

# More transplants – new lives



Transplant Activity  
in the UK  
2003-2004



**Cover pictures:**

Eloise Allen, who had a heart transplant when she was two years old.

Dr Stephen Bonner, lead consultant for UK Transplant's donor liaison scheme, with Tracy Ryder, donor liaison nurse at James Cook University Hospital, in Middlesbrough.

Lesley Kelly, Donor Transplant Co-ordinator at Western Infirmary, Glasgow, promotes the NHS Organ Donor Register with the help of members of the Scottish Truckers Club.

Skilled surgeons and their teams carry out thousands of transplants every year.

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## PREFACE

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This transplant activity report for the financial year 2003-2004 relates throughout to the UK. All figures quoted are as reported to UK Transplant by 10 May 2004 for the National Transplant Database, 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 2-6 does not distinguish between adult and paediatric transplantation. 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 UK Transplant.

The UK definition of a solid organ donor is any donor from whom at least one solid 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 transplants. All pancreatic transplants refer to the whole organ.

Information from the British Transplantation Society “*Standards for Solid Organ Transplantation in the UK*” (*BTS Standard*) and the Office for National Statistics (ONS) *2001 Census* is quoted in this report.

The number of heartbeating (HB) and non-heartbeating (NHB) donors by hospital are documented in **Appendices IA** and **IB**, respectively. Donation and transplant rates in this report are presented per million population (pmp): population figures used throughout this report are based on ONS *2001 Census* figures and are given in **Appendices IIIA** and **IIIB**.

The format of this report is rather different from last year. In particular, the report is now organised with a number of chapters and the textual commentary is now adjacent to the relevant figures and tables. The opportunity has also been taken to make some of the tables easier to read. We have also included summary data on survival rates following transplantation in Chapter 7. Comments on both the content and the layout of this report are very welcome.

This report is available on the UK Transplant website: [www.uktransplant.org.uk](http://www.uktransplant.org.uk)

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## 1 SUMMARY OF ACTIVITY

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During 2003-2004, the number of patients who had their lives saved or improved by an organ transplant was 2,854. Of these, 2,394 received an organ from a cadaveric donor, and a further 460 received an organ from a living donor. In addition, 2,363 patients had their sight restored through a cornea transplant. There were 772 cadaveric donors of solid organs and 1,873 donors of ocular tissue. Compared to last year, these figures represent increases of 3% in both the number of solid organ transplants and the number of cornea transplants. There was an increase of 16% in the number of living donors but a decrease of 1% in the number of cadaveric donors. The total number of solid organ donors increased by 5%, and the number of donors of ocular tissue increased by 7%.

The number of patients registered for a transplant continues to increase, so that at 31 March 2004 there were a total of 7,236 patients on the active and temporarily suspended transplant lists. This represents an increase of 2% on the corresponding figure at the end of the previous year. Unfortunately, 426 patients died in 2003-2004 while waiting for their transplant, representing 4% of those waiting on the transplant lists throughout the year.

Cadaveric solid organ donation rates continue to vary across the UK, with 9.1 per million population (pmp) in Scotland, 13.2 pmp in England, 15.2 in Wales and 17.8 in Northern Ireland. These rates remain lower than that in the Republic of Ireland, which stands at 21.3 pmp.

UK Transplant is now investing in 11 non-heartbeating donor programmes and 25 living donor programmes. The benefits of this investment are now being realised, as the number of non-heartbeating donors rose from 61 in 2002-2003 to 73 in 2003-2004, an increase of 20%, while the number of living kidney donors rose from 380 to 450, an increase of 18%. These two programmes more than compensated for the fall in the number of cadaveric heartbeating donors in the UK from 716 in 2002-2003 to 699 in 2003-2004, a decrease of 2%.

In regard to renal transplantation, the number of kidney transplants rose by 3%, while the number of pancreas only transplants, 12, was very similar to the previous year. Of the heartbeating kidney donors, 97% were white, while 87% of the transplant recipients were white. The greatest percentage of heartbeating donors and recipients were in the 35-49 year age group, and 62% of recipients were male.

Cardiothoracic transplantation increased by 8% in 2003-2004, with increases of 4% in the number of heart transplants and 25% in the number of lung transplants. There were 12 fewer heart/lung transplants, reflecting changes in cardiothoracic transplant practice. The number of cadaveric cardiothoracic donors rose from 235 to 255, the highest number in the last four years. Of all cardiothoracic donors, 95% were white, as were 93% of recipients. The greatest percentage of donors was in the 35-49 year age group, while the largest percentage of recipients was in the 50-59 year age group, and 64% of recipients were male.

The total number of liver transplants fell by 2%, in spite of substantial increases in the numbers of cadaveric non-heartbeating donor livers and living donor liver lobes. Of the liver donors, 96% were white, while 82% of the recipients were white. The greatest percentage of donors and patients on the transplant list came from the 35-49 year age group, and 60% of recipients were male.

In regard to ocular tissue transplantation, both the donor and recipient rates continue to vary considerably across the UK. In particular, donation rates ranged between 8 pmp to 91 pmp, and transplant rates from 16 pmp to 169 pmp.

The figures given for transplant survival rates in adult recipients in this report demonstrate that the one, two and five year survival rates following kidney, heart and liver transplantation continue to rise. One year survival rates following lung transplantation in adults have improved although two and five year survival rates have remained about the same. For transplants during calendar years 1996 to 1998 in adult recipients, the five year kidney transplant survival rates are 71% and 84% for cadaveric heartbeating and living donation, respectively. The five year heart transplant survival rate is 72%, that for lung transplantation is 43%, and for liver transplantation the survival rate is 66%.

The number of individuals who have pledged to donate their organs after death by registering on the NHS Organ Donation Register (ODR) has increased to 11.2 million. The majority of new registrants continue to come from driving license applications and reminders through the DVLA, General Practitioner registration and through applications for a Boots Advantage Card. The percentage of the population registered ranges from 14% in Northern Ireland to 24% in both Scotland and South West England.

In summary, there have been increases in both donation and transplantation rates, although there were differences in these rates across the country. The increased numbers of living and non-heartbeating donors has more than offset the small decline seen in the number of cadaveric heartbeating solid organ donors. Meanwhile, the size of the transplant list continues its inexorable rise with the inevitable consequence that some patients die before their transplant can be carried out.

**Dave Collett**  
**Director of Statistics and Audit**

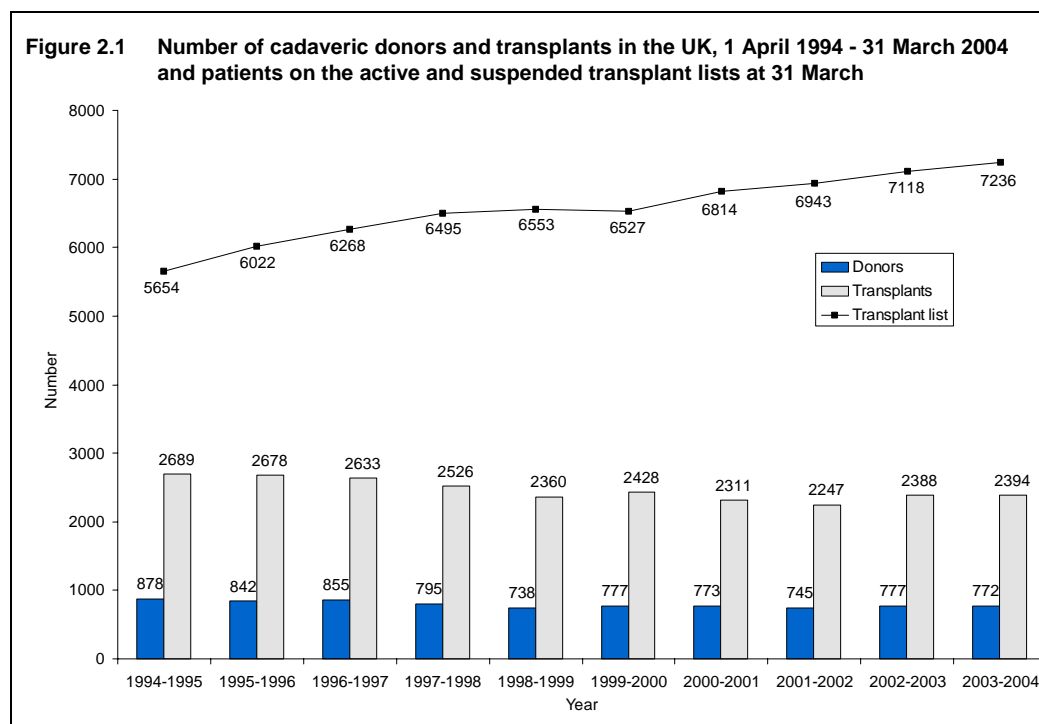
### *Postscript*

This Activity Report is based on the data available at 10 May 2004. Since then, UK Transplant has been notified of seven additional living donor kidney transplants and two kidney/pancreas transplants that took place in the last financial year. As a result, the total number of patients who received a solid organ transplant in 2003-2004 is now recorded as 2863. This is the largest number of solid organ transplants that has ever been recorded in a financial year.

## 2 OVERVIEW

### 2.1 Summary of activity

Cadaveric donor numbers, transplant activity and numbers on the transplant lists at the year end, for 1 April 1994 to 31 March 2004, are shown in **Figure 2.1**. The number of transplants in 2003-2004 is the highest number in the last four years.



There were 772 cadaveric solid organ donors reported from the UK in 2003-2004, 5 less than in the previous financial year. A breakdown of the number of donors by organ is given in **Table 2.1**. Of the 772 cadaveric donors, 73 were non-heartbeating donors: 44 kidney only, 25 kidney and liver, 1 kidney and lung and 3 liver only donors. The ten living donor liver transplants included three domino liver and seven living liver lobe donor transplants.

**Table 2.1** UK activity summary for 1 April 2003 - 31 March 2004

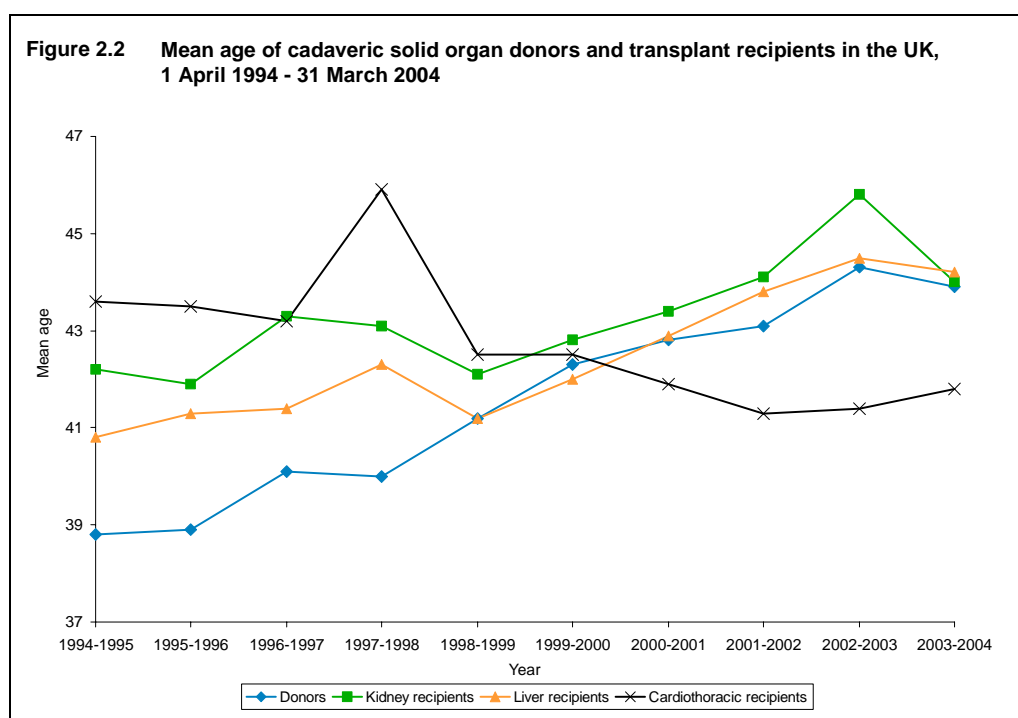
	Kidney	Pancreas	Heart	Heart/ lung	Lung	Liver	TOTAL
Cadaveric donors	735	91	179	-	159	668	<b>772</b>
Cadaveric organs donated	1446	91	179	-	301	668	<b>2685</b>
Cadaveric transplants	1386	57	165	9	147	686	<b>2394<sup>1</sup></b>
Living donor transplants	450	0	0	-	0	10	<b>460</b>

<sup>1</sup> Includes combined transplants: 45 kidney and pancreas, 10 kidney and liver, 1 kidney and heart



The total number of solid organ transplants in 2003-2004 was 2,854. Of these, 2,394 transplants were through cadaveric donations, six more than in 2002-2003. There were 460 transplants through living donations, 64 (16%) more than in 2002-2003.

**Figure 2.2** shows the mean age of cadaveric solid organ donors and transplant recipients for the last ten years. The mean age of cadaveric donors has gradually increased over the ten years from 38.8 in 1994-1995 to 43.9 in 2003-2004. For the last four years, the mean age of cardiothoracic recipients has been younger than that for kidney and liver recipients, and solid organ donors.



At 31 March 2004, 7,236 patients were registered on a solid organ transplant list in the UK. Of these 1,563 (22%) patients were temporarily suspended from the active national transplant list. Details of numbers on the transplant lists for each organ type are given in **Table 2.2**.

	Kidney	Pancreas	Heart	Heart/ lung	Lung	Liver	<b>TOTAL</b>
Active list	5074 <sup>1</sup>	13	105	53	238	190	<b>5673</b>
Temporarily suspended	1518 <sup>2</sup>	26	5	1	2	11	<b>1563</b>
<b>TOTAL</b>	<b>6592</b>	<b>39</b>	<b>110</b>	<b>54</b>	<b>240</b>	<b>201</b>	<b>7236</b>

<sup>1</sup> Includes 85 kidney and pancreas patients

<sup>2</sup> Includes 32 kidney and pancreas patients

## 2.2 Transplant list

**Table 2.3** shows the numbers of patients waiting for a transplant at 31 March 2003 and 2004. The total number rose by 118 patients (2%) with increased renal and liver transplant lists but a decreased cardiothoracic list.

<b>Table 2.3 Active and suspended transplant lists in the UK at 31 March 2003 and 2004</b>			
	<b>2003</b>	<b>2004</b>	<b>% Change</b>
<b>Cardiothoracic patients</b>	<b>446</b>	<b>404</b>	<b>-9</b>
Heart	112	110	-2
Lung(s)	266	240	-10
Heart/lung	68	54	-21
<b>Liver patients</b>	<b>181</b>	<b>201</b>	<b>+11</b>
<b>Renal patients</b>	<b>6444</b>	<b>6592</b>	<b>+2</b>
Kidney	6335	6475	+2
Kidney & pancreas	109	117	+7
<b>Pancreas patients</b>	<b>47</b>	<b>39</b>	<b>-17</b>
<b>ALL ORGANS</b>	<b>7118</b>	<b>7236</b>	<b>+2</b>

## 2.3 Organ donors

In 2003-2004, 772 cadaveric solid organ donors gave 2,685 solid organs in the UK compared with 777 donors and 2,656 organs in 2002-2003. On average in the UK, 3.5 organs were retrieved per donor in 2003-2004. Overall, 84% of donors gave a kidney and at least one other solid organ.

Solid organ donor rates per million population (pmp) for 2002-2003 and 2003-2004 are given by country in **Table 2.4**. Northern Ireland achieved the highest rate in 2003-2004 with 17.8 donors pmp. England was the only country in the UK to provide organs from non-heartbeating donors.

<b>Table 2.4 Cadaveric solid organ donor rates per million population (pmp) in the UK, 1 April 2002 - 31 March 2004, by country of donation</b>								
<b>Country of donation</b>	<b>Number of donors</b>							
	<b>2002-2003</b>				<b>2003-2004</b>			
	<b>HB</b>	<b>NHB</b>	<b>TOTAL</b>	<b>(pmp)</b>	<b>HB</b>	<b>NHB</b>	<b>TOTAL</b>	<b>(pmp)</b>
England	593	61	<b>654</b>	<b>(13.3)</b>	579	73	<b>652</b>	<b>(13.2)</b>
Wales	33	0	<b>33</b>	<b>(11.4)</b>	44	0	<b>44</b>	<b>(15.2)</b>
Scotland	58	0	<b>58</b>	<b>(11.5)</b>	46	0	<b>46</b>	<b>(9.1)</b>
Northern Ireland	32	0	<b>32</b>	<b>(18.9)</b>	30	0	<b>30</b>	<b>(17.8)</b>
<b>TOTAL</b>	<b>716</b>	<b>61</b>	<b>777</b>	<b>(13.2)</b>	<b>699</b>	<b>73</b>	<b>772</b>	<b>(13.1)</b>

The ethnicity of cadaveric solid organ donors in 2002-2003 and 2003-2004 is shown in **Table 2.5**. In 2003-2004, 96.6% of donors were reported as white. The proportion of Asian donors increased from 1% in 2002-2003 to 1.7% in 2003-2004. Overall, the proportion of ethnic minority donors rose from 2.3% to 3.4%. Note that the percentages quoted are based on data where ethnicity information was available.

<b>Table 2.5 Ethnicity of cadaveric solid organ donors in the UK, 1 April 2002 - 31 March 2004</b>				
<b>Ethnicity</b>	<b>2002-2003</b>		<b>2003-2004</b>	
	N	(%)	N	(%)
White	755	97.7	746	96.6
Asian	8	1.0	13	1.7
Black	4	0.5	7	0.9
Chinese	2	0.3	1	0.1
Other	4	0.5	5	0.6
Not reported	4	-	0	-
<b>TOTAL</b>	<b>777</b>		<b>772</b>	

## 2.4 Transplants

**Table 2.6** shows a total of 2,854 transplants were performed in 2003-2004 compared with 2,784 in 2002-2003, an increase of 3%. All multi-organ transplants are identified separately and include 45 kidney and pancreas, nine heart/lung and 11 other multi-organ transplants.

The cadaveric heartbeating donor kidney transplants include three en bloc kidney in 2003-2004 (five in 2002-2003) and five double kidney transplants in 2003-2004 (one in 2002-2003). One non-heartbeating donor double lung transplant in 2003-2004 is reported under double lung transplants and one non-heartbeating donor single lung in 2002-2003 is reported under single lung transplants.

The increase in kidney transplants in 2003-2004 was due to increases in living and non-heartbeating donation 19% and 16%, respectively; heartbeating kidney transplants declined by 2%. The total number of cardiothoracic transplants increased by 8% and the number of liver transplants decreased by 2%.

**Table 2.6 Transplants performed in the UK, 1 April 2002 - 31 March 2004**

<b>Transplant</b>	<b>2002-2003</b>	<b>2003-2004</b>	<b>% Change</b>
Cadaveric heartbeating kidney	1234	1211	-2
Cadaveric non-heartbeating kidney	103	119	+16
Living donor kidney	379	450	+19
Cadaveric heart	147	164	+12
Domino heart	10	0	-
Heart/lung	21	9	-
Single lung	59	42	-29
Double lung	59	105	+78
Cadaveric heartbeating liver	596	580	-3
Cadaveric non-heartbeating liver	12	20	+67
Domino liver	6	3	-
Cadaveric liver lobe	84	76	-10
Living donor liver lobe	1	7	-
Kidney & heart	1	1	-
Kidney & liver	13	10	-23
Kidney & pancreas	48	45	-6
Pancreas	11	12	+9
<b>TOTAL TRANSPLANTS (SOLID ORGANS)</b>	<b>2784</b>	<b>2854</b>	<b>+3</b>
<b>Total kidney transplants</b>	<b>1778</b>	<b>1836</b>	<b>+3</b>
<b>Total cardiothoracic transplants</b>	<b>297</b>	<b>321</b>	<b>+8</b>
<b>Total liver transplants</b>	<b>712</b>	<b>696</b>	<b>-2</b>

Percentage not reported when fewer than 10 in either year

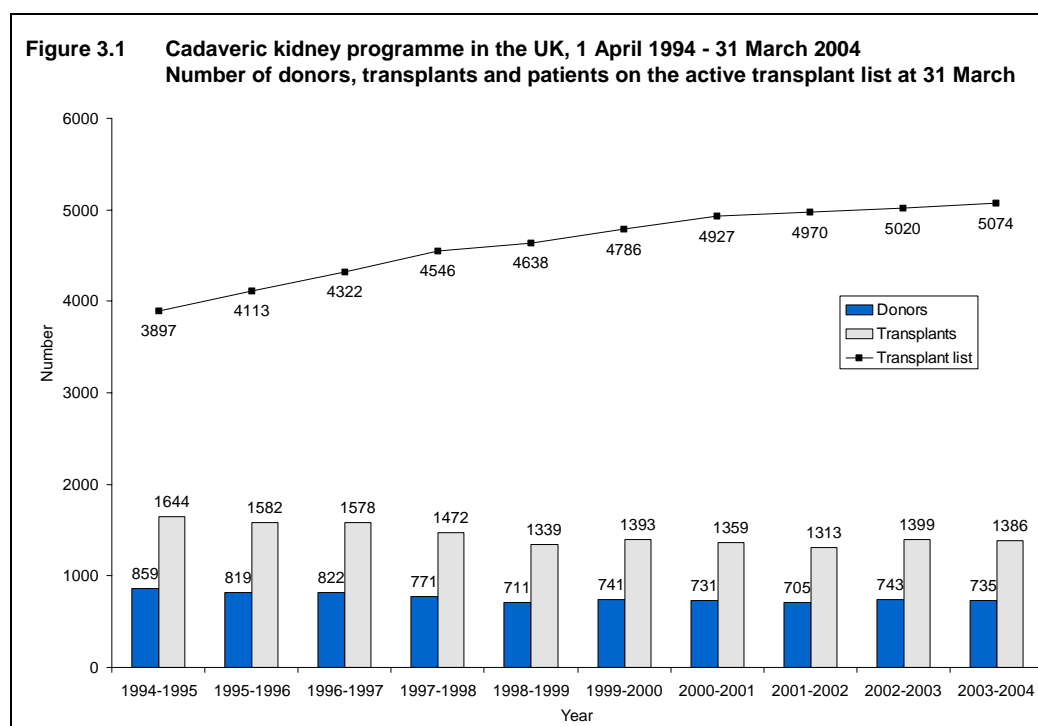
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## 3 KIDNEY AND PANCREAS ACTIVITY

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### 3.1 Overview

A summary of activity for cadaveric heartbeating and non-heartbeating kidney donor transplants and the transplant list for 1 April 1994 to 31 March 2004 is shown in **Figure 3.1**. The number of patients registered on the active transplant list at 31 March for a kidney or kidney and pancreas transplant increased by 30% since 1995.



**Table 3.1** shows the number of cadaveric and living donor kidney transplants carried out in 2003-2004 at each centre/alliance. Note that Aberdeen ceased transplanting kidneys in December 2003. Nine centres/alliances performed non-heartbeating donor kidney transplants. The number of patients registered on the active kidney or kidney and pancreas transplant list increased to 5074 at 31 March 2004.

The total number of cadaveric kidney donors fell to 735 in 2003-2004 from 743 in 2002-2003 and the number of transplants dropped from 1,399 to 1,386. The number of non-heartbeating kidney donors increased to 70 from 58 in 2002-2003 and the number of transplants increased by 16% to 119.

There were 45 kidney and pancreas transplants in 2003-2004 and centres performing more than four kidney and pancreas transplants in the year were Edinburgh (9), London, Guy's hospital (8), Manchester (6), Liverpool (5), Oxford (5) and London, St. Mary's hospital (5). In addition, 12 pancreas only transplants were carried out: seven at Manchester, two at London, St. Mary's, two at Edinburgh and one at Newcastle.

**Table 3.1 Kidney donors and transplants, 1 April 2003 - 31 March 2004 (2002-2003) and transplant list at 31 March 2004 (2003) in the UK, by centre/alliance**

Centre/alliance	Cadaveric kidney donors				Cadaveric transplants				Living donor transplants				Active transplant list	
	HB		NHB		HB		NHB		Total		% transplant list			
North Thames	78	(84)	9	(10)	129	(147)	13	(21)	50	(46)	7.6	(6.5)	662	(710)
South Thames	69	(64)	12	(10)	116	(129)	22	(20)	76	(55)	19.4	(15.6)	391	(353)
Leeds	38	(51)	9	(4)	109	(91)	15	(7)	31	(21)	8.8	(6.1)	353	(344)
Liverpool	46	(34)	0	(0)	63	(52)	0	(0)	15	(18)	6.8	(8.3)	219	(217)
Manchester	51	(57)	2	(1)	121	(105)	4	(2)	27	(23)	5.6	(5.6)	480	(414)
Newcastle	42	(39)	12	(9)	72	(77)	16	(14)	19	(15)	11.6	(9.9)	164	(151)
North of England	177	(181)	23	(14)	365	(325)	35	(23)	92	(77)	7.6	(6.8)	1216	(1126)
Aberdeen	6	(9)	0	(0)	16	(12)	0	(0)	5	(2)	-	(3.0)	-	(67)
Edinburgh	10	(19)	0	(0)	29	(50)	0	(0)	11	(14)	5.7	(9.3)	192	(151)
Glasgow	30	(29)	0	(0)	56	(55)	0	(0)	21	(18)	9.2	(6.9)	229	(260)
Scotland	46	(57)	0	(0)	101	(117)	0	(0)	37	(34)	8.8	(7.1)	421	(478)
Leicester	7	(15)	2	(5)	11	(31)	2	(8)	27	(21)	13.4	(13.0)	201	(161)
Nottingham	19	(19)	0	(0)	22	(46)	0	(0)	13	(15)	8.6	(9.9)	152	(151)
Sheffield	15	(19)	0	(0)	43	(34)	0	(0)	9	(5)	3.7	(2.0)	245	(248)
Trent	41	(53)	2	(5)	76	(111)	2	(8)	49	(41)	8.2	(7.3)	598	(560)
Bristol	21	(20)	7	(3)	83	(68)	14	(6)	35	(27)	16.1	(12.1)	218	(223)
Cardiff	33	(25)	0	(0)	77	(43)	0	(0)	14	(12)	6.7	(6.1)	208	(198)
Oxford	31	(40)	7	(9)	48	(63)	13	(14)	16	(10)	9.4	(5.6)	170	(180)
Plymouth	28	(19)	0	(0)	38	(35)	0	(0)	4	(1)	4.6	(0.9)	87	(115)
Portsmouth	24	(29)	0	(0)	35	(39)	0	(0)	12	(12)	11.1	(10.1)	108	(119)
South, West & Wales	137	(133)	14	(12)	281	(248)	27	(20)	81	(62)	10.2	(7.4)	791	(835)
Belfast	29	(31)	0	(0)	46	(45)	0	(0)	7	(2)	3.6	(1.1)	192	(183)
Birmingham	52	(56)	0	(0)	79	(114)	0	(0)	14	(25)	3.1	(5.6)	458	(445)
Cambridge	27	(19)	10	(7)	49	(34)	20	(11)	11	(13)	4.8	(6.1)	229	(214)
Coventry	9	(7)	0	(0)	9	(16)	0	(0)	18	(12)	18.6	(12.4)	97	(97)
Great Ormond Street	0	(0)	0	(0)	16	(10)	0	(0)	15	(12)	78.9	(63.2)	19	(19)
TOTAL	665	(685)	70	(58)	1267	(1296)	119	(103)	450	(379)	8.9	(7.5)	5074	(5020)

Many kidney transplant centres have joined other neighbouring centres to form an alliance to maintain a combined transplant list for the allocation of locally retained donor kidneys. At 31 March 2004, 80% of the transplant list comprised patients at an alliance centre; 84% of cadaveric heartbeating, 83% of cadaveric non-heartbeating and 86% of living donor kidney transplants were carried out by centres in an alliance.

There are currently six alliances in the UK: North of England, North Thames, South Thames, Scotland, Trent and South, West and Wales. At the end of March 2004, four adult transplant centres remained independent of any alliance: Belfast, Birmingham, Cambridge and Coventry. Each alliance has their own allocation scheme run on their behalf by UK Transplant for kidneys not allocated through the national scheme. Three of the six alliances use allocation systems based on the national scheme.

Centres within a kidney transplant alliance have a combined waiting list but, with the exception of those in the North and South Thames alliances, have separate retrieval arrangements. Most centres are therefore identified separately throughout this report.

### 3.2 Transplant list

The number of patients registered on the kidney or kidney and pancreas transplant list increased by 1% in the year: on 31 March 2004, 5,074 patients were registered active, compared with 5,020 at the end of March 2003. The number of patients waiting for a kidney transplant represents 86 patients per million population.

Of the 5,074 patients on the active transplant list at 31 March 2004, 85 required a kidney and pancreas transplant (73 at 31 March 2003). Additionally, 13 patients were registered for a pancreas only transplant (17 at 31 March 2003).

The outcome of patients registered on the UK kidney transplant list at 1 April 2003, or subsequently registered during the financial year, is shown in **Table 3.2**. Overall, 19% of patients waiting on the transplant list during 2003-2004 had received a transplant by 31 March 2004.

**Table 3.2 Kidney transplant list and new registrations in the UK, 1 April 2003 - 31 March 2004**

Outcome of patient at 31 March 2004	Active and suspended patients at 1 April 2003		New registrations in 2003-2004 <sup>1</sup>		TOTAL	
	N	%	N	%	N	%
Remained active/suspended	4582	71	2008	81	6590	74
Transplanted	1272	20	429	17	1701	19
Removed	278	4	31	1	309	3
Died	280	4	18	1	298	3
<b>TOTAL</b>	<b>6412</b>		<b>2486</b>		<b>8898</b>	

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

### 3.3 Donor and organ supply

Of the 699 cadaveric heartbeating solid organ donors in the UK in 2003-2004, 665 (95%) donated kidney(s). From these donors, 1,311 kidneys were retrieved, 1,272 (97%) of which were transplanted. **Table 3.3** shows this activity by centre/alliance.

The overall heartbeating kidney donor rate is 11.3 pmp, with retrieval centre/alliance rates ranging from 3.3 to 17.2. The kidney retrieval rate pmp for the UK is 22.2 and varies from 6.6 to 33.1 pmp. Organ usage rates of at least 95% were observed for 18 (86%) retrieval centres.

<b>Table 3.3      Kidney donation and retrieval rates for heartbeating donors in the UK, 1 April 2003 - 31 March 2004, by centre/alliance</b>						
<b>Centre/alliance</b>	<b>Heartbeating kidney donors (pmp)</b>		<b>Kidneys retrieved (pmp)</b>		<b>Kidneys used (%)</b>	
Aberdeen	6	(7.7)	12	(15.4)	11	(92)
Belfast	29	(17.2)	56	(33.1)	54	(96)
Birmingham	52	(11.7)	104	(23.3)	99	(95)
Bristol	21	(10.7)	41	(20.8)	40	(98)
Cambridge	27	(10.8)	54	(21.6)	54	(100)
Cardiff	33	(14.7)	65	(29.0)	63	(97)
Coventry	9	(11.1)	18	(22.2)	16	(89)
Edinburgh	10	(6.2)	20	(12.3)	20	(100)
Glasgow	30	(11.3)	60	(22.6)	58	(97)
Leeds	38	(10.3)	73	(19.7)	71	(97)
Leicester	7	(3.3)	14	(6.6)	12	(86)
Liverpool	46	(14.2)	92	(28.4)	90	(98)
Manchester	51	(12.9)	101	(25.6)	98	(97)
Newcastle	42	(14.8)	79	(27.9)	78	(99)
North Thames	78	(10.7)	154	(21.0)	148	(96)
Nottingham	19	(13.8)	38	(27.5)	37	(97)
Oxford	31	(10.3)	61	(20.3)	60	(98)
Plymouth	28	(15.7)	56	(31.5)	56	(100)
Portsmouth	24	(10.0)	48	(20.1)	48	(100)
Sheffield	15	(8.2)	30	(16.4)	29	(97)
South Thames	69	(10.3)	135	(20.1)	130	(96)
<b>TOTAL</b>	<b>665</b>	<b>(11.3)</b>	<b>1311</b>	<b>(22.2)</b>	<b>1272</b>	<b>(97)</b>

There were 91 heartbeating pancreas donors in 2003-2004, representing 13% of all heartbeating solid organ donors and 56 (62%) of these pancreata resulted in whole organ pancreas transplants.

Summary information for non-heartbeating solid organ donors is shown in **Table 3.4**. Glasgow, Cardiff and Birmingham will receive funding from UK Transplant (UKT) for non-heartbeating donor schemes in the financial year (2004-2005). Apart from Leicester and Manchester, all other centres/alliances with non-heartbeating donor schemes currently receive funding from UKT.



<b>Table 3.4      Kidney donation and retrieval rates for non-heartbeating donors in the UK, 1 April 2003 - 31 March 2004, by centre/alliance</b>						
<b>Centre/alliance</b>	<b>Non-heartbeating kidney donors (pmp)</b>		<b>Kidneys retrieved (pmp)</b>		<b>Kidneys used (%)</b>	
Bristol	7	(3.6)	14	(7.1)	14	(100)
Cambridge	10	(4.0)	20	(8.0)	20	(100)
Leeds	9	(2.4)	17	(4.6)	15	(88)
Leicester	2	(0.9)	3	(1.4)	2	(67)
Manchester	2	(0.5)	4	(1.0)	4	(100)
Newcastle	12	(4.2)	23	(8.1)	18	(78)
North Thames	9	(1.2)	17	(2.3)	14	(82)
Oxford	7	(2.3)	13	(4.3)	13	(100)
South Thames	12	(1.8)	24	(3.6)	22	(92)
<b>TOTAL</b>	<b>70</b>	<b>(1.2)</b>	<b>135</b>	<b>(2.3)</b>	<b>122</b>	<b>(90)</b>

### 3.4 Transplants

The number of cadaveric heartbeating donor kidney transplants per million population, at each transplant centre is shown in **Table 3.5**. This table includes multi-organ transplants; one kidney and heart, ten kidney and liver and 45 kidney and pancreas. The transplant rate ranged from 5.2 to 42.1 pmp at the centres and overall was 21.5 pmp. Some centres transplant paediatric patients from a wider area and the centre specific transplant rates per million population will be distorted. Some caution is therefore needed when interpreting these figures and particularly when making comparisons with the *BTS Standard* of 23 heartbeating kidney transplants pmp per year.

**Table 3.6** shows the number of cadaveric heartbeating donor pancreas and kidney and pancreas transplants. These figures do not include pancreas islet transplants. In 2003-2004, eight centres performed a total of 45 kidney and pancreas transplants and four centres performed a total of 12 pancreas only transplants.

**Table 3.5** Cadaveric heartbeating donor kidney transplants in the UK,  
1 April 2002 – 31 March 2004, by transplant centre/alliance

Transplant centre/alliance	2002-2003		2003-2004	
	Transplants	pmp	Transplants	pmp
Aberdeen	12	15.4	16	20.5
Belfast	45	26.6	46	27.2
Birmingham	114	25.6	79	17.7
Bristol	68	34.5	83	42.1
Cambridge	34	13.6	49	19.6
Cardiff	43	19.2	77	34.4
Coventry	16	19.8	9	11.1
Edinburgh	50	30.9	29	17.9
Glasgow	55	20.7	56	21.1
Great Ormond Street	10	-	16	-
Leeds	91	24.6	109	29.5
Leicester	31	14.6	11	5.2
Liverpool	52	16.0	63	19.4
Manchester	105	26.6	121	30.6
Newcastle	77	27.2	72	25.4
North Thames	147	20.1	129	17.6
Nottingham	46	33.3	22	15.9
Oxford	63	21.0	48	16.0
Plymouth	35	19.7	38	21.3
Portsmouth	39	16.3	35	14.6
Sheffield	34	18.6	43	23.5
South Thames	129	19.2	116	17.2
<b>TOTAL</b>	<b>1296</b>	<b>22.0</b>	<b>1267</b>	<b>21.5</b>

**Table 3.6** Cadaveric heartbeating pancreas and kidney and pancreas transplants  
in the UK, 1 April 2002 - 31 March 2004, by transplant centre

Transplant centre	2002-2003		2003-2004	
	Pancreas	Kidney & pancreas	Pancreas	Kidney & pancreas
Cambridge	0	1	0	3
Edinburgh	1	12	2	9
Guy's	0	8	0	9
Liverpool	5	7	0	5
Manchester	4	7	7	6
Newcastle	0	2	1	3
Oxford	0	4	0	5
St Mary's	1	7	2	5
<b>TOTAL</b>	<b>11</b>	<b>48</b>	<b>12</b>	<b>45</b>

Living donor kidney transplants increased by 19% to 450 in 2003-2004, representing 25% of the total kidney transplant programme. The number of related and unrelated donor transplants performed by each transplant centre/alliance and the living donor transplant rate is shown in **Table 3.7**.

<b>Table 3.7 Living donor kidney transplants in the UK, 1 April 2002 – 31 March 2004, by transplant centre/alliance</b>							
<b>Transplant centre/alliance</b>	<b>2002-2003</b>			<b>2003-2004</b>			
	Related donor	Unrelated donor	<b>TOTAL (pmp)</b>	Related donor	Unrelated donor	<b>TOTAL (pmp)</b>	
Aberdeen	2	0	<b>2 (2.6)</b>	3	2	<b>5 (6.4)</b>	
Belfast	2	0	<b>2 (1.2)</b>	7	0	<b>7 (4.1)</b>	
Birmingham	17	8	<b>25 (5.6)</b>	11	3	<b>14 (3.1)</b>	
Bristol	20	7	<b>27 (13.7)</b>	21	14	<b>35 (17.8)</b>	
Cambridge	5	8	<b>13 (5.2)</b>	8	3	<b>11 (4.4)</b>	
Cardiff	10	2	<b>12 (5.4)</b>	11	3	<b>14 (6.3)</b>	
Coventry	9	3	<b>12 (14.8)</b>	12	6	<b>18 (22.2)</b>	
Edinburgh	13	1	<b>14 (8.6)</b>	9	2	<b>11 (6.8)</b>	
Glasgow	13	5	<b>18 (6.8)</b>	16	5	<b>21 (7.9)</b>	
Great Ormond Street	12	0	<b>12 -</b>	15	0	<b>15 -</b>	
Leeds	16	5	<b>21 (5.7)</b>	28	3	<b>31 (8.4)</b>	
Leicester	15	6	<b>21 (9.9)</b>	24	3	<b>27 (12.7)</b>	
Liverpool	14	4	<b>18 (5.6)</b>	14	1	<b>15 (4.6)</b>	
Manchester	22	1	<b>23 (5.8)</b>	26	1	<b>27 (6.8)</b>	
Newcastle	11	4	<b>15 (5.3)</b>	17	2	<b>19 (6.7)</b>	
North Thames	32	14	<b>46 (6.3)</b>	37	13	<b>50 (6.8)</b>	
Nottingham	11	4	<b>15 (10.9)</b>	10	3	<b>13 (9.4)</b>	
Oxford	8	2	<b>10 (3.3)</b>	14	2	<b>16 (5.3)</b>	
Plymouth	1	0	<b>1 (0.6)</b>	3	1	<b>4 (2.2)</b>	
Portsmouth	8	4	<b>12 (5.0)</b>	7	5	<b>12 (5.0)</b>	
Sheffield	4	1	<b>5 (2.7)</b>	6	3	<b>9 (4.9)</b>	
South Thames	43	12	<b>55 (8.2)</b>	51	25	<b>76 (11.3)</b>	
<b>TOTAL</b>	<b>288</b>	<b>91</b>	<b>379 (6.4)</b>	<b>350</b>	<b>100</b>	<b>450 (7.6)</b>	

There has been an increase of 10% in the number of living unrelated donor transplants and an overall increase of 19% in living donor transplants. The transplant rate was 7.6 pmp in 2003-2004 and ranged from 2.2 to 22.2 pmp at individual transplant centres. Because some centres recruit living donors for paediatric patients from a wide area, the centre specific transplant rates pmp will be distorted. Some caution is therefore needed when interpreting these figures and particularly when making comparisons with the *BTS Standard* of 6.2 living donors pmp.

### 3.5 Demographic characteristics

The ethnicity of heartbeating donors, transplant recipients and patients on the transplant list is shown in **Table 3.8**. The proportion of Asian donors increased from 0.7% to 1.8% in 2003-2004, but the proportion of Asian transplant recipients fell from 9.6% to 8.1% in 2003-2004. Note that the percentages quoted are based on data where ethnicity information was available.

**Table 3.8** Ethnicity of heartbeating kidney donors and recipients,  
1 April 2002 – 31 March 2004 and transplant list patients at 31 March in the UK

Ethnicity	Donors				Transplant recipients				Active transplant list patients			
	2002-2003		2003-2004		2002-2003		2003-2004		2003		2004	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
White	667	(97.9)	645	(97.0)	1094	(85.3)	1095	(86.6)	3857	(78.0)	3917	(78.0)
Asian	5	(0.7)	12	(1.8)	123	(9.6)	102	(8.1)	644	(13.0)	655	(13.0)
Black	3	(0.4)	4	(0.6)	49	(3.8)	54	(4.3)	351	(7.1)	341	(6.8)
Chinese	2	(0.3)	0	(0.0)	6	(0.5)	5	(0.4)	38	(0.8)	50	(1.0)
Other	4	(0.6)	4	(0.6)	10	(0.8)	8	(0.6)	55	(1.1)	57	(1.1)
Not reported	4	-	0	-	14	-	3	-	75	-	54	-
<b>TOTAL</b>	<b>685</b>		<b>665</b>		<b>1296</b>		<b>1267</b>		<b>5020</b>		<b>5074</b>	

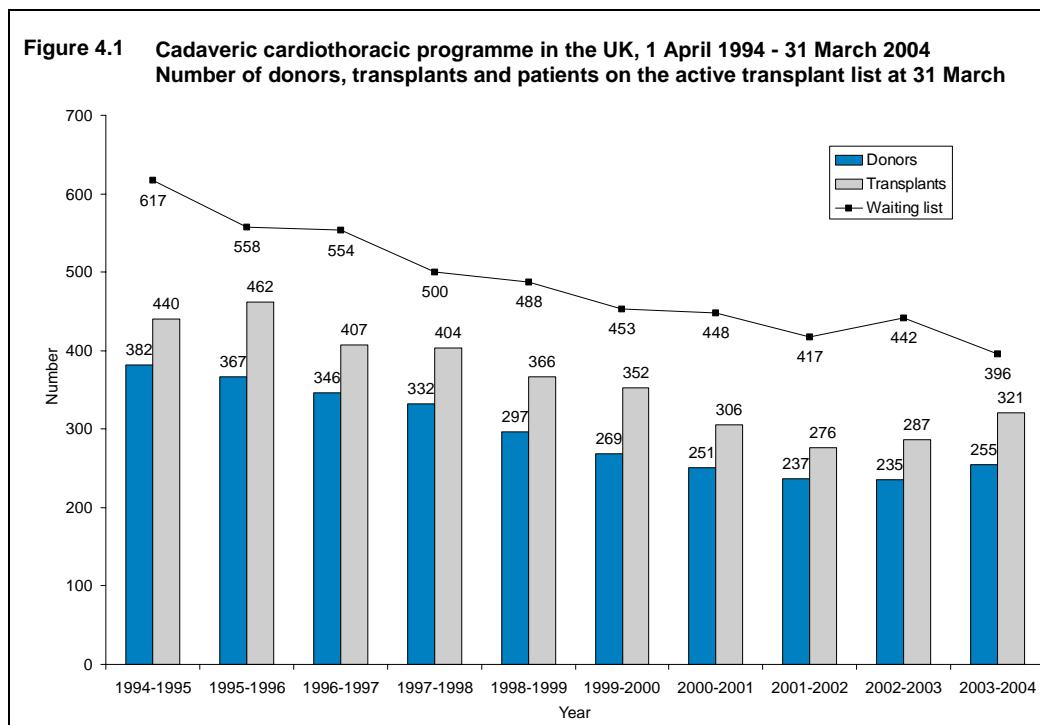
**Table 3.9** shows the age group and sex of heartbeating kidney donors, transplant recipients and patients waiting for a kidney transplant. There was a greater proportion of male transplant recipients than female, 63% compared with 37%. The age group 35 to 49 years had the highest proportion of donors, recipients and patients on the transplant list.

**Table 3.9** Age and sex of heartbeating kidney donors and transplant recipients,  
1 April 2003 – 31 March 2004, and transplant list patients at 31 March 2004

	Age group (years)					TOTAL	
	0-17	18-34	35-49	50-59	60+		
<b>Donors</b>							
Male	25	67	117	73	54	<b>336</b>	<b>(51%)</b>
Female	25	46	122	88	48	<b>329</b>	<b>(49%)</b>
<b>TOTAL</b>	<b>50 (8%)</b>	<b>113 (17%)</b>	<b>239 (36%)</b>	<b>161 (24%)</b>	<b>102 (15%)</b>	<b>665</b>	<b>(100%)</b>
<b>Recipients</b>							
Male	62	143	283	173	134	<b>795</b>	<b>(63%)</b>
Female	32	95	173	100	72	<b>472</b>	<b>(37%)</b>
<b>TOTAL</b>	<b>94 (7%)</b>	<b>238 (19%)</b>	<b>456 (36%)</b>	<b>273 (22%)</b>	<b>206 (16%)</b>	<b>1267</b>	<b>(100%)</b>
<b>Transplant list</b>							
Male	64	482	1056	744	612	<b>2958</b>	<b>(58%)</b>
Female	44	366	765	524	417	<b>2116</b>	<b>(42%)</b>
<b>TOTAL</b>	<b>108 (2%)</b>	<b>848 (17%)</b>	<b>1821 (36%)</b>	<b>1268 (25%)</b>	<b>1029 (20%)</b>	<b>5074</b>	<b>(100%)</b>

## 4.1 Overview

A summary of the cadaveric donor cardiorthoracic activity from 1 April 1994 to 31 March 2004 is shown in **Figure 4.1**. The number of patients registered on the active transplant list at 31 March for a cardiorthoracic transplant has decreased by 36% since 1995. In 2003-2004 the number of transplants was 321, the highest level of activity in the last four years.



## 4.2 Transplant list

**Table 4.1** shows the number of patients on the active and suspended transplant lists at 31 March 2004 by centre. The lung transplant list accounts for 59% of the patients waiting for a cardiorthoracic transplant. Overall, Newcastle has the largest cardiorthoracic list, with 198 patients waiting.

The outcome of patients registered at 1 April 2003 and throughout the subsequent year is shown in **Table 4.2**. Of the 846 patients on the transplant list for a cardiorthoracic organ in 2003-2004, 411 (49%) were still waiting at the end of the year, 301 (36%) had received a transplant and 134 (16%) had either died or been removed from the transplant list.

**Table 4.1 Patients on the cardiothoracic transplant lists at 31 March 2004 (2003) in the UK, by centre**

Centre	Active and suspended transplant lists						TOTAL	
	Heart		Heart/lung		Lung			
Birmingham	8	(6)	4	(6)	3	(9)	15	(21)
Glasgow	6	(7)	0	(0)	0	(0)	6	(7)
Great Ormond Street	11	(8)	1	(4)	0	(1)	12	(13)
Harefield	18	(16)	19	(26)	36	(32)	73	(74)
Manchester	4	(4)	5	(2)	47	(40)	56	(46)
Newcastle	48	(50)	11	(11)	139	(151)	198	(212)
Papworth	15	(21)	14	(19)	15	(33)	44	(73)
TOTAL	110	(112)	54	(68)	240	(266)	404	(446)

**Table 4.2 Cardiothoracic transplant lists and new registrations in the UK, 1 April 2003 - 31 March 2004**

Outcome of patient at 31 March 2004	Active and suspended patients at 1 April 2003		New registrations in 2003-2004 <sup>1</sup>		TOTAL	
	N	%	N	%	N	%
<b>Heart transplant list</b>						
Remained active/suspended	47	42	67	32	114	36
Transplanted	34	30	115	55	149	46
Removed	27	24	16	8	43	13
Died	4	4	11	5	15	5
<b>TOTAL</b>	<b>112</b>		<b>209</b>		<b>321</b>	
<b>Heart/lung transplant list</b>						
Remained active/suspended	35	52	18	44	53	49
Transplanted <sup>2</sup>	13	19	16	39	29	27
Removed	12	18	0	0	12	11
Died	7	10	7	17	14	13
<b>TOTAL</b>	<b>67</b>		<b>41</b>		<b>108</b>	
<b>Lung transplant list</b>						
Remained active/suspended	141	58	103	59	244	59
Transplanted	68	28	55	31	123	29
Removed	18	7	3	2	21	5
Died	15	6	14	8	29	7
<b>TOTAL</b>	<b>242</b>		<b>175</b>		<b>417</b>	

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

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

**Table 4.3 Cardiothoracic organ donors in the UK, 1 April 2003 - 31 March 2004 (2002-2003), by retrieval centre**

Retrieval centre	Type of cardiothoracic donor								TOTAL	
	Heart only		Domino heart		Heart & lung		Lung(s) only			
Birmingham	14	(13)	0	(0)	12	(9)	18	(14)	44	(36)
Glasgow	6	(6)	0	(0)	6	(4)	9	(8)	21	(18)
Great Ormond Street	3	(7)	0	(2)	2	(3)	0	(0)	5	(12)
Harefield	14	(20)	0	(0)	12	(10)	16	(18)	42	(48)
Manchester	16	(13)	0	(0)	9	(4)	3	(5)	28	(22)
Newcastle	14	(15)	0	(0)	17	(11)	10	(21)	41	(47)
Papworth	25	(18)	1	(8)	24	(13)	14	(4)	64	(43)
Other European countries	3	(1)	0	(0)	1	(1)	1	(1)	5	(3)
TOTAL	96 <sup>1</sup>	(99 <sup>1</sup> )	1	(10)	83	(60 <sup>1</sup> )	76 <sup>1</sup>	(76 <sup>1</sup> )	256 <sup>1</sup>	(245 <sup>1</sup> )

<sup>1</sup> Includes organs retrieved by other centres

### 4.3 Donor and organ supply

The number of cardiothoracic organ donors classified by retrieval centre, rather than geographical zone, is summarised in **Table 4.3**. Of the cadaveric cardiothoracic donors 38% donated only the heart, 33% heart and lung and 30% lung only.

**Table 4.4** shows the number of cadaveric heartbeating solid organ donors identified in each cardiothoracic zone, the number that donated cardiothoracic organs and the number of organs retrieved. The numbers in this table reflect the number of organs retrieved from within each zone (by any centre) rather than the number of retrievals made by that centre. Non-heartbeating solid organ donors have been excluded as their cardiothoracic organs would usually not have been considered for transplantation.

Of the 699 heartbeating donors, 36% donated cardiothoracic organs. Overall, 89% of the 478 organs retrieved were transplanted: 97% of hearts and 84% of lungs.

<b>Table 4.4      Cadaveric heartbeating cardiothoracic organ donation and retrieval rates in the UK, 1 April 2003 - 31 March 2004, 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>	
	Heartbeating solid organ	Cardiothoracic	Hearts		Lungs			
Birmingham	121	45	27	(25)	60	(40)	87	(65)
Glasgow	46	22	13	(13)	30	(24)	43	(37)
Harefield	137	47	29	(28)	57	(49)	86	(77)
Manchester	112	32	26	(25)	27	(18)	53	(43)
Newcastle	120	37	27	(27)	45	(41)	72	(68)
Papworth	163	71	57	(56)	80	(80)	137	(136)
<b>TOTAL</b>	<b>699</b>	<b>254</b>	<b>179</b>	<b>(174)</b>	<b>299</b>	<b>(252)</b>	<b>478</b>	<b>(426)</b>

Donation and retrieval rates per million population are shown in **Table 4.5**. The overall cardiothoracic donor rate was 4.3 pmp in 2003-2004 and varied across the donation zones from 3.6 pmp to 4.8 pmp.



**Table 4.5** Cadaveric cardiothoracic organ donation and retrieval rates per million population (pmp) in the UK, 1 April 2003 - 31 March 2004, by donation zone

Donation zone	Heartbeating solid organ donors pmp	Cardiothoracic donors pmp	Organs retrieved pmp
Birmingham	12.6	4.7	9.1
Glasgow	9.1	4.3	8.5
Harefield	10.4	3.6	6.5
Manchester	14.2	4.0	6.7
Newcastle	14.2	4.4	8.5
Papworth	11.0	4.8	9.2
<b>TOTAL</b>	<b>11.8</b>	<b>4.3</b>	<b>8.1</b>

#### 4.4 Transplants

**Table 4.6** shows cardiothoracic transplant activity for each centre. In 2003-2004, 321 transplants were carried out, an increase of 8% on 2002-2003. Of these, 51% were cadaveric heart transplants. This table includes two heart and kidney transplants, shown in the cadaveric heart column, one in each year.

**Table 4.6** Cardiothoracic transplants, 1 April 2003 - 31 March 2004 (2002-2003), by centre

Transplant centre	Transplant type								TOTAL	
	Cadaveric heart		Domino heart		Heart/ lung		Cadaveric lung(s)			
Birmingham	19	(16)	0	(0)	1	(0)	14	(12)	34	(28)
Glasgow	11	(12)	0	(0)	0	(0)	0	(0)	11	(12)
Great Ormond Street	19	(19)	0	(3)	2	(2)	5	(0)	26	(24)
Harefield	25	(25)	0	(1)	0	(0)	29	(22)	54	(48)
Manchester	17	(16)	0	(1)	0	(0)	14	(17)	31	(34)
Newcastle	32	(29)	0	(1)	2	(4)	49	(45)	83	(79)
Papworth	42	(28)	0	(4)	4	(15)	36	(22)	82	(69)
TOTAL	165	(148 <sup>1</sup> )	0	(10)	9	(21)	147	(118)	321	(297 <sup>1</sup> )

<sup>1</sup> Includes 3 heart transplants at Sheffield

The number of cardiothoracic transplants per million population is shown in **Table 4.7**. The overall rate increased to 5.4 pmp in 2003-2004, surpassing the *BTS Standard* of 4 pmp, and ranged from 2.2 to 9.8 at the transplant centres.

**Table 4.7 Cardiothoracic transplants in the UK, 1 April 2002 - 31 March 2004, by transplant centre**

Transplant centre	2002-2003		2003-2004	
	Transplants	pmp	Transplants	pmp
Birmingham	28	2.9	34	3.5
Glasgow	12	2.4	11	2.2
Great Ormond Street	24	-	26	-
Harefield	48	3.7	54	4.1
Manchester	34	4.3	31	3.9
Newcastle	79	9.3	83	9.8
Papworth	69	4.6	82	5.5
<b>TOTAL</b>	<b>297<sup>1</sup></b>	<b>5.0</b>	<b>321</b>	<b>5.4</b>

<sup>1</sup> Includes 3 heart transplants at Sheffield

#### 4.5 Demographic characteristics

The ethnicity of cardiothoracic donors, transplant recipients and patients on the transplant list is shown in **Table 4.8**. While 2.7% of donors in 2003-2004 were Asian, 6.4% of the transplant list at 31 March 2004 was Asian. Note that the percentages quoted are based on data where ethnicity information was available.

**Table 4.8 Ethnicity of cardiothoracic donors and recipients, 1 April 2002 - 31 March 2004 and transplant list patients at 31 March in the UK**

Ethnicity	Donors				Transplant recipients				Active and suspended transplant list patients			
	2002-2003		2003-2004		2002-2003		2003-2004		2003		2004	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
White	234	(97.1)	244	(95.3)	273	(91.9)	299	(93.1)	419	(93.9)	372	(92.1)
Asian	4	(1.7)	7	(2.7)	18	(6.1)	16	(5.0)	25	(5.6)	26	(6.4)
Black	2	(0.8)	2	(0.8)	3	(1.0)	2	(0.6)	2	(0.4)	5	(1.2)
Chinese	1	(0.4)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Other	0	(0.0)	3	(1.2)	3	(1.0)	4	(1.2)	0	(0.0)	1	(0.2)
Not reported	4	-	0	-	0	-	0	-	0	-	0	-
<b>TOTAL</b>	<b>245</b>		<b>256</b>		<b>297</b>		<b>321</b>		<b>446</b>		<b>404</b>	

Of the 321 cardiothoracic recipients, 64% were male compared with 54% of donors and 56% of the transplant list; see **Table 4.9**. Of the 256 cardiothoracic donors, 40% were in the 35 to 49 years age group.

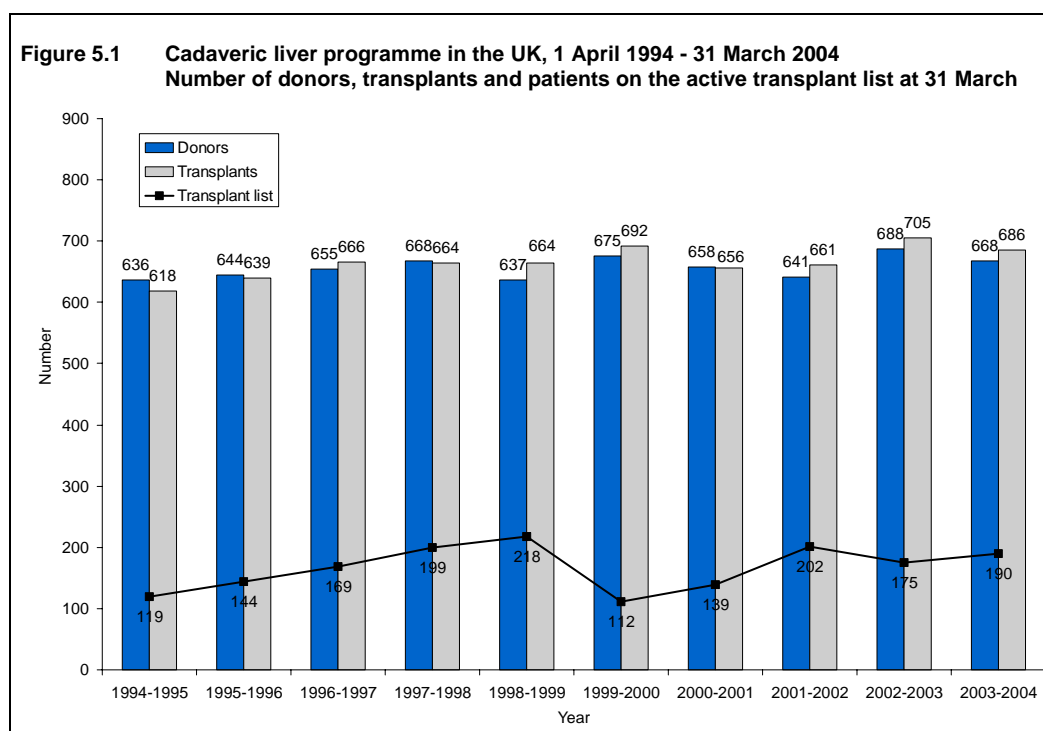
**Table 4.9**      **Age and sex of cardiothoracic donors and transplant recipients,  
1 April 2003 - 31 March 2004, and transplant list patients at 31 March 2004**

	<b>Age group (years)</b>					<b>TOTAL</b>	
	0-17	18-34	35-49	50-59	60+		
<b>Donors</b>							
Male	17	42	59	17	4	<b>139</b>	<b>(54%)</b>
Female	17	25	43	27	4	<b>117</b>	<b>(46%)</b>
<b>TOTAL</b>	<b>34 (13%)</b>	<b>68 (27%)</b>	<b>102 (40%)</b>	<b>44 (17%)</b>	<b>8 (3%)</b>	<b>256</b>	<b>(100%)</b>
<b>Recipients</b>							
Male	24	32	40	84	25	<b>205</b>	<b>(64%)</b>
Female	19	25	34	32	6	<b>116</b>	<b>(36%)</b>
<b>TOTAL</b>	<b>43 (13%)</b>	<b>57 (18%)</b>	<b>74 (23%)</b>	<b>116 (36%)</b>	<b>31 (10%)</b>	<b>321</b>	<b>(100%)</b>
<b>Transplant list</b>							
Male	16	44	50	82	33	<b>225</b>	<b>(56%)</b>
Female	17	47	40	56	19	<b>179</b>	<b>(44%)</b>
<b>TOTAL</b>	<b>33 (8%)</b>	<b>91 (23%)</b>	<b>90 (22%)</b>	<b>138 (34%)</b>	<b>52 (13%)</b>	<b>404</b>	<b>(100%)</b>

## 5 LIVER ACTIVITY

### 5.1 Overview

The number of cadaveric liver donors and transplants in the UK has remained relatively constant in the last ten years as shown in **Figure 5.1**. The number of patients actively waiting for a transplant at 31 March increased steadily until 1999, followed by a decrease in 2000. At 31 March 2004, the number on the transplant list was 9% greater than the previous year.



The number of cadaveric donors, cadaveric and living donor transplants and patients on the active or suspended transplant list, by centre, is shown in **Table 5.1**. In 2003-2004, 668 solid organ donors donated their liver for transplant: 640 heartbeating and 28 non-heartbeating. Overall, the number of cadaveric liver transplants fell by 3% to 686, but the number of non-heartbeating donor transplants increased to 21 from 15 in 2002-2003. Additionally, there were three domino liver and seven living liver lobe donor transplants in NHS Group 2 recipients at King's College. There were 201 patients on the active and suspended transplant list at 31 March 2004, an increase of 11% from 2003.

**Table 5.1** Cadaveric and living liver donors and transplants, 1 April 2003 - 31 March 2004 (2002-2003) and transplant list patients at 31 March 2004 (2003) in the UK, by centre

Retrieval/ transplant centre	Cadaveric donors						Cadaveric donor transplants						Living donor transplants		Active and suspended transplant list	
	HB		NHB		TOTAL		HB		NHB		TOTAL					
Birmingham	175	(154)	0	(0)	175	(154)	166	(162)	0	(0)	166	(162)	0	(0)	23	(26)
Cambridge	74	(74)	0	(0)	74	(74)	76	(69)	0	(0)	76	(69)	0	(0)	24	(14)
Edinburgh	42	(51)	0	(0)	42	(51)	47	(61)	0	(0)	47	(61)	0	(0)	24	(16)
King's College	162	(153)	17	(19)	179	(172)	185	(182)	11	(12)	196	(194)	10	(7)	65	(63)
Leeds	91	(117)	10	(3)	101	(120)	98	(131)	8	(2)	106	(133)	0	(0)	32	(32)
Newcastle	33	(32)	1	(1)	34	(33)	29	(33)	2	(1)	31	(34)	0	(0)	11	(13)
The Royal Free	61	(82)	0	(0)	61	(82)	64	(52)	0	(0)	64	(52)	0	(0)	22	(17)
TOTAL	640 <sup>1</sup>	(665 <sup>1</sup> )	28	(23)	668 <sup>1</sup>	(688 <sup>1</sup> )	665	(690)	21	(15)	686	(705)	10 <sup>2</sup>	(7 <sup>3</sup> )	201	(181)

<sup>1</sup> Includes donors whose livers were retrieved by other teams

<sup>2</sup> 10 in NHS group 2 recipients

<sup>3</sup> 6 in NHS group 2 recipients and 1 in NHS group 1 paediatric recipient

## 5.2 Transplant list

The outcome of patients registered at 1 April 2003 and patients registered during the year is shown in **Table 5.2**. Of the 1,027 patients waiting on the list during 2003-2004, 66% were transplanted and 20% were still waiting at 31 March 2004.

**Table 5.2** Liver transplant list and new registrations in the UK, 1 April 2003 – 31 March 2004

Outcome of patient at 31 March 2004	Active and suspended patients at 1 April 2003		New registrations in 2003-2004 <sup>1</sup>		TOTAL	
	N	%	N	%	N	%
Remained active/suspended	24	13	186	22	210	20
Transplanted	124	69	550	65	674	66
Removed	20	11	53	6	73	7
Died	12	7	58	7	70	7
<b>TOTAL</b>	<b>180</b>		<b>847</b>		<b>1027</b>	

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

## 5.3 Donor and organ supply

Of 772 solid organ donors, 668 (87%) donated their liver and 628 (94%) of these donated livers were transplanted; see **Table 5.3**. Of livers retrieved from heartbeating and non-heartbeating donors, 95% and 75% were transplanted, respectively.

**Table 5.3** Cadaveric liver retrieval rates in the UK, 1 April 2003 – 31 March 2004, by donation zone

Donation zone	Number of donors						Number of livers retrieved (used)					
	Solid organ			Liver			HB			NHB		
	HB	NHB	TOTAL	HB	NHB	TOTAL	HB			NHB		TOTAL
Birmingham	191	0	191	182	0	182	182	(173)	0	(0)	182	(173)
Cambridge	83	13	96	72	0	72	72	(67)	0	(0)	72	(67)
Edinburgh	46	0	46	44	0	44	44	(44)	0	(0)	44	(44)
King's College	168	26	194	159	10	169	159	(152)	10	(8)	169	(160)
Leeds	96	12	108	89	10	99	89	(83)	10	(8)	99	(91)
Newcastle	43	12	55	31	1	32	31	(29)	1	(1)	32	(30)
The Royal Free	72	10	82	63	7	70	63	(59)	7	(4)	70	(63)
<b>TOTAL</b>	<b>699</b>	<b>73</b>	<b>772</b>	<b>640</b>	<b>28</b>	<b>668</b>	<b>640</b>	<b>(607)</b>	<b>28</b>	<b>(21)</b>	<b>668</b>	<b>(628)</b>

**Table 5.4** shows the cadaveric solid organ and liver donor rates per million population for 2003-2004. Overall, the liver donor rate was 11.3 pmp and ranged from 8.7 to 12.9 pmp across the donation zones.

<b>Table 5.4      Cadaveric liver donation rates per million population (pmp), 1 April 2003 – 31 March 2004, by donation zone</b>		
<b>Donation zone</b>	<b>Solid organ donor pmp</b>	<b>Liver donor pmp</b>
Birmingham	12.8	12.2
Cambridge	11.7	8.8
Edinburgh	9.1	8.7
King's College	13.2	11.5
Leeds	14.1	12.9
Newcastle	21.7	12.6
The Royal Free	14.0	11.9
<b>TOTAL</b>	<b>13.1</b>	<b>11.3</b>

## 5.4 Transplants

The number of whole, split and reduced liver transplants in 2003-2004 is shown in **Table 5.5**. 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 liver transplants fell by 3% in 2003-2004. There were 686 cadaveric liver transplants performed in 2003-2004: 610 whole liver, including 10 liver and kidney, and 76 cadaveric liver lobe. Split liver transplants accounted for 66% of liver lobe transplant activity. The transplant rate overall was 11.6 pmp and varied between centres from 9.3 to 13.8. The *BTS Standard* states that each centre should aim to achieve at least 12 liver transplants pmp per year.

<b>Table 5.5      Cadaveric donor liver transplants performed in the UK, 1 April 2002 - 31 March 2004</b>									
<b>Transplant centre</b>	<b>2002-2003</b>				<b>2003-2004</b>				<b>TOTAL (pmp)</b>
	Whole liver	Reduced liver	Split liver	<b>TOTAL (pmp)</b>	Whole liver	Reduced liver	Split liver	<b>TOTAL (pmp)</b>	
Birmingham	133	10	19	<b>162 (10.8)</b>	139	10	17	<b>166 (11.1)</b>	
Cambridge	69	0	0	<b>69 (8.4)</b>	73	0	3	<b>76 (9.3)</b>	
Edinburgh	58	0	3	<b>61 (12.1)</b>	46	1	0	<b>47 (9.3)</b>	
King's College	157	6	31	<b>194 (13.2)</b>	157	14	25	<b>196 (13.3)</b>	
Leeds	117	3	13	<b>133 (17.4)</b>	100	1	5	<b>106 (13.8)</b>	
Newcastle	34	0	0	<b>34 (13.4)</b>	31	0	0	<b>31 (12.2)</b>	
The Royal Free	52	0	0	<b>52 (8.9)</b>	64	0	0	<b>64 (10.9)</b>	
<b>TOTAL</b>	<b>620</b>	<b>19</b>	<b>66</b>	<b>705 (11.9)</b>	<b>610</b>	<b>26</b>	<b>50</b>	<b>686 (11.6)</b>	

## 5.5 Demographic characteristics

The ethnicity of liver donors, transplant recipients and transplant list patients is shown in **Table 5.6**. In 2003-2004, the proportion of Asian patients waiting on the transplant list was much greater than that of donors, 7.5% compared with 1.5%, respectively. Note that the percentages quoted are based on data where ethnicity information was available.

Table 5.6 Ethnicity of liver donors and recipients, 1 April 2002 - 31 March 2004 and transplant list patients at 31 March in the UK												
Ethnicity	Donors				Transplant recipients				Active and suspended transplant list patients			
	2002-2003		2003-2004		2002-2003		2003-2004		2003		2004	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
White	675	(97.5)	651	(96.0)	598	(84.0)	567	(81.5)	143	(79.0)	168	(83.6)
Asian	7	(1.0)	10	(1.5)	74	(10.4)	90	(12.9)	17	(9.4)	15	(7.5)
Black	4	(0.6)	6	(0.9)	10	(1.4)	15	(2.2)	1	(0.6)	4	(2.0)
Chinese	2	(0.3)	1	(0.1)	4	(0.6)	8	(1.1)	3	(1.7)	0	(0.0)
Other	4	(0.6)	10	(1.5)	26	(3.7)	16	(2.3)	17	(9.4)	14	(7.0)
Not reported	3	-	0	-	0	-	0	-	0	-	0	-
TOTAL	695		678		712		696		181		201	

The age and sex distribution of donors and recipients in 2003-2004, and patients on the transplant list at 31 March 2004, are shown in **Table 5.7**. The 35-49 year age group had the largest proportion of donors (35%) and the 50-59 year age group had the largest proportion of patients on the transplant list (29%).

Table 5.7      Age and sex of liver donors and transplant recipients, 1 April 2003 - 31 March 2004, and transplant list patients at 31 March 2004									
	Age group (years)								
	0-17	18-34	35-49	50-59	60+	TOTAL			
Donors									
Male	28	71	109	70	54	332	(49%)		
Female	25	49	126	94	49	343	(51%)		
TOTAL	53   (8%)	120 <sup>1</sup> (18%)	235   (35%)	164   (24%)	103   (15%)	675 <sup>1</sup>	(100%)		
Recipients									
Male	45	29	127	134	81	416	(60%)		
Female	43	40	76	70	51	280	(40%)		
TOTAL	88   (13%)	69   (10%)	203   (29%)	204   (29%)	132   (19%)	696	(100%)		
Transplant list									
Male	13	10	23	40	18	104	(52%)		
Female	20	10	24	18	25	97	(48%)		
TOTAL	33   (16%)	20   (10%)	47   (23%)	58   (29%)	43   (21%)	201	(100%)		
<sup>1</sup> Excludes three living donors where sex was not reported									

<sup>1</sup> Excludes three living donors where sex was not reported



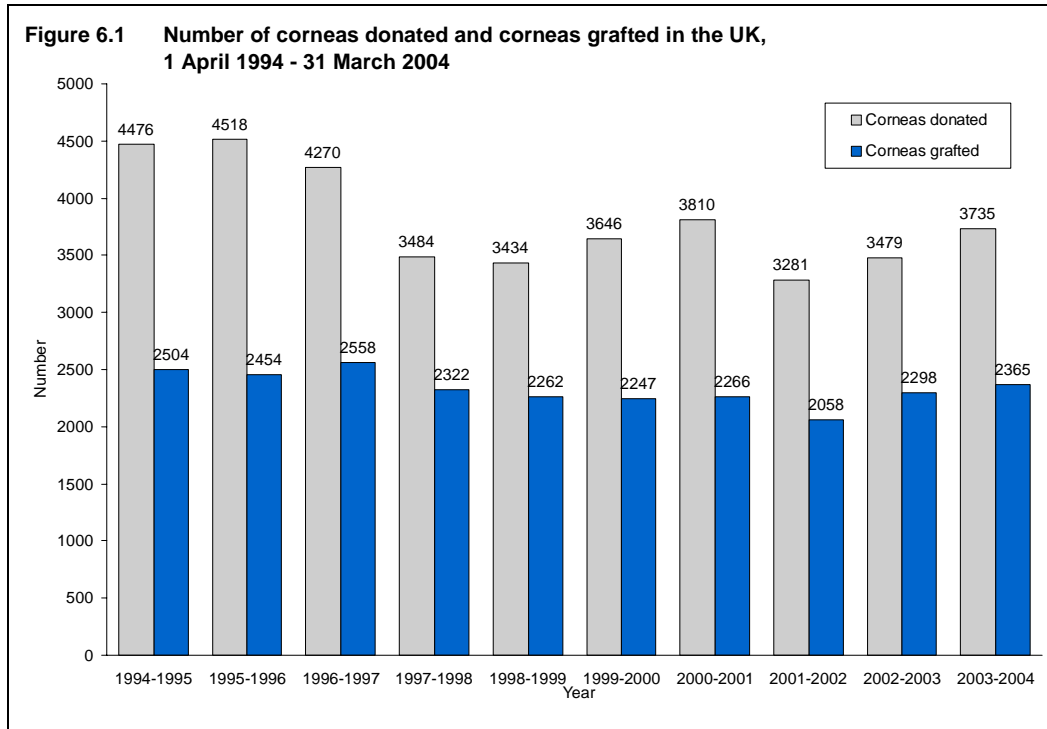
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## 6 CORNEA ACTIVITY

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### 6.1 Overview

Both the number of corneas donated and the number of corneas grafted increased in 2003-2004 by 7% and 3%, respectively as shown in **Figure 6.1**. Additionally, 170 sclera were issued and used.



In 2003-2004 there were 1,873 cornea donors, of whom 1,644 donated corneas only and 229 donated corneas and solid organs; see **Table 6.1**. Compared with 2002-2003, the number of cornea only donors increased by 124 (8%) and the number of cornea and solid organ donors increased by 5 (2%). Corneas were retrieved from 29% of cadaveric heartbeating solid organ donors in 2003-2004, the same percentage as in 2002-2003. Of the 73 non-heartbeating solid organ donors in 2003-2004, 29 (40%) also donated corneas.

**Table 6.1** also shows the number and rate per million population (pmp) of donors in 2003-2004 by country and English Strategic Health Authority (StHA), with figures for 2002-2003 in parentheses. In both financial years, Wales had the highest cornea donor rate in the UK: 40 pmp in 2002-2003 and 50 pmp in 2003-2004. In 2003-2004, the cornea donor rate increased in England, Wales and Northern Ireland, but fell in Scotland. Across the StHAs the cornea donor rate ranged from 8 pmp to 91.2 pmp.

<b>Table 6.1 Cornea donation rates per million population (pmp) in the UK, 1 April 2003 - 31 March 2004 (2002-2003), by country and English Strategic Health Authority</b>								
<b>Country/Strategic Health Authority</b>	<b>Cornea only</b>		<b>Solid organ and cornea</b>		<b>TOTAL</b>		<b>TOTAL pmp</b>	
Avon, Gloucestershire and Wiltshire	107	(130)	21	(11)	128	(141)	59.2	(65.2)
Bedfordshire and Hertfordshire	14	(7)	3	(4)	17	(11)	10.6	(6.9)
Birmingham and The Black Country	19	(20)	8	(5)	27	(25)	12.0	(11.1)
Cheshire and Merseyside	68	(75)	10	(12)	78	(87)	33.3	(37.1)
County Durham and Tees Valley	70	(54)	2	(5)	72	(59)	63.6	(52.1)
Coventry, Warwickshire, Hereford and Worcs	28	(21)	4	(2)	32	(23)	21.0	(15.1)
Cumbria and Lancashire	44	(36)	12	(5)	56	(41)	29.4	(21.6)
Essex	24	(18)	3	(3)	27	(21)	16.7	(13.0)
Greater Manchester	79	(67)	7	(11)	86	(78)	34.2	(31.0)
Hampshire and Isle of Wight	73	(44)	4	(11)	77	(55)	43.4	(31.0)
Kent and Medway	139	(140)	5	(5)	144	(145)	91.2	(91.8)
Leicestershire, Northamptonshire and Rutland	16	(17)	1	(6)	17	(23)	10.9	(14.8)
Norfolk, Suffolk and Cambridgeshire	175	(196)	13	(5)	188	(201)	86.5	(92.5)
North and East Yorkshire and Northern Lincs	29	(23)	6	(2)	35	(25)	21.6	(15.4)
North Central London	32	(37)	7	(13)	39	(50)	33.1	(42.4)
North East London	3	(11)	9	(10)	12	(21)	8.0	(14.0)
North West London	12	(7)	7	(9)	19	(16)	11.0	(9.2)
Northumberland, Tyne and Wear	75	(84)	11	(10)	86	(94)	62.2	(68.0)
Shropshire and Staffordshire	27	(10)	4	(8)	31	(18)	20.8	(12.1)
Somerset and Dorset	42	(30)	5	(4)	47	(34)	39.5	(28.5)
South East London	13	(17)	9	(7)	22	(24)	14.8	(16.1)
South West London	7	(18)	5	(4)	12	(22)	9.4	(17.2)
South West Peninsula	113	(76)	6	(4)	119	(80)	75.5	(50.8)
South Yorkshire	20	(20)	2	(3)	22	(23)	17.4	(18.2)
Surrey and Sussex	92	(87)	8	(8)	100	(95)	39.2	(37.2)
Thames Valley	41	(34)	6	(7)	47	(41)	22.5	(19.6)
Trent	62	(37)	9	(1)	71	(38)	27.4	(14.7)
West Yorkshire	39	(36)	12	(11)	51	(47)	24.5	(22.6)
<b>England</b>	<b>1463</b>	<b>(1352)</b>	<b>199</b>	<b>(186)</b>	<b>1662</b>	<b>(1538)</b>	<b>33.8</b>	<b>(31.3)</b>
<b>Isle of Man</b>	<b>0</b>	<b>(0)</b>	<b>0</b>	<b>(1)</b>	<b>0</b>	<b>(1)</b>	<b>0.0</b>	<b>(14.3)</b>
<b>Channel Islands</b>	<b>1</b>	<b>(2)</b>	<b>0</b>	<b>(2)</b>	<b>1</b>	<b>(4)</b>	<b>7.1</b>	<b>(28.6)</b>
<b>Wales</b>	<b>134</b>	<b>(105)</b>	<b>10</b>	<b>(11)</b>	<b>144</b>	<b>(116)</b>	<b>49.7</b>	<b>(40.0)</b>
<b>Scotland</b>	<b>35</b>	<b>(56)</b>	<b>11</b>	<b>(15)</b>	<b>46</b>	<b>(71)</b>	<b>9.1</b>	<b>(14.0)</b>
<b>Northern Ireland</b>	<b>11</b>	<b>(5)</b>	<b>9</b>	<b>(9)</b>	<b>20</b>	<b>(14)</b>	<b>11.8</b>	<b>(8.3)</b>
<b>TOTAL</b>	<b>1644</b>	<b>(1520)</b>	<b>229</b>	<b>(224)</b>	<b>1873</b>	<b>(1744)</b>	<b>31.7</b>	<b>(29.6)</b>

## 6.2 Donor and tissue supply

In 2003-2004, 98% (97% in 2002-2003) of retrieved corneas reported to the National Transplant Database were supplied to the Cornea Transplant Service (CTS) Eye Banks in Bristol and Manchester. **Table 6.2** shows the number of corneas supplied to and taken from the CTS Eye Banks for those centres that supplied more than 25 corneas in 2003-2004. 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 (PKP) graft, that is where donor and tissue selection criteria were met. Centres with a negative balance have taken more corneas

than they supplied to the CTS Eye Banks. Of the 3,669 corneas supplied to the CTS Eye Banks, 2,498 (68%) were suitable for a PKP graft.

**Table 6.2 Corneas supplied to and taken from the CTS eye banks, 1 April 2003 - 31 March 2004**

Centre	Corneas supplied	Suitable for PKP (%)	Corneas taken	Balance
East Grinstead, Queen Victoria Hospital	438	288 (66)	81	357
Norwich, West Norwich Hospital	240	183 (76)	16	224
London, Moorfields Eye Hospital	211	134 (64)	181	30
Bristol, Eye Hospital	189	132 (70)	59	130
Newcastle, Royal Victoria Infirmary	146	99 (68)	45	101
Newport, Royal Gwent Hospital	144	89 (62)	8	136
Middlesbrough, South Cleveland Hospital	110	72 (65)	14	96
Liverpool, Royal Liverpool University Hospital	108	68 (63)	56	52
Nottingham, University Hospital	90	64 (71)	46	44
Manchester, Royal Eye Hospital	87	70 (80)	87	0
Exeter, Royal Devon & Exeter Hospital	82	52 (63)	9	73
Plymouth, Royal Eye Infirmary	76	48 (63)	17	59
Peterborough, District Hospital	70	56 (80)	2	68
Bolton, Royal Bolton Hospital	63	48 (76)	11	52
Leeds, General Infirmary	56	46 (82)	94	-38
Reading, Royal Berkshire Hospital	46	26 (57)	14	32
Birmingham, Birmingham & Midland Eye Centre	40	23 (58)	63	-23
Southampton, University Hospitals	39	25 (64)	12	27
Ipswich Hospital	38	26 (68)	17	21
Preston, Royal Preston Hospital	38	26 (68)	1	37
Truro, Royal Cornwall Hospital (Treliske)	38	28 (74)	8	30
Coventry & Warwickshire Hospital	38	28 (74)	30	8
Sunderland, Eye Infirmary	36	28 (78)	32	4
Stoke, North Staffordshire Royal Infirmary	34	29 (85)	27	7
Belfast, Royal Victoria Hospital	32	22 (69)	28	4
Taunton, Taunton & Somerset Hospital	32	22 (69)	13	19
Portsmouth, Queen Alexandra Hospital	30	20 (67)	6	24
Barnstaple, North Devon District Hospital	30	22 (73)	0	30
Cardiff, University of Wales Hospital	28	12 (43)	0	28
Carlisle, Cumberland Infirmary	26	19 (73)	12	14
<b>Centres supplying more than 25 corneas</b>	<b>2635</b>	<b>1805 (69)</b>	<b>989</b>	<b>1646</b>
<b>All other centres</b>	<b>1034</b>	<b>693 (67)</b>	<b>1362</b>	<b>-328</b>
<b>TOTAL</b>	<b>3669</b>	<b>2498 (68)</b>	<b>2351</b>	<b>1318</b>

### 6.3 CTS Eye Bank activity

The activity levels for the Bristol and Manchester Eye Banks are shown in **Table 6.3**. Both the numbers of corneas received and issued by the CTS Eye Banks increased in 2003-2004, by 9% and 6%, respectively. In 2003-2004, 3,669 corneas were received into the Eye Banks, of which 2,572 (70%) were subsequently issued for grafting. The balance equates to corneas unsuitable for transplantation.

**Table 6.3** Corneas received into the Bristol and Manchester eye banks,  
1 April 2003 - 31 March 2004 (2002-2003), by year

	Total received		Number issued <sup>1</sup>		% issued		Balance <sup>2</sup>	
Bristol	2134	(2139)	1444	(1574)	68	(74)	690	(565)
Manchester	1535	(1237)	1128	(863)	73	(70)	407	(374)
<b>TOTAL</b>	<b>3669</b>	<b>(3376)</b>	<b>2572</b>	<b>(2437)</b>	<b>70</b>	<b>(72)</b>	<b>1097</b>	<b>(939)</b>

<sup>1</sup> Number issued of those received in each year

<sup>2</sup> Corneas unsuitable for transplantation

The outcome of the corneas received into the CTS Eye Banks is given in **Table 6.4**. Of corneas supplied to the Eye Banks in 2003-2004, 63% were used for a penetrating graft, 1% were used for lamellar grafts and 5% were issued but not used. Of the corneas supplied to the Eye Banks, 10% were unsuitable for transplant because of medical contraindications, 14% had endothelial deficiencies or stromal opacity and 5% were discarded because of bacterial or fungal contamination. Less than 1% of corneas became outdated, that is, they exceeded 28 days storage. Corneas that were unsuitable for transplantation were, where possible, used for research where permission had been given by the relatives.

**Table 6.4 Outcome of corneas received into the Bristol and Manchester eye banks, 1 April 2003 - 31 March 2004 (2002-2003), by year**

Outcome of cornea	Bristol				Manchester				TOTAL			
	N		%		N		%		N		%	
<b>Used</b>												
Penetrating keratoplasty	1285	(1384)	60	(65)	1034	(781)	67	(63)	2319	(2165)	63	(64)
Lamellar keratoplasty	40	(54)	2	(3)	15	(16)	1	(1)	55	(70)	1	(2)
Epikeratophakia plano lens <sup>1</sup>	0	(2)	0	(< 1)	0	(0)	0	(0)	0	(2)	0	(< 1)
Epikeratophakia powered <sup>1</sup>	0	(1)	0	(< 1)	0	(1)	0	(< 1)	0	(2)	0	(< 1)
Lathed lamellar lenticule <sup>1</sup>	0	(19)	0	(< 1)	0	(0)	0	(0)	0	(19)	0	(< 1)
Other/not reported	9	(8)	< 1	(< 1)	5	(8)	< 1	(< 1)	14	(16)	< 1	(< 1)
<b>Total used</b>	<b>1334</b>	<b>(1468)</b>	<b>63</b>	<b>(69)</b>	<b>1054</b>	<b>(806)</b>	<b>69</b>	<b>(65)</b>	<b>2388</b>	<b>(2274)</b>	<b>65</b>	<b>(67)</b>
<b>Not used</b>												
Issued, not used	110	(106)	5	(5)	74	(57)	5	(5)	184	(163)	5	(5)
Unsuitable - endothelium, stromal opacity, other	338	(195)	16	(9)	188	(167)	12	(14)	526	(362)	14	(11)
Medical reason - serology	181	(123)	8	(6)	79	(64)	5	(5)	260	(187)	7	(6)
Medical reason - other	70	(64)	3	(3)	40	(42)	3	(3)	110	(106)	3	(3)
Contaminated	93	(176)	4	(8)	88	(90)	6	(7)	181	(266)	5	(8)
Other/not reported	8	(7)	< 1	(< 1)	12	(11)	1	(< 1)	20	(18)	< 1	(< 1)
<b>Total not used</b>	<b>800</b>	<b>(671)</b>	<b>37</b>	<b>(31)</b>	<b>481</b>	<b>(431)</b>	<b>31</b>	<b>(35)</b>	<b>1281</b>	<b>(1102)</b>	<b>35</b>	<b>(33)</b>
<b>TOTAL</b>	<b>2134</b>	<b>(2139)</b>			<b>1535</b>	<b>(1237)</b>			<b>3669</b>	<b>(3376)</b>		

<sup>1</sup> The cryolathe service was withdrawn in 2003

## 6.4 Transplants

Transplant activity by country and Strategic Health Authority in England for the years 2002-2003 and 2003-2004 is detailed in **Table 6.5**. The overall transplant rate was 38.9 pmp in 2002-2003; this increased to 40.1 pmp in 2003-2004. The transplant rates increased in England, but fell in Wales, Scotland and Northern Ireland.

**Table 6.5 Cornea transplants performed per million population (pmp) in the UK, 1 April 2002 - 31 March 2004, by country and English Strategic Health Authority**

Country/Strategic Health Authority	Number of transplants (pmp)			
	2002-2003		2003-2004	
Avon, Gloucestershire and Wiltshire	114	(52.7)	103	(47.6)
Bedfordshire and Hertfordshire	20	(12.5)	39	(24.4)
Birmingham and The Black Country	121	(53.7)	122	(54.1)
Cheshire and Merseyside	92	(39.2)	103	(43.9)
County Durham and Tees Valley	19	(16.8)	29	(25.6)
Coventry, Warwickshire, Herefordshire and Worcestershire	63	(41.3)	58	(38.1)
Cumbria and Lancashire	58	(30.5)	43	(22.6)
Essex	45	(27.9)	54	(33.4)
Greater Manchester	143	(56.9)	136	(54.1)
Hampshire and Isle of Wight	44	(24.8)	28	(15.8)
Kent and Medway	123	(77.9)	128	(81.1)
Leicestershire, Northamptonshire and Rutland	38	(24.5)	67	(43.1)
Norfolk, Suffolk and Cambridgeshire	112	(51.5)	90	(41.4)
North and East Yorkshire and Northern Lincolnshire	29	(17.9)	60	(37.0)
North Central London	154	(130.6)	199	(168.8)
North East London	23	(15.4)	29	(19.4)
North West London	57	(32.9)	49	(28.3)
Northumberland, Tyne and Wear	76	(55.0)	77	(55.7)
Shropshire and Staffordshire	44	(29.6)	56	(37.6)
Somerset and Dorset	55	(46.2)	35	(29.4)
South East London	47	(31.6)	46	(30.9)
South West London	45	(35.2)	50	(39.1)
South West Peninsula	42	(26.6)	41	(26.0)
South Yorkshire	58	(45.8)	54	(42.7)
Surrey and Sussex	46	(18.0)	44	(17.2)
Thames Valley	88	(42.1)	109	(52.1)
Trent	93	(35.9)	82	(31.7)
West Yorkshire	148	(71.2)	180	(86.6)
<b>England</b>	<b>1997</b>	<b>(40.6)</b>	<b>2111</b>	<b>(43.0)</b>
<b>Isle of Man</b>	<b>1</b>	<b>(14.3)</b>	<b>1</b>	<b>(14.3)</b>
<b>Channel Islands</b>	<b>0</b>	<b>-</b>	<b>0</b>	<b>-</b>
<b>Wales</b>	<b>82</b>	<b>(28.3)</b>	<b>75</b>	<b>(25.9)</b>
<b>Scotland</b>	<b>168</b>	<b>(33.2)</b>	<b>136</b>	<b>(26.9)</b>
<b>Northern Ireland</b>	<b>47</b>	<b>(27.8)</b>	<b>40</b>	<b>(23.7)</b>
<b>TOTAL</b>	<b>2295</b>	<b>(38.9)</b>	<b>2363</b>	<b>(40.1)</b>

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## 7 TRANSPLANT SURVIVAL

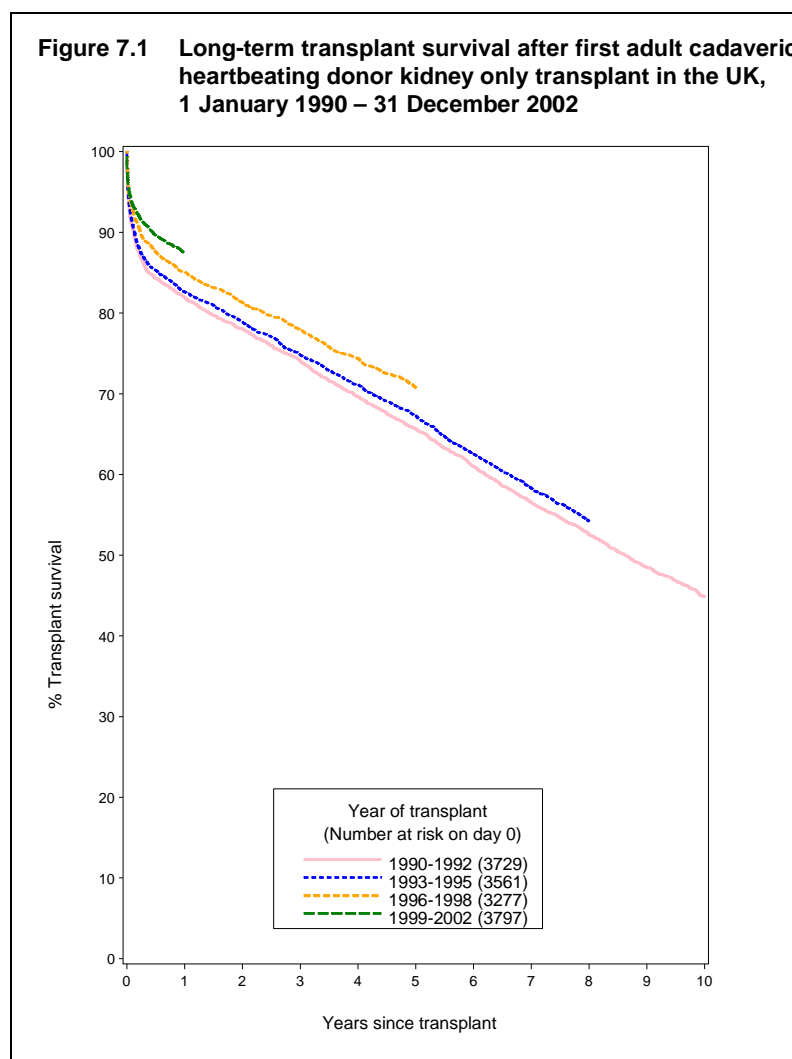
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This chapter shows long-term transplant survival estimates for transplants in the UK between 1 January 1990 and 31 December 2002, by calendar year group and organ type. Separate estimates are presented for adult and paediatric patients, using organ specific age definitions. There were insufficient numbers of paediatric patients to perform a meaningful analysis for heart/lung and lung transplants. In all cases, the Kaplan-Meier estimate of the survivor function was used and groups were compared using the log-rank test. For transplant survival, the outcome event is the earlier of graft failure or death of the recipient and thus recipient death with a functioning graft is treated as transplant failure.

### 7.1 Kidney transplant survival

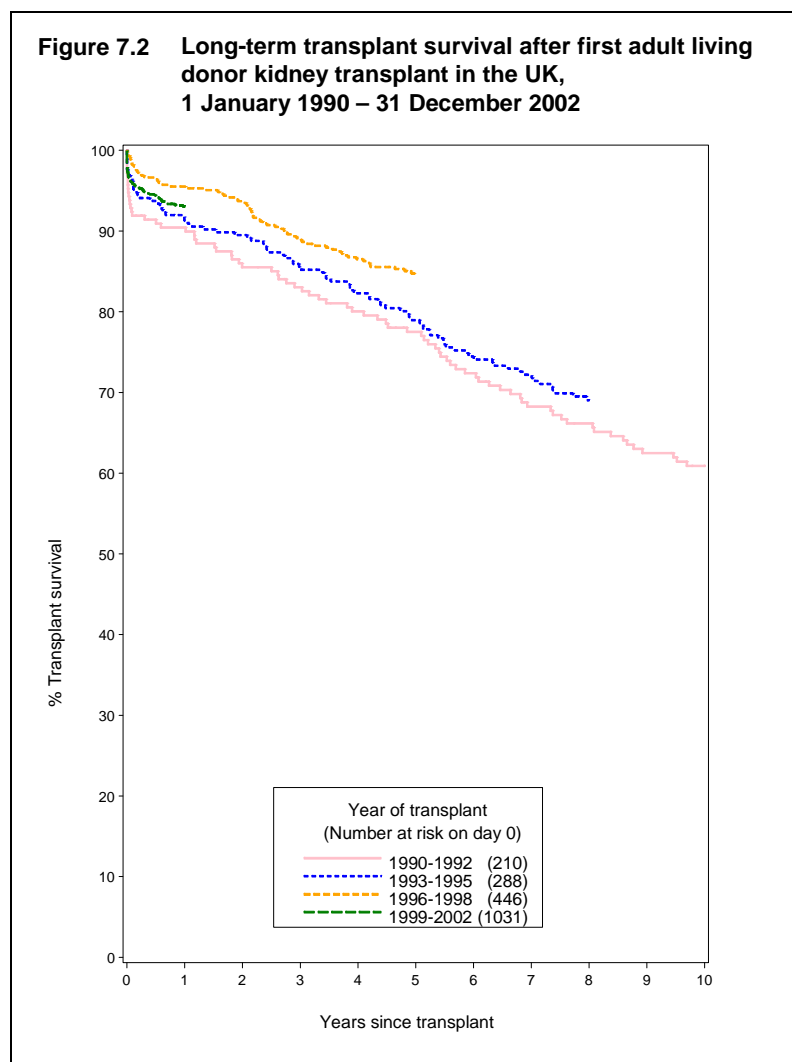
#### 7.1.1 Adult recipients

**Figure 7.1** shows long-term transplant survival in adult ( $\geq 18$  years) recipients for first cadaveric heartbeating donor kidney only transplants in the UK. Transplant survival estimates and confidence intervals are shown for each year group in **Table 7.1**. There was a significant improvement in one, two and five year survival over the year groups,  $p < 0.001$ ,  $p = 0.002$ ,  $p < 0.0001$  respectively.



<b>Table 7.1 Long-term transplant survival after first adult cadaveric heartbeating donor kidney only transplant in the UK, 1 January 1990 - 31 December 2002</b>					
<b>Year of transplant</b>	<b>No. at risk on day 0</b>	<b>% Transplant survival (95% confidence interval)</b>			
		<b>One year</b>	<b>Two year</b>	<b>Five year</b>	<b>Ten year</b>
1990-1992	3729	82 (81-83)	78 (77-79)	66 (64-67)	45 (43-46)
1993-1995	3561	83 (81-84)	79 (78-80)	67 (66-69)	
1996-1998	3277	85 (84-86)	81 (80-83)	71 (69-72)	
1999-2002	3797	87 (86-89)			

Long-term transplant survival in adult recipients for living donor kidney transplants in the UK is shown in **Figure 7.2**. **Table 7.2** shows transplant survival estimates and confidence intervals for each year group. There was a significant improvement in two and five year survival over the year groups,  $p < 0.004$  and  $p < 0.05$ , respectively. Increasing numbers of transplants for older patients and increasing use of poorly matched grafts partially account for a reduction in one year transplant survival in the most recent time period.

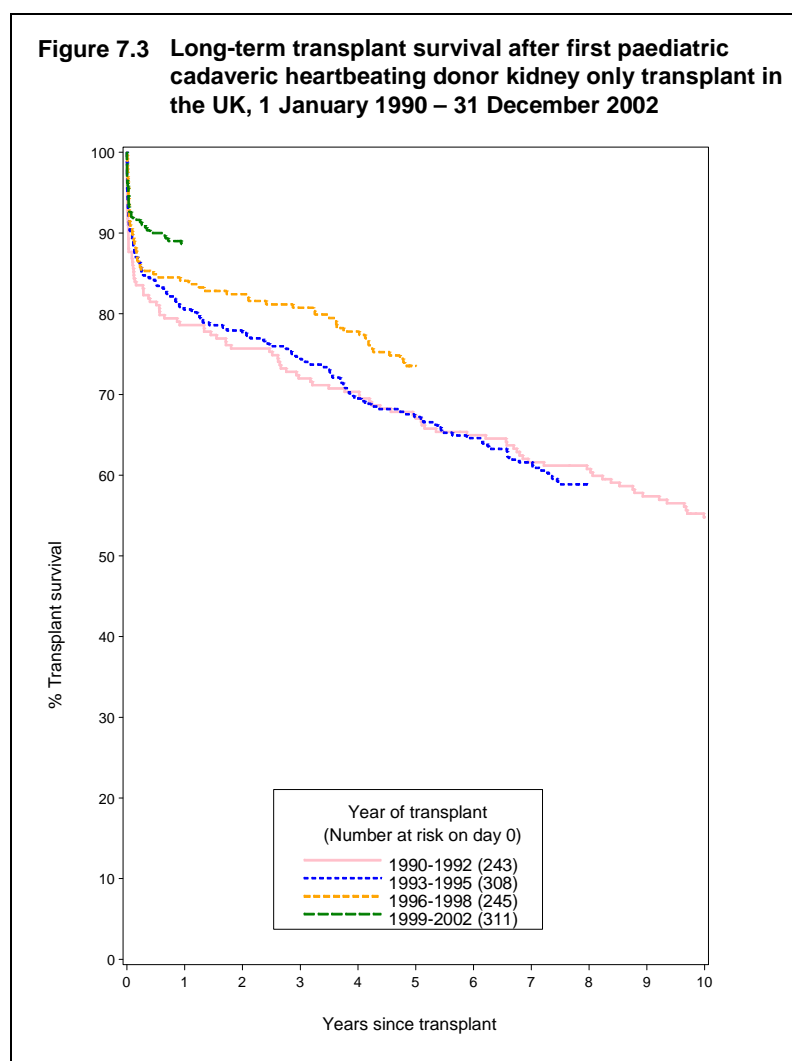




<b>Table 7.2 Long-term transplant survival after first adult living donor kidney transplant in the UK, 1 January 1990 - 31 December 2002</b>					
<b>Year of transplant</b>	<b>No. at risk on day 0</b>	<b>% Transplant survival (95% confidence interval)</b>			
		<b>One year</b>	<b>Two year</b>	<b>Five year</b>	<b>Ten year</b>
1990-1992	210	90 (86-94)	86 (81-90)	78 (72-83)	61 (54-68)
1993-1995	288	91 (88-95)	89 (86-93)	79 (74-84)	
1996-1998	446	96 (94-97)	93 (91-96)	84 (81-88)	
1999-2002	1031	93 (91-95)			

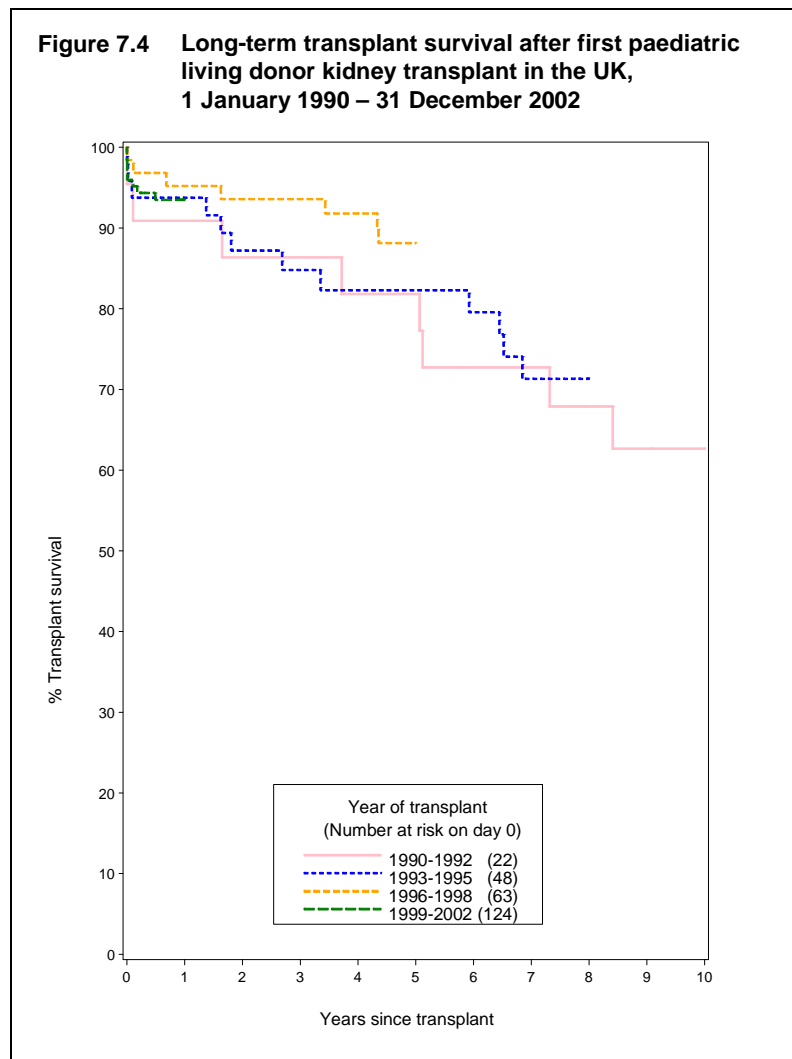
### 7.1.2 Paediatric recipients

**Figure 7.3** shows long-term transplant survival in paediatric (<18 years) recipients for first cadaveric heartbeating donor kidney only transplants in the UK. Transplant survival estimates and confidence intervals are shown for each year group in **Table 7.3**. There was a significant improvement in one year survival over the year groups,  $p < 0.01$ , but two and five year estimates do not differ significantly, ( $p > 0.1$ ).



<b>Table 7.3 Long-term transplant survival after first paediatric cadaveric heartbeating donor kidney only transplant in the UK, 1 January 1990 - 31 December 2002</b>						
<b>Year of transplant</b>	<b>No. at risk on day 0</b>	<b>% Transplant survival (95% confidence interval)</b>				
		<b>One year</b>	<b>Two year</b>	<b>Five year</b>	<b>Ten year</b>	
1990-1992	243	79 (73-84)	76 (70-81)	67 (62-73)	55 (48-61)	
1993-1995	308	81 (76-85)	78 (73-82)	67 (62-72)		
1996-1998	245	84 (79-89)	82 (78-87)	74 (68-79)		
1999-2002	311	89 (85-92)				

Long-term transplant survival in paediatric recipients for living donor kidney transplants in the UK is shown in **Figure 7.4**. **Table 7.4** shows transplant survival estimates and confidence intervals for each year group. There were no statistically significant differences in transplant survival across the year groups ( $p>0.4$ ).



**Table 7.4 Long-term transplant survival after first paediatric living donor kidney transplant in the UK, 1 January 1990 - 31 December 2002**

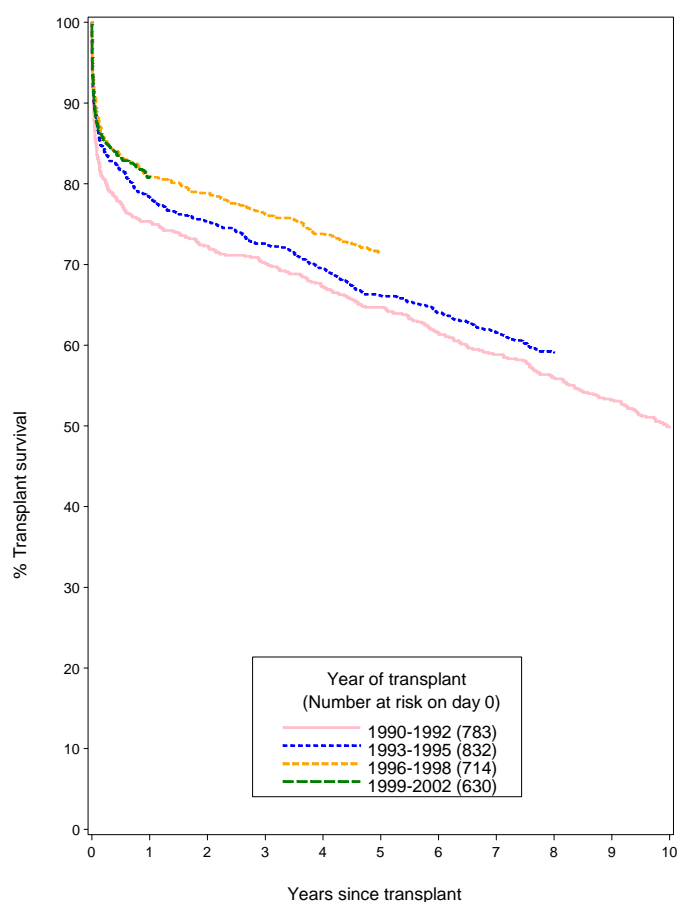
Year of transplant	No. at risk on day 0	% Transplant survival (95% confidence interval)			
		One year	Two year	Five year	Ten year
1990-1992	22	91 (79-100)	86 (72-100)	82 (66-98)	63 (42-83)
1993-1995	48	94 (87-100)	87 (78-97)	82 (71-93)	
1996-1998	63	95 (90-100)	94 (87-100)	88 (80-96)	
1999-2002	124	93 (89-98)			

## 7.2 Cardiothoracic transplant survival

### 7.2.1 Adult recipients

Long-term heart transplant survival for adult ( $\geq 16$  years) recipients after first heart only transplants is shown in **Figure 7.5**. Domino and cadaveric donor transplants are included as well as urgent and heterotopic transplants. **Table 7.5** shows the survival estimates and confidence intervals for one, two, five and ten years post-transplant and survival has significantly improved over the year groups,  $p < 0.03$ ,  $p < 0.02$  and  $p < 0.02$ , respectively.

**Figure 7.5 Long-term transplant survival after first adult heart only transplant in the UK, 1 January 1990 – 31 December 2002**



<b>Table 7.5 Long-term transplant survival after first adult heart only transplant in the UK, 1 January 1990 - 31 December 2002</b>					
<b>Year of transplant</b>	<b>No. at risk on day 0</b>	<b>% Transplant survival (95% confidence interval)</b>			
		<b>One year</b>	<b>Two year</b>	<b>Five year</b>	<b>Ten year</b>
1990-1992	783	75 (72-78)	72 (69-75)	65 (61-68)	50 (46-53)
1993-1995	832	78 (75-81)	75 (72-78)	66 (63-69)	
1996-1998	714	81 (78-84)	79 (76-82)	72 (68-75)	
1999-2002	630	81 (78-84)			

**Figure 7.6** shows transplant survival for adult recipients after first heart/lung block transplants. **Table 7.6** shows the transplant survival estimates for one, two, five and ten years post-transplant. There were no statistically significant differences in transplant survival across the year groups ( $p>0.9$ ).

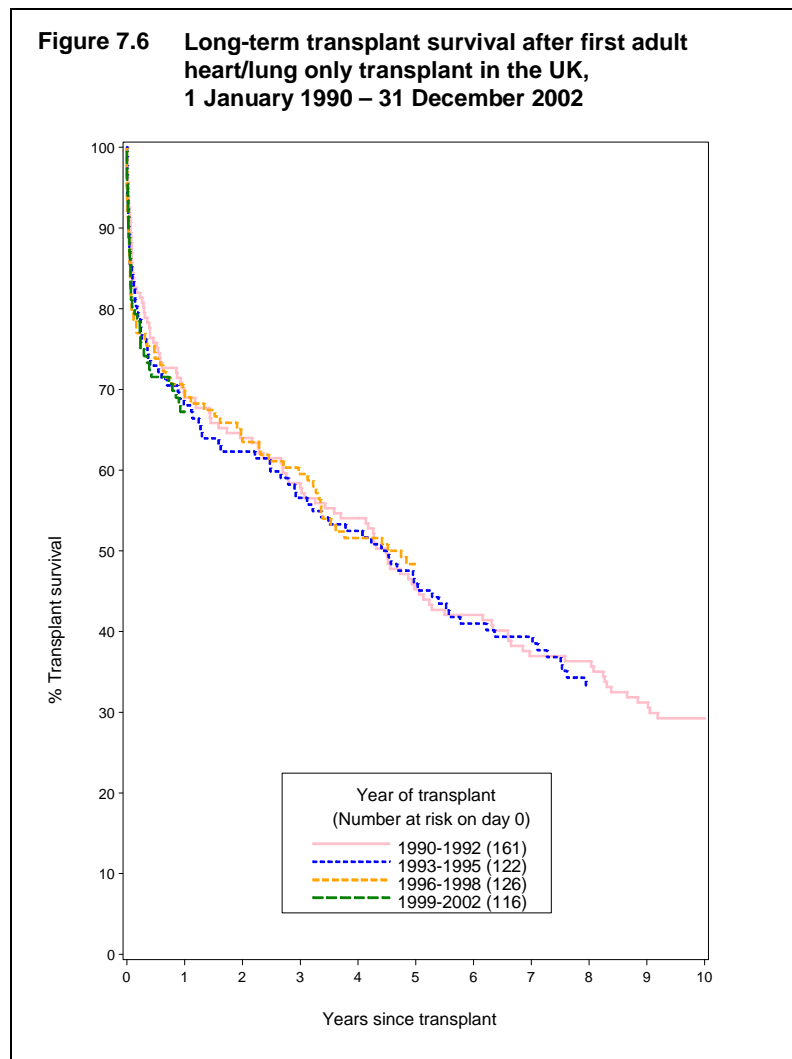
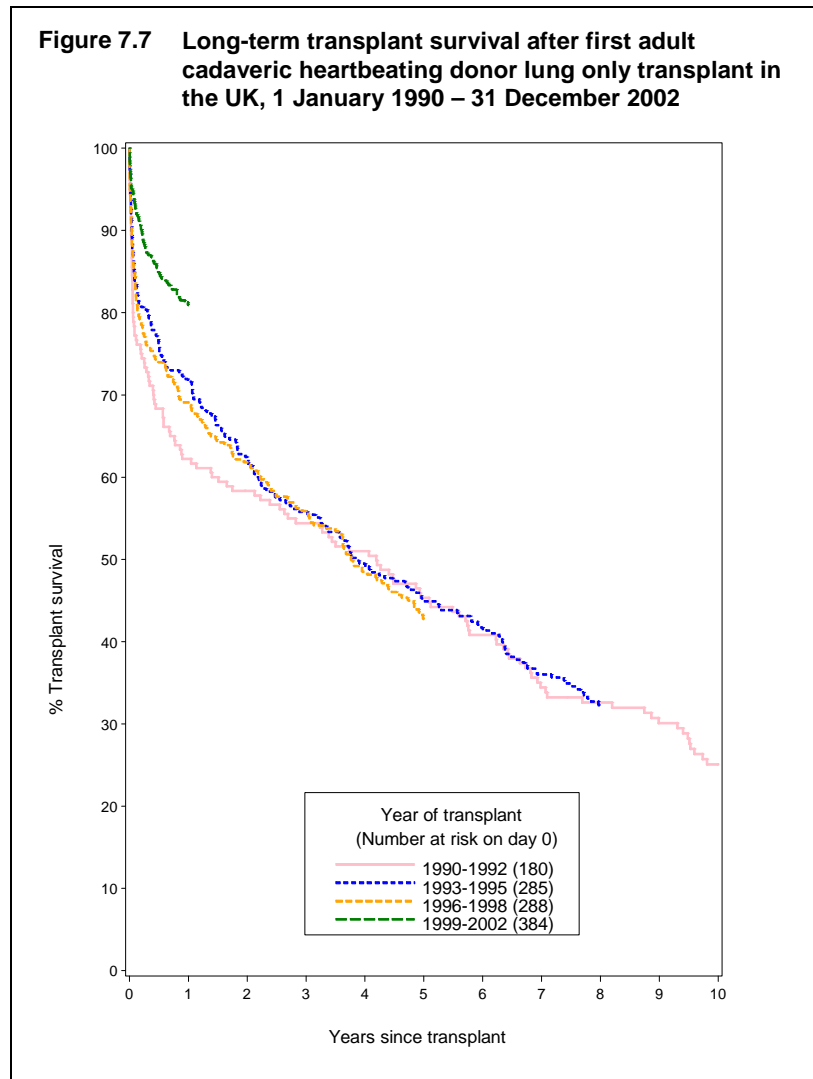


Table 7.6		Long-term transplant survival after first adult heart/lung block transplant in the UK, 1 January 1990 - 31 December 2002							
Year of transplant	No. at risk on day 0	% Transplant survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
1990-1992	161	69	(62-76)	64	(57-71)	45	(38-53)	29	(22-36)
1993-1995	122	68	(60-76)	62	(54-71)	46	(37-55)		
1996-1998	126	70	(62-78)	63	(55-72)	48	(40-57)		
1999-2002	116	67	(59-76)						

Transplant survival for first cadaveric heartbeating lung transplants for adult recipients is shown in **Figure 7.7** and survival estimates for one, two, five and ten years post-transplant are shown in **Table 7.7**. One year transplant survival has significantly improved over the year groups,  $p < 0.0001$ , but two and five year estimates do not differ significantly, ( $p > 0.5$ ).



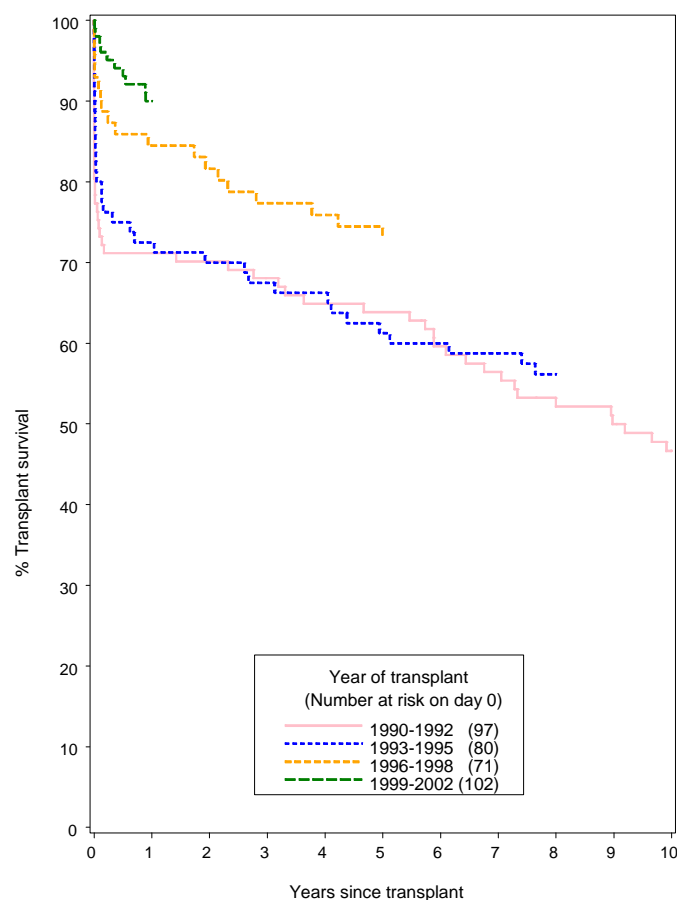
**Table 7.7 Long-term transplant survival after first adult cadaveric heartbeating donor lung only transplant in the UK, 1 January 1990 - 31 December 2002**

Year of transplant	No. at risk on day 0	% Transplant survival (95% confidence interval)			
		One year	Two year	Five year	Ten year
1990-1992	180	62 (55-69)	58 (51-66)	45 (38-53)	25 (19-32)
1993-1995	285	72 (66-77)	62 (56-68)	45 (39-51)	
1996-1998	288	69 (64-74)	62 (56-67)	43 (37-49)	
1999-2002	384	81 (77-85)			

### 7.2.2 Paediatric recipients

Long-term transplant survival for paediatric (<16 years) recipients after first heart only transplant is shown in **Figure 7.8**. Domino and cadaveric donor transplants are included as well as urgent and heterotopic transplants. **Table 7.8** shows the survival estimates and confidence intervals for one, two, five and ten years post-transplant. One year survival has significantly improved over the year groups,  $p < 0.001$ , but two and five year estimates do not differ significantly, ( $p > 0.1$ ).

**Figure 7.8 Long-term transplant survival after first paediatric heart only transplant in the UK, 1 January 1990 – 31 December 2002**



<b>Table 7.8</b>		<b>Long-term transplant survival after first paediatric heart only transplant in the UK, 1 January 1990 - 31 December 2002</b>					
<b>Year of transplant</b>	<b>No. at risk on day 0</b>	<b>% Transplant survival (95% confidence interval)</b>					
		<b>One year</b>		<b>Two year</b>		<b>Five year</b>	
1990-1992	97	71	(62-80)	70	(61-79)	64	(54-73)
1993-1995	80	73	(63-82)	70	(60-80)	61	(51-72)
1996-1998	71	85	(76-93)	82	(73-91)	73	(63-83)
1999-2002	102	90	(84-96)				

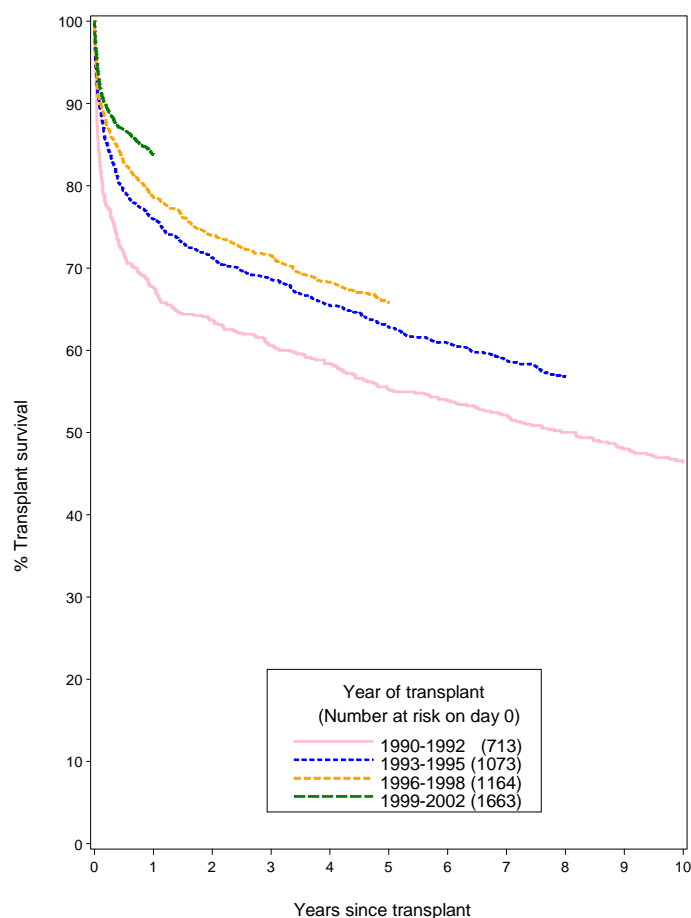
The number of paediatric lung and heart/lung transplant recipients was too small to perform the analysis by year of transplant.

### 7.3 Liver transplant survival

#### 7.3.1 Adult recipients

**Figure 7.9** and **Table 7.9** show transplant survival estimates for first elective cadaveric heartbeating donor liver only transplant in adult ( $\geq 17$  years) recipients. There has been a significant improvement in one, two and five year transplant survival over the year groups, with  $p < 0.0001$  in each case. This improvement has mainly been due to fewer graft losses in the first year post-transplant.

**Figure 7.9 Long-term transplant survival after first elective adult cadaveric heartbeating donor liver only transplant in the UK, 1 January 1990 – 31 December 2002**



**Table 7.9 Long-term transplant survival after first elective adult cadaveric heartbeating donor liver only transplant in the UK, 1 January 1990 - 31 December 2002**

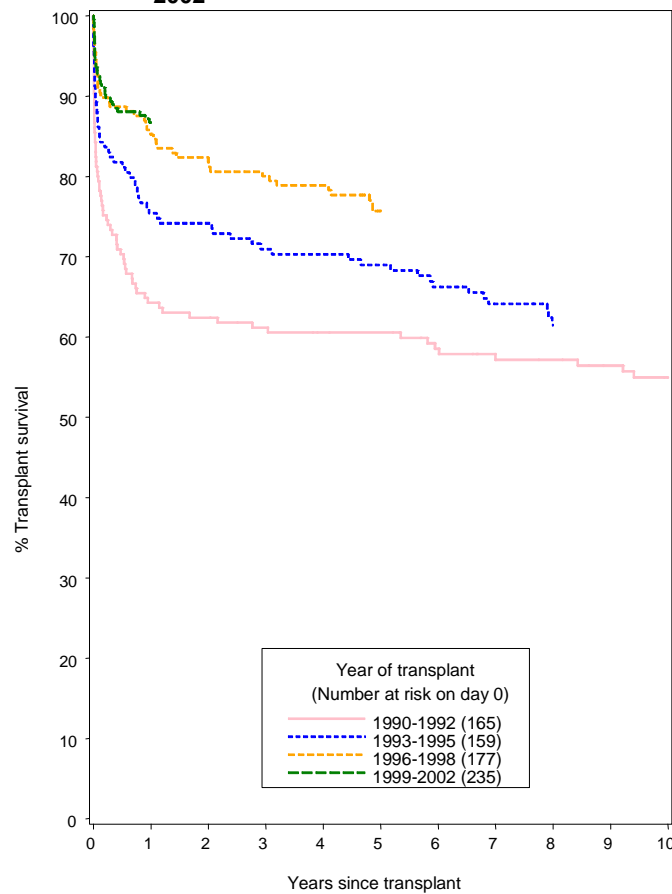
Year of transplant	No. at risk on day 0	% Transplant survival (95% confidence interval)					
		One year	Two year	Five year	Ten year		
1990-1992	713	68 (64-71)	64 (60-67)	55 (52-59)	46 (43-50)		
1993-1995	1073	76 (73-78)	71 (69-74)	63 (60-66)			
1996-1998	1164	79 (76-81)	74 (71-76)	66 (63-69)			
1999-2002	1663	84 (82-86)					

### 7.3.2 Paediatric recipients

**Figure 7.10** and **Table 7.10** show transplant survival estimates for first elective cadaveric heartbeating donor liver only transplant in paediatric (<17 years) recipients. There has been a significant improvement in one, two and five year transplant survival over the year groups, with  $p < 0.003$  in each case. This improvement is mainly due to fewer graft losses in the first year post-transplant.



**Figure 7.10 Long-term transplant survival after first elective paediatric cadaveric heartbeating donor liver only transplant in the UK, 1 January 1990 – 31 December 2002**



**Table 7.10 Long-term transplant survival after first elective paediatric cadaveric heartbeating donor liver only transplant in the UK, 1 January 1990 – 31 December 2002**

Year of transplant	No. at risk on day 0	% Transplant survival (95% confidence interval)					
		One year		Two year		Five year	
1990-1992	165	64	(57-72)	62	(55-70)	61	(53-68)
1993-1995	159	75	(69-82)	74	(67-81)	69	(62-76)
1996-1998	177	85	(80-90)	82	(76-87)	76	(69-82)
1999-2002	235	87	(82-91)				

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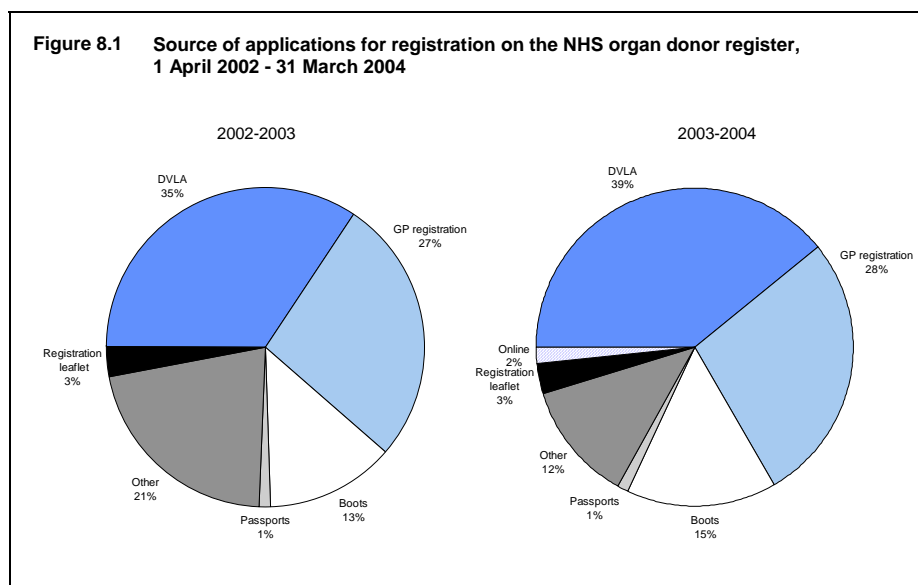
## 8 NHS ORGAN DONOR REGISTER

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The tenth anniversary of the NHS Organ Donor Register will be reached in October 2004 and by the end of March 2004 the Register held 11,170,410 registrations. During the year data on the register were continually reviewed and validated.

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; leaflets delivered to households (for example with local electoral roll registration); 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 and online registrations via the UK Transplant website.

The source of applications for registration on the ODR is illustrated in **Figure 8.1**. This figure shows that 28% of registrations in 2003-2004 arrived by means of the Family Health Services Authorities, 39% from driving licence applications and reminders through the DVLA and 15% through the Boots Advantage Card route.



At the end of March 2004, 84% of registrations 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 (73%) did not wish to donate their corneas. Of the restricted registrations, only 8% (less than 1% of the total register) did not wish to donate their kidneys. Willingness to donate, by organ type, is shown in **Table 8.1**.

**Table 8.1** Preparedness of those registered on the NHS Organ Donor Register at 31 March 2004 to donate different organs

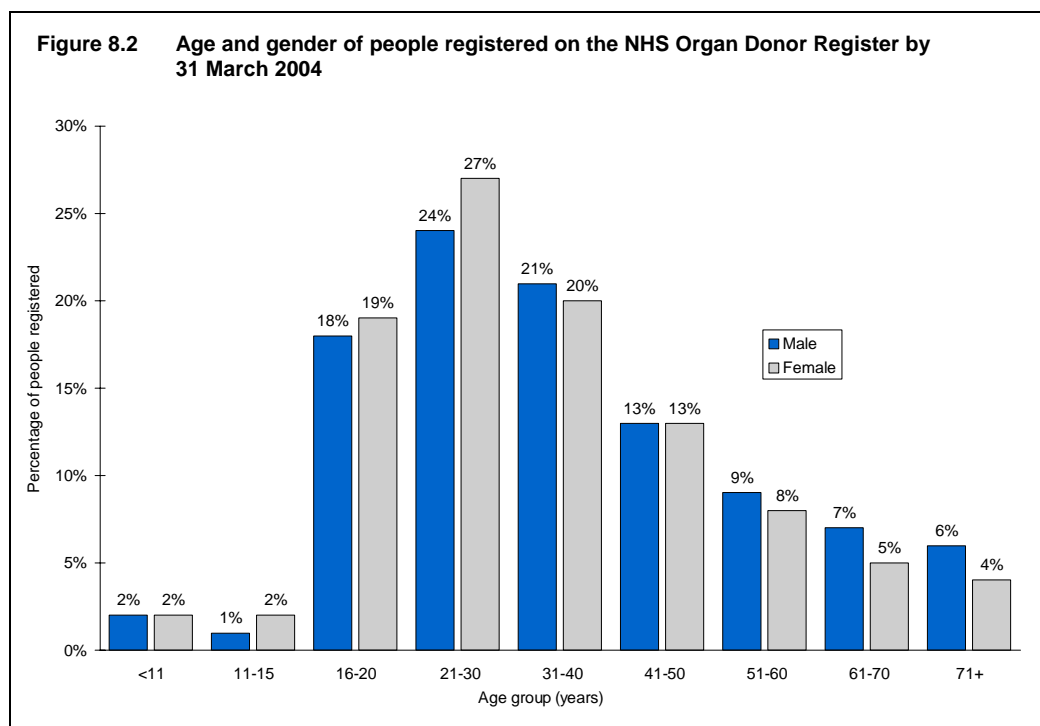
Registrants prepared to donate all organs 84%

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

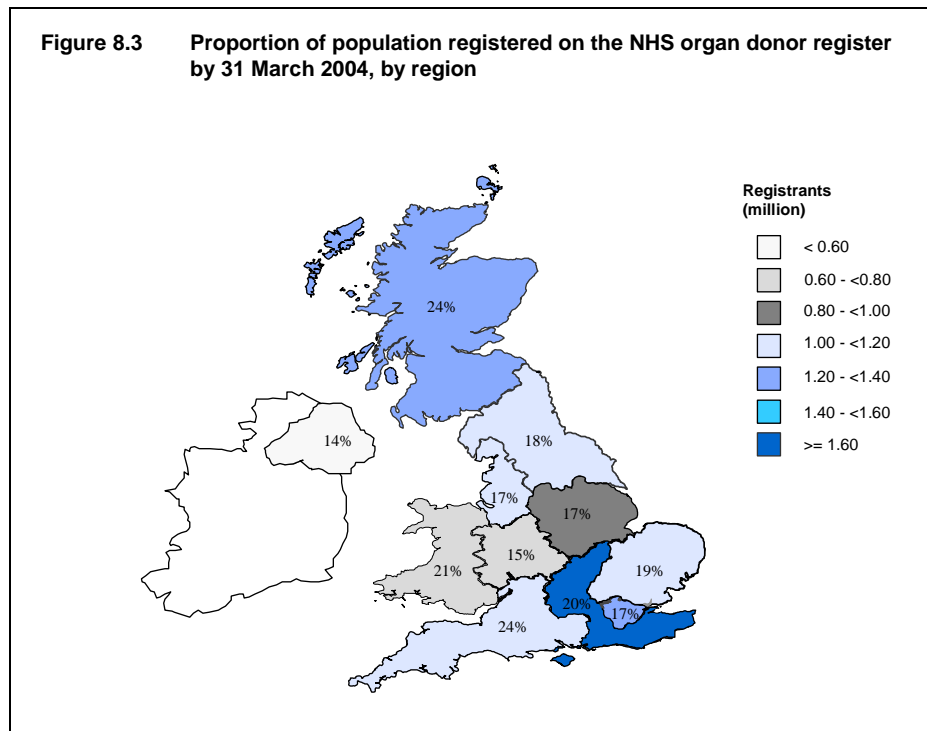
Not prepared to donate:	Percentage of “Restricted donors”	Percentage of Registrants
Kidneys	8	0.7
Pancreas	30	2.8
Heart	34	3.2
Lungs	25	2.3
Liver	17	1.6
Corneas	73	6.8

Note: this information was not available for 7% of the total registered

People of all ages are eligible for organ donor registration: the distribution of age by sex at time of registration is shown in **Figure 8.2**. The highest proportion of males and females, representing 24% and 27%, respectively, of registrations, are registered in the 21-30 years age group. The lowest proportions are in the under 11 and 11-15 age groups. Of all the registrations on the NHS Organ Donor Register, 45% were male and 55% were female.



Those registered on the ODR come from all parts of the UK. **Figure 8.3** illustrates the percentage of the population registered in each region at 31 March 2004, and the number of registrations.



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## APPENDICES

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**Appendix IA** provides details of the 699 cadaveric heartbeating solid organ donors reported in 2003-2004. 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. **Appendix IB** gives similar information for the 73 cadaveric non-heartbeating solid organ donors.

The number of donors per kidney designated area is given in **Appendix II**; where the kidneys were not retrieved, donors and organs have been assigned to the designated area that would normally have retrieved the kidney.

The populations used for kidney, liver and cardiothoracic retrievals per million population are given in **Appendices IIIA** and **IIIB**; these populations are based on ONS *2001 Census* figures.

Appendix IA	Cadaveric heartbeating solid organ donors and donated organs in the UK, 1 April 2003 - 31 March 2004 (2002-2003), by donating hospital								
Donating hospital	All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas
<b>Avon, Gloucestershire and Wiltshire</b>									
Bath, Royal United Hospital	2	(1)	2	(1)	4	1	0	2	0
Bristol, Bristol Royal Hospital for Children	0	(1)	0	(1)	0	0	0	0	0
Bristol, Bristol Royal Infirmary	2	(0)	2	(0)	4	0	0	2	0
Bristol, Frenchay Hospital	9	(10)	9	(8)	17	2	10	9	1
Bristol, Southmead Hospital	3	(0)	3	(0)	6	2	0	3	0
Cheltenham, Cheltenham General Hospital	2	(3)	2	(3)	4	0	2	2	0
Gloucester, Gloucestershire Royal Hospital	2	(1)	2	(1)	4	0	0	2	0
Salisbury, Salisbury District Hospital	2	(1)	1	(1)	2	0	2	2	1
Swindon, Great Western Hospital	4	(3)	4	(3)	8	0	0	4	1
Swindon, Princess Margaret Hospital	0	(4)	0	(4)	0	0	0	0	0
Taunton, Taunton and Somerset Hospital (Musgrove Park)	0	(2)	0	(1)	0	0	0	0	0
<b>Total</b>	<b>26</b>	<b>(26)</b>	<b>25</b>	<b>(23)</b>	<b>49</b>	<b>5</b>	<b>14</b>	<b>26</b>	<b>3</b>
<b>Bedfordshire and Hertfordshire</b>									
Bedford, Bedford Hospital	2	(6)	2	(6)	4	1	4	2	0
Hemel Hempstead, Hemel Hempstead General Hospital	2	(3)	2	(2)	4	0	0	2	0
Luton, Luton and Dunstable Hospital	2	(0)	2	(0)	4	0	0	2	0
Stevenage, Lister Hospital	1	(2)	1	(2)	2	0	0	1	0
Watford, Watford General Hospital	1	(0)	1	(0)	2	0	0	1	0
Welwyn Garden City, Queen Elizabeth II Hospital	2	(0)	1	(0)	4	1	0	1	0
<b>Total</b>	<b>10</b>	<b>(11)</b>	<b>9</b>	<b>(10)</b>	<b>20</b>	<b>2</b>	<b>4</b>	<b>9</b>	<b>0</b>
<b>Birmingham and The Black Country</b>									
Birmingham, Birmingham Heartlands Hospital	2	(4)	2	(4)	4	2	0	2	0
Birmingham, City Hospital	6	(0)	6	(0)	12	2	4	6	0
Birmingham, Queen Elizabeth Hospital	5	(6)	5	(6)	10	3	6	5	0
Birmingham, Selly Oak Hospital	3	(5)	3	(5)	6	0	2	3	0
Dudley, Russells Hall Hospital	4	(3)	4	(1)	8	2	2	4	0
Solihull, Solihull Hospital	1	(2)	1	(2)	2	0	0	1	0
Sutton Coldfield, Good Hope District General Hosp.	3	(1)	3	(1)	6	1	0	3	0
Walsall, Walsall Manor Hospital	1	(3)	1	(2)	2	0	0	1	0

West Bromwich, Sandwell District General Hospital	3	(4)	3	(4)	6	1	2	3	0
Wolverhampton, New Cross Hospital	1	(4)	1	(4)	2	0	0	1	0
<b>Total</b>	<b>29</b>	<b>(32)</b>	<b>29</b>	<b>(29)</b>	<b>58</b>	<b>11</b>	<b>16</b>	<b>29</b>	<b>0</b>
<b>Cheshire and Merseyside</b>									
Chester, Countess of Chester Hospital	3	(2)	1	(1)	4	1	0	2	0
Crewe, Leighton Hospital	3	(2)	3	(0)	6	1	0	3	0
Liverpool, Alder Hey Children's Hospital	1	(0)	1	(0)	2	1	0	1	0
Liverpool, Royal Liverpool University Hospital	7	(2)	5	(2)	10	1	2	7	0
Liverpool, University Hospital Aintree	2	(1)	2	(1)	4	1	0	2	1
Liverpool, Walton Centre for Neurology and Neurosurgery	10	(5)	9	(4)	16	2	4	10	0
Macclesfield, Macclesfield District General Hospital	1	(1)	1	(1)	2	0	0	1	0
Prescot, Whiston Hospital	6	(4)	6	(4)	12	1	4	6	1
Runcorn, Halton General Hospital	0	(3)	0	(3)	0	0	0	0	0
Warrington, Warrington Hospital	5	(3)	5	(3)	10	1	0	5	1
Wirral, Arrowe Park Hospital	2	(4)	2	(4)	4	0	0	1	1
<b>Total</b>	<b>40</b>	<b>(27)</b>	<b>35</b>	<b>(23)</b>	<b>70</b>	<b>9</b>	<b>10</b>	<b>38</b>	<b>4</b>
<b>County Durham and Tees Valley</b>									
Bishop Auckland, Bishop Auckland General Hospital	2	(0)	1	(0)	4	0	0	1	0
Durham, University Hospital of North Durham	1	(1)	1	(1)	2	0	0	1	0
Hartlepool, University Hospital of Hartlepool	1	(0)	0	(0)	2	0	0	0	0
Middlesbrough, Middlesbrough General Hospital	2	(11)	2	(8)	4	1	2	2	1
Middlesbrough, The James Cook University Hospital	8	(1)	5	(1)	16	0	2	5	0
Stockton-on-Tees, University Hospital of North Tees	0	(3)	0	(3)	0	0	0	0	0
<b>Total</b>	<b>14</b>	<b>(16)</b>	<b>9</b>	<b>(13)</b>	<b>28</b>	<b>1</b>	<b>4</b>	<b>9</b>	<b>1</b>
<b>Coventry, Warwickshire, Herefordshire and Worcestershire</b>									
Coventry, Coventry and Warwickshire Hospital	2	(1)	1	(1)	4	1	2	1	0
Coventry, Walsgrave Hospital	3	(5)	3	(4)	6	0	2	3	0
Hereford, Hereford County Hospital	0	(1)	0	(1)	0	0	0	0	0
Hereford, Hereford General Hospital	0	(1)	0	(1)	0	0	0	0	0
Nuneaton, George Eliot Hospital	1	(1)	1	(1)	2	1	2	1	0
Redditch, Alexandra Hospital	0	(1)	0	(1)	0	0	0	0	0
Warwick, Warwick Hospital	3	(0)	3	(0)	6	2	2	3	1
Worcester, Worcester Royal Hospital	4	(1)	4	(1)	8	0	2	4	0
<b>Total</b>	<b>13</b>	<b>(11)</b>	<b>12</b>	<b>(10)</b>	<b>26</b>	<b>4</b>	<b>10</b>	<b>12</b>	<b>1</b>

<b>Cumbria and Lancashire</b>									
Barrow-in-Furness, Furness General Hospital	3	(2)	2	(2)	6	0	0	2	0
Blackburn, Blackburn Royal Infirmary	3	(4)	3	(3)	6	0	0	3	0
Blackpool, Blackpool Victoria Hospital	4	(6)	3	(6)	8	2	3	3	2
Burnley, Burnley General Hospital	0	(3)	0	(3)	0	0	0	0	0
Carlisle, Cumberland Infirmary	3	(0)	2	(0)	4	1	0	3	0
Chorley, Chorley and South Ribble District General Hospital	4	(2)	2	(2)	6	0	0	3	0
Lancaster, Royal Lancaster Infirmary	3	(1)	3	(1)	6	0	0	3	0
Ormskirk, Ormskirk and District General Hospital	1	(1)	1	(0)	2	0	0	1	0
Preston, Royal Preston Hospital	8	(3)	7	(3)	16	1	2	7	1
Whitehaven, West Cumberland Hospital	2	(0)	1	(0)	3	0	0	1	0
<b>Total</b>	<b>31</b>	<b>(22)</b>	<b>24</b>	<b>(20)</b>	<b>57</b>	<b>4</b>	<b>5</b>	<b>26</b>	<b>3</b>
<b>Essex</b>									
Basildon, Basildon Hospital	4	(2)	4	(2)	8	2	0	4	1
Chelmsford, Broomfield Hospital	2	(2)	1	(2)	4	0	0	1	0
Colchester, Colchester General Hospital	0	(3)	0	(3)	0	0	0	0	0
Harlow, Princess Alexandra Hospital	1	(2)	1	(2)	2	0	0	1	1
Westcliff on Sea, Southend Hospital	2	(2)	2	(1)	4	1	0	2	0
<b>Total</b>	<b>9</b>	<b>(11)</b>	<b>8</b>	<b>(10)</b>	<b>18</b>	<b>3</b>	<b>0</b>	<b>8</b>	<b>2</b>
<b>Greater Manchester</b>									
Ashton-Under-Lyme, Tameside General Hospital	0	(3)	0	(3)	0	0	0	0	0
Bolton, Royal Bolton Hospital	1	(3)	1	(3)	2	0	0	1	0
Bury, Bury General Hospital	1	(0)	0	(0)	0	0	0	1	0
Bury, Fairfield General Hospital	1	(3)	0	(2)	2	0	0	0	0
Manchester, Manchester Royal Infirmary	3	(6)	2	(5)	4	2	2	3	0
Manchester, North Manchester General Hospital	0	(1)	0	(1)	0	0	0	0	0
Manchester, Royal Manchester Childrens Hospital (Pendlebury)	2	(1)	2	(1)	4	0	0	2	1
Manchester, Trafford General Hospital	1	(2)	1	(2)	2	0	0	1	0
Manchester, Wythenshawe Hospital	2	(1)	1	(1)	3	0	0	1	0
Oldham, Royal Oldham Hospital (Rochdale Road)	3	(2)	3	(2)	6	1	2	3	0
Salford, Hope Hospital	10	(13)	10	(12)	18	6	2	10	5
Stockport, Stepping Hill Hospital	3	(3)	3	(3)	6	0	0	3	0
Wigan, Royal Albert Edward Infirmary	4	(1)	3	(1)	6	0	0	4	0
<b>Total</b>	<b>31</b>	<b>(39)</b>	<b>26</b>	<b>(36)</b>	<b>53</b>	<b>9</b>	<b>6</b>	<b>29</b>	<b>6</b>



<b>Hampshire and Isle of Wight</b>									
Basingstoke, North Hampshire Hospital	4	(2)	4	(2)	8	1	0	4	1
Newport, St Mary's Hospital (Isle of Wight)	2	(2)	2	(2)	4	0	2	2	0
Portsmouth, Queen Alexandra Hospital	5	(4)	5	(3)	10	0	2	5	1
Portsmouth, St Mary's Hospital	1	(0)	0	(0)	2	0	0	0	0
Southampton, Southampton General Hospital	10	(15)	7	(15)	16	2	5	9	1
Winchester, Royal Hampshire County Hospital	2	(2)	2	(2)	4	0	0	2	0
<b>Total</b>	<b>24</b>	<b>(25)</b>	<b>20</b>	<b>(24)</b>	<b>44</b>	<b>3</b>	<b>9</b>	<b>22</b>	<b>3</b>
<b>Kent and Medway</b>									
Ashford, William Harvey Hospital	3	(3)	3	(3)	6	0	0	3	0
Canterbury, Kent and Canterbury Hospital	0	(1)	0	(1)	0	0	0	0	0
Dartford, Darent Valley Hospital	7	(1)	7	(0)	14	2	6	7	3
Gillingham, Medway Hospital	1	(6)	1	(6)	2	1	0	1	0
Maidstone, Maidstone Hospital	2	(1)	2	(1)	4	0	0	2	0
Margate, The Queen Elizabeth The Queen Mother Hosp	1	(2)	1	(2)	2	0	0	1	0
Tunbridge Wells, Kent and Sussex Hospital	4	(2)	4	(1)	8	2	0	4	0
<b>Total</b>	<b>18</b>	<b>(16)</b>	<b>18</b>	<b>(14)</b>	<b>36</b>	<b>5</b>	<b>6</b>	<b>18</b>	<b>3</b>
<b>Leicestershire, Northamptonshire and Rutland</b>									
Kettering, Kettering General Hospital	3	(1)	2	(1)	4	0	2	3	1
Leicester, Glenfield General Hospital	0	(1)	0	(0)	0	0	0	0	0
Leicester, Leicester General Hospital	1	(1)	0	(1)	2	0	0	0	0
Leicester, Leicester Royal Infirmary	2	(7)	2	(5)	4	1	4	2	1
Northampton, Northampton General Hospital	2	(3)	2	(3)	4	0	0	2	0
<b>Total</b>	<b>8</b>	<b>(13)</b>	<b>6</b>	<b>(10)</b>	<b>14</b>	<b>1</b>	<b>6</b>	<b>7</b>	<b>2</b>
<b>Norfolk, Suffolk and Cambridgeshire</b>									
Bury St Edmunds, West Suffolk Hospital	1	(1)	1	(1)	2	0	0	1	0
Cambridge, Addenbrooke's Hospital	11	(5)	8	(5)	22	5	6	6	2
Great Yarmouth, The James Paget Hospital	3	(1)	3	(1)	6	2	2	3	0
Huntingdon, Hinchingbrooke Hospital	0	(1)	0	(1)	0	0	0	0	0
Ipswich, Ipswich Hospital	4	(0)	4	(0)	6	1	4	3	0
Kings Lynn, Queen Elizabeth Hospital	1	(1)	1	(1)	2	0	0	1	0
Norwich, Norfolk and Norwich Hospital	5	(3)	5	(2)	8	2	0	5	2
Papworth, Papworth Hospital	0	(1)	0	(1)	0	0	0	0	0
<b>Total</b>	<b>25</b>	<b>(13)</b>	<b>22</b>	<b>(12)</b>	<b>46</b>	<b>10</b>	<b>12</b>	<b>19</b>	<b>4</b>

<b>North Central London</b>									
Barnet, Barnet General Hospital	1	(1)	1	(0)	2	0	0	1	0
Enfield, Chase Farm Hospital	2	(2)	1	(2)	4	0	2	1	0
London, Great Ormond Street Hospital for Children	4	(5)	4	(5)	6	3	5	4	0
London, Middlesex Hospital	2	(1)	2	(1)	4	1	0	2	0
London, National. Hospital for Neurology and Neurosurgery	6	(14)	4	(13)	10	1	2	4	1
London, North Middlesex Hospital	1	(1)	1	(1)	2	1	0	1	0
London, The Royal Free Hospital	5	(10)	5	(9)	10	1	1	5	1
London, University College Hospital	1	(0)	1	(0)	2	1	2	1	1
London, Whittington Hospital	0	(1)	0	(1)	0	0	0	0	0
<b>Total</b>	<b>22</b>	<b>(35)</b>	<b>19</b>	<b>(32)</b>	<b>40</b>	<b>8</b>	<b>12</b>	<b>19</b>	<b>3</b>
<b>North East London</b>									
Ilford, King George Hospital	0	(2)	0	(2)	0	0	0	0	0
London, Newham General Hospital	2	(0)	2	(0)	4	0	2	2	0
London, The Royal London Hospital (Whitechapel)	8	(7)	5	(6)	16	3	3	5	2
Romford, Oldchurch Hospital	14	(8)	12	(7)	26	2	10	13	3
<b>Total</b>	<b>24</b>	<b>(17)</b>	<b>19</b>	<b>(15)</b>	<b>46</b>	<b>5</b>	<b>15</b>	<b>20</b>	<b>5</b>
<b>North and East Yorkshire and Northern Lincolnshire</b>									
Cottingham, Castle Hill Hospital	0	(1)	0	(1)	0	0	0	0	0
Grimsby, Diana Princess of Wales Hospital	5	(2)	4	(2)	7	2	4	5	2
Harrogate, Harrogate District Hospital	3	(0)	3	(0)	6	1	2	3	0
Hull, The Hull Royal Infirmary	5	(5)	4	(4)	10	1	5	4	0
Scarborough, Scarborough Hospital	3	(0)	2	(0)	4	0	2	3	0
Scunthorpe, Scunthorpe General Hospital	2	(6)	2	(6)	4	1	2	2	0
York, York District Hospital	1	(0)	1	(0)	2	0	0	1	0
<b>Total</b>	<b>19</b>	<b>(14)</b>	<b>16</b>	<b>(13)</b>	<b>33</b>	<b>5</b>	<b>15</b>	<b>18</b>	<b>2</b>
<b>Northumberland, Tyne and Wear</b>									
Ashington, Wansbeck General Hospital	1	(0)	1	(0)	2	1	0	1	0
Newcastle, Freeman Hospital	1	(0)	0	(0)	2	0	0	0	0
Newcastle, Newcastle General Hospital	20	(18)	17	(18)	37	8	9	16	6
North Shields, North Tyneside General Hospital	0	(2)	0	(1)	0	0	0	0	0
South Shields, South Tyneside District General Hospital	1	(3)	1	(2)	2	0	0	1	0
Sunderland, Sunderland Royal Hospital	1	(1)	0	(0)	1	0	0	0	0
<b>Total</b>	<b>24</b>	<b>(24)</b>	<b>19</b>	<b>(21)</b>	<b>44</b>	<b>9</b>	<b>9</b>	<b>18</b>	<b>6</b>

<b>North West London</b>									
Ashford, Ashford Hospital (Middlesex)	0	(1)	0	(1)	0	0	0	0	0
Chelsea, Chelsea and Westminster Hospital	1	(1)	1	(1)	2	0	0	1	0
Harefield, Harefield Hospital	1	(0)	1	(0)	2	0	0	1	0
Harrow, Northwick Park Hospital	0	(2)	0	(1)	0	0	0	0	0
Isleworth, West Middlesex University Hospital	1	(0)	1	(0)	2	0	0	1	0
London, Brompton Hospital	1	(0)	0	(0)	0	0	0	1	0
London, Central Middlesex Hospital	1	(1)	1	(1)	2	1	0	1	0
London, Charing Cross Hospital	11	(10)	9	(10)	22	1	3	9	3
London, St Mary's Hospital	1	(2)	1	(2)	2	1	0	1	0
Southall, Ealing Hospital	0	(2)	0	(2)	0	0	0	0	0
Uxbridge, Hillingdon Hospital	2	(3)	1	(2)	2	1	0	2	0
<b>Total</b>	<b>19</b>	<b>(22)</b>	<b>15</b>	<b>(20)</b>	<b>34</b>	<b>4</b>	<b>3</b>	<b>17</b>	<b>3</b>
<b>Shropshire and Staffordshire</b>									
Burton-on-Trent, Queen's Hospital	0	(2)	0	(2)	0	0	0	0	0
Shrewsbury, Royal Shrewsbury Hospital	4	(5)	4	(5)	8	0	4	4	0
Stafford, Stafford District General Hospital	2	(0)	2	(0)	4	0	0	2	1
Stoke-on-Trent, Stoke City General Hospital	2	(3)	2	(2)	4	0	2	2	0
Stoke-on-Trent, North Staffordshire Royal Infirmary	6	(11)	6	(10)	12	1	6	5	0
Telford, Princess Royal Hospital	5	(1)	5	(1)	10	2	2	5	1
<b>Total</b>	<b>19</b>	<b>(22)</b>	<b>19</b>	<b>(20)</b>	<b>38</b>	<b>3</b>	<b>14</b>	<b>18</b>	<b>2</b>
<b>Somerset and Dorset</b>									
Bournemouth, Royal Bournemouth General Hospital	6	(1)	5	(1)	12	3	6	5	4
Dorchester, Dorset County Hospital	3	(2)	3	(2)	6	2	3	3	1
Poole, Poole General Hospital	3	(4)	3	(4)	6	0	0	3	0
Yeovil, Yeovil District Hospital	2	(1)	2	(1)	4	0	0	2	0
<b>Total</b>	<b>14</b>	<b>(8)</b>	<b>13</b>	<b>(8)</b>	<b>28</b>	<b>5</b>	<b>9</b>	<b>13</b>	<b>5</b>
<b>South East London</b>									
London, Guy's Hospital	1	(0)	1	(0)	2	0	0	1	0
London, King's College Hospital	10	(7)	10	(7)	19	5	2	9	0
London, St Thomas' Hospital	2	(7)	1	(7)	2	0	2	1	0
London, The Queen Elizabeth Hospital	4	(1)	4	(1)	8	0	0	4	1
Sidcup, Queen Mary's Hospital	0	(3)	0	(2)	0	0	0	0	0
<b>Total</b>	<b>17</b>	<b>(18)</b>	<b>16</b>	<b>(17)</b>	<b>31</b>	<b>5</b>	<b>4</b>	<b>15</b>	<b>1</b>

<b>South West London</b>									
Carshalton, St Helier Hospital	0	(1)	0	(1)	0	0	0	0	0
Croydon, Mayday Hospital	1	(3)	1	(3)	2	0	1	1	1
Kingston, Kingston Hospital	1	(0)	1	(0)	2	0	2	1	0
London, Atkinson Morleys Hospital	6	(7)	6	(7)	12	2	3	6	2
London, St George's Hospital	10	(1)	10	(1)	17	2	6	10	2
<b>Total</b>	<b>18</b>	<b>(12)</b>	<b>18</b>	<b>(12)</b>	<b>33</b>	<b>4</b>	<b>12</b>	<b>18</b>	<b>5</b>
<b>South West Peninsula</b>									
Barnstaple, North Devon District Hospital	0	(1)	0	(1)	0	0	0	0	0
Exeter, Royal Devon and Exeter Hospital (Wonford)	2	(4)	2	(3)	4	1	0	2	0
Plymouth, Derriford Hospital	11	(7)	10	(7)	22	3	6	10	0
Torquay, Torbay Hospital	0	(2)	0	(2)	0	0	0	0	0
Truro, Royal Cornwall Hospital (Treliske)	5	(3)	5	(3)	10	2	4	5	1
<b>Total</b>	<b>18</b>	<b>(17)</b>	<b>17</b>	<b>(16)</b>	<b>36</b>	<b>6</b>	<b>10</b>	<b>17</b>	<b>1</b>
<b>South Yorkshire</b>									
Barnsley, Barnsley District General Hospital	2	(5)	2	(4)	4	1	0	2	2
Doncaster, Doncaster Royal Infirmary	2	(0)	2	(0)	4	1	2	2	0
Rotherham, Rotherham District General Hospital	0	(2)	0	(2)	0	0	0	0	0
Sheffield, Northern General Hospital	6	(3)	4	(3)	10	3	4	5	0
Sheffield, Royal Hallamshire Hospital	3	(4)	3	(4)	6	0	2	3	1
Sheffield, Sheffield Children's Hospital	0	(2)	0	(1)	0	0	0	0	0
<b>Total</b>	<b>13</b>	<b>(16)</b>	<b>11</b>	<b>(14)</b>	<b>24</b>	<b>5</b>	<b>8</b>	<b>12</b>	<b>3</b>
<b>Surrey and Sussex</b>									
Brighton, Royal Sussex County Hospital	0	(5)	0	(5)	0	0	0	0	0
Camberley, Frimley Park Hospital	1	(2)	1	(2)	2	1	0	1	0
Chertsey, St Peter's Hospital	1	(1)	0	(1)	2	0	0	0	0
Chichester, St Richard's Hospital	1	(1)	1	(1)	2	1	2	1	0
Crawley, Crawley Hospital	1	(1)	1	(1)	2	0	0	1	0
Epsom, Epsom General Hospital	0	(2)	0	(2)	0	0	0	0	0
Hastings, Conquest Hospital	4	(0)	4	(0)	8	2	5	4	1
Haywards Heath, Hurstwood Park Hospital	7	(4)	6	(3)	11	2	2	6	0
Haywards Heath, Princess Royal Hospital	1	(2)	1	(2)	2	0	0	1	0
Redhill, East Surrey Hospital	2	(0)	2	(0)	4	0	0	2	0
Worthing, Worthing Hospital	1	(2)	1	(2)	2	0	0	1	0
<b>Total</b>	<b>19</b>	<b>(20)</b>	<b>17</b>	<b>(19)</b>	<b>35</b>	<b>6</b>	<b>9</b>	<b>17</b>	<b>1</b>

<b>Trent</b>									
Boston, Pilgrim Hospital	0	(3)	0	(2)	0	0	0	0	0
Chesterfield, Chesterfield and N Derbyshire Royal Hospital	2	(1)	2	(1)	4	0	2	2	0
Derby, Derbyshire Royal Infirmary	3	(3)	3	(3)	6	1	0	3	0
Grantham, Grantham and District Hospital	0	(3)	0	(1)	0	0	0	0	0
Lincoln, Lincoln County Hospital	2	(2)	2	(2)	4	0	0	2	1
Nottingham, Nottingham City Hospital	0	(1)	0	(0)	0	0	0	0	0
Nottingham, University Hospital	14	(12)	14	(12)	26	11	14	14	4
Sutton-In-Ashfield, King's Mill Hospital	3	(4)	3	(2)	6	1	0	3	0
Worksop, Bassetlaw District General Hospital	1	(3)	1	(2)	2	0	0	1	0
<b>Total</b>	<b>25</b>	<b>(32)</b>	<b>25</b>	<b>(25)</b>	<b>48</b>	<b>13</b>	<b>16</b>	<b>25</b>	<b>5</b>
<b>Thames Valley</b>									
Ascot, Heatherwood Hospital	0	(1)	0	(1)	0	0	0	0	0
Aylesbury, Stoke Mandeville Hospital	1	(3)	1	(3)	2	0	0	1	1
Banbury, Horton General Hospital	1	(0)	0	(0)	2	0	0	0	0
Milton Keynes, Milton Keynes General Hospital	1	(1)	1	(1)	2	1	0	1	0
Oxford, John Radcliffe Hospital	3	(5)	3	(5)	6	2	2	3	0
Oxford, Radcliffe Infirmary	8	(11)	8	(11)	16	1	4	8	2
Reading, Royal Berkshire Hospital	7	(5)	7	(5)	13	1	2	7	2
Slough, Wexham Park Hospital	2	(0)	1	(0)	4	0	0	1	1
Wycombe, Wycombe General Hospital	1	(1)	1	(1)	2	0	0	1	1
<b>Total</b>	<b>24</b>	<b>(27)</b>	<b>22</b>	<b>(27)</b>	<b>47</b>	<b>5</b>	<b>8</b>	<b>22</b>	<b>7</b>
<b>West Yorkshire</b>									
Bradford, Bradford Royal Infirmary	5	(3)	3	(3)	6	0	0	5	1
Dewsbury, Dewsbury and District Hospital	0	(3)	0	(3)	0	0	0	0	0
Halifax, Calderdale Royal Hospital	0	(2)	0	(2)	0	0	0	0	0
Huddersfield, Huddersfield Royal Infirmary	3	(2)	2	(1)	4	0	0	3	0
Keighley, Airedale General Hospital	0	(2)	0	(1)	0	0	0	0	0
Leeds, Leeds General Infirmary	10	(25)	9	(25)	19	4	2	9	0
Leeds, St James's University Hospital	4	(4)	3	(1)	5	0	0	4	0
Wakefield, Pinderfields General Hospital	3	(1)	3	(1)	6	1	2	3	0
<b>Total</b>	<b>25</b>	<b>(42)</b>	<b>20</b>	<b>(37)</b>	<b>40</b>	<b>5</b>	<b>4</b>	<b>24</b>	<b>1</b>
<b>Guernsey</b>									
St Martins, Princess Elizabeth Hospital	0	(2)	0	(2)	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>(2)</b>	<b>0</b>	<b>(2)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

<b>Isle of Man</b>								
Douglas, Nobles Isle of Man Hospital	0	(2)	0	(2)	0	0	0	0
<b>Total</b>	<b>0</b>	<b>(2)</b>	<b>0</b>	<b>(2)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Jersey</b>								
St Helier, Jersey General Hospital	1	(1)	1	(0)	2	0	1	1
<b>Total</b>	<b>1</b>	<b>(1)</b>	<b>1</b>	<b>(0)</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>England</b>	<b>579</b>	<b>(593)</b>	<b>510</b>	<b>(534)</b>	<b>1078</b>	<b>155</b>	<b>250</b>	<b>83</b>
<b>Wales</b>								
Abergavenny, Nevill Hall Hospital	2	(0)	2	(0)	4	1	2	0
Aberystwyth, Bronglais Hospital	1	(1)	1	(1)	2	0	1	0
Bangor, Ysbyty Gwynedd District General Hospital	2	(2)	2	(2)	4	0	2	0
Bodelwyddan, Glan Clwyd District General Hospital	5	(2)	5	(2)	10	1	5	0
Bridgend, Princess of Wales Hospital	4	(0)	4	(0)	7	0	4	0
Cardiff, University of Wales Hospital	10	(8)	10	(8)	20	2	10	0
Carmarthen, West Wales General Hospital	2	(4)	1	(4)	2	0	2	0
Haverford West, Withybush General Hospital	0	(1)	0	(1)	0	0	0	0
Llanelli, Prince Philips Hospital	1	(0)	1	(0)	2	0	1	0
Merthyr Tydfil, Prince Charles Hospital	1	(0)	1	(0)	2	0	1	0
Neath, Neath and Port Talbot Hospital	1	(1)	1	(1)	2	0	1	0
Newport, Royal Gwent Hospital	2	(1)	2	(1)	4	0	2	0
Penarth, Llandough Hospital	1	(0)	1	(0)	2	0	1	0
Pontypridd, Royal Glamorgan Hospital	3	(3)	3	(3)	6	0	3	0
Swansea, Morriston Hospital	6	(6)	6	(5)	12	0	6	0
Swansea, Singleton Hospital	0	(1)	0	(0)	0	0	0	0
Wrexham, Maelor General Hospital	3	(3)	3	(3)	6	1	3	1
<b>Total</b>	<b>44</b>	<b>(33)</b>	<b>43</b>	<b>(31)</b>	<b>85</b>	<b>5</b>	<b>6</b>	<b>1</b>
<b>Scotland</b>								
Aberdeen, Aberdeen Royal Infirmary	4	(9)	3	(9)	8	3	3	1
Airdrie, Monklands District General Hospital	1	(1)	1	(1)	2	0	1	0
Dumfries, Dumfries and Galloway Royal Infirmary	2	(3)	2	(3)	4	0	2	0
Dundee, Ninewells Hospital	1	(2)	1	(1)	2	0	1	1
Dunfermline, Queen Margaret Hospital	1	(5)	1	(4)	2	1	1	0
East Kilbride, Hairmyres Hospital	2	(0)	2	(0)	4	1	2	1
Edinburgh, Royal Hospital for Sick Children	0	(1)	0	(1)	0	0	0	0
Edinburgh, Royal Infirmary of Edinburgh	1	(2)	1	(2)	2	0	1	0

Edinburgh, Western General Hospital	4	(6)	4	(6)	8	0	1	4	1
Falkirk, Falkirk Royal Infirmary	0	(1)	0	(1)	0	0	0	0	0
Fort William, Belford Hospital	1	(0)	1	(0)	2	0	0	1	0
Glasgow, Victoria Infirmary	3	(4)	3	(4)	6	2	2	3	1
Glasgow, Glasgow Royal Infirmary	1	(2)	1	(2)	2	0	0	1	0
Glasgow, Southern General Hospital	12	(7)	12	(7)	24	2	14	11	1
Glasgow, Western Infirmary	1	(0)	1	(0)	2	1	2	1	0
Greenock, Inverclyde Royal Hospital	1	(0)	1	(0)	2	0	0	1	0
Inverness, Raigmore Hospital	2	(0)	2	(0)	4	0	0	2	0
Kilmarnock, Crosshouse Hospital	2	(1)	2	(1)	4	0	1	2	0
Kirkcaldy, Victoria Hospital	3	(1)	3	(1)	6	1	2	3	1
Melrose, Borders General Hospital	0	(1)	0	(1)	0	0	0	0	0
Paisley, The Royal Alexandra Infirmary	1	(0)	1	(0)	2	1	0	1	0
Paisley, Royal Alexandra Hospital	1	(1)	1	(1)	2	0	0	1	0
Perth, Perth Royal Infirmary	0	(1)	0	(1)	0	0	0	0	0
Stirling, Stirling Royal Infirmary	0	(3)	0	(2)	0	0	0	0	0
Stornoway, Western Isles Hospital	0	(1)	0	(1)	0	0	0	0	0
Wishaw, Wishaw General Hospital	2	(6)	2	(4)	4	1	0	2	0
<b>Total</b>	<b>46</b>	<b>(58)</b>	<b>45</b>	<b>(53)</b>	<b>92</b>	<b>13</b>	<b>30</b>	<b>44</b>	<b>7</b>
<b>Northern Ireland</b>									
Belfast, Antrim Hospital	4	(3)	4	(3)	7	0	1	4	0
Belfast, Belfast City Hospital	1	(2)	1	(2)	2	0	2	1	0
Belfast, Mater Infirmorum Hospital	2	(3)	1	(3)	4	0	0	1	0
Belfast, Royal Belfast Hospital for Sick Children	2	(0)	2	(0)	4	1	2	2	0
Belfast, Royal Victoria Hospital	12	(14)	9	(11)	21	2	4	10	0
Belfast, The Ulster Hospital	1	(4)	1	(4)	2	0	0	1	0
Coleraine, Causeway Hospital	3	(1)	2	(1)	6	1	2	2	0
Enniskillen, Erne Hospital	1	(0)	1	(0)	2	0	0	1	0
Londonderry, Altnagelvin Area Hospital	2	(1)	2	(1)	4	1	2	2	0
Portadown, Craigavon Area Hospital	2	(4)	2	(3)	4	1	0	2	0
<b>Total</b>	<b>30</b>	<b>(32)</b>	<b>25</b>	<b>(28)</b>	<b>56</b>	<b>6</b>	<b>13</b>	<b>26</b>	<b>0</b>

**Appendix IB Cadaveric non-heartbeating solid organ donors and donated organs in the UK, 1 April 2003 - 31 March 2004 (2002-2003), by donating hospital**

Donating hospital	All donors		Multi-organ donor		Kidney	Lung	Liver
<b>Avon, Gloucestershire and Wiltshire</b>							
Bath, Royal United Hospital	1	(0)	0	(0)	2	0	0
Bristol, Frenchay Hospital	6	(3)	0	(0)	12	0	0
Cheltenham, Cheltenham General Hospital	2	(6)	0	(1)	3	0	0
Swindon, Great Western Hospital	1	(0)	0	(0)	2	0	0
<b>Total</b>	<b>10</b>	<b>(9)</b>	<b>0</b>	<b>(1)</b>	<b>19</b>	<b>0</b>	<b>0</b>
<b>Bedfordshire and Hertfordshire</b>							
Hemel Hempstead, Hemel Hempstead General Hospital	1	(0)	1	(0)	2	0	1
Welwyn Garden City, Queen Elizabeth II Hospital	0	(1)	0	(1)	0	0	0
<b>Total</b>	<b>1</b>	<b>(1)</b>	<b>1</b>	<b>(1)</b>	<b>2</b>	<b>0</b>	<b>1</b>
<b>County Durham and Tees Valley</b>							
Middlesbrough, The James Cook University Hospital	2	(0)	1	(0)	3	0	1
<b>Total</b>	<b>2</b>	<b>(0)</b>	<b>1</b>	<b>(0)</b>	<b>3</b>	<b>0</b>	<b>1</b>
<b>Cumbria and Lancashire</b>							
Preston, Royal Preston Hospital	1	(0)	0	(0)	2	0	0
<b>Total</b>	<b>1</b>	<b>(0)</b>	<b>0</b>	<b>(0)</b>	<b>2</b>	<b>0</b>	<b>0</b>
<b>Essex</b>							
Basildon, Basildon Hospital	0	(1)	0	(1)	0	0	0
<b>Total</b>	<b>0</b>	<b>(1)</b>	<b>0</b>	<b>(1)</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Greater Manchester</b>							
Manchester, Manchester Royal Infirmary	1	(0)	1	(0)	2	0	1
Wigan, Royal Albert Edward Infirmary	0	(1)	0	(0)	0	0	0
<b>Total</b>	<b>1</b>	<b>(1)</b>	<b>1</b>	<b>(0)</b>	<b>2</b>	<b>0</b>	<b>1</b>
<b>Kent and Medway</b>							
Ashford, William Harvey Hospital	0	(1)	0	(1)	0	0	0
Canterbury, Kent and Canterbury Hospital	1	(0)	1	(0)	2	0	1



Dartford, Darent Valley Hospital	1	(0)	0	(0)	2	0	0
Gillingham, Medway Hospital	1	(1)	1	(1)	2	0	1
<b>Total</b>	<b>3</b>	<b>(2)</b>	<b>2</b>	<b>(2)</b>	<b>6</b>	<b>0</b>	<b>2</b>
<b>Leicestershire, Northamptonshire and Rutland</b>							
Leicester, Leicester General Hospital	0	(1)	0	(0)	0	0	0
Leicester, Leicester Royal Infirmary	2	(4)	0	(0)	3	0	0
<b>Total</b>	<b>2</b>	<b>(5)</b>	<b>0</b>	<b>(0)</b>	<b>3</b>	<b>0</b>	<b>0</b>
<b>North Central London</b>							
London, National Hospital for Neurology and Neurosurgery	1	(2)	1	(1)	2	0	1
London, The Royal Free Hospital	0	(2)	0	(1)	0	0	0
<b>Total</b>	<b>1</b>	<b>(4)</b>	<b>1</b>	<b>(2)</b>	<b>2</b>	<b>0</b>	<b>1</b>
<b>North East London</b>							
London, The Royal London Hospital (Whitechapel)	3	(1)	2	(1)	5	0	2
London, Whipps Cross Hospital	3	(1)	3	(0)	6	0	3
<b>Total</b>	<b>6</b>	<b>(2)</b>	<b>5</b>	<b>(1)</b>	<b>11</b>	<b>0</b>	<b>5</b>
<b>North and East Yorkshire and Northern Lincolnshire</b>							
Hull, The Hull Royal Infirmary	3	(0)	2	(0)	3	0	3
York, York District Hospital	0	(1)	0	(1)	0	0	0
<b>Total</b>	<b>3</b>	<b>(1)</b>	<b>2</b>	<b>(1)</b>	<b>3</b>	<b>0</b>	<b>3</b>
<b>Norfolk, Suffolk and Cambridgeshire</b>							
Bury St Edmunds, West Suffolk Hospital	1	(0)	0	(0)	2	0	0
Cambridge, Addenbrooke's Hospital	9	(7)	0	(0)	18	0	0
<b>Total</b>	<b>10</b>	<b>(7)</b>	<b>0</b>	<b>(0)</b>	<b>20</b>	<b>0</b>	<b>0</b>
<b>Northumberland, Tyne and Wear</b>							
Ashington, Wansbeck General Hospital	1	(0)	0	(0)	2	0	0
Gateshead, Queen Elizabeth Hospital	0	(1)	0	(0)	0	0	0
Newcastle, Freeman Hospital	1	(0)	1	(0)	2	2	0
Newcastle, Newcastle General Hospital	8	(8)	0	(2)	16	0	0
<b>Total</b>	<b>10</b>	<b>(9)</b>	<b>1</b>	<b>(2)</b>	<b>20</b>	<b>2</b>	<b>0</b>
<b>North West London</b>							
London, Charing Cross Hospital	1	(1)	0	(1)	2	0	0

London, St Mary's Hospital	0	(2)	0	(0)	0	0	0
<b>Total</b>	<b>1</b>	<b>(3)</b>	<b>0</b>	<b>(1)</b>	<b>2</b>	<b>0</b>	<b>0</b>
<b>South East London</b>							
London, Guy's Hospital	1	(0)	0	(0)	0	0	1
London, King's College Hospital	4	(2)	2	(2)	6	0	3
London, St Thomas' Hospital	1	(2)	0	(1)	2	0	0
Sidcup, Queen Mary's Hospital	1	(0)	1	(0)	2	0	1
<b>Total</b>	<b>7</b>	<b>(4)</b>	<b>3</b>	<b>(3)</b>	<b>10</b>	<b>0</b>	<b>5</b>
<b>Surrey and Sussex</b>							
Camberley, Frimley Park Hospital	0	(2)	0	(2)	0	0	0
<b>Total</b>	<b>0</b>	<b>(2)</b>	<b>0</b>	<b>(2)</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>South West London</b>							
Croydon, Mayday Hospital	0	(2)	0	(1)	0	0	0
London, St George's Hospital	4	(2)	3	(1)	8	0	3
<b>Total</b>	<b>4</b>	<b>(4)</b>	<b>3</b>	<b>(2)</b>	<b>8</b>	<b>0</b>	<b>3</b>
<b>Thames Valley</b>							
Banbury, Horton General Hospital	1	(0)	0	(0)	2	0	0
Reading, Royal Berkshire Hospital	2	(3)	0	(0)	4	0	0
Wycombe, Wycombe General Hospital	1	(0)	0	(0)	2	0	0
<b>Total</b>	<b>4</b>	<b>(3)</b>	<b>0</b>	<b>(0)</b>	<b>8</b>	<b>0</b>	<b>0</b>
<b>West Yorkshire</b>							
Dewsbury, Dewsbury and District Hospital	1	(0)	0	(0)	2	0	0
Leeds, Leeds General Infirmary	6	(3)	6	(2)	12	0	6
<b>Total</b>	<b>7</b>	<b>(3)</b>	<b>6</b>	<b>(2)</b>	<b>14</b>	<b>0</b>	<b>6</b>
<b>England</b>	<b>73</b>	<b>(61)</b>	<b>26</b>	<b>(21)</b>	<b>135</b>	<b>2</b>	<b>28</b>

<b>Appendix II      Numbers of heartbeating donors and organs retrieved in the UK, 1 April 2003 - 31 March 2004, by kidney designated area</b>									
<b>Kidney designated area</b>	<b>All donors</b>	<b>Donors</b>		<b>pmp</b>	<b>Kidney</b>	<b>Heart</b>	<b>Organs Lung</b>	<b>Liver</b>	<b>Pancreas</b>
		<b>pmp</b>	<b>Multi-organ donors</b>						
Aberdeen	6	7.7	5	6.4	12	3	2	5	1
Belfast	30	17.8	25	17.8	56	6	13	26	0
Birmingham	52	11.7	52	11.7	104	14	32	51	2
Bristol	21	10.7	21	10.7	41	6	10	21	1
Cambridge	29	11.6	26	10.4	54	11	16	23	4
Cardiff	34	15.2	33	14.7	65	3	6	34	0
Coventry	9	11.1	8	9.9	18	4	8	8	1
Edinburgh	10	6.2	10	6.2	20	2	7	10	3
Glasgow	30	11.3	30	11.3	60	8	21	29	3
Leeds	44	11.9	36	9.7	73	10	19	42	3
Leicester	8	3.8	6	2.8	14	1	6	7	3
Liverpool	51	15.7	46	15.7	92	11	10	49	5
Manchester	56	14.2	46	11.6	101	12	11	50	9
Newcastle	43	15.2	31	11.0	79	11	13	31	7
North Thames	82	11.2	67	9.2	154	21	30	70	14
Nottingham	20	14.5	20	14.5	38	13	14	20	4
Oxford	31	10.3	30	10.0	61	5	10	30	7
Plymouth	28	10.3	26	14.6	56	10	19	26	6
Portsmouth	27	11.3	22	9.2	48	4	13	25	4
Sheffield	16	8.7	14	7.7	30	5	10	15	3
South Thames	72	10.7	69	10.3	135	19	29	68	11
<b>Total</b>	<b>699</b>	<b>11.8</b>	<b>623</b>	<b>10.6</b>	<b>1311</b>	<b>179</b>	<b>299</b>	<b>640</b>	<b>91</b>

Appendix IIIA      Retrieval populations for kidney centres, 2003-2004 (based on ONS <i>2001 census</i> figures)	
Kidney centre	Retrieval population (million)
Birmingham	4.46
Bristol	1.97
Cambridge	2.50
Coventry	0.81
Leeds	3.70
Leicester	2.12
Liverpool	3.24
Manchester	3.95
Newcastle	2.83
North Thames	7.32
Nottingham	1.38
Oxford	3.00
Plymouth	1.78
Portsmouth	2.39
Sheffield	1.83
South Thames	6.73
<b>Total (England)</b>	<b>50.01</b>
Cardiff	2.24
<b>Total (Wales)</b>	<b>2.24</b>
Aberdeen	0.78
Edinburgh	1.62
Glasgow	2.66
<b>Total (Scotland)</b>	<b>5.06</b>
Belfast	1.69
<b>Total (Northern Ireland)</b>	<b>1.69</b>
<b>TOTAL (UK)</b>	<b>59.00</b>

**Appendix IIIB      Retrieval population for liver and cardiothoracic zones 2003-2004 (based on *ONS 2001 Census* figures)**

<b>Liver Zone</b>	<b>Retrieval population (million)</b>
Birmingham	14.95
Cambridge	8.19
Edinburgh	5.06
King's College	14.73
Leeds	7.66
Newcastle	2.54
The Royal Free	5.86
 <b>Cardiothoracic Zone</b>	 <b>Retrieval population (million)</b>
Birmingham	9.59
Glasgow	5.06
Harefield	13.13
Manchester	7.91
Newcastle	8.47
Papworth	14.85

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*UK Transplant*

Fox Den Road, Stoke Gifford, Bristol BS34 8RR  
Tel: 0117 975 7575 Fax: 0117 975 7577  
Email: [enquiries@uktransplant.nhs.uk](mailto:enquiries@uktransplant.nhs.uk)

Organ Donor Line: 0845 60 60 400  
Web: [www.uktransplant.org.uk](http://www.uktransplant.org.uk)