland</b>	<b>49</b>	<b>(9.4)</b>	<b>17</b>	<b>(3.3)</b>	<b>97</b>	<b>(18.7)</b>	<b>34</b>	<b>(6.6)</b>
<b>Northern Ireland</b>	<b>36</b>	<b>(20.1)</b>	<b>2</b>	<b>(1.1)</b>	<b>70</b>	<b>(39.1)</b>	<b>4</b>	<b>(2.2)</b>
<b>TOTAL</b>	<b>602</b>	<b>(9.7)</b>	<b>355</b>	<b>(5.7)</b>	<b>1192</b>	<b>(19.2)</b>	<b>697</b>	<b>(11.2)</b>

<sup>1</sup> Includes 10 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 5.5**. No adjustments have been made for potential demographic differences in populations. The deceased donor transplant rate ranged from 14.7 to 29.2 pmp across the strategic health authorities and overall was 24.2 pmp. The living donor transplant rate ranged from 11.6 to 22.3 pmp across the strategic health authorities and overall was 16.4 pmp.



**Table 5.5 Kidney only transplant rates per million population (pmp), in the UK, 1 April 2010 - 31 March 2011, 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	27	(10.5)	42	(16.3)	69	(26.7)	42	(16.3)
North West	112	(16.2)	50	(7.2)	162	(23.5)	101	(14.6)
Yorkshire and The Humber	82	(15.6)	62	(11.8)	144	(27.4)	61	(11.6)
East Midlands	102	(22.9)	28	(6.3)	130	(29.2)	81	(18.2)
West Midlands	82	(15.1)	19	(3.5)	101	(18.6)	84	(15.5)
East of England	71	(12.3)	73	(12.7)	144	(25.0)	98	(17.0)
London	158	(20.4)	64	(8.3)	222	(28.6)	173	(22.3)
South East Coast	47	(10.8)	17	(3.9)	64	(14.7)	81	(18.7)
South Central	48	(11.7)	47	(11.5)	95	(23.2)	70	(17.1)
South West	51	(9.8)	67	(12.8)	118	(22.6)	65	(12.4)
<b>England</b>	<b>780</b>	<b>(15.1)</b>	<b>469</b>	<b>(9.1)</b>	<b>1249</b>	<b>(24.1)</b>	<b>856</b>	<b>(16.5)</b>
<b>Isle of Man</b>	<b>1</b>	<b>(12.5)</b>	<b>0</b>	<b>(0.0)</b>	<b>1</b>	<b>(12.5)</b>	<b>1</b>	<b>(12.5)</b>
<b>Channel Islands</b>	<b>2</b>	<b>(13.3)</b>	<b>0</b>	<b>(0.0)</b>	<b>2</b>	<b>(13.3)</b>	<b>8</b>	<b>(53.3)</b>
<b>Wales</b>	<b>52</b>	<b>(17.3)</b>	<b>46</b>	<b>(15.3)</b>	<b>98</b>	<b>(32.7)</b>	<b>46</b>	<b>(15.3)</b>
<b>Scotland</b>	<b>99</b>	<b>(19.1)</b>	<b>27</b>	<b>(5.2)</b>	<b>126</b>	<b>(24.3)</b>	<b>55</b>	<b>(10.6)</b>
<b>Northern Ireland</b>	<b>26</b>	<b>(14.5)</b>	<b>0</b>	<b>(0.0)</b>	<b>26</b>	<b>(14.5)</b>	<b>51</b>	<b>(28.5)</b>
<b>TOTAL<sup>1</sup></b>	<b>960</b>	<b>(15.5)</b>	<b>542</b>	<b>(8.7)</b>	<b>1502</b>	<b>(24.2)</b>	<b>1017</b>	<b>(16.4)</b>

<sup>1</sup> Excludes three recipients of a living donor kidney transplant who reside outside of the UK

The number of kidney transplants from deceased donors at each transplant centre is shown in **Table 5.6** for adult patients only. Kidney transplants from donors after brain death include seven en bloc kidneys and seven double kidney transplants in 2010-2011 (five and seven in 2009-2010). Kidney transplants from donors after circulatory death include three en bloc and 25 double kidney transplants in 2010-2011 (one and seven in 2009-2010). This table excludes multi-organ transplants: 9 kidney and liver, 155 kidney and pancreas and 1 kidney, pancreas and small bowel.

**Table 5.6 Adult kidney only transplants from deceased donors in the UK,  
1 April 2010 - 31 March 2011, by transplant centre/region**

Transplant centre/region	2009-2010		2010-2011	
	DBD	DCD	DBD	DCD
Belfast	36	0	24	0
Birmingham	56	16	57	9
Bristol	38	19	38	35
Cambridge	31	76	37	65
Cardiff	31	18	39	40
Coventry	10	5	19	10
Edinburgh	56	15	46	16
Glasgow	48	14	50	14
Guy's	61	13	51	11
Leeds	37	41	42	51
Leicester	36	0	38	2
Liverpool	32	31	33	35
Manchester	60	49	79	18
Newcastle	23	40	30	48
Royal Free	34	28	26	25
Royal London	59	30	47	18
Nottingham	33	8	53	20
Oxford	50	24	36	44
Plymouth	13	34	2	23
Portsmouth	20	20	22	17
Sheffield	20	8	36	12
St George's	26	14	27	10
WLRTC	84	24	67	17
<b>TOTAL</b>	<b>894</b>	<b>527</b>	<b>899</b>	<b>540</b>

WLRTC - West London Renal and Transplant Centre

Living donor kidney transplants decreased by 2% to 1,020 in 2010-2011, representing 38% of the total kidney transplant programme. The total number of living donor adult transplants performed by each transplant centre is shown in **Table 5.7**. 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 3% decrease in these transplants. In addition there are now a number of 'undirected' living donor transplants (also known as altruistic donor transplants). Last year 25 such donors donated a kidney to a recipient through the national Kidney Allocation Scheme for deceased donor kidneys.

In 2010-2011, there were also 39 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), but exchanges between three pairs are now also taking place.

As a percentage of the number of patients on the active transplant list at 31 March 2011, the number of living donor adult transplants in the year was 14% and ranged from 7% to 27% 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 from other centres are referred to Coventry for such transplants.

<b>Table 5.7 Adult living donor kidney transplants in the UK, 1 April 2009 - 31 March 2011, and percentage of active transplant list at 31 March, by transplant centre/region</b>										
<b>Transplant centre/region</b>	<b>2009-2010</b>					<b>2010-2011</b>				
	Directed	Paired/pooled	Non-directed	<b>TOTAL</b> <b>N</b>	<b>%</b> <b>list</b>	Directed	Paired/pooled	Non-directed	<b>TOTAL</b> <b>N</b>	<b>%</b> <b>list</b>
Belfast	15	2	0	<b>17</b>	<b>10</b>	33	4	2	<b>39</b>	<b>20</b>
Birmingham	76	0	1	<b>77</b>	<b>12</b>	47	0	1	<b>48</b>	<b>8</b>
Bristol	35	1	2	<b>38</b>	<b>12</b>	34	2	0	<b>36</b>	<b>10</b>
Cambridge	40	1	1	<b>42</b>	<b>17</b>	43	2	0	<b>45</b>	<b>17</b>
Cardiff	37	1	0	<b>38</b>	<b>19</b>	36	1	1	<b>38</b>	<b>17</b>
Coventry	33	1	0	<b>34</b>	<b>26</b>	31	2	0	<b>33</b>	<b>24</b>
Edinburgh	21	2	2	<b>25</b>	<b>10</b>	26	2	0	<b>28</b>	<b>10</b>
Glasgow	20	1	0	<b>21</b>	<b>7</b>	22	1	0	<b>23</b>	<b>8</b>
Guy's	103	5	1	<b>109</b>	<b>26</b>	103	4	3	<b>110</b>	<b>27</b>
Leeds	37	1	1	<b>39</b>	<b>12</b>	31	0	2	<b>33</b>	<b>10</b>
Leicester	42	0	0	<b>42</b>	<b>11</b>	50	1	3	<b>54</b>	<b>14</b>
Liverpool	29	1	2	<b>32</b>	<b>14</b>	24	2	0	<b>26</b>	<b>11</b>
Manchester	53	5	0	<b>58</b>	<b>10</b>	60	5	3	<b>68</b>	<b>12</b>
Newcastle	41	0	1	<b>42</b>	<b>19</b>	49	1	1	<b>51</b>	<b>21</b>
Nottingham	15	0	0	<b>15</b>	<b>8</b>	17	3	1	<b>21</b>	<b>9</b>
Oxford	48	3	1	<b>52</b>	<b>14</b>	42	3	2	<b>47</b>	<b>11</b>
Plymouth	17	0	1	<b>18</b>	<b>18</b>	12	0	0	<b>12</b>	<b>13</b>
Portsmouth	16	3	0	<b>19</b>	<b>9</b>	15	1	1	<b>17</b>	<b>7</b>
Royal Free	43	0	0	<b>43</b>	<b>16</b>	35	3	0	<b>38</b>	<b>15</b>
Royal London	44	0	1	<b>45</b>	<b>19</b>	45	0	1	<b>46</b>	<b>18</b>
Sheffield	22	0	1	<b>23</b>	<b>12</b>	19	0	0	<b>19</b>	<b>8</b>
St George's	49	3	0	<b>52</b>	<b>18</b>	49	1	3	<b>53</b>	<b>19</b>
WLRTC	81	2	1	<b>84</b>	<b>18</b>	68	1	1	<b>70</b>	<b>16</b>
<b>TOTAL</b>	<b>920<sup>1</sup></b>	<b>32</b>	<b>16</b>	<b>968<sup>1</sup></b>	<b>14</b>	<b>891</b>	<b>39</b>	<b>25</b>	<b>955</b>	<b>14</b>

WLRTC - West London Renal and Transplant Centre  
<sup>1</sup> Includes an additional 3 transplants performed at The London Clinic

The number of deceased donor and living donor transplants in paediatric patients (<18 years) performed by each paediatric transplant centre is shown in **Table 5.8**. There were 65 living donor transplants and 72 deceased donor transplants in paediatric patients in 2010-2011. The paediatric transplant list has decreased by 17% from 116 patients at 31 March 2010 to 96 at the end of March 2011.

Occasionally older paediatric patients are listed and/or transplanted at adult kidney transplant centres and these are indicated in **Table 5.8**.

At 31 March 2011, there were approximately 28,000 recipients with a functioning kidney transplant (including multi-organ transplants) being followed-up, as reported to the UK Transplant Registry.

<b>Table 5.8 Paediatric patient kidney transplants in the UK, 1 April 2009 - 31 March 2011, by transplant centre</b>								
<b>Paediatric transplant centre</b>	<b>2009-2010</b>				<b>2010-2011</b>			
	DBD	DCD	Living donor	<b>TOTAL</b>	DBD	DCD	Living donor	<b>TOTAL</b>
Belfast	6	0	3	<b>9</b>	2	0	7	<b>9</b>
Birmingham	14	0	4	<b>18</b>	12	0	6	<b>18</b>
Bristol	8	0	3	<b>11</b>	7	1	8	<b>16</b>
Glasgow	3	0	2	<b>5</b>	2	0	2	<b>4</b>
Great Ormond Street	12	0	23	<b>35</b>	10	1	9	<b>20</b>
Guy's	5	1	13	<b>19</b>	5	0	7	<b>12</b>
Leeds	7	0	4	<b>11</b>	8	0	5	<b>13</b>
Manchester	3	0	12	<b>15</b>	6	0	10	<b>16</b>
Newcastle	2	0	2	<b>4</b>	2	0	2	<b>4</b>
Nottingham	13	0	1	<b>14</b>	14	0	5	<b>19</b>
Adult centres	2	0	3	<b>5</b>	2	0	4	<b>6</b>
<b>TOTAL</b>	<b>75</b>	<b>1</b>	<b>70</b>	<b>146</b>	<b>70</b>	<b>2</b>	<b>65</b>	<b>137</b>

Rates of pre-emptive kidney only transplantation are shown in **Table 5.9**. Of the 2,522 kidney only transplant recipients in 2010-2011, requirement for dialysis at time of transplant was reported for 2,443 (97%). Of these 2,443 transplants, 509 (21%) were carried out in pre-dialysis patients. Pre-emptive transplants accounted for 31% of all paediatric kidney only transplants with reported dialysis status, compared with 20% of those in adults. Living donor transplants are more likely to be carried out before the need for dialysis than deceased donor transplants: 36% and 11% 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.

<b>Table 5.9 Pre-emptive kidney only transplants in the UK, 1 April 2010 - 31 March 2011</b>			
	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)
<b>Adult</b>			
Deceased donor transplant	1433	1415 (99)	10.3
Living donor transplant	955	898 (94)	33.7
<b>Paediatric</b>			
Deceased donor transplant	69	67 (97)	20.3
Living donor transplant	65	63 (97)	40.0

## 5.5 Demographic characteristics

The ethnicity of deceased donors, transplant recipients and patients on the transplant list is shown in **Table 5.10**. Note that all percentages quoted are based only on data where ethnicity information was available. There are differences in ethnicity of deceased donors, transplant recipients and patients listed for transplant. 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. 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 5.10 Ethnicity of deceased kidney donors and recipients, 1 April 2009 - 31 March 2011, and transplant list patients at 31 March in the UK												
Ethnicity	Donors				Transplant recipients				Active transplant list patients			
	2009-2010		2010-2011		2009-2010		2010-2011		2010		2011	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
White	886	(95.2)	917	(95.8)	1307	(78.9)	1305	(78.3)	5314	(74.0)	4954	(72.1)
Asian	15	(1.6)	12	(1.3)	197	(11.9)	230	(13.8)	1097	(15.3)	1099	(16.0)
Black	13	(1.4)	8	(0.8)	106	(6.4)	96	(5.8)	582	(8.1)	622	(9.1)
Chinese	2	(0.2)	2	(0.2)	11	(0.7)	16	(1.0)	91	(1.3)	94	(1.4)
Other	15	(1.6)	18	(1.9)	36	(2.2)	20	(1.2)	98	(1.4)	100	(1.5)
Not reported	0	-	0	-	0	-	0	-	1	-	2	-
TOTAL	931		957		1657		1667		7183		6871	

**Table 5.11** shows the age group and sex of deceased kidney donors, transplant recipients and patients waiting for a kidney transplant. Nine percent of donors and seven percent of transplant list patients are aged at least 70 years.

<b>Table 5.11 Age of deceased kidney donors and transplant recipients 1 April 2010 - 31 March 2011, and transplant list patients at 31 March in the UK</b>						
<b>Age group (years)</b>	<b>Donors</b>		<b>Transplant recipients</b>		<b>Active transplant list patients</b>	
	N	(%)	N	(%)	N	(%)
0 - 17	41	(4)	72	(4)	96	(1)
18 - 34	147	(15)	210	(13)	779	(11)
35 - 49	257	(27)	528	(32)	2061	(30)
50 - 59	229	(24)	412	(25)	1799	(26)
60 - 69	194	(20)	345	(21)	1641	(24)
70+	89	(9)	100	(6)	495	(7)
<b>TOTAL</b>	<b>957</b>	<b>(100)</b>	<b>1667</b>	<b>(100)</b>	<b>6871</b>	<b>(100)</b>
<b>% Male</b>		<b>(56)</b>		<b>(64)</b>		<b>(59)</b>

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## 6 PANCREAS ACTIVITY

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### Key messages

- A new National Pancreas Allocation Scheme was introduced on 1 December 2010
- The number of patients waiting on the pancreas transplant list fell by 4% to 322 at 31 March 2011
- The number of pancreas donors and transplants increased by 5% to 210
- 13 islet transplants were made possible by the pancreas islet transplant programme

### 6.1 Overview

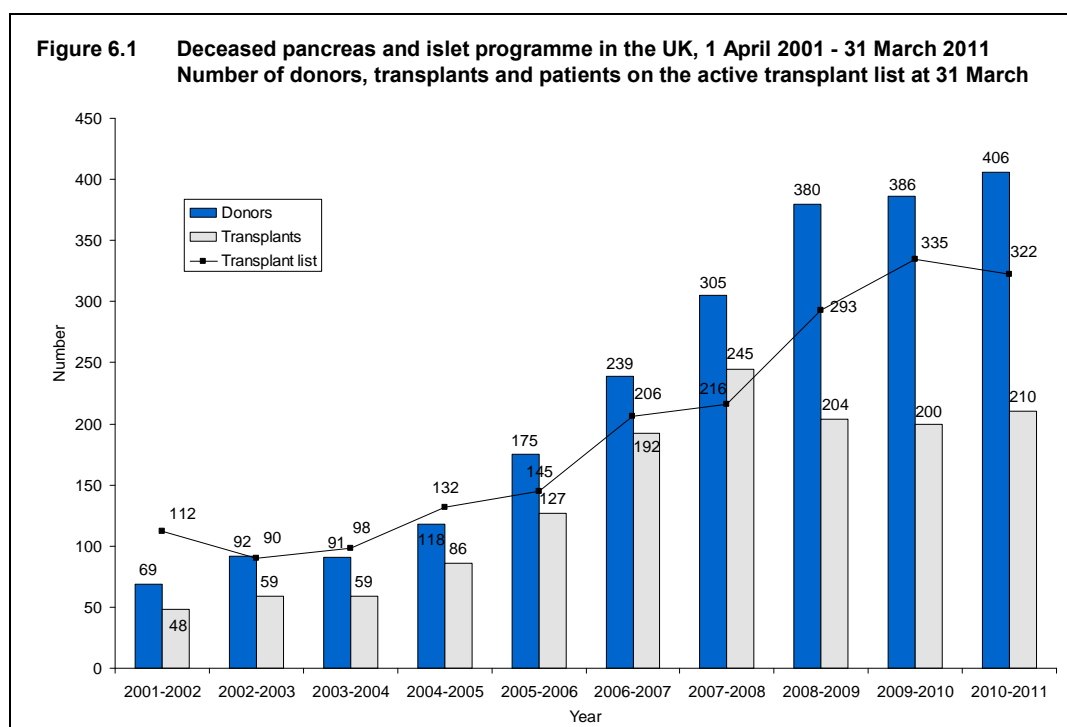
A new National Pancreas Allocation Scheme was introduced on 1 December 2010. Patients are now prioritised according to a points system based on a range of clinical factors. A computer program calculates a score for every potentially suitable patient on the national active transplant list and the pancreas is allocated preferentially to the patient with the most points. This differs from the previous system in which donor organs were allocated to transplant centres to select recipients rather than identifying specific patients directly.

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 new scheme aims to reduce the incidence of long waiting patients and to improve equity in access to transplant irrespective of where in the UK each patient resides. The effectiveness of the new scheme will be monitored closely and adjusted as required.

The number of patients registered on the active transplant list at 31 March for a pancreas only or simultaneous pancreas/kidney (SPK) transplant has increased substantially over the last ten years from 112 patients in 2002 to 322 patients in 2011. The number of pancreas donors and transplants has also increased steadily from 69 donors resulting in 48 transplants in 2001-2002, to 406 donors and 210 transplants in 2010-2011, although the actual number of transplants is less than in 2007-2008. A summary of activity for deceased donor pancreas transplants and the transplant list for 1 April 2001 to 31 March 2011 is shown in **Figure 6.1**.

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 2010/2011 there were 7 intestinal transplants.

Data on pancreatic islet activity are only available for 1 July 2009 to 31 March 2011.



## 6.2 Transplant List

**Table 6.1** shows the number of patients on the active transplant lists at 31 March 2011 by centre. The number of patients registered on the pancreas transplant list decreased by 4% in the year: on 31 March 2011, 322 patients were registered active, compared with 335 at the end of March 2010.

Of the 322 patients on the active transplant list at 31 March 2011, 250 (78%) required SPK transplantation (275 at 31 March 2010), 48 (15%) patients required a pancreas only transplant (43 at 31 March 2010) and 24 (7%) were registered for a pancreas islet transplant (17 at 31 March 2010).

The outcome of patients registered on the UK pancreas transplant list at 1 April 2010, or subsequently registered during the financial year, is shown in **Table 6.2**. 80 patients joined the pancreas transplant list while 198 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 outcomes 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 2011 (2010) in the UK, by centre**

Centre	Active transplant lists								TOTAL	
	Kidney/pancreas		Pancreas only		Islet		Priority			
					Routine					
Cambridge	11	(11)	0	(0)	-	(-)	-	(-)	11	(11)
Cardiff	6	(7)	1	(3)	-	(-)	-	(-)	7	(10)
Edinburgh	35	(29)	0	(1)	2	(0)	1	(0)	38	(30)
Guys	22	(18)	3	(4)	-	(-)	-	(-)	25	(22)
King's College	-	(-)	-	(-)	0	(0)	0	(1)	0	(1)
Manchester	56	(62)	2	(6)	2	(1)	0	(1)	60	(70)
Newcastle	6	(6)	3	(2)	6	(4)	2	(1)	17	(13)
Oxford	101	(132)	21	(12)	8	(6)	0	(1)	130	(151)
Royal Free	-	(-)	-	(-)	3	(1)	0	(1)	3	(2)
WLRTC	13	(10)	18	(15)	-	(-)	-	(-)	31	(25)
TOTAL	250	(275)	48	(43)	21	(12)	3	(5)	322	(335)

WLRTC - West London Renal and Transplant Centre

**Table 6.2 Pancreas transplant list and new registrations in the UK, 1 April 2010 - 31 March 2011**

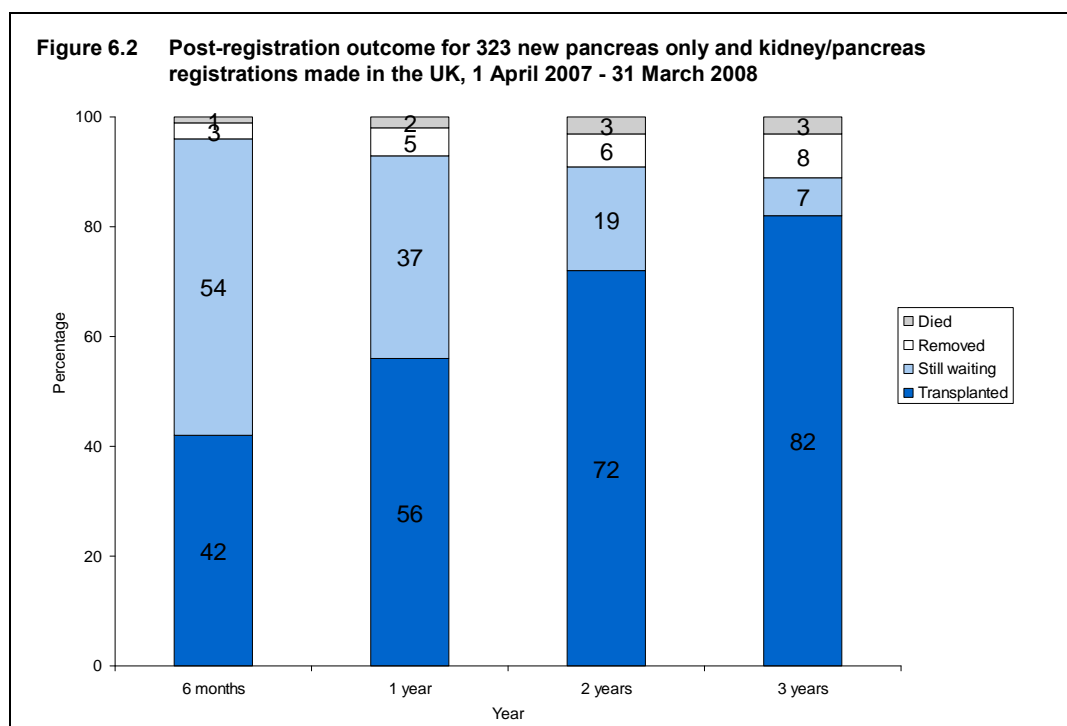
Outcome of patient at 31 March 2011	Active and suspended patients at 1 April 2010		New registrations in 2010-2011 <sup>1</sup>		TOTAL	
	N	%	N	%	N	%
<b>Pancreas transplant list</b>						
Remained active/suspended	94	69	47	59	141	65
Transplanted	26	19	21	26	47	22
Removed	15 <sup>2</sup>	11	10	13	25	12
Died	1	1	2	3	3	1
<b>TOTAL</b>	<b>136</b>		<b>80</b>		<b>216</b>	
<b>Kidney/pancreas transplant list</b>						
Remained active/suspended	216	55	157	79	373	63
Transplanted	129	33	33	17	162	28
Removed	24	6	5	3	29	5
Died	21	5	3	2	24	4
<b>TOTAL</b>	<b>390</b>		<b>198</b>		<b>588</b>	

<sup>1</sup> Includes re-registrations for second or subsequent transplants

<sup>2</sup> Includes 1 registration 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. 56% of patients are transplanted within one year, while three years after listing 82% of patients have received a transplant. The median (average) waiting time for a pancreas transplant is 236 days and is shown by blood group in **Table 6.3**.



**Table 6.3 Median waiting time to pancreas only and kidney/pancreas transplant in the UK, for patients registered 1 April 2005 - 31 March 2009**

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
<b>Adult</b>			
O	545	296	255 - 337
A	462	177	133 - 221
B	104	217	119 - 315
AB	31	97	58 - 136
<b>TOTAL</b>	<b>1142</b>	<b>236</b>	<b>212 - 260</b>

### 6.3 Donor and organ supply

Of the 637 organ donors after brain death in the UK in 2010-2011, 336 (53%) donated a pancreas. There were 70 pancreas donors after circulatory death in 2010-2011. **Table 6.4** 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 number of pancreas donors after brain death is 5.4 pmp, with rates ranging from 3.4 to 8.0 pmp across the Strategic Health Authorities and for donors after circulatory death is 1.1 pmp, with rates ranging from 0 to 2.7 pmp across the Strategic Health Authorities.

**Table 6.4 Pancreas donation rates for deceased donors in the UK,  
1 April 2010 - 31 March 2011, by country/ Strategic Health Authority<sup>1</sup>**

Country/ Strategic Health Authority of residence	Pancreas donors (pmp)				TOTAL	
	DBD		DCD			
North East	16	(6.2)	0	(0.0)	<b>16</b>	<b>(6.2)</b>
North West	25	(3.6)	6	(0.9)	<b>31</b>	<b>(4.5)</b>
Yorkshire and The Humber	18	(3.4)	2	(0.4)	<b>20</b>	<b>(3.8)</b>
East Midlands	18	(4.0)	10	(2.2)	<b>28</b>	<b>(6.3)</b>
West Midlands	29	(5.3)	7	(1.3)	<b>36</b>	<b>(6.6)</b>
East of England	30	(5.2)	8	(1.4)	<b>38</b>	<b>(6.6)</b>
London	37	(4.8)	10	(1.3)	<b>47</b>	<b>(6.1)</b>
South East Coast	33	(7.6)	4	(0.9)	<b>37</b>	<b>(8.5)</b>
South Central	33	(8.0)	2	(0.5)	<b>35</b>	<b>(8.5)</b>
South West	23	(4.4)	14	(2.7)	<b>37</b>	<b>(7.1)</b>
<b>England</b>	<b>262</b>	<b>(5.1)</b>	<b>63</b>	<b>(1.2)</b>	<b>325</b>	<b>(6.3)</b>
<b>Isle of Man</b>	<b>1</b>	<b>(12.5)</b>	<b>0</b>	<b>(0.0)</b>	<b>1</b>	<b>(12.5)</b>
<b>Channel Islands</b>	<b>1</b>	<b>(6.7)</b>	<b>0</b>	<b>(0.0)</b>	<b>1</b>	<b>(6.7)</b>
<b>Wales</b>	<b>25</b>	<b>(8.3)</b>	<b>3</b>	<b>(1.0)</b>	<b>28</b>	<b>(9.3)</b>
<b>Scotland</b>	<b>28</b>	<b>(5.4)</b>	<b>3</b>	<b>(0.6)</b>	<b>31</b>	<b>(6.0)</b>
<b>Northern Ireland</b>	<b>19</b>	<b>(10.6)</b>	<b>1</b>	<b>(0.6)</b>	<b>20</b>	<b>(11.2)</b>
<b>TOTAL</b>	<b>336</b>	<b>(5.4)</b>	<b>70</b>	<b>(1.1)</b>	<b>406</b>	<b>(6.5)</b>

<sup>1</sup> Includes 6 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 6.5**. No adjustments have been made for potential demographic differences in populations. The transplant rate ranged from 1.2 to 6.5 pmp across Strategic Health Authorities and overall was 2.8 pmp for donors after brain death and for donors after circulatory death is 0.6 pmp and ranged from 0.2 to 1.9 pmp across Strategic Health Authorities. There were no pancreas transplants in the UK for patients from Northern Ireland this year although patients may have been referred to the Republic of Ireland for transplant.

<b>Table 6.5 Pancreas transplant rates per million population (pmp), in the UK, 1 April 2010 - 31 March 2011, by country and English Strategic Health Authority</b>						
<b>Country/ Strategic Health Authority of residence</b>	<b>DBD</b>		<b>DCD</b>		<b>TOTAL</b>	
	<b>N</b>	<b>(pmp)</b>	<b>N</b>	<b>(pmp)</b>	<b>N</b>	<b>(pmp)</b>
North East	3	(1.2)	1	(0.4)	4	(1.6)
North West	12	(1.7)	2	(0.3)	14	(2.0)
Yorkshire and The Humber	9	(1.7)	1	(0.2)	10	(1.9)
East Midlands	16	(3.6)	2	(0.4)	18	(4.0)
West Midlands	13	(2.4)	5	(0.9)	18	(3.3)
East of England	15	(2.6)	7	(1.2)	22	(3.8)
London	22	(2.8)	6	(0.8)	28	(3.6)
South East Coast	8	(1.8)	1	(0.2)	9	(2.1)
South Central	15	(3.7)	1	(0.2)	16	(3.9)
South West	34	(6.5)	10	(1.9)	44	(8.4)
<b>England</b>	<b>147</b>	<b>(2.8)</b>	<b>36</b>	<b>(0.7)</b>	<b>183</b>	<b>(3.5)</b>
<b>Isle of Man</b>	<b>1</b>	<b>(12.5)</b>	<b>0</b>	<b>(0.0)</b>	<b>1</b>	<b>(12.5)</b>
<b>Channel Islands</b>	<b>1</b>	<b>(6.7)</b>	<b>0</b>	<b>(0.0)</b>	<b>1</b>	<b>(6.7)</b>
<b>Wales</b>	<b>17</b>	<b>(5.7)</b>	<b>0</b>	<b>(0.0)</b>	<b>17</b>	<b>(5.7)</b>
<b>Scotland</b>	<b>8</b>	<b>(1.5)</b>	<b>0</b>	<b>(0.0)</b>	<b>8</b>	<b>(1.5)</b>
<b>Northern Ireland</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>
<b>TOTAL</b>	<b>174</b>	<b>(2.8)</b>	<b>36</b>	<b>(0.6)</b>	<b>210</b>	<b>(3.4)</b>

There were 210 deceased donor pancreas transplants in 2010-2011 representing an increase of 5% on the 200 transplants performed in 2009-2010. Of these 210, 155 (74%) were SPK transplants, 42 (20%) were pancreas only transplants (pancreas transplants alone (PTA) or pancreas after kidney (PAK)) and 13 (6%) were islet transplants. The number of transplants performed at each centre is shown in **Table 6.6** by transplant type and **Table 6.7** by donor type.

At 31 March 2011, there were approximately 1,300 recipients with a functioning pancreas transplant (including multi-organ transplants) being followed-up, as reported to the UK Transplant Registry.

**Table 6.6 Pancreas transplants, 1 April 2010 - 31 March 2011 (2009-2010), by centre**

Centre	Transplant type									
	SPK		PTA		PAK		Islet <sup>1</sup>		Priority	
							Routine			
Cambridge	24	(24)	1	(0)	1	(0)	-	(-)	-	(-)
Cardiff	10	(5)	1	(2)	3	(0)	-	(-)	-	(-)
Edinburgh	6	(12)	1	(0)	0	(0)	1	(0)	0	(0)
Guy's	19	(20)	1	(0)	4	(1)	-	(-)	-	(-)
King's College	-	(-)	-	(-)	-	(-)	1	(1)	1	(0)
Manchester	20	(20)	1	(3)	4	(4)	0	(1)	1	(0)
Newcastle	4	(12)	2	(0)	0	(0)	2	(0)	0	(0)
Oxford	63	(54)	16	(13)	4	(6)	2	(4)	2	(1)
Royal Free	-	(-)	-	(-)	-	(-)	2	(1)	1	(1)
WLRTC	9	(12)	0	(1)	3	(2)	-	(-)	-	(-)
<b>TOTAL</b>	<b>155</b>	<b>(159)</b>	<b>23</b>	<b>(19)</b>	<b>19</b>	<b>(13)</b>	<b>8</b>	<b>(7)</b>	<b>5</b>	<b>(2)</b>

WLRTC - West London Renal and Transplant Centre

<sup>1</sup> Islet transplants reported since 1 July 2009**Table 6.7 Pancreas transplants, 1 April 2010 - 31 March 2011 by centre**

Centre	Transplant and donor type							
	SPK		PTA		Islet		TOTAL	
	DBD	DCD	DBD	DCD	DBD	DCD	DBD	DCD
Cambridge	15	9	2	0	-	-	17	9
Cardiff	10	0	4	0	-	-	14	0
Edinburgh	6	0	1	0	1	0	8	0
Guys	15	4	4	1	-	-	19	5
King's College	-	-	-	-	2	0	2	0
Manchester	19	1	3	2	1	0	23	3
Newcastle	3	1	2	0	2	0	7	1
Oxford	54	9	13	7	4	0	71	16
Royal Free	-	-	-	-	3	0	3	0
WLRTC	8	1	2	1	-	-	10	2
<b>TOTAL</b>	<b>130</b>	<b>25</b>	<b>31</b>	<b>11</b>	<b>13</b>	<b>0</b>	<b>174</b>	<b>36</b>

WLRTC - West London Renal and Transplant Centre

## 6.5 Demographic characteristics

The ethnicity of deceased donors, transplant recipients and patients on the transplant list is shown in **Table 6.8**. Patients from ethnic minority groups represent 9% of the transplant list, 6% of transplants and 5% of donors.

Table 6.8 Ethnicity of deceased pancreas donors and recipients, 1 April 2009 - 31 March 2011, and transplant list patients at 31 March in the UK												
Ethnicity	Donors				Transplant recipients				Active transplant list patients			
	2009-2010		2010-2011		2009-2010		2010-2011		2010		2011	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
White	368	(95.3)	386	(95.1)	184	(92.0)	198	(94.3)	312	(93.1)	292	(90.7)
Asian	3	(0.8)	5	(1.2)	9	(4.5)	7	(3.3)	18	(5.4)	20	(6.2)
Black	8	(2.1)	4	(1.0)	5	(2.5)	3	(1.4)	3	(0.9)	7	(2.2)
Chinese	2	(0.5)	1	(0.2)	0	(0.0)	1	(0.5)	0	(0.0)	0	(0.0)
Other	5	(1.3)	10	(2.5)	2	(1.0)	1	(0.5)	2	(0.6)	3	(0.9)
TOTAL	386		406		200		210		335		322	

**Table 6.9** shows the age group and sex of deceased pancreas donors, transplant recipients and patients waiting for a pancreas transplant.

<b>Table 6.9 Age of deceased pancreas donors and transplant recipients 1 April 2010 - 31 March 2011, and transplant list patients at 31 March in the UK</b>						
<b>Age group (years)</b>	<b>Donors</b>		<b>Transplant recipients</b>		<b>Active transplant list patients</b>	
	N	(%)	N	(%)	N	(%)
0 - 17	23	(6)	2	(1)	0	(0)
18 - 34	108	(27)	34	(16)	57	(18)
35 - 49	157	(39)	118	(56)	192	(60)
50 - 59	107	(26)	47	(22)	64	(20)
60 - 69	11	(3)	9	(4)	8	(2)
70+	0	(0)	0	(0)	1	(<1)
<b>TOTAL</b>	<b>406</b>	<b>(100)</b>	<b>210</b>	<b>(100)</b>	<b>322</b>	<b>(100)</b>
<b>% Male</b>		<b>(53)</b>		<b>(55)</b>		<b>(56)</b>

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## 7 CARDIOTHORACIC ACTIVITY

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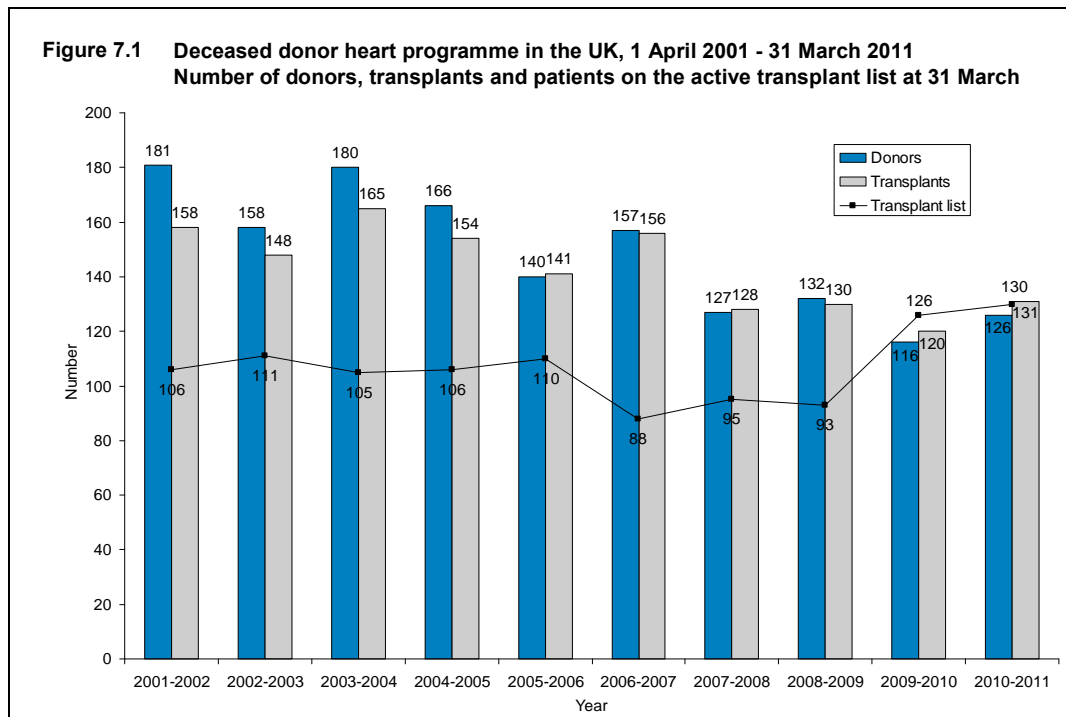
### Key messages

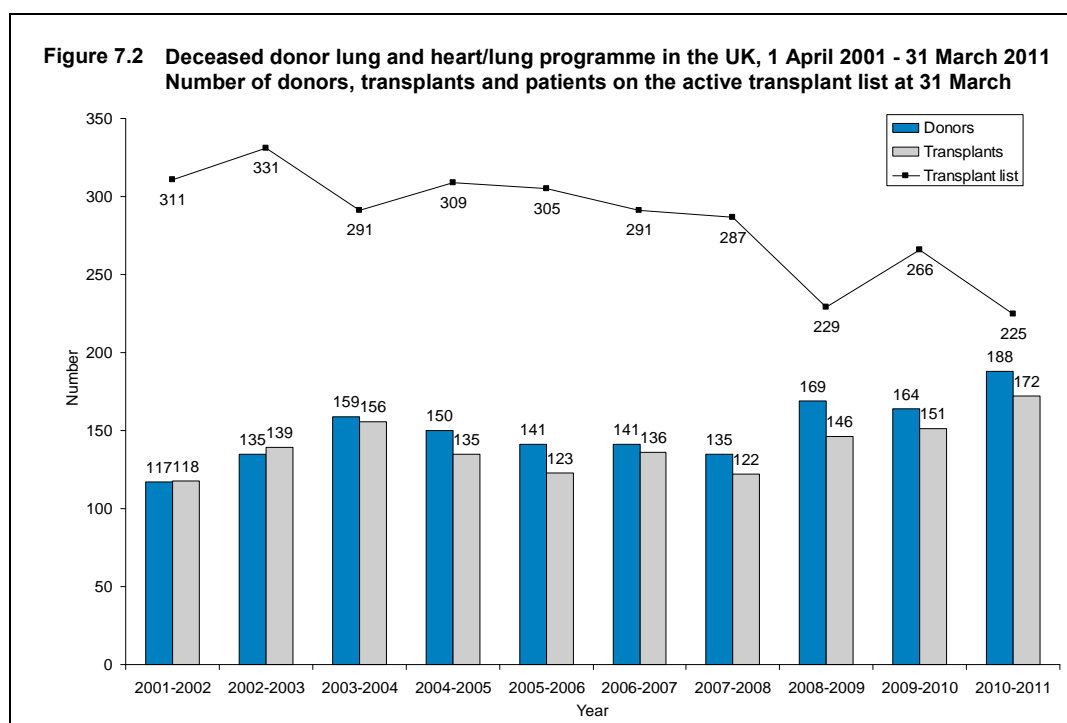
- At 31 March 2011, there were 130 patients on the active heart transplant list, 212 on the lung list and 13 on the heart/lung list
- Of the 637 organ donors after brain death, 227 (36%) were cardiothoracic organ donors
- The number of heart transplants from deceased donors increased by 9% to 131; over half of these were urgent heart transplants
- The number of lung and heart/lung transplants from deceased donors increased by 14% to 172.

### 7.1 Overview

Last year the number of heart transplants increased by 9% to 131 and the number of lung and heart/lung transplants increased by 14% to 172. The number of patients registered on the active transplant list for a heart has increased by 23% since 2002, while the number of patients registered for a lung or heart/lung transplant has decreased by 28% since 2002.

A summary of the deceased donor cardiothoracic activity from 1 April 2001 to 31 March 2011 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**.





## 7.2 Transplant list

**Table 7.1** shows the number of patients on the active transplant lists at 31 March 2011 by centre. The lung transplant list accounts for 60% of the patients waiting for a cardiothoracic transplant. Overall, Newcastle and Harefield have the largest cardiothoracic transplant lists.

During 2010-2011, 195 patients joined the heart transplant list while 11 joined the heart/lung list and 224 joined the lung transplant list. Outcomes for patients on the list at 1 April 2010 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, 42% of non-urgent heart patients are transplanted while 14% have died while waiting. For patients listed for a lung transplant, only 25% are transplanted within six months, rising to 56% 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 2011 (2010) in the UK, by centre**

Centre	Active transplant lists								TOTAL	
	Heart		Heart/lung		Lung					
	Non-urgent	Urgent								
Birmingham	8	(14)	2	(0)	2	(3)	20	(21)	32	(38)
Glasgow	6	(7)	0	(0)	0	(0)	0	(1)	6	(8)
Great Ormond Street	9	(7)	3	(3)	2	(0)	10	(6)	24	(16)
Harefield	30	(31)	0	(0)	2	(2)	57	(77)	89	(110)
Manchester	10	(17)	1	(1)	0	(0)	34	(45)	45	(63)
Newcastle <sup>1</sup>	23	(18)	7	(3)	1	(1)	64	(78)	95	(100)
Papworth	30	(24)	1	(1)	6	(6)	27	(26)	64	(57)
TOTAL	116	(118)	14	(8)	13	(12)	212	(254)	355	(392)

<sup>1</sup> Adult and paediatric patients on the transplant list

**Table 7.2 Cardiothoracic transplant lists and new registrations in the UK, 1 April 2010 - 31 March 2011**

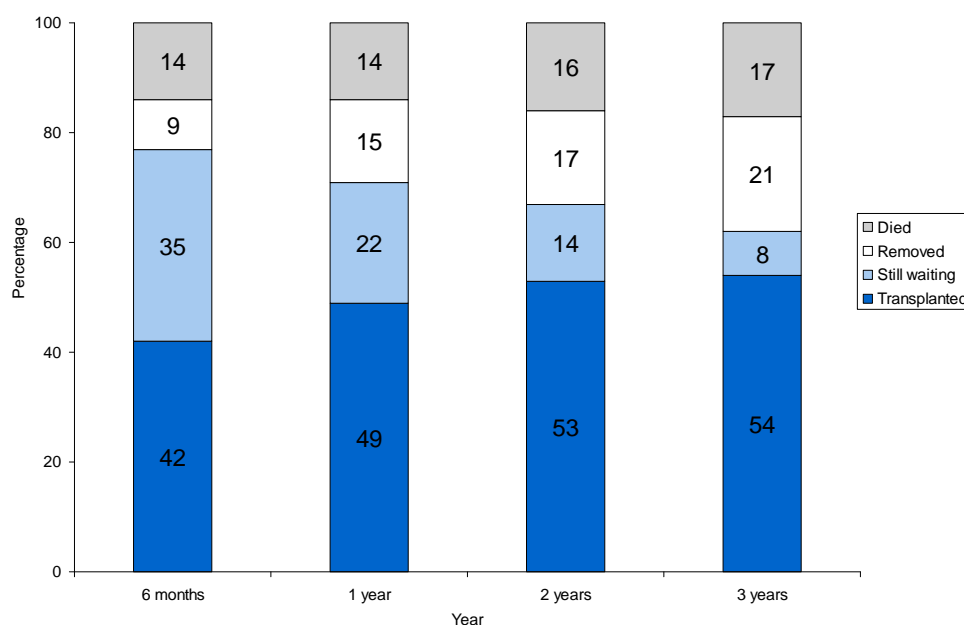
Outcome of patient at 31 March 2011	Active and suspended patients at 1 April 2010		New registrations in 2010-2011 <sup>1</sup>		TOTAL	
	N	%	N	%	N	%
<b>Heart transplant list</b>						
Remained active/suspended	54	41	84	43	138	42
Transplanted	39	30	85	44	124	38
Removed	28	21	17	9	45	14
Died	10	8	9	5	19	6
<b>TOTAL</b>	<b>131</b>		<b>195</b>		<b>326</b>	
<b>Heart/lung transplant list</b>						
Remained active/suspended	6	46	8	73	14	58
Transplanted <sup>2</sup>	1	8	2	18	3	13
Removed	5	38	0	0	5	21
Died	1	8	1	9	2	8
<b>TOTAL</b>	<b>13</b>		<b>11</b>		<b>24</b>	
<b>Lung transplant list</b>						
Remained active/suspended	96	40	110	49	206	44
Transplanted	85	35	84	38	169	36
Removed	27	11	6	3	33	7
Died	35	14	24	11	59	13
<b>TOTAL</b>	<b>243</b>		<b>224</b>		<b>467</b>	

<sup>1</sup> Includes re-registrations for second or subsequent transplants

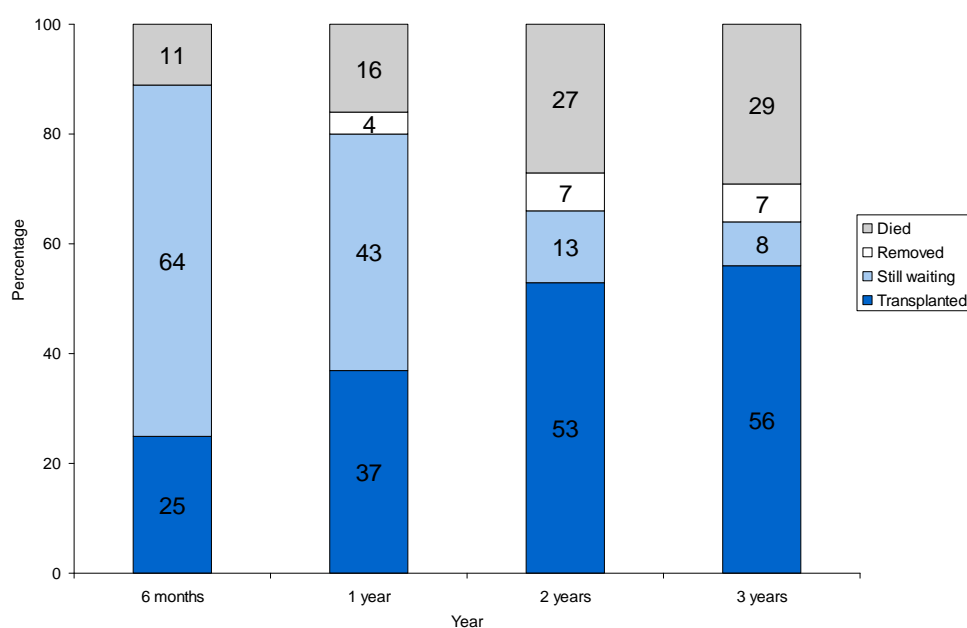
<sup>2</sup> Heart, lung or heart/lung



**Figure 7.3 Post-registration outcome for 118 new non-urgent heart only registrations made in the UK, 1 April 2007 - 31 March 2008**



**Figure 7.4 Post-registration outcome for 215 new lung only registrations made in the UK, 1 April 2007 - 31 March 2008**



**Table 7.3** shows the median waiting time to cardiothoracic transplant by blood group for patients registered between April 2006 and March 2009. Median waiting time for adult non-urgent heart patients is 184 days overall, compared with 511 days for adult lung patients. The median waiting time for paediatric non-urgent heart patients is 93 days; this is not broken down by blood group due to low numbers.

**Table 7.3      Median waiting time to cardiothoracic transplant in the UK,  
for patients registered 1 April 2006 - 31 March 2009**

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult non-urgent heart			
O	112	477	164 - 790
A	127	110	53 - 167
B	35	82	0 - 194
AB	12	54	0 - 124
TOTAL	286	184	118 - 250
Paediatric non-urgent heart			
	59	93	66 - 120
Adult lung			
O	267	599	526 - 672
A	219	317	199 - 435
B	68	721	194 - 1248
AB	24	162	0 - 438
TOTAL	578	511	449 - 573

**Table 7.4 Cardiothoracic organ donors in the UK, 1 April 2010 - 31 March 2011 (2009-2010), by age group and donation zone**

Donation zone	Type of cardiothoracic donor						TOTAL	
	Heart only		Heart & lung		Lung(s) only			
Adult								
Birmingham	14	(9)	9	(7)	16	(8)	39	(24)
Glasgow	5	(8)	5	(4)	11	(8)	21	(20)
Harefield	7	(10)	8	(7)	37	(28)	52	(45)
Manchester	5	(4)	7	(5)	10	(18)	22	(27)
Newcastle	12	(10)	11	(13)	24	(20)	47	(43)
Papworth	13	(13)	14	(16)	28	(25)	55	(54)
TOTAL	56	(54)	54	(52)	126 <sup>1</sup>	(107 <sup>2</sup> )	236 <sup>1</sup>	(213 <sup>2</sup> )
Paediatric								
Birmingham	0	(1)	0	(1)	0	(0)	0	(2)
Glasgow	3	(0)	1	(0)	0	(0)	4	(0)
Harefield	1	(1)	1	(0)	0	(0)	2	(1)
Manchester	1	(1)	0	(2)	0	(1)	1	(4)
Newcastle	1	(1)	1	(0)	1	(0)	3	(1)
Papworth	3	(3)	4	(0)	0	(1)	7	(4)
TOTAL	9	(7)	7	(3)	1	(2 <sup>3</sup> )	17	(12 <sup>3</sup> )

Paediatric donors are aged 15 years or under

<sup>1</sup> Includes 26 donors after circulatory death

<sup>2</sup> Includes 17 donors after circulatory death

<sup>3</sup> Includes 1 donor after circulatory death (aged 15)

### 7.3 Donor and organ supply

The number of cardiothoracic organ donors classified by cardiothoracic zone is summarised in **Table 7.4**. The numbers reflect the number of organs retrieved from within each zone (by any NORS team) rather than the number of retrievals made by that centre. 26 of the 126 adult lung only donors were donors after circulatory death and there were no living donors. Of the 210 adult cardiothoracic donors after brain death, 27% donated only the heart, 26% heart and lung and 47% lung only. Of the 17 paediatric cardiothoracic donors after brain death, 53% donated only the heart, 41% heart and lung and 6% lung only.

**Table 7.5** shows the number of organ donors after brain death identified in each cardiothoracic zone, the number that donated cardiothoracic organs and the number of organs retrieved.

Of the 637 organ donors after brain death, 36% donated cardiothoracic organs. Overall, 92% of the 436 organs retrieved were transplanted: 97% of hearts and 90% of lungs.

<b>Table 7.5 Cardiothoracic organ donation and retrieval rates from donors after brain death in the UK, 1 April 2010 - 31 March 2011, by donation zone</b>								
<b>Donation zone</b>	<b>Number of donors</b>		<b>Number of organs retrieved (used)</b>				<b>TOTAL retrieved (used)</b>	
	DBD solid organ	Cardiothoracic	Hearts		Lungs			
Birmingham	107	33	23	(22)	33	(29)	<b>56</b>	<b>(51)</b>
Glasgow	49	24	14	(13)	30	(23)	<b>44</b>	<b>(36)</b>
Harefield	117	46	17	(16)	75	(67)	<b>92</b>	<b>(83)</b>
Manchester	79	21	13	(13)	29	(25)	<b>42</b>	<b>(38)</b>
Newcastle <sup>1</sup>	104	45	25	(25)	61	(58)	<b>86</b>	<b>(83)</b>
Papworth	181	58	34	(33)	82	(76)	<b>116</b>	<b>(109)</b>
<b>TOTAL</b>	<b>637</b>	<b>227</b>	<b>126</b>	<b>(122)</b>	<b>310</b>	<b>(278)</b>	<b>436</b>	<b>(400)</b>

<sup>1</sup> Newcastle transplant adult and paediatric patients

The rates per million population (pmp) for cardiothoracic donors are shown in **Table 7.6** 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 4.1 pmp in 2010-2011 and varied across the Strategic Health Authorities from 2.8 to 5.2 pmp.

**Table 7.6 Cardiothoracic deceased donation rates per million population (pmp) in the UK, 1 April 2010 - 31 March 2011, by country/ Strategic Health Authority<sup>1</sup>**

Country/ Strategic Health Authority of residence	Heart (pmp)		Lungs (pmp)				Total (pmp)	
	DBD		DBD		DCD			
North East	7	(2.7)	11	(4.3)	0	(0.0)	13	(5.0)
North West	12	(1.7)	11	(1.6)	3	(0.4)	20	(2.9)
Yorkshire and The Humber	8	(1.5)	11	(2.1)	3	(0.6)	18	(3.4)
East Midlands	12	(2.7)	14	(3.1)	3	(0.7)	23	(5.2)
West Midlands	14	(2.6)	10	(1.8)	2	(0.4)	23	(4.2)
East of England	8	(1.4)	12	(2.1)	2	(0.3)	16	(2.8)
London	11	(1.4)	13	(1.7)	2	(0.3)	22	(2.8)
South East Coast	10	(2.3)	13	(3.0)	0	(0.0)	19	(4.4)
South Central	7	(1.7)	18	(4.4)	3	(0.7)	21	(5.1)
South West	5	(1.0)	14	(2.7)	3	(0.6)	20	(3.8)
<b>England</b>	<b>94</b>	<b>(1.8)</b>	<b>127</b>	<b>(2.5)</b>	<b>21</b>	<b>(0.4)</b>	<b>195</b>	<b>(3.8)</b>
<b>Isle of Man</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>
<b>Channel Islands</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>
<b>Wales</b>	<b>6</b>	<b>(2.0)</b>	<b>6</b>	<b>(2.0)</b>	<b>3</b>	<b>(1.0)</b>	<b>12</b>	<b>(4.0)</b>
<b>Scotland</b>	<b>12</b>	<b>(2.3)</b>	<b>16</b>	<b>(3.1)</b>	<b>1</b>	<b>(0.2)</b>	<b>23</b>	<b>(4.4)</b>
<b>Northern Ireland</b>	<b>14</b>	<b>(7.8)</b>	<b>13</b>	<b>(7.3)</b>	<b>1</b>	<b>(0.6)</b>	<b>23</b>	<b>(12.8)</b>
<b>TOTAL</b>	<b>126</b>	<b>(2.0)</b>	<b>162</b>	<b>(2.6)</b>	<b>26</b>	<b>(0.4)</b>	<b>253</b>	<b>(4.1)</b>

<sup>1</sup> Includes 4 donors where the hospital postcode was used in place of an unknown donor postcode

## 7.4 Transplants

The number of cardiothoracic transplants by recipient country/ Strategic Health Authority of residence are shown in **Table 7.7**. No adjustments have been made for potential demographic differences in populations. The transplant rate ranged from 2.2 to 7.5 pmp across the Strategic Health Authorities and overall was 4.7 pmp. Excluded are 12 recipients whose country of residence was the Republic of Ireland.

**Table 7.7 Cardiothoracic transplant rates per million population (pmp) in the UK, 1 April 2010 - 31 March 2011, by Country/ Strategic Health Authority**

Country/ Strategic Health Authority of residence	Heart (pmp)		Lungs (pmp)				Total (pmp)	
	DBD		DBD		DCD			
North East	4	(1.6)	6	(2.3)	1	(0.4)	11	(4.3)
North West	17	(2.5)	18	(2.6)	1	(0.1)	36	(5.2)
Yorkshire and The Humber	10	(1.9)	13	(2.5)	2	(0.4)	25	(4.8)
East Midlands	5	(1.1)	11	(2.5)	1	(0.2)	17	(3.8)
West Midlands	19	(3.5)	13	(2.4)	0	(0.0)	32	(5.9)
East of England	15	(2.6)	25	(4.3)	3	(0.5)	43	(7.5)
London	8	(1.0)	6	(0.8)	3	(0.4)	17	(2.2)
South East Coast	10	(2.3)	10	(2.3)	1	(0.2)	21	(4.8)
South Central	8	(2.0)	12	(2.9)	2	(0.5)	22	(5.4)
South West	6	(1.1)	8	(1.5)	5	(1.0)	19	(3.6)
<b>England</b>	<b>102</b>	<b>(2.0)</b>	<b>122</b>	<b>(2.4)</b>	<b>19</b>	<b>(0.4)</b>	<b>243</b>	<b>(4.7)</b>
<b>Isle of Man</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>
<b>Channel Islands</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>
<b>Wales</b>	<b>6</b>	<b>(2.0)</b>	<b>9</b>	<b>(3.0)</b>	<b>1</b>	<b>(0.3)</b>	<b>16</b>	<b>(5.3)</b>
<b>Scotland</b>	<b>16</b>	<b>(3.1)</b>	<b>6</b>	<b>(1.2)</b>	<b>1</b>	<b>(0.2)</b>	<b>23</b>	<b>(4.4)</b>
<b>Northern Ireland</b>	<b>4</b>	<b>(2.2)</b>	<b>5</b>	<b>(2.8)</b>	<b>0</b>	<b>(0.0)</b>	<b>9</b>	<b>(5.0)</b>
<b>TOTAL<sup>1</sup></b>	<b>128</b>	<b>(2.1)</b>	<b>142</b>	<b>(2.3)</b>	<b>21</b>	<b>(0.3)</b>	<b>291</b>	<b>(4.7)</b>

<sup>1</sup> Excludes 12 recipients who reside outside of the UK (3 DBD heart, 8 DBD lung, 1 DCD lung)

**Table 7.8** shows cardiothoracic transplant activity for each centre. In 2010-2011, a total of 303 transplants were carried out, an increase of 11% on 2009-2010. Of these, 43% were deceased donor heart transplants. The 165 adult lung transplants include 22 (13%) from donors after circulatory death: 11 were performed by Harefield, 7 by Newcastle, 3 by Papworth and 1 by Manchester.

**Table 7.8 Cardiothoracic transplants, 1 April 2010 - 31 March 2011 (2009-2010), by age group and centre**

Transplant centre	Transplant type								TOTAL	
	Heart		Urgent		Heart/ lung		Lung(s)			
	Non-urgent									
Adult										
Birmingham	12	(10)	9	(8)	0	(0)	11	(6)	32	(24)
Glasgow	5	(0)	4	(4)	0	(0)	0	(0)	9	(4)
Great Ormond Street	1	(1)	0	(0)	0	(0)	2	(0)	3	(1)
Harefield	3	(9)	6	(4)	0	(0)	58	(35)	67	(48)
Manchester	5	(6)	7	(4)	0	(0)	21	(24)	33	(34)
Newcastle	6	(10)	10	(7)	1	(0)	43	(44)	60	(61)
Papworth	10	(13)	14	(10)	2	(5)	30	(29)	56	(57)
TOTAL	42	(49)	50	(37)	3	(5)	165 <sup>1</sup>	(138 <sup>2</sup> )	260 <sup>1</sup>	(229 <sup>2</sup> )
Paediatric										
Great Ormond Street	2	(7)	16	(12)	0	(0)	3	(7)	21	(26)
Newcastle	4	(2 <sup>3</sup> )	17	(14)	0	(0)	1	(1)	22	(17)
TOTAL	6	(9 <sup>3</sup> )	33	(26)	0	(0)	4	(8)	43	(43)

Paediatric recipients are aged under 16 years at time of transplant

<sup>1</sup> Includes 22 DCD donor transplants

<sup>2</sup> Includes 15 DCD donor transplants

<sup>3</sup> Includes one domino donor transplant

There were 50 adult urgent heart transplants in 2010-2011, representing 54% of all adult heart transplants (43% in 2009-2010). There were 33 paediatric urgent heart transplants in 2010-2011, representing 85% of all paediatric heart transplants (74% in 2009-2010).

At 31 March 2011 there were approximately 3,600 recipients with a functioning cardiothoracic organ transplant being followed-up, as reported to the UK Transplant Registry.

## 7.5 Demographic characteristics

The ethnicity of cardiothoracic donors, transplant recipients and patients on the transplant list is shown in **Table 7.9**. While 6% of donors in 2010-2011 were non-white, 6% of the transplant list at 31 March 2011 and 8% of transplant recipients in the year were non-white.

Table 7.9 Ethnicity of cardiothoracic donors and recipients 1 April 2009 - 31 March 2011 and, transplant list patients at 31 March in the UK												
Ethnicity	Donors				Transplant recipients				Active transplant list patients			
	2009-2010		2010-2011		2009-2010		2010-2011		2010	2011		
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
White	212	(94.2)	237	(93.7)	244	(89.7)	279	(92.1)	366	(93.4)	333	(93.8)
Asian	2	(0.9)	2	(0.8)	17	(6.3)	17	(5.6)	13	(3.3)	12	(3.4)
Black	5	(2.2)	4	(1.6)	4	(1.5)	3	(1.0)	9	(2.3)	8	(2.3)
Chinese	2	(0.9)	2	(0.8)	0	(0.0)	2	(0.7)	0	(0.0)	0	(0.0)
Other	4	(1.8)	8	(3.2)	7	(2.6)	2	(0.7)	4	(1.0)	2	(0.6)
TOTAL	225		253		272		303		392		355	

Of the 303 cardiothoracic organ transplant recipients, 52% were male compared with 51% of donors and 54% of the transplant list; see **Table 7.10**. Of the 253 cardiothoracic organ donors, 4% were aged ≥60 years compared with 11% of recipients and 17% of the transplant list.

<b>Table 7.10 Age of deceased cardiothoracic donors and transplant recipients 1 April 2010 - 31 March 2011, and transplant list patients at 31 March in the UK</b>						
<b>Age group (years)</b>	<b>Donors</b>		<b>Transplant recipients</b>		<b>Active transplant list patients</b>	
	N	(%)	N	(%)	N	(%)
0 - 17	19	(8)	50	(17)	35	(10)
18 - 34	67	(26)	57	(19)	85	(24)
35 - 49	101	(40)	73	(24)	85	(24)
50 - 59	55	(22)	90	(30)	91	(26)
60 - 69	11	(4)	33	(11)	59	(17)
<b>TOTAL</b>	<b>253</b>	<b>(100)</b>	<b>303</b>	<b>(100)</b>	<b>355</b>	<b>(100)</b>
<b>% Male</b>		<b>(51)</b>		<b>(52)</b>		<b>(54)</b>



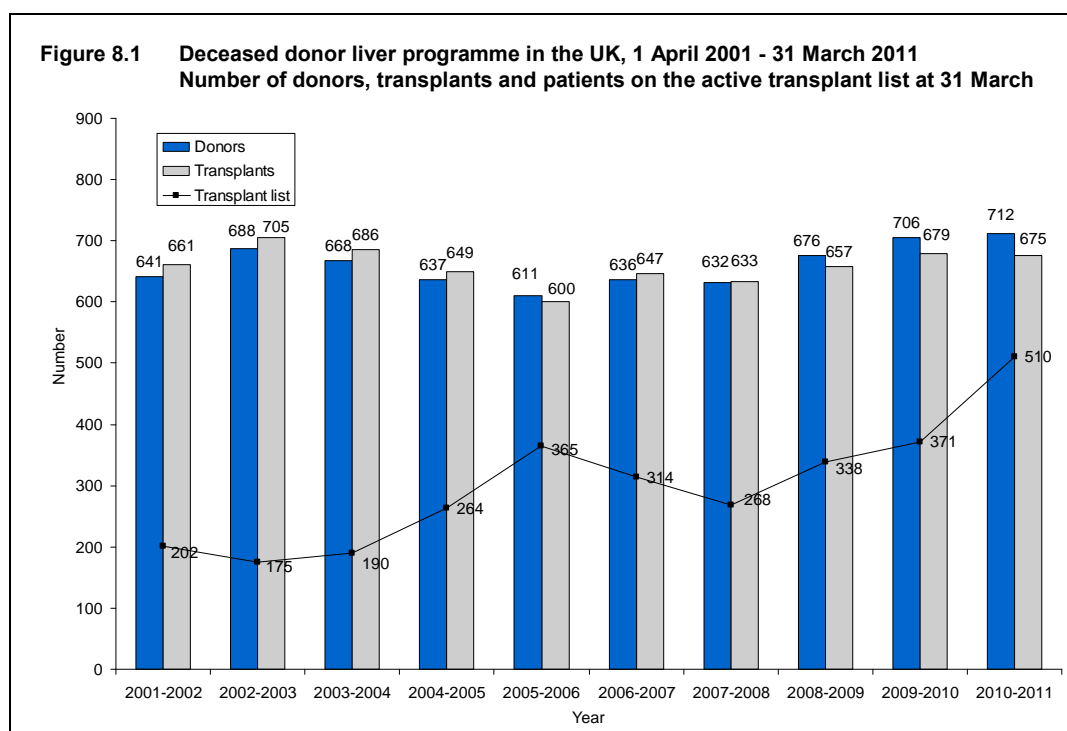
## 8 LIVER ACTIVITY

### Key messages

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

### 8.1 Overview

The number of deceased liver donors and transplants in the UK has remained relatively constant in the last ten years as shown in **Figure 8.1**. Over this period, there has been a steady increase in the number of patients registered on the active transplant list at 31 March and a more dramatic increase in 2010-2011.



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

The number of deceased donors, deceased and living donor transplants, and patients on the active transplant list, by centre, is shown in **Table 8.1**. The numbers of liver donors reflect the number of organs retrieved from within each zone (by any NORS team) rather than the number of retrievals made by that centre. In 2010-2011, 712 solid organ donors donated their liver for transplant: 567 donors after brain death

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

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

Patients are prioritised as super-urgent if they require a new liver as soon as possible due to rapid failure of the native organ. Other patients are referred to as elective.

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

Donation zone/ transplant centre	Deceased donors						Deceased transplants						Living donor transplants		Active transplant list	
	DBD		DCD		TOTAL		DBD		DCD		TOTAL					
Adult																
Birmingham	119	(107)	38	(22)	157	(129)	115	(100)	28	(29)	143	(129)	1	(1)	75	(62)
Cambridge	77	(69)	20	(18)	97	(87)	61	(61)	15	(9)	76	(70)	0	(0)	61	(39)
Edinburgh	60	(55)	10	(7)	70	(62)	71	(67)	9	(7)	80	(74)	1	(0)	46	(38)
King's College	115	(128)	49	(50)	164	(178)	96	(120)	31	(36)	127	(156)	6	(6)	143	(86)
Leeds	98	(96)	13	(16)	111	(112)	73	(81)	9	(4)	82	(85)	3	(2)	75	(61)
Newcastle	26	(33)	3	(0)	29	(33)	32	(33)	3	(0)	35	(33)	0	(0)	35	(23)
Royal Free	48	(68)	7	(15)	55	(83)	43 <sup>1</sup>	(51)	3	(9)	46 <sup>1</sup>	(60)	1	(3)	43	(35 <sup>1</sup> )
TOTAL	543	(556)	140	(128)	683	(684)	490	(513)	98	(94)	588	(607)	12 <sup>2</sup>	(12 <sup>3</sup> )	478	(344)
Paediatric																
Birmingham	2	(4)	1	(2)	3	(6)	35	(22)	1	(1)	36	(23)	1	(0)	7	(4)
Cambridge	3	(1)	1	(0)	4	(1)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Edinburgh	6	(1)	1	(0)	7	(1)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
King's College	5	(5)	0	(1)	5	(6)	35	(32)	1	(4)	36	(36)	10	(10)	20	(18)
Leeds	2	(2)	2	(3)	4	(5)	14	(12)	0	(0)	14	(12)	2	(1)	5	(4)
Newcastle	4	(1)	0	(0)	4	(1)	0	(1)	0	(0)	0	(1)	0	(0)	0	(0)
Royal Free	2	(1)	0	(1)	2	(2)	0	(0)	0	(0)	0	(0)	0	(0)	0	(1)
TOTAL	24	(15)	5	(7)	29	(22)	85	(67)	2	(5)	87	(72)	13 <sup>4</sup>	(11 <sup>5</sup> )	32	(27)

<sup>1</sup> Includes 1 patient aged 16

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

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

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

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

## 8.2 Transplant list

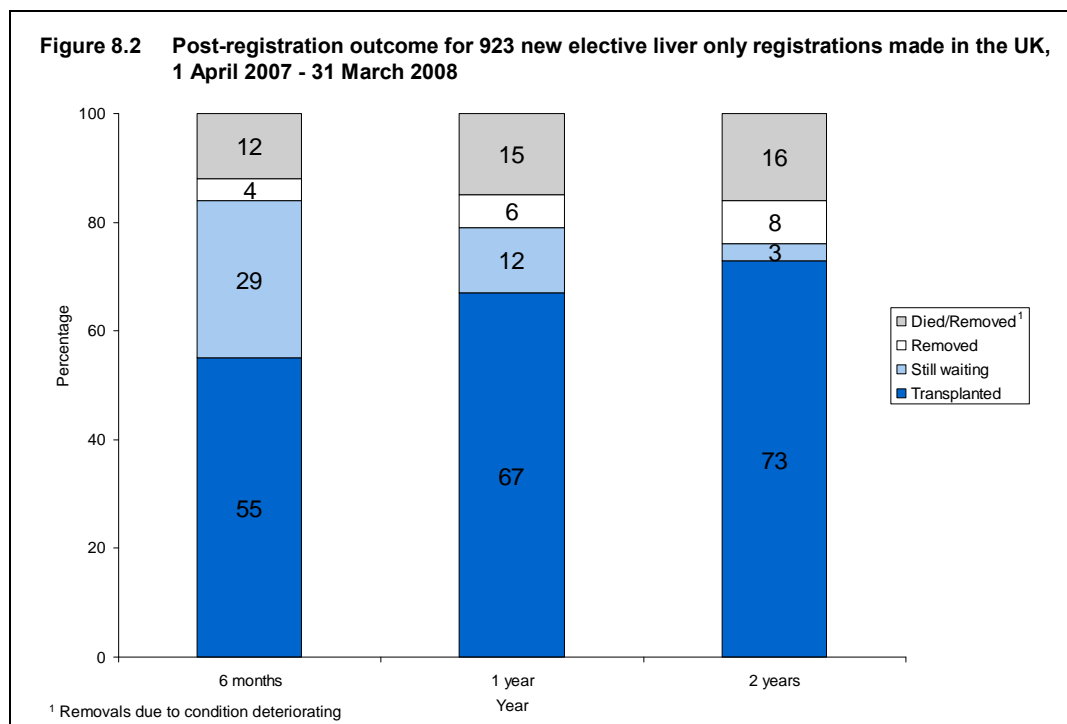
During 2010-2011, 1,098 patients joined the liver transplant list. Outcomes for patients on the list at 1 April 2010 and those joining the list during the year are shown in **Table 8.2**.

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

Outcome of patient at 31 March 2011	Active and suspended patients at 1 April 2010		New registrations in 2010-2011 <sup>1</sup>		TOTAL	
	N	%	N	%	N	%
Remained active/suspended	91	24	435	40	<b>526</b>	<b>36</b>
Transplanted	187	50	514	47	<b>701</b>	<b>48</b>
Removed	55	15	73	7	<b>128</b>	<b>9</b>
Died	40	11	76	7	<b>116</b>	<b>8</b>
<b>TOTAL</b>	<b>373</b>		<b>1098</b>		<b>1471</b>	

<sup>1</sup> Includes re-registrations for second or subsequent transplants

An indication of longer term outcomes for patients listed for an elective liver transplant is summarised in **Figure 8.2**. This shows the proportion of patients transplanted or still waiting six months, one year and two years after joining the transplant list or were removed due to their condition deteriorating. At one year post-registration, 67% of patients had received a liver transplant while 15% of patients had either died whilst waiting or had been removed due to their condition deteriorating. 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.



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

Table 8.3      Median waiting time to elective liver transplant in the UK, for patients registered 1 April 2006 - 31 March 2009			
Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
O	965	158	142 - 174
A	806	100	88 - 112
B	283	206	158 - 254
AB	93	89	62 - 116
TOTAL	2147	136	127 - 145
Paediatric	194	77	59 - 95

### 8.3 Donor and organ supply

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

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

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

The rates per million population (pmp) for liver donors are shown in **Table 8.5** by donor country/ Strategic Health Authority of residence. No adjustments have been made for potential demographic differences in populations. The overall deceased liver donor rate was 11.5 pmp in 2010-2011 and varied across the Strategic Health Authorities from 8.1 to 14.4 pmp.

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

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

<sup>1</sup> Includes 8 donors where the hospital postcode was used in place of an unknown donor postcode

## 8.4 Transplants

The number of liver transplants by recipient country / Strategic Health Authority of residence are shown in **Table 8.6**. No adjustments have been made for potential demographic differences in populations. The deceased donor transplant rate ranged from 7.6 to 13.2 pmp across the Strategic Health Authorities and overall was 10.5 pmp.

The number of whole, reduced and split liver transplants by urgency status of the transplant (elective, super-urgent) in 2010-2011 is shown in **Table 8.7**. The term 'reduced' is used when only one lobe of the liver is transplanted and the term 'split' applies when both lobes of the liver are transplanted into two different recipients.

Overall, the number of deceased donor liver transplants fell by 1% in 2010-2011. There were 675 deceased donor liver transplants performed in 2010-2011: 551 whole liver, including 5 liver and kidney, and 124 deceased liver lobe, including 4 liver and kidney. Split liver transplants accounted for 81% of liver lobe transplant activity.

**Table 8.6 Liver transplant rates per million population (pmp) in the UK, 1 April 2010 - 31 March 2011, by country/ Strategic Health Authority**

Country/ Strategic Health Authority of residence	Deceased transplants (pmp)						Living transplants (pmp)	
	DBD		DCD		Total			
North East	31	(12.0)	3	(1.2)	34	(13.2)	0	(0.0)
North West	55	(8.0)	10	(1.4)	65	(9.4)	1	(0.1)
Yorkshire and The Humber	49	(9.3)	7	(1.3)	56	(10.6)	3	(0.6)
East Midlands	40	(9.0)	2	(0.4)	42	(9.4)	0	(0.0)
West Midlands	52	(9.6)	7	(1.3)	59	(10.9)	1	(0.2)
East of England	54	(9.4)	9	(1.6)	63	(10.9)	0	(0.0)
London	73	(9.4)	11	(1.4)	84	(10.8)	5	(0.6)
South East Coast	23	(5.3)	10	(2.3)	33	(7.6)	0	(0.0)
South Central	34	(8.3)	10	(2.4)	44	(10.7)	1	(0.2)
South West	32	(6.1)	10	(1.9)	42	(8.0)	0	(0.0)
England	443	(8.6)	79	(1.5)	522	(10.1)	11	(0.2)
Isle of Man	1	(12.5)	0	(0.0)	1	(12.5)	0	(0.0)
Channel Islands	0	(0.0)	0	(0.0)	0	(0.0)	1	(6.7)
Wales	18	(6.0)	6	(2.0)	24	(8.0)	0	(0.0)
Scotland	75	(14.5)	9	(1.7)	84	(16.2)	3	(0.6)
Northern Ireland	17	(9.5)	4	(2.2)	21	(11.7)	0	(0.0)
TOTAL <sup>1</sup>	555 <sup>2</sup>	(8.9)	98	(1.6)	653 <sup>2</sup>	(10.5)	15	(0.2)

<sup>1</sup> Excludes 32 recipients who reside outside of the UK (20 DBD, 2 DCD, 10 living)

<sup>2</sup> Includes 1 UK recipient where the postcode was unspecified

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

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

E=Elective, SU=Super-urgent

Birmingham, King's College and Leeds transplant paediatric patients

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

### 8.5 Demographic characteristics

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

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

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



The age and sex distribution of donors and recipients in 2010-2011, and patients on the transplant list at 31 March 2011, are shown in **Table 8.9**. Of the 712 donors, 7% were aged  $\geq 70$  years, compared with only 2% of the transplant list and 1% of transplant recipients.

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

## 9 INTESTINAL ACTIVITY

### 9.1 Overview

Over the last two years (between 1 April 2009 and 31 March 2011), the number of intestinal transplants has remained similar with 21 transplants carried out in 2009-2010 compared to 19 in 2010-2011.

During 2010-2011, there were 25 registrations for an intestinal transplant. As at 31 March 2011, 12 (48%) registrations remained active/suspended, 11 (44%) resulted in a transplant, 1 (4%) and 1 (4%) resulted in a death on and removal from the transplant list, respectively.

### 9.2 Transplant list

In 2010-2011, there were 25 registrations for an intestinal transplant. The outcome of these registrations for paediatric and adult patients, as at 31 March 2010, broken down by transplant centre can be found in **Table 9.1**.

Table 9.1 Outcome of intestinal transplant registrations in the UK, 1 April 2010 - 31 March 2011									
Transplant centre	Outcome of registrations as at 31 March 2011								TOTAL
	Transplanted		Died		Removed		Active/Susp		
	N	%	N	%	N	%	N	%	
Adult									
Cambridge	4	67	0	0	0	0	2	33	6
Oxford	2	50	0	0	0	0	2	50	4
TOTAL	6	60	0	0	0	0	4	40	10
Paediatric									
Birmingham	3	30	1	10	1	10	5	50	10
King's College	2	40	0	0	0	0	3	60	5
TOTAL	5	33	1	7	1	7	8	53	15

### 9.3 Transplants

**Table 9.2** shows intestinal transplant activity by transplant centre and transplant type for financial years 2009-2010 and 2010-2011. In 2010-2011, there were a total of 19 transplants: 8 adult and 11 paediatric transplants.

**Table 9.2 Intestinal transplants in the UK, 1 April 2010 - 31 March 2011 (2009-2010), by age group, centre and type**

Transplant centre	Transplant type											
	LO N		BO N		LBP N		MV N		MMV N		TOTAL N	
Adult												
Cambridge	0	(0)	2	(1)	0	(0)	2	(1)	2	(3)	6	(5)
Oxford	0	(0)	2	(2)	0	(0)	0	(0)	0	(2)	2	(4)
TOTAL	0	(0)	4	(3)	0	(0)	2	(1)	2	(5)	8	(9)
Paediatric												
Birmingham	1	(0)	4	(3)	2	(3)	0	(0)	1	(3)	8	(9)
King's College	0	(0)	3	(1)	0	(1)	0	(0)	0	(1)	3	(3)
TOTAL	1	(0)	7	(4)	2	(4)	0	(0)	1	(4)	11	(12)

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 and/or heart and/or lung

MMV = Modified multivisceral – small bowel (with or without large bowel), pancreas, stomach and/or spleen and/or abdominal wall and/or kidney and/or heart and/or lung

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## 10 CORNEA ACTIVITY

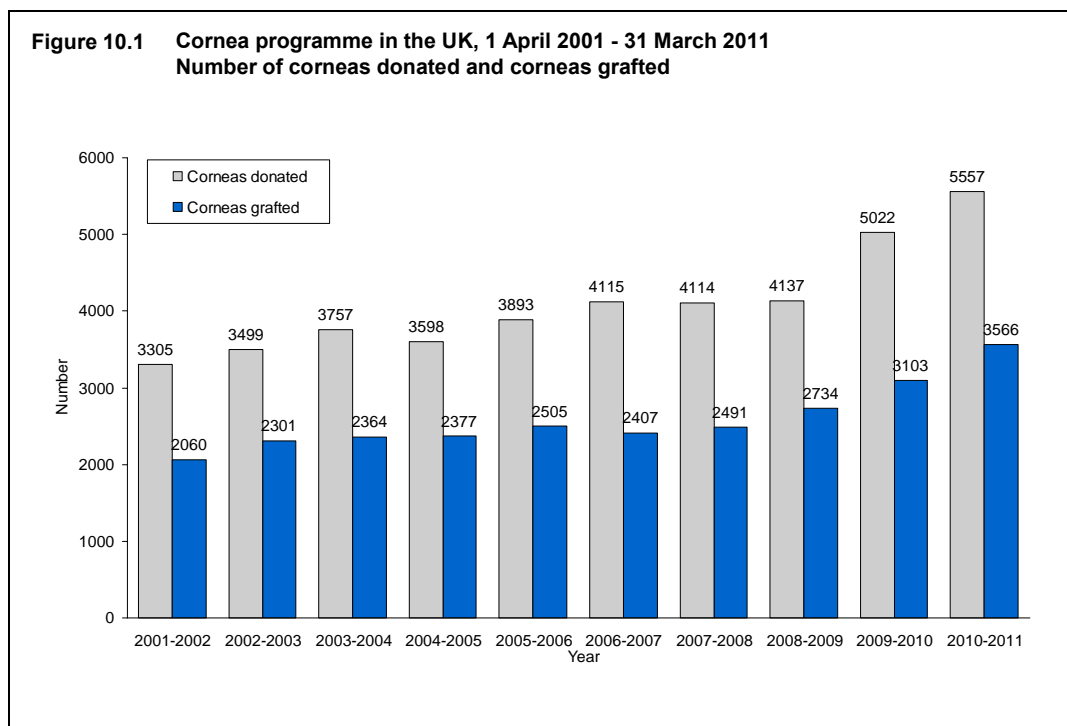
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### Key messages

- 5,091 corneas were supplied to the Corneal Transplant Service (CTS) eye banks, leading to a 15% increase in the number of transplants to 3,566
- Corneas were retrieved from 31% of organ donors after brain death and 38% of organ donors after circulatory death
- 59% of cornea only donors were 70 years of age or over
- Cornea donation and transplant rates continue to vary considerably across the countries of the UK, with donation rates ranging from 19 to 48 per million population (pmp), and transplant rates ranging from 44.7 pmp to 57.6 pmp

### 10.1 Overview

The reported number of corneas donated in 2010-2011 was 5,557, representing an increase of 11% on last year, as shown in **Figure 10.1**. This increase is mainly due to the Eye Retrieval Scheme (ERS) but also due to the fact that more corneas are being donated from solid donors. ERS consists of 10 teams embedded in the selected trusts/boards across the UK, that are funded by NHSBT for the purpose of promoting, procuring and retrieving ocular tissue for the clinical use. Additionally, 281 sclera were issued and used. 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.



In 2010-2011 there were 2,812 tissue donors, of whom 2,474 donated corneas only and 338 donated corneas and solid organs: see **Table 10.1**. Compared to 2009-

2010, the number of cornea only donors increased by 225, and the number of cornea and solid organ donors increased by 69. In 2010-2011, corneas were retrieved from 31% of organ donors after brain death compared with 27% in 2009-2010. Of the 373 organ donors after cardiac death in 2010-2011, 141 also donated corneas.

**Table 10.1** also shows the number and rate per million population (pmp) of donors in 2010-2011 by country and English Strategic Health Authority (SHA), with figures for 2009-2010 in parentheses. No adjustments have been made for potential demographic differences in populations. Wales had the highest cornea donor rate in the UK in 2010-2011 (48 pmp). In 2010-2011, the cornea donor rate increased in England, Scotland, Wales and Northern Ireland. Across the SHAs the cornea donor rate ranged from 13.3 pmp to 96.6 pmp.

<b>Table 10.1 Cornea donor rates per million population, pmp, in the UK, 1 April 2010 - 31 March 2011 (2009 - 2010), by country and English Strategic Health Authority</b>								
<b>Country/ Strategic Health Authority of residence</b>	<b>Cornea only donors</b>		<b>Solid organ and cornea donors</b>		<b>TOTAL</b>		<b>TOTAL pmp</b>	
North East	193	(182)	22	(9)	215	(191)	83.3	(74.0)
North West	580	(622)	32	(31)	612	(653)	88.7	(94.6)
Yorkshire and The Humber	103	(81)	20	(16)	123	(97)	23.4	(18.4)
East Midlands	195	(189)	14	(4)	209	(193)	47.0	(43.4)
West Midlands	57	(46)	15	(13)	72	(59)	13.3	(10.9)
East of England	174	(201)	31	(19)	205	(220)	35.5	(38.1)
London	170	(27)	57	(60)	227	(87)	29.3	(11.2)
South East Coast	49	(69)	19	(17)	68	(86)	15.7	(19.8)
South Central	205	(144)	27	(23)	232	(167)	56.6	(40.7)
South West	462	(508)	43	(37)	505	(545)	96.6	104.2)
<b>England</b>	<b>2188</b>	<b>(2069)</b>	<b>280</b>	<b>(229)</b>	<b>2468</b>	<b>(2298)</b>	<b>47.6</b>	<b>(44.4)</b>
<b>Isle of Man</b>	<b>0</b>	<b>(0)</b>	<b>0</b>	<b>(0)</b>	<b>0</b>	<b>(0)</b>	<b>0.0</b>	<b>(0.0)</b>
<b>Channel Islands</b>	<b>0</b>	<b>(0)</b>	<b>0</b>	<b>(0)</b>	<b>0</b>	<b>(0)</b>	<b>0.0</b>	<b>(0.0)</b>
<b>Wales</b>	<b>120</b>	<b>(59)</b>	<b>24</b>	<b>(15)</b>	<b>144</b>	<b>(74)</b>	<b>48.0</b>	<b>(24.7)</b>
<b>Scotland</b>	<b>141</b>	<b>(113)</b>	<b>20</b>	<b>(20)</b>	<b>161</b>	<b>(133)</b>	<b>31.0</b>	<b>(25.6)</b>
<b>Northern Ireland</b>	<b>20</b>	<b>(5)</b>	<b>14</b>	<b>(5)</b>	<b>34</b>	<b>(10)</b>	<b>19.0</b>	<b>(5.6)</b>
<b>TOTAL<sup>1</sup></b>	<b>2474</b>	<b>(2249)</b>	<b>338</b>	<b>(269)</b>	<b>2812</b>	<b>(2518)</b>	<b>45.3</b>	<b>(40.6)</b>

<sup>1</sup> Includes UK recipients where the postcode was unspecified and non-UK recipients

## 10.2 Donor and tissue supply

In 2010-2011, 91.6% (96.0% in 2009-2010) 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 2010-2011. 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). Centres with a negative balance have taken more corneas than they supplied to the CTS Eye Banks.

**Table 10.2 Corneas supplied to and taken from the CTS Eye Banks,  
1 April 2010 - 31 March 2011**

<b>Centre</b>	<b>Corneas supplied</b>	<b>Suitable for PK (%)</b>		<b>Corneas taken</b>	<b>Balance</b>
ERS Merseyside	362	223	(62)	166	196
ERS Royal Devon	342	220	(64)	30	312
ERS Bristol	326	194	(60)	88	238
ERS Newcastle	323	233	(72)	65	258
ERS Nottingham	314	224	(71)	132	182
ERS Bolton	310	185	(60)	20	290
ERS Southampton	306	172	(56)	68	238
ERS Norfolk	284	215	(76)	48	236
ERS Preston	215	148	(69)	26	189
ERS Glasgow	166	136	(82)	153	13
Manchester, Royal Eye Hospital	127	93	(73)	214	-87
Cardiff, University of Wales Hospital	90	68	(76)	22	68
Middlesbrough, James Cook University Hospital	88	63	(72)	5	83
East Grinstead, Queen Victoria Hospital	70	41	(59)	28	42
Blackburn, Royal Infirmary	68	41	(60)	11	57
Plymouth, Royal Eye Infirmary	60	37	(62)	41	19
Belfast, Royal Victoria Hospital	54	32	(59)	58	-4
Newport, Royal Gwent Hospital	53	36	(68)	13	40
Leicester, Royal Infirmary	50	35	(70)	62	-12
Oxford, John Radcliffe Hospital	44	33	(75)	43	1
Taunton, Taunton & Somerset Hospital	42	26	(62)	3	39
Yeovil District Hospital	39	15	(38)	0	39
Leeds, Teaching hospitals	82	47	(57)	96	-14
Swindon, Great Western Hospital	34	16	(47)	5	29
Edinburgh, Princess Alexandra Eye Pavilion	66	56	(85)	34	32
Cambridge, Addenbrookes Hospital	32	14	(44)	32	0
Barnstaple, North Devon District Hospital	32	25	(78)	3	29
Lancaster, Royal Lancaster Hospital	31	24	(77)	0	31
Salisbury, District Hospital	30	23	(77)	3	27
Dundee, Ninewells Hospital	30	26	(87)	0	30
London, Moorfields Eye Hospital	28	11	(39)	96	-68
Hull, East Yorkshire Eye Hospital	26	18	(69)	33	-7
Stoke, North Staffordshire Royal Infirmary	26	16	(62)	20	6
<b>Eye retrieval scheme centres</b>	<b>2948</b>	<b>1950</b>	<b>(66)</b>	<b>796</b>	<b>2152</b>
<b>Centres supplying more than 25 corneas</b>	<b>1202</b>	<b>796</b>	<b>(66)</b>	<b>822</b>	<b>380</b>
<b>All other centres</b>	<b>941</b>	<b>619</b>	<b>(66)</b>	<b>1688</b>	<b>-747</b>
<b>TOTAL</b>	<b>5091</b>	<b>3365</b>	<b>(66)</b>	<b>3306</b>	<b>1785</b>

ERS – Eye Retrieval Scheme  
PK - Penetrating keratoplasty

Of the 5,091 corneas supplied to the CTS Eye Banks, 3,365 (66%) were suitable for a PK. This was an increase compared with 2009-2010, when 64% of corneas supplied to the CTS Eye Banks were suitable for a PK.

### 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 2010-2011 by 6%, and the number of corneas issued increased by 8%. In 2010-2011, 5,091 corneas were received into the CTS Eye Banks, of which 3,527 (69%) were subsequently issued for grafting. The remaining corneas were unsuitable for transplantation.

<b>Table 10.3 Corneas received into the Bristol and Manchester Eye Banks, 1 April 2010 - 31 March 2011 (2009-2010), by year</b>								
	Total received		Number issued <sup>1</sup>		% issued		Difference between number received and issued	
Bristol	2266	(2226)	1473	(1530)	65	(69)	793	(696)
Manchester	2825	(2594)	2054	(1744)	73	(67)	771	(850)
<b>Total</b>	<b>5091</b>	<b>(4820)</b>	<b>3527</b>	<b>(3274)</b>	<b>69</b>	<b>(68)</b>	<b>1564</b>	<b>(1546)</b>

<sup>1</sup> 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 2010-2011, 61% were issued with an endothelium suitable for penetrating keratoplasty (these corneas may have been used for penetrating keratoplasty, deep anterior lamellar keratoplasty or endothelial keratoplasty), 1% were issued that were suitable for lamellar grafts, 2% were issued for other types of graft and 5% were issued but not used. Of the corneas supplied to the Eye Banks, 13% were unsuitable because of medication contraindications, 12% had endothelial deficiencies or stromal opacity and 4% were discarded because of bacterial or fungal contamination. 1% 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 Strategic Health Authority in England for the years 2009-2010 and 2010-2011 is detailed in **Table 10.5** for corneas supplied through the CTS Eye Banks and transplants that have been reported to the UK Transplant Registry by Moorfields Eye Bank. Corneas from East Grinstead Eye Bank will be reported to the UK Transplant Registry during 2011-2012. No adjustments have been made for potential demographic differences in populations. The overall transplant rate was 50.0 pmp in 2009-2010; this increased to 57.5 pmp in 2010-2011. The transplant rates increased in England, Scotland, Wales and Northern Ireland. England had the highest transplant rate in the UK: 57.6 pmp, this ranged from 47.5 pmp to 75.1 pmp across the SHAs.

**Table 10.4 Outcome of corneas received into the Bristol and Manchester Eye Banks, 1 April 2010 - 31 March 2011 (2009 - 2010), by year**

Outcome of cornea	Bristol				Manchester				TOTAL			
	N		%		N		%		N		%	
<b>Used</b>												
Penetrating keratoplasty	1338	(1338)	59	(60)	1783	(1491)	63	(57)	3121	(2829)	61	(59)
Lamellar keratoplasty	16	(17)	1	(1)	27	(30)	1	(1)	43	(47)	1	(1)
Other/ not reported	18	(65)	1	(3)	84	(97)	3	(4)	102	(162)	2	(3)
<b>Total used</b>	<b>1372</b>	<b>(1420)</b>	<b>61</b>	<b>(64)</b>	<b>1894</b>	<b>(1618)</b>	<b>67</b>	<b>(62)</b>	<b>3266</b>	<b>(3038)</b>	<b>64</b>	<b>(63)</b>
<b>Not used</b>												
Issued, not used	101	(110)	4	(5)	160	(126)	6	(5)	261	(236)	5	(5)
Unsuitable - endothelium, stromal, opacity, other	350	(219)	15	(10)	269	(301)	10	(12)	619	(520)	12	(11)
Medical reason - virology	172	(218)	8	(10)	141	(247)	5	(10)	313	(465)	6	(10)
Medical reason - other	172	(132)	8	(6)	182	(161)	6	(6)	354	(293)	7	(6)
Contaminated	84	(103)	4	(5)	128	(111)	5	(4)	212	(214)	4	(4)
Other/not reported	15	(24)	1	(1)	51	(30)	2	(1)	66	(54)	1	(1)
<b>Total not used</b>	<b>894</b>	<b>(806)</b>	<b>39</b>	<b>(36)</b>	<b>931</b>	<b>(976)</b>	<b>33</b>	<b>(38)</b>	<b>1825</b>	<b>(1782)</b>	<b>36</b>	<b>(37)</b>
<b>TOTAL</b>	<b>2266</b>	<b>(2226)</b>			<b>2825</b>	<b>(2594)</b>			<b>5091</b>	<b>(4820)</b>		



**Table 10.5 Cornea transplants<sup>1</sup> performed per million population (pmp) in the UK, 1 April 2009 - 31 March 2011, by country and English Strategic Health Authority of residence**

<b>Country/ Strategic Health Authority of residence</b>	<b>Number of transplants (pmp)</b>			
	2009-2010		2010-2011	
North East	115	(44.6)	144	(55.8)
North West	405	(58.7)	518	(75.1)
Yorkshire and The Humber	405	(77.0)	365	(69.4)
East Midlands	229	(51.5)	244	(54.8)
West Midlands	249	(45.9)	329	(60.6)
East of England	221	(38.3)	288	(49.9)
London	416	(53.7)	368	(47.5)
South East Coast	182	(41.9)	240	(55.3)
South Central	196	(47.8)	216	(52.7)
South West	233	(44.6)	272	(52.0)
<b>England</b>	<b>2651</b>	<b>(51.2)</b>	<b>2984</b>	<b>(57.6)</b>
<b>Isle of Man</b>	<b>4</b>	<b>(50.0)</b>	<b>4</b>	<b>(50.0)</b>
<b>Channel Islands</b>	<b>4</b>	<b>(26.7)</b>	<b>6</b>	<b>(40.0)</b>
<b>Wales</b>	<b>98</b>	<b>(32.7)</b>	<b>157</b>	<b>(52.3)</b>
<b>Scotland</b>	<b>201</b>	<b>(38.7)</b>	<b>232</b>	<b>(44.7)</b>
<b>Northern Ireland</b>	<b>74</b>	<b>(41.3)</b>	<b>95</b>	<b>(53.1)</b>
<b>TOTAL<sup>2</sup></b>	<b>3103</b>	<b>(50.0)</b>	<b>3564</b>	<b>(57.5)</b>

<sup>1</sup> Corneas supplied through the CTS Eye Banks and Moorfields Eye Bank

<sup>2</sup> Includes UK recipients where the postcode was unspecified and non-UK recipients

## 10.5 Demographic characteristics

The ethnicity of cornea donors and transplant recipients is shown in **Table 10.6**. While 1% of donors in 2010-2011 were non-white, 14% of transplant recipients were non-white.

<b>Table 10.6 Ethnicity of cornea donors and recipients 1 April 2009 - 31 March 2011, in the UK</b>										
<b>Ethnicity</b>	<b>Cornea only donors</b>				<b>Solid organ and cornea donors</b>				<b>Transplant recipients</b>	
	2009-2010		2010-2011		2009-2010		2010-2011		2009-2010	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
White	2232	(99.3)	2364	(99.2)	260	(96.7)	328	(97.0)	2563	(84.0)
Asian	12	(0.5)	16	(0.7)	5	(1.9)	4	(1.2)	329	(10.8)
Black	2	(0.1)	2	(0.1)	2	(0.7)	3	(0.9)	130	(4.3)
Chinese	0	(0.0)	0	(0.0)	0	(0.0)	1	(0.3)	6	(0.2)
Other	2	(0.1)	1	(0.0)	2	(0.7)	2	(0.6)	23	(0.8)
Not reported	1	-	91	-	0	-	0	-	52	-
<b>TOTAL</b>	<b>2249</b>		<b>2474</b>		<b>269</b>		<b>338</b>		<b>3103</b>	
									<b>3564</b>	

The age and sex distribution of donors and recipients in 2010-2011 are shown in **Table 10.7**. Of the 2,474 cornea only donors, 31% were aged  $\geq 80$  years. In contrast, only 19% of transplant recipients were aged  $\geq 80$  years although 23% of transplants were in patients aged 70-79 years.

<b>Table 10.7 Age of deceased cornea donors and transplant recipients 1 April 2010 - 31 March 2011, in the UK</b>						
<b>Age group (years)</b>	<b>Cornea only donors</b>		<b>Solid organ and cornea donors</b>		<b>Transplant recipients</b>	
	N	(%)	N	(%)	N	(%)
0 - 17	15	(1)	4	(1)	67	(2)
18 - 34	49	(2)	35	(10)	563	(16)
35 - 49	144	(6)	75	(22)	508	(14)
50 - 59	249	(10)	88	(26)	346	(10)
60 - 69	549	(22)	91	(27)	585	(16)
70 - 79	693	(28)	41	(12)	819	(23)
80+	775	(31)	4	(1)	676	(19)
<b>TOTAL</b>	<b>2474</b>	<b>(100)</b>	<b>338</b>	<b>(100)</b>	<b>3564</b>	<b>(100)</b>
<b>% Male</b>		<b>(61)</b>		<b>(56)</b>		<b>(53)</b>

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## 11 SURVIVAL RATES FOLLOWING TRANSPLANTATION

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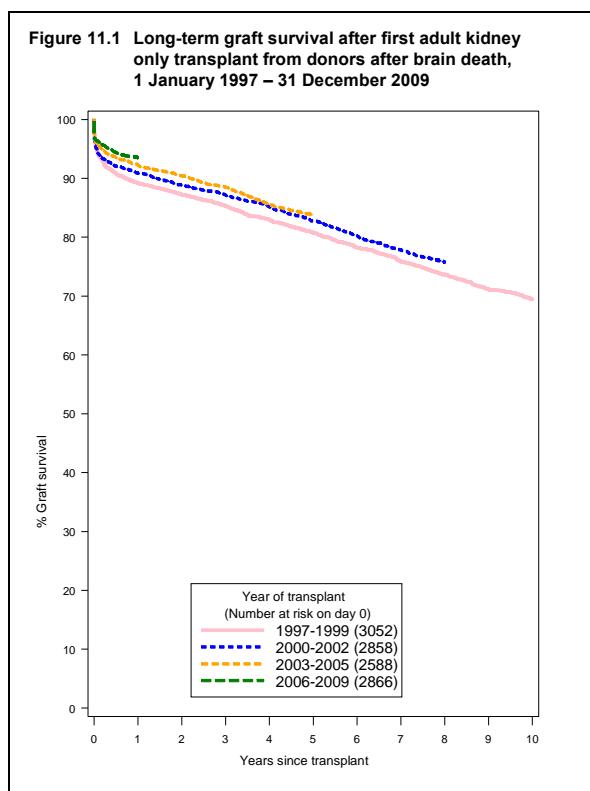
This chapter shows graft survival rates over time for kidney, pancreas and cornea transplants, and patient survival estimates for kidney, pancreas, cardiothoracic, liver and intestinal transplants, performed in the UK. Separate estimates are presented for adult and paediatric patients (using organ specific 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 ( $\geq 18$  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, two and five year survival over the time periods shown,  $p < 0.02$  in each case.



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

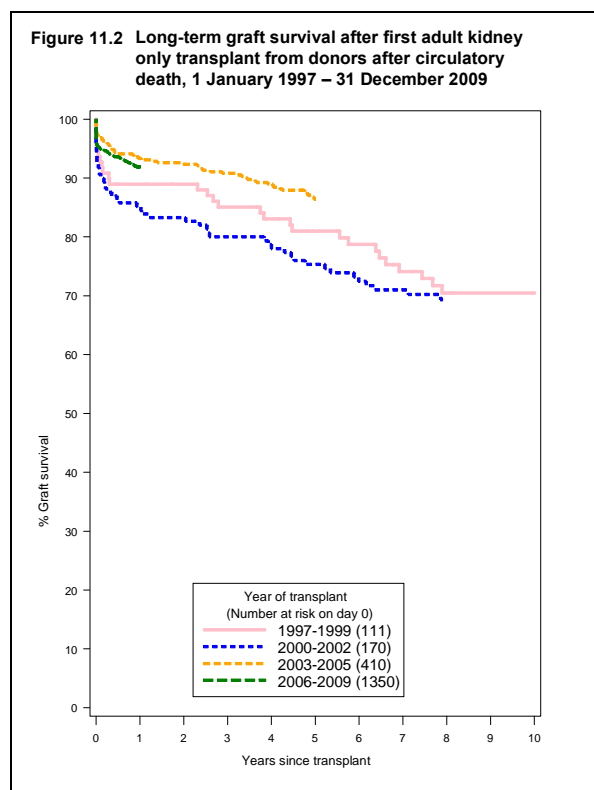
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
1997-1999	3052	89	(88-90)	87	(86-88)	81	(79-82)	69	(68-71)
2000-2002	2858	91	(90-92)	89	(88-90)	83	(81-84)		
2003-2005	2588	92	(91-93)	90	(89-92)	84	(82-85)		
2006-2009	2866	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	
1997-1999	3058	95	(94-95)	93	(92-94)	86	(84-87)	74	(72-75)
2000-2002	2860	95	(94-96)	93	(92-94)	87	(86-88)		
2003-2005	2588	96	(96-97)	95	(94-95)	89	(88-90)		
2006-2009	2868	96	(95-97)						

### 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,  $p < 0.01$ . One year graft and patient survival are 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 was a significant improvement in patient survival at two and five years following transplant ( $p < 0.05$ ).



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

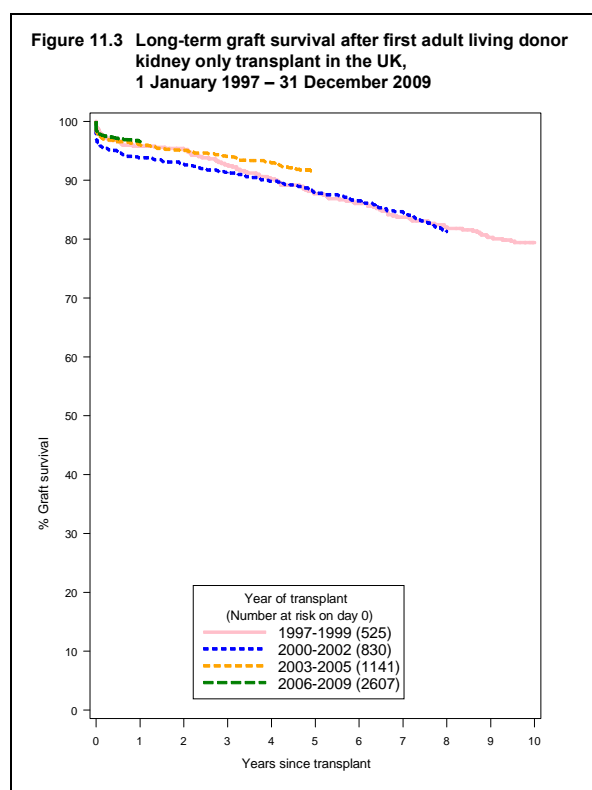
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)					
		One year	Two year	Five year	Ten year		
1997-1999	111	89 (81-94)	89 (81-94)	81 (72-87)	70 (60-79)		
2000-2002	170	85 (79-90)	83 (77-88)	75 (68-81)			
2003-2005	410	93 (90-95)	92 (89-95)	86 (83-89)			
2006-2009	1350	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		
1997-1999	111	92 (85-96)	90 (83-94)	80 (72-87)	66 (56-74)		
2000-2002	170	92 (87-95)	90 (84-93)	81 (74-86)			
2003-2005	411	97 (94-98)	95 (92-97)	88 (85-91)			
2006-2009	1351	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 and five year 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 change in patient survival over time ( $p > 0.1$ ).



**Table 11.5** Graft survival after first adult living donor kidney transplant

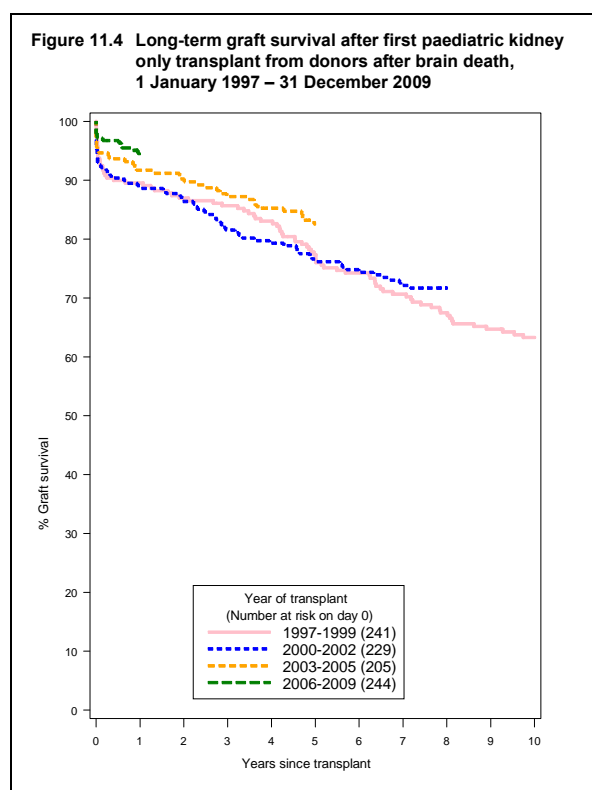
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
1997-1999	525	96	(94-97)	95	(93-97)	88	(85-90)	79	(76-83)
2000-2002	830	94	(92-95)	93	(91-94)	88	(85-90)		
2003-2005	1141	96	(95-97)	95	(94-96)	92	(90-93)		
2006-2009	2607	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	
1997-1999	523	98	(97-99)	98	(96-99)	95	(93-97)	90	(86-92)
2000-2002	832	98	(97-99)	97	(96-98)	95	(93-96)		
2003-2005	1141	99	(98-99)	98	(97-99)	96	(95-97)		
2006-2009	2607	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 were no statistically significant change in graft survival over time ( $p>0.1$ ). **Table 11.8** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There have been improvements in one, two and five year survival over the period analysed ( $p<0.02$ ).



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

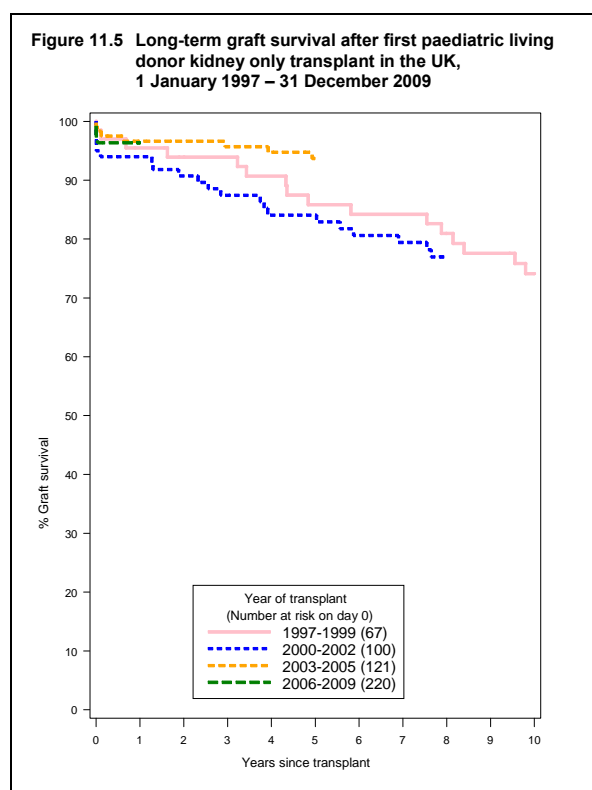
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
1997-1999	241	90	(85-93)	87	(82-91)	77	(71-82)	63	(57-69)
2000-2002	229	89	(84-92)	86	(81-90)	77	(71-82)		
2003-2005	205	92	(87-95)	90	(85-94)	83	(77-87)		
2006-2009	244	94	(90-97)						

**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	
1997-1999	241	97	(94-99)	97	(93-98)	94	(91-97)	91	(86-94)
2000-2002	230	100	(97-100)	100	(97-100)	99	(96-100)		
2003-2005	205	100	(97-100)	100	(97-100)	98	(95-100)		
2006-2009	244	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. **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 graft or 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.



**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	
1997-1999	67	95 (87-99)	94 (85-98)	86 (75-92)	74 (61-83)	
2000-2002	100	94 (87-97)	91 (83-95)	84 (75-90)		
2003-2005	121	97 (91-99)	97 (91-99)	94 (87-97)		
2006-2009	220	96 (93-98)				

**Table 11.10** Patient survival after first paediatric living donor kidney transplant

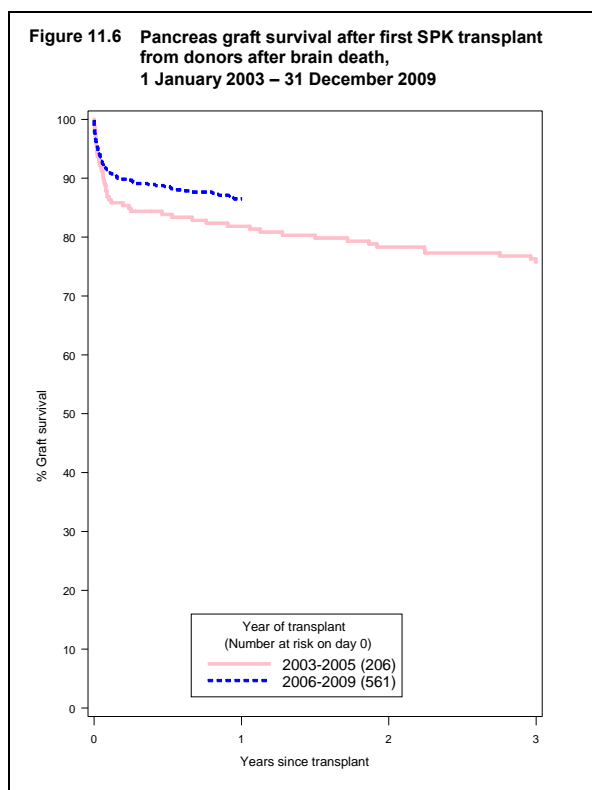
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)				
		One year	Two year	Five year	Ten year	
1997-1999	67	100 (-)	98 (90-100)	97 (88-99)	95 (86-98)	
2000-2002	101	97 (91-99)	97 (91-99)	96 (89-98)		
2003-2005	121	98 (93-100)	98 (93-100)	98 (93-100)		
2006-2009	220	99 (96-100)				



## 11.2 Pancreas graft and patient survival

### 11.2.1 Simultaneous kidney/pancreas transplants

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, 2003 - 2005 and 2006 - 2009. Graft and patient survival estimates and confidence intervals are shown at one year, two years and three years in **Table 11.11** and **Table 11.12** respectively. Results relate to adults only as there are no paediatric pancreas transplant recipients.



**Table 11.11** Graft survival after first SPK transplant from a DBD

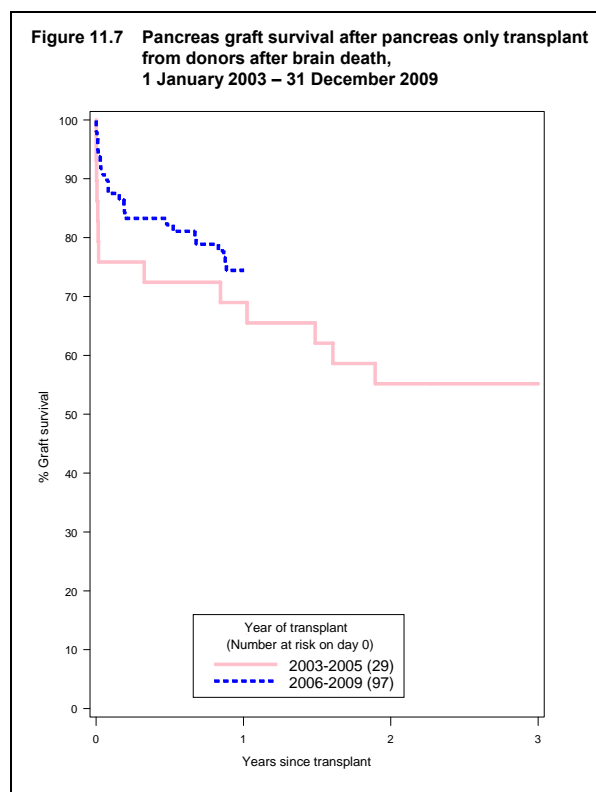
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)			
		One year	Two year	Three year	
2003-2005	206	82 (76-87)	78 (72-83)	76 (69-81)	
2006-2009	561	87 (83-89)			

**Table 11.12** Patient survival after SPK transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)			
		One year	Two year	Three year	
2003-2005	207	94 (89-96)	92 (88-95)	90 (85-94)	
2006-2009	565	95 (93-97)			

### 11.2.2 Pancreas only transplants

**Figure 11.7** shows pancreas graft survival in recipients receiving their first pancreas only transplant performed from donors after brain death, 2003 - 2005 and 2006 - 2009. Graft and patient survival estimates and confidence intervals are shown at one year, two years and three years in **Table 11.13** and **Table 11.14** respectively. Results are for adult patients only.



**Table 11.13** 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	Three year	
2003-2005	29	69 (49-82)	55 (36-71)	55 (36-71)	
2006-2009	97	74 (64-82)			

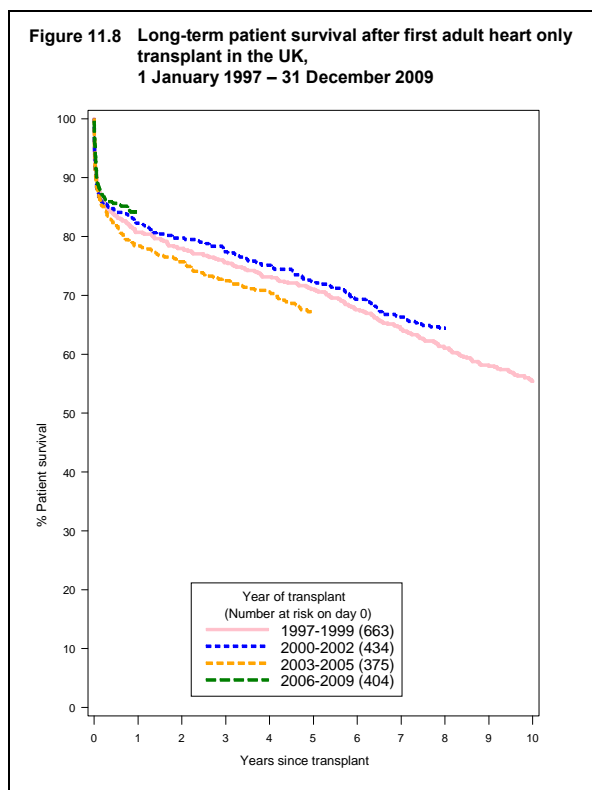
**Table 11.14** Patient survival after first pancreas only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)			
		One year	Two year	Three year	
2003-2005	31	100 (-)	100 (-)	96 (73-99)	
2006-2009	100	94 (86-97)			

## 11.3 Cardiothoracic patient survival

### 11.3.1 Adult recipients - heart transplants

Long-term patient survival for adult ( $\geq 16$  years) recipients after first heart only transplants is shown in **Figure 11.8**. Domino and deceased donor (DBD only) transplants are included as well as urgent patients. **Table 11.15** 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 ( $p>0.2$ ).

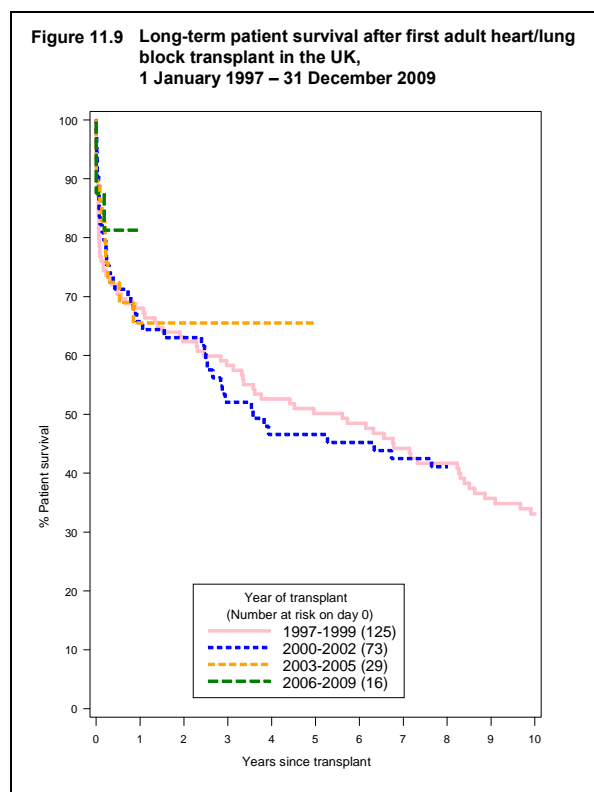


**Table 11.15** Patient survival after first adult heart only transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)					
		One year		Two year		Five year	
1997-1999	663	81	(77-83)	78	(75-81)	71	(67-74)
2000-2002	434	82	(78-86)	80	(76-83)	72	(68-76)
2003-2005	375	78	(74-82)	76	(71-80)	67	(62-72)
2006-2009	404	84	(80-87)				

### 11.3.2 Adult recipients - heart/lung block transplants

Patient survival for adult recipients after first heart/lung block transplants is shown in **Figure 11.9**. Patient survival estimates and confidence intervals for each time period analysed are shown in **Table 11.16**. There were no statistically significant differences in patient survival over time ( $p>0.3$ ).

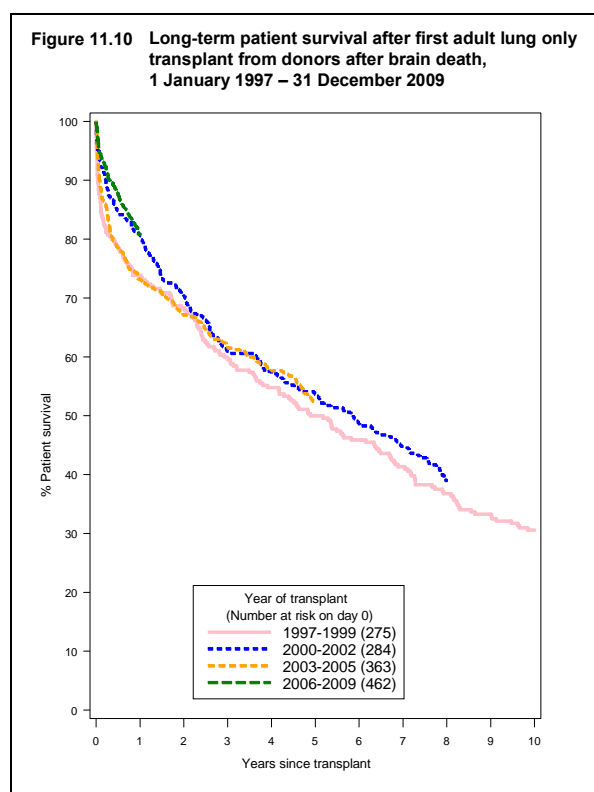


**Table 11.16** Patient survival after first adult heart/lung block transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)					
		One year		Two year		Five year	
1997-1999	125	68	(59-75)	62	(53-70)	50	(41-59)
2000-2002	73	66	(54-75)	63	(51-73)	47	(35-57)
2003-2005	29	66	(45-80)	66	(45-80)	66	(45-80)
2006-2009	16	81	(52-94)				

### 11.3.3 Adult recipients - lung transplants

Patient survival for adult recipients after first lung only transplant from donors after brain death is shown in **Figure 11.10**, with survival estimates and confidence intervals shown in **Table 11.17**. There is evidence of differences in one year patient survival over the period analysed,  $p=0.007$ . There were no statistically significant differences in two or five year patient survival over time ( $p>0.5$ ).

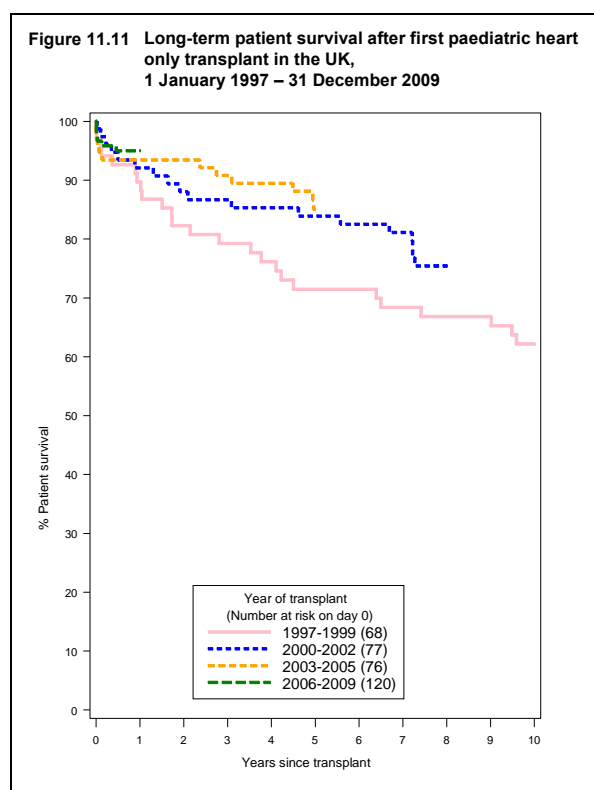


**Table 11.17** Patient survival after first adult lung only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
1997-1999	275	74	(68-79)	68	(62-73)	50	(44-56)	31	(25-36)
2000-2002	284	81	(76-85)	70	(65-75)	54	(48-59)		
2003-2005	363	73	(68-77)	67	(62-72)	52	(47-57)		
2006-2009	462	81	(77-84)						

### 11.3.4 Paediatric recipients - heart transplants

Long-term patient survival for paediatric recipients after first heart only transplant is shown in **Figure 11.11**. Domino and deceased donor transplants (DBD donors only) are included as well as transplants for urgent patients. **Table 11.18** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There is no evidence of an improvement in one, two or five year survival over the time period analysed,  $p>0.05$ . The number of paediatric lung and heart/lung transplant recipients was too small for analysis.



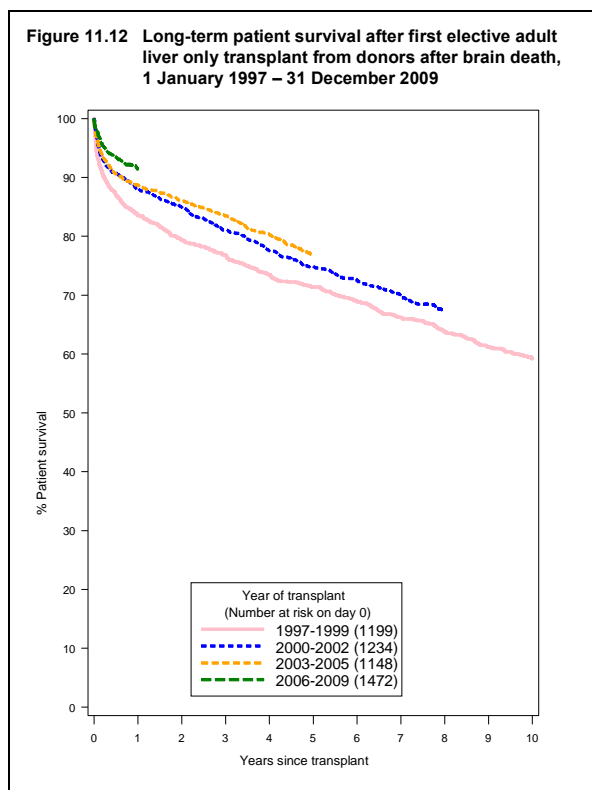
**Table 11.18** Patient survival after first paediatric heart only transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
1997-1999	68	90	(80-95)	82	(71-90)	71	(59-81)	62	(49-73)
2000-2002	77	92	(83-96)	88	(78-94)	84	(73-91)		
2003-2005	76	93	(85-97)	93	(85-97)	85	(75-91)		
2006-2009	120	95	(89-98)						

## 11.4 Liver patient survival

### 11.4.1 Adult recipients - donor after brain death (DBD)

Long-term patient survival for adult ( $\geq 17$  years) recipients after first elective liver only transplants from donors after brain death is shown in **Figure 11.12**. **Table 11.19** 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,  $p < 0.001$ ,  $p < 0.001$  and  $p < 0.004$ , respectively.



**Table 11.19** 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	
1997-1999	1199	84 (81-86)	79 (77-82)	71 (69-74)	59 (56-62)	
2000-2002	1234	88 (86-90)	85 (83-87)	75 (72-77)		
2003-2005	1148	89 (87-90)	86 (84-88)	77 (74-79)		
2006-2009	1472	92 (90-93)				

### 11.4.2 Adult recipients - donor after circulatory death (DCD)

Patient survival for adult ( $\geq 17$  years) recipients after first elective liver only transplants from donors after circulatory death is shown in **Figure 11.13**. 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 11.20** shows patient survival estimates at one, two and three years post transplant.

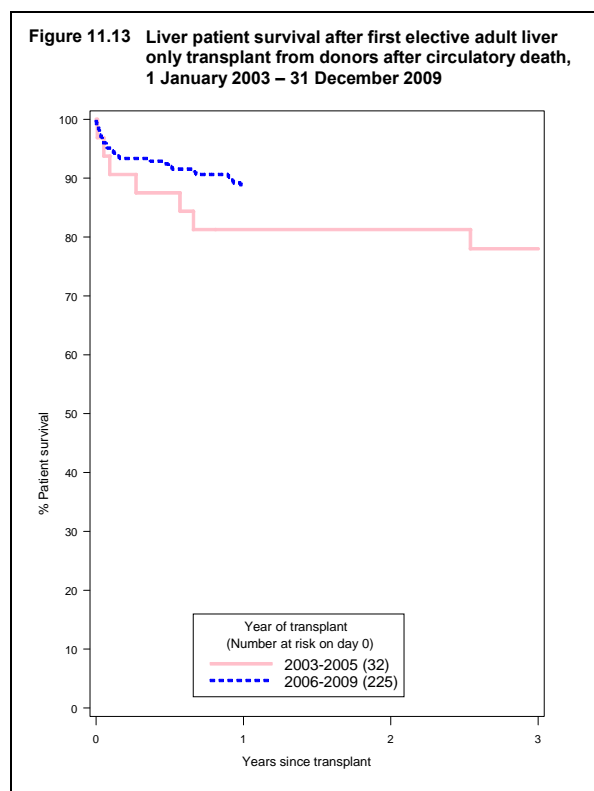
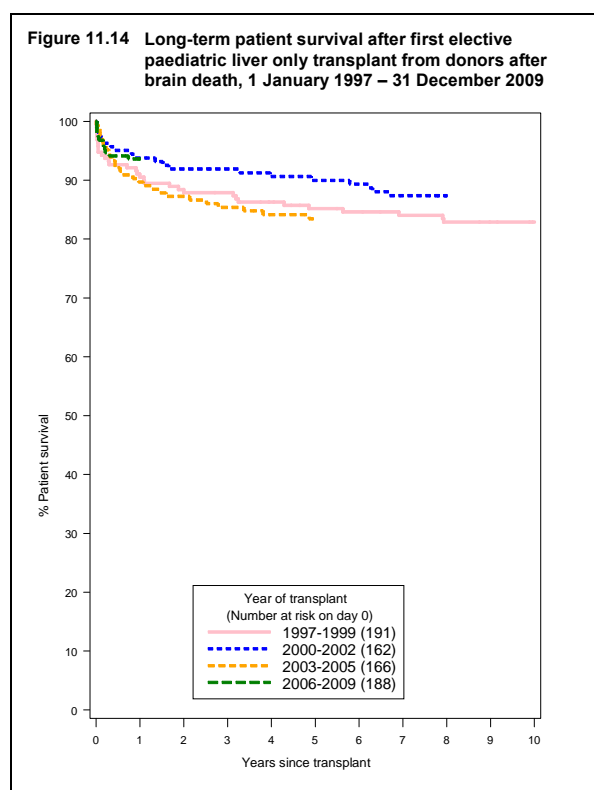


Table 11.20 Patient survival after first elective adult liver only transplant from a DCD						
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)				
		One year		Two year		Three year
2003-2005	32	81	(63-91)	81	(63-91)	78 (59-89)
2006-2009	225	89	(84-92)			



### 11.4.3 Paediatric recipients - donor after brain death (DBD)

**Figure 11.14** and **Table 11.21** 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 statistically significant improvements in one, two or five year patient survival over the time period analysed ( $p>0.2$ ). The number of paediatric transplants from donors after circulatory death was too small to estimate patient survival.

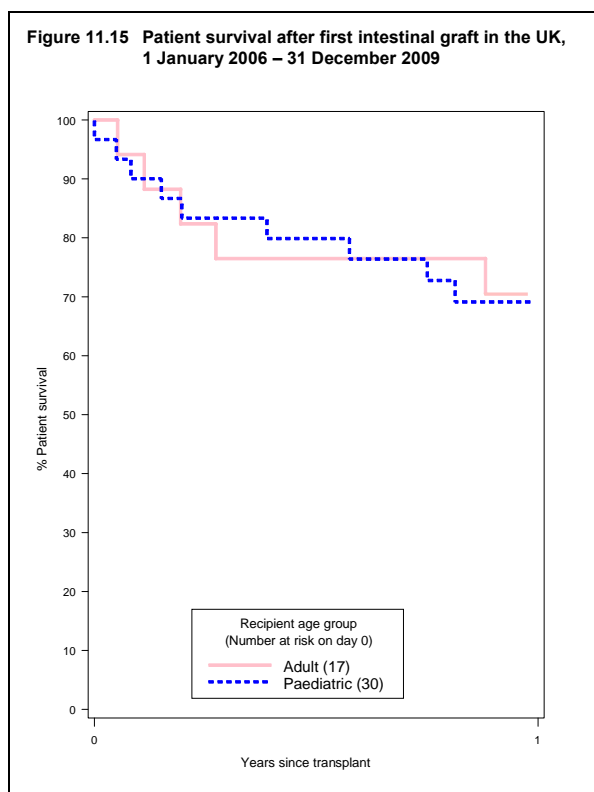


**Table 11.21** Patient survival after first elective paediatric liver only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)				
		One year	Two year	Five year	Ten year	
1997-1999	191	91 (85-94)	88 (82-92)	85 (79-90)	83 (77-88)	
2000-2002	162	94 (89-97)	92 (86-95)	90 (84-94)		
2003-2005	166	90 (84-93)	87 (81-91)	83 (77-88)		
2006-2009	188	94 (89-96)				

## 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 11.15** and **Table 11.22** show one-year patient survival estimates for recipients receiving their first intestinal transplant, 2006 – 2009, by recipient age group.



**Table 11.22** Patient survival after first intestinal transplant in the UK, 1 January 2006 - 31 December 2009

Recipient age group	No. at risk on day 0	% Patient survival (95% confidence interval) One year	
Adult	17	71	(43-87)
Paediatric	30	69	(49-83)

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 11.16** shows graft survival estimates for first penetrating keratoplasty (PK) for grafts 2000 - 2002, 2003 - 2005 and 2006 - 2009. Graft survival estimates and confidence intervals are shown by transplant year at one, two and five years in **Table 11.23**.

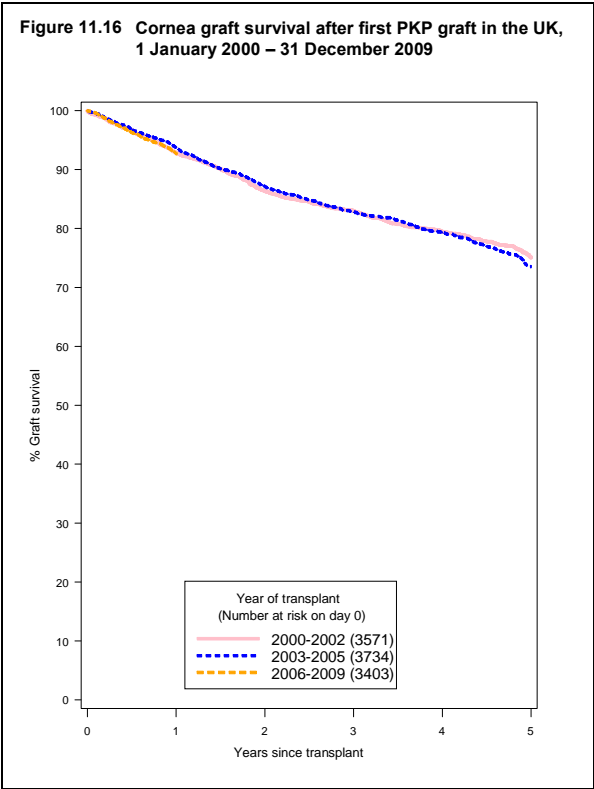


Table 11.23 Cornea graft survival after first PK in the UK							
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)					
		One year		Two year		Five year	
2000-2002	3571	93	(92-94)	86	(85-88)	75	(73-77)
2003-2005	3734	94	(93-94)	87	(86-88)	74	(72-75)
2006-2009	3403	93	(92-94)				

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## 12 NHS ORGAN DONOR REGISTER

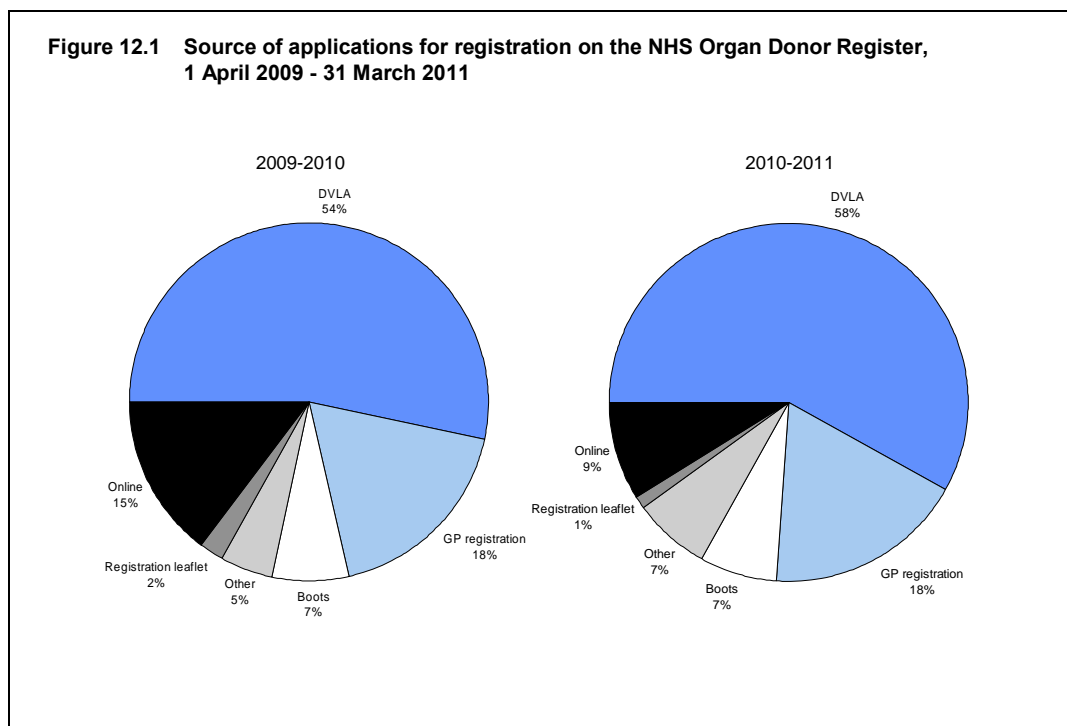
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By the end of March 2011 the NHS Organ Donor Register (ODR) held just under 17.8 million registrations. During the year, data on the register were continually reviewed and validated.

Of the 1,010 deceased organ donors in 2010-2011, 33% were registered on the ODR compared with 30% of organ donors in 2009-2010. Similarly, 39% of cornea-only donors in 2010-2011 were registered on the ODR, compared with 38% in 2009-2010.

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](http://www.organdonation.nhs.uk)) and by telephone.

The source of applications for registration on the ODR is illustrated in **Figure 12.1**. This figure shows that 18% of registrations in 2010-2011 arrived by means of the Family Health Services Authorities / GP, 58% from driving licence applications and reminders through the DVLA and 9% online through the ODT website.



At the end of March 2011, 89% 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 (86%) 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 12.1**.

**Table 12.1 Preparedness of those registered on the NHS Organ Donor Register at 31 March 2011 to donate different organs<sup>1</sup>**

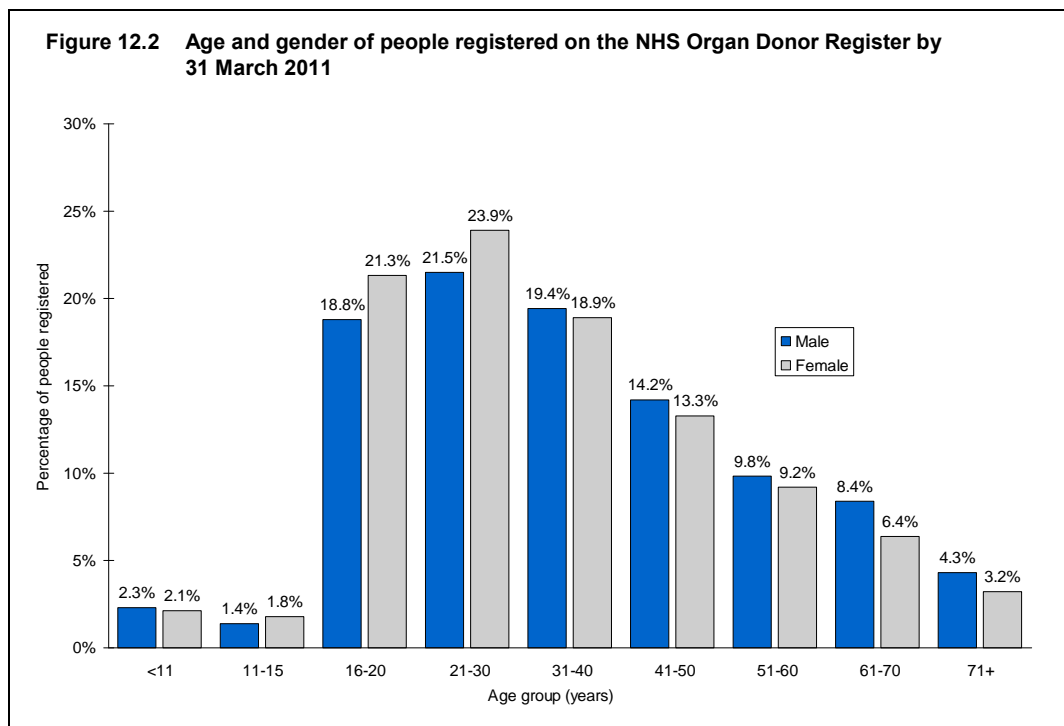
**Registrants prepared to donate all organs 89%**

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

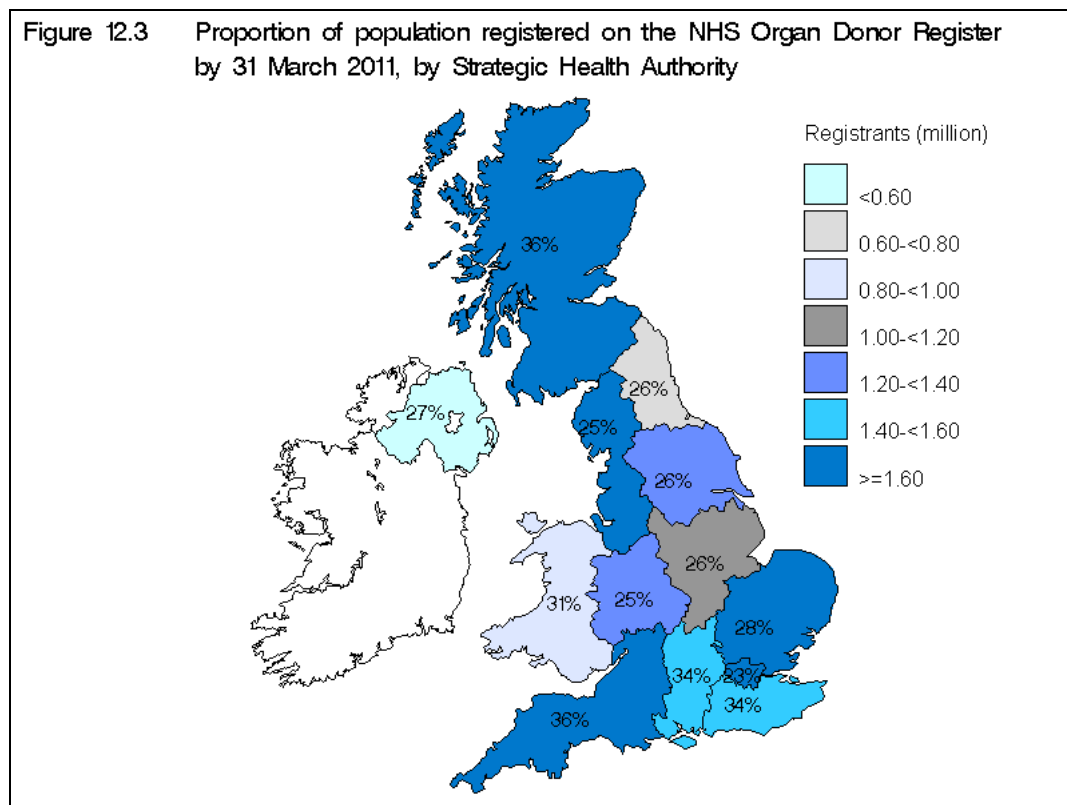
Not prepared to donate:	% of 'Restricted donors'	% of all registrants
Kidney	7	0.8
Pancreas	25	2.9
Heart	25	2.9
Lungs	23	2.6
Liver	14	1.6
Corneas	86	9.7

<sup>1</sup> 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 12.2**. 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.



Those registered on the ODR come from all parts of the UK. **Figure 12.3** illustrates the percentage of the population registered in each Strategic Health Authority at 31 March 2011, and the number of registrations. This information is also presented in **Table 12.2**. No adjustment has been made for any differences in demographics of the populations.



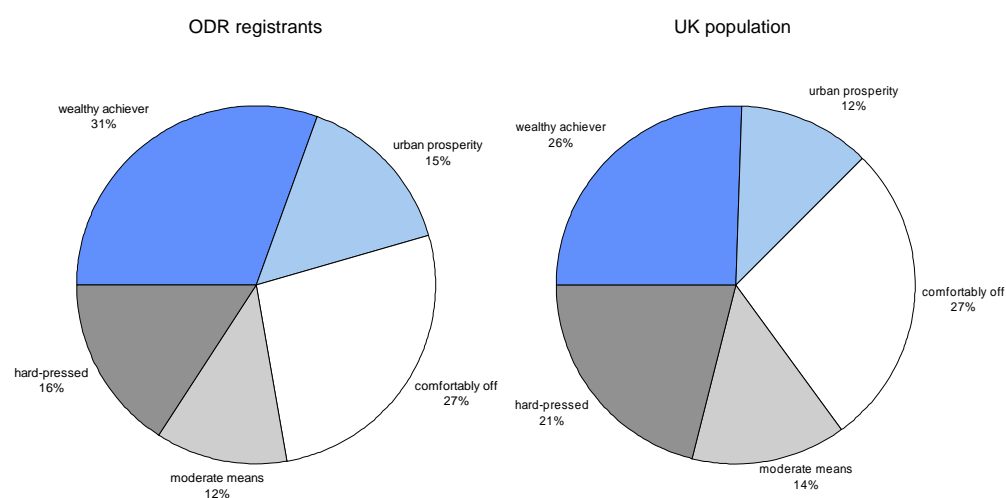
The breakdown of registrants on the ODR during 2010-2011 by socio-economic group (using the ACORN<sup>1</sup> classification, based on postcode) is shown in **Figure 12.4**, where it is compared with the general UK population. Though having basically similar distributions, there were proportionately more 'wealthy achievers' and less 'hard pressed' on the ODR than in the general population.

**Table 12.2 Registrations on the NHS Organ Donor Register by 31 March 2011, by country/ Strategic Health Authority**

Country / Strategic Health Authority of residence	N	Registrants pmp	Proportion registered
North East	659,066	255,452	26%
North West	1,702,085	246,679	25%
Yorkshire and The Humber	1,388,546	263,982	26%
East Midlands	1,155,372	259,634	26%
West Midlands	1,332,061	245,315	25%
East of England	1,612,433	279,451	28%
London	1,782,515	230,002	23%
South East Coast	1,462,626	337,011	34%
South Central	1,403,453	342,306	34%
South West	1,869,529	357,463	36%
<b>England</b>	<b>14,367,686</b>	<b>277,315</b>	<b>28%</b>
<b>Isle of Man</b>	<b>9,778</b>	<b>122,225</b>	<b>12%</b>
<b>Channel Islands</b>	<b>12,767</b>	<b>85,113</b>	<b>9%</b>
<b>Wales</b>	<b>927,484</b>	<b>309,161</b>	<b>31%</b>
<b>Scotland</b>	<b>1,863,107</b>	<b>358,980</b>	<b>36%</b>
<b>Northern Ireland</b>	<b>484,748</b>	<b>270,809</b>	<b>27%</b>
<b>TOTAL<sup>1</sup></b>	<b>17,751,795</b>	<b>286,227</b>	<b>29%</b>

<sup>1</sup> Includes 86,225 registrants where the postcode was unknown

**Figure 12.4 Registrants on the NHS Organ Donor Register, 1 April 2010 - 31 March 2011, and the general population, by socio-economic group**



<sup>1</sup> ACORN data supplied by CACI Ltd.

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## 13 NATIONAL POTENTIAL DONOR AUDIT

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### 13.1 Introduction

In this chapter, summary data from the new national Potential Donor Audit (PDA), which commenced on 1 October 2009, is shown for 1 April 2010 to 31 March 2011. 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 1 July 2011. **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.

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

**Potential donors after circulatory death (DCD)** are defined as patients for whom imminent death was anticipated and treatment was withdrawn and who had no absolute or relative medical contraindications to solid organ donation.

**Absolute or relative medical contraindications** are 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.

**The referral rate** is the percentage of patients for whom neurological death was suspected, or imminent death was anticipated, that were discussed with the SN-OD.

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

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

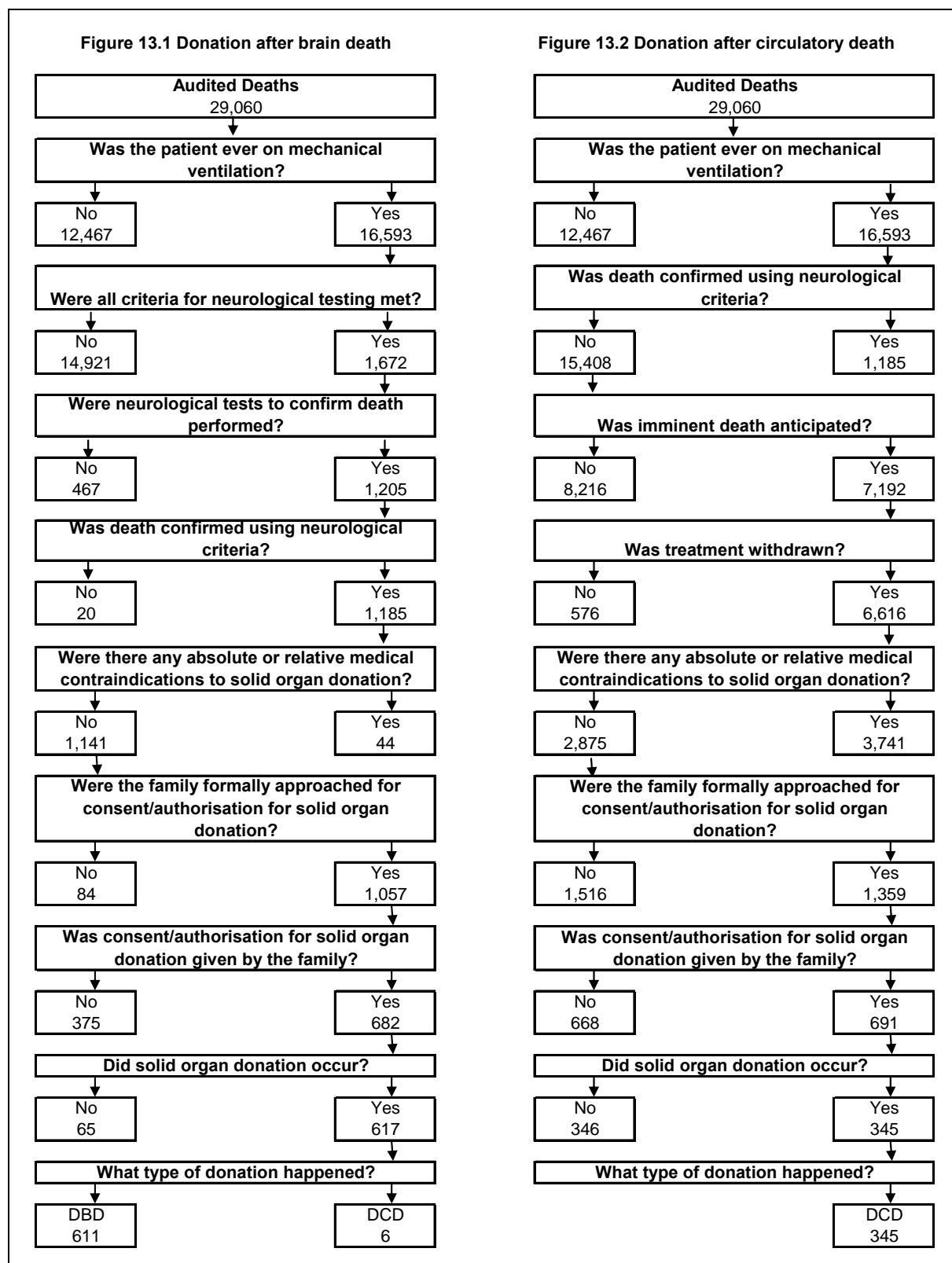
**The conversion rate** is the percentage of potential donors who became actual donors. *Note that there are many reasons why potential donors do not become actual donors including the family not being approached or the family not consenting to/authorising donation but also coroner/procurator fiscal refusal and the potential donor being found to have additional medical contraindications.*

### 13.3 Breakdown of audited deaths in ICUs

In the 12-month period there were a total of 29,060 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. **Table 13.1** shows the key percentages calculated from the flow chart



information. It is unrealistic to expect these rates to be 100%, due to the definitions used in the data collection and justifiable reasons. In particular, the DCD conversion rate is low due to a large proportion of potential DCD having a prolonged time to death which results in deterioration of organs making them unsuitable for transplant.



**Table 13.1 Summary of key percentages**

	<b>DBD</b>	<b>DCD</b>
Neurological death testing rate	72.1%	
Referral rate	84.6%	44.3%
Approach rate	92.6%	47.3%
Consent/authorisation rate	64.5%	50.8%
Conversion rate	54.1%	12.0%

### 13.4 Potential donors

The number of potential donors (as defined earlier) and rates per million population (pmp) are shown in **Table 13.2**, by country and English Strategic Health Authority (SHA). Potential DBD ranged from 9.9 pmp in East Midlands SHA to 30.5 pmp in London SHA. Potential DCD ranged from 32.7 pmp in South East Coast SHA to 81.0 pmp in North East SHA. Across the countries, there was a range of 38.9 potential donors pmp in Scotland to 76.0 potential donors pmp in Wales. Overall, there were 1,141 potential DBD (18.4 pmp) and 2,875 potential DCD (46.4 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 Potential donor rates per million population (pmp), in the UK, 1 April 2010 to 31 March 2011, by country and English Strategic Health Authority**

<b>Country/ Strategic Health Authority of donation</b>	<b>Potential DBD</b>		<b>Potential DCD</b>		<b>TOTAL</b>	
	<b>N</b>	<b>(pmp)</b>	<b>N</b>	<b>(pmp)</b>	<b>N</b>	<b>(pmp)</b>
North East	73	(28.3)	209	(81.0)	<b>282</b>	<b>(109.3)</b>
North West	116	(16.8)	402	(58.3)	<b>518</b>	<b>(75.1)</b>
Yorkshire and the Humber	89	(16.9)	352	(66.9)	<b>441</b>	<b>(83.8)</b>
East Midlands	44	(9.9)	150	(33.7)	<b>194</b>	<b>(43.6)</b>
West Midlands	92	(16.9)	255	(47.0)	<b>347</b>	<b>(63.9)</b>
East of England	83	(14.4)	260	(45.1)	<b>343</b>	<b>(59.4)</b>
London	236	(30.5)	309	(39.9)	<b>545</b>	<b>(70.3)</b>
South East Coast	60	(13.8)	142	(32.7)	<b>202</b>	<b>(46.5)</b>
South Central	84	(20.5)	173	(42.2)	<b>257</b>	<b>(62.7)</b>
South West	53	(10.1)	270	(51.6)	<b>323</b>	<b>(61.8)</b>
<b>England</b>	<b>930</b>	<b>(18.0)</b>	<b>2522</b>	<b>(48.7)</b>	<b>3452</b>	<b>(66.6)</b>
<b>Isle of Man</b>	<b>1</b>	<b>(12.5)</b>	<b>2</b>	<b>(25.0)</b>	<b>3</b>	<b>(37.5)</b>
<b>Channel Islands</b>	<b>7</b>	<b>(46.7)</b>	<b>2</b>	<b>(13.3)</b>	<b>9</b>	<b>(60.0)</b>
<b>Wales</b>	<b>59</b>	<b>(19.7)</b>	<b>169</b>	<b>(56.3)</b>	<b>228</b>	<b>(76.0)</b>
<b>Scotland</b>	<b>76</b>	<b>(14.6)</b>	<b>126</b>	<b>(24.3)</b>	<b>202</b>	<b>(38.9)</b>
<b>Northern Ireland</b>	<b>68</b>	<b>(38.0)</b>	<b>54</b>	<b>(30.2)</b>	<b>122</b>	<b>(68.2)</b>
<b>TOTAL</b>	<b>1141</b>	<b>(18.4)</b>	<b>2875</b>	<b>(46.4)</b>	<b>4016</b>	<b>(64.8)</b>

**Table 13.3 DBD key metrics from the Potential Donor Audit, 1 April 2010 to 31 March 2011, by country and English Strategic Health Authority**

<b>Country/ Strategic Health Authority of donation</b>	<b>Number of patients where neurological death was suspected</b>	<b>Neurological death testing rate (%)</b>	<b>DBD referral rate (%)</b>	<b>Number of potential DBD donors</b>	<b>Number of potential DBD donors whose family were approached</b>	<b>DBD approach rate (%)</b>	<b>DBD consent/ authorisation rate (%)</b>	<b>Conversion rate of potential DBD donors (%)</b>
North East	90	83.3	94.4	73	69	94.5	55.1	46.6
North West	182	70.9	81.3	116	104	89.7	67.3	56.9
Yorkshire and the Humber	129	72.1	88.4	89	78	87.6	62.8	48.3
East Midlands	87	50.6	77.0	44	43	97.7	81.4	72.7
West Midlands	155	63.2	78.7	92	89	96.7	64.0	58.7
East of England	108	80.6	87.0	83	79	95.2	70.9	57.8
London	337	74.5	92.3	236	211	89.4	54.5	43.2
South East Coast	84	77.4	89.3	60	57	95.0	68.4	53.3
South Central	116	73.3	84.5	84	75	89.3	66.7	53.6
South West	81	70.4	77.8	53	52	98.1	76.9	73.6
<b>England</b>	<b>1369</b>	<b>71.9</b>	<b>86.0</b>	<b>930</b>	<b>857</b>	<b>92.2</b>	<b>64.1</b>	<b>53.2</b>
<b>Isle of Man</b>	<b>1</b>	<b>100</b>	<b>100</b>	<b>1</b>	<b>1</b>	<b>100</b>	<b>0.0</b>	<b>0.0</b>
<b>Channel Islands</b>	<b>7</b>	<b>100</b>	<b>100</b>	<b>7</b>	<b>7</b>	<b>100</b>	<b>42.9</b>	<b>28.6</b>
<b>Wales</b>	<b>94</b>	<b>63.8</b>	<b>75.5</b>	<b>59</b>	<b>56</b>	<b>94.9</b>	<b>66.1</b>	<b>57.6</b>
<b>Scotland</b>	<b>108</b>	<b>78.7</b>	<b>76.9</b>	<b>76</b>	<b>72</b>	<b>94.7</b>	<b>70.8</b>	<b>63.2</b>
<b>Northern Ireland</b>	<b>93</b>	<b>73.1</b>	<b>80.6</b>	<b>68</b>	<b>64</b>	<b>94.1</b>	<b>65.6</b>	<b>55.9</b>
<b>TOTAL</b>	<b>1672</b>	<b>72.1</b>	<b>84.6</b>	<b>1141</b>	<b>1057</b>	<b>92.6</b>	<b>64.5</b>	<b>54.1</b>

<b>Table 13.4 DCD key metrics from the Potential Donor Audit, 1 April 2010 to 31 March 2011, by country and English Strategic Health Authority</b>							
<b>Country/ Strategic Health Authority of donation</b>	<b>Number of patients for whom imminent death was anticipated</b>	<b>DCD referral rate (%)</b>	<b>Number of potential DCD donors</b>	<b>Number of potential DCD donors whose family were approached</b>	<b>DCD approach rate (%)</b>	<b>DCD consent/ authorisation rate (%)</b>	<b>Conversion rate of potential DCD donors (%)</b>
North East	467	63.4	209	87	41.6	55.2	10.0
North West	1059	55.7	402	190	47.3	41.1	9.0
Yorkshire and the Humber	771	48.8	352	126	35.8	50.8	8.5
East Midlands	494	26.3	150	53	35.3	52.8	10.0
West Midlands	609	41.5	255	128	50.2	46.1	12.9
East of England	462	57.6	260	121	46.5	57.0	15.0
London	732	51.9	309	184	59.5	48.4	13.6
South East Coast	412	25.7	142	62	43.7	56.5	9.9
South Central	383	34.5	173	76	43.9	44.7	11.6
South West	631	45.8	270	168	62.2	60.7	17.4
<b>England</b>	<b>6020</b>	<b>46.8</b>	<b>2522</b>	<b>1195</b>	<b>47.4</b>	<b>50.7</b>	<b>11.8</b>
<b>Isle of Man</b>	<b>12</b>	<b>25.0</b>	<b>2</b>	<b>0</b>	<b>0.0</b>		<b>0.0</b>
<b>Channel Islands</b>	<b>3</b>	<b>0.0</b>	<b>2</b>	<b>0</b>	<b>0.0</b>		<b>0.0</b>
<b>Wales</b>	<b>454</b>	<b>43.4</b>	<b>169</b>	<b>81</b>	<b>47.9</b>	<b>61.7</b>	<b>16.6</b>
<b>Scotland</b>	<b>467</b>	<b>21.2</b>	<b>126</b>	<b>68</b>	<b>54.0</b>	<b>42.6</b>	<b>14.3</b>
<b>Northern Ireland</b>	<b>236</b>	<b>30.1</b>	<b>54</b>	<b>15</b>	<b>27.8</b>	<b>40.0</b>	<b>3.7</b>
<b>TOTAL</b>	<b>7192</b>	<b>44.3</b>	<b>2875</b>	<b>1359</b>	<b>47.3</b>	<b>50.8</b>	<b>12.0</b>

**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 – Organ Donation 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 South West team and the DBD conversion rate was highest for the South West 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 highest conversion rate was for the South West 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 2010 to 31 March 2011, by Organ Donation Services Team**

<b>Team</b>	<b>Number of patients where neurological death was suspected</b>	<b>Neurological death testing rate (%)</b>	<b>DBD referral rate (%)</b>	<b>Number of potential DBD donors</b>	<b>Number of potential DBD donors whose family were approached</b>	<b>DBD approach rate (%)</b>	<b>DBD consent/authorisation rate (%)</b>	<b>Conversion rate of potential DBD donors (%)</b>
Eastern	115	81.7	87.8	90	86	95.6	72.1	58.9
London	320	74.7	92.5	225	203	90.2	53.2	42.2
Midlands	203	57.1	77.3	110	107	97.3	68.2	63.6
North West	191	72.8	81.2	126	114	90.5	64.9	55.6
Northern	93	82.8	94.6	75	71	94.7	56.3	48.0
Northern Ireland	93	73.1	80.6	68	64	94.1	65.6	55.9
Scotland	108	78.7	76.9	76	72	94.7	70.8	63.2
South Central	141	70.9	82.3	99	89	89.9	64.0	51.5
South East	108	77.8	89.8	78	72	92.3	68.1	52.6
South Wales	89	58.4	75.3	51	48	94.1	70.8	60.8
South West	67	70.1	79.1	43	42	97.7	83.3	79.1
Yorkshire	144	72.2	87.5	100	89	89.0	64.0	50.0
<b>TOTAL</b>	<b>1672</b>	<b>72.1</b>	<b>84.6</b>	<b>1141</b>	<b>1057</b>	<b>92.6</b>	<b>64.5</b>	<b>54.1</b>

**Table 13.6 DCD key metrics from the Potential Donor Audit, 1 April 2010 to 31 March 2011, by Organ Donation Services Team**

Team	Number of patients for whom imminent death was anticipated	DCD referral rate (%)	Number of potential DCD donors	Number of potential DCD donors whose family were approached	DCD approach rate (%)	DCD consent/authorisation rate (%)	Conversion rate of potential DCD donors (%)
Eastern	472	56.8	261	121	46.4	57.0	14.9
London	622	54.5	274	169	61.7	47.3	13.9
Midlands	943	34.7	355	165	46.5	48.5	12.4
North West	1090	55.7	398	198	49.7	42.4	9.8
Northern	521	60.5	235	91	38.7	53.8	9.4
Northern Ireland	236	30.1	54	15	27.8	40.0	3.7
Scotland	467	21.2	126	68	54.0	42.6	14.3
South Central	513	34.5	226	104	46.0	46.2	12.4
South East	525	28.0	179	77	43.0	57.1	10.1
South Wales	395	43.5	160	74	46.3	60.8	15.6
South West	527	47.6	221	142	64.3	62.0	17.6
Yorkshire	881	47.1	386	135	35.0	51.1	8.5
<b>TOTAL</b>	<b>7192</b>	<b>44.3</b>	<b>2875</b>	<b>1359</b>	<b>47.3</b>	<b>50.8</b>	<b>12.0</b>

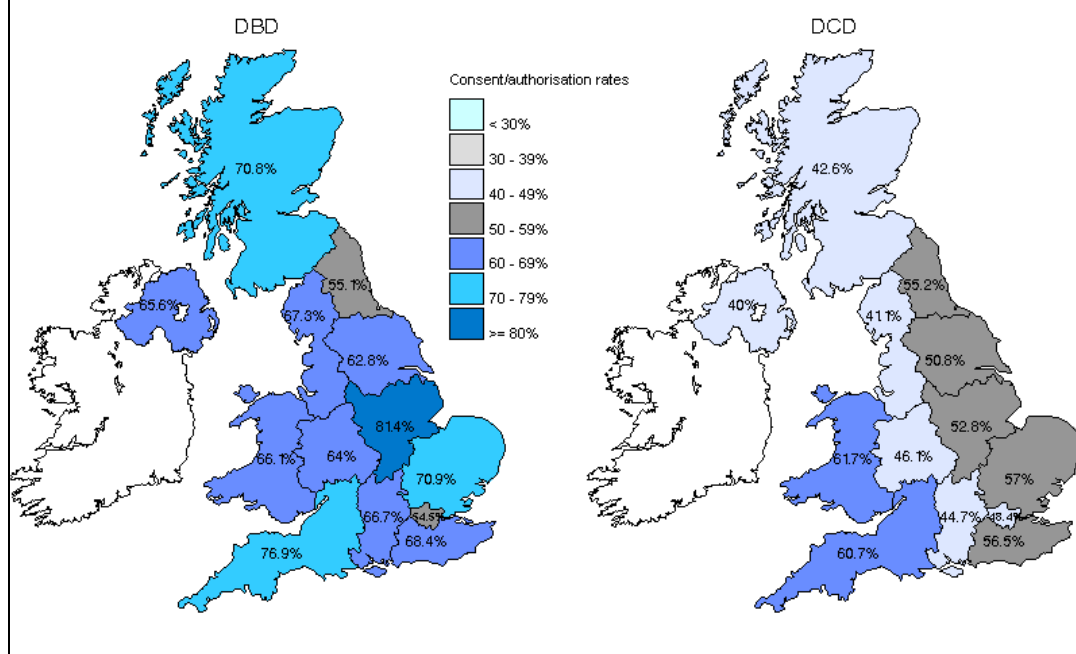
### 13.5 Consent/authorisation rates

The overall DBD consent/authorisation rate was 64.5% and the 95% confidence limits for this percentage are 61.6% - 67.4%. For DCD, the overall rate was 50.8% and the 95% confidence limits are 48.1% - 53.5%.

Consent/authorisation rates by English SHA or country are illustrated in **Figure 13.3** and by Organ Donation Services Team in **Figure 13.4** 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.

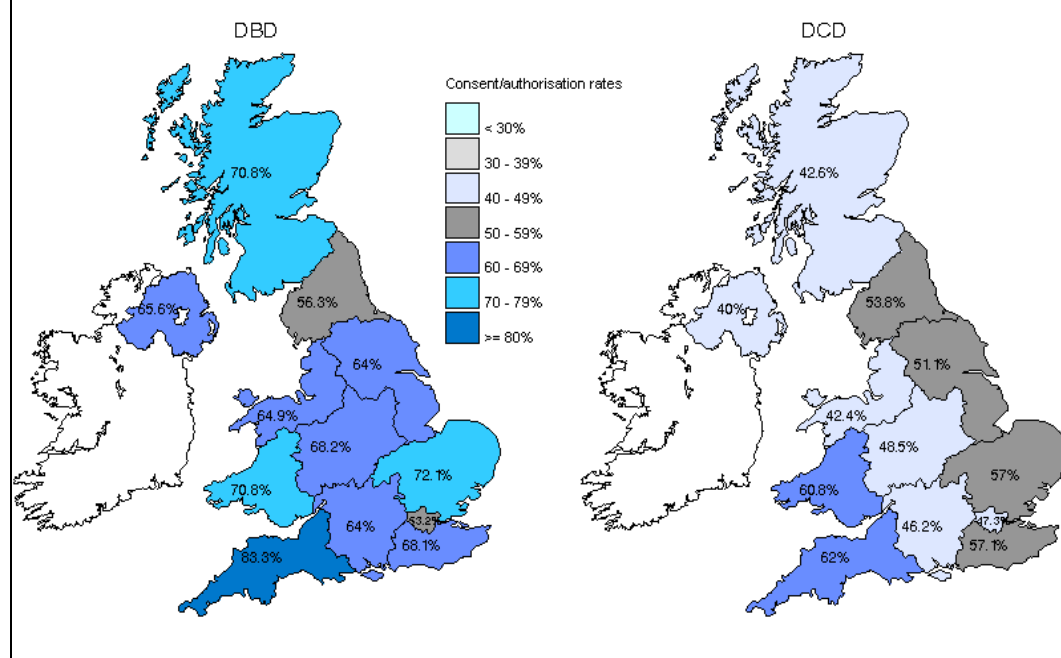
Across the English SHA and countries, the DBD consent/authorisation rates range from 54.5% in London to 81.4% in East Midlands. DCD consent/authorisation rates range from 40% in Northern Ireland to 61.7% in Wales.

Figure 13.3 Consent/authorisation rates by English SHA/country



Across the Organ Donation Services Teams, the DBD consent/ authorisation rates range from 53.2% in London team to 83.3% in South West team. DCD consent/ authorisation rates range from 40% in Northern Ireland team to 62% in South West team.

Figure 13.4 Consent/authorisation rates by Organ Donation Services Team



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## APPENDICES

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**Appendix I** provides details of the 637 deceased solid organ donors reported in 2010-2011. Details are given for each donating hospital and the hospitals have been grouped by 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/ Strategic Health Authority of residence is given for donors after brain death in **Appendix II A** and donors after circulatory death in **Appendix II B**.

The populations used for country/ Strategic Health Authority per million population are given in **Appendix III** these populations are mid-2009 estimates based on *ONS 2001 Census* figures.



**Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2010 - 31 March 2011 (2009-2010), by donating hospital**

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
<b>East Midlands</b>													
Boston, Pilgrim Hospital	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	1	0
Chesterfield, Chesterfield Royal Hospital	2	(2)	1	(1)	3	(3)	2	(2)	6	0	3	2	0
Derby, Royal Derby Hospital	4	(3)	1	(1)	5	(4)	4	(3)	10	3	3	4	4
Kettering, Kettering General Hospital	4	(1)	0	(0)	4	(1)	3	(1)	8	2	0	3	3
Leicester, Glenfield General Hospital	1	(1)	1	(0)	2	(1)	0	(1)	2	0	0	1	0
Leicester, Leicester Royal Infirmary	4	(3)	1	(0)	5	(3)	3	(2)	8	1	2	4	1
Lincoln, Lincoln County Hospital	4	(2)	2	(1)	6	(3)	3	(2)	9	0	2	4	0
Northampton, Northampton General Hospital	1	(3)	0	(0)	1	(3)	1	(3)	2	0	0	1	0
Nottingham, Nottingham City Hospital	1	(0)	1	(0)	2	(0)	1	(0)	2	1	2	2	1
Nottingham, Nottingham University Hospital	7	(6)	8	(3)	15	(9)	14	(8)	30	2	7	11	11
Sutton-In-Ashfield, King's Mill Hospital	2	(2)	1	(1)	3	(3)	2	(2)	4	2	4	2	1
<b>Total</b>	<b>31</b>	<b>(24)</b>	<b>16</b>	<b>(7)</b>	<b>47</b>	<b>(31)</b>	<b>34</b>	<b>(25)</b>	<b>83</b>	<b>11</b>	<b>23</b>	<b>35</b>	<b>21</b>
<b>East of England</b>													
Basildon, Basildon Hospital	1	(3)	0	(1)	1	(4)	1	(2)	2	0	0	1	0
Bedford, Bedford Hospital	4	(5)	2	(3)	6	(8)	4	(6)	12	0	0	3	3
Bury St Edmunds, West Suffolk Hospital	1	(2)	1	(3)	2	(5)	0	(2)	4	0	0	0	0
Cambridge, Addenbrooke's Hospital	15	(8)	10	(20)	25	(28)	17	(18)	50	5	8	16	12
Chelmsford, Broomfield Hospital	6	(4)	0	(0)	6	(4)	5	(3)	10	1	2	5	4
Colchester, Colchester General Hospital	2	(1)	2	(2)	4	(3)	4	(1)	8	0	4	4	1
Great Yarmouth, James Paget Hospital	0	(1)	0	(3)	0	(4)	0	(2)	0	0	0	0	0
Harlow, Princess Alexandra Hospital	1	(1)	2	(2)	3	(3)	2	(2)	6	0	2	2	1
Huntingdon, Hinchingsbrooke Hospital	1	(0)	1	(1)	2	(1)	1	(0)	4	0	0	1	0
Ipswich, Ipswich Hospital	2	(3)	7	(3)	9	(6)	5	(4)	16	0	0	4	5
Kings Lynn, The Queen Elizabeth Hospital	1	(0)	1	(1)	2	(1)	0	(0)	4	0	0	0	0
Luton, Luton And Dunstable Hospital	4	(2)	3	(7)	7	(9)	4	(6)	12	1	3	4	1
Norwich, Norfolk And Norwich University Hospital	5	(3)	7	(6)	12	(9)	9	(4)	24	0	2	7	5
Papworth, Papworth Hospital	0	(0)	4	(0)	4	(0)	2	(0)	8	0	0	2	1
Peterborough, Peterborough City Hospital	1	(0)	0	(0)	1	(0)	0	(0)	2	0	0	0	0
Peterborough, Peterborough District Hospital	0	(1)	1	(1)	1	(2)	0	(2)	2	0	0	0	0
Stevenage, Lister Hospital	1	(1)	3	(0)	4	(1)	3	(1)	7	0	0	3	1
Watford, Watford General Hospital	0	(0)	1	(1)	1	(1)	0	(0)	2	0	0	0	0
Welwyn Garden City, Queen Elizabeth Hospital	0	(4)	0	(0)	0	(4)	0	(3)	0	0	0	0	0

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Westcliff-On-Sea, Southend Hospital	4	(1)	1	(1)	5	(2)	3	(1)	10	0	2	3	1
<b>Total</b>	<b>49</b>	<b>(40)</b>	<b>46</b>	<b>(55)</b>	<b>95</b>	<b>(95)</b>	<b>60</b>	<b>(57)</b>	<b>183</b>	<b>7</b>	<b>23</b>	<b>55</b>	<b>35</b>
<b>London</b>													
Barnet, Barnet General Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Carshalton, St Helier Hospital	0	(1)	0	(1)	0	(2)	0	(1)	0	0	0	0	0
Chelsea, Chelsea And Westminster Hospital	0	(0)	1	(0)	1	(0)	1	(0)	1	0	0	1	1
Croydon, Mayday University Hospital	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	1	1
Enfield, Chase Farm Hospital	1	(0)	1	(0)	2	(0)	1	(0)	4	0	0	1	0
Epsom General Hospital	2	(0)	0	(0)	2	(0)	2	(0)	4	0	2	2	1
Harefield, Harefield Hospital	0	(3)	0	(1)	0	(4)	0	(2)	0	0	0	0	0
Harrow, Northwick Park Hospital	2	(1)	2	(0)	4	(1)	2	(1)	6	0	0	3	1
Ilford, King George Hospital	1	(2)	0	(0)	1	(2)	1	(2)	2	0	0	1	0
Isleworth, West Middlesex University Hospital	3	(2)	1	(2)	4	(4)	3	(3)	8	0	2	3	2
Kingston, Kingston Hospital	1	(1)	0	(1)	1	(2)	1	(1)	2	0	0	1	0
London, Central Middlesex Hospital	1	(1)	1	(0)	2	(1)	2	(1)	4	0	0	2	1
London, Charing Cross Hospital	4	(15)	2	(4)	6	(19)	5	(17)	10	1	2	6	3
London, Great Ormond Street Hospital For Children	1	(3)	0	(1)	1	(4)	1	(4)	2	1	2	0	1
London, Guy's Hospital	0	(1)	1	(0)	1	(1)	0	(0)	0	0	0	1	0
London, Hammersmith Hospital	0	(0)	1	(0)	1	(0)	1	(0)	2	0	2	1	1
London, King's College Hospital	12	(11)	5	(7)	17	(18)	15	(18)	33	5	14	15	10
London, National Hospital For Neurology And Neurosurgery	10	(9)	3	(4)	13	(13)	10	(8)	26	2	2	9	8
London, Newham General Hospital	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0
London, North Middlesex Hospital	1	(1)	0	(1)	1	(2)	1	(1)	2	0	0	1	0
London, Queen Elizabeth Hospital	3	(2)	3	(1)	6	(3)	3	(3)	12	0	2	3	1
London, Royal Brompton Hospital	0	(1)	1	(0)	1	(1)	1	(1)	2	0	0	1	0
London, Royal Free Hospital	11	(9)	2	(7)	13	(16)	10	(11)	24	2	10	10	8
London, St George's Hospital	14	(12)	7	(4)	21	(16)	15	(15)	41	4	6	15	10
London, St Mary's Hospital	3	(2)	1	(2)	4	(4)	3	(3)	8	0	0	2	2
London, St Thomas' Hospital	3	(2)	2	(1)	5	(3)	4	(2)	8	0	0	5	3
London, The London Chest Hospital	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0
London, The Royal London Hospital (Whitechapel)	14	(13)	4	(7)	18	(20)	17	(14)	36	3	2	16	11
London, The Whittington Hospital	2	(6)	0	(0)	2	(6)	2	(6)	4	1	0	2	1
London, University College Hospital	3	(4)	1	(2)	4	(6)	2	(5)	6	0	0	3	0
London, University Hospital Lewisham	2	(1)	1	(1)	3	(2)	3	(1)	6	0	0	3	1
London, Whipps Cross Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0
Orpington, Princess Royal University Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	0
Romford, Queens Hospital	9	(7)	1	(8)	10	(15)	9	(10)	20	2	4	8	6

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Sidcup, Queen Mary's Hospital	1	(0)	0	(0)	1	(0)	0	(0)	2	0	0	0	0
Southall, Ealing Hospital	1	(2)	0	(0)	1	(2)	1	(1)	0	0	0	1	1
Uxbridge, Hillingdon Hospital	0	(0)	1	(2)	1	(2)	1	(1)	2	0	0	1	1
<b>Total</b>	<b>107</b>	<b>(114)</b>	<b>42</b>	<b>(60)</b>	<b>149</b>	<b>(174)</b>	<b>119</b>	<b>(136)</b>	<b>281</b>	<b>21</b>	<b>50</b>	<b>119</b>	<b>75</b>
<b>North East</b>													
Ashington, Wansbeck Hospital	1	(1)	1	(0)	2	(1)	1	(1)	4	0	2	1	1
Bishop Auckland, Bishop Auckland General Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Darlington, Darlington Memorial Hospital	0	(0)	1	(0)	1	(0)	0	(0)	0	0	0	1	0
Durham, University Hospital Of North Durham	2	(3)	0	(0)	2	(3)	2	(3)	4	1	2	1	2
Gateshead, Queen Elizabeth Hospital	2	(3)	2	(0)	4	(3)	2	(3)	7	0	0	2	2
Hartlepool, University Hospital Of Hartlepool	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Middlesbrough, The James Cook University Hospital	4	(10)	3	(5)	7	(15)	5	(10)	14	1	4	5	1
Newcastle, Freeman Hospital	1	(1)	3	(1)	4	(2)	1	(1)	8	0	0	1	1
Newcastle, Newcastle General Hospital	11	(11)	6	(9)	17	(20)	8	(12)	29	3	5	9	4
Newcastle, Royal Victoria Infirmary	8	(0)	4	(0)	12	(0)	8	(0)	22	3	10	9	7
North Shields, North Tyneside General Hospital	1	(0)	1	(0)	2	(0)	0	(0)	4	0	0	0	0
South Shields, South Tyneside District General Hospital	1	(1)	1	(0)	2	(1)	1	(1)	4	0	0	1	0
Stockton-On-Tees, University Hospital Of North Tees	2	(1)	1	(2)	3	(3)	2	(1)	6	0	4	2	1
Sunderland, Sunderland Royal Hospital	2	(0)	2	(2)	4	(2)	2	(0)	8	0	0	2	0
<b>Total</b>	<b>35</b>	<b>(33)</b>	<b>25</b>	<b>(19)</b>	<b>60</b>	<b>(52)</b>	<b>32</b>	<b>(34)</b>	<b>110</b>	<b>8</b>	<b>27</b>	<b>34</b>	<b>19</b>
<b>North West</b>													
Ashton-Under-Lyne, Tameside General Hospital	1	(2)	0	(0)	1	(2)	1	(2)	2	1	2	1	1
Barrow-In-Furness, Furness General Hospital	1	(4)	0	(0)	1	(4)	0	(4)	2	0	0	0	0
Blackburn, Royal Blackburn Hospital	5	(5)	1	(0)	6	(5)	5	(5)	12	1	2	5	1
Blackpool, Blackpool Victoria Hospital	3	(2)	1	(0)	4	(2)	2	(2)	8	0	0	2	1
Bolton, Bolton Royal Infirmary	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Bolton, Royal Bolton Hospital	2	(2)	2	(1)	4	(3)	3	(2)	7	0	0	3	0
Bury, Fairfield General Hospital	2	(2)	0	(0)	2	(2)	2	(2)	2	0	2	2	0
Carlisle, Cumberland Infirmary	0	(0)	2	(2)	2	(2)	1	(0)	4	0	0	1	1
Chester, Countess Of Chester Hospital	2	(1)	0	(0)	2	(1)	1	(1)	4	0	0	1	0
Chorley And South Ribble Hospital	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0
Crewe, Leighton Hospital	2	(3)	0	(1)	2	(4)	2	(4)	3	0	0	2	0
Lancaster, Royal Lancaster Infirmary	2	(1)	2	(2)	4	(3)	2	(1)	8	0	0	2	2
Liverpool, Alder Hey Children's Hospital	1	(3)	2	(0)	3	(3)	2	(2)	6	0	0	0	2
Liverpool, Liverpool Heart And Chest Hospital	0	(2)	0	(2)	0	(4)	0	(2)	0	0	0	0	0
Liverpool, Royal Liverpool University Hospital	1	(3)	1	(5)	2	(8)	0	(4)	2	0	0	1	0

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Liverpool, University Hospital Aintree	0	(2)	3	(0)	3	(2)	3	(2)	5	0	0	3	0
Liverpool, Walton Centre For Neurology And Neurosurgery	7	(6)	6	(2)	13	(8)	9	(6)	26	3	8	9	5
Macclesfield, Macclesfield District General Hospital	2	(0)	2	(1)	4	(1)	2	(0)	8	0	0	2	0
Manchester, Manchester Royal Infirmary	3	(1)	1	(0)	4	(1)	3	(0)	8	0	0	3	2
Manchester, North Manchester General Hospital	0	(0)	0	(2)	0	(2)	0	(0)	0	0	0	0	0
Manchester, Royal Manchester Children's Hospital	1	(2)	0	(1)	1	(3)	1	(2)	2	1	0	1	0
Manchester, Trafford General Hospital	1	(1)	0	(0)	1	(1)	0	(1)	0	0	0	1	0
Manchester, Wythenshawe Hospital	2	(1)	2	(2)	4	(3)	2	(1)	8	0	0	2	1
Oldham, Royal Oldham Hospital (Rochdale Road)	3	(3)	0	(0)	3	(3)	2	(2)	6	1	0	2	1
Prescot, Whiston Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Preston, Royal Preston Hospital	6	(5)	5	(13)	11	(18)	5	(8)	22	1	0	4	3
Rochdale, Rochdale Infirmary	0	(0)	2	(0)	2	(0)	0	(0)	4	0	0	0	0
Salford, Salford Royal	7	(11)	1	(2)	8	(13)	7	(13)	16	1	2	7	3
Southport, Southport District General Hospital	4	(2)	2	(2)	6	(4)	3	(1)	12	1	0	3	2
Stockport, Stepping Hill Hospital	0	(3)	1	(0)	1	(3)	0	(2)	2	0	0	0	0
Warrington, Warrington Hospital	3	(1)	1	(0)	4	(1)	4	(1)	8	1	2	4	2
Whitehaven, West Cumberland Hospital	1	(2)	0	(0)	1	(2)	1	(2)	2	0	0	1	0
Wigan, Royal Albert Edward Infirmary	0	(1)	0	(3)	0	(4)	0	(3)	0	0	0	0	0
Wirral, Arrowe Park Hospital	4	(3)	2	(2)	6	(5)	3	(3)	12	0	2	2	3
<b>Total</b>	<b>66</b>	<b>(76)</b>	<b>39</b>	<b>(44)</b>	<b>105</b>	<b>(120)</b>	<b>66</b>	<b>(81)</b>	<b>201</b>	<b>11</b>	<b>20</b>	<b>64</b>	<b>30</b>
<b>South Central</b>													
Aylesbury, Stoke Mandeville Hospital	2	(1)	0	(0)	2	(1)	2	(1)	4	0	0	2	2
Banbury, Horton General Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Basingstoke, North Hampshire Hospital	2	(1)	2	(0)	4	(1)	4	(0)	8	0	4	3	1
Milton Keynes, Milton Keynes General Hospital	4	(4)	0	(0)	4	(4)	3	(4)	8	0	2	3	1
Newport, St Mary's Hospital	1	(3)	0	(0)	1	(3)	1	(3)	2	0	0	1	1
Oxford, John Radcliffe Hospital	20	(14)	7	(3)	27	(17)	24	(14)	52	7	29	22	16
Portsmouth, Queen Alexandra Hospital	0	(2)	3	(2)	3	(4)	2	(4)	4	0	2	2	0
Reading, Royal Berkshire Hospital	4	(1)	2	(2)	6	(3)	6	(2)	12	0	0	6	3
Slough, Wexham Park Hospital	4	(4)	1	(0)	5	(4)	5	(3)	10	1	4	5	3
Southampton, Southampton University Hospitals	8	(14)	5	(8)	13	(22)	11	(18)	23	0	6	11	6
Winchester, Royal Hampshire County Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Wycombe, Wycombe General Hospital	2	(2)	0	(0)	2	(2)	2	(2)	4	0	2	2	1
<b>Total</b>	<b>47</b>	<b>(48)</b>	<b>20</b>	<b>(15)</b>	<b>67</b>	<b>(63)</b>	<b>60</b>	<b>(53)</b>	<b>127</b>	<b>8</b>	<b>49</b>	<b>57</b>	<b>34</b>
<b>South East Coast</b>													
Ashford, William Harvey Hospital	1	(1)	2	(1)	3	(2)	3	(2)	6	0	2	3	1

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Brighton, Royal Sussex County Hospital	3	(4)	0	(0)	3	(4)	3	(4)	5	1	0	3	1
Camberley, Frimley Park Hospital	1	(1)	2	(2)	3	(3)	1	(3)	6	0	0	1	0
Canterbury, Kent And Canterbury Hospital	0	(0)	2	(0)	2	(0)	0	(0)	0	0	0	2	0
Chertsey, St Peter's Hospital	2	(2)	1	(2)	3	(4)	1	(4)	4	0	0	2	0
Chichester, St Richard's Hospital	1	(0)	1	(0)	2	(0)	0	(0)	2	0	0	1	0
Dartford, Darent Valley Hospital	2	(4)	0	(0)	2	(4)	2	(3)	4	0	0	2	1
Eastbourne, Eastbourne District General Hospital	1	(2)	1	(0)	2	(2)	1	(2)	4	0	0	1	1
Gillingham, Medway Hospital	5	(4)	0	(0)	5	(4)	3	(4)	10	0	2	3	2
Hastings, Conquest Hospital	3	(2)	2	(0)	5	(2)	2	(1)	10	0	2	2	1
Haywards Heath, Hurstwood Park Hospital	5	(4)	1	(3)	6	(7)	5	(6)	12	1	4	5	5
Haywards Heath, Princess Royal Hospital	2	(0)	1	(0)	3	(0)	1	(0)	4	0	0	2	1
Maidstone, Maidstone District General Hospital	2	(2)	2	(1)	4	(3)	4	(3)	8	0	2	3	3
Margate, Queen Elizabeth The Queen Mother Hospital	0	(3)	0	(1)	0	(4)	0	(2)	0	0	0	0	0
Redhill, East Surrey Hospital	2	(5)	0	(0)	2	(5)	2	(5)	4	0	2	2	2
Tunbridge Wells, Kent And Sussex Hospital	1	(0)	1	(1)	2	(1)	1	(1)	4	0	0	1	1
Worthing, Worthing Hospital	5	(0)	2	(1)	7	(1)	5	(1)	14	0	4	4	2
<b>Total</b>	<b>36</b>	<b>(34)</b>	<b>18</b>	<b>(12)</b>	<b>54</b>	<b>(46)</b>	<b>34</b>	<b>(41)</b>	<b>97</b>	<b>2</b>	<b>18</b>	<b>37</b>	<b>21</b>
<b>South West</b>													
Barnstaple, North Devon District Hospital	3	(0)	0	(0)	3	(0)	3	(0)	6	0	2	3	1
Bath, Royal United Hospital	2	(1)	4	(4)	6	(5)	4	(2)	10	0	2	4	4
Bournemouth, Royal Bournemouth General Hospital	3	(5)	2	(1)	5	(6)	4	(4)	10	0	0	3	2
Bristol, Bristol Royal Infirmary	0	(3)	5	(3)	5	(6)	4	(5)	10	0	2	3	1
Bristol, Frenchay Hospital	7	(2)	10	(6)	17	(8)	12	(3)	30	0	2	12	7
Bristol, Southmead Hospital	0	(1)	0	(0)	0	(1)	0	(0)	0	0	0	0	0
Cheltenham, Cheltenham General Hospital	1	(2)	0	(0)	1	(2)	1	(1)	2	0	0	1	0
Dorchester, Dorset County Hospital	3	(1)	0	(2)	3	(3)	2	(2)	4	0	0	3	2
Exeter, Royal Devon And Exeter Hospital (Wonford)	3	(3)	2	(1)	5	(4)	3	(3)	8	0	6	3	3
Gloucester, Gloucestershire Royal Hospital	2	(2)	6	(2)	8	(4)	3	(2)	14	0	0	3	1
Plymouth, Derriford Hospital	3	(8)	11	(9)	14	(17)	7	(12)	27	2	4	7	3
Poole, Poole General Hospital	2	(1)	3	(2)	5	(3)	4	(3)	6	1	2	5	3
Salisbury, Salisbury District Hospital	2	(2)	1	(0)	3	(2)	2	(1)	5	0	2	1	2
Swindon, Great Western Hospital	1	(3)	1	(3)	2	(6)	1	(4)	3	0	0	1	1
Taunton, Taunton And Somerset Hospital (Musgrove Park)	2	(2)	2	(2)	4	(4)	4	(3)	8	0	2	3	2
Torquay, Torbay Hospital	0	(1)	2	(1)	2	(2)	0	(2)	4	0	0	0	0
Truro, Royal Cornwall Hospital (Treliske)	0	(4)	1	(4)	1	(8)	0	(5)	2	0	0	0	0
Weston-Super-Mare, Weston General Hospital	2	(4)	1	(0)	3	(4)	3	(4)	6	1	2	2	2
Yeovil, Yeovil District Hospital	2	(2)	0	(1)	2	(3)	2	(2)	4	0	2	2	1

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Total	38	(47)	51	(41)	89	(88)	59	(58)	159	4	28	56	35
<b>West Midlands</b>													
Birmingham, Birmingham Heartlands Hospital	2	(6)	0	(1)	2	(7)	1	(6)	2	0	0	2	0
Birmingham, City Hospital	3	(2)	1	(1)	4	(3)	3	(3)	8	2	0	3	2
Birmingham, Diana Princess Of Wales Children Hospital	0	(1)	1	(0)	1	(1)	1	(1)	2	0	0	1	0
Birmingham, Queen Elizabeth Hospital	6	(10)	2	(1)	8	(11)	6	(11)	16	1	4	6	3
Birmingham, Selly Oak Hospital	4	(3)	4	(1)	8	(4)	6	(4)	16	1	2	6	5
Burton-On-Trent, Queen's Hospital	1	(0)	0	(1)	1	(1)	1	(1)	2	0	0	1	1
Coventry, University Hospital	5	(7)	9	(2)	14	(9)	9	(6)	27	2	6	7	3
Dudley, Russells Hall Hospital	2	(0)	1	(0)	3	(0)	1	(0)	6	1	0	1	1
Hereford, The County Hospital	3	(0)	1	(0)	4	(0)	4	(0)	8	1	2	4	3
Nuneaton, George Eliot Hospital	0	(3)	0	(1)	0	(4)	0	(4)	0	0	0	0	0
Redditch, The Alexandra Hospital	0	(1)	2	(1)	2	(2)	1	(2)	4	0	0	1	0
Shrewsbury, Royal Shrewsbury Hospital	3	(3)	2	(0)	5	(3)	5	(2)	10	3	5	4	3
Solihull, Solihull Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	2	1	1
Stafford, Stafford Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0
Stoke-On-Trent, Stoke City General Hospital	0	(3)	0	(1)	0	(4)	0	(4)	0	0	0	0	0
Stoke, North Staffordshire Royal Infirmary	12	(7)	4	(6)	16	(13)	15	(11)	30	1	2	15	9
Sutton Coldfield, Good Hope District General Hosp.	2	(3)	2	(0)	4	(3)	3	(3)	8	1	0	3	1
Telford, The Princess Royal Hospital	4	(0)	1	(1)	5	(1)	3	(1)	10	1	0	3	3
Walsall, Manor Hospital	2	(1)	2	(0)	4	(1)	3	(1)	8	0	2	3	3
Warwick, Warwick Hospital	0	(2)	1	(0)	1	(2)	1	(2)	2	0	0	0	1
West Bromwich, Sandwell General Hospital	1	(1)	0	(0)	1	(1)	0	(1)	0	0	0	1	0
Wolverhampton, New Cross Hospital	2	(2)	0	(0)	2	(2)	2	(2)	4	0	0	2	2
Worcester, Worcestershire Royal Hospital	2	(2)	2	(4)	4	(6)	3	(4)	8	1	2	3	0
<b>Total</b>	<b>55</b>	<b>(59)</b>	<b>35</b>	<b>(21)</b>	<b>90</b>	<b>(80)</b>	<b>69</b>	<b>(71)</b>	<b>173</b>	<b>15</b>	<b>27</b>	<b>67</b>	<b>41</b>
<b>Yorkshire and the Humber</b>													
Barnsley, Barnsley District General Hospital	1	(1)	3	(1)	4	(2)	2	(1)	8	0	4	2	1
Bradford, Bradford Royal Infirmary	6	(0)	0	(0)	6	(0)	5	(0)	9	0	0	6	0
Cottingham, Castle Hill Hospital	0	(0)	1	(0)	1	(0)	0	(0)	2	0	0	0	0
Dewsbury, Dewsbury And District Hospital	0	(1)	0	(1)	0	(2)	0	(1)	0	0	0	0	0
Doncaster, Doncaster Royal Infirmary	3	(0)	2	(0)	5	(0)	3	(0)	10	1	0	3	1
Grimsby, Diana Princess Of Wales Hospital	2	(1)	0	(0)	2	(1)	2	(1)	4	0	2	2	1
Halifax, Calderdale Royal Hospital	1	(1)	1	(1)	2	(2)	2	(1)	4	0	1	2	1
Harrogate, Harrogate District Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0
Huddersfield, Huddersfield Royal Infirmary	0	(3)	1	(0)	1	(3)	0	(3)	2	0	0	0	0

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Hull, Hull Royal Infirmary	8	(6)	5	(5)	13	(11)	7	(9)	24	2	6	6	2
Keighley, Airedale General Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0
Leeds, Leeds General Infirmary	7	(14)	6	(15)	13	(29)	7	(15)	26	1	6	7	5
Leeds, St James's University Hospital	2	(4)	4	(1)	6	(5)	3	(5)	11	0	2	2	2
Rotherham, Rotherham District General Hospital	1	(0)	0	(2)	1	(2)	1	(0)	2	1	2	1	0
Scarborough, Scarborough General Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Scunthorpe, Scunthorpe General Hospital	0	(2)	0	(0)	0	(2)	0	(1)	0	0	0	0	0
Sheffield, Northern General Hospital	4	(3)	4	(1)	8	(4)	3	(3)	14	0	2	4	2
Sheffield, Royal Hallamshire Hospital	6	(6)	3	(1)	9	(7)	9	(6)	18	1	5	9	5
Wakefield, Pinderfields General Hospital	2	(1)	4	(0)	6	(1)	2	(0)	10	0	0	3	1
Worksop, Bassetlaw District General Hospital	1	(1)	0	(0)	1	(1)	1	(0)	2	0	0	1	0
York, York District Hospital	1	(2)	0	(2)	1	(4)	1	(3)	2	0	0	1	1
<b>Total</b>	<b>45</b>	<b>(51)</b>	<b>34</b>	<b>(30)</b>	<b>79</b>	<b>(81)</b>	<b>48</b>	<b>(54)</b>	<b>148</b>	<b>6</b>	<b>30</b>	<b>49</b>	<b>22</b>
<b>Channel Islands</b>													
Guernsey, Princess Elizabeth Hospital	0	(2)	0	(1)	0	(3)	0	(3)	0	0	0	0	0
St Helier, Jersey General Hospital	2	(3)	0	(0)	2	(3)	2	(3)	4	0	0	2	1
<b>Total</b>	<b>2</b>	<b>(5)</b>	<b>0</b>	<b>(1)</b>	<b>2</b>	<b>(6)</b>	<b>2</b>	<b>(6)</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>
<b>Isle of Man</b>													
Douglas, Nobles I-O-M Hospital	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>(0)</b>	<b>0</b>	<b>(1)</b>	<b>0</b>	<b>(1)</b>	<b>0</b>	<b>(1)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>England</b>	<b>511</b>	<b>(531)</b>	<b>326</b>	<b>(306)</b>	<b>837</b>	<b>(837)</b>	<b>583</b>	<b>(617)</b>	<b>1566</b>	<b>93</b>	<b>295</b>	<b>575</b>	<b>334</b>
<b>Northern Ireland</b>													
Belfast, Belfast City Hospital	3	(0)	1	(0)	4	(0)	2	(0)	6	0	0	2	2
Belfast, Mater Infirmorum Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0
Belfast, Royal Belfast Hospital For Sick Children	2	(0)	0	(0)	2	(0)	2	(0)	4	1	2	2	0
Belfast, Royal Victoria Hospital	22	(10)	1	(0)	23	(10)	22	(10)	45	11	19	22	14
Belfast, The Ulster Hospital	3	(5)	0	(0)	3	(5)	3	(5)	6	0	2	2	1
Coleraine, Causeway Hospital	2	(0)	0	(0)	2	(0)	1	(0)	2	1	2	1	0
Enniskillen, Erne Hospital	1	(1)	0	(0)	1	(1)	1	(0)	2	1	0	1	1
Londonderry, Altnagelvin Area Hospital	3	(1)	0	(0)	3	(1)	3	(1)	5	0	0	3	1
Portadown, Craigavon Area Hospital	2	(0)	0	(0)	2	(0)	2	(0)	4	0	2	2	1
<b>Total</b>	<b>38</b>	<b>(18)</b>	<b>2</b>	<b>(0)</b>	<b>40</b>	<b>(18)</b>	<b>36</b>	<b>(17)</b>	<b>74</b>	<b>14</b>	<b>27</b>	<b>35</b>	<b>20</b>

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Scotland													
Aberdeen, Aberdeen Royal Infirmary	4	(5)	0	(0)	4	(5)	4	(5)	8	2	3	4	1
Airdrie, Monklands District General Hospital	1	(0)	0	(0)	1	(0)	0	(0)	2	0	0	0	0
Ayr, The Ayr Hospital	0	(3)	0	(0)	0	(3)	0	(3)	0	0	0	0	0
Dumfries, Dumfries And Galloway Royal Infirmary	1	(2)	0	(0)	1	(2)	1	(2)	2	0	0	1	0
Dundee, Ninewells Hospital	5	(2)	1	(0)	6	(2)	6	(2)	12	3	0	6	1
Dunfermline, Queen Margaret Hospital	2	(2)	1	(3)	3	(5)	2	(3)	6	1	2	2	1
East Kilbride, Hairmyres Hospital	0	(3)	0	(0)	0	(3)	0	(3)	0	0	0	0	0
Edinburgh, Royal Hospital For Sick Children	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	0
Edinburgh, Royal Infirmary Of Edinburgh	2	(3)	5	(3)	7	(6)	4	(5)	14	0	2	4	1
Edinburgh, Western General Hospital	16	(11)	3	(1)	19	(12)	17	(11)	37	4	12	17	10
Glasgow, Victoria Infirmary	4	(2)	0	(2)	4	(4)	3	(3)	7	2	2	2	2
Glasgow, Golden Jubilee National Hospital	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0
Glasgow, Royal Hospital For Sick Children	0	(1)	1	(0)	1	(1)	1	(1)	2	0	0	1	0
Glasgow, Southern General Hospital	3	(4)	3	(2)	6	(6)	6	(5)	12	1	6	5	5
Glasgow, Western Infirmary	0	(1)	1	(2)	1	(3)	0	(0)	2	0	0	0	0
Glasgow, Golden Jubilee National Hospital	0	(1)	1	(0)	1	(1)	1	(1)	2	0	0	1	0
Inverness, Raigmore Hospital	2	(2)	0	(0)	2	(2)	2	(2)	4	0	2	2	2
Kilmarnock, Crosshouse Hospital	1	(0)	1	(1)	2	(1)	1	(0)	3	1	0	1	1
Livingston, St John's Hospital	1	(0)	1	(0)	2	(0)	1	(0)	4	0	0	1	1
Paisley, Royal Alexandra Hospital	3	(1)	0	(0)	3	(1)	3	(1)	6	0	3	3	2
Perth, Perth Royal Infirmary	1	(1)	0	(1)	1	(2)	1	(2)	2	0	0	1	1
Stirling, Stirling Royal Infirmary	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	1	1
Wishaw, Wishaw General Hospital	1	(2)	0	(0)	1	(2)	1	(1)	2	0	0	1	1
Total	49	(47)	18	(16)	67	(63)	56	(52)	131	14	32	54	30
Wales													
Abergavenny, Nevill Hall Hospital	5	(1)	2	(1)	7	(2)	7	(2)	14	0	0	7	2
Aberystwyth, Bronglais Hospital	2	(0)	0	(0)	2	(0)	2	(0)	4	1	1	2	2
Bangor, Ysbyty Gwynedd District General Hospital	2	(1)	1	(0)	3	(1)	2	(1)	4	0	0	3	1
Bodelwyddan, Glan Clwyd District General Hospital	1	(3)	3	(2)	4	(5)	1	(3)	8	0	0	1	0
Bridgend, Princess Of Wales Hospital	4	(2)	2	(1)	6	(3)	6	(2)	12	2	2	6	4
Cardiff, University Of Wales Hospital	11	(9)	13	(6)	24	(15)	16	(10)	46	2	2	14	6
Carmarthen, West Wales General Hospital	3	(1)	1	(1)	4	(2)	3	(1)	8	0	0	3	2
Haverford West, Withybush General Hospital	2	(1)	1	(1)	3	(2)	2	(2)	4	0	3	2	2
Llanelli, Prince Philips Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0
Merthyr Tydfil, Prince Charles Hospital	0	(1)	1	(0)	1	(1)	0	(1)	0	0	0	1	0



Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
Newport, Royal Gwent Hospital	3	(2)	1	(0)	4	(2)	2	(2)	6	0	0	3	1
Penarth, Llandough Hospital	0	(0)	1	(0)	1	(0)	0	(0)	2	0	0	0	0
Pontypridd, Royal Glamorgan Hospital	0	(1)	1	(0)	1	(1)	0	(1)	2	0	0	0	0
Swansea, Morriston Hospital	3	(3)	0	(0)	3	(3)	2	(3)	4	0	0	3	0
Wrexham, Maelor General Hospital	3	(1)	0	(1)	3	(2)	2	(1)	4	0	0	3	2
<b>Total</b>	<b>39</b>	<b>(28)</b>	<b>27</b>	<b>(13)</b>	<b>66</b>	<b>(41)</b>	<b>45</b>	<b>(31)</b>	<b>118</b>	<b>5</b>	<b>8</b>	<b>48</b>	<b>22</b>

**Appendix IIA Number of donors after brain death and organs retrieved in the UK, 1 April 2010 - 31 March 2011, by donor country/ SHA of residence**


<b>Country/ Strategic Health Authority of residence</b>	<b>All donors</b>	<b>Donors</b>		<b>pmp</b>	<b>Kidney</b>	<b>Heart</b>	<b>Organs</b>		<b>Pancreas</b>
		<b>pmp</b>	<b>Multi-organ donors</b>				<b>Lung</b>	<b>Liver</b>	
North East	33	12.8	28	10.9	60	7	21	29	16
North West	52	7.5	45	6.5	95	12	22	46	25
Yorkshire and The Humber	49	9.3	42	8.0	90	8	20	44	18
East Midlands	37	8.3	32	7.2	71	12	25	32	18
West Midlands	50	9.2	43	7.9	94	14	20	45	29
East of England	57	9.9	51	8.8	110	8	24	49	30
London	66	8.5	58	7.5	124	11	26	59	37
South East Coast	55	12.7	47	10.8	102	10	26	49	33
South Central	50	12.2	47	11.5	98	7	34	46	33
South West	45	8.6	37	7.1	82	5	28	38	23
<b>England</b>	<b>494</b>	<b>9.5</b>	<b>430</b>	<b>8.3</b>	<b>926</b>	<b>94</b>	<b>246</b>	<b>437</b>	<b>262</b>
<b>Isle of Man</b>	<b>1</b>	<b>12.5</b>	<b>1</b>	<b>12.5</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>Channel Islands</b>	<b>2</b>	<b>13.3</b>	<b>2</b>	<b>13.3</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>
<b>Wales</b>	<b>53</b>	<b>17.7</b>	<b>45</b>	<b>15.0</b>	<b>93</b>	<b>6</b>	<b>9</b>	<b>48</b>	<b>25</b>
<b>Scotland</b>	<b>49</b>	<b>9.4</b>	<b>46</b>	<b>8.9</b>	<b>97</b>	<b>12</b>	<b>30</b>	<b>45</b>	<b>28</b>
<b>Northern Ireland</b>	<b>38</b>	<b>21.2</b>	<b>35</b>	<b>19.6</b>	<b>70</b>	<b>14</b>	<b>25</b>	<b>34</b>	<b>19</b>
<b>TOTAL</b>	<b>637</b>	<b>10.3</b>	<b>559</b>	<b>9.0</b>	<b>1192</b>	<b>126</b>	<b>310</b>	<b>567</b>	<b>336</b>

**Appendix IIB Number of donors after circulatory death and organs retrieved in the UK, 1 April 2010 - 31 March 2011, by donor country/ SHA of residence**

<b>Country/ Strategic Health Authority of residence</b>	<b>All donors</b>	<b>pmp</b>	<b>Donors Multi-organ donors</b>	<b>pmp</b>	<b>Kidney</b>	<b>Heart</b>	<b>Organs Lung</b>	<b>Liver</b>	<b>Pancreas</b>
North East	22	8.5	0	0.0	40	0	0	1	0
North West	40	5.8	13	1.9	79	0	6	10	6
Yorkshire and The Humber	35	6.7	8	1.5	68	0	6	8	2
East Midlands	23	5.2	13	2.9	39	0	6	11	10
West Midlands	37	6.8	19	3.5	73	0	4	16	7
East of England	45	7.8	18	3.1	86	0	4	15	8
London	28	3.6	17	2.2	53	0	4	15	10
South East Coast	24	5.5	7	1.6	39	0	0	10	4
South Central	21	5.1	14	3.4	37	0	6	13	2
South West	49	9.4	27	5.2	88	0	6	24	14
<b>England</b>	<b>324</b>	<b>6.3</b>	<b>136</b>	<b>2.6</b>	<b>602</b>	<b>0</b>	<b>42</b>	<b>123</b>	<b>63</b>
<b>Isle of Man</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Channel Islands</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Wales</b>	<b>30</b>	<b>10.0</b>	<b>15</b>	<b>5.0</b>	<b>57</b>	<b>0</b>	<b>6</b>	<b>13</b>	<b>3</b>
<b>Scotland</b>	<b>17</b>	<b>3.3</b>	<b>9</b>	<b>1.7</b>	<b>34</b>	<b>0</b>	<b>2</b>	<b>8</b>	<b>3</b>
<b>Northern Ireland</b>	<b>2</b>	<b>1.1</b>	<b>1</b>	<b>0.6</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>1</b>
<b>TOTAL</b>	<b>373</b>	<b>6.0</b>	<b>161</b>	<b>2.6</b>	<b>697</b>	<b>0</b>	<b>52</b>	<b>145</b>	<b>70</b>

**Appendix III****Populations for SHAs, 2010-2011****Mid-2009 estimates based on ONS 2001 Census figures**

<b>SHA</b>	<b>Population (millions)</b>
North East	2.58
North West	6.90
Yorkshire and The Humber	5.26
East Midlands	4.45
West Midlands	5.43
East of England	5.77
London	7.75
South East Coast	4.34
South Central	4.10
South West	5.23
<b>England</b>	<b>51.81</b>
<b>Isle of Man</b>	<b>0.08</b>
<b>Channel Islands</b>	<b>0.15</b>
<b>Wales</b>	<b>3.00</b>
<b>Scotland</b>	<b>5.19</b>
<b>Northern Ireland</b>	<b>1.79</b>
<b>TOTAL</b>	<b>62.02</b>

A series of overlapping, wavy blue lines that flow from the top left towards the bottom right, creating a sense of movement and fluidity. The lines vary in opacity, with some being solid blue and others being lighter, creating a layered effect.

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NHS Blood and Transplant is a Special Health Authority within the National Health Service.