NHS
Blood and Transplant

Organ Donation and Transplantation

Activity Report 2015/16

Preface

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

All figures quoted in this report are as reported to NHS Blood and Transplant by 16 May 2016 for the UK Transplant Registry, maintained on behalf of the transplant community and National Health Service (NHS), or for the NHS Organ Donor Register, maintained on behalf of the UK Health Departments.

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

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

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

The number of donors after brain death (DBD) and donors after circulatory death (DCD) by hospital are documented in **Appendices I**. Donation and transplant rates in this report are presented per million population (pmp): population figures used throughout this report are mid-2014 estimates based on ONS 2013 Census figures and are given in **Appendix III**.

All charts presented in this report are available as an accompanying slide set available from http://www.odt.nhs.uk.

A supplementary report on organ donation and transplantation activity for Black, Asian and Minority Ethnic (BAME) groups is published alongside this Activity Report – *Organ Donation and Transplantation data for Black, Asian and Minority Ethnic (BAME) communities*. It provides additional information on trends in organ donation and transplantation for BAME communities.

Acknowledgement

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

Foreword

Organ donation is a relatively rare event in the UK, because although around half a million people die each year, very few do so in circumstances which allow organs to be donated. It is therefore very positive to note that in 2015/16 there were more deceased donors than ever before, leading to the highest ever number of deceased donor transplants.

1,364 people in the UK donated organs after their death, enabling 3,519 deceased donor transplants utilising 3,932 organs. A further 3,779 patients had their sight restored through a cornea transplant.

Living donors continued to make a significant contribution across the UK, with 1075 living donors, most donating a kidney. The overall number of living donors decreased slightly for the second year running and NHS Blood and Transplant is working with transplant units to try to reverse this trend.

Despite steady progress in 2015/16 there is still much to do if the UK is to achieve the stated ambition of the *Taking Organ Transplantation to 2020: a UK strategy* and be among the best in the world.

Increasing the numbers of people who consent to organ donation remains a significant challenge. While the number of deceased donors increased last year, the family consent / authorisation rate only increased slightly to 62%, meaning that up to four in ten families do not agree to donate a relative's organs. Targeted activity focusing on changing attitudes and behaviour has been taking place in all four UK countries and last year also saw the implementation of the deemed consent system in Wales. We will work closely with the Welsh Government to track the long-term impact of this legislative change.

We know that the consent / authorisation rate is higher when the potential donor's decision to donate is known to their family. In 2015/16, almost nine out of ten families agreed to donation when the patient's decision to donate was known at the time of the potential donation, but fewer than five out of ten agreed when the patient's wishes were not known. 120 families were asked to support their relative's decision to be an organ donor as recorded on the NHS Organ Donor Register, or known by other method, but felt unable to do so.

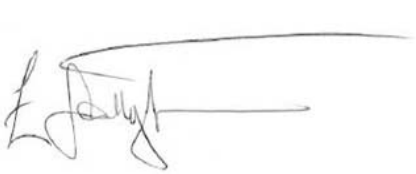
Another challenge is increasing the numbers who consent to organ donation from the black, Asian and ethnic minority (BAME) population. Patients from these communities receiving kidney transplants continues to rise, representing 28% of all kidney transplant patients, yet relatively few people from these communities give consent for organ donation. In 2015/16, the consent rate for BAME patients was almost half that of white patients. This presents real challenges for the BAME patients who make up 33% of the active kidney transplant waiting list. Although able to receive a transplant from a white donor, for many the best match will come from a donor from the same ethnic background. More BAME donors are needed to improve the chances of these patients getting the kidney transplant they need.

We are working with stakeholders to increase the number of donors from BAME communities but this is a slow process. To support this work, this year we are publishing a supplementary report specifically examining organ donation and transplantation in BAME communities.

Unfortunately some families, in the midst of their grief, find donation impossible to agree to. Sadly 466 patients died in need of an organ and a further 881 were removed from the transplant list before an organ could be found for them.

Today's donors are older, more overweight and often with a more complex medical history. *Taking Organ Transplantation to 2020: a UK strategy* sets out an aim to transplant more of the organs offered from consented donors. Progress against this aim is patchy and NHSBT is working with clinicians to develop a more detailed strategy to help surgeons make best use of the organs that are available.

All the figures in this report represent real people: those who generously gave their organs to save the lives of others; those who were fortunate to receive an organ and those for whom no organ was found last year. We would like to thank every donor and their family and all the teams in donor and transplant hospitals who work hard every day to increase the number of people who benefit from lifesaving transplants.



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Summary of Donor and Transplant Activity

In the financial year to 31 March 2016, compared with the previous year

- there was a 6% increase in the number of deceased donors to 1,364, the highest number ever in the UK
- the number of donors after brain death increased by 2% to 785, while the number of donors after circulatory death increased by 14% to 579
- the number of living donors fell by 2% to 1,075, accounting for approximately half of the total number of organ donors
- the total number of patients whose lives were saved or improved by an organ transplant increased by 4% to 4,601
- 3,779 patients had their sight restored through a cornea transplant, representing a small increase of 1%

The total number of patients registered for a transplant has fallen slightly (by 4%), so that:

- there were 6,476 patients waiting for a transplant at the end of March 2016, with a further 3,452 temporarily suspended from transplant lists
- 466 patients died while on the active waiting list for their transplant and a further 881 were removed from the transplant list. The removals were mostly as a result of deteriorating health and ineligibility for transplant and many of these patients would have died shortly afterwards.

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

- an increase of 5% in the total number of kidney transplants
- a fall of 6% in the number of pancreas transplants
- an increase of 3% in the total number of liver transplants
- an increase of 8% in the total number of heart transplants
- an increase of 1% in the total number of lung or heart/lung transplants
- an increase in the number of DCD heart donors to 21 compared to 1 in 2014/15
- an increase in the overall referral rate of potential donors from 80% to 86% and the proportion of approaches involving a Specialist Nurse - Organ donation from 78% to 83%
- an increase in the overall consent/authorisation rate for organ donation from 58% to 62%
- an increase in the number of opt-in registrations on the ODR, from 21.1 to 22.5 million at the end of March 2016. There were 177,204 opt-out registrants.

Overview of Organ Donation and Transplantation

A summary of organ donation and transplantation activity in the UK during the financial year from 1 April 2015 to 31 March 2016

2.1 Summary of activity

As the total number of deceased donors and transplants increased this year, the number of patients on the active transplant list at 31 March 2016 is 467 fewer than on the same date last year. This drop reflects an increasing number of transplants performed over the last ten years and a reasonably steady number of patients joining the transplant list each year. The increase in donor and transplant numbers (1 April 2006 to 31 March 2016) and the number of patients registered on the transplant lists at 31 March each year are shown in **Figure 2.1**. There were 187 more deceased donor transplants in 2015-2016 than in the previous year, representing a 6% increase. The corresponding increase in the number of deceased donors was 6%.

Figure 2.1 **Number of deceased donors and transplants in the UK, 1 April 2006 - 31 March 2016, and patients on the active transplant list at 31 March**

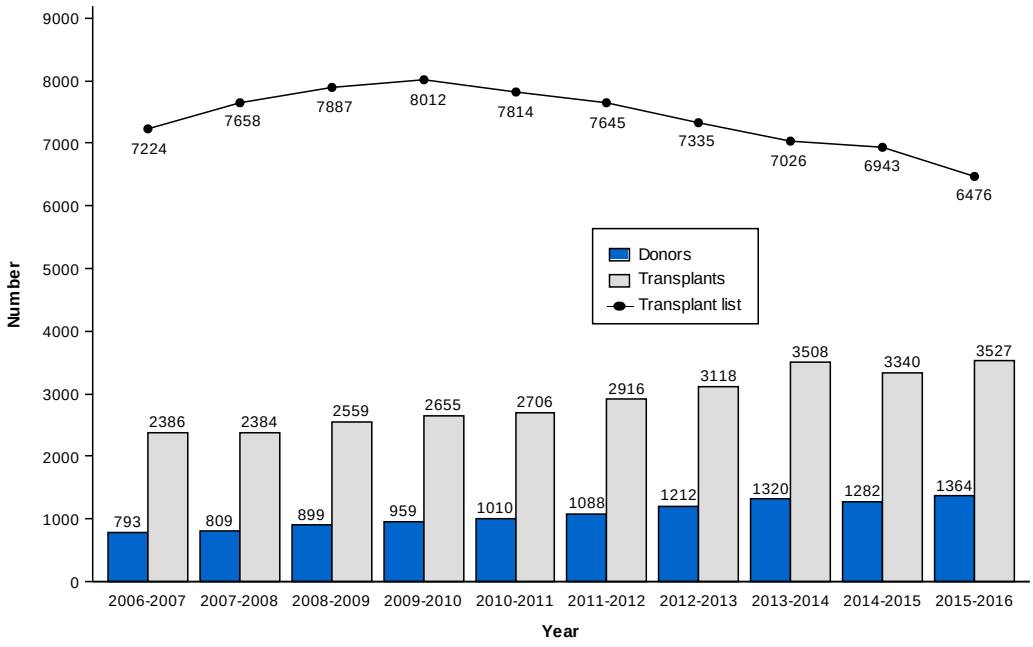


Figure 2.2 shows the number of deceased and living donors for 2006-2016. The number of deceased donors after brain death has increased in the last 3 to 4 years and reached the highest number ever in 2015-2016. The number of DCD donors has increased year on year, except in 2014/15, reaching the highest number of DCD donors ever in 2015-2016. In the last 7 years the number of living donors has ranged from 1,046 to 1,148 each year. Compared with last year there was a 2% fall to 1,075 living donors this year. One of the 1,075 living donors donated a liver that was not transplanted due to anatomical reasons

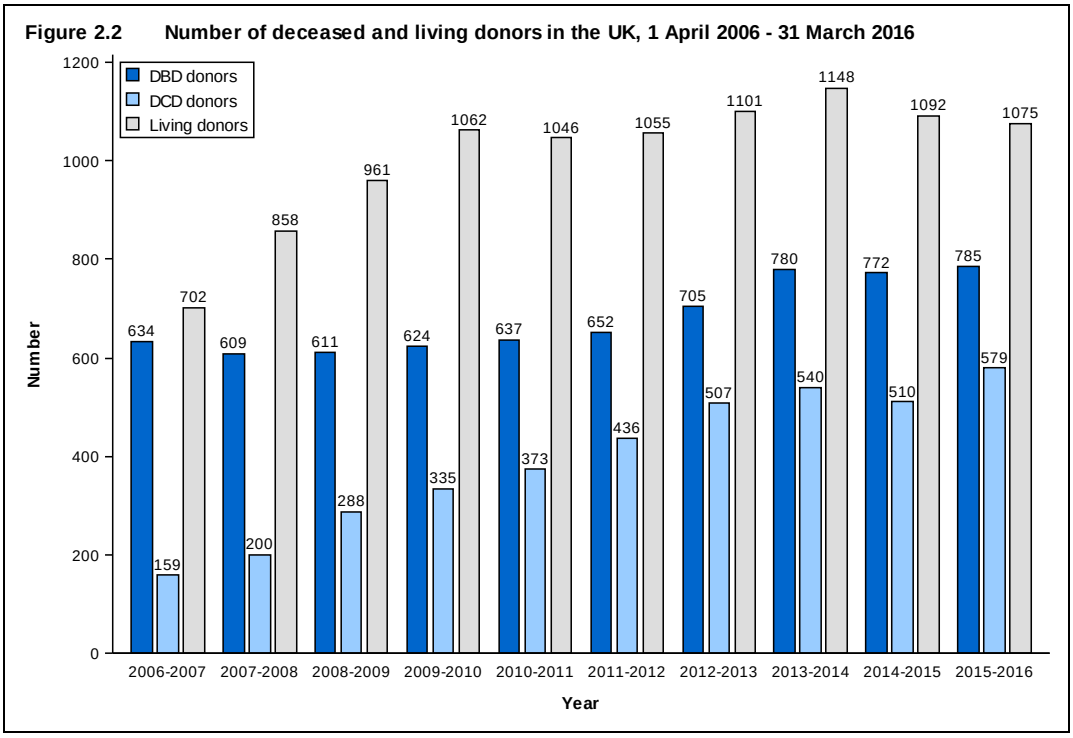
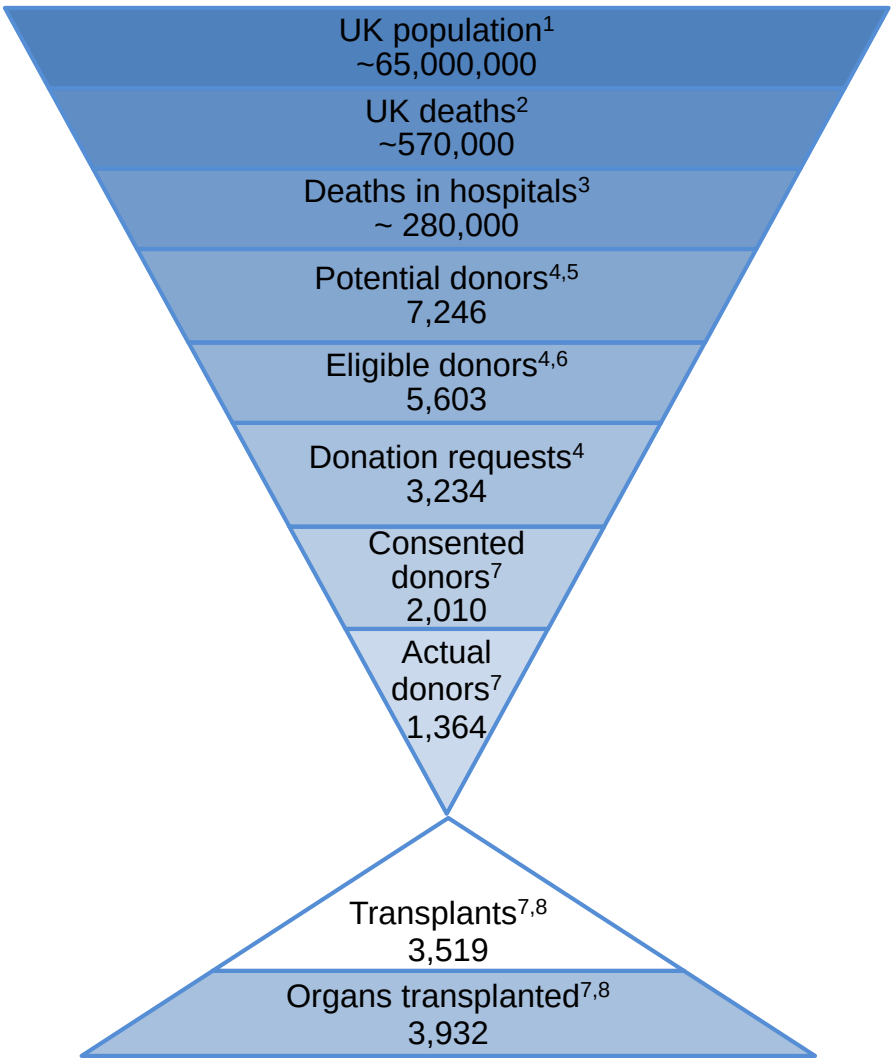


Figure 2.3 shows the potential deceased organ donor population in the UK. Not everyone can be a deceased organ donor and this figure highlights the small proportion of deaths in the UK that represent potential donors. *Please note that the information presented comes from several different sources. The NHSBT Potential Donor Audit, collects information on most but not all actual donors and the potential for donation could therefore be slightly underestimated. The quoted numbers of transplants and organs transplanted are those achieved using organs from deceased actual donors in the UK, some of which may have been performed overseas, and does not reflect the number of deceased donor transplants in the UK, which may have used organs from overseas donors.*

Figure 2.3 UK potential deceased organ donor population, 1 April 2015 – 31 March 2016



[1] Mid 2014 estimates: www.ons.gov.uk
[2] 2014 data: England & Wales www.ons.gov.uk; Scotland www.gro-scotland.gov.uk; Northern Ireland www.nisra.gov.uk
[3] 2014 data: England & Wales www.ons.gov.uk; Scotland www.isdscotland.org; Northern Ireland www.nisra.gov.uk
[4] 2015/2016 data: NHSBT, Potential Donor Audit
[5] Potential donor - patients for whom death was confirmed following neurological tests or patients who had treatment withdrawn and death was anticipated within four hours
[6] Eligible donor - Potential donor with no absolute medical contraindications to solid organ donation
[7] 2015/2016 deceased donor data: NHSBT, UK Transplant Registry
[8] Using organs from actual donors in the UK

Table 2.1 shows the number of deceased donors and transplants in 2015-2016 and patients on the transplant list at 31 March 2016 for each country in the UK.

Table 2.1 Deceased donors and transplants 1 April 2015 - 31 March 2016, and transplant lists as at 31 March 2016, by Country of residence

	Country of residence[1,2]							
	England		Wales		Scotland		Northern Ireland	
Organ	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
Kidney								
Deceased donors	1073	(19.8)	70	(22.7)	99	(18.5)	46	(25.0)
Transplants[3]	1717	(31.6)	84	(27.2)	179	(33.5)	51	(27.7)
Transplant list	4561	(84.0)	144	(46.6)	426	(79.6)	120	(65.2)
Pancreas								
Deceased donors	388	(7.1)	22	(7.1)	41	(7.7)	16	(8.7)
Transplants	168	(3.1)	13	(4.2)	30	(5.6)	5	(2.7)
Transplant list	163	(3.0)	4	(1.3)	29	(5.4)	3	(1.6)
Heart								
Deceased donors	180	(3.3)	7	(2.3)	11	(2.1)	8	(4.3)
Transplants[4]	166	(3.1)	11	(3.6)	9	(1.7)	7	(3.8)
Transplant list	217	(4.0)	10	(3.2)	24	(4.5)	5	(2.7)
Lung								
Deceased donors	159	(2.9)	12	(3.9)	18	(3.4)	13	(7.1)
Transplants	158	(2.9)	15	(4.9)	10	(1.9)	3	(1.6)
Transplant list	282	(5.2)	17	(5.5)	22	(4.1)	7	(3.8)
Liver								
Deceased donors	845	(15.6)	54	(17.5)	77	(14.4)	31	(16.8)
Transplants	682	(12.6)	44	(14.2)	102	(19.1)	33	(17.9)
Transplant list	466	(8.6)	21	(6.8)	60	(11.2)	21	(11.4)
Intestinal								
Deceased donors	11	(0.2)	0	(0.0)	4	(0.7)	1	(0.5)
Transplants	11	(0.2)	1	(0.3)	1	(0.2)	0	(0.0)
Transplant list	6	(0.1)	0	(0.0)	0	(0.0)	0	(0.0)
Total[5]								
Deceased donors	**1134**	**(20.9)**	**75**	**(24.3)**	**103**	**(19.3)**	**47**	**(25.5)**
Transplants	**2901**	**(53.4)**	**168**	**(54.4)**	**331**	**(61.9)**	**99**	**(53.8)**
Transplant list	**5543**	**(102.0)**	**193**	**(62.5)**	**542**	**(101.3)**	**152**	**(82.6)**

[1] Country of residence of donor given for deceased donor numbers, and residence of recipient given for transplant and waiting list numbers
[2] Excludes patients resident in Channel Islands, Isle of Man, overseas and in the Republic of Ireland
[3] Kidney only transplants
[4] Excludes heart/lung transplants
[5] Organ numbers do not add up to total due to multi-organ donors and patients

2.2 Transplant list

At 31 March 2016, 6,476 patients were registered for an organ transplant in the UK on the active transplant list. A further 3,452 patients were temporarily suspended from the active national transplant list because they were unfit or otherwise unavailable for transplant. Details of numbers of patients on each of the organ transplant lists are given in **Table 2.2** for 31 March 2015 and 2016. Between these dates the total number fell by 467 patients (7%) due to decreases in the number of patients on the transplant lists for all organs.

Table 2.2 Active transplant lists in the UK at 31 March 2015 and 2016

	2015	2016	% Change
Kidney & pancreas patients	**5720**	**5308**	**-7**
Kidney	5468	5081	-7
Kidney & pancreas	201	184	-8
Pancreas	15	15	0
Pancreas islets	36	28	-22
Cardiothoracic patients	**599**	**574**	**-4**
Heart	262	244	-7
Heart/lung	13	14	0
Lung(s)	324	316	-2
Liver patients	**596**	**578**	**-3**
Intestinal patients	**9**	**6**	**-33**
Other multi-organ patients[1]	**19**	**10**	**-47**
ALL PATIENTS	**6943**	**6476**	**-7**

Percentages not reported when fewer than 10 in either year

[1] Includes patients waiting for kidney and liver transplants (13 in 2015, 6 in 2016), kidney and heart transplants (4 in 2015, 4 in 2016), liver and heart transplants (1 in 2015), liver and lung transplants (1 in 2015)

During 2015-2016, 479 patients died whilst active/suspended on the transplant list or within one year of removal from the list. This information is shown by organ and age group in **Table 2.3**.

Table 2.3	Number of patient deaths on transplant lists in the UK, 1 April 2015 - 31 March 2016		
	Total	Adult	Paediatric
Kidney & pancreas patients	**285**	**285**	**0**
Kidney	259	259	0
Pancreas	3	3	0
Kidney & pancreas	23	23	0
Cardiothoracic patients	**105**	**95**	**10**
Heart	46	37	9
Heart/lung	4	3	1
Lung	55	55	0
Liver patients	**87**	**82**	**5**
Intestinal patients	**2**	**2**	**0**
ALL PATIENTS	**479**	**464**	**15**

2.3 Transplants

There was a 4% increase in the total number of organ transplants (from deceased and living donors) last year: 4,601 transplants were performed in 2015-2016 compared with 4,432 in 2014-2015 (**Table 2.4**). All multi-organ transplants are identified separately as are transplants from living donors.

The total number of kidney transplants increased by 5% in 2015-2016; kidney only transplants from donors after circulatory death increased by 19%, while the number of living donor kidney transplants fell by 2%. The total number of cardiothoracic organ transplants rose by 4%, the number of liver transplants rose by 3% and the number of pancreas transplants (including pancreas only, kidney/pancreas and pancreas islets) fell by 6%.

Table 2.4 Transplants performed in the UK, 1 April 2014 - 31 March 2016

Transplant	2014-2015	2015-2016	% Change
DBD kidney	1163	1181	+2
DCD kidney	717	855	+19
Living donor kidney	1052	1035	-2
DBD Kidney & pancreas	118	123	+4
DCD Kidney & pancreas	55	44	-20
DBD Pancreas	24	13	-46
DCD Pancreas	5	5	-
Pancreas islets	23	31	+35
DBD heart	179	175	-2
DCD heart	1	19	-
Heart/lung	1	6	-
DBD Single lung	17	14	-18
DCD Single lung	6	2	-
DBD Double lung	128	133	+4
DCD Double lung	34	33	-3
DBD liver	564	551	-2
DCD liver	176	206	+17
Domino liver	2	3	-
DBD liver lobe	87	95	+9
DCD liver lobe	1	0	-
Living donor liver lobe	38	36	-5
Bowel only	6	1	-
Liver, bowel & pancreas	3	1	-
Multivisceral[1]	11	7	-
Modified multivisceral[2]	4	6	-
Kidney & heart	1	0	-
Kidney & liver	14	25	+79
Heart & liver	0	1	-
Liver & pancreas	1	0	-
Lung & kidney	1	0	-
TOTAL ORGAN TRANSPLANTS	**4432**	**4601**	**+4**
Total kidney transplants[3]	**3122**	**3265**	**+5**
Total pancreas transplants[3]	**244**	**230**	**-6**
Total cardiothoracic transplants	**368**	**383**	**+4**
Total liver transplants[3]	**897**	**925**	**+3**
Total intestinal transplants	**24**	**15**	**-38**

Percentage not reported when fewer than 10 in either year
[1] Including a kidney (1 in 2014-2015)
[2] Including a kidney (2 in 2015-2016)
[3] Includes intestinal transplants

The total approximate number of patients with a functioning transplant on 31 March 2016 is 47,800 (**Table 2.5**). This reflects information held on the UK transplant registry database and excludes those patients who are known to be lost to follow-up.

Table 2.5 Number of transplants reported as functioning at 31 March 2016

	Functioning transplants[1]
Kidney	34400
Pancreas	2100
Cardiothoracic	3800
Liver	9200
Intestinal	100
ALL PATIENTS[2]	**47800**

[1] Approximate number being followed up
[2] Number of patients with a functioning transplant
Multi-organ transplants (excluding intestinal transplants) are counted in each organ
Excludes those patients known to be lost to follow-up

Organ Donation Activity

Key messages

- **There has been a 6% increase in deceased donors (to 1,364) and a 2% fall in living organ donors (to 1,075) compared with last year**
- **Compared with 809 deceased donors in 2007-2008, there has been an increase of 69% to 1,364 in 2015-2016**
- **There has been an increase in donors after brain death of 2% to 785 and an increase of 14% in donors after circulatory death to 579, compared with last year**
- **Donors after circulatory death provide, on average, one less organ for transplantation than donors after brain death**
- **Donor characteristics are continuing to change: donors are older, more obese, and less likely to have suffered a trauma-related death, all of which have adverse effects on transplant outcomes**
- **On 1 December 2015, The Human Transplantation (Wales) Act 2013 became operational in Wales, introducing a soft opt-out system for organ donation (deemed consent).**

3.1 Summary of activity

There was a 6% increase in the number of deceased organ donors in 2015-2016 (1,364), one short of the target of 1,365 donors set for the year. This was the result of an increase in donors after brain death (DBD) of 2% and a more substantial increase of 14% in donors after circulatory death (DCD). The 1,364 donors represented a 69% increase over the number of organ donors in 2007-2008 (809).

The 1,364 deceased organ donors gave 4,658 organs compared with 1,282 donors and 4,360 organs in 2014-2015. This represents a 7% increase in organs donated. **Table 3.1** shows deceased organ donors according to the organs they donated.

Nearly all deceased donors (95%) gave a kidney and of these the majority (76%) also donated at least one other organ. Only 12% of donors after brain death were single organ donors, the majority (55%) of these just donating their kidneys. By contrast, 47% of donors after circulatory death were single organ donors, the majority (93%) of these donating just their kidneys.

Although the vast majority of living organ donors donated a kidney, 40 donated part of their liver. Of these 40 living donor livers, one was not transplanted due to anatomical reasons. All living donations are approved by the Human Tissue Authority.

Table 3.1 Solid organ donors in the UK, 1 April 2015 - 31 March 2016, by organ types donated

	DBD	DCD	Living donor	**TOTAL**
Kidney only	52	252	1035	**1339**
Kidney & thoracic	7	10	-	**17**
Kidney & liver	285	160	-	**445**
Kidney & pancreas	3	15	-	**18**
Kidney, thoracic & liver	52	11	-	**63**
Kidney, thoracic & pancreas	5	1	-	**6**
Kidney, liver & pancreas	138	77	-	**215**
Kidney, liver, pancreas & bowel	1	-	-	**1**
Kidney, thoracic, liver & pancreas	178	31	-	**209**
Kidney, thoracic, liver & bowel	1	-	-	**1**
Kidney, thoracic, liver, pancreas & bowel	14	-	-	**14**
Thoracic only	3	4	-	**7**
Thoracic & liver	3	1	-	**4**
Thoracic & pancreas	-	1	-	**1**
Thoracic, liver & pancreas	2	-	-	**2**
Liver only	39	16	40	**95**
Liver & pancreas	2	-	-	**2**
TOTAL	**785**	**579**	**1075**	**2439**

Bowel may include abdominal wall/colon/stomach/spleen

3.2 Organ donors

Organ donor rates per million population (pmp) for 2015-2016 are given by country and former Strategic Health Authority according to where the donor lived in **Table 3.2** while the number of deceased donors are shown based on location of the hospital in which they died in **Table 3.3**. **Table 3.4** shows the number of deceased donors by Organ Donation Services Team. **Appendix I** shows a more detailed breakdown of the number of donors from the donating hospitals and **Appendix III** details the populations used. Number and rates of utilised donors are given in Chapter 4.

On 1 December 2015, Wales moved to a soft opt-out system for organ donation. Under the soft opt-out system, if a person has not registered an organ donation decision to either opt-in or opt-out or appoint a representative, is aged 18 or over, has lived for longer than 12 months and is ordinarily resident and also died in Wales, and had the capacity to understand the notion of deemed consent for a significant period before their death, then consent can be deemed.

Table 3.2 Organ donation rates per million population (pmp), in the UK, 1 April 2015 - 31 March 2016, by country/ Strategic Health Authority of donor residence[1]

Country of donation/ Strategic Health Authority	DBD		DCD		**TOTAL**		Living	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
North East	40	(15.3)	31	(11.8)	71	(27.1)	48	(18.3)
North West	80	(11.2)	60	(8.4)	140	(19.6)	140	(19.6)
Yorkshire and The Humber	61	(11.4)	43	(8.0)	104	(19.4)	72	(13.4)
North of England	**181**	**(12.0)**	**134**	**(8.9)**	**315**	**(20.8)**	**260**	**(17.2)**
East Midlands	46	(9.9)	43	(9.3)	89	(19.2)	61	(13.1)
West Midlands	62	(10.9)	34	(6.0)	96	(16.8)	84	(14.7)
East of England	65	(10.8)	80	(13.3)	145	(24.1)	81	(13.5)
Midlands and East	**173**	**(10.6)**	**157**	**(9.6)**	**330**	**(20.2)**	**226**	**(13.8)**
London	**85**	**(10.0)**	**48**	**(5.6)**	**133**	**(15.6)**	**160**	**(18.7)**
South East Coast	81	(17.6)	46	(10.0)	127	(27.7)	73	(15.9)
South Central	60	(14.0)	38	(8.9)	98	(22.8)	70	(16.3)
South West	78	(14.4)	53	(9.8)	131	(24.2)	80	(14.8)
South of England	**219**	**(15.3)**	**137**	**(9.6)**	**356**	**(24.9)**	**223**	**(15.6)**
England	**658**	**(12.1)**	**476**	**(8.8)**	**1134**	**(20.9)**	**869**	**(16.0)**
Isle of Man	**1**	**(12.5)**	**1**	**(12.5)**	**2**	**(25.0)**	**2**	**(25.0)**
Channel Islands	**2**	**(12.5)**	**1**	**(6.3)**	**3**	**(18.8)**	**2**	**(12.5)**
Wales	**37**	**(12.0)**	**38**	**(12.3)**	**75**	**(24.3)**	**49**	**(15.9)**
Scotland	**58**	**(10.8)**	**45**	**(8.4)**	**103**	**(19.3)**	**83**	**(15.5)**
Northern Ireland	**29**	**(15.8)**	**18**	**(9.8)**	**47**	**(25.5)**	**70**	**(38.0)**
TOTAL	**785**	**(12.1)**	**579**	**(8.9)**	**1364**	**(21.0)**	**1075**	**(16.6)**

[1] Includes 105 donors (13 deceased, 92 living) where the hospital postcode was used in place of an unknown donor postcode

Table 3.2 shows variation in the number of DBD and DCD donors pmp across the UK. There were 12.1 DBD donors pmp for the UK as a whole, but across the former English Strategic Health Authorities (SHA) this ranged between 9.9 and 17.6 pmp. Across the four countries of the UK, Northern Ireland had the highest rate of 15.8 pmp. However, the number of eligible donors pmp also varies and further information can be seen in Chapter 13. It should be noted that these figures are not directly comparable, since not all donors are reported in the Potential Donor Audit. For DCD donors the UK rate is 8.9 pmp, ranging from 8.4 to 12.3 pmp across countries of the UK and from 5.6 to 13.3 pmp in the former English SHAs. No adjustment has been made for any differences in demographics of the populations across countries or SHAs.

Table 3.3 Deceased organ donors in the UK, 1 April 2015 - 31 March 2016, by country/ Strategic Health Authority of hospital of donor death

Country of donation/ Strategic Health Authority	DBD N	DCD N	**TOTAL** N
North East	49	35	84
North West	78	65	143
Yorkshire and The Humber	59	41	100
North of England	**186**	**141**	**327**
East Midlands	38	36	74
West Midlands	65	40	105
East of England	52	79	131
Midlands and East	**155**	**155**	**310**
London	**147**	**66**	**213**
South East Coast	54	41	95
South Central	48	35	83
South West	73	51	124
South of England	**175**	**127**	**302**
England	**663**	**489**	**1152**
Isle of Man	**1**	**0**	**1**
Channel Islands	**1**	**0**	**1**
Wales	**36**	**28**	**64**
Scotland	**56**	**43**	**99**
Northern Ireland	**28**	**19**	**47**
TOTAL	**785**	**579**	**1364**

Table 3.4	Deceased organ donors in the UK, 1 April 2015 - 31 March 2016 by Organ Donation Services Team		
Team	DBD N	DCD N	**TOTAL** N
Eastern	62	79	141
London	108	49	157
Midlands	85	72	157
North West	81	74	155
Northern	52	35	87
Northern Ireland	28	19	47
Scotland	56	43	99
South Central	59	43	102
South East	94	58	152
South Wales	33	19	52
South West	64	46	110
Yorkshire	63	42	105
TOTAL	**785**	**579**	**1364**

The mean number of organs retrieved per donor in 2015-2016 is given by country in **Table 3.5**. Overall, an average of 3.9 organs were donated per DBD donor and 2.8 per DCD donor. For DBD donors, the rate ranged from 3.8 organs per donor in England to 4.3 in Northern Ireland.

Table 3.5	Organs retrieved per donor, in the UK, 1 April 2015 - 31 March 2016, by country of donor residence								
Country	Adult			Paediatric			All		
	DBD	DCD	TOTAL	DBD	DCD	TOTAL	DBD	DCD	TOTAL
England	3.8	2.8	**3.4**	5.2	3.7	**4.5**	3.8	2.8	**3.4**
Wales	3.8	2.6	**3.2**	7.0	3.0	**5.7**	3.9	2.6	**3.3**
Scotland	3.9	2.9	**3.4**	5.7	4.0	**5.3**	4.0	2.9	**3.5**
Northern Ireland	4.0	2.4	**3.4**	5.8	3.0	**5.3**	4.3	2.4	**3.6**
TOTAL	**3.8**	**2.8**	**3.4**	**5.5**	**3.7**	**4.7**	**3.9**	**2.8**	**3.4**

3.3 Demographic characteristics

While the number of donors overall has increased over the last 10 years, it is important to be aware that there have been changes over time with regard to donor characteristics (**Table 3.6**). In 2015-2016, 36% of deceased donors were aged 60 years or more compared with 17% in 2006-2007 (**Figure 3.1**). In particular the proportion of deceased donors aged at least 70 years has increased from 3% to 13% over the same time period. The proportion of clinically obese donors (Body Mass Index (BMI) of 30 or higher) has increased from 18% to 25% in deceased donors in the last 10 years (**Figure 3.2**). In addition, the proportion of all deceased donors after a trauma death has decreased from 16% to 5% over the same time period. All of these changes may have an adverse impact on the quality of the organs and the subsequent transplant outcome for the recipient.

Table 3.6 also indicates the ethnicity of deceased organ donors, highlighting that 5% of donors are from ethnic minority groups. By contrast, ethnic minority groups represent 11% of the UK population.

Table 3.6 Demographic characteristics of organ donors in the UK 1 April 2015 - 31 March 2016

		DBD		DCD		TOTAL	
		N	%	N	%	N	%
Age	0-17	30	4	21	4	51	4
	18-49	296	38	196	34	492	36
	50-59	203	26	132	23	335	25
	60-69	165	21	145	25	310	23
	70+	91	12	85	15	176	13
	Mean (SD)	51	(17)	52	(17)	51	(17)
BMI	0-19	53	7	38	7	91	7
	20-29	539	69	388	67	927	68
	30+	193	25	151	26	344	25
	Unknown	0	0	2	0	2	0
	Mean (SD)	27	(5)	27	(7)	27	(6)
Cause of death	Intracranial	694	88	488	84	1182	87
	Trauma	45	6	27	5	72	5
	Other	46	6	64	11	110	8
Ethnicity	White	735	94	561	97	1296	95
	Asian	21	3	6	1	27	2
	Black	15	2	5	1	20	1
	Other	13	2	7	1	20	1
	Not reported	1				1	
Blood group	O	367	47	273	47	640	47
	A	323	41	232	40	555	41
	B	68	9	58	10	126	9
	AB	27	3	16	3	43	3
Donor gender	Male	397	51	353	61	750	55
	Female	388	49	226	39	614	45
TOTAL		**785**	**100**	**579**	**100**	**1364**	**100**

Figure 3.1 Age of deceased donors in the UK, 1 April 2006 - 31 March 2016

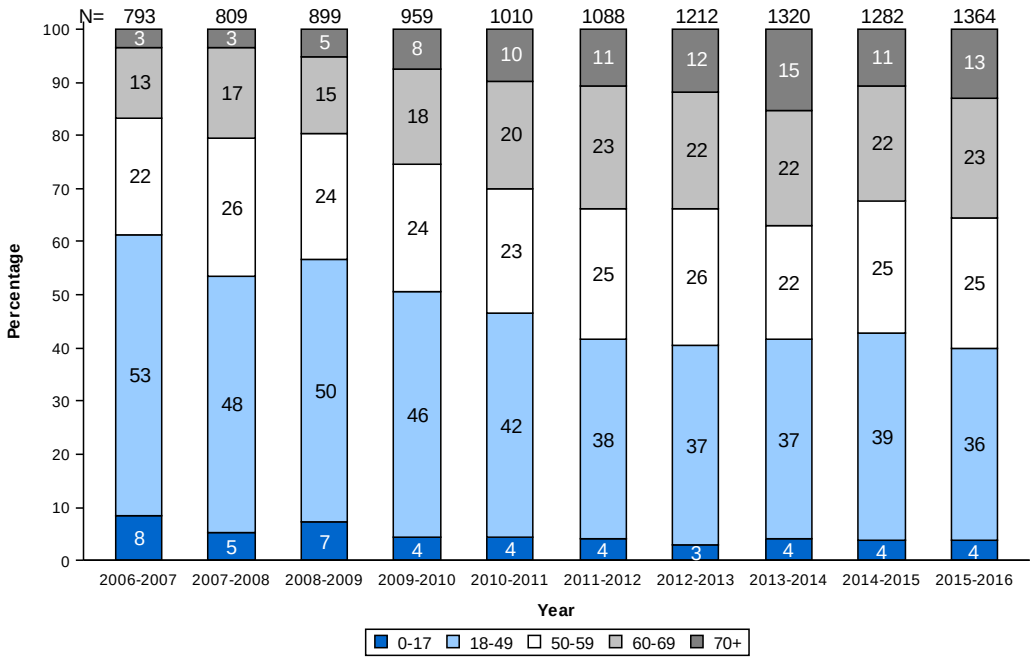
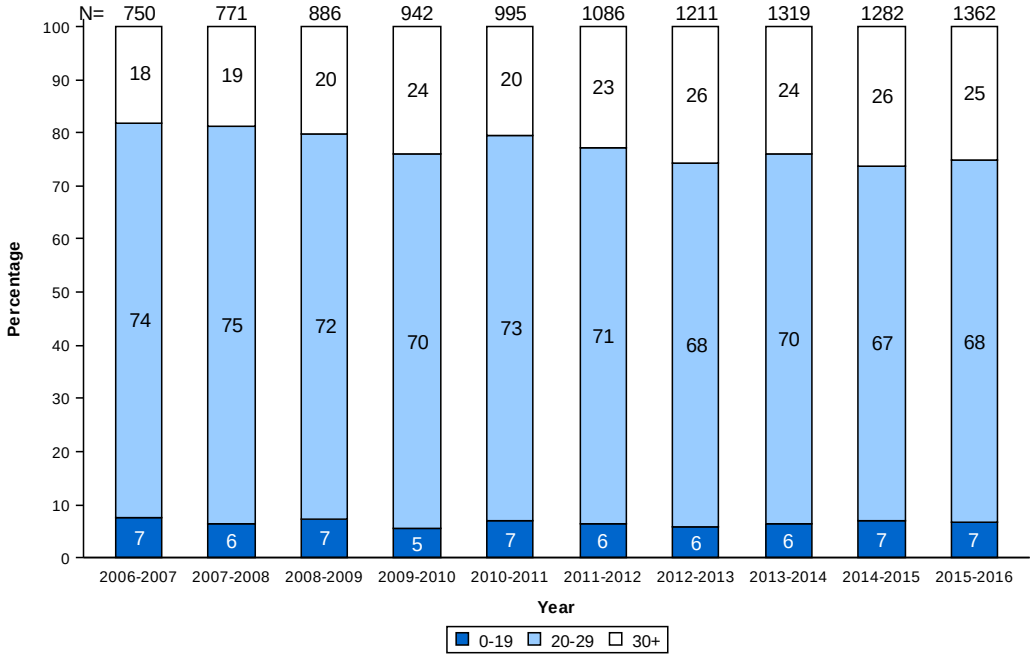


Figure 3.2 BMI of deceased donors in the UK, 1 April 2006 - 31 March 2016



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

The National Organ Retrieval Service and Usage of Organs

Key messages

- **National Organ Retrieval Service teams attended 808 DBD donors and 901 DCD donors; 97% of DBD donors and 64% of DCD donors attended proceeded to donation**
- **Overall, 53% of organs offered from those donors that did proceed were transplanted, but individually, these rates were 84% for kidneys, 62% for livers, 34% for hearts, 31% for pancreases, 18% for lungs and 9% for bowels**
- **The number of deceased donors per million of population was 21.0, however 6% of actual donors resulted in no organ transplants, the same as last year**

4.1 The National Organ Retrieval Service (NORS)

During 2015-2016 there were 7 abdominal and 6 cardiothoracic NORS teams available at any given time to retrieve organs from deceased donors in the UK for transplantation. Each team had a designated area for which they were first on-call, based on the proximity of their base to each donor hospital. If a team were first on-call for a particular donor hospital, they were required to attend donors at that hospital within an agreed timescale if at least one organ has been accepted for transplantation. If the team were already retrieving when they were called to attend, then a second team were called in to retrieve and so on. In two areas of the country, two abdominal teams shared the on call responsibilities, each being on-call for different weeks of the year, which means there were 9 abdominal teams in total.

The number of DBD and DCD donors that were attended by each of the teams in 2015-2016 is shown in **Table 4.1**. The geographical distribution of donors and the on-call arrangements lead to variation in these numbers across teams. The figures are broken down by whether the donor proceeded to organ donation (actual donors) or not. Non-proceeding donors are more common in the pool of potential DCD donors as prolonged time to death after treatment withdrawal can cause unsuitability of organs for transplantation. A small number of donors are attended by local kidney transplant teams. This is typically for DCD donors when only the kidneys have been accepted for transplantation and the teams are appropriately reimbursed if they are willing and able to retrieve.

Table 4.1 Number of actual and non-proceeding donors attended by each NORS team

NORS team	DBD				DCD			
	Actual	Non-proceeding	% non-proc	**No. attended**	Actual	Non-proceeding	% non-proc	**No. attended**
Abdominal								
Birmingham	99	2	2	**101**	65	33	34	**98**
Cambridge	94	2	2	**96**	119	41	26	**160**
Cardiff	46	0	0	**46**	23	16	41	**39**
King's College	148	5	3	**153**	87	55	39	**142**
Leeds / Manchester	110	6	5	**116**	88	65	42	**153**
Newcastle	89	6	6	**95**	62	40	39	**102**
Oxford	68	1	1	**69**	36	28	44	**64**
Royal Free	72	1	1	**73**	45	17	27	**62**
Scotland	56	1	2	**57**	49	26	35	**75**
Abdominal total	**782**	**24**	**3**	**806**	**574**	**321**	**36**	**895**
Cardiothoracic								
Birmingham	45	32	42	**77**	8	15	65	**23**
Harefield	60	42	41	**102**	16	25	61	**41**
Manchester	50	12	19	**62**	7	23	77	**30**
Newcastle	34	13	28	**47**	8	18	69	**26**
Papworth	61	31	34	**92**	19	24	56	**43**
Scotland	14	10	42	**24**	-	-	-	**-**
Cardiothoracic total	**264**	**140**	**35**	**404**	**58**	**105**	**64**	**163**
Total donors attended	**785**	**23**	**3**	**808**	**579**	**322**	**36**	**901**

Note: There was 1 additional UK donor attended by a local abdominal team (Belfast)

4.2 Retrieval and usage of organs

The number of consented donors and 'offered' donors (where at least one organ was offered for transplant) are shown in **Table 4.2**. The number of organs offered from these 'offered' donors is also shown. Each year a number of actual organ donors result in no transplants. Donors resulting in at least one transplant are termed 'utilised' donors and the number of actual and utilised donors is shown in **Table 4.2**. The number of donors per million of population (pmp) is also shown. In 2015-2016, 6% of actual donors resulted in no organ transplants, the same as the previous year.

Table 4.2 Consented, offered, actual and utilised deceased donors in the UK, 1 April 2015 - 31 March 2016

	DBD	(pmp)	DCD	(pmp)	Total	(pmp)
Consented donors[1]	880	(13.6)	1130	(17.4)	2010	(31.0)
Offered donors[2]	844	(13.0)	1034	(15.9)	1878	(29.0)
Kidneys offered	*1642*		*1996*		*3638*	
Livers offered	*825*		*954*		*1779*	
Pancreases offered	*572*		*369*		*941*	
Bowels offered	*196*		*0*		*196*	
Hearts offered	*493*		*48*		*541*	
Lungs offered	*1106*		*778*		*1884*	
Actual donors	785	(12.1)	579	(8.9)	1364	(21.0)
Utilised donors[3]	762	(11.8)	521	(8.0)	1283	(19.8)

[1] Consented donors defined as patients where consent for at least one organ was given
[2] Offered donors defined as donors where one or more organs were offered for transplantation
[3] Utilised donors defined as donors where one or more organs were retrieved and transplanted

There were 1,364 actual deceased organ donors last year, but not all organs from these donors were offered for transplantation. **Table 4.3** shows the number of organs offered, retrieved and transplanted from the 785 DBD and 579 DCD actual donors. The number of organs from theses donors that were subsequently used for research purposes is also shown. The number of organs offered for transplantation excludes those where the donor did not meet the nationally agreed age criteria for suitability for donation of that specific organ. There are no nationally agreed age criteria for kidney and liver donation.

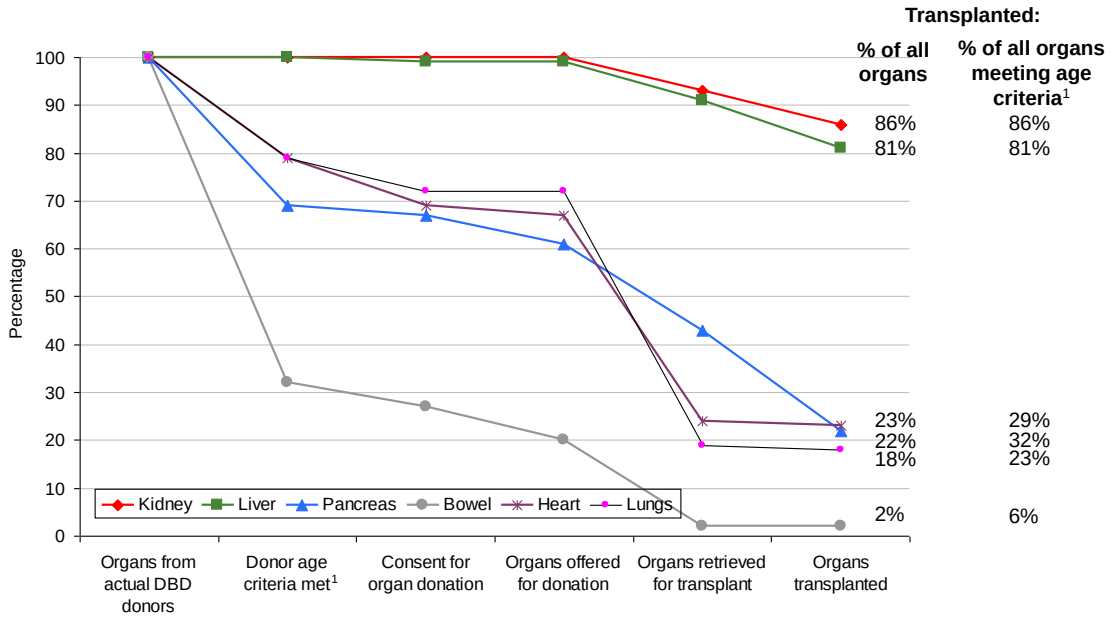
Table 4.3 Donation and transplantation of organs from 1364 deceased donors in the UK, 1 April 2015 – 31 March 2016

Organ	Organs meeting initial suitability criteria and offered for transplantation	Organs retrieved for transplantation N	Organs retrieved for transplantation % of offered	Organs transplanted N	Organs transplanted % of retrieved	Organs transplanted % of offered	Organs used for research (from actual organ donors)
DBD donor organs							
Kidney	1569	1462	93	1346	92	86	92
Liver	778	715	92	637	89	82	67
Pancreas[1]	480	335	70	173	52	36	128
Bowel[2]	160	16	10	15	94	9	0
Heart[3]	527	186	35	179	96	34	5
Lung[4]	1126	303	27	282	93	25	6
Total	**4640**	**3017**	**65**	**2632**	**87**	**57**	**298**
DCD donor organs[5]							
Kidney	1158	1103	95	940	85	81	127
Liver	572	296	52	206	70	36	78
Pancreas[1]	250	123	49	55	45	22	53
Lung[4]	778	75	10	66	88	8	6
Total	**2758**	**1597**	**58**	**1267**	**79**	**46**	**264**
Deceased donor organs							
Kidney	2727	2565	94	2286	89	84	219
Liver	1350	1011	75	843	83	62	145
Pancreas[1]	730	458	63	228	50	31	181
Bowel[2]	160	16	10	15	94	9	0
Heart[3]	527	186	35	179	96	34	5
Lung[4]	1904	378	20	348	92	18	12
Total	**7398**	**4614**	**62**	**3899**	**85**	**53**	**562**

[1] Excludes donors aged > 60 years
[2] Excludes donors aged >= 56 years or weighing >= 80kg
[3] Excludes donors aged > 65 years or died due to myocardial infarction
[4] Excludes donors aged > 65 years
[5] Excludes DCD hearts

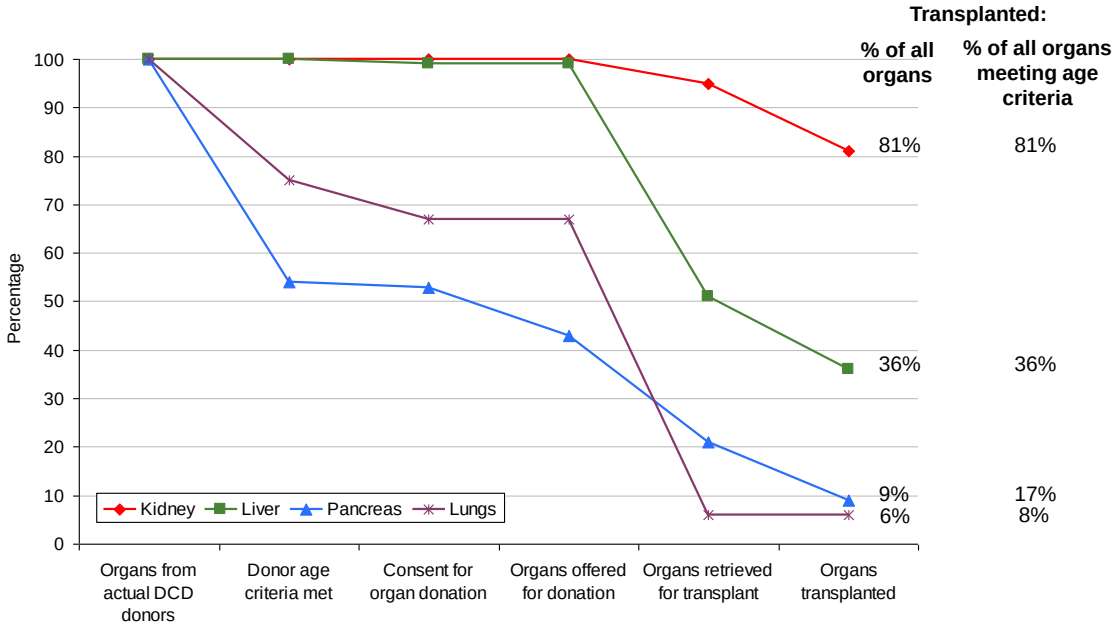
Figures 4.1 and 4.2 show line graphs of the pathway for all donor organs through to transplantation. The charts start at 100% for each organ, representing all organs from the 785 DBD and 579 DCD donors. The proportion of these organs where any national donor age criteria are met is then shown, followed by the proportion with consent (authorisation in Scotland), the proportion offered, the proportion retrieved and finally the proportion transplanted. For example, **Figure 4.1** shows that only 22% of the pancreases from the 785 DBD donors were transplanted. Transplantation rates for kidneys and livers are generally high, while for other organs, even after allowing for the agreed age criteria, the rates are generally low.

Figure 4.1 Donation and transplantation rates of organs from DBD organ donors in the UK, 1 April 2015 – 31 March 2016



[1] Hearts – in addition to age criteria, donors who died due to myocardial infarction are excluded
Bowels – in addition to age criteria, donors who weigh >=80kg are excluded

Figure 4.2 Donation and transplantation rates of organs from DCD organ donors in the UK, 1 April 2015 – 31 March 2016



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

These tables also show the number of organs from UK donors that were transplanted overseas. These organs were not accepted for transplantation by any UK transplant centre, but were accepted for suitable recipients identified elsewhere, usually in Europe. In 2015-2016 only a small number of livers, hearts and lungs were exported for transplantation outside the UK. Organs from outside the UK are occasionally imported for transplant. Further information on the import and export of organs can be found in **Appendix IV**.

The percentages of organs retrieved that were not transplanted are shown in **Figure 4.3, Figure 4.4** and **Figure 4.5** for kidneys, livers, and pancreases, respectively. The rates are shown over the last decade. Some organs are found not to be suitable for transplantation after they have been retrieved and this 'non-utilisation rate' is generally increasing over time for each organ, reflecting the ageing donor population. The majority of organs retrieved but found not to be suitable for transplantation are instead used for research (with appropriate consent).

Table 4.4 Reasons for non-retrieval and non-use of abdominal organs from DBD donors in the UK, 1 April 2015 – 31 March 2016

	Kidney	Liver	Pancreas	Bowel
All DBD organ donors	**785**	**785**	**785**	**785**
Donors from whom organs not offered for donation	1	7	305	625
Reasons for organs not being offered				
Family permission refused	1[1]	7	15	37
Permission refused by coroner	0	0	2	1
Donor unsuitable – age	0	0	244	0
Donor unsuitable – past history	0	0	28	7
Donor age >=56 or donor weight >=80kg	0	0	0	532
Other	0	0	16	48
TOTAL DONORS WITH ORGANS NOT OFFERED	**1**	**7**	**305**	**625**
Organs offered for donation	**1569**	**778**	**480**	**160**
Organs not retrieved (% of organs offered for donation)	**107 (7)**	**63 (8)**	**145 (30)**	**144 (90)**
Reasons for non-retrieval				
Donor				
Donor unsuitable – medical	12	4	12	6
Donor unsuitable – non-medical	2	2	9	86
Donor age	15	1	14	1
Organ				
Organ unsuitable – clinical	54	29	84	21
Poor function	14	15	8	6
Other				
Other	10	12	18	24
TOTAL ORGANS OFFERED, NOT RETRIEVED	**107**	**63**	**145**	**144**
Organs retrieved (% of organs offered for donation)	**1462 (93)**	**715 (92)**	**335 (70)**	**16 (10)**
Organs transplanted in the UK	1346	634	173	15
Organs transplanted overseas	0	3[2]	0	0
Organs not transplanted	116	78	162	1
Reasons for organ not being transplanted				
Donor				
Donor unsuitable – medical	19	8	12	0
Donor unsuitable – non-medical	2	2	3	0
Donor age	0	0	0	0
Organ				
Organ unsuitable – clinical	21	53	124	0
Poor function	0	1	0	0
Other				
Other	74	14	23	1
TOTAL ORGANS RETRIEVED, NOT TRANSPLANTED (Number used for research)	**116 (92)**	**78 (67)**	**162 (128)**	**1 (0)**

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

Table 4.5 Reasons for non-retrieval and non-use of abdominal organs from DCD donors in the UK, 1 April 2015 – 31 March 2016

	Kidney	Liver	Pancreas
All DCD organ donors	**579**	**579**	**579**
Donors from whom organs not offered for donation	0	7	329
Reasons for organs not being offered			
Family permission refused	0	4	6
Permission refused by coroner	0	3	1
Donor unsuitable – age	0	0	268
Donor unsuitable – past history	0	0	27
Other	0	0	27
TOTAL DONORS WITH ORGANS NOT OFFERED	**0**	**7**	**329**
Organs offered for donation	**1158**	**572**	**250**
Organs not retrieved (% of organs offered for donation)	**55 (5)**	**276 (48)**	**127 (51)**
Reasons for non-retrieval			
Donor			
Donor unsuitable – medical	10	2	3
Donor unsuitable – non-medical	1	15	15
Donor age	4	54	12
Organ			
Organ unsuitable – clinical	30	105	68
Poor function	5	26	4
Other			
Other	5	74	25
TOTAL ORGANS OFFERED, NOT RETRIEVED	**55**	**276**	**127**
Organs retrieved (% of organs offered for donation)	**1103 (95)**	**296 (52)**	**123 (49)**
Organs transplanted in the UK	940	206	55
Organs transplanted overseas	0	0	0
Organs not transplanted	163	90	68
Reasons for organ not being transplanted			
Donor			
Donor unsuitable – medical	59	5	3
Donor unsuitable – non-medical	0	3	2
Donor age	0	0	0
Organ			
Organ unsuitable – clinical	37	48	46
Poor function	0	0	0
Other			
Other	67	34	17
TOTAL ORGANS RETRIEVED, NOT TRANSPLANTED (Number used for research)	**163 (127)**	**90 (78)**	**68 (53)**

Table 4.6 Reasons for non-retrieval and non-use of cardiothoracic organs from organ donors in the UK, 1 April 2015 – 31 March 2016

	Heart (DBD)	Lung (DBD)	Lung (DCD)
All organ donors	**785**	**785**	**579**
Donors from whom organs not offered for donation	258	222	190
Reasons for organs not being offered			
Family permission refused	50	32	31
Permission refused by coroner	30	23	16
Donor age >65 years	166	166	143
Donor cause of death cardiac arrest or myocardial infarction	11	0	0
Other	1	1	0
TOTAL DONORS WITH ORGANS NOT OFFERED	**258**	**222**	**190**
Organs offered for donation	**527**	**1126**	**778**
Organs not retrieved (% of organs offered for donation)	**341 (65)**	**823 (73)**	**703 (90)**
Reasons for non-retrieval			
Donor			
Donor unsuitable – medical	20	36	44
Donor unsuitable – non-medical	55	50	40
Donor age	30	8	48
Organ			
Organ unsuitable – clinical	80	230	240
Poor function	129	422	230
Other			
Other	27	77	101
TOTAL ORGANS OFFERED, NOT RETRIEVED	**341**	**823**	**703**
Organs retrieved (% of organs offered for donation)	**186 (35)**	**303 (27)**	**75 (10)**
Organs transplanted in the UK	176	278	66
Organs transplanted overseas	3	4	0
Organs not transplanted	7	21	9
Reasons for organ not being transplanted			
Donor			
Donor unsuitable – medical	1	6	0
Donor unsuitable – non-medical	0	1	2
Organ			
Organ unsuitable – clinical	1	4	2
Poor function	0	2	0
Other			
Other	5	8	5
TOTAL ORGANS RETRIEVED, NOT TRANSPLANTED (Number used for research)	**7 (5)**	**21 (6)**	**9 (6)**

Figure 4.3 Percentage of kidneys retrieved that are not transplanted from deceased organ donors in the UK, 1 April 2006 – 31 March 2016

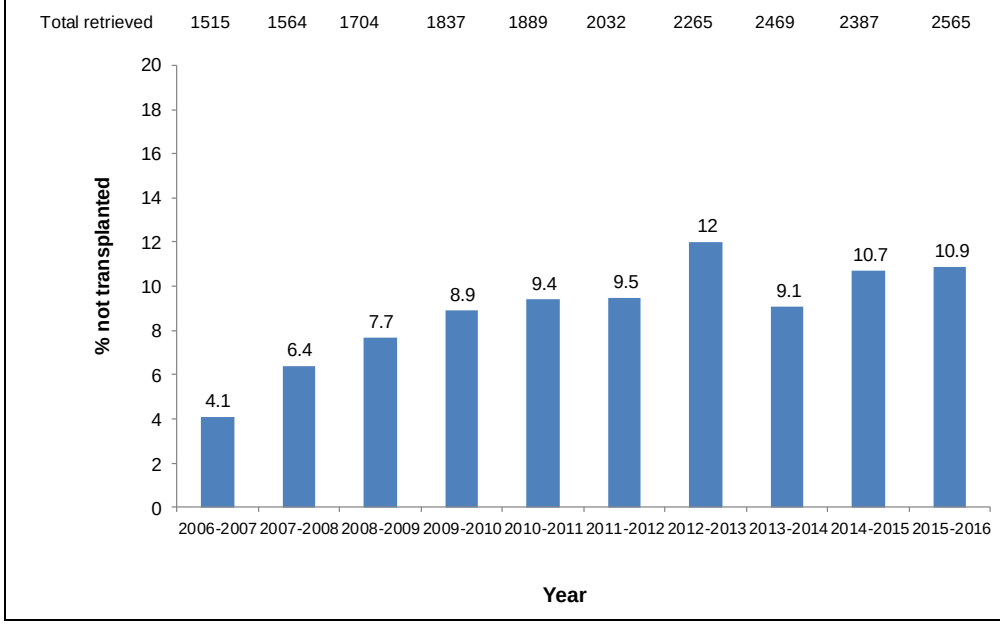


Figure 4.4 Percentage of livers retrieved that are not transplanted from deceased organ donors in the UK, 1 April 2006 – 31 March 2016

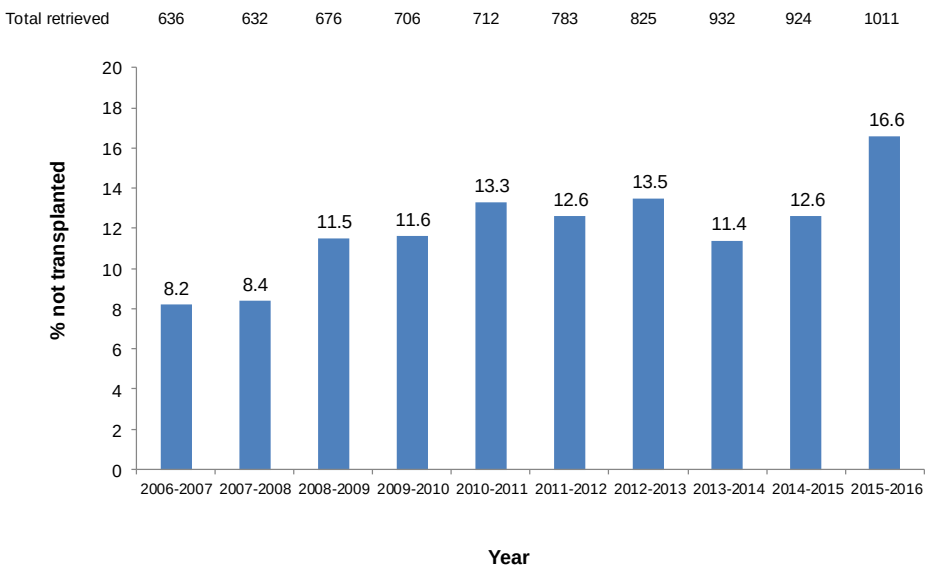
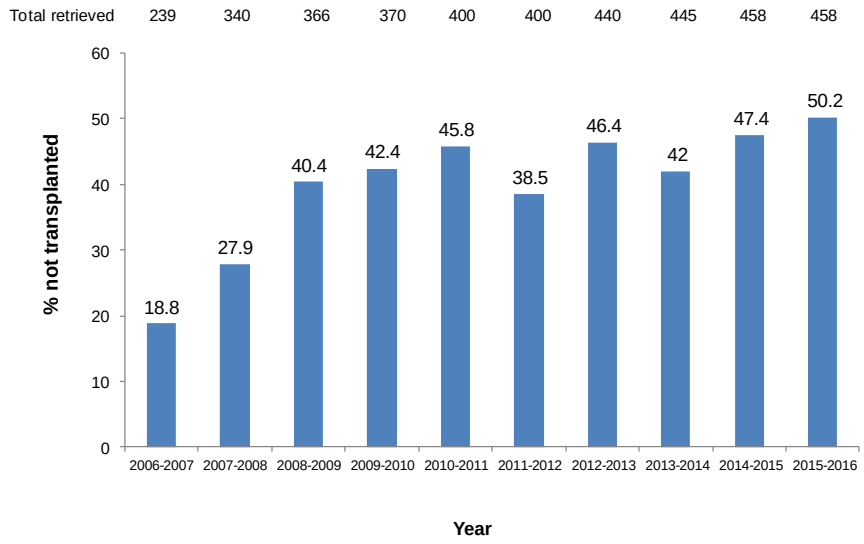


Figure 4.5 Percentage of pancreases[1] retrieved that are not transplanted from deceased organ donors in the UK, 1 April 2006 – 31 March 2016



[1] Excludes donors aged > 60 years

Kidney Activity

Key messages

- **The number of patients registered on the kidney transplant list this year fell by 7% from 5686 to 5275**
- **The number of deceased kidney donors increased by 7% to 1293**
- **Kidney transplants from living donors decreased by 2% to 1035, while transplants from deceased donors increased by 8% to 2228**
- **83 kidney transplants were made possible by the paired living kidney donation programme**
- **There were 83 non-directed altruistic living kidney donors resulting in 83 living donor kidney transplants**

5.1 Overview

The number of deceased kidney donors increased by 7% in 2015-2016 compared to 2014-2015 and the number of deceased donor kidney transplants increased by 8%. There were 5275 patients waiting for a kidney transplant at 31 March 2016, and for the seventh year running the number of patients on the national list for a kidney transplant has declined.

A summary of activity for deceased donor kidney transplants and the transplant list at year end for the last ten years is shown in **Figure 5.1**. The number of patients registered on the active transplant list at 31 March 2016 for a kidney or kidney and pancreas transplant has fallen by 19% since 2007.

Figure 5.1 **Deceased donor kidney programme in the UK, 1 April 2006 - 31 March 2016, Number of donors, transplants and patients on the active transplant list at 31 March**

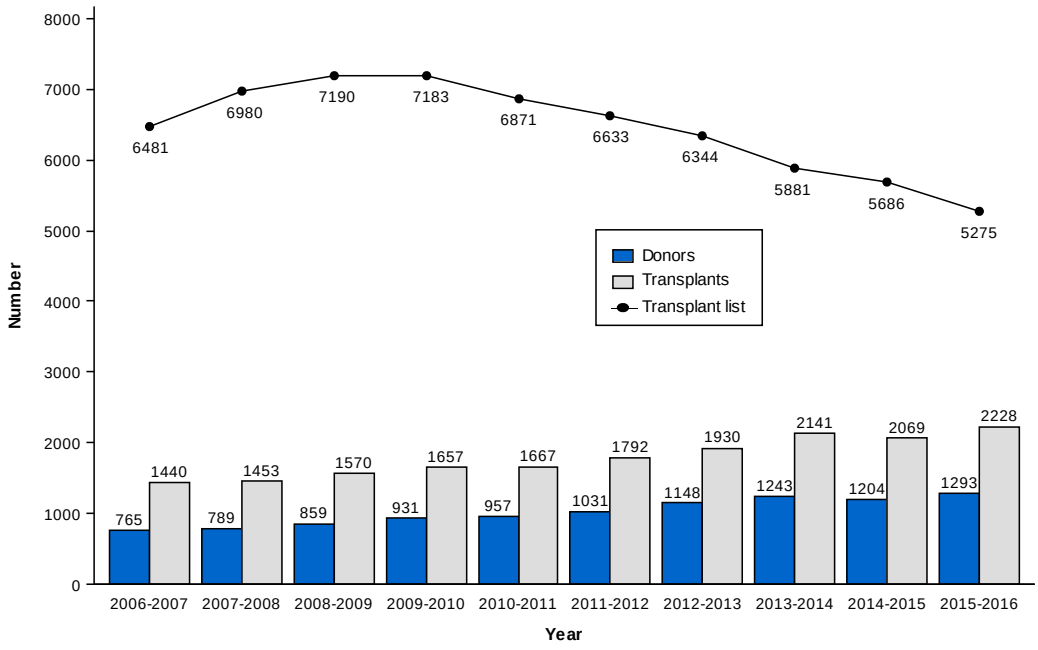


Table 5.1 shows the number of deceased and living donor kidney transplants carried out in 2015-2016 at each centre. Kidney transplants from donors after circulatory death are increasingly common and in this financial year all adult kidney transplant centres performed such transplants. As yet, very few kidneys from donors after circulatory death are transplanted in paediatric patients (<18 years). Donation figures for centres in North and South Thames are not reported individually as they have shared designated areas and donor populations. Multi-organ transplants including a kidney are included in the table.

The total number of deceased kidney donors rose to 1293 in 2015-2016 from 1204 in 2014-2015 and the number of transplants increased from 2069 to 2228. The number of kidney donors after circulatory death increased to 557 from 484 in 2014-2015 and the number of transplants from such donors increased by 16% to 899.

Throughout this chapter, intestinal transplants involving a kidney are not included in the kidney transplant activity reported. Any kidneys retrieved and used for such transplants are however used in the kidney donor activity.

Table 5.1 **Kidney donors and transplants, 1 April 2015 - 31 March 2016 (2014-2015) and transplant list at 31 March 2016 (2015) in the UK, by centre**

Centre	Deceased kidney donors				Deceased donor transplants				Living donor transplants		Active transplant list	
	DBD		DCD		DBD		DCD					
Belfast	28	(34)	18	(14)	27	(31)	23	(13)	66	(54)	115	(131)
Birmingham	51	(49)	29	(27)	111	(101)	32	(18)	64	(67)	404	(458)
Bristol	28	(27)	27	(19)	57	(52)	36	(13)	45	(40)	262	(306)
Cambridge	30	(40)	59	(48)	46	(65)	82	(69)	53	(40)	183	(169)
Cardiff	31	(24)	18	(21)	32	(22)	37	(38)	29	(36)	98	(110)
Coventry	11	(9)	9	(10)	14	(24)	12	(8)	29	(30)	92	(112)
Edinburgh	19	(28)	31	(27)	56	(47)	23	(30)	39	(31)	164	(175)
Glasgow	34	(32)	11	(7)	66	(56)	51	(37)	41	(44)	264	(272)
Great Ormond Street	0	(0)	0	(0)	7	(5)	0	(2)	19	(23)	6	(7)
Leeds	43	(29)	27	(34)	84	(74)	58	(87)	46	(46)	225	(261)
Leicester	18	(20)	7	(12)	42	(58)	29	(25)	21	(32)	190	(234)
Liverpool	34	(37)	30	(19)	39	(35)	30	(26)	43	(41)	185	(185)
Manchester	42	(36)	41	(28)	127	(114)	91	(54)	105	(98)	482	(583)
Newcastle	50	(42)	34	(33)	44	(25)	30	(36)	51	(57)	218	(213)
North Thames[1]	93	(90)	49	(46)	-	-	-	-	-	-	-	-
Royal Free	-	-	-	-	52	(71)	30	(37)	39	(32)	246	(243)
Royal London	-	-	-	-	57	(65)	27	(17)	34	(47)	306	(317)
WLRTC	-	-	-	-	86	(87)	47	(29)	36	(64)	400	(423)
Nottingham	15	(12)	28	(21)	40	(28)	34	(27)	19	(17)	128	(131)
Oxford	25	(32)	19	(16)	87	(84)	72	(56)	48	(51)	280	(258)
Plymouth	36	(34)	21	(21)	22	(22)	24	(16)	13	(20)	67	(85)
Portsmouth	33	(19)	26	(11)	31	(52)	33	(10)	23	(23)	203	(205)
Sheffield	14	(30)	12	(12)	32	(37)	19	(18)	23	(20)	164	(179)
South Thames[1]	101	(96)	61	(58)	-	-	-	-	-	-	-	-
Guy's	-	-	-	-	114	(82)	55	(68)	89	(87)	318	(347)
St George's	-	-	-	-	55	(59)	24	(38)	49	(37)	275	(282)
TOTAL	**736**	**(720)**	**557**	**(484)**	**1329**[2]	**(1297**[3]**)**	**899**	**(772)**	**1035**[4,6]	**(1052**[5,7]**)**	**5275**	**(5686)**

WLRTC - West London Renal and Transplant Centre
[1] Donor figures in this area cannot be linked to individual transplant centres due to shared retrieval areas
[2] Includes an additional 1 transplant performed at London, The London Independent Hospital
[3] Includes an additional 1 transplant performed at Manchester, Wythenshawe Hospital
[4] Includes an additional 1 transplant performed at London, The London Independent Hospital, 6 transplants at London, Cromwell Hospital, and 4 transplants at London, London Bridge Hospital
[5] Includes an additional 8 transplants performed at London, Cromwell Hospital and 7 transplants performed at London, London Bridge Hospital
[6] Includes 2 domino donors; [7] Includes 3 domino donors

5.2 Transplant list

The number of patients registered on the kidney or kidney and pancreas transplant list fell by 7% in the year: on 31 March 2016, 5,275 patients were registered as active, compared with 5,686 at the end of March 2015. The number of patients waiting for a kidney transplant represents 81.4 patients per million population (pmp).

Of the 5,275 patients on the active transplant list at 31 March 2016, 184 required a kidney and pancreas transplant (201 at 31 March 2015). Additionally, 43 patients were registered for a pancreas only transplant (51 at 31 March 2015).

The outcome of patients registered on the UK kidney and kidney/pancreas transplant list at 1 April 2015, or subsequently registered during the financial year, is shown in **Table 5.2**. A total of 3,430 patients joined the kidney transplant list last year, a decrease of 4% from the previous year. A further 213 joined the kidney/pancreas transplant list.

Table 5.2 Kidney transplant list and new registrations in the UK, 1 April 2015 - 31 March 2016

Outcome of patient at 31 March 2016	Active and suspended patients at 1 April 2015		New registrations in 2015-2016[1]		**TOTAL**	
	N	**%**	**N**	**%**	**N**	**%**
Kidney transplant list						
Remained active/suspended	5532	64	2727	80	**8259**	**69**
Transplanted	2303	27	656	19	**2959**	**25**
Removed	550[2]	6	26	1	**576**	**5**
Died	236	3	21	1	**257**	**2**
TOTAL	**8621**		**3430**		**12051**	
Kidney/pancreas transplant list						
Remained active/suspended	153	47	173	81	**326**	**61**
Transplanted	139	43	31	15	**170**	**32**
Removed	13	4	6	3	**19**	**4**
Died	20	6	3	1	**23**	**4**
TOTAL	**325**		**213**		**538**	

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

Table 5.3 shows the active transplant list in the UK at 31 March 2016 and 2015 by country/ former Strategic Health Authority of patient's residence. In 2016, the overall kidney transplant list rate was 81.4 pmp with rates across the Strategic Health Authorities ranging from 58.8 pmp to 128.9 pmp.

Table 5.3 Active kidney transplant list at 31 March, by country/ Strategic Health Authority of patient residence

Country/ Strategic Health Authority of residence	Kidney transplant list (pmp) 2016		2015	
North East	186	(71.0)	173	(66.0)
North West	613	(86.0)	714	(100.1)
Yorkshire and The Humber	374	(69.8)	425	(79.3)
North of England	**1173**	**(77.6)**	**1312**	**(86.8)**
East Midlands	371	(80.0)	413	(89.0)
West Midlands	517	(90.5)	587	(102.8)
East of England	370	(61.5)	362	(60.1)
Midlands and East	**1258**	**(76.8)**	**1362**	**(83.2)**
London	**1101**	**(128.9)**	**1166**	**(136.5)**
South East Coast	270	(58.8)	266	(58.0)
South Central	366	(85.3)	371	(86.5)
South West	393	(72.5)	450	(83.0)
South of England	**1029**	**(72.0)**	**1087**	**(76.0)**
England	**4561**	**(84.0)**	**4927**	**(90.7)**
Isle of Man	**9**	**(112.5)**	**10**	**(125.0)**
Channel Islands	**12**	**(75.0)**	**4**	**(25.0)**
Wales	**144**	**(46.6)**	**159**	**(51.5)**
Scotland	**426**	**(79.6)**	**442**	**(82.6)**
Northern Ireland	**120**	**(65.2)**	**141**	**(76.6)**
TOTAL[1]	**5275**	**(81.4)**	**5686**	**(87.7)**

[1] Includes patients in 2016 (2015) residing in: Unspecified UK 1 (1); Overseas 2 (2)

An indication of outcomes for adult patients listed for a kidney only transplant is summarised in **Figure 5.2**. This shows the proportion of patients transplanted or still waiting one, three and five years after joining the list. It also shows the proportion removed from the transplant list (typically because they become too unwell for transplant) and those dying while on the transplant list. Only 22% of patients are transplanted within one year, while five years after listing 70% of patients have received a transplant.

The median (average) waiting time for a kidney only transplant is 944 days for an adult patient and is shown by blood group in **Table 5.4** and patient ethnicity in **Table 5.5**. Because of the need to match donor and recipient blood groups and tissue types, waiting times to transplant differ according to patient blood groups and ethnicity due to differences between the donor pool and patients awaiting a kidney transplant. Note that these waiting times are not adjusted for other relevant factors which may be influential and which may differ across blood or ethnic groups.

Figure 5.2 **Post-registration outcome for 2808 new adult kidney only registrations made in the UK, 1 April 2010 - 31 March 2011**

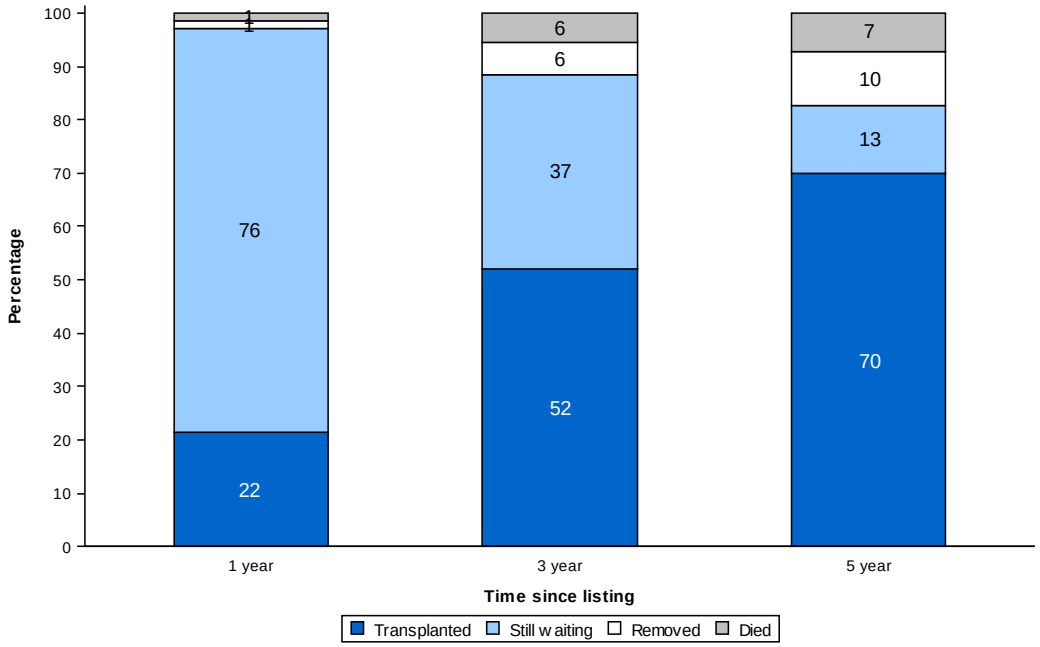


Table 5.4 **Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2009 - 31 March 2013**

Blood group	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult			
O	3999	1112	1085 - 1139
A	3111	752	724 - 780
B	1234	1091	1035 - 1147
AB	359	383	329 - 437
TOTAL	**8703**	**944**	**924 - 964**
Paediatric			
O	128	370	281 - 459
A	101	217	123 - 311
B	44	177	108 - 246
AB	15	326	246 - 406
TOTAL	**288**	**290**	**228 - 352**

Table 5.5 Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2009 - 31 March 2013

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
White	6293	882	859 - 905
Asian	1359	1070	1010 - 1130
Black	736	1134	1085 - 1183
Other	252	990	882 - 1098
TOTAL	**8703[1]**	**944**	**924 - 964**
Paediatric			
White	179	235	183 - 287
Asian	73	493	334 - 652
Black	23	326	0 - 672
Other	10	222	0 - 581
TOTAL	**288[2]**	**290**	**228 - 352**

[1] Includes 63 patients whose ethnicity was not reported
[2] Includes 3 patients whose ethnicity was not reported

5.3 Donor and organ supply

Of the 785 organ donors after brain death in the UK in 2015-2016, 736 (94%) were kidney donors. From these donors, 1,462 kidneys were retrieved. There were 557 kidney donors after circulatory death in 2015-2016. From these donors, 1,103 kidneys were retrieved. **Table 5.6** shows this activity by donor country/Strategic Health Authority of donor's residence. No adjustments have been made for potential demographic differences in populations.

The overall rate for kidney donors after brain death is 11.4 pmp, with rates across the Strategic Health Authorities ranging from 8.9 to 16.6 pmp. The number of kidneys retrieved from donors after brain death in the UK is 22.5 pmp and varies from 17.8 to 32.9 pmp.

The overall rate for kidney donors after circulatory death is 8.6 pmp, with rates across the Strategic Health Authorities ranging from 5.4 to 12.8 pmp. The number of kidneys retrieved from donors after circulatory death is 17.0 pmp and varies from 10.5 to 25.6 pmp.

Table 5.6 Kidney donation and retrieval rates for deceased donors in the UK, 1 April 2015 - 31 March 2016, by country/ Strategic Health Authority

Country/ Strategic Health Authority of residence	Kidney donors (pmp)				Kidneys retrieved (pmp)			
	DBD		DCD		DBD		DCD	
North East	40	(15.3)	30	(11.5)	79	(30.2)	59	(22.5)
North West	77	(10.8)	59	(8.3)	153	(21.5)	117	(16.4)
Yorkshire and The Humber	57	(10.6)	40	(7.5)	112	(20.9)	80	(14.9)
North of England	**174**	**(11.5)**	**129**	**(8.5)**	**344**	**(22.8)**	**256**	**(16.9)**
East Midlands	42	(9.1)	43	(9.3)	84	(18.1)	86	(18.5)
West Midlands	61	(10.7)	32	(5.6)	120	(21.0)	64	(11.2)
East of England	61	(10.1)	77	(12.8)	122	(20.3)	154	(25.6)
Midlands and East	**164**	**(10.0)**	**152**	**(9.3)**	**326**	**(19.9)**	**304**	**(18.6)**
London	**76**	**(8.9)**	**46**	**(5.4)**	**152**	**(17.8)**	**90**	**(10.5)**
South East Coast	76	(16.6)	44	(9.6)	151	(32.9)	87	(19.0)
South Central	52	(12.1)	35	(8.2)	103	(24.0)	69	(16.1)
South West	73	(13.5)	52	(9.6)	146	(26.9)	103	(19.0)
South of England	**201**	**(14.1)**	**131**	**(9.2)**	**400**	**(28.0)**	**259**	**(18.1)**
England	**615**	**(11.3)**	**458**	**(8.4)**	**1222**	**(22.5)**	**909**	**(16.7)**
Isle of Man	**1**	**(12.5)**	**1**	**(12.5)**	**2**	**(25.0)**	**2**	**(25.0)**
Channel Islands	**2**	**(12.5)**	**1**	**(6.3)**	**4**	**(25.0)**	**2**	**(12.5)**
Wales	**34**	**(11.0)**	**36**	**(11.7)**	**68**	**(22.0)**	**71**	**(23.0)**
Scotland	**55**	**(10.3)**	**44**	**(8.2)**	**108**	**(20.2)**	**86**	**(16.1)**
Northern Ireland	**29**	**(15.8)**	**17**	**(9.2)**	**58**	**(31.5)**	**33**	**(17.9)**
TOTAL[1]	**736**	**(11.4)**	**557**	**(8.6)**	**1462**	**(22.5)**	**1103**	**(17.0)**

[1] Includes 11 donors where the hospital postcode was used in place of an unknown donor postcode

5.4 Transplants

The number of kidney transplants by recipient country/Strategic Health Authority of residence is shown in **Table 5.7**. No adjustments have been made for potential demographic differences in populations. The deceased donor transplant rate ranged from 20 to 41.7 pmp across Strategic Health Authorities and overall was 31.4 pmp. The living donor transplant rate ranged from 11.8 to 19.9 pmp across the Strategic Health Authorities and overall was 15.7 pmp.

Table 5.7 Kidney only transplant rates per million population (pmp), in the UK, 1 April 2015 - 31 March 2016, by country/ Strategic Health Authority

Country/ Strategic Health Authority of residence	DBD		DCD		**TOTAL**		Living	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
North East	29	(11.1)	27	(10.3)	56	(21.4)	42	(16)
North West	140	(19.6)	100	(14)	240	(33.7)	142	(19.9)
Yorkshire and The Humber	111	(20.7)	72	(13.4)	183	(34.1)	63	(11.8)
North of England	**280**	**(18.5)**	**199**	**(13.2)**	**479**	**(31.7)**	**247**	**(16.3)**
East Midlands	89	(19.2)	70	(15.1)	159	(34.3)	55	(11.9)
West Midlands	117	(20.5)	45	(7.9)	162	(28.4)	85	(14.9)
East of England	74	(12.3)	90	(15)	164	(27.2)	87	(14.5)
Midlands and East	**280**	**(17.1)**	**205**	**(12.5)**	**485**	**(29.6)**	**227**	**(13.9)**
London	**227**	**(26.6)**	**129**	**(15.1)**	**356**	**(41.7)**	**138**	**(16.2)**
South East Coast	66	(14.4)	26	(5.7)	92	(20)	79	(17.2)
South Central	68	(15.9)	78	(18.2)	146	(34)	55	(12.8)
South West	86	(15.9)	73	(13.5)	159	(29.3)	76	(14)
South of England	**220**	**(15.4)**	**177**	**(12.4)**	**397**	**(27.8)**	**210**	**(14.7)**
England	**1007**	**(18.5)**	**710**	**(13.1)**	**1717**	**(31.6)**	**822**	**(15.1)**
Isle of Man	**1**	**(12.5)**	**0**	**(0)**	**1**	**(12.5)**	**3**	**(37.5)**
Channel Islands	**1**	**(6.3)**	**3**	**(18.8)**	**4**	**(25)**	**4**	**(25)**
Wales	**39**	**(12.6)**	**45**	**(14.6)**	**84**	**(27.2)**	**46**	**(14.9)**
Scotland	**105**	**(19.6)**	**74**	**(13.8)**	**179**	**(33.5)**	**80**	**(15)**
Northern Ireland	**28**	**(15.2)**	**23**	**(12.5)**	**51**	**(27.7)**	**63**	**(34.2)**
TOTAL[1]	**1181**	**(18.2)**	**855**	**(13.2)**	**2036**	**(31.4)**	**1018**	**(15.7)**

[1] Excludes 17 recipients of a living donor kidney who reside outside of the UK

The number of kidney only transplants from deceased donors at each transplant centre is shown in **Table 5.8** for adult patients only. Kidney transplants from donors after brain death include 4 en bloc kidneys and 14 double kidney transplants in 2015-2016 (2 and 15 in 2014-2015). Kidney transplants from donors after circulatory death include 8 en bloc and 32 double kidney transplants in 2015-2016 (6 and 41 in 2014-2015). This table excludes multi-organ transplants: 19 kidney and liver, 167 kidney and pancreas and 2 modified multivisceral.

Table 5.8 Adult kidney only transplants in the UK, 1 April 2014 - 31 March 2016, by transplant centre

Transplant centre	2014-2015 DBD	DCD	Living donor	TOTAL	2015-2016 DBD	DCD	Living donor	TOTAL
Belfast	30	13	53	96	27	23	66	116
Birmingham	88	17	58	163	96	32	58	186
Bristol	50	13	32	95	55	36	42	133
Cambridge	50	57	40	147	29	72	53	154
Cardiff	20	32	35	87	28	35	26	89
Coventry	23	8	30	61	14	12	29	55
Edinburgh	32	28	30	90	39	23	39	101
Glasgow	53	37	37	127	62	51	39	152
Guys	56	56	73	185	84	46	74	204
Leeds	62	86	43	191	73	57	41	171
Leicester	58	25	32	115	42	29	20	91
Liverpool	35	26	41	102	39	30	43	112
Manchester	91	42	82	215	108	77	86	271
Newcastle	20	36	53	109	35	30	49	114
Nottingham	27	27	13	67	30	34	16	80
Oxford	41	43	51	135	50	63	48	161
Plymouth	22	16	20	58	22	24	13	59
Portsmouth	52	10	23	85	31	33	23	87
Sheffield	37	18	20	75	32	19	23	74
St George's	59	38	37	134	55	24	49	128
The Royal Free	68	37	32	137	49	30	39	118
The Royal London	65	17	47	129	57	27	34	118
WLRTC	82	29	64	175	77	44	36	157
TOTAL	**1121**	**711**	**961**[1]	**2793**	**1134**	**851**	**957**[2]	**2942**

[1] Includes 8 transplants performed at London Cromwell Hospital and 7 at London Bridge
[2] Includes 1 transplant performed at London Independent, 6 at London Cromwell Hospital and 4 at London Bridge
WLRTC - West London Renal and Transplant Centre

Living donor kidney transplants fell by 2% to 1035 in 2015-2016, representing 32% of the total kidney transplant programme. The total number of living donor adult transplants performed by each transplant centre is shown in **Table 5.9**. Also shown is the number as a percentage of patients listed at the end of the year, to indicate the size of the living donor programme relative to the centre's transplant list.

Most living donor transplants are 'directed'. This means that a kidney is donated to a specific recipient known to the donor - a close family member or friend. There has been a 3% decrease in these transplants. In addition there are now a number of 'undirected' living donor transplants (also known as altruistic donor transplants). Last year 83 such donors donated a kidney to a recipient, 81 transplanted into an adult recipient and 2 transplanted into a paediatric recipient. Of the 81 transplanted into an adult recipient, 25 went into an altruistic donor chain (12 short and 13 long), benefiting 37 adult and 1 paediatric patients in the paired/pooled scheme. The kidneys from the paired donors of these recipients led to 23 adult and 2 paediatric transplants for patients on the deceased donor transplant list. Thus 25 altruistic donors creating chains benefited 60 adult and 3 paediatric patients.

When a potential donor and recipient are biologically incompatible (blood group or tissue type), they may consider joining a list of others in the same situation with the hope that an exchange of kidneys between them can lead to a compatible living donor transplant. The scheme also includes compatible pairs that would like a better match. This type of exchange is known as paired donation and most exchanges are between two pairs (i.e. two donors and their respective incompatible recipients), or between three pairs. In 2015-2016, there were also 83 paired living kidney donor transplants.

As a percentage of the number of patients on the active transplant list at 31 March 2016, the number of living donor adult transplants in the year was 18% and ranged from 9% to 57% at individual transplant centres.

Table 5.9 Adult living donor kidney transplants in the UK, 1 April 2015 - 31 March 2016, and percentage of active transplant list at 31 March, by transplant centre

	2015-2016				TOTAL	
Transplant centre	Directed	Non-directed (altruistic) to waiting list	Paired/ pooled exchanges	Altruistic donor chain[3]	**N**	**% list**
Belfast	50	2	11	3	**66**	**57**
Birmingham	37	12	2	7	**58**	**15**
Bristol	25	8	4	5	**42**	**16**
Cambridge	46	0	4	3	**53**	**29**
Cardiff	22	1	3	0	**26**	**27**
Coventry	26	2	1	0	**29**	**32**
Edinburgh	31	1	6	1	**39**	**24**
Glasgow	31	2	3	3	**39**	**15**
Guy's	65	1	3	5	**74**	**24**
Leeds	37	0	4	0	**41**	**19**
Leicester	17	1	0	2	**20**	**11**
Liverpool	33	4	5	1	**43**	**23**
Manchester	68	5	8	5	**86**	**18**
Newcastle	45	0	2	2	**49**	**23**
Nottingham	14	1	1	0	**16**	**13**
Oxford	37	3	5	3	**48**	**17**
Plymouth	9	1	2	1	**13**	**19**
Portsmouth	17	2	2	2	**23**	**11**
Sheffield	18	3	1	1	**23**	**14**
St George's	32	2	7	8	**49**	**18**
The Royal Free	34	2	2	1	**39**	**16**
The Royal London	30	1	2	1	**34**	**11**
WLRTC	21	4	5	6	**36**	**9**
TOTAL	**756[1]**	**58[2]**	**83**	**60**	**957[1]**	**18**

[1] Includes 1 transplant performed at London Independent, 6 at London Cromwell Hospital and 4 at London Bridge
[2] Includes 2 domino donor transplants
[3] Includes transplants for paired pooled and deceased donor transplant list patients

Non-directed, altruistic donor kidneys are matched to a suitable recipient on a national basis and thus are rarely used in the transplant centre responsible for the 'work-up' of the donor. The number of non-directed donors according to donor hospital (rather than transplant hospital) and whether the altruistic donor donated as part of a chain within the paired/ pooled scheme or directly to the deceased donor list is shown in **Table 5.10**.

Table 5.10 **Altruistic kidney donors in the UK, 1 April 2014 - 31 March 2016, by donor centre**

	2014-2015				2015-2016			
Donor centre	Transplant list	Chain	**Total**	**%**	Transplant list	Chain	**Total**	**%**
Belfast	6	4	10	9	3	1	4	5
Birmingham	5	1	6	6	3	1	4	5
Bristol	4	0	4	4	1	0	1	1
Cambridge	3	1	4	4	2	1	3	4
Cardiff	3	1	4	4	2	0	2	2
Coventry	2	0	2	2	2	1	3	4
Edinburgh	6	3	9	8	3	3	6	7
Glasgow	4	0	4	4	2	0	2	2
Guy's	10	0	10	9	1	2	3	4
Leeds	2	2	4	4	3	1	4	5
Leicester	0	0	0	0	2	0	2	2
Liverpool	5	0	5	5	2	0	2	2
Manchester	8	0	8	7	11	0	11	13
Newcastle	4	0	4	4	3	2	5	6
Nottingham	3	0	3	3	3	0	3	4
Oxford	4	2	6	6	3	7	10	12
Plymouth	6	2	8	7	3	3	6	7
Portsmouth	7	0	7	7	3	1	4	5
Sheffield	1	0	1	1	1	1	2	2
St George's	2	0	2	2	1	0	1	1
The Royal Free	2	0	2	2	1	1	2	2
The Royal London	0	1	1	1	2	0	2	2
WLRTC	3	0	3	3	1	0	1	1
Total donors	**90**	**17**	**107**	**100**	**58**	**25**	**83**	**100**

WLRTC – West London Renal and Transplant Centre

The number of deceased donor and living donor transplants in paediatric patients (<18 years) performed by each paediatric transplant centre is shown in **Table 5.11**. There were 78 living donor transplants and 51 deceased donor transplants in paediatric patients in 2015-2016. The paediatric transplant list has decreased by 4% from 73 patients at 31 March 2015 to 70 at the end of March 2016.

Occasionally older paediatric patients are listed and/or transplanted at adult kidney transplant centres and these are indicated in **Table 5.11**.

Table 5.11 Paediatric patient kidney transplants in the UK, 1 April 2014 - 31 March 2016, by transplant centre

	2014-2015				2015-2016			
Paediatric transplant centre	DBD	DCD	Living donor	**TOTAL**	DBD	DCD	Living donor	**TOTAL**
Belfast	1	0	1	**2**	0	0	0	**0**
Birmingham	10	1	9	**20**	5	0	6	**11**
Bristol	2	0	8	**10**	2	0	3	**5**
Glasgow	3	0	7	**10**	4	0	2	**6**
Great Ormond Street	5	2	23	**30**	7	0	19	**26**
Guy's	4	1	14	**19**	4	1	15	**20**
Leeds	10	1	3	**14**	8	1	5	**14**
Manchester	5	1	16	**22**	5	2	19	**26**
Newcastle	0	0	4	**4**	2	0	2	**4**
Nottingham	1	0	4	**5**	10	0	3	**13**
Adult centres	1	0	2	**3**	0	0	4	**4**
TOTAL	**42**	**6**	**91[1]**	**139**	**47**	**4**	**78[2]**	**129**

[1] Includes 2 non-directed donor transplants and 2 altruistic donor chains (as patients on transplant list at end of chain)
[2] Includes 2 non-directed donor transplants and 3 altruistic donor chains (as patients on transplant list at end of chain)

At 31 March 2016, there were approximately 34,400 recipients with a functioning kidney transplant (including multi-organ transplants) being followed-up as reported to the UK Transplant Registry.

Rates of pre-emptive kidney only transplantation are shown in **Table 5.12**. Of the 3,071 kidney only transplant recipients in 2015-2016, dialysis status at time of transplant was reported for 2,966 (97%). Of these 2,966 transplants, 664 (22%) were carried out in pre-dialysis patients.

Pre-emptive transplants accounted for 30% of all paediatric kidney only transplants with reported dialysis status, compared with 22% of those in adults. Living donor transplants are more likely to be carried out before the need for dialysis than deceased donor transplants: 37% and 15% respectively. This is because a living donor transplant can often be carried out more quickly than a deceased donor kidney transplant as the latter often necessitates a long waiting time.

Table 5.12 Pre-emptive kidney only transplants in the UK, 1 April 2015 - 31 March 2016

	Number of kidney only transplants	Number of transplants with known dialysis status at transplant (% of all)		Percentage of patients transplanted prior to the need for dialysis (of those with known status)
Adult				
Deceased donor transplant	1985	1943	(97.9)	15.1
Living donor transplant	957	898	(93.8)	37.1
Paediatric				
Deceased donor transplant	51	50	(98.0)	20.0
Living donor transplant	78	75	(96.2)	36.0

The length of time that elapses between a kidney being removed from the donor to its transplantation into the recipient is called Cold Ischaemia Time (CIT). Generally, the shorter this time, the more likely the kidney is to work immediately and the better the long-term outcome. The factors which determine CIT include a) transportation of the kidney from the retrieval hospital to the hospital where the transplant is performed, b) the need to tissue type the donor and cross-match the donor and potential recipients, c) the occasional necessity of moving the kidney to another hospital if a transplant cannot go ahead, d) contacting and preparing the recipient for the transplant and e) access to the operating theatre. Median CITs are shown in addition to inter-quartile ranges in **Table 5.13**.

Table 5.13 Median cold ischaemia time for kidney only transplants in the UK, 1 April 2015 - 31 March 2016

	Number of kidney only transplants[1]	Median (hours)	Inter-quartile range[2] Q1	Q3
Adult				
DBD donor transplant	1134	14.0	10.7	17.9
DCD donor transplant	851	13.2	10.4	16.3
Total	**1985**	**13.7**	**10.6**	**17.1**
Paediatric				
DBD donor transplant	47	12.4	10.5	14.8
DCD donor transplant	4	12.5	10.2	15.2
Total	**51**	**12.4**	**10.5**	**14.8**
TOTAL	**2036**	**13.6**	**10.6**	**17.1**

[1] Not all cold ischaemia times are reported
[2] 25% of times are shorter than Q1, 25% are longer than Q3

Kidneys from donors after brain death are allocated on the basis of a national Kidney Allocation Scheme which incorporates HLA matching between donor and recipient. These HLA matches are based on four levels which are described in **Table 5.14**. Patients with 000 HLA-A, B, DR mismatch (Level 1) are prioritised in the schemes, whereas kidneys are rarely transplanted as a Level 4 match. More information about the allocation scheme can be found at www.odt.nhs.uk. **Table 5.15** gives the HLA mismatch group for adult and paediatric patients for DBD donor transplants but also for DCD and living donor transplants. For living donor transplantation, many transplants have a less good HLA match between donor and recipient. Very often there is no genetic relationship between donor and recipient.

Table 5.14 HLA mismatch groups

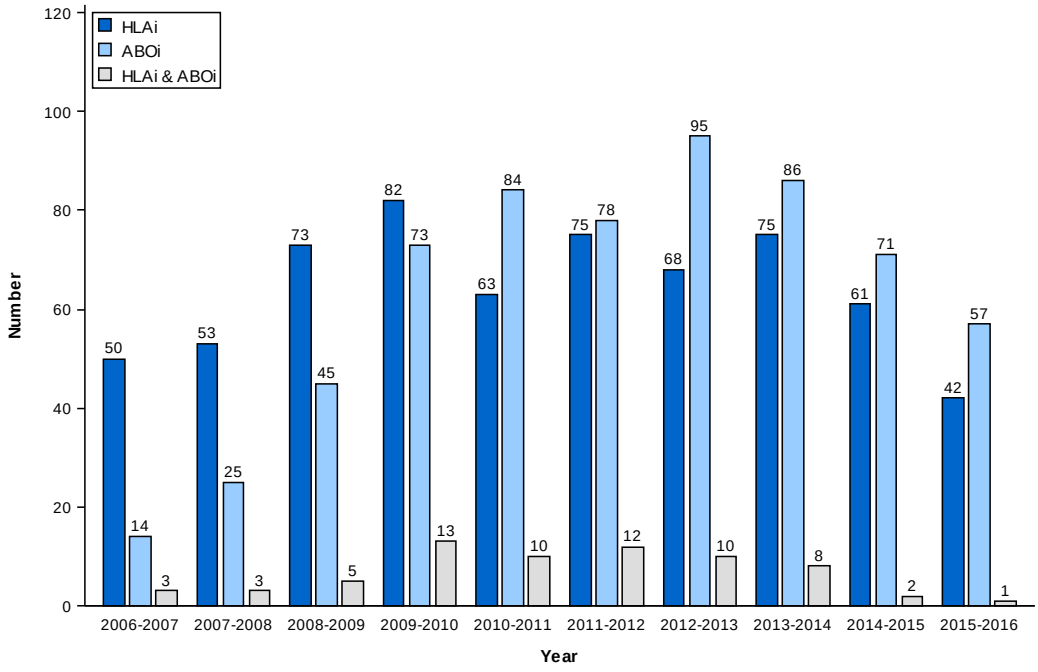
Level	HLA mismatch summary	HLA mismatch combinations included
1	000	000
2	[0 DR and 0/1 B]	100, 010, 110, 200, 210
3	[0 DR and 2 B] or [1 DR and 0/1 B]	020, 120, 220, 001, 101, 201, 011, 111, 211
4	[1 DR and 2 B] or [2 DR]	021, 121, 221, 002, 102, 202, 012, 112, 212, 022, 122, 222

Table 5.15 HLA matching for kidney only transplants in the UK, 1 April 2015 - 31 March 2016,

	DBD		DCD		Living	
	N	(%)	N	(%)	N	(%)
Adult						
Level 1 (Best match)	176	(16)	30	(4)	104	(11)
Level 2	409	(36)	246	(29)	143	(15)
Level 3	513	(45)	494	(58)	383	(40)
Level 4	35	(3)	81	(10)	264	(28)
Not reported	1				63	
Paediatric						
Level 1 (Best match)	0	(0)	0	(0)	8	(10)
Level 2	39	(83)	2	(50)	13	(17)
Level 3	8	(17)	2	(50)	53	(68)
Level 4	0	(0)	0	(0)	1	(1)
Not reported					3	

Often potential living donors and their recipients are HLA or blood group incompatible. Increasingly it is possible to proceed with transplantation across the incompatibilities with appropriate management. The number of HLA and ABO blood group incompatible transplants over the last ten years is shown in **Figure 5.3**. Of the 642 HLA incompatible (HLAi) transplants performed; 177 used kidneys from deceased donors and 465 used living donor kidneys whilst the vast majority of ABO incompatible (ABOi) transplants used living donor kidneys (623 of 628). Due to the nature of reporting HLA incompatible transplants the numbers presented may be subject to change over time.

Figure 5.3 Incompatible kidney only transplants in the UK, 1 April 2006 - 31 March 2016



5.5 Demographic characteristics

The age group, sex, ethnicity and blood group of deceased donors, transplant recipients and patients on the transplant list are shown in **Table 5.16** and for living donors and transplants in **Table 5.17**. Note that all percentages quoted are based only on data where relevant information was available. Changes made to the Kidney Allocation Scheme in 2006 mean that tissue matching criteria between donor and recipient are less strict than previously and waiting time to transplant is now more important than it was in deciding kidney allocation. These changes have an indirect benefit for patients from ethnic minority groups, who are less often a good tissue match with the predominantly white donor pool. As a result, access to transplantation is becoming more equitable.

Table 5.16 Demographic characteristics of deceased kidney donors and transplant recipients, 1 April 2015 - 31 March 2016, and transplant list patients at 31 March

Age group (years)	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
0 - 17	50	(4)	57	(3)	70	(1)
18 - 34	173	(13)	273	(12)	609	(12)
35 - 49	292	(23)	654	(29)	1485	(28)
50 - 59	324	(25)	605	(27)	1450	(27)
60 - 69	297	(23)	487	(22)	1255	(24)
70+	157	(12)	152	(7)	406	(8)
mean (SD)	51	(17)	50	(14)	51	(14)
Male	708	(55)	1384	(62)	3087	(59)
Female	585	(45)	844	(38)	2188	(41)
White	1232	(95)	1589	(72)	3487	(67)
Asian	25	(2)	352	(16)	944	(18)
Black	17	(1)	184	(8)	580	(11)
Chinese	3	(0)	28	(1)	70	(1)
Other	15	(1)	43	(2)	108	(2)
Not reported	1		32		86	
O	596	(46)	948	(43)	2799	(53)
A	531	(41)	883	(40)	1500	(28)
B	123	(10)	277	(12)	870	(16)
AB	43	(3)	120	(5)	106	(2)
First graft			1906	(86)	4008	(76)
Re-graft			321	(14)	1267	(24)
Not reported			1			
TOTAL	**1293**	**(100)**	**2228**	**(100)**	**5275**	**(100)**

Table 5.17 Demographic characteristics of living kidney donors and transplant recipients, 1 April 2015 - 31 March 2016

Age group (years)	Donors		Transplant recipients	
	N	(%)	N	(%)
0 - 17	0	(0)	78	(8)
18 - 34	166	(16)	220	(21)
35 - 49	400	(39)	289	(28)
50 - 59	275	(27)	247	(24)
60 - 69	160	(15)	170	(16)
70+	34	(3)	31	(3)
mean (SD)	48	(12)	44	(17)
Male	486	(47)	587	(57)
Female	549	(53)	448	(43)
White	910	(88)	867	(85)
Asian	67	(6)	83	(8)
Black	29	(3)	41	(4)
Chinese	2	(0)	3	(0)
Other	23	(2)	24	(2)
Not reported	4		17	
O	582	(57)	451	(44)
A	325	(32)	410	(40)
B	96	(9)	129	(12)
AB	26	(3)	45	(4)
Not reported	6			
First graft			902	(87)
Re-graft			133	(13)
TOTAL	**1035**	**(100)**	**1035**	**(100)**

Pancreas Activity

Key messages

- **The number of patients waiting on the pancreas transplant list fell by 10% during the year, to 227 at 31 March 2016**
- **The number of pancreas donors after brain death fell by 3% to 343, while transplants from donors after brain death fell by 1% to 161**
- **The number of pancreas donors after circulatory death increased by 16% to 125, while transplants from donors after circulatory death fell by 13% to 55**
- **31 islet transplants were made possible by the pancreas islet transplant programme, an increase of 35% compared with last year**

6.1 Overview

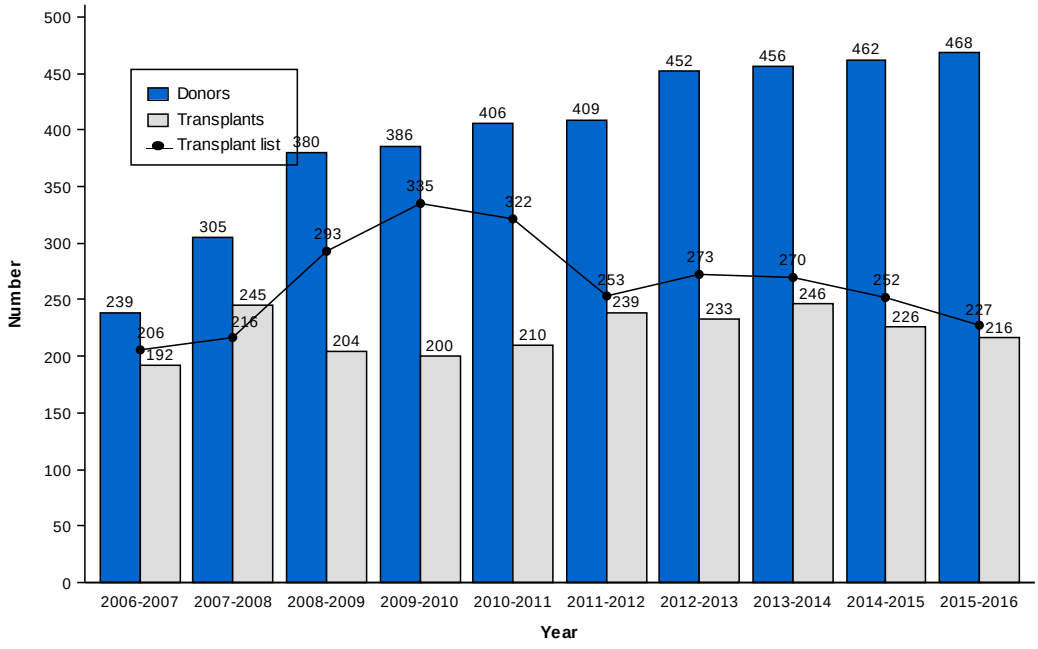
The number of patients registered on the active transplant list at 31 March for a pancreas only, simultaneous kidney/pancreas (SPK) or islet transplant has increased slightly over the last ten years from 206 patients in 2006 to 227 patients in 2016. The number of pancreas donors and transplants has increased steadily from 239 donors resulting in 192 transplants in 2006-2007, to 468 donors and 216 transplants in 2015-2016, although the actual number of transplants is less than in each of the previous 4 years. A summary of activity for deceased donor pancreas transplants and the transplant list for 1 April 2006 - 31 March 2016 is shown in **Figure 6.1**.

A National Pancreas Allocation Scheme was introduced on 1 December 2010. Patients are prioritised according to a points system based on a range of clinical factors. A score is calculated for every potentially suitable patient on the national active transplant list and the pancreas is allocated preferentially to the patient with the most points.

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

Throughout this chapter, intestinal transplants involving a pancreas are not included in the pancreas transplant activity reported. Any pancreases retrieved and used for such transplants are however included in the pancreas donor activity. In 2015-2016 there were 14 intestinal transplants including a pancreas.

Figure 6.1 **Deceased pancreas and islet programme in the UK, 1 April 2006 - 31 March 2016, Number of donors, transplants and patients on the active transplant list at 31 March**



6.2 Transplant list

Table 6.1 shows the number of patients on the active transplant lists at 31 March 2016 by centre. The number of patients registered on the pancreas transplant list fell by 10% in the year: on 31 March 2016, 227 patients were registered active, compared with 252 at the end of March 2015.

Of the 227 patients on the active transplant list at 31 March 2016, 184 required a SPK transplant (201 at 31 March 2015), 43 (19%) patients required a pancreas only transplant (51 at 31 March 2015) and 28 (12%) were registered for a pancreas islet transplant.

The outcome of patients registered on the UK pancreas transplant list at 1 April 2015, or subsequently registered during the financial year, is shown in **Table 6.2**. 23 patients joined the pancreas transplant list while 213 joined the list for kidney and pancreas.

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

Table 6.1 Patients on the pancreas transplant lists at 31 March 2016 (2015) in the UK, by centre

Centre	Active transplant lists									
	Kidney/pancreas		Pancreas alone		Islet				**TOTAL**	
					Routine		Priority			
Bristol	-	-	-	-	2	(4)	1	(0)	**3**	**(4)**
Cambridge	18	(18)	0	(0)	0	(0)	0	(0)	**18**	**(18)**
Cardiff	4	(7)	1	(2)	0	(0)	0	(0)	**5**	**(9)**
Edinburgh	32	(30)	0	(0)	9	(15)	2	(3)	**43**	**(48)**
Guys	31	(26)	1	(1)	0	(0)	0	(0)	**32**	**(27)**
King's College	0	(0)	0	(0)	2	(1)	0	(0)	**2**	**(1)**
Manchester	24	(32)	2	(0)	1	(2)	1	(1)	**28**	**(35)**
Newcastle	9	(15)	1	(0)	1	(4)	4	(2)	**15**	**(21)**
Oxford	64	(64)	8	(10)	5	(4)	0	(0)	**77**	**(78)**
WLRTC	2	(9)	2	(2)	0	(0)	0	(0)	**4**	**(11)**
TOTAL	**184**	**(201)**	**15**	**(15)**	**20**	**(30)**	**8**	**(6)**	**227**	**(252)**

Table 6.2 Whole pancreas transplant list and new registrations in the UK, 1 April 2015 - 31 March 2016

Outcome of patient at 31 March 2016	Active and suspended patients at 1 April 2015		New registrations in 2015-2016[1]		TOTAL	
	N	%	N	%	N	%
Pancreas transplant list						
Remained active/suspended	77	74	14	61	**91**	**72**
Transplanted	10	10	8	35	**18**	**14**
Removed	14[2]	13	1[3]	4	**15**	**12**
Died	3	3	0	0	**3**	**2**
TOTAL	**104**		**23**		**127**	
Kidney/pancreas transplant list						
Remained active/suspended	153	47	173	81	**326**	**61**
Transplanted	139	43	31	15	**170**	**32**
Removed	13	4	6	3	**19**	**4**
Died	20	6	3	1	**23**	**4**
TOTAL	**325**		**213**		**538**	

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

The active pancreas transplant list rates by country/Strategic Health Authority of patient's residence are shown in **Table 6.3**. At 31 March 2016, the overall transplant list rate was 3.1 pmp and across the Strategic Health Authorities ranged from 1.4 to 5.8 pmp.

Table 6.3	Active pancreas alone and kidney/pancreas transplant list at 31 March, by country/ Strategic Health Authority of patient residence			
Country/ Strategic Health Authority of residence	**Pancreas transplant list (pmp)**			
	2016		2015	
North East	8	(3.1)	12	(4.6)
North West	10	(1.4)	16	(2.2)
Yorkshire and The Humber	11	(2.1)	13	(2.4)
North of England	**29**	**(1.9)**	**41**	**(2.7)**
East Midlands	18	(3.9)	17	(3.7)
West Midlands	21	(3.7)	17	(3.0)
East of England	16	(2.7)	20	(3.3)
Midlands and East	**55**	**(3.4)**	**54**	**(3.3)**
London	**22**	**(2.6)**	**21**	**(2.5)**
South East Coast	13	(2.8)	13	(2.8)
South Central	25	(5.8)	20	(4.7)
South West	19	(3.5)	26	(4.8)
South of England	**57**	**(4.0)**	**59**	**(4.1)**
England	**163**	**(3.0)**	**175**	**(3.2)**
Isle of Man	**0**	**(0.0)**	**0**	**(0.0)**
Channel Islands	**0**	**(0.0)**	**0**	**(0.0)**
Wales	**4**	**(1.3)**	**11**	**(3.6)**
Scotland	**29**	**(5.4)**	**24**	**(4.5)**
Northern Ireland	**3**	**(1.6)**	**6**	**(3.3)**
TOTAL	**199**	**(3.1)**	**216**	**(3.3)**

An indication of longer term outcomes for patients listed for a pancreas or kidney/pancreas transplant are summarised in **Figure 6.2**. This shows the proportion of patients transplanted or still waiting six months, one year, two years and three years after joining the list. It also shows the proportion removed from the transplant list (typically because they become too unwell for transplant) and those dying while on the transplant list. 35% of patients are transplanted within one year, while three years after listing 76% of patients have received a transplant. The median (average) waiting time for a pancreas transplant is 353 days and is shown by blood group in **Table 6.4** and ethnicity in **Table 6.5**. Note that these waiting times are not adjusted for other relevant factors which may be influential and which may differ across blood or ethnic groups.

Figure 6.2 **Post-registration outcome for 265 new pancreas only and kidney/pancreas registrations made in the UK, 1 April 2012 - 31 March 2013**

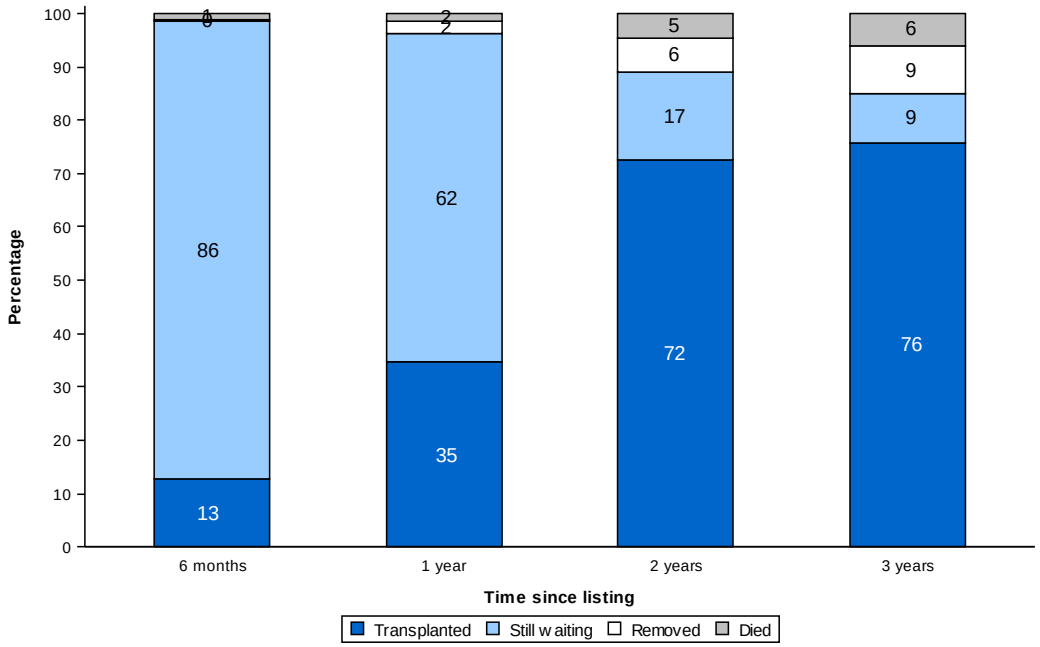


Table 6.4 **Median waiting time to pancreas only and kidney/pancreas transplant in the UK, for patients registered 1 April 2010 - 31 March 2014**

Blood group	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult			
O	462	459	435 - 483
A	381	306	276 - 336
B	107	233	176 - 290
AB	39	107	87 - 127
TOTAL	**989**	**353**	**333 - 373**

Table 6.5 **Median waiting time to pancreas only and kidney/pancreas transplant in the UK, for patients registered 1 April 2010 - 31 March 2014**

Ethnicity	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult			
White	865	366	343 - 389
Asian	59	307	216 - 398
Black	40	279	217 - 341
Other	13	188	58 - 318
TOTAL[1]	**989**	**353**	**333 - 373**

[1] Includes 12 patients whose ethnicity was not reported

6.3 Donor and organ supply

Of the 785 organ donors after brain death in the UK in 2015-2016, 343 (44%) donated a pancreas. There were 125 pancreas donors after circulatory death in 2015-2016. **Table 6.6** shows this activity by country/Strategic Health Authority of the donor's residence. No adjustments have been made for potential demographic differences in populations.

The overall rate for pancreas donors after brain death is 5.3 pmp, with rates ranging from 4 to 7 pmp across the Strategic Health Authorities and for donors after circulatory death is 1.9 pmp, with rates ranging from 1.2 to 3.4 pmp across the Strategic Health Authorities.

Table 6.6 Pancreas donation rates for deceased donors in the UK, 1 April 2015 - 31 March 2016, by country/ Strategic Health Authority

Country/ Strategic Health Authority of residence	Pancreas donors (pmp)					
	DBD		DCD		TOTAL	
North East	18	(6.9)	9	(3.4)	**27**	**(10.3)**
North West	35	(4.9)	16	(2.2)	**51**	**(7.2)**
Yorkshire and The Humber	30	(5.6)	8	(1.5)	**38**	**(7.1)**
North of England	**83**	**(5.5)**	**33**	**(2.2)**	**116**	**(7.7)**
East Midlands	20	(4.3)	7	(1.5)	**27**	**(5.8)**
West Midlands	27	(4.7)	7	(1.2)	**34**	**(6.0)**
East of England	31	(5.1)	19	(3.2)	**50**	**(8.3)**
Midlands and East	**78**	**(4.8)**	**33**	**(2.0)**	**111**	**(6.8)**
London	**34**	**(4.0)**	**15**	**(1.8)**	**49**	**(5.7)**
South East Coast	32	(7.0)	8	(1.7)	**40**	**(8.7)**
South Central	25	(5.8)	6	(1.4)	**31**	**(7.2)**
South West	32	(5.9)	9	(1.7)	**41**	**(7.6)**
South of England	**89**	**(6.2)**	**23**	**(1.6)**	**112**	**(7.8)**
England	**284**	**(5.2)**	**104**	**(1.9)**	**388**	**(7.1)**
Isle of Man	**1**	**(12.5)**	**0**	**(0.0)**	**1**	**(12.5)**
Channel Islands	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Wales	**17**	**(5.5)**	**5**	**(1.6)**	**22**	**(7.1)**
Scotland	**26**	**(4.9)**	**15**	**(2.8)**	**41**	**(7.7)**
Northern Ireland	**15**	**(8.2)**	**1**	**(0.5)**	**16**	**(8.7)**
TOTAL[1]	**343**	**(5.3)**	**125**	**(1.9)**	**468**	**(7.2)**

[1] Includes 5 donors where hospital postcode was used in place of an unknown postcode

6.4 Transplants

The number of pancreas transplants by recipient country/ Strategic Health Authority of residence is shown in **Table 6.7**. No adjustments have been made for potential demographic differences in populations. For donors after brain death the transplant rate ranged from 1.4 to 3.8 pmp across Strategic Health Authorities and overall was 2.5 pmp. For donors after circulatory death the overall rate was 0.8 pmp and ranged from 0 to 1.8 pmp across Strategic Health Authorities.

Table 6.7 Pancreas transplant rates per million population (pmp), in the UK, 1 April 2015 - 31 March 2016, by country/ Strategic Health Authority

Country/ Strategic Health Authority of residence	DBD		DCD		TOTAL	
	N	(pmp)	N	(pmp)	N	(pmp)
North East	10	(3.8)	0	(0)	**10**	**(3.8)**
North West	11	(1.5)	7	(1)	**18**	**(2.5)**
Yorkshire and The Humber	8	(1.5)	2	(0.4)	**10**	**(1.9)**
North of England	**29**	**(1.9)**	**9**	**(0.6)**	**38**	**(2.5)**
East Midlands	10	(2.2)	4	(0.9)	**14**	**(3)**
West Midlands	8	(1.4)	5	(0.9)	**13**	**(2.3)**
East of England	14	(2.3)	11	(1.8)	**25**	**(4.2)**
Midlands and East	**32**	**(2)**	**20**	**(1.2)**	**52**	**(3.2)**
London	**15**	**(1.8)**	**9**	**(1.1)**	**24**	**(2.8)**
South East Coast	14	(3.1)	1	(0.2)	**15**	**(3.3)**
South Central	16	(3.7)	3	(0.7)	**19**	**(4.4)**
South West	17	(3.1)	3	(0.6)	**20**	**(3.7)**
South of England	**47**	**(3.3)**	**7**	**(0.5)**	**54**	**(3.8)**
England	**123**	**(2.3)**	**45**	**(0.8)**	**168**	**(3.1)**
Isle of Man	**0**	**(0)**	**0**	**(0)**	**0**	**(-)**
Channel Islands	**0**	**(0)**	**0**	**(0)**	**0**	**(-)**
Wales	**9**	**(2.9)**	**4**	**(1.3)**	**13**	**(4.2)**
Scotland	**24**	**(4.5)**	**6**	**(1.1)**	**30**	**(5.6)**
Northern Ireland	**5**	**(2.7)**	**0**	**(0)**	**5**	**(2.7)**
TOTAL	**161**	**(2.5)**	**55**	**(0.8)**	**216**	**(3.3)**

There were 216 deceased donor pancreas transplants in 2015-2016 representing a decrease of 4% on the 226 transplants performed in 2014-2015. Of these 216, 167 (77%) were SPK transplants, 18 (8%) were pancreas only transplants (pancreas alone (PTA) or pancreas after kidney (PAK)) and 31 (14%) were islet transplants. The number of transplants performed at each centre is shown in **Table 6.8** by transplant type and **Table 6.9** by donor type. Note that King's College, The Royal Free and Bristol only perform islet transplants. Cambridge Guy's, WLRTC and Cardiff only perform whole pancreas transplants.

The length of time that elapses between a pancreas being removed from the donor to its transplantation into the recipient is called the Cold Ischaemia Time (CIT). Generally, the shorter this time, the more likely the pancreas is to work immediately and the better the long-term outcome. The median CIT for a DBD donor whole pancreas transplant is 10.8 hours (Inter-Quartile (IQ) range 9.6 – 12.1) and for a DCD donor transplant is 10.2 hours (IQ range 9.3 – 11.9) and overall is 10.6 hours (IQ range 9.5 – 12.1).

At 31 March 2016, there were approximately 2,100 recipients with a functioning pancreas transplant (including multi-organ transplants) being followed-up, as reported to the UK Transplant Registry.

Table 6.8 Pancreas transplants, 1 April 2015 - 31 March 2016 (2014-2015) by centre

Centre	Transplant type									
	SPK		PTA		PAK		Islet			
							Routine		Priority	
Bristol	-	-	-	-	-	-	1	(1)	0	(0)
Cambridge	26	(26)	0	(1)	0	(2)	-	-	-	-
Cardiff	6	(8)	1	(2)	2	(6)	-	-	-	-
Edinburgh	16	(16)	0	(0)	0	(0)	10	(6)	9	(1)
Guys	28	(28)	0	(1)	0	(1)	-	-	-	-
King's College	-	-	-	-	-	-	1	(0)	0	(0)
Manchester	26	(29)	1	(1)	2	(2)	0	(2)	1	(0)
Newcastle	7	(5)	0	(1)	0	(1)	5	(3)	2	(1)
Oxford	46	(56)	10	(8)	2	(2)	1	(2)	1	(3)
Royal Free	-	-	-	-	-	-	0	(2)	0	(2)
WLRTC	12	(5)	0	(0)	0	(2)	-	-	-	-
TOTAL	**167**	**(173)**	**12**	**(14)**	**6**	**(16)**	**18**	**(16)**	**13**	**(7)**

WLRTC - West London Renal and Transplant Centre

Table 6.9 Pancreas transplants, 1 April 2015 - 31 March 2016 by centre

Centre	Transplant and donor type							
	SPK		PTA		Islet		**TOTAL**	
	DBD	DCD	DBD	DCD	DBD	DCD	**DBD**	**DCD**
Bristol	-	-	-	-	1	0	**1**	**0**
Cambridge	16	10	0	0	-	-	**16**	**10**
Cardiff	4	2	3	0	-	-	**7**	**2**
Edinburgh	16	0	0	0	13	6	**29**	**6**
Guys	20	8	0	0	-	-	**20**	**8**
King's College	-	-	-	-	1	0	**1**	**0**
Manchester	14	12	3	0	1	0	**18**	**12**
Newcastle	7	0	0	0	7	0	**14**	**0**
Oxford	37	9	7	5	2	0	**46**	**14**
WLRTC	9	3	0	0	-	-	**9**	**3**
TOTAL	**123**	**44**	**13**	**5**	**25**	**6**	**161**	**55**

WLRTC - West London Renal and Transplant Centre

6.5 Demographic characteristics

The age group, sex, ethnicity and blood group of deceased donors, transplant recipients and patients on the transplant list are shown in **Table 6.10**.

Table 6.10 Demographic characteristics of deceased pancreas donors and transplant recipients, 1 April 2015 - 31 March 2016, and transplant list patients at 31 March

Age group (years)	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
0 - 17	34	(7)	-	-	1	(0)
18 - 34	119	(25)	39	(18)	43	(19)
35 - 49	171	(37)	111	(51)	123	(54)
50 - 59	126	(27)	55	(25)	48	(21)
60 - 69	17	(4)	9	(4)	11	(5)
70+	1	(0)	2	(1)	1	(0)
mean (SD)	40	(14)	45	(9)	44	(10)
Male	256	(55)	104	(48)	119	(52)
Female	212	(45)	112	(52)	108	(48)
White	445	(95)	191	(89)	206	(91)
Asian	10	(2)	13	(6)	12	(5)
Black	6	(1)	7	(3)	8	(4)
Chinese	0	(0)	1	(0)	0	(0)
Other	6	(1)	2	(1)	0	(0)
Not reported	1		2		1	
O	213	(46)	87	(40)	134	(59)
A	208	(44)	97	(45)	67	(30)
B	41	(9)	24	(11)	22	(10)
AB	6	(1)	8	(4)	4	(2)
First graft			198	(92)	196	(86)
Re-graft			18	(8)	31	(14)
TOTAL	**468**	**(100)**	**216**	**(100)**	**227**	**(100)**

Cardiothoracic Activity

Key messages

- **At 31 March 2016, there were 248 patients on the active heart transplant list, 316 on the lung list and 14 on the heart/lung list**
- **Of the 785 organ donors after brain death, 265 (34%) were cardiothoracic organ donors**
- **The number of heart transplants from deceased donors increased by 8% to 195 this year; over 80% of these were urgent heart transplants**
- **The number of lung and heart/lung transplants from deceased donors increased by 1% to 188**

7.1 Overview

Last year the number of heart transplants rose by 8% to 195 and the number of lung or heart/lung transplants increased by 1% to 188. There were increases in both the heart and the lung transplant lists since March 2015. The number of patients registered on the active heart transplant list at year end has increased by 182% since 2007, while the number of patients registered for a lung or heart/lung transplant has increased by 13% since 2007.

A summary of the deceased donor cardiothoracic activity from 1 April 2006 to 31 March 2016 is shown in **Figure 7.1** for heart activity and **Figure 7.2** for lung activity. Donors who donate both heart and lung(s) are included in both figures, but heart/lung block transplants and patients active on the transplant list for a heart/lung block are only included in **Figure 7.2**.

Figure 7.1 Deceased donor heart programme in the UK, 1 April 2006 - 31 March 2016, Number of donors, transplants and patients on the active transplant list at 31 March

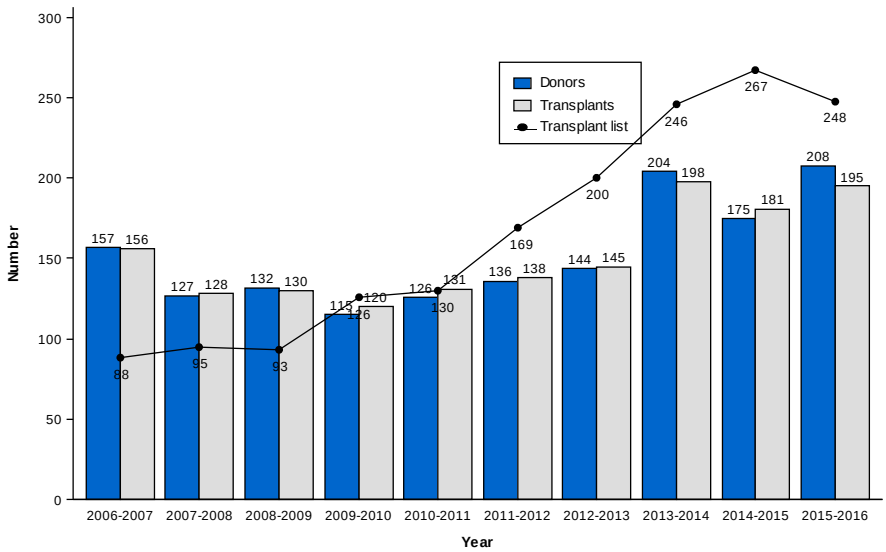
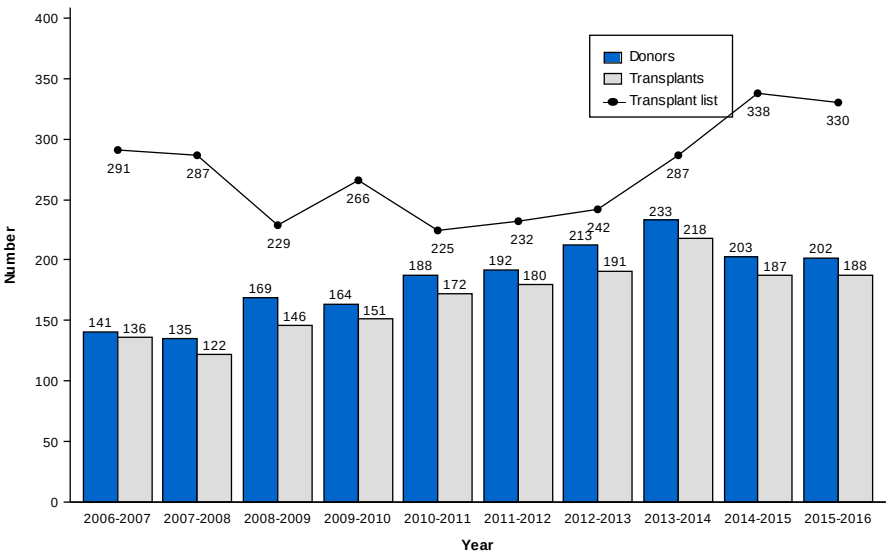


Figure 7.2 Deceased donor lung and heart/lung programme in the UK, 1 April 2006 - 31 March 2016, Number of donors, transplants and patients on the active transplant list at 31 March



7.2 Transplant list

Table 7.1 shows the number of patients on the active transplant lists at 31 March 2016 by centre. The lung transplant list accounts for 55% of the patients waiting for a cardiothoracic organ transplant. Overall, Newcastle and Harefield have the largest cardiothoracic organ transplant lists.

During 2015-2016, 289 patients joined the heart transplant list while 11 joined the heart/lung list and 270 joined the lung transplant list. Outcomes as at 31 March 2016 for patients on the list at 1 April 2015 and those joining the list during the year are shown in **Table 7.2**.

Table 7.3 shows the transplant list rate per million population by country/Strategic Health Authority of patient's residence. The overall heart transplant list rate at 31 March 2016 was 4.0 pmp and ranged from 2.8 to 8.0 across the Strategic Health Authorities. The overall lung transplant list rate was 5.1 pmp and ranged from 2.7 to 6.3 across the Strategic Health Authorities.

Table 7.1 Patients on the cardiothoracic transplant lists at 31 March 2016 (2015) in the UK, by centre

Centre	Active transplant lists									
	Heart				Heart/lung		Lung		**TOTAL**	
	Non-urgent		Urgent							
Adult										
Birmingham	18	(22)	3	(2)	1	(0)	30	(34)	**52**	**(58)**
Glasgow	13	(6)	4	(3)	0	(0)	0	(0)	**17**	**(9)**
Great Ormond Street	2	(4)	0	(0)	0	(0)	2	(3)	**4**	**(7)**
Harefield	62	(66)	5	(3)	2	(2)	125	(115)	**194**	**(186)**
Manchester	17	(24)	1	(4)	1	(2)	46	(49)	**65**	**(79)**
Newcastle	43	(59)	4	(2)	4	(4)	61	(86)	**112**	**(151)**
Papworth	39	(40)	2	(5)	6	(4)	45	(27)	**92**	**(76)**
TOTAL	**194**	**(221)**	**19**	**(19)**	**14**	**(12)**	**309**	**(314)**	536	(566)
Paediatric										
Great Ormond Street	17	(18)	5	(4)	0	(1)	7	(9)	**29**	**(32)**
Newcastle	6	(4)	7	(1)	0	(0)	0	(2)	**13**	**(7)**
TOTAL	**23**	**(22)**	**12**	**(5)**	**0**	**(1)**	**7**	**(11)**	42	(39)

Table 7.2 Cardiothoracic transplant lists and new registrations in the UK, 1 April 2015 - 31 March 2016

Outcome of patient at 31 March 2016	Active and suspended patients at 1 April 2015		New registrations in 2015-2016[1]		**TOTAL**	
	N	%	N	%	**N**	**%**
Heart transplant list						
Remained active/suspended	152	57	117	40	**269**	**48**
Transplanted	72	27	121	42	**193**	**35**
Removed	23	9	31	11	**54**	**10**
Died	22	8	20	7	**42**	**8**
TOTAL	**269**		**289**		**558**	
Heart/lung transplant list						
Remained active/suspended	8	57	6	55	**14**	**56**
Transplanted[2]	4	29	3	27	**7**	**28**
Died	2	14	2	18	**4**	**16**
TOTAL	**14**		**11**		**25**	
Lung transplant list						
Remained active/suspended	151	49	166	61	**317**	**55**
Transplanted	94	30	80	30	**174**	**30**
Removed	28	9	7	3	**35**	**6**
Died	38	12	17	6	**55**	**9**
TOTAL	**311**		**270**		**581**	

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

Table 7.3 Active cardiothoracic transplant list at 31 March, by country/ Strategic Health Authority of patient residence

Country/ Strategic Health Authority of residence	Heart transplant list (pmp)[1]				Lung transplant list (pmp)[1]			
	2016		2015		2016		2015	
North East	21	(8.0)	31	(11.8)	7	(2.7)	15	(5.7)
North West	23	(3.2)	29	(4.1)	39	(5.5)	46	(6.5)
Yorkshire and The Humber	21	(3.9)	21	(3.9)	26	(4.9)	29	(5.4)
North of England	**65**	**(4.3)**	**81**	**(5.4)**	**72**	**(4.8)**	**90**	**(6.0)**
East Midlands	13	(2.8)	12	(2.6)	16	(3.4)	19	(4.1)
West Midlands	24	(4.2)	20	(3.5)	29	(5.1)	29	(5.1)
East of England	24	(4.0)	24	(4.0)	32	(5.3)	22	(3.7)
Midlands and East	**61**	**(3.7)**	**56**	**(3.4)**	**77**	**(4.7)**	**70**	**(4.3)**
London	**37**	**(4.3)**	**36**	**(4.2)**	**46**	**(5.4)**	**38**	**(4.4)**
South East Coast	19	(4.1)	23	(5.0)	26	(5.7)	26	(5.7)
South Central	15	(3.5)	18	(4.2)	27	(6.3)	19	(4.4)
South West	20	(3.7)	25	(4.6)	34	(6.3)	27	(5.0)
South of England	**54**	**(3.8)**	**66**	**(4.6)**	**87**	**(6.1)**	**72**	**(5.0)**
England	**217**	**(4.0)**	**239**	**(4.4)**	**282**	**(5.2)**	**270**	**(5.0)**
Isle of Man	**0**	**(0.0)**	**1**	**(12.5)**	**0**	**(0.0)**	**0**	**(0.0)**
Channel Islands	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**	**2**	**(12.5)**
Wales	**10**	**(3.2)**	**13**	**(4.2)**	**17**	**(5.5)**	**23**	**(7.4)**
Scotland	**24**	**(4.5)**	**13**	**(2.4)**	**22**	**(4.1)**	**26**	**(4.9)**
Northern Ireland	**5**	**(2.7)**	**8**	**(4.3)**	**7**	**(3.8)**	**12**	**(6.5)**
TOTAL[2,3]	**262**	**(4.0)**	**280**	**(4.3)**	**330**	**(5.1)**	**338**	**(5.2)**

[1] Includes patients waiting for both heart and lungs
[2] Includes heart patients in 2016 (2015) resident in: Republic of Ireland 5(6); Overseas 1(0)
[3] Includes lung patients in 2016 (2015) resident in: Republic of Ireland 2(5)

An indication of longer term outcomes for patients listed for a cardiothoracic organ transplant is summarised in **Figure 7.3**, **Figure 7.4** and **Figure 7.5**. This is only for first registrations for these patients. **Figure 7.4** includes all patients who have been urgently listed over the period, including those who have moved from the routine list. These charts showsthe proportion of patients transplanted or still waiting six months, one year, two years and three years after joining the non-urgent or urgent heart list or the lung list, respectively. It also shows the proportion removed from the transplant list, moved to urgent/routine list, and those dying while on the transplant list. Within six months of listing, 11% of non-urgent heart patients are transplanted while 7% have died while waiting. For patients listed for an urgent transplant, 67% are transplanted within six months, while 9% die on the list. Of those listed for a lung transplant, 40% are transplanted within six months, rising to 69% after three years. The patients removed from these lists may also subsequently have died.

Figure 7.3 **Post-registration outcome for 161 first non-urgent heart only registrations made in the UK, 1 April 2012 - 31 March 2013**

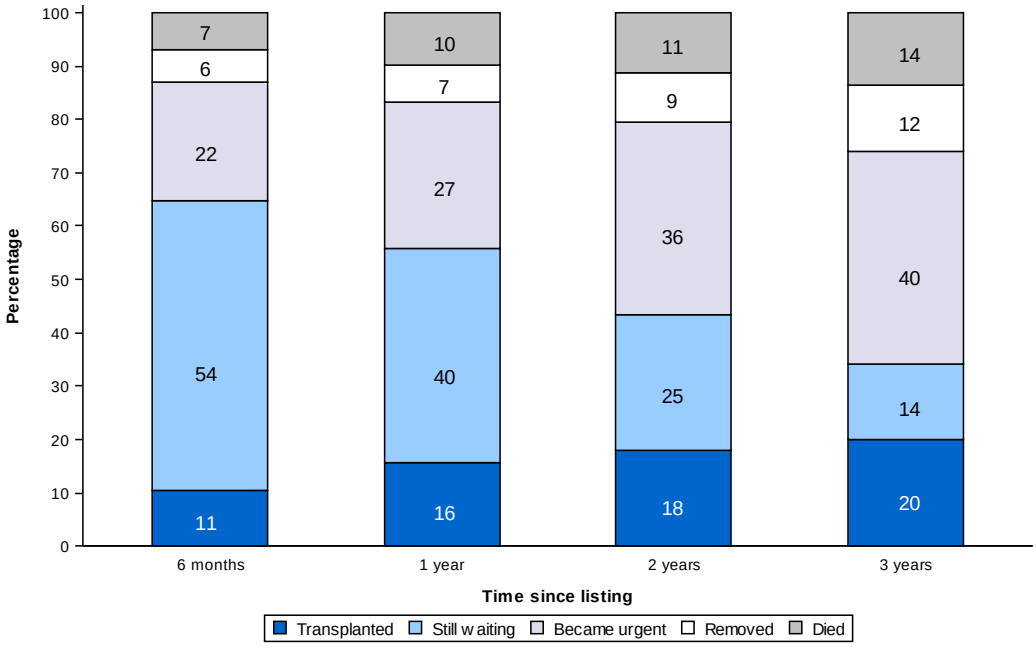


Figure 7.4 **Post-registration outcome for 159 first urgent heart only registrations made in the UK, 1 April 2012 - 31 March 2013**

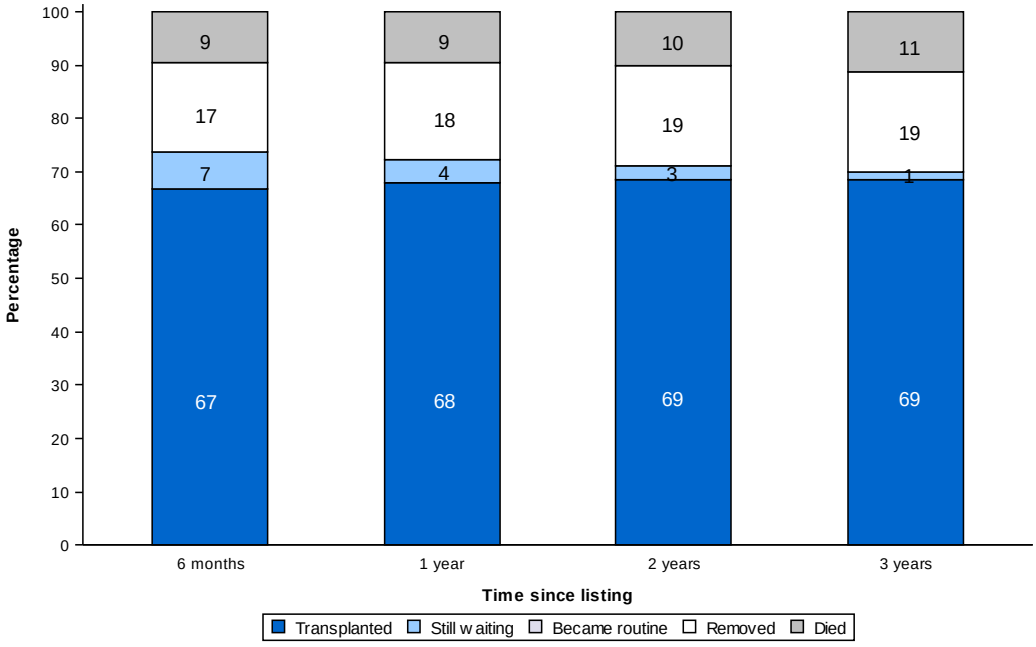


Figure 7.5 **Post-registration outcome for 253 first lung only registrations made in the UK, 1 April 2012 - 31 March 2013**

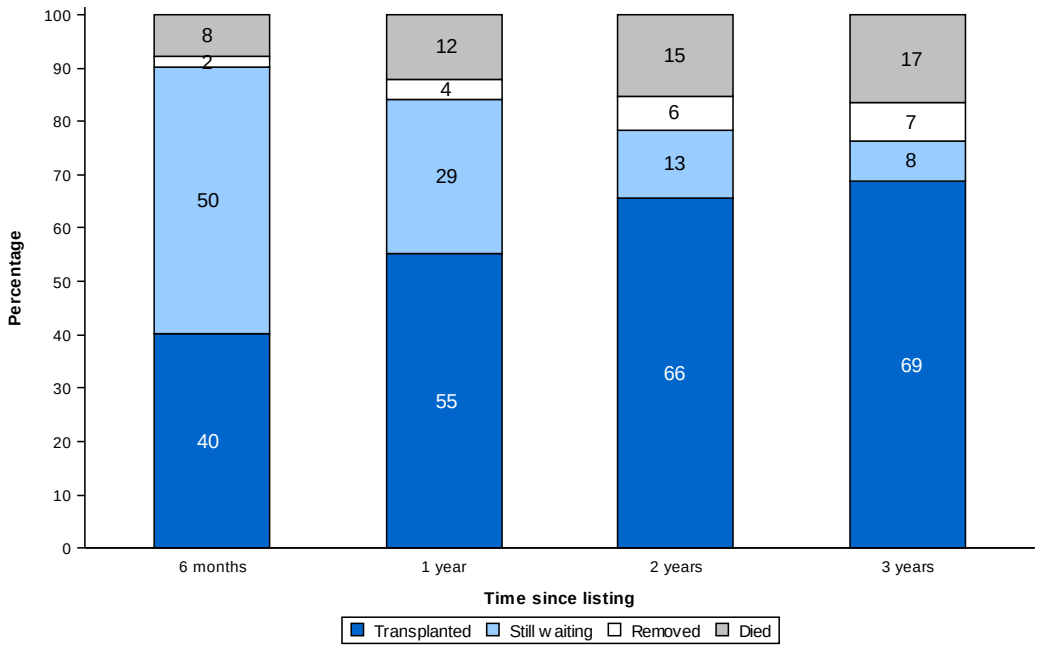


Table 7.4 and **Table 7.5** show the median waiting time to cardiothoracic organ transplant by blood group and ethnicity, respectively, for patients registered between April 2011 and March 2014. Median waiting time for adult never urgent heart patients is 1280 days overall, compared with 23 days for ever urgent heart patients who registered as urgent irrespective of routine status throughout registration. Adult lung patients have a median waiting time of 256 days, but blood group O patients alone have a much longer waiting time of 406 days. The median waiting time for paediatric never urgent heart patients is 463 days, compared to 60 days for paediatric ever urgent heart patients; these are not broken down by blood group or ethnicity due to low numbers. Paediatric recipients are aged less than 16 years at time of listing. Note that these waiting times are not adjusted for other relevant factors which may be influential and which may differ across blood or ethnic groups.

Table 7.4 Median waiting time to cardiothoracic transplant in the UK, for patients registered 1 April 2011 - 31 March 2014

Blood group	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult never urgent heart			
O[1]	120	-	-
A	137	424	287 - 561
B	24	344	9 - 679
AB	15	58	19 - 97
TOTAL[1]	**296**	**1280**	**-**
Adult ever urgent heart			
O	90	43	30 - 56
A	93	12	8 - 16
B	38	28	21 - 35
AB	11	13	11 - 15
TOTAL	**232**	**23**	**18 - 28**
Paediatric never urgent heart	**24**	**463**	**0 - 1037**
Paediatric ever urgent heart	**91**	**60**	**41 - 79**
Adult lung			
O	377	406	331 - 481
A	315	137	107 - 167
B	83	182	87 - 277
AB	18	186	121 - 251
TOTAL	**793**	**256**	**217 - 295**

[1] Median and/or 95% confidence interval cannot be estimated

Table 7.5 Median waiting time to cardiothoracic transplant in the UK, for patients registered 1 April 2011 - 31 March 2014

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult never urgent heart			
White[1]	266	1283	-
Asian	11	143	0 - 357
Black[1]	12	-	-
Other[2]	6	-	-
TOTAL[1]	**296**	**1280**	**-**
Adult ever urgent heart			
White	197	22	16 - 28
Asian	19	36	9 - 63
Black[2]	5	-	-
Other[2]	8	-	-
TOTAL	**232**	**23**	**18 - 28**
Paediatric never urgent heart	**24**	**463**	**0 - 1037**
Paediatric ever urgent heart	**91**	**60**	**41 - 79**
Adult lung			
White	756	239	203 - 275
Asian	24	1217	121 - 2313
Black[2]	6	-	-
Other[2]	3	-	-
TOTAL	**793**	**256**	**217 - 295**

[1] Median and/or 95% confidence interval cannot be estimated
[2] Median waiting time not reported for fewer than 10 patients

Table 7.6 Cardiothoracic organ donors in the UK, 1 April 2015 - 31 March 2016 (2014-2015), by age group and allocation zone

Allocation zone	Type of cardiothoracic donor								TOTAL	
	Heart only		Heart & lung		Lung(s) only DBD		Lung(s) only DCD			
Adult										
Birmingham	11	(18)	7	(8)	11	(16)	6	(6)	35	(48)
Glasgow	4	(12)	6	(5)	10	(6)	5	(3)	25	(26)
Harefield	25	(20)	20	(12)	17	(29)	11	(5)	73	(66)
Manchester	27	(16)	13	(9)	7	(8)	3	(10)	50	(43)
Newcastle	12	(13)	13	(10)	16	(15)	6	(8)	47	(46)
Papworth	19	(23)	17	(15)	16	(17)	3	(12)	55	(67)
TOTAL	**98[1]**	**(102[2])**	**76[3]**	**(59)**	**77**	**(91)**	**34**	**(44)**	**285**	**(297)**
Paediatric[4]										
Birmingham	2	(1)	2	(0)	0	(0)	1	(0)	5	(1)
Glasgow	1	(0)	1	(1)	1	(0)	0	(0)	3	(1)
Harefield	2	(1)	1	(1)	0	(1)	1	(0)	4	(3)
Manchester	0	(0)	1	(1)	0	(1)	0	(0)	1	(2)
Newcastle	0	(3)	5	(1)	0	(0)	2	(0)	7	(4)
Papworth	0	(2)	0	(2)	0	(0)	0	(1)	0	(5)
TOTAL	**5**	**(7)**	**10**	**(6)**	**1**	**(2)**	**4**	**(1)**	**20**	**(16)**

[1] Excludes 19 donors after circulatory death
[2] Excludes 1 donor after circulatory death
[3] Includes 2 donors after circulatory death
[4] Paediatric donors are aged 15 years or under

7.3 Donor and organ supply

The number of cardiothoracic organ donors classified by allocation zone of the donor hospital is summarised in **Table 7.6**. The numbers reflect the number of organs retrieved from within each zone (by any retrieval team) rather than the number of retrievals made by that centre. 34 of the 111 adult lung only donors were donors after circulatory death and there were no living donors. There were no domino heart donors. Of the 249 adult cardiothoracic donors after brain death, 39% donated only the heart, 30% heart and lung and 31% lung only. Of the 16 paediatric cardiothoracic donors after brain death, 31% donated only the heart, 63% heart and lung and 6% lung only.

Table 7.7 shows the number of organ donors after brain death identified in each allocation zone, the number that donated cardiothoracic organs and the number of organs retrieved.

Of the 785 organ donors after brain death, 34% donated cardiothoracic organs. Overall, 94% of the 500 organs retrieved were transplanted: 96% of hearts and 93% of lungs.

Table 7.7 Cardiothoracic organ donation and retrieval rates from donors after brain death in the UK, 1 April 2015 - 31 March 2016, by donation zone

Allocation zone	Number of donors		Number of organs retrieved (used)				TOTAL retrieved (used)	
	DBD solid organ	Cardiothoracic	Hearts		Lungs			
Birmingham	100	33	22	(22)	38	(38)	**60**	**(60)**
Glasgow	66	23	12	(11)	36	(30)	**48**	**(41)**
Harefield	217	65	48	(47)	76	(71)	**124**	**(118)**
Manchester	133	47	40	(38)	36	(36)	**76**	**(74)**
Newcastle[1]	120	46	30	(30)	64	(54)	**94**	**(84)**
Papworth	149	51	35	(32)	63	(63)	**98**	**(95)**
TOTAL	**785**	**265**	**187**	**(180)**	**313**	**(292)**	**500**	**(472)**

[1] Newcastle transplant adult and paediatric patients

The rates per million population for cardiothoracic donors are shown in **Table 7.8** by donor country/Strategic Health Authority of residence. No adjustments have been made for potential demographic differences in populations. The overall cardiothoracic donor rate was 5.0 pmp in 2015-2016 and varied across the Strategic Health Authorities from 3.4 pmp to 7.3 pmp, while the rate in Northern Ireland was 8.2 pmp.

Table 7.8 Cardiothoracic donation and retrieval rates for deceased donors in the UK, 1 April 2015 - 31 March 2016, by country/ Strategic Health Authority

Country/ Strategic Health Authority	Heart (pmp)		Lungs (pmp) DBD		Lungs (pmp) DCD		Total (pmp)	
North East	7	(2.7)	13	(5.0)	4	(1.5)	19	(7.3)
North West	25	(3.5)	13	(1.8)	2	(0.3)	30	(4.2)
Yorkshire and The Humber	19	(3.5)	16	(3.0)	4	(0.7)	29	(5.4)
North of England	**51**	**(3.4)**	**42**	**(2.8)**	**10**	**(0.7)**	**78**	**(5.2)**
East Midlands	12	(2.6)	8	(1.7)	0	(0.0)	16	(3.4)
West Midlands	14	(2.5)	6	(1.1)	3	(0.5)	21	(3.7)
East of England	28	(4.7)	17	(2.8)	2	(0.3)	36	(6.0)
Midlands and East	**54**	**(3.3)**	**31**	**(1.9)**	**5**	**(0.3)**	**73**	**(4.5)**
London	**31**	**(3.6)**	**16**	**(1.9)**	**5**	**(0.6)**	**42**	**(4.9)**
South East Coast	17	(3.7)	17	(3.7)	1	(0.2)	30	(6.5)
South Central	14	(3.3)	11	(2.6)	6	(1.4)	23	(5.4)
South West	13	(2.4)	10	(1.8)	5	(0.9)	24	(4.4)
South of England	**44**	**(3.1)**	**38**	**(2.7)**	**12**	**(0.8)**	**77**	**(5.4)**
England	**180**	**(3.3)**	**127**	**(2.3)**	**32**	**(0.6)**	**270**	**(5.0)**
Isle of Man	**1**	**(12.5)**	**0**	**(0.0)**	**0**	**(0.0)**	**1**	**(12.5)**
Channel Islands	**1**	**(6.3)**	**0**	**(0.0)**	**0**	**(0.0)**	**1**	**(6.3)**
Wales	**7**	**(2.3)**	**9**	**(2.9)**	**3**	**(1.0)**	**15**	**(4.9)**
Scotland	**11**	**(2.1)**	**16**	**(3.0)**	**2**	**(0.4)**	**22**	**(4.1)**
Northern Ireland	**8**	**(4.3)**	**10**	**(5.4)**	**3**	**(1.6)**	**15**	**(8.2)**
TOTAL[1]	**208**[2]	**(3.2)**	**162**	**(2.5)**	**40**	**(0.6)**	**324**	**(5.0)**

[1] Includes 4 donors where the hospital postcode was used in place of an unknown donor postcode
[2] Includes 21 donors after circulatory death

7.4 Transplants

The number of cardiothoracic organ transplants by recipient country/Strategic Health Authority of residence is shown in **Table 7.9**. No adjustments have been made for potential demographic differences in populations. The transplant rate ranged from 4.1 to 11.8 pmp across Strategic Health Authorities and overall was 5.9 pmp. Lung transplants include the small number of heart/lung transplants performed.

Table 7.9 Cardiothoracic transplant rates per million population (pmp) in the UK, 1 April 2015 - 31 March 2016, by country/ Strategic Health Authority

Country/ Strategic Health Authority	Heart (pmp)		Lungs (pmp) DBD		Lungs (pmp) DCD		Total (pmp)	
North East	20	(7.6)	9	(3.4)	2	(0.8)	31	(11.8)
North West	25	(3.5)	19	(2.7)	3	(0.4)	47	(6.6)
Yorkshire and The Humber	9	(1.7)	9	(1.7)	4	(0.7)	22	(4.1)
North of England	**54**	**(3.6)**	**37**	**(2.4)**	**9**	**(0.6)**	**100**	**(6.6)**
East Midlands	8	(1.7)	11	(2.4)	2	(0.4)	21	(4.5)
West Midlands	20	(3.5)	19	(3.3)	2	(0.4)	41	(7.2)
East of England	25	(4.2)	20	(3.3)	1	(0.2)	46	(7.6)
Midlands and East	**53**	**(3.2)**	**50**	**(3.1)**	**5**	**(0.3)**	**108**	**(6.6)**
London	**25**	**(2.9)**	**9**	**(1.1)**	**2**	**(0.2)**	**36**	**(4.2)**
South East Coast	10	(2.2)	15	(3.3)	5	(1.1)	30	(6.5)
South Central	11	(2.6)	9	(2.1)	4	(0.9)	24	(5.6)
South West	13	(2.4)	10	(1.8)	3	(0.6)	26	(4.8)
South of England	**34**	**(2.4)**	**34**	**(2.4)**	**12**	**(0.8)**	**80**	**(5.6)**
England	**166**	**(3.1)**	**130**	**(2.4)**	**28**	**(0.5)**	**324**	**(6.0)**
Isle of Man	**1**	**(12.5)**	**0**	**(0.0)**	**0**	**(0.0)**	**1**	**(12.5)**
Channel Islands	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Wales	**11**	**(3.6)**	**12**	**(3.9)**	**3**	**(1.0)**	**26**	**(8.4)**
Scotland	**9**	**(1.7)**	**8**	**(1.5)**	**2**	**(0.4)**	**19**	**(3.6)**
Northern Ireland	**7**	**(3.8)**	**1**	**(0.5)**	**2**	**(1.1)**	**10**	**(5.4)**
TOTAL[1]	**194[2]**	**(3.0)**	**151**	**(2.3)**	**35**	**(0.5)**	**380**	**(5.9)**

[1] Excludes 3 recipients who reside in the Republic of Ireland
[2] Includes 19 donors after circulatory death

Table 7.10 shows cardiothoracic transplant activity for each centre. In 2015-2016, a total of 383 transplants were carried out, an increase of 4% on 2014-2015. Of these, 51% were deceased donor heart transplants. The 173 adult lung transplants include 33 (19%) from donors after circulatory death: 12 were performed by Harefield, 11 by Newcastle, 4 by Papworth, 3 by Manchester and 3 by Birmingham. The 161 adult heart transplants include 19 (12%) from donors after circulatory death: 15 were performed by Papworth and 4 by Harefield.

Table 7.10 Cardiothoracic transplants, 1 April 2015 - 31 March 2016 (2014-2015), by age group and centre

Transplant centre	Transplant type										TOTAL	
	Heart				Heart/ lung		Lung(s)					
	Non-urgent		Urgent				DBD		DCD			
Adult												
Birmingham	3	(3)	23	(28)	1	(0)	21	(18)	3	(6)	51	(55)
Glasgow	0	(5)	7	(8)	0	(0)	0	(0)	0	(0)	7	(13)
Great Ormond Street	0	(0)	0	(0)	0	(0)	0	(0)	0	(1)	0	(1)
Harefield	4	(2)	21	(23)	1	(0)	37	(39)	12	(10)	75	(74)
Manchester	2	(2)	27	(24)	2	(0)	18	(19)	3	(5)	52	(50)
Newcastle	4	(2)	19	(13)	0	(0)	31	(34)	11	(8)	65	(57)
Papworth	21	(11)	30	(22)	2	(1)	33	(30)	4	(9)	90	(73)
TOTAL	**34[1]**	**(25[2])**	**127[3]**	**(118)**	**6**	**(1)**	**140**	**(140)**	**33**	**(39)**	**340**	**(323)**
Paediatric[4]												
Great Ormond Street	3	(2)	12	(14)	0	(0)	5	(5)	2	(1)	22	(22)
Newcastle	1	(2)	18	(19)	0	(0)	2	(1)	0	(0)	21	(22)
Papworth	0	(0)	0	(1)	0	(0)	0	(0)	0	(0)	0	(1)
TOTAL	**4**	**(4)**	**30**	**(34)**	**0**	**(0)**	**7**	**(6)**	**2**	**(1)**	**43**	**(45)**

[1] Includes 17 transplants from a donor after circulatory death (DCD); [2] Includes 1 transplant from a DCD
[3] Includes 2 transplants from a DCD; [4] Paediatric recipients are aged under 16 years at time of transplant

There were 127 adult urgent heart transplants in 2015-2016, representing 79% of all adult heart transplants (83% in 2014-2015). There were 30 paediatric urgent heart transplants in 2015-2016, representing 88% of all paediatric heart transplants (89% in 2014-2015). A small number of hearts and lungs were imported from outside the UK for transplantation in the UK: 2 hearts from the Republic of Ireland (ROI) and 3 from elsewhere, and 4 lungs from ROI. Further information is provided in **Appendix IV B**.

The length of time that elapses between cardiothoracic organs being removed from the donor to transplantation into the recipient is called the Cold Ischaemia Time (CIT). Generally, the shorter this time, the more likely the organ is to work immediately and the better the long-term outcome. In 2015-2016 the median CIT for a DBD heart transplant was 3.2 hours (Inter-Quartile (IQ) range 2.5-3.7). The median CIT for DBD donor lung transplant was 4.8 hours (IQ range 4.1-6.1) and for a DCD donor lung transplant was 5.9 hours (IQ range 5.0-6.8) and overall was 5.1 hours (IQ range 4.3-6.2). However, this analysis does not take account the use of donor organ maintenance systems for some transplants. These enable warm blood perfusion to continue ex-vivo during transplantation. For such transplants, the definition of ischaemia time used here (cross clamp to reperfusion) overestimates the true ischaemia time because the organ is not subject to ischaemia during transportation.

At 31 March 2016 there were approximately 3,800 recipients with a functioning cardiothoracic organ transplant being followed-up as reported to the UK Transplant Registry.

7.5 Demographic characteristics

The age group, sex, ethnicity and blood group of deceased donors, transplant recipients and patients on the transplant list is shown in **Table 7.11**.

Table 7.11 Demographic characteristics of deceased cardiothoracic donors and transplant recipients 1 April 2015 - 31 March 2016, and transplant list patients at 31 March in the UK

	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
Age group (years)						
0 - 17	25	(8)	45	(12)	47	(8)
18 - 34	95	(29)	72	(19)	95	(16)
35 - 49	104	(32)	68	(18)	116	(20)
50 - 59	80	(25)	116	(30)	191	(33)
60 - 69	20	(6)	80	(21)	124	(21)
70+	0	(0)	2	(1)	5	(1)
mean (SD)	40	(15)	44	(18)	46	(17)
Sex						
Male	179	(55)	247	(64)	356	(62)
Female	145	(45)	135	(35)	222	(38)
Ethnicity						
White	303	(94)	329	(87)	517	(90)
Asian	12	(4)	34	(9)	34	(6)
Black	3	(1)	11	(3)	19	(3)
Chinese	0	(0)	1	(0)	2	(0)
Other	6	(2)	5	(1)	5	(1)
Not reported			3		1	
Blood group						
O	179	(55)	171	(45)	291	(50)
A	115	(35)	156	(41)	215	(37)
B	24	(7)	42	(11)	59	(10)
AB	6	(2)	14	(4)	13	(2)
Graft number						
First graft			378	(99)	559	(97)
Re-graft			5	(1)	19	(3)
TOTAL	**324**	**(100)**	**383**	**(100)**	**578**	**(100)**

Liver Activity

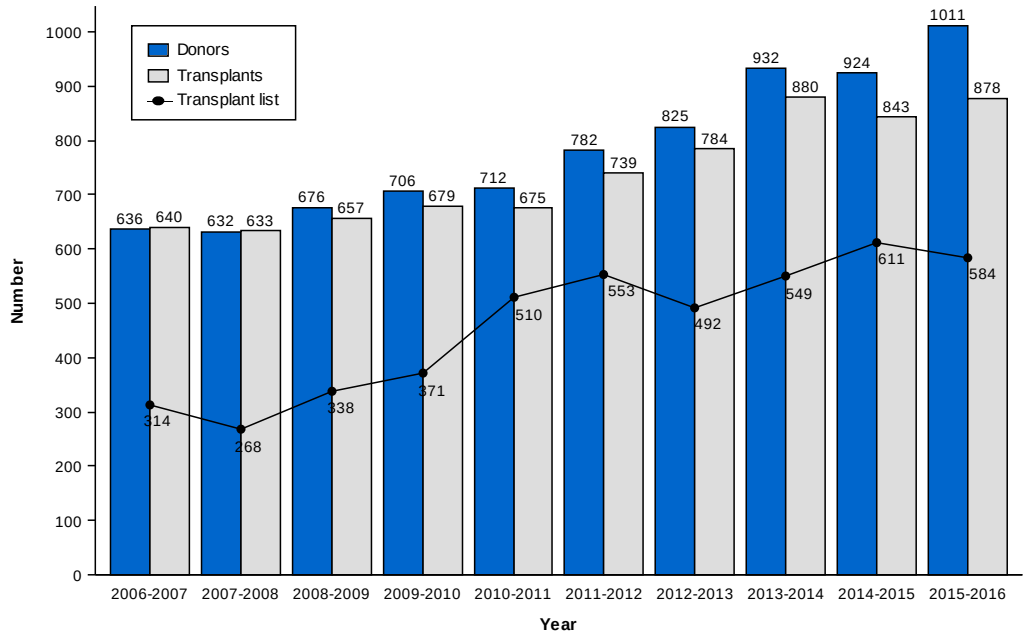
Key messages

- **The number of patients on the active liver transplant list at 31 March 2016 was 584, a fall of 4% from 2015**
- **The number of liver donors after brain death increased by 5% to 715, while transplants from donors after brain death increased by 1% to 672**
- **The number of liver donors after circulatory death increased by 23% to 296, while transplants from donors after circulatory death increased by 16% to 206**

8.1 Overview

The number of deceased liver donors and transplants in the UK in the last ten years is shown in **Figure 8.1**. Over this period, there has been a steady increase in the number of patients registered on the active transplant list at 31 March, despite a small fall in the last year, and a recent increase in the numbers of donors and transplants.

Figure 8.1 **Deceased donor liver programme in the UK, 1 April 2006 - 31 March 2016, Number of donors, transplants and patients on the active transplant list at 31 March**



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

The number of deceased donors, deceased and living donor transplants, and patients on the active transplant list, by centre, is shown in **Table 8.1**. The numbers of liver donors reflect the number of organs retrieved from within each zone (by any retrieval team) rather than the number of retrievals made by that centre. In 2015-2016, 1011 organ donors donated their liver for transplant: 715 donors after brain death and 296 donors after circulatory death. There were 584 patients on the active transplant list at 31 March 2016, a fall of 4% from 2015.

Overall, the number of liver transplants (whole liver or liver lobe transplants) from donors after brain death increased by 1% to 672, and transplants from donors after circulatory death increased by 16% to 206, compared with the previous financial year. Additionally, there were 36 living liver lobe donor transplants in NHS Group 1 (28) and Group 2 (8) paediatric and adult recipients, and 3 domino donor transplants in NHS Group 1 (3) adult recipients. 2 of the donors were altruistic non-directed donors.

Patients are prioritised as super-urgent if they require a new liver as soon as possible due to rapid failure of the native organ. Other patients are referred to as elective. There were 94 deceased donor adult super-urgent transplants in 2015-2016, representing 12% of all adult transplants. There were 13 deceased donor paediatric super-urgent transplants in 2015-2016, representing 17% of all paediatric transplants.

Table 8.1 Deceased and living liver donors and transplants, 1 April 2015 - 31 March 2016 (2014-2015) and transplant list patients at 31 March 2016 (2015) in the UK, by age group and centre

Allocation zone/ transplant centre	Deceased donors[1]						Deceased transplants						Living donor transplants		Active transplant list	
	DBD		DCD		TOTAL		DBD		DCD		TOTAL					
Adult																
Birmingham	144	(140)	64	(63)	208	(203)	141	(143)	58	(49)	199	(192)	6	(2)	115	(129)
Cambridge	58	(71)	43	(27)	101	(98)	56	(59)	34	(28)	90	(87)	0	(0)	59	(59)
Edinburgh	74	(93)	29	(20)	103	(113)	72	(82)	23	(15)	95	(97)	1	(0)	57	(47)
King's College	179	(166)	64	(52)	243	(218)	130	(147)	37	(39)	167	(186)	6	(9)	140	(147)
Leeds	111	(105)	55	(43)	166	(148)	79	(75)	24	(22)	103	(97)	5	(8)	84	(86)
Newcastle	40	(31)	11	(8)	51	(39)	38	(30)	7	(5)	45	(35)	0	(0)	23	(27)
Royal Free	84	(61)	18	(19)	102	(80)	84	(72)	18	(15)	102	(87)	2	(1)	57	(71)
TOTAL	**690**	**(667)**	**284**	**(232)**	**974**	**(899)**	**600**	**(608)**	**201**	**(173)**	**801**	**(781)**	**20[2]**	**(20)[3]**	**535**	**(566)**
Paediatric																
Birmingham	9	(8)	5	(1)	14	(9)	35	(23)	2	(0)	37	(23)	5	(4)	19	(21)
Cambridge	3	(3)	2	(0)	5	(3)	1	(0)	0	(0)	1	(0)	0	(0)	0	(0)
Edinburgh	5	(1)	0	(2)	5	(3)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
King's College	2	(3)	1	(3)	3	(6)	20	(29)	3	(4)	23	(33)	11	(8)	23	(18)
Leeds	4	(0)	4	(1)	8	(1)	16	(6)	0	(0)	16	(6)	3	(8)	7	(6)
Newcastle	2	(1)	0	(0)	2	(1)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Royal Free	0	(1)	0	(1)	0	(2)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	**25**	**(17)**	**12**	**(8)**	**37**	**(25)**	**72**	**(58)**	**5**	**(4)**	**77**	**(62)**	**19[4]**	**(20)[5]**	**49**	**(45)**

[1] Includes donors whose livers were retrieved by other teams
[2] Includes 11 and 5 living liver lobe transplants, 1 and 0 altruistic donor transplants, 3 and 0 domino transplants in NHS Group 1 and Group 2 recipients, respectively
[3] Includes 9 and 9 living liver lobe transplants, 2 and 0 domino transplants in NHS Group 1 and Group 2 recipients, respectively
[4] Includes 15 and 3 living liver lobe transplants, 1 and 0 altruistic donor transplants in NHS Group 1 and Group 2 recipients, respectively
[5] Includes 17 and 3 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

8.2 Transplant list

During 2015-2016, 1,161 patients joined the liver transplant list. Outcomes for patients on the list at 1 April 2015 and those joining the list during the year are shown in **Table 8.2**. There have been 137 (12%) new registrations that were super-urgent.

Table 8.2 Liver transplant list and new registrations in the UK, 1 April 2015 – 31 March 2016

Outcome of patient at 31 March 2016	Active and suspended patients at 1 April 2015		New registrations in 2015-2016[1]		**TOTAL**	
	N	%	N	%	**N**	**%**
Remained active/suspended	183	29	421	36	**604**	**34**
Transplanted	303	49	614	53	**917**	**51**
Removed	105	17	74	6	**179**	**10**
Died	30	5	52	4	**82**	**5**
TOTAL	**621**		**1161**		**1782**	

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

Table 8.3 shows the transplant list rate per million population in the UK, by country/Strategic Health Authority of patient's residence. At 31 March 2016, the overall rate was 9 pmp and ranged from 6.9 to 10 pmp across the Strategic Health Authorities.

Table 8.3 Active liver transplant list at 31 March, by country/ Strategic Health Authority of patient residence

Country/ Strategic Health Authority of residence	Liver transplant list (pmp) 2016		2015	
North East	18	(6.9)	20	(7.6)
North West	68	(9.5)	64	(9.0)
Yorkshire and The Humber	51	(9.5)	51	(9.5)
North of England	**137**	**(9.1)**	**135**	**(8.9)**
East Midlands	32	(6.9)	25	(5.4)
West Midlands	47	(8.2)	65	(11.4)
East of England	56	(9.3)	65	(10.8)
Midlands and East	**135**	**(8.2)**	**155**	**(9.5)**
London	**64**	**(7.5)**	**90**	**(10.5)**
South East Coast	46	(10.0)	46	(10.0)
South Central	33	(7.7)	21	(4.9)
South West	51	(9.4)	47	(8.7)
South of England	**130**	**(9.1)**	**114**	**(8.0)**
England	**466**	**(8.6)**	**494**	**(9.1)**
Isle of Man	**1**	**(12.5)**	**1**	**(12.5)**
Channel Islands	**1**	**(6.3)**	**1**	**(6.3)**
Wales	**21**	**(6.8)**	**22**	**(7.1)**
Scotland	**60**	**(11.2)**	**52**	**(9.7)**
Northern Ireland	**21**	**(11.4)**	**21**	**(11.4)**
TOTAL[1]	**584**	**(9.0)**	**611**	**(9.4)**

[1] Includes patients in 2016 (2015) resident in: Republic of Ireland - 4 (2); Overseas - 10 (18)

An indication of longer term outcomes for patients listed for a liver transplant is summarised in **Figure 8.2**. This shows the proportion of patients transplanted or still waiting six months, one year and two years after joining the transplant list. It also shows the proportion removed from the transplant list and those dying while on the transplant list (which includes those patients removed due to their condition deteriorating). At one year post-registration, 73% of patients had received a liver transplant while 9% of patients had died whilst waiting or had been removed due to their condition deteriorating. 4% had been removed for other reasons such as the patient's condition improving, as a result of non-compliance or at the request of the patient or family.

Figure 8.2 **Post-registration outcome for 1023 new elective liver only registrations made in the UK, 1 April 2013 - 31 March 2014**

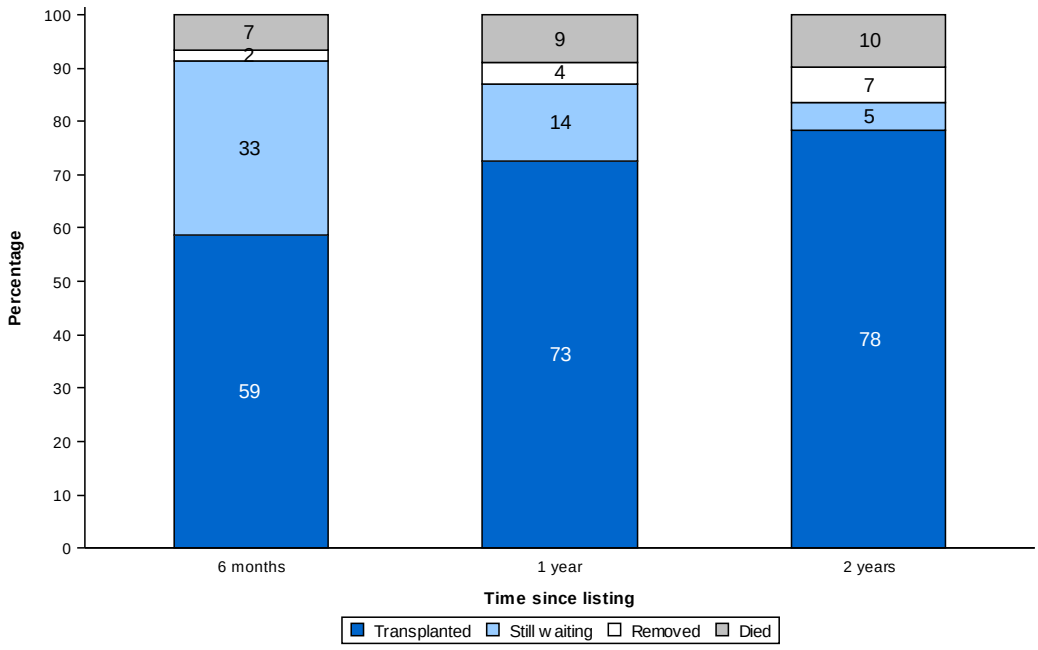


Table 8.4 and **Table 8.5** show the median waiting time to liver transplant for adult and paediatric elective registrations, separately, including a breakdown by blood group and ethnicity for adult elective registrations only. On average, adult patients wait 135 days for a transplant while paediatric patients wait an average of 82 days. Note that these waiting times are not adjusted for other relevant factors which may be influential and which may differ across blood or ethnic groups.

Table 8.4 **Median waiting time to liver transplant in the UK, for patients registered 1 April 2011 - 31 March 2014**

Blood group	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Adult			
O	1192	243	218 - 268
A	1005	84	75 - 93
B	299	129	97 - 161
AB	87	56	27 - 85
TOTAL	**2583**	**135**	**124 - 146**
Paediatric	**204**	**82**	**58 - 106**

Table 8.5 Median waiting time to liver transplant in the UK, for patients registered 1 April 2011 - 31 March 2014

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
White	2271	135	124 - 146
Asian	185	133	87 - 179
Black	68	182	49 - 315
Other	59	80	46 - 114
TOTAL	**2583**	**135**	**124 - 146**
Paediatric	**204**	**82**	**58 - 106**

8.3 Donor and organ supply

Of the 1,364 deceased organ donors, 1,011 (74%) donated their liver and 843 (83%) of these donated livers were used; see **Table 8.6**. Of livers retrieved from donors after brain death and donors after circulatory death, 89% and 70% were transplanted, respectively. One liver can be used in more than one transplant; see **Table 8.9**.

Table 8.6 Deceased liver donation and retrieval in the UK, 1 April 2015 - 31 March 2016, by allocation zone

Allocation zone	**Number of donors**						**Number of livers retrieved (used)**					
	Solid organ			Liver								
	DBD	DCD	**TOTAL**	DBD	DCD	**TOTAL**	DBD		DCD		**TOTAL**	
Birmingham	162	120	**282**	153	69	**222**	153	(139)	69	(51)	**222**	**(190)**
Cambridge	63	84	**147**	61	45	**106**	61	(57)	45	(28)	**106**	**(85)**
Edinburgh	88	65	**153**	79	29	**108**	79	(71)	29	(24)	**108**	**(95)**
King's College	206	128	**334**	181	65	**246**	181	(149)	65	(36)	**246**	**(185)**
Leeds	128	107	**235**	115	59	**174**	115	(108)	59	(47)	**174**	**(155)**
Newcastle	47	33	**80**	42	11	**53**	42	(39)	11	(6)	**53**	**(45)**
Royal Free	91	42	**133**	84	18	**102**	84	(74)	18	(14)	**102**	**(88)**
TOTAL	**785**	**579**	**1364**	**715**	**296**	**1011**	**715**	**(637)**	**296**	**(206)**	**1011**	**(843)**

The rates per million population (pmp) for liver donors are shown in **Table 8.7** by donor country/Strategic Health Authority of residence. No adjustments have been made for potential demographic differences in populations. The overall deceased liver donor rate was 15.6 pmp in 2015-2016 and varied across the Strategic Health Authorities from 11.4 pmp to 20.9 pmp.

Table 8.7 Liver donor rates in the UK, 1 April 2015 - 31 March 2016, by country/ Strategic Health Authority

Country/ Strategic Health Authority	Deceased donors (pmp)					
	DBD		DCD		**Total**	
North East	35	(13.4)	13	(5.0)	**48**	**(18.3)**
North West	71	(10.0)	37	(5.2)	**108**	**(15.1)**
Yorkshire and The Humber	57	(10.6)	20	(3.7)	**77**	**(14.4)**
North of England	**163**	**(10.8)**	**70**	**(4.6)**	**233**	**(15.4)**
East Midlands	42	(9.1)	27	(5.8)	**69**	**(14.9)**
West Midlands	57	(10.0)	19	(3.3)	**76**	**(13.3)**
East of England	60	(10.0)	40	(6.6)	**100**	**(16.6)**
Midlands and East	**159**	**(9.7)**	**86**	**(5.3)**	**245**	**(15.0)**
London	**76**	**(8.9)**	**21**	**(2.5)**	**97**	**(11.4)**
South East Coast	70	(15.3)	26	(5.7)	**96**	**(20.9)**
South Central	53	(12.4)	18	(4.2)	**71**	**(16.6)**
South West	76	(14.0)	27	(5.0)	**103**	**(19.0)**
South of England	**199**	**(13.9)**	**71**	**(5.0)**	**270**	**(18.9)**
England	**597**	**(11.0)**	**248**	**(4.6)**	**845**	**(15.6)**
Isle of Man	**1**	**(12.5)**	**1**	**(12.5)**	**2**	**(25.0)**
Channel Islands	**2**	**(12.5)**	**0**	**(0)**	**2**	**(12.5)**
Wales	**36**	**(11.7)**	**18**	**(5.8)**	**54**	**(17.5)**
Scotland	**52**	**(9.7)**	**25**	**(4.7)**	**77**	**(14.4)**
Northern Ireland	**27**	**(14.7)**	**4**	**(2.2)**	**31**	**(16.8)**
TOTAL[1]	**715**	**(11.0)**	**296**	**(4.6)**	**1011**	**(15.6)**

[1] Includes 12 donors where the hospital postcode was used in place of an unknown donor postcode

8.4 Transplants

The number of liver transplants by recipient country/Strategic Health Authority of residence are shown in **Table 8.8**. No adjustments have been made for potential demographic differences in populations. The deceased donor transplant rate ranged from 8.6 to 17.7 pmp across the Strategic Health Authorities and overall was 13.3 pmp.

Table 8.8 Liver transplant rates per million population (pmp) in the UK, 1 April 2015 - 31 March 2016, by country/ Strategic Health Authority

Country/ Strategic Health Authority	Deceased transplants (pmp)						Living transplants (pmp)	
	DBD		DCD		Total			
North East	34	(13.0)	5	(1.9)	**39**	**(14.9)**	1	(0.4)
North West	68	(9.5)	26	(3.6)	**94**	**(13.2)**	5	(0.7)
Yorkshire and The Humber	51	(9.5)	12	(2.2)	**63**	**(11.8)**	4	(0.7)
North of England	**153**	**(10.1)**	**43**	**(2.8)**	**196**	**(13.0)**	**10**	**(0.7)**
East Midlands	38	(8.2)	10	(2.2)	**48**	**(10.3)**	1	(0.2)
West Midlands	71	(12.4)	30	(5.3)	**101**	**(17.7)**	5	(0.9)
East of England	56	(9.3)	30	(5.0)	**86**	**(14.3)**	3	(0.5)
Midlands and East	**165**	**(10.1)**	**70**	**(4.3)**	**235**	**(14.4)**	**9**	**(0.5)**
London	**93**	**(10.9)**	**25**	**(2.9)**	**118**	**(13.8)**	**5**	**(0.6)**
South East Coast	34	(7.4)	9	(2.0)	**43**	**(9.4)**	2	(0.4)
South Central	30	(7.0)	7	(1.6)	**37**	**(8.6)**	0	(0.0)
South West	44	(8.1)	9	(1.7)	**53**	**(9.8)**	0	(0.0)
South of England	**108**	**(7.6)**	**25**	**(1.7)**	**133**	**(9.3)**	**2**	**(0.1)**
England	**519**	**(9.6)**	**163**	**(3.0)**	**682**	**(12.6)**	**26**	**(0.5)**
Isle of Man	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**	**0**	**(0.0)**
Channel Islands	**2**	**(12.5)**	**1**	**(6.3)**	**3**	**(18.8)**	**0**	**(0.0)**
Wales	**36**	**(11.7)**	**8**	**(2.6)**	**44**	**(14.2)**	**0**	**(0.0)**
Scotland	**79**	**(14.8)**	**23**	**(4.3)**	**102**	**(19.1)**	**3**	**(0.6)**
Northern Ireland	**24**	**(13.0)**	**9**	**(4.9)**	**33**	**(17.9)**	**1**	**(0.5)**
TOTAL[1]	**660**	**(10.2)**	**204**	**(3.1)**	**864**	**(13.3)**	**30[2]**	**(0.5)**

[1] Excludes 23 recipients who reside outside the UK (12 DBD, 2 DCD, 9 Living)
[2] Includes 3 domino donor transplants

The number of whole, reduced and split liver transplants by urgency status of the transplant (elective, super-urgent) in 2015-2016 is shown in **Table 8.9**. The term 'reduced' is used when only one lobe of the liver is transplanted and the term 'split' applies when both lobes of the liver are transplanted into two different recipients.

Overall, the number of deceased donor liver transplants dropped by 4% in 2015-2016. There were 878 deceased donor liver transplants performed in 2015-2016: 777 whole liver, including 19 liver and kidney, and 1 liver and heart; and 101 deceased donor liver lobe, including 6 liver and kidney. Split liver transplants accounted for 85% of liver lobe transplant activity.

Table 8.9 Deceased liver transplants performed in the UK, 1 April 2014 - 31 March 2016

Transplant centre	2014 - 2015								2015 - 2016							
	Whole liver		Reduced liver		Split liver		TOTAL		Whole liver		Reduced liver		Split liver		TOTAL	
	E	SU	E	SU	E	SU	E	SU	E	SU	E	SU	E	SU	E	SU
Birmingham	164	23	1	1	25	1	**190**	**25**	173	21	4	0	34	4	**211**	**25**
Cambridge	72	9	0	0	5	1	**77**	**10**	75	11	1	0	4	0	**80**	**11**
Edinburgh	85	8	0	0	4	0	**89**	**8**	83	10	0	0	2	0	**85**	**10**
King's College	154	24	1	7	27	6	**182**	**37**	148	14	2	3	21	2	**171**	**19**
Leeds	88	10	0	0	5	0	**93**	**10**	87	13	3	1	11	4	**101**	**18**
Newcastle	28	5	0	0	2	0	**30**	**5**	36	8	0	0	1	0	**37**	**8**
Royal Free	70	13	0	0	4	0	**74**	**13**	84	14	0	1	2	1	**86**	**16**
TOTAL	**661**	**92**	**2**	**8**	**72**	**8**	**735**	**108**	**686**	**91**	**10**	**5**	**75**	**11**	**771**	**107**

E=Elective, SU=Super-urgent
Birmingham, King's College and Leeds transplant paediatric patients
Super-urgent registration categories were changed on 17 June 2015 to account for development in treatment of patients with acute liver failure

The length of time that elapses between a liver being removed from the donor to its transplantation into the recipient is called the Cold Ischaemia Time (CIT). Generally, the shorter this time, the more likely the liver is to work immediately and the better the long-term outcome. In 2015-2016, the median CIT for a DBD donor whole liver only transplant was 9.0 hours (Inter-Quartile (IQ) range 7.0 – 12.0) and for a DCD donor whole liver only transplant was 7.9 hours (IQ range 6.1 – 10.2) and overall is 8.5 hours (IQ range 6.7 – 11.7).

At 31 March 2016 there were approximately 9,200 recipients with a functioning liver transplant (or multi-organ including the liver) being followed-up as reported to the UK Transplant Registry.

8.5 Demographic characteristics

The age group, sex, ethnicity and blood group of liver donors, transplant recipients and transplant list patients is shown in **Table 8.10**.

Table 8.10 Demographic characteristics of deceased liver donors and transplant recipients 1 April 2015 - 31 March 2016, and transplant list patients at 31 March in the UK

Age group (years)	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
0 - 17	46	(5)	78	(9)	50	(9)
18 - 34	156	(15)	90	(10)	76	(13)
35 - 49	240	(24)	180	(21)	118	(20)
50 - 59	242	(24)	293	(33)	171	(29)
60 - 69	213	(21)	220	(25)	159	(27)
70+	114	(11)	17	(2)	10	(2)
mean (SD)	50	(17)	48	(18)	47	(18)
Male	545	(54)	535	(61)	337	(58)
Female	466	(46)	343	(39)	247	(42)
White	958	(95)	753	(86)	505	(86)
Asian	22	(2)	83	(9)	50	(9)
Black	15	(1)	22	(3)	18	(3)
Chinese	3	(0)	8	(1)	1	(0)
Other	12	(1)	12	(1)	10	(2)
Not reported	1					
O	473	(47)	355	(40)	375	(64)
A	420	(42)	393	(45)	126	(22)
B	95	(9)	98	(11)	80	(14)
AB	23	(2)	32	(4)	3	(1)
First graft			790	(90)	531	(91)
Re-graft			88	(10)	53	(9)
TOTAL	**1011**	**(100)**	**878**	**(100)**	**584**	**(100)**

Intestinal Activity

Key messages

- **The number of patients on the active intestinal transplant list at 31 March 2016 was 6**
- **15 patients were registered for an intestinal transplant in 2015-2016 (11 adult and 5 paediatric patients).**
- **15 intestinal transplants were carried out in 2015-2016 (24 in the previous period)**
- **On average, patients wait around 2 months for a transplant**

9.1 Overview

During 2015-2016, there were 16 registrations for an intestinal transplant. As at 31 March 2016, 5 (31%) registrations remained active/suspended, 9 (56%) resulted in a transplant, 1 (6%) and 1 (6%) resulted in a death on, and removal from, the transplant list, respectively.

Over the last two years (between 1 April 2014 and 31 March 2016), the number of intestinal transplants has fallen, with 15 transplants carried out in 2015-2016 compared to 24 in 2014-2015.

A national Intestinal Allocation Scheme was introduced in July 2013. Patients are prioritised according to a points system based on a range of clinical factors including donor-recipient age matching, loss of intravenous line access, liver failure, diagnosis of malignancy, in-hospital status, additional organs required, sensitisation and waiting time. A score is calculated for every potentially suitable patient on the national active transplant list and the intestine is allocated preferentially to the patient with the most points. This differs from the previous system in which donor intestines were allocated to patients purely on waiting time.

9.2 Transplant list

In 2015-2016, there were 16 registrations for an intestinal transplant. The outcome of these registrations for paediatric (aged <18 years) and adult patients, as at 31 March 2016, broken down by transplant centre can be found in **Table 9.1**.

Table 9.1 Outcome of intestinal registrations in the UK, 1 April 2015 and 31 March 2016

Transplant centre	Outcome of registrations as at 31 March 2016								TOTAL
	Transplanted		Died		Removed		Active/Susp		
	N	%	N	%	N	%	N	%	
Adult									
Birmingham	0	0	1	100	0	0	0	0	1
Cambridge	8	89	0	0	0	0	1	11	9
Oxford	1	100	0	0	0	0	0	0	1
TOTAL	**9**	**82**	**1**	**9**	**0**	**0**	**1**	**9**	**11**
Paediatric									
Birmingham	0	0	0	0	0	0	2	100	2
King's College	0	0	0	0	1	33	2	67	3
TOTAL	**0**	**0**	**0**	**0**	**1**	**20**	**4**	**80**	**5**

Table 9.2 shows the intestinal transplant list rate in the UK by country/Strategic Health Authority of patient's residence. At 31 March 2016, the overall transplant list rate was 0.1 pmp and ranged from 0 to 0.2 pmp across the Strategic Health Authorities, although these numbers are very small so differences are not meaningful.

Table 9.2 Active intestinal transplant list at 31 March, by country/ Strategic Health Authority of patient residence

Country/ Strategic Health Authority of residence	Intestinal transplant list (pmp) 2016		2015	
North East	0	(0.0)	0	(0.0)
North West	0	(0.0)	1	(0.1)
Yorkshire and The Humber	0	(0.0)	0	(0.0)
North of England	**0**	**(0.0)**	**1**	**(0.1)**
East Midlands	1	(0.2)	2	(0.4)
West Midlands	1	(0.2)	0	(0.0)
East of England	1	(0.2)	3	(0.5)
Midlands and East	**3**	**(0.2)**	**5**	**(0.3)**
London	**1**	**(0.1)**	**0**	**(0.0)**
South East Coast	0	(0.0)	1	(0.2)
South Central	1	(0.2)	0	(0.0)
South West	1	(0.2)	1	(0.2)
South of England	**2**	**(0.1)**	**2**	**(0.1)**
England	**6**	**(0.1)**	**8**	**(0.1)**
Isle of Man	**0**	**(0.0)**	**0**	**(0.0)**
Channel Islands	**0**	**(0.0)**	**0**	**(0.0)**
Wales	**0**	**(0.0)**	**0**	**(0.0)**
Scotland	**0**	**(0.0)**	**0**	**(0.0)**
Northern Ireland	**0**	**(0.0)**	**0**	**(0.0)**
TOTAL[1]	**6**	**(0.1)**	**9**	**(0.1)**

[1] Includes patients in 2016 (2015) resident Overseas 0 (1)

Table 9.3 shows median waiting time to elective intestinal transplant by registration type. On average, patients wait 68 days for a transplant.

Table 9.3 Median waiting time to intestinal transplant in the UK, for patients registered 1 April 2012 - 31 March 2015

Registration type	Number of patients registered	Waiting time (days) Median	95% Confidence interval
Bowel only[1]	17	34	8 – 60
Liver, bowel and pancreas[1]	37	134	11 – 257
Bowel and pancreas[1]	14	68	63 – 73
TOTAL	**68**	**68**	**38 – 98**

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

9.3 Donor and Organ Supply

The rates per million population (pmp) for intestinal donors are shown in **Table 9.4** by donor country/Strategic Health Authority of residence. The overall DBD intestinal donor rate was 0.2 pmp and ranged from 0 to 0.7 pmp across the Strategic Health Authorities. Of the 785 DBD solid organ donors, 16 (2%) donated their small bowel.

Table 9.4 Intestinal donation rates for deceased donors after brain death in the UK, 1 April 2015 - 31 March 2016, by country/Strategic Health Authority

Country/ Strategic Health Authority of residence	Solid organ donors (pmp)		Intestinal donors (pmp)		% of solid organ donors	Organs used
North East	40	(15.3)	0	(0.0)	-	-
North West	80	(11.2)	0	(0.0)	-	-
Yorkshire and The Humber	61	(11.4)	2	(0.4)	3.3	2
North of England	**181**	**(12.0)**	**2**	**(0.1)**	**1.1**	**2**
East Midlands	46	(9.9)	1	(0.2)	2.2	1
West Midlands	62	(10.9)	0	(0.0)	-	-
East of England	65	(10.8)	4	(0.7)	6.2	3
Midlands and East	**173**	**(10.6)**	**5**	**(0.3)**	**2.9**	**4**
London	**85**	**(10.0)**	**2**	**(0.2)**	**2.4**	**2**
South East Coast	81	(17.6)	0	(0.0)	-	-
South Central	60	(14.0)	1	(0.2)	1.7	1
South West	78	(14.4)	1	(0.2)	1.3	1
South of England	**219**	**(15.3)**	**2**	**(0.1)**	**0.9**	**2**
England	**658**	**(12.1)**	**11**	**(0.2)**	**1.7**	**10**
Isle of Man	**1**	**(12.5)**	**0**	**(0.0)**	**-**	**-**
Channel Islands	**2**	**(12.5)**	**0**	**(0.0)**	**-**	**-**
Wales	**37**	**(12.0)**	**0**	**(0.0)**	**-**	**-**
Scotland	**58**	**(10.8)**	**4**	**(0.7)**	**6.9**	**4**
Northern Ireland	**29**	**(15.8)**	**1**	**(0.5)**	**3.4**	**1**
TOTAL[1]	**785**	**(12.1)**	**16**	**(0.2)**	**2.0**	**15**

[1] Includes 11 donors where the hospital postcode was used in place of an unknown donor postcode

9.4 Transplants

Table 9.5 shows intestinal transplant activity by transplant centre and transplant type for financial years 2014-2015 and 2015-2016. In 2015-2016, there were a total of 15 transplants, 12 adult and 3 paediatric transplants.

At 31 March 2016 there were approximately 100 recipients with a functioning intestinal transplant (or multi-organ including intestine) being followed-up as reported to the UK Transplant Registry.

Table 9.5 Intestinal transplants in the UK, by age group, centre and type, 1 April 2015 - 31 March 2016 (2014-2015)

Transplant centre	Transplant type									
	BO		LBP		MV		MMV		**TOTAL**	
Adult										
Cambridge	0	(0)	0	(0)	6	(8)	3	(3)	9	(11)
Oxford	0	(3)	0	(0)	0	(0)	3	(1)	3	(4)
TOTAL	**0**	**(3)**	**0**	**(0)**	**6**	**(8)**	**6**	**(4)**	**12**	**(15)**
Paediatric										
Birmingham	1	(2)	1	(2)	0	(0)	0	(0)	2	(4)
King's College	0	(1)	0	(1)	1	(3)	0	(0)	1	(5)
TOTAL	**1**	**(3)**	**1**	**(3)**	**1**	**(3)**	**0**	**(0)**	**3**	**(9)**

BO = Bowel only (may also include stomach/spleen/abdominal wall/kidney/colon)
LBP = Liver, bowel and pancreas
MV = Multivisceral – liver, bowel and pancreas plus stomach/spleen/abdominal wall/kidney/colon
MMV = Modified multivisceral – bowel and pancreas plus stomach/spleen/abdominal wall/kidney/colon

9.5 Demographic Characteristics

The age group, sex, ethnicity and blood group of intestinal donors, transplant recipients and transplant list patients is shown in **Table 9.6**.

Table 9.6 Demographic characteristics of deceased intestinal donors and transplant recipients 1 April 2015 - 31 March 2016, and transplant list patients at 31 March in the UK

Age group (years)	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
0 - 17	5	(31)	3	(20)	4	(67)
18 - 34	9	(56)	4	(27)	2	(33)
35 - 49	1	(6)	3	(20)	0	(0)
50 - 59	1	(6)	3	(20)	0	(0)
60 - 69	0	(0)	2	(13)	0	(0)
70+	0	(0)	0	(0)	0	(0)
mean (SD)	23	(14)	35	(21)	12	(13)
Male	9	(56)	6	(40)	4	(67)
Female	7	(44)	9	(60)	2	(33)
White	15	(94)	13	(87)	6	(100)
Asian	1	(6)	1	(7)	0	(0)
Other	0	(0)	1	(7)	0	(0)
O	11	(69)	6	(40)	3	(50)
A	5	(31)	7	(47)	2	(33)
B	0	(0)	1	(7)	1	(17)
AB	0	(0)	1	(7)	0	(0)
First graft			14	(93)	4	(67)
Re-graft			1	(7)	2	(33)
TOTAL	**16**	**(100)**	**15**	**(100)**	**6**	**(100)**

Cornea Activity

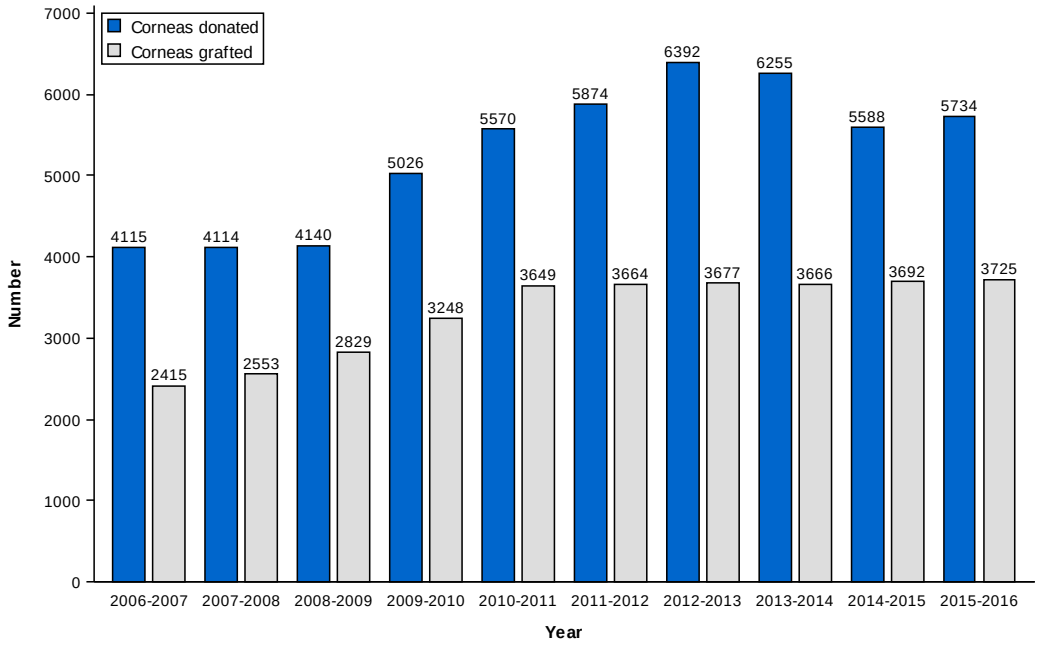
Key messages

- **5,251 corneas were supplied to the Corneal Transplant Service (CTS) Eye Banks**
- **The number of transplants remained stable at 3,779**
- **Corneas were retrieved from 25% of solid organ donors after brain death and 30% of solid organ donors after circulatory death**
- **17% of cornea only donors were 80 years of age or over**

10.1 Overview

The number of corneas donated in 2015-2016 was 5,734, representing an increase of 3% on last year, as shown in **Figure 10.1**. The number of corneas transplanted increased by 1% in 2015-2016. Additionally, 118 sclera were issued and used. **It should be noted that not all cornea donors and transplants in the UK are reported to the UK Transplant Registry and thus the data reported are not the full national data.**

Figure 10.1 Cornea programme in the UK, 1 April 2006 - 31 March 2016, Number of corneas donated and corneas grafted



In 2015-2016 there were 3,045 corneal donors, of whom 2,675 donated corneas only and 370 donated corneas and solid organs: see **Table 10.1**. Compared to 2014-2015, the number of cornea only donors increased by 9%, and the number of cornea and solid organ donors decreased by 8%. In 2014-2015, corneas were retrieved from 31% of organ donors after brain death, this fell to 25% in 2015-2016. Of the 579 organ donors after circulatory death in 2015-2016, 172 (30%) also donated corneas, lower than the rate in 2014-2015 (31%).

Table 10.1 also shows the number and rate per million population (pmp) of donors in 2015-2016 by country and English Strategic Health Authority (SHA), with figures for 2014-2015 in parentheses. No adjustments have been made for potential demographic differences in populations. England had the highest cornea donor rate of countries in the UK in 2015-2016 (47.6 pmp). In 2015-2016, the cornea donor rate increased in England and Wales but fell in Scotland and Northern Ireland. Across the SHAs the cornea donor rate ranged from 6.8 pmp to 92.3 pmp, reflecting locations of the Eye Retrieval Scheme Trusts.

Table 10.1 Cornea donation rates per million population, pmp, in the UK, 1 April 2015 - 31 March 2016 (2014 - 2015), by country/ Strategic Health Authority

Country of residence/ Strategic Health Authority	Cornea only		Solid organ and cornea		**TOTAL**		**TOTAL pmp**	
North East	171	(185)	19	(20)	190	(205)	72.5	(78.2)
North West	614	(643)	44	(28)	658	(671)	92.3	(94.1)
Yorkshire and The Humber	71	(60)	24	(35)	95	(95)	17.7	(17.7)
North of England	**856**	**(888)**	**87**	**(83)**	**943**	**(971)**	**62.4**	**(64.3)**
East Midlands	164	(188)	16	(23)	180	(211)	38.8	(45.5)
West Midlands	83	(67)	21	(19)	104	(86)	18.2	(15.1)
East of England	170	(201)	32	(50)	202	(251)	33.6	(41.7)
Midlands and East	**417**	**(456)**	**69**	**(92)**	**486**	**(548)**	**29.7**	**(33.5)**
London	**342**	**(191)**	**50**	**(66)**	**392**	**(257)**	**45.9**	**(30.1)**
South East Coast	22	(67)	9	(35)	31	(102)	6.8	(22.2)
South Central	244	(188)	26	(27)	270	(215)	62.9	(50.1)
South West	427	(400)	38	(49)	465	(449)	85.8	(82.8)
South of England	**693**	**(655)**	**73**	**(111)**	**766**	**(766)**	**53.6**	**(53.6)**
England	**2308**	**(2190)**	**279**	**(352)**	**2587**	**(2542)**	**47.6**	**(46.8)**
Isle of Man	**0**	**(0)**	**0**	**(0)**	**0**	**(0)**	**0**	**(0.0)**
Channel Islands	**0**	**(0)**	**0**	**(0)**	**0**	**(0)**	**0**	**(0.0)**
Wales	**89**	**(67)**	**18**	**(14)**	**107**	**(81)**	**34.6**	**(26.2)**
Scotland	**118**	**(123)**	**24**	**(24)**	**142**	**(147)**	**26.5**	**(27.5)**
Northern Ireland	**36**	**(46)**	**8**	**(11)**	**44**	**(57)**	**23.9**	**(31.0)**
TOTAL[1]	**2675**	**(2463)**	**370[2]**	**(401)**	**3045[2]**	**(2864)**	**46.3**	**(47.0)**

[1] Includes UK recipients where the postcode was unspecified and non-UK recipients
[2] Includes 40 cases not reported to UK Transplant Registry

10.2 Donor and corneal tissue supply

In 2015-2016, 91.6% (89.9% in 2014-2015) of retrieved corneas reported to the UK Transplant Registry were supplied to the Corneal Transplant Service (CTS) Eye Banks in Bristol and Manchester. **Table 10.2** shows the number of corneas supplied to, and taken from, the CTS Eye Banks for those centres that supplied more than 25 corneas in 2015-2016. The difference between the number supplied and number taken is also shown, together with the number of corneas that were deemed suitable for a penetrating keratoplasty (PK). Corneas that are not suitable for PK may be suitable for other types of corneal transplant. Centres with a negative balance have taken more corneas than they supplied to the CTS Eye Banks.

Of the 5,251 corneas supplied to the CTS Eye Banks, 3,711 (71%) were suitable for a PK. This was an increase compared with 2014-2015, when 69% of corneas supplied to the CTS Eye Banks were suitable for a PK.

Table 10.2 Corneas supplied to and taken from the CTS Eye Banks, 1 April 2015 - 31 March 2016

Centre	Corneas supplied	Suitable for PK (%)		Corneas taken	Balance
ERS Royal Devon	394	261	(66)	49	345
ERS Preston	339	249	(73)	4	335
ERS Merseyside	332	223	(67)	115	217
ERS Southampton	327	231	(71)	95	232
ERS Newcastle	310	225	(73)	106	204
ERS Norfolk	300	218	(73)	45	255
ERS Nottingham	276	179	(65)	124	152
ERS Glasgow	215	159	(74)	159	56
Leeds Alliance	174	135	(78)	0	174
ERS Bereavement Alliance Supercentre	160	131	(82)	20	140
ERS Bristol Supercentre	157	108	(69)	127	30
Belfast, Royal Victoria Hospital	60	50	(83)	57	3
Portsmouth, Queen Alexandra Hospital	60	35	(58)	33	27
Barnstaple, North Devon District Hospital	58	41	(71)	0	58
Lancaster, Royal Lancaster Hospital	56	37	(66)	0	56
ERS Leeds Supercentre	50	33	(66)	74	-24
Cardiff, University of Wales Hospital	44	24	(55)	7	37
Taunton, Taunton & Somerset Hospital	32	24	(75)	0	32
Blackburn, Royal Infirmary	32	23	(72)	0	32
Middlesbrough, James Cook University Hospital	30	18	(60)	10	20
Oxford, John Radcliffe Hospital	30	23	(77)	32	-2
Northampton, General Hospital	27	18	(67)	11	16
Reading, Royal Berkshire Hospital	26	21	(81)	43	-17
Plymouth, Royal Eye Infirmary	26	18	(69)	51	-25
Eye retrieval scheme centres	**2860**	**2017**	**(71)**	**918**	**1942**
Centres supplying more than 25 corneas	**655**	**467**	**(71)**	**244**	**411**
All other centres	**1736**	**1227**	**(71)**	**2194**	**-458**
TOTAL	**5251**	**3711**	**(71)**	**3356**	**1895**

PK - Penetrating keratoplasty

10.3 CTS Eye Bank activity

The activity levels for the Bristol and Manchester Eye Banks are shown in **Table 10.3**. The numbers of corneas received by the CTS Eye Banks increased in 2015-2016 by 5%, and the number of corneas issued increased by 6%. In 2015-2016, 5,251 corneas were received into the CTS Eye Banks, of which 3,708 (71%) were subsequently issued for grafting. The remaining corneas were unsuitable for transplantation.

Table 10.3 Corneas received into the Bristol and Manchester Eye Banks, 1 April 2015 - 31 March 2016 (2014-2015), by year

	Total received		Number issued[1]		% issued		Difference between number received and issued	
Bristol	2308	(2335)	1583	(1568)	69	(67)	725	(767)
Manchester	2943	(2682)	2125	(1917)	72	(71)	818	(765)
Total	**5251**	**(5017)**	**3708**	**(3485)**	**71**	**(69)**	**1543**	**(1532)**

[1] Number issued of those received in each year

The outcome of corneas received into the CTS Eye Banks is given in **Table 10.4**. Of the corneas supplied to the Eye Banks in 2015-2016, 64% were issued and used and 6% were issued but not used. Of the corneas supplied to the Eye Banks, 12% were unsuitable because of medication contraindications, 13% were unsuitable due to tissue quality and 3% 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 when permission had been given by the relatives.

Table 10.4 Outcome of corneas received into the Bristol and Manchester Eye Banks, 1 April 2015 - 31 March 2016 (2014 - 2015), by year

Outcome of cornea	Bristol				Manchester				TOTAL			
	N		%		N		%		N		%	
Used												
Suitable for PK/EK [1]	1458	(1405)	63	(60)	1917	(1781)	65	(66)	3375	(3186)	64	(63)
Unsuitable for PK/EK [1]	5	(28)	<1	(1)	4	(6)	<1	(<1)	9	(34)	<1	(1)
Other/ not reported	1	(1)	<1	(<1)	1	(0)	<1	(0)	2	(1)	<1	(<1)
Total used	**1464**	**(1434)**	**63**	**(61)**	**1922**	**(1787)**	**65**	**(67)**	**3386**	**(3221)**	**64**	**(64)**
Not used												
Issued, not used	119	(134)	5	(6)	203	(130)	7	(5)	322	(264)	6	(5)
Unsuitable - tissue quality	331	(388)	14	(17)	330	(420)	11	(16)	661	(808)	13	(16)
Medical reason - virology	115	(58)	5	(2)	100	(52)	3	(2)	215	(110)	4	(2)
Medical reason - other	153	(195)	7	(8)	249	(199)	8	(7)	402	(394)	8	(8)
Contaminated	79	(75)	3	(3)	78	(77)	3	(3)	157	(152)	3	(3)
Outdated	25	(36)	1	(2)	9	(1)	<1	(<1)	34	(37)	1	(1)
Other/not reported	22	(15)	1	(1)	52	(16)	2	(1)	74	(31)	1	(1)
Total not used	**844**	**(901)**			**1021**	**(895)**			**1865**	**(1796)**		
TOTAL	**2308**	**(2335)**	**100**	**(100)**	**2943**	**(2682)**	**100**	**(100)**	**5251**	**(5017)**	**100**	**(100)**

[1] PK=penetrating keratoplasty, EK=endothelial keratoplasty. In addition to PK and EK, these corneas would also have been allocated for DALK. Corneas unsuitable for PK/EK would have been allocated for anterior lamellar procedures other than DALK.

10.4 Transplants

Corneal transplant activity by country of residence and Strategic Health Authority in England for the years 2014-2015 and 2015-2016 is detailed in **Table 10.5** for corneas supplied through the CTS Eye Banks and others that have been reported to the UK Transplant Registry from Moorfields and East Grinstead Eye Banks. No adjustments have been made for potential demographic differences in populations. The overall transplant rate was 57.9 pmp in 2014-2015; this increased slightly to 58.3 pmp in 2015-2016. The transplant rates increased in all countries. England had the second highest transplant rate in the UK: 60.6 pmp, this ranged from 48.5 pmp to 68.1 pmp across the SHAs.

Table 10.5 Cornea transplants performed per million population (pmp) in the UK, 1 April 2014 - 31 March 2016, by country/ Strategic Health Authority

Country of residence/ Strategic Health Authority	Number of transplants (pmp)			
	2014-2015		2015-2016	
North East	130	(49.6)	127	(48.5)
North West	428	(60.0)	480	(67.3)
Yorkshire and The Humber	375	(70.0)	348	(64.9)
North of England	**933**	**(61.7)**	**955**	**(63.2)**
East Midlands	265	(57.1)	281	(60.6)
West Midlands	376	(65.8)	295	(51.7)
East of England	362	(60.1)	392	(65.1)
Midlands and East	**1003**	**(61.3)**	**968**	**(59.1)**
London	**534**	**(62.5)**	**481**	**(56.3)**
South East Coast	275	(59.9)	254	(55.3)
South Central	246	(57.3)	264	(61.5)
South West	287	(53.0)	369	(68.1)
South of England	**808**	**(56.5)**	**887**	**(62.0)**
England	**3278**	**(60.3)**	**3291**	**(60.6)**
Isle of Man	**7**	**(87.5)**	**5**	**(62.5)**
Channel Islands	**3**	**(18.8)**	**3**	**(18.8)**
Wales	**130**	**(42.1)**	**136**	**(44.0)**
Scotland	**251**	**(46.9)**	**255**	**(47.7)**
Northern Ireland	**63**	**(34.2)**	**64**	**(34.8)**
TOTAL[1]	**3753**	**(57.9)**	**3779**	**(58.3)**

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

10.5 Demographic characteristics

The age group, sex and ethnicity of cornea donors and transplant recipients are shown in **Table 10.6**.

Table 10.6 Demographic characteristics of deceased cornea donors and transplant recipients 1 April 2015 - 31 March 2016, in the UK

	Cornea only donors		Solid organ and cornea donors		Transplant recipients	
	N	(%)	N	(%)	N	(%)
Age group (years)						
0 - 17	9	(0)	6	(2)	54	(1)
18 - 34	44	(2)	27	(8)	505	(13)
35 - 49	161	(6)	61	(18)	438	(12)
50 - 59	367	(14)	81	(25)	362	(10)
60 - 69	727	(27)	96	(29)	642	(17)
70-79	919	(34)	58	(18)	993	(26)
80+	447	(17)	1	(0)	785	(21)
Not reported	1					
mean (SD)	68	(13)	56	(15)	62	(20)
Sex						
Male	1616	(61)	170	(52)	1951	(52)
Female	1042	(39)	160	(48)	1828	(48)
Not reported	17					
Ethnicity						
White	205	(99)	294	(97)	3077	(86)
Asian	2	(1)	4	(1)	346	(10)
Black	0	(0)	0	(0)	121	(3)
Chinese	0	(0)	1	(0)	7	(0)
Other	0	(0)	4	(1)	15	(0)
Not reported	2468		27		213	
TOTAL	**2675**	**(100)**	**330**	**(100)**	**3779**	**(100)**

Survival Rates Following Transplantation

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

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

11.1 Kidney graft and patient survival

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

Figure 11.1 shows long-term graft survival in adult (≥18 years) recipients for first kidney only transplant from donors after brain death. **Table 11.1** shows the graft survival estimates and confidence intervals for one, two, five and ten years post-transplant. There have been significant improvements in one, two and five year survival over the time periods shown, p<0.01 in each case. **Table 11.2** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant changes in patient survival over time (p>0.08).

Figure 11.1 Long-term graft survival after first adult kidney only transplant from donors after brain death, 1 January 2002 – 31 December 2014

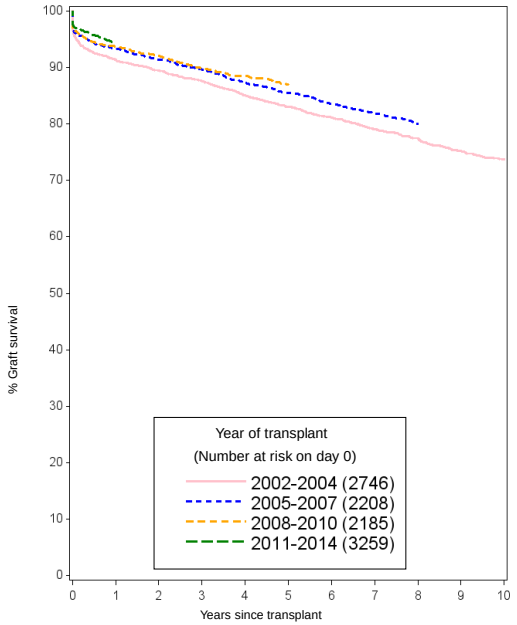


Table 11.1 Graft survival after first adult kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	2746	91	(90-92)	89	(88-91)	83	(82-84)	74	(72-75)
2005-2007	2208	93	(92-94)	91	(90-93)	85	(84-87)		
2008-2010	2185	94	(93-95)	92	(91-93)	87	(85-88)		
2011-2014	3259	94	(93-95)						

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

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	2748	96	(95-96)	94	(93-95)	88	(87-89)	75	(74-77)
2005-2007	2210	97	(96-98)	95	(94-96)	89	(88-91)		
2008-2010	2185	96	(95-97)	95	(94-95)	90	(88-91)		
2011-2014	3261	96	(96-97)						

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

Long-term graft survival in adult recipients for kidney transplants from donors after circulatory death is shown in **Figure 11.2**. **Table 11.3** shows the graft survival estimates and confidence intervals for one, two, five and ten years post-transplant. There has been significant variation in one year survival over the time periods shown, p=0.003. One year graft and patient survival are comparable for DBD and DCD donor transplants in the most recent time periods. **Table 11.4** shows the patient survival estimates and confidence intervals for each time period analysed. There were no statistically significant changes in patient survival over time (p>0.4).

Figure 11.2 Long-term graft survival after first adult kidney only transplant from donors after circulatory death, 1 January 2002 – 31 December 2014

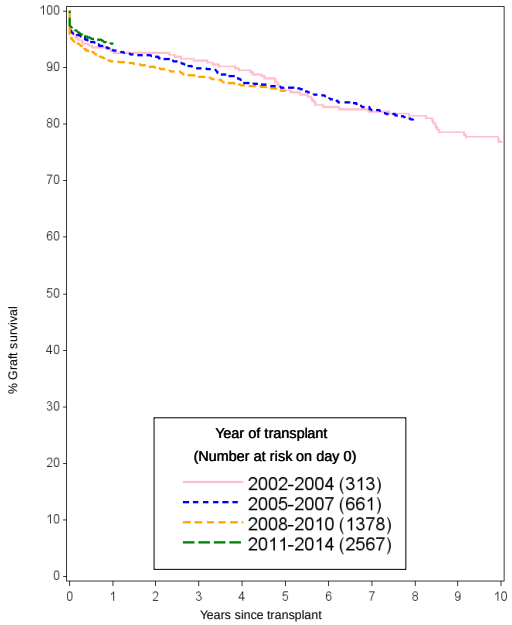


Table 11.3 Graft survival after first adult kidney only transplant from a DCD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	313	93	(89-95)	93	(89-95)	86	(81-89)	77	(71-81)
2005-2007	661	93	(91-95)	92	(89-94)	86	(84-89)		
2008-2010	1378	91	(89-92)	90	(88-92)	86	(84-88)		
2011-2014	2567	94	(93-95)						

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

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	314	97	(94-98)	95	(92-97)	87	(83-91)	72	(66-77)
2005-2007	661	95	(93-97)	93	(91-95)	87	(84-89)		
2008-2010	1378	95	(94-96)	94	(92-95)	87	(85-89)		
2011-2014	2568	96	(95-97)						

11.1.3 Adult kidney recipients - living donor

Long-term graft survival in adult recipients for living donor kidney transplants in the UK is shown in **Figure 11.3**. **Table 11.5** shows graft survival estimates and confidence intervals for each time period analysed. There has been a significant improvement in one year survival over the time periods shown, p=0.001. **Table 11.6** shows the patient survival estimates and confidence intervals for one, two, five and ten years post transplant. There were no statistically significant changes in patient survival over time (p>0.07).

Figure 11.3 Long-term graft survival after first adult living donor kidney only transplant in the UK, 1 January 2002 – 31 December 2014

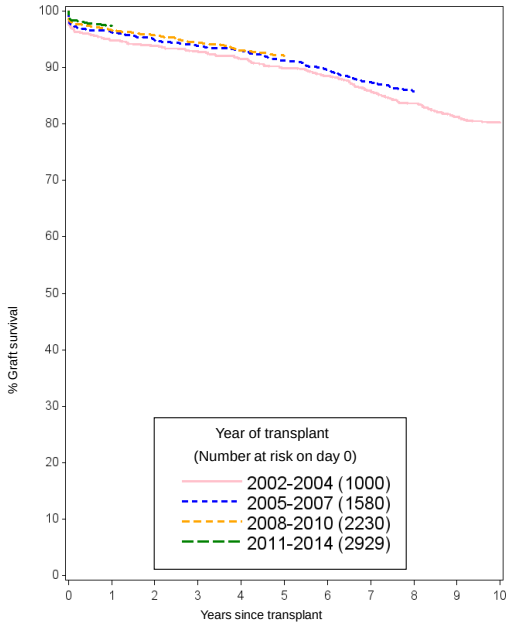


Table 11.5 Graft survival after first adult living donor kidney transplant

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	1000	95	(93-96)	94	(92-95)	90	(88-92)	80	(78-83)
2005-2007	1580	96	(95-97)	95	(94-96)	91	(90-93)		
2008-2010	2230	97	(96-97)	96	(95-96)	92	(91-93)		
2011-2014	2929	97	(97-98)						

Table 11.6 Patient survival after first adult living donor kidney transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	999	98	(97-99)	98	(96-98)	95	(94-97)	89	(87-91)
2005-2007	1579	99	(98-99)	98	(97-99)	96	(95-97)		
2008-2010	2230	99	(98-99)	98	(97-98)	94	(93-95)		
2011-2014	2928	99	(99-99)						

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

Figure 11.4 shows long-term graft survival in paediatric (<18 years) recipients for first kidney only transplants from donors after brain death. Graft survival estimates and confidence intervals are shown for each time period analysed in **Table 11.7**. There were no statistically significant changes in graft survival over time (p>0.07).**Table 11.8** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant changes in patient survival over time (p>0.3). There were insufficient paediatric recipients of first kidney only transplants from donors after circulatory death to permit reliable analysis.

Figure 11.4 Long-term graft survival after first paediatric kidney only transplant from donors after brain death, 1 January 2002 – 31 December 2014

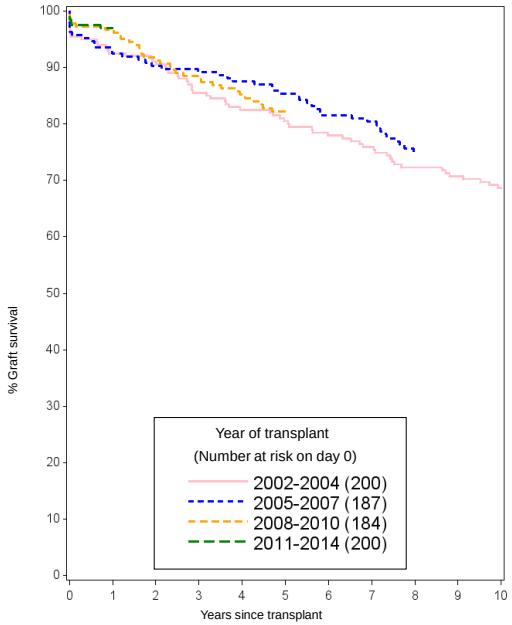


Table 11.7 Graft survival after first paediatric kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	200	93	(88-95)	91	(86-94)	80	(74-85)	69	(62-75)
2005-2007	187	92	(88-95)	90	(85-94)	85	(79-90)		
2008-2010	184	97	(93-99)	92	(87-95)	82	(76-87)		
2011-2014	200	97	(93-99)						

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

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	201	100	(-)	100	(-)	98	(95-99)	97	(93-99)
2005-2007	188	99	(96-100)	99	(96-100)	99	(96-100)		
2008-2010	184	99	(96-100)	99	(96-100)	98	(94-99)		
2011-2014	200	99	(96-100)						

11.1.5 Paediatric kidney recipients - living donor

Long-term graft survival in paediatric recipients for living donor kidney transplants in the UK is shown in **Figure 11.5**. **Table 11.9** shows graft survival estimates and confidence intervals for each time period analysed. There were no statistically significant differences in graft survival over time (p>0.07). **Table 11.10** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant differences in patient survival over time (p>0.1).

Figure 11.5 Long-term graft survival after first paediatric living donor kidney only transplant in the UK, 1 January 2002 – 31 December 2014

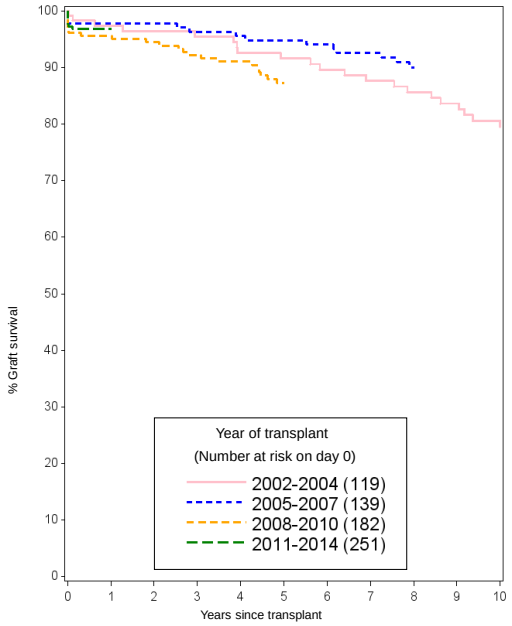


Table 11.9 Graft survival after first paediatric living donor kidney transplant

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	119	97	(92-99)	96	(91-99)	92	(84-96)	80	(70-86)
2005-2007	139	98	(93-99)	98	(93-99)	95	(89-98)		
2008-2010	182	96	(91-98)	94	(90-97)	87	(81-91)		
2011-2014	251	97	(94-98)						

Table 11.10 Patient survival after first paediatric living donor kidney transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	119	97	(92-99)	97	(92-99)	96	(91-99)	93	(87-97)
2005-2007	139	100	(-)	100	(-)	100	(-)		
2008-2010	182	99	(96-100)	99	(96-100)	97	(93-99)		
2011-2014	251	99	(97-100)						

11.2 Pancreas graft and patient survival

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

Figure 11.6 shows long-term graft survival in recipients receiving their first simultaneous kidney/pancreas (SPK) transplant performed from donors after brain death. Graft and patient survival estimates and confidence intervals are shown at one, two, five and ten years post-transplant in **Table 11.11** and **Table 11.12** respectively. Results relate to adults only as there are no paediatric pancreas transplant recipients. There has been significant variation in graft survival at one and two years post-transplant over time (p<0.03). Differences in patient survival are significant at one year (p=0.03).

Figure 11.6 Long-term graft survival after first SPK transplant from donors after brain death, 1 January 2002 – 31 December 2014

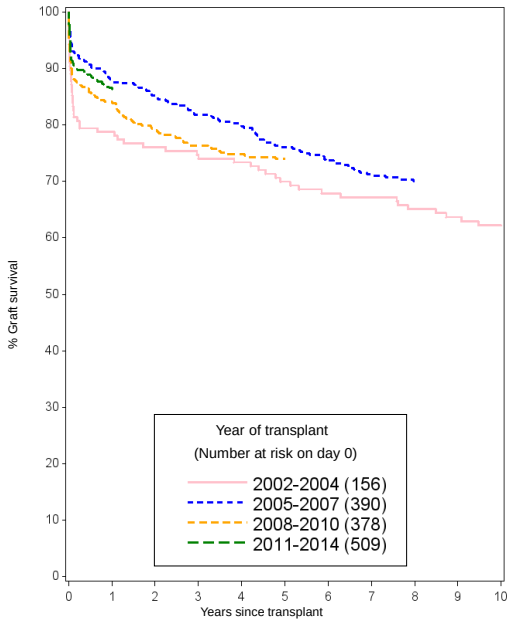


Table 11.11 Graft survival after first SPK transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	156	79	(71-84)	76	(69-82)	70	(62-77)	62	(54-69)
2005-2007	390	88	(84-91)	85	(81-88)	76	(71-80)		
2008-2010	378	84	(80-87)	79	(75-83)	74	(69-78)		
2011-2014	509	86	(83-89)						

Table 11.12 Patient survival after first SPK transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	156	91	(85-95)	90	(84-94)	83	(76-89)	73	(65-80)
2005-2007	393	95	(93-97)	94	(91-96)	90	(86-92)		
2008-2010	379	97	(95-98)	95	(92-96)	89	(85-92)		
2011-2014	511	96	(94-97)						

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

The majority of simultaneous kidney/pancreas (SPK) transplants from a DCD have been performed since 1 January 2007, so there are insufficient data available to analyse long-term survival. **Figure 11.7** shows pancreas graft survival in recipients receiving their first SPK transplant performed from donors after circulatory death, 2008 – 2010 and 2011-2014. Graft and patient survival estimates and confidence intervals are shown at one, two and three years in **Table 11.13** and **Table 11.14** respectively. Results are for adult patients only.

Figure 11.7 Pancreas graft survival after first SPK transplant from donors after circulatory death, 1 January 2008 – 31 December 2014

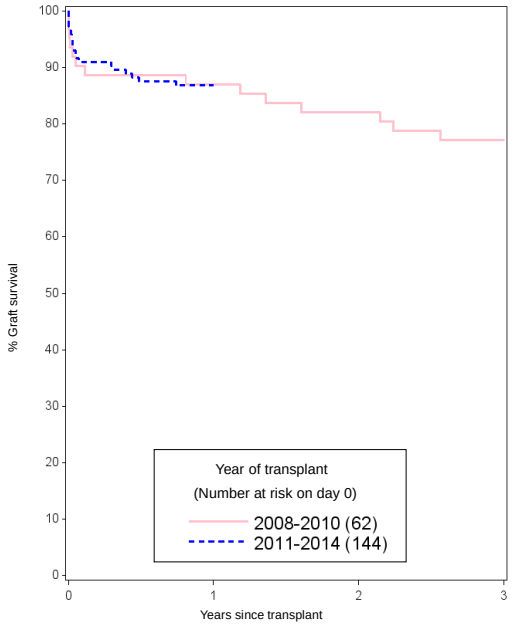


Table 11.13 Graft survival after first SPK transplant from a DCD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Three year	
2008-2010	62	87	(76-93)	82	(70-90)	77	(64-86)
2011-2014	144	87	(80-91)				

Table 11.14 Patient survival after first SPK transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Three year	
2008-2010	63	97	(88-99)	91	(81-96)	91	(81-96)
2011-2014	144	99	(95-100)				

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

Figure 11.8 shows long-term graft survival in recipients receiving their first pancreas only transplant performed from donors after brain death. Graft and patient survival estimates and confidence intervals are shown at one, two, five and ten years in **Table 11.15** and **Table 11.16** respectively. Results are for adult patients only. There were no statistically significant differences in graft or patient survival over time (p>0.09 and p>0.2).

Figure 11.8 Long-term graft survival after pancreas only transplant from donors after brain death, 1 January 2002 – 31 December 2014

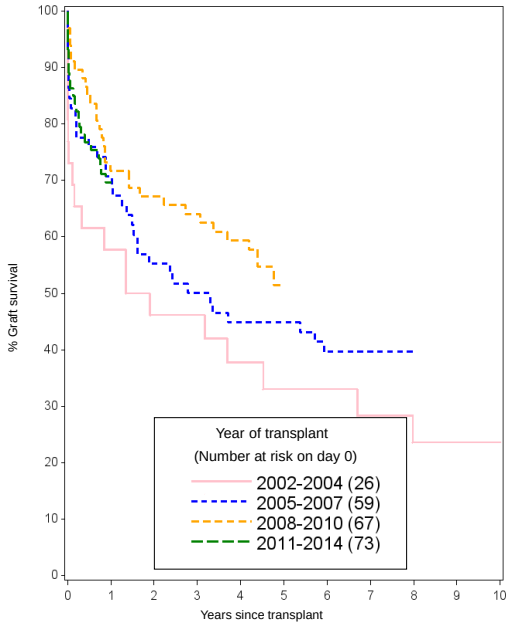


Table 11.15 Graft survival after first pancreas only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	26	58	(37-74)	46	(27-64)	33	(16-51)	24	(9-42)
2005-2007	59	71	(57-81)	55	(42-67)	45	(32-57)		
2008-2010	67	72	(59-81)	67	(54-77)	51	(39-63)		
2011-2014	73	70	(58-79)						

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

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	26	100	(-)	100	(-)	78	(51-91)	43	(20-64)
2005-2007	61	97	(87-99)	95	(84-98)	93	(81-97)		
2008-2010	68	94	(84-98)	90	(80-96)	83	(70-90)		
2011-2014	73	98	(89-100)						

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

Figure 11.9 shows pancreas graft survival in recipients receiving their first pancreas only transplant performed from donors after brain death, 2008-2010 and 2011-2014. Graft and patient survival estimates and confidence intervals are shown at one, two and three years in **Table 11.17** and **Table 11.18** respectively. Results are for adult patients only.

Figure 11.9 Pancreas graft survival after pancreas only transplant from donors after circulatory death, 1 January 2008 – 31 December 2014

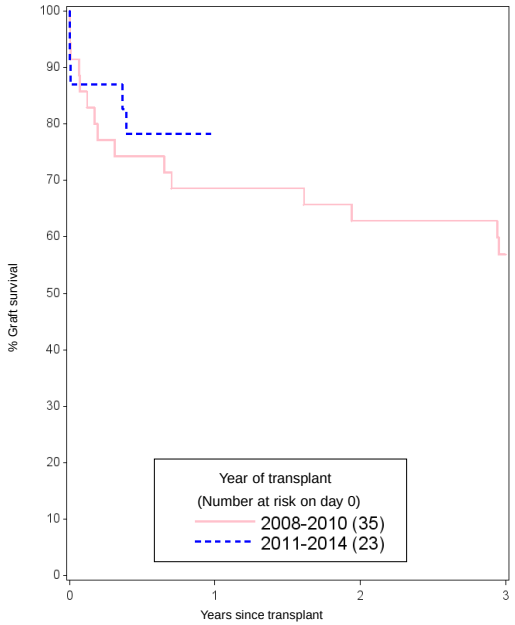


Table 11.17 Graft survival after first pancreas only transplant from a DCD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Three year	
2008-2010	35	69	(50-81)	63	(45-76)	57	(39-71)
2011-2014	23	78	(55-90)				

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

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Three year	
2008-2010	35	97	(81-100)	97	(81-100)	94	(78-98)
2011-2014	23	95	(72-99)				

11.3 Cardiothoracic patient survival

11.3.1 Adult heart recipients

Long-term patient survival for adult (>=16 years) recipients after first heart only transplants is shown in **Figure 11.10**. Domino and deceased donor (DBD only) transplants are included as well as urgent patients. **Table 11.19** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant differences in patient survival over time (p>0.2).

Figure 11.10 Long-term patient survival after first adult heart only transplant in the UK, 1 January 2002 – 31 December 2014

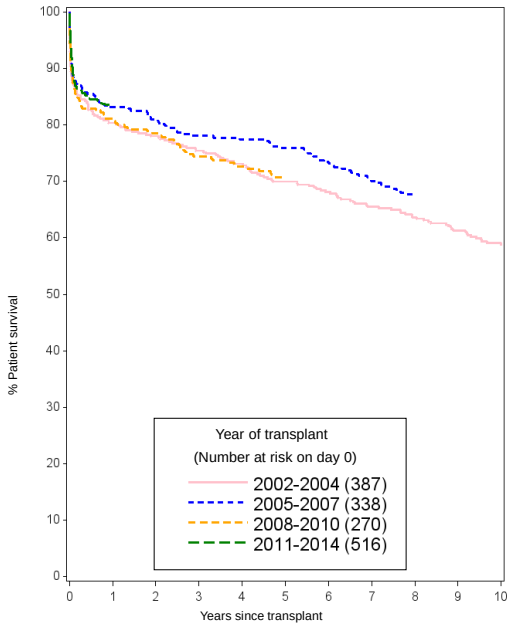


Table 11.19 Patient survival after first adult heart only transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	387	80	(76-84)	78	(74-82)	70	(65-74)	59	(54-64)
2005-2007	338	83	(79-87)	81	(76-85)	76	(71-80)		
2008-2010	270	81	(76-85)	79	(73-83)	71	(65-76)		
2011-2014	516	84	(80-86)						

11.3.2 Adult heart/lung block recipients

Patient survival for adult recipients after first heart/lung block transplants is shown in **Figure 11.11**. Patient survival estimates and confidence intervals for each time period analysed are shown in **Table 11.20**. There were no statistically significant differences in patient survival over time (p>0.3).

Figure 11.11 Long-term patient survival after first adult heart/lung block transplant in the UK, 1 January 2002 – 31 December 2014

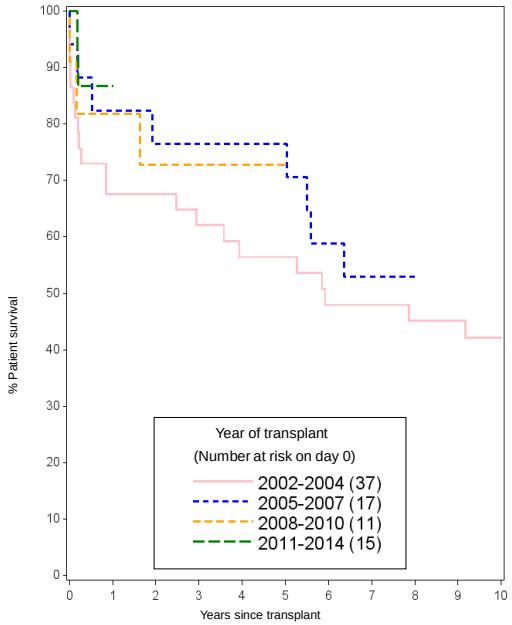


Table 11.20 Patient survival after first adult heart/lung block transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	37	68	(50-80)	68	(50-80)	56	(39-71)	42	(26-57)
2005-2007	17	82	(55-94)	76	(49-90)	76	(49-90)		
2008-2010	11	82	(45-95)	73	(37-90)	73	(37-90)		
2011-2014	15	87	(56-96)						

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

Patient survival for adult recipients after first lung only transplant from donors after brain death is shown in **Figure 11.12**, with survival estimates and confidence intervals shown in **Table 11.21**. There were no statistically significant differences in patient survival over time (p>0.07).

Figure 11.12 Long-term patient survival after first adult lung only transplant from donors after brain death, 1 January 2002 – 31 December 2014

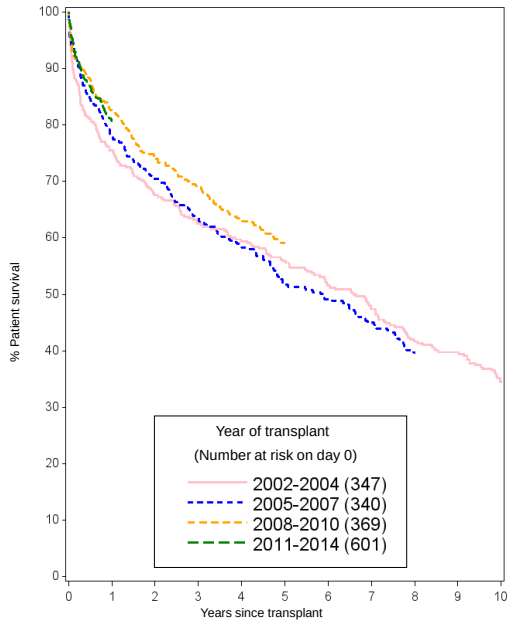


Table 11.21 Patient survival after first adult lung only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	347	76	(71-80)	68	(62-72)	56	(50-61)	34	(29-40)
2005-2007	340	78	(73-82)	70	(65-75)	52	(46-57)		
2008-2010	369	83	(78-86)	74	(69-78)	59	(54-64)		
2011-2014	601	81	(77-84)						

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

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

Figure 11.13 Patient survival after first adult lung only transplant from donors after circulatory death, 1 January 2008 – 31 December 2014

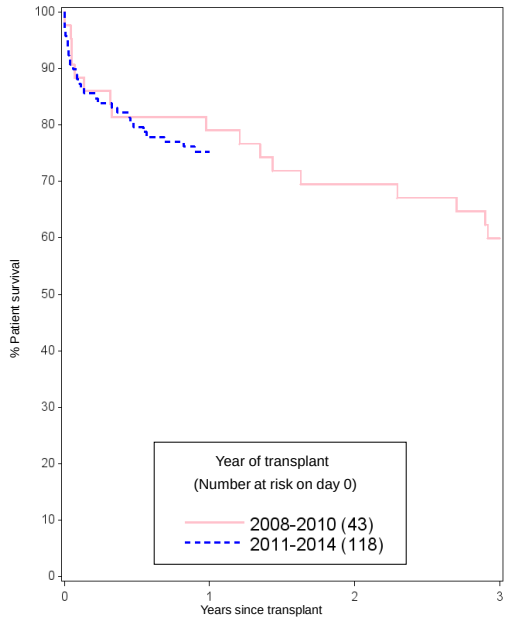


Table 11.22 Patient survival after first adult lung only transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Three year	
2008-2010	43	79	(64-89)	69	(53-81)	60	(44-73)
2011-2014	118	75	(66-82)				

11.3.5 Paediatric heart recipients

Long-term patient survival for paediatric recipients after first heart only transplant is shown in **Figure 11.14**. Domino and deceased donor transplants (DBD donors only) are included as well as transplants for urgent patients. **Table 11.23** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There is no evidence of an improvement in one, two or five year survival over the time period analysed, p>0.3. The number of paediatric lung and heart/lung transplant recipients was too small for analysis.

Figure 11.14 Long-term patient survival after first paediatric heart only transplant in the UK, 1 January 2002 – 31 December 2014

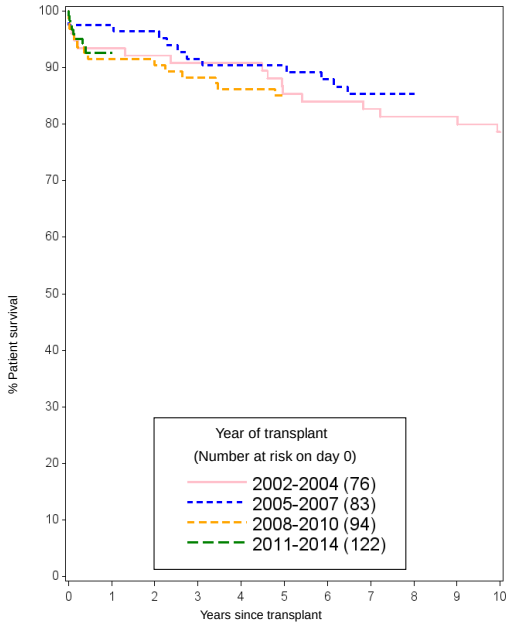


Table 11.23 Patient survival after first paediatric heart only transplant

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	76	93	(85-97)	92	(83-96)	85	(75-92)	79	(67-86)
2005-2007	83	98	(91-99)	96	(89-99)	90	(82-95)		
2008-2010	94	91	(84-96)	90	(82-95)	85	(76-91)		
2011-2014	122	93	(86-96)						

11.4 Liver patient survival

11.4.1 Adult recipients - donor after brain death (DBD)

Long-term patient survival for adult (>=17 years) recipients after first elective liver only transplants from donors after brain death is shown in **Figure 11.15**. **Table 11.24** shows patient survival estimates at one, two, five and ten years post-transplant. There have been significant improvements in one, two and five year patient survival over the time periods analysed, p<0.002 in each case.

Figure 11.15 Long-term patient survival after first elective adult liver only transplant from donors after brain death, 1 January 2002 – 31 December 2014

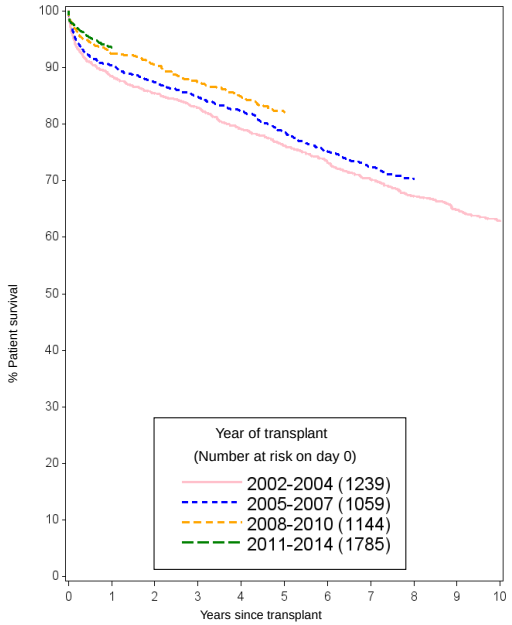


Table 11.24 Patient survival after first elective adult liver only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	1239	89	(87-90)	85	(83-87)	76	(74-78)	63	(60-66)
2005-2007	1059	90	(89-92)	87	(85-89)	79	(76-81)		
2008-2010	1144	93	(91-94)	91	(89-92)	82	(80-84)		
2011-2014	1785	94	(92-95)						

11.4.2 Adult recipients - donor after circulatory death (DCD)

Patient survival for adult (>=17 years) recipients after first elective liver only transplants from donors after circulatory death is shown in **Figure 11.16**. Between 1 January 2002 and 31 December 2004 there were only 15 of these liver transplants with follow up information, so it is not possible to estimate long term patient survival. **Table 11.25** shows patient survival estimates at one, two and five years post-transplant.

Figure 11.16 Liver patient survival after first elective adult liver only transplant from donors after circulatory death, 1 January 2005 – 31 December 2014

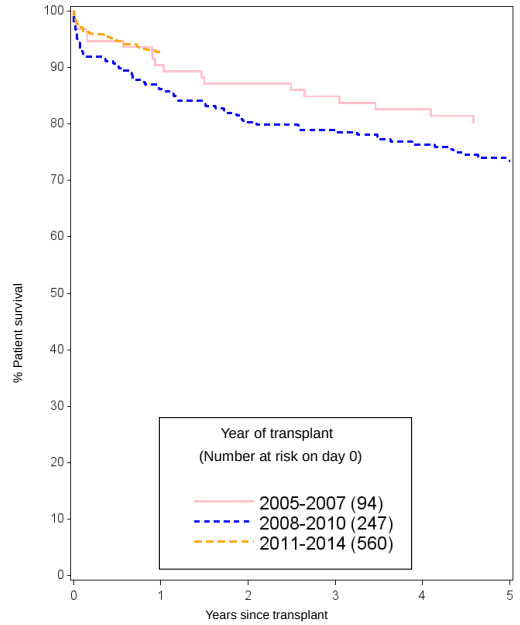


Table 11.25 Patient survival after first elective adult liver only transplant from a DCD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year	
2005-2007	94	90	(82-95)	87	(78-92)	80	(71-87)
2008-2010	247	86	(81-90)	80	(75-85)	73	(67-79)
2011-2014	560	93	(90-95)				

11.4.3 Paediatric recipients - donor after brain death (DBD)

Figure 11.17 and **Table 11.26** show long-term patient survival estimates for first elective liver only transplants from donors after brain death in paediatric (<17 years) recipients. There have been no statistically significant improvements in one, two or five year patient survival over the time period analysed (p>0.8). The number of paediatric transplants from donors after circulatory death was too small to estimate meaningful patient survival.

Figure 11.17 Long-term patient survival after first elective paediatric liver only transplant from donors after brain death, 1 January 2002 – 31 December 2014

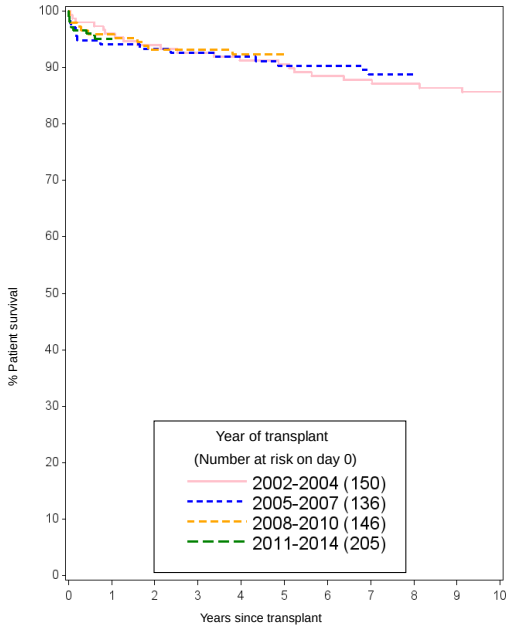


Table 11.26 Patient survival after first elective paediatric liver only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval) One year		Two year		Five year		Ten year	
2002-2004	150	96	(91-98)	94	(89-97)	91	(85-94)	86	(79-90)
2005-2007	136	94	(89-97)	93	(88-96)	90	(84-94)		
2008-2010	146	96	(91-98)	93	(88-96)	92	(87-96)		
2011-2014	205	95	(91-97)						

11.5 Intestinal patient survival

The majority of intestinal transplants have been performed since 1 January 2006, so there are insufficient data available to analyse long-term patient survival. **Figure 11.18** and **Table 11.27** show one-year patient survival estimates for recipients receiving their first intestinal transplant, 2007-2010 and 2011-2014, by recipient age group (adults aged ≥ 18 years).

Figure 11.18 Patient survival after first intestinal graft in the UK, 1 January 2007 – 31 December 2014

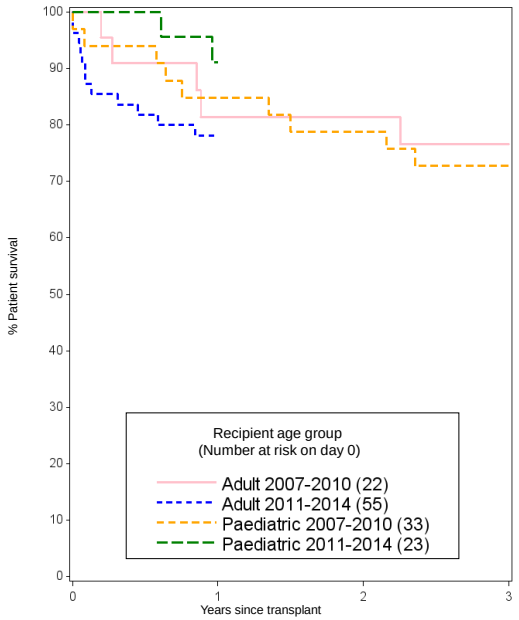


Table 11.27 Patient survival after first intestinal transplant in the UK, 1 January 2007 - 31 December 2014

Recipient age group	No. at risk on day 0	% Patient survival One year	(95% confidence interval)
Adult			
2007-2010	22	81	(58-93)
2011-2014	55	78	(65-87)
Paediatric			
2007-2010	33	85	(67-93)
2011-2014	23	91	(69-98)

11.6 Cornea graft survival

Figure 11.19 shows graft survival estimates for first penetrating keratoplasty (PK) for grafts 2005 – 2007, 2008 – 2010 and 2011 - 2014. Graft survival estimates and confidence intervals are shown by transplant year at one, two and five years in **Table 11.28.**

Figure 11.19 Cornea graft survival after first PKP graft in the UK, 1 January 2005 – 31 December 2014

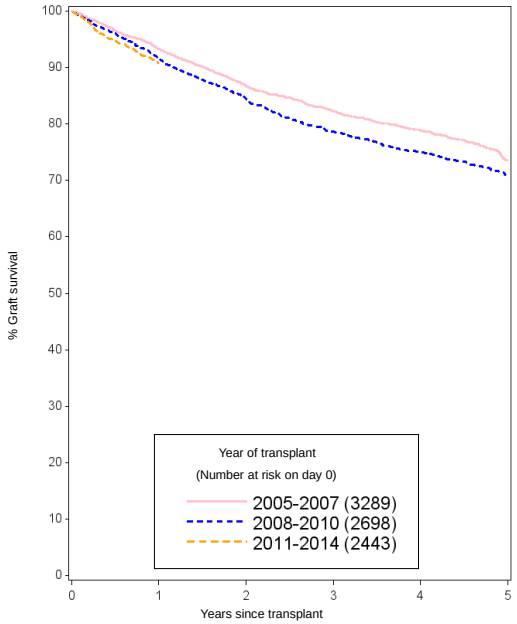


Table 11.28 Cornea graft survival after first PK in the UK

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval) One year		Two year		Five year	
2005-2007	3289	93	(92-94)	87	(86-88)	74	(72-75)
2008-2010	2698	92	(90-93)	85	(83-86)	71	(69-73)
2011-2014	2443	91	(90-92)				

NHS Organ Donor Register

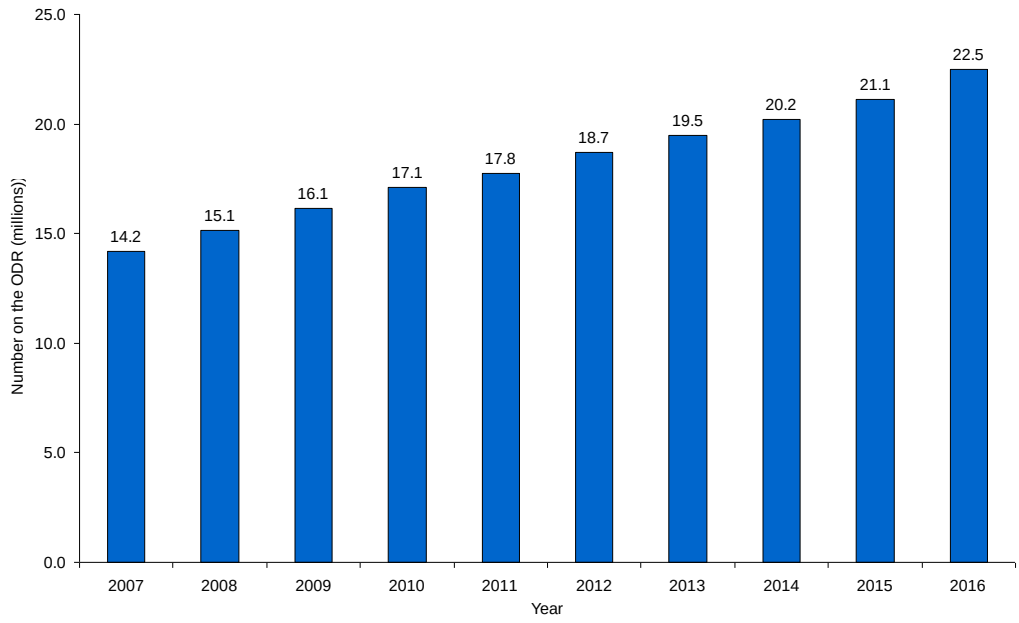
Key messages

- **22.5 million people on the opt-in ODR at March 2016 (35% of the population)**
- **177,204 people on the opt-out ODR at March 2016, with a further 57 appointed representative registrations**
- **43% of the 1,364 deceased organ donors last year were on the opt-in ODR**
- **50% of 1,351,661 registrations last year were through the Driver and Vehicle Licensing Agency (DVLA). The number of online registrations increased from 20% in 2014/15 to 32% in 2015-2016.**

By the end of March 2016 the NHS Organ Donor Register (ODR) held just under 22.5 million opt-in registrations. A summary of the number of registrations at the end of each financial year from 31 March 2007 to 31 March 2016 is shown **Figure 12.1**. During the year data on the register were continually reviewed and validated in respect of people known to have died, and those withdrawn from the list. Duplicate registrations were also resolved. Opt-in registrations have seen a 6.6% increase this year, the highest rate in the last 5 years.

Of the 1,364 deceased organ donors in 2015-2016, 43% were registered on the ODR, the same proportion as in 2014-2015. Similarly, 50% of cornea-only donors in 2015-2016 were registered on the ODR compared with 49% in 2014-2015.

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



Those registered on the ODR come from all parts of the UK. **Table 12.1** shows the percentage of the population registered (opt-in) in each country/Strategic Health Authority at 31 March 2016, and the number of opt-in registrants. This information is also illustrated in **Figure 12.2**. No adjustment has been made for any differences in demographics of the populations.

On 1 December 2015, Wales became the first UK country to introduce a soft opt-out system for organ and tissue donation. Those who haven't registered a decision to opt-in or opt-out of organ donation will be treated as having no objection to being an organ donor. This is called deemed consent.

The ODR can now also accommodate opt-outs elsewhere in the UK; the main avenues are online or through a national call centre.

Table 12.2 shows the number of opt-out registrants in each country/Strategic Health Authority at 31 March 2016. The proportion of the population registered opt-out was 5% in Wales, and less than 1% for other countries and Strategic Health Authorities. In addition there have been 57 appointed representative registrations.

Table 12.1 Opt-in registrations on the NHS Organ Donor Register by 31 March 2016, by country/ Strategic Health Authority

Country/ Strategic Health Authority	Registrants N	Registrants pmp	Proportion registered
North East	874,203	333,665	33%
North West	2,303,724	323,103	32%
Yorkshire and The Humber	1,746,948	325,923	33%
North of England	**4,924,875**	**325,935**	**33%**
East Midlands	1,533,691	330,537	33%
West Midlands	1,629,334	285,348	29%
East of England	2,170,714	360,584	36%
Midlands and East	**5,333,739**	**325,824**	**33%**
London	**2,358,509**	**276,172**	**28%**
South East Coast	1,791,433	390,290	39%
South Central	1,629,465	379,829	38%
South West	2,268,198	418,487	42%
South of England	**5,689,096**	**397,839**	**40%**
England	**18,306,219**	**337,007**	**34%**
Isle of Man	**12,290**	**153,625**	**15%**
Channel Islands	**17,297**	**108,106**	**11%**
Wales	**1,113,090**	**360,223**	**36%**
Scotland	**2,292,724**	**428,547**	**43%**
Northern Ireland	**679,000**	**369,022**	**37%**
TOTAL[1]	**22,486,594**	**346,801**	**35%**

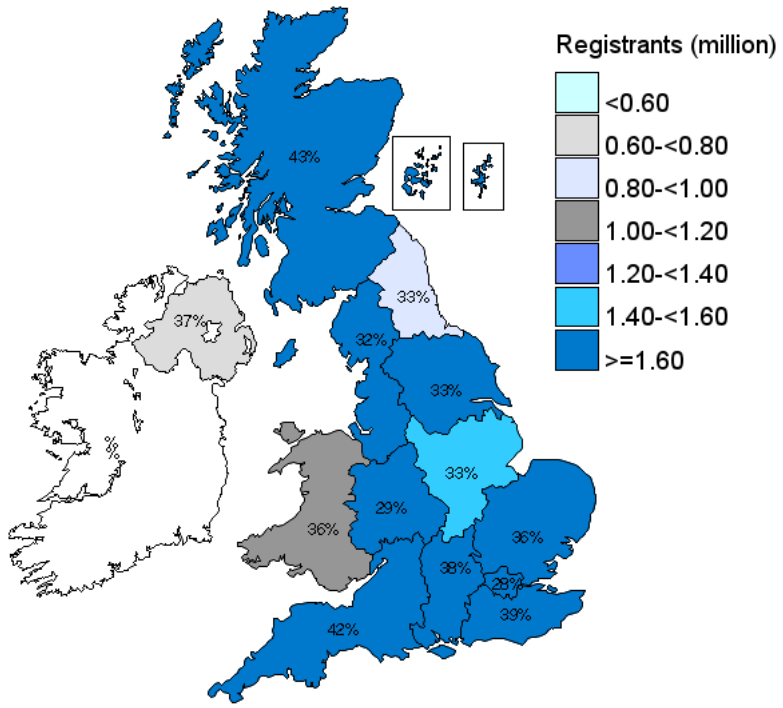
[1] Includes 65,974 registrants where the postcode was unknown

Table 12.2 Opt-out registrations on the NHS Organ Donor Register by 31 March 2016, by country/ Strategic Health Authority

Country/ Strategic Health Authority	Registrants	
	N	pmp
North East	385	147
North West	1,469	206
Yorkshire and The Humber	1,062	198
North of England	**2,916**	**193**
East Midlands	858	185
West Midlands	1,400	245
East of England	1,259	209
Midlands and East	**3,517**	**215**
London	**1,759**	**206**
South East Coast	845	184
South Central	865	202
South West	1,227	226
South of England	**2,937**	**205**
England	**11,129**	**205**
Isle of Man	**1**	**13**
Channel Islands	**6**	**38**
Wales	**165,129**	**53,440**
Scotland	**751**	**140**
Northern Ireland	**99**	**54**
TOTAL[1]	**177,204**	**2,733**

[1] Includes 89 registrants where the postcode was unknown

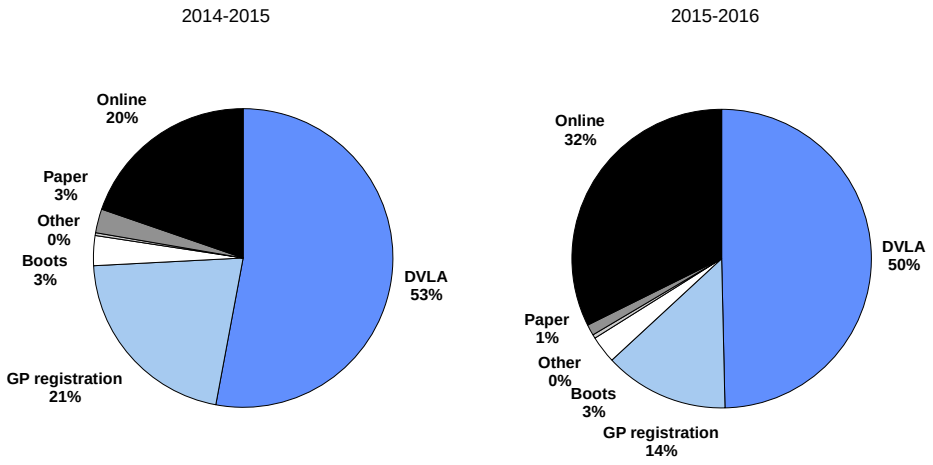
Figure 12.2 Proportion of population who opted–in on the NHS Organ Donor Register by 31 March 2016, by Strategic Health Authority



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

The source of applications for opt-in registration on the ODR is illustrated in **Figure 12.3**. This figure shows that 14% of registrations in 2015-2016 arrived by means of registering through a GP, 50% from driving licence applications and reminders through the DVLA and 32% online through the ODT website. We have seen an increase in the proportion of online registrations in the latest year compared to 2014-2015, and a decrease in the proportion of GP registrations. However, GP registrations in Scotland in 2015-2016 are not included in the numbers as the data were unavailable at the time of reporting.

Figure 12.3 Source of applications for opt-in registration on the NHS Organ Donor Register, 1 April 2014 - 31 March 2016



At the end of March 2016, 88% of registrants, where the information was available, indicated a willingness to donate all organs and tissue (kidneys, pancreas, heart, lungs, liver and corneas). However, of those who were not willing to donate all organs, the majority (89%) did not wish to donate their corneas. Of the restricted registrations, only 7% (less than 1% of the total register) did not wish to donate their kidneys. Willingness to donate, by organ type, is shown in **Table 12.3**.

Table 12.3 Preparedness of those opted-in on the NHS Organ Donor Register at 31 March 2016 to donate different organs[1]

Registrants prepared to donate all organs 88%

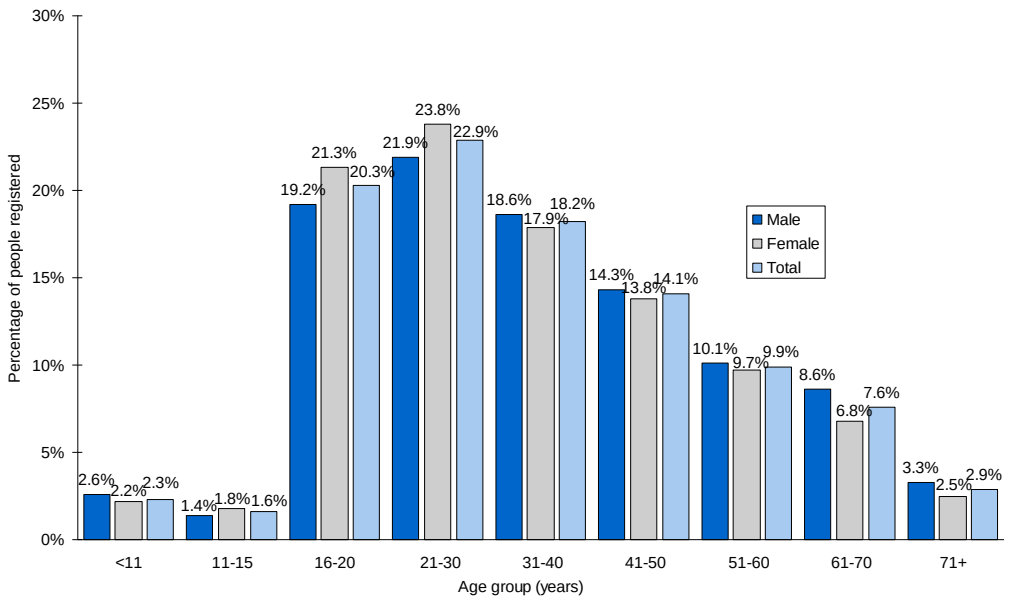
Of those not prepared to donate all organs ('restricted donors'):

Not prepared to donate:	% of 'Restricted donors'	% of all registrants
Kidney	7	0.8
Pancreas	22	2.6
Heart	23	2.7
Lungs	21	2.5
Liver	13	1.5
Corneas	89	10.7

[1] This information was not available for approximately 5% of the total register

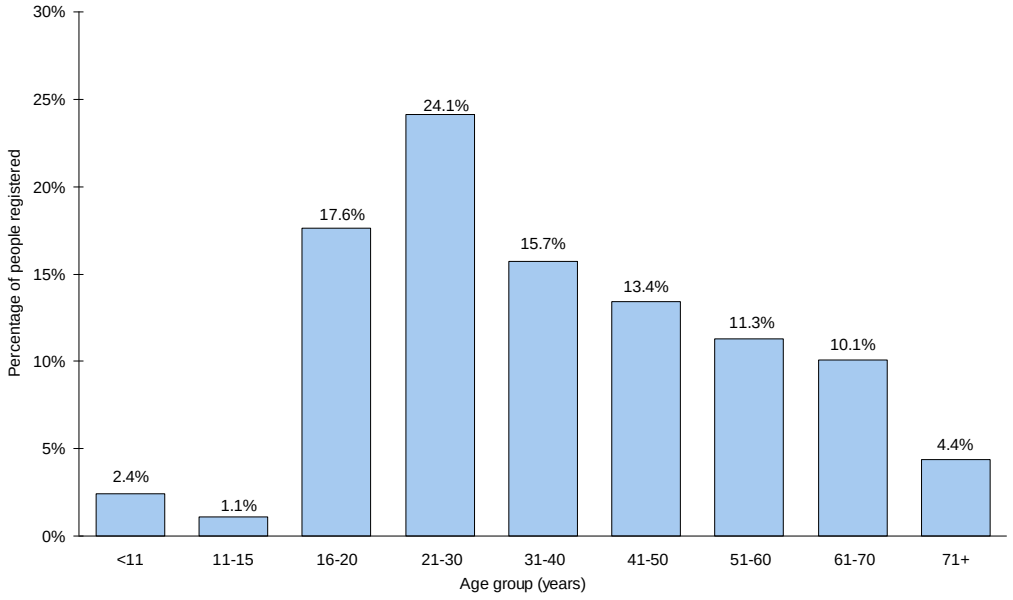
People of all ages are eligible for organ donor registration: the distribution of age by sex at time of opt-in registration is shown in **Figure 12.4** for all opt-in ODR registrations to the end of March 2016. The highest proportion of registrations (21.9% of males and 23.8% of females) are in the 21-30 years age group. The lowest proportions are in the under 11 and 11-15 age groups. Of all people registered on the NHS Organ Donor Register, 46% are male and 53% are female (<1% unknown).

Figure 12.4 Age and gender of total people registered as opt-in on the NHS Organ Donor Register by 31 March 2016



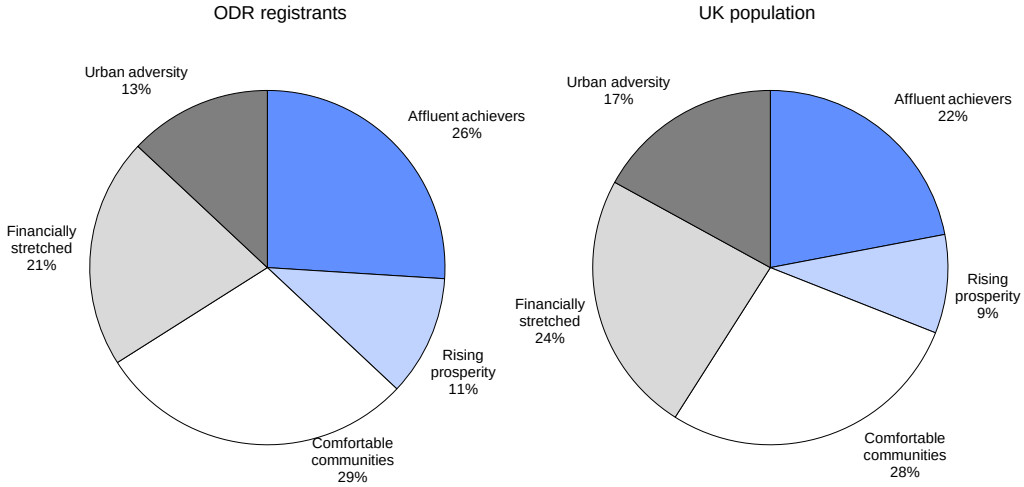
Additionally, the distribution of age of people registering on the opt-in ODR during the latest financial year, 2015-2016, is shown in **Figure 12.5**. The highest proportion of registrations in this year were also in the 21-30 years age group. Of the registrants in 2015-2016, 46% were male and 54% were female.

Figure 12.5 Age of people registered as opt-in on the NHS Organ Donor Register between 1 April 2015 and 31 March 2016



The breakdown of opt-in registrants on the ODR during 2015-2016 by socio-economic group (using the ACORN[1] classification, based on postcode) is shown in **Figure 12.6**, where it is compared with the general UK population. Though having basically similar distributions, there were proportionately more 'affluent achievers' and less 'urban adversity' on the ODR than in the general population.

Figure 12.6 Opt-in registrants on the NHS Organ Donor Register, 1 April 2015 - 31 March 2016, and the general population, by socio-economic group



[1] ACORN data supplied by CACI Ltd.

National Potential Donor Audit

Key messages

- **There were 36,000 audited deaths reported through the Potential Donor Audit in the financial year to 31 March 2016, including 1350 (99%) of the 1,364 deceased organ donors.**
- **Improvements have been observed in the overall referral rate of potential donors (from 80% to 86%), in the proportion of approaches involving a Specialist Nurse – Organ Donation (from 78% to 83%) and in the consent/authorisation rate (from 58% to 62%).**
- **The consent/authorisation rate was 89% when a patient's decision was known at the time of potential donation, but 120 families overruled their loved one's known decision to be an organ donor.**
- **On 1 December 2015, The Human Transplantation (Wales) Act 2013 became operational in Wales, introducing new legislation for a soft opt-out system for organ donation (deemed consent).**

13.1 Introduction

In this chapter, summary data from the National Potential Donor Audit (PDA) are shown for 1 April 2015 to 31 March 2016 and data from the previous three financial years are also provided for comparison purposes. The data comprise all audited patient deaths in UK Intensive Care Units (ICUs) and emergency departments, excluding wards and patients over 80 years of age, in the time period. Paediatric and neonatal ICU data are included. The data are based on information received by 9 May 2016. **The number of solid organ donors reported in this chapter will differ from that shown in the rest of the report, due to the national PDA excluding specific patients**.

On 1 December 2015, The Human Transplantation (Wales) Act 2013 became operational in Wales, introducing new legislation for a soft opt-out system for organ donation (deemed consent). More information can be found here http://organdonationwales.org/

13.2 Definitions

All data shown in this chapter use the following definitions.

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

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

Absolute medical contraindications to organ donation are listed here: http://www.odt.nhs.uk/pdf/contraindications_to_organ_donation.pdf

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

Neurological death suspected patients who meet all of the following criteria: apnoea, coma from known aetiology and unresponsive, ventilated, fixed pupils. Excluding those not tested as cardiac arrest occurred despite resuscitation, brain stem reflexes returned, or neonates less than 2 months post term.

The neurological death testing rate is the percentage of patients for whom neurological death was suspected who were tested.

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

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

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

Deemed consent applies if a person has not registered an organ donation decision to either opt-in or opt-out or appoint a representative, is aged 18 or over, has lived for longer than 12 months and is ordinarily resident and also died in Wales, and had the capacity to understand the notion of deemed consent for a significant period before their death.

The consent/authorisation rate is the percentage of eligible donor families approached about donation that consented to/authorised donation. In Wales a family member is only able to formally consent to organ donation when the patient has not expressed a decision in life and does not meet the criteria for deemed consent. The consent rate in Wales is calculated including all expressed decisions, deemed consent and family consent.

13.3 Breakdown of audited deaths in ICUs and emergency departments

In the 12-month period there were a total of 36,000 audited patient deaths in the UK. **Figures 13.1** and **13.2** show a detailed breakdown from the number of audited patient deaths to the number of solid organ donors for potential DBD and DCD donors, respectively. In total, 5603 patients meeting the PDA criteria died in circumstances that would enable donation. There were 1,350 solid organ donors reported through the PDA.

Table 13.1 shows the key percentages calculated from the flow chart information. Consent/authorisation rates have also been provided for cases where the SN-OD was/was not involved in the approach to the family and/or whether the patient's decision to be a donor was known at the time of potential donation. Details of ODR, known decision and deemed consent overrides are included in the footnote of the table. An ODR override is a case where the family overruled their loved one's known decision to be an organ donor where the decision was recorded on the ODR. This decision was known at the time that the family were approached. Similarly, a known decision override is a case where the family overruled their loved one's known decision and includes decisions registered on the ODR, those expressed via carrying a donor card, verbally, in a will, or via an appointed representative. Again, the decision was known at the time that the family were approached. A deemed consent override is a case where the family did not support the decision of deemed consent **Figure 13.3** uses the flow chart information to illustrate the stages where opportunities are lost pre-donation.

Figure 13.1 Donation after brain death

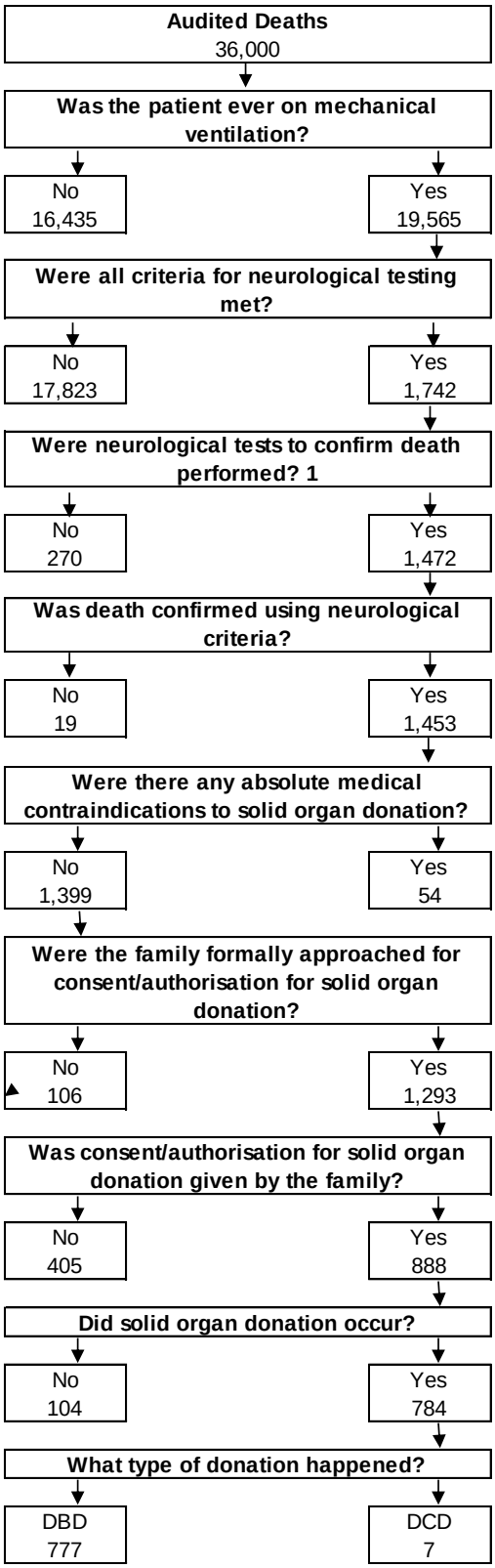
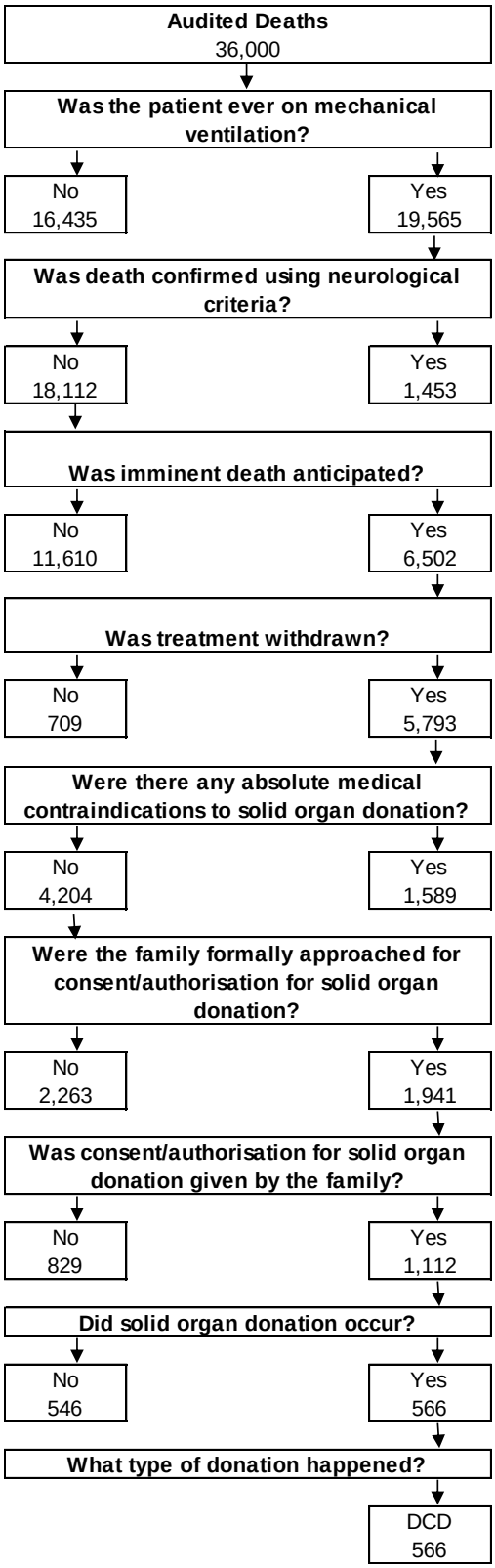


Figure 13.2 Donation after circulatory death



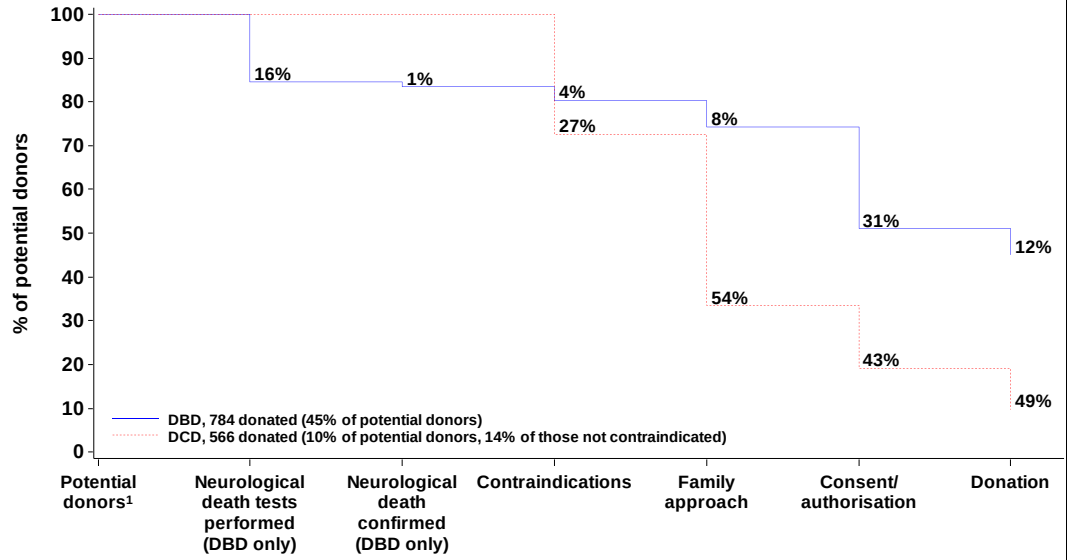
1 Patients for whom tests were not performed due to; cardiac arrest despite resuscitation occurred, brainstem reflexes returned, or neonates - less than 2 months post term are excluded from the calculation of the neurological death testing rate

Table 13.1 Summary of key percentages, 1 April 2015 to 31 March 2016

	DBD	DCD	ALL
Neurological death testing rate	84.5%		
Referral rate	96.4%	83.0%	85.9%
Approach rate	92.4%	46.2%	57.7%
Proportion of approaches involving a SN-OD	91.0%	77.8%	83.1%
Consent/authorisation rate	68.7%	57.3%	61.8%
- when SN-OD not involved in approach	50.9%	24.4%	30.0%
- when SN-OD involved in approach	70.4%	66.6%	68.3%
- when patient had not expressed a decision to donate or the patient's ODR status was not known at the time of potential donation	54.8%	42.6%	47.3%
- when patient on ODR and status known at time of potential donation*	92.4%	85.7%	88.5%
- when patient's decision (by any method) is known at time of potential donation**	93.2%	86.5%	89.3%
- when SN-OD involved in approach and patient known to be on ODR at time of potential donation	92.7%	88.7%	90.4%
- when deemed consent applied***	100.0%	50.0%	69.2%

* 107 families overruled their loved one's known ODR decision to be an organ donor
** 120 families overruled their loved one's known decision (by any method) to be an organ donor
*** 4 families did not support deemed consent (of 13 cases where deemed consent applied)

Figure 13.3 Stages at which potential organ donors lose the opportunity to become actual donors, 1 April 2015 to 31 March 2016



[1] Potential DBD donor - A patient who meets all four criteria for neurological death testing excluding those for which cardiac arrest occurred despite resuscitation, brain stem reflexes returned, and neonates less than 2 months post term
Potential DCD donor - A patient who had treatment withdrawn and death was anticipated within four hours

13.4 Eligible donors

The number of eligible donors (as defined earlier) and rates per million population (pmp) are shown in **Table 13.2**, by country/Strategic Health Authority (SHA). The number of actual donors pmp can be found in **Table 3.2** of **Chapter 3**. Eligible DBD ranged from 12.9 pmp in East Midlands SHA to 37.9 pmp in London SHA. Eligible DCD ranged from 53.2 pmp in East Midlands SHA to 103.8 pmp in North East SHA. Across the countries, there was a range of 71.8 eligible donors pmp in Scotland to 104.9 eligible donors pmp in Northern Ireland. Overall, there were 1,399 eligible DBD (21.6 pmp) and 4,204 eligible DCD (64.8 pmp) in the UK, resulting in a total of 86.4 eligible donors per million population. **Tables 13.3** and **13.4** show more detailed information by country/SHA for DBD and DCD data, respectively.

Table 13.2 Eligible donor rates per million population (pmp), in the UK, 1 April 2015 to 31 March 2016, by country/ Strategic Health Authority

	Eligible DBD		Eligible DCD		**TOTAL**	
Country/ Strategic Health Authority of donation	N	(pmp)	N	(pmp)	**N**	**(pmp)**
North East	74	(28.2)	272	(103.8)	**346**	**(132.1)**
North West	138	(19.4)	489	(68.6)	**627**	**(87.9)**
Yorkshire and the Humber	97	(18.1)	290	(54.1)	**387**	**(72.2)**
North of England	**309**	**(20.5)**	**1051**	**(69.6)**	**1360**	**(90.0)**
East Midlands	60	(12.9)	247	(53.2)	**307**	**(66.2)**
West Midlands	121	(21.2)	409	(71.6)	**530**	**(92.8)**
East of England	92	(15.3)	479	(79.6)	**571**	**(94.9)**
Midlands and East	**273**	**(16.7)**	**1135**	**(69.3)**	**1408**	**(86.0)**
London	**324**	**(37.9)**	**526**	**(61.6)**	**850**	**(99.5)**
South East Coast	99	(21.6)	285	(62.1)	**384**	**(83.7)**
South Central	77	(17.9)	235	(54.8)	**312**	**(72.7)**
South West	114	(21.0)	306	(56.5)	**420**	**(77.5)**
South of England	**290**	**(20.3)**	**826**	**(57.8)**	**1116**	**(78.0)**
England	**1196**	**(22.0)**	**3538**	**(65.1)**	**4734**	**(87.2)**
Isle of Man	**1**	**(12.5)**	**2**	**(25.0)**	**3**	**(37.5)**
Channel Islands	**2**	**(12.5)**	**5**	**(31.3)**	**7**	**(43.8)**
Wales	**53**	**(17.2)**	**229**	**(74.1)**	**282**	**(91.3)**
Scotland	**88**	**(16.4)**	**296**	**(55.3)**	**384**	**(71.8)**
Northern Ireland	**59**	**(32.1)**	**134**	**(72.8)**	**193**	**(104.9)**
TOTAL	**1399**	**(21.6)**	**4204**	**(64.8)**	**5603**	**(86.4)**

Table 13.3 DBD key metrics from the Potential Donor Audit, 1 April 2015 to 31 March 2016, by country/ Strategic Health Authority

Country/ Strategic Health Authority of donation	Number of patients where neurological death was suspected	Neurological death testing rate (%)	DBD referral rate (%)	Number of eligible DBD donors	Number of eligible DBD donors whose family were approached	DBD approach rate (%)	Percentage of DBD approaches that involved a SN-OD (%)	DBD consent/ authorisation rate (%)
North East	81	97.5	100.0	74	69	93.2	98.6	84.1
North West	175	82.3	95.4	138	131	94.9	94.7	69.5
Yorkshire and the Humber	115	87.0	97.4	97	93	95.9	93.5	76.3
North of England	**371**	**87.1**	**97.0**	**309**	**293**	**94.8**	**95.2**	**75.1**
East Midlands	87	70.1	96.6	60	56	93.3	96.4	67.9
West Midlands	152	84.2	95.4	121	107	88.4	78.5	67.3
East of England	117	80.3	96.6	92	85	92.4	83.5	71.8
Midlands and East	**356**	**79.5**	**96.1**	**273**	**248**	**90.8**	**84.3**	**69.0**
London	**383**	**89.0**	**98.4**	**324**	**296**	**91.4**	**96.3**	**56.4**
South East Coast	126	79.4	93.7	99	88	88.9	90.9	68.2
South Central	105	82.9	98.1	77	73	94.8	91.8	72.6
South West	139	84.9	95.0	114	104	91.2	86.5	80.8
South of England	**370**	**82.4**	**95.4**	**290**	**265**	**91.4**	**89.4**	**74.3**
England	**1480**	**84.6**	**96.8**	**1196**	**1102**	**92.1**	**91.7**	**68.5**
Isle of Man	**1**	**100.0**	**100.0**	**1**	**1**	**100.0**	**100.0**	**100.0**
Channel Islands	**2**	**100.0**	**100.0**	**2**	**1**	**50.0**	**0.0**	**100.0**
Wales	**63**	**92.1**	**95.2**	**53**	**50**	**94.3**	**94.0**	**72.0**
Scotland	**113**	**82.3**	**92.0**	**88**	**83**	**94.3**	**77.1**	**72.3**
Northern Ireland	**83**	**79.5**	**96.4**	**59**	**56**	**94.9**	**96.4**	**62.5**
TOTAL	**1742**	**84.5**	**96.4**	**1399**	**1293**	**92.4**	**91.0**	**68.7**

Table 13.4 DCD key metrics from the Potential Donor Audit, 1 April 2015 to 31 March 2016, by country/ Strategic Health Authority

Country/ Strategic Health Authority of donation	Number of patients for whom imminent death was anticipated	DCD referral rate (%)	Number of eligible DCD donors	Number of eligible DCD donors whose family were approached	DCD approach rate (%)	Percentage of DCD approaches that involved a SN-OD (%)	DCD consent/ authorisation rate (%)
North East	388	94.3	272	113	41.5	77.9	67.3
North West	770	81.7	489	206	42.1	83.5	58.7
Yorkshire and the Humber	599	84.3	290	135	46.6	84.4	63.0
North of England	**1757**	**85.4**	**1051**	**454**	**43.2**	**82.4**	**62.1**
East Midlands	376	77.1	247	128	51.8	75.8	53.9
West Midlands	620	73.2	409	168	41.1	69.6	51.8
East of England	639	90.9	479	215	44.9	82.8	59.1
Midlands and East	**1635**	**81.0**	**1135**	**511**	**45.0**	**76.7**	**55.4**
London	**824**	**90.2**	**526**	**227**	**43.2**	**83.3**	**52.0**
South East Coast	453	79.7	285	139	48.8	80.6	63.3
South Central	402	69.9	235	112	47.7	74.1	58.9
South West	464	81.5	306	149	48.7	70.5	62.4
South of England	**1319**	**77.3**	**826**	**400**	**48.4**	**75.0**	**61.8**
England	**5535**	**82.9**	**3538**	**1592**	**45.0**	**78.8**	**58.4**
Isle of Man	**3**	**100.0**	**2**	**1**	**50.0**	**100.0**	**100.0**
Channel Islands	**7**	**85.7**	**5**	**4**	**80.0**	**0.0**	**50.0**
Wales	**357**	**86.3**	**229**	**107**	**46.7**	**83.2**	**53.3**
Scotland	**350**	**83.1**	**296**	**169**	**57.1**	**65.1**	**49.7**
Northern Ireland	**250**	**81.2**	**134**	**68**	**50.7**	**82.4**	**55.9**
TOTAL	**6502**	**83.0**	**4204**	**1941**	**46.2**	**77.8**	**57.3**

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

Table 13.5 DBD key metrics from the Potential Donor Audit, 1 April 2015 to 31 March 2016, by Organ Donation Services Team (ODST)

ODST	Number of patients where neurological death was suspected	Neurological death testing rate (%)	DBD referral rate (%)	Number of eligible DBD donors	Number of eligible DBD donors whose family were approached	DBD approach rate (%)	Percentage of DBD approaches that involved a SN-OD (%)	DBD consent/ authorisation rate (%)
Eastern	131	80.9	96.9	104	96	92.3	85.4	74.0
London	304	87.8	98.0	252	230	91.3	96.1	55.2
Midlands	210	78.6	95.2	158	142	89.9	83.1	64.8
North West	179	82.7	95.5	142	135	95.1	94.8	68.9
Northern	86	96.5	100.0	77	72	93.5	98.6	84.7
Northern Ireland	83	79.5	96.4	59	56	94.9	96.4	62.5
Scotland	113	82.3	92.0	88	83	94.3	77.1	72.3
South Central	128	82.0	98.4	93	86	92.5	93.0	75.6
South East	207	85.0	96.1	173	155	89.6	93.5	65.2
South Wales	57	93.0	94.7	49	46	93.9	93.5	73.9
South West	122	86.1	94.3	102	94	92.2	85.1	79.8
Yorkshire	122	86.1	97.5	102	98	96.1	92.9	75.5
TOTAL	**1742**	**84.5**	**96.4**	**1399**	**1293**	**92.4**	**91.0**	**68.7**

Table 13.6	DCD key metrics from the Potential Donor Audit, 1 April 2015 to 31 March 2016, by Organ Donation Services Team (ODST)						
ODST	Number of patients for whom imminent death was anticipated	DCD referral rate (%)	Number of eligible DCD donors	Number of eligible DCD donors whose family were approached	DCD approach rate (%)	Percentage of DCD approaches that involved a SN-OD (%)	DCD consent/ authorisation rate (%)
Eastern	666	90.5	495	220	44.4	82.3	58.6
London	631	88.9	417	175	42.0	81.1	51.4
Midlands	879	72.6	592	274	46.3	72.3	52.9
North West	806	82.0	499	218	43.7	84.4	59.2
Northern	446	92.8	313	126	40.3	74.6	64.3
Northern Ireland	250	81.2	134	68	50.7	82.4	55.9
Scotland	350	83.1	296	169	57.1	65.1	49.7
South Central	533	73.4	321	141	43.9	75.2	60.3
South East	653	84.1	399	195	48.9	81.5	60.5
South Wales	275	87.3	183	85	46.4	87.1	54.1
South West	361	80.9	244	128	52.5	68.8	62.5
Yorkshire	652	85.3	311	142	45.7	83.8	61.3
TOTAL	**6502**	**83.0**	**4204**	**1941**	**46.2**	**77.8**	**57.3**

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

Table 13.8 shows key metrics separately for adult and paediatric patients, for DBD and DCD, respectively. Note that of the 113 paediatric patients for whom neurological death was suspected, tests were not performed on 35 patients.

Table 13.7 DBD and DCD key metrics from the Potential Donor Audit, 1 April 2015 to 31 March 2016, by unit where patient referred from, for patients who met the PDA criteria and were referred

Eligible donor type	Unit where patient was referred from	Number of patients who were referred[1]	Neurological death testing rate (%)	Number of eligible donors	Number of eligible donors whose family were approached	Approach rate (%)	Percentage of approaches involving a SN-OD (%)	Consent/ authorisation rate (%)	Number of actual donors[2]
DBD	Critical care	1523	87.1	1258	1157	92.0	91.8	67.6	686
	Emergency dept.	156	85.9	132	131	99.2	87.8	80.9	98
	TOTAL	**1679**	**87.0**	**1390**	**1288**	**92.7**	**91.4**	**68.9**	**784**
DCD	Critical care	5067		3383	1714	50.7	80.2	58.6	513
	Emergency dept.	332		252	177	70.2	77.4	61.0	53
	TOTAL	**5399**		**3635**	**1891**	**52.0**	**79.9**	**58.8**	**566**

[1] DBD referral criteria: patients where neurological death was suspected; DCD referral criteria: patients for whom imminent death was anticipated
[2] Actual donors resulting from eligible DBD donors includes 5 DCD donors referred from critical care and 2 DCD donors referred from emergency departments

Table 13.8 DBD and DCD key metrics from the Potential Donor Audit, 1 April 2015 to 31 March 2016, by age group

Eligible donor type	Age group	Number of patients who met referral criteria[1]	Neurological death testing rate (%)	Referral rate (%)	Number of eligible donors	Number of eligible donors whose family were approached	Approach rate (%)	Percentage of approaches involving a SN-OD (%)	Consent/ authorisation rate (%)	Number of actual donors[2]
DBD	Adult (>=18)	1629	85.4	97.1	1322	1227	92.8	91.3	69.3	752
	Paediatric (<18)	113	71.7	85.8	77	66	85.7	86.4	57.6	32
	TOTAL	**1742**	**84.5**	**96.4**	**1399**	**1293**	**92.4**	**91.0**	**68.7**	**784**
DCD	Adult (>=18)	6286		83.4	4046	1856	45.9	78.6	58.5	547
	Paediatric (<18)	216		71.8	158	85	53.8	61.2	31.8	19
	TOTAL	**6502**		**83.0**	**4204**	**1941**	**46.2**	**77.8**	**57.3**	**566**

[1] DBD referral criteria: patients where neurological death was suspected; DCD referral criteria: patients for whom imminent death was anticipated
[2] Actual donors resulting from eligible DBD donors includes 2 DCD donors under 18 and 5 DCD donors aged 18 and over

13.5 Consent/ authorisation rates

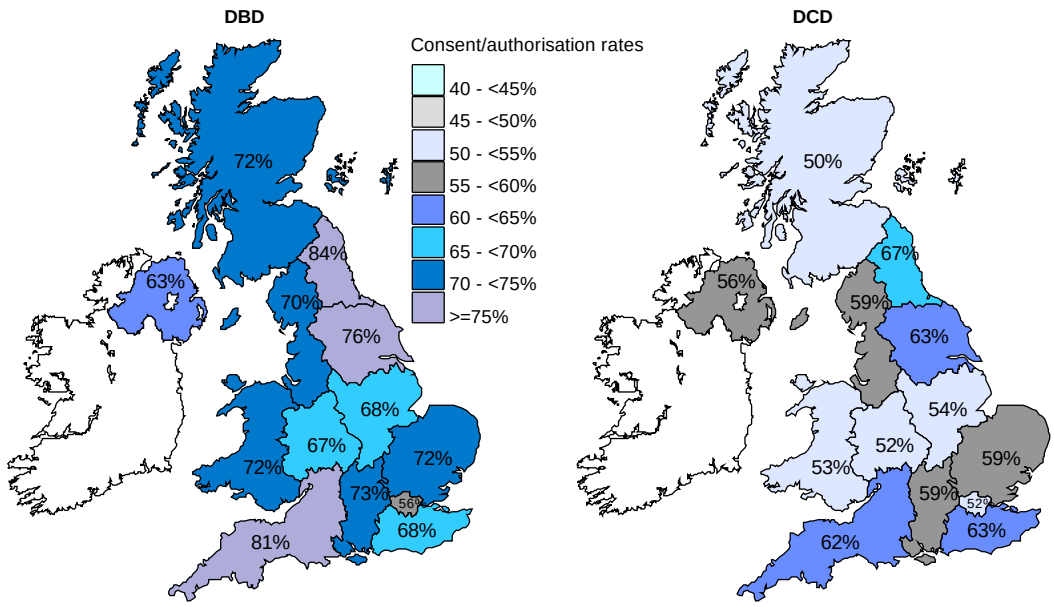
The overall DBD consent/authorisation rate was 68.7% and the 95% confidence limits for this percentage are 66.2% - 71.2%. For DCD, the overall rate was 57.3% and the 95% confidence limits are 55.1% - 59.5%.

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

Across the countries and SHAs, the DBD consent/authorisation rates range from 56.4% in London to 84.1% in North East. DCD consent/authorisation rates range from 49.7% in Scotland to 67.3% in North East.

The overall consent/authorisation rates (combining DBD and DCD) for England, Wales, Scotland and Northern Ireland were 62.5%, 59.2%, 57.1% and 58.9%, respectively.

Figure 13.4 Consent/authorization rates by English SHA/country



Across the Organ Donation Services Teams, the DBD consent/authorisation rates range from 55.2% in the London team to 84.7% in the Northern team. DCD consent/authorisation rates range from 49.7% in the Scotland team to 64.3% in the Northern team.

Figure 13.5 Consent/authorization rates by Organ Donation Services Team

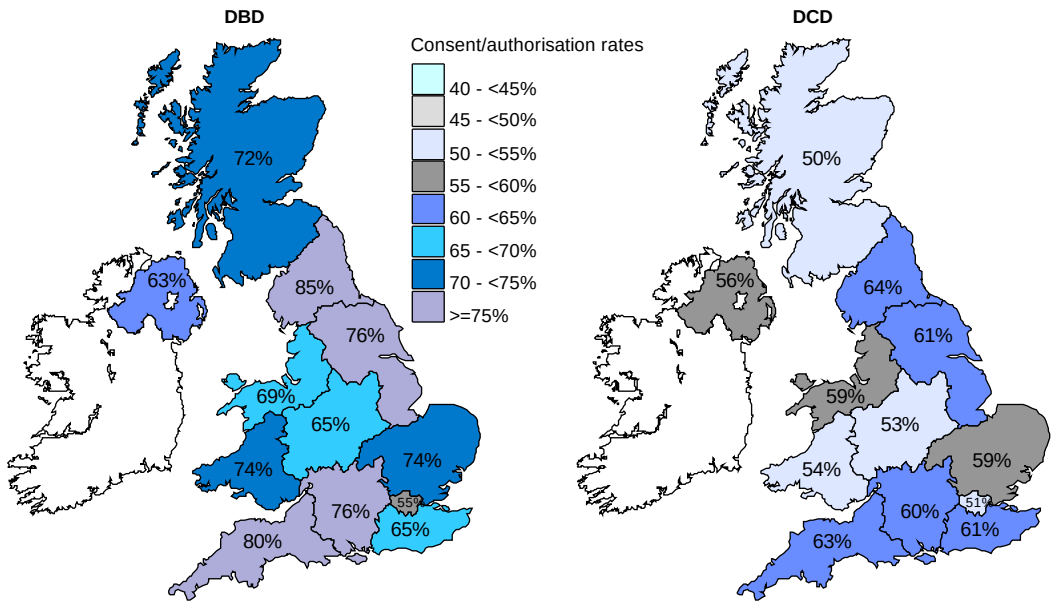


Table 13.9 shows the consent/authorisation rate separately for white patients and patients from ethnic minority groups. The DBD consent/authorisation rates for white patients and patients from ethnic minority groups were 74% and 35%, respectively. A smaller, but still significant, difference was observed for DCD consent/authorisation rates: 61% and 31%, respectively. Note that there were an additional 24 DBD and 79 DCD families approached where the ethnicity was not known or not reported.

The Northern, Scotland, South Wales and South West teams each accounted for only 1-2% of families from ethnic minority groups approached for a decision about organ donation, whereas London accounted for 42%. Most teams had a very small proportion, therefore accounting for some of the variation observed in overall consent/authorisation rates between teams. Note that consent/authorisation rates have not been provided where the number of families approached is less than ten.

Table 13.9 DBD and DCD consent/authorisation rates from the Potential Donor Audit, 1 April 2015 to 31 March 2016, by Organ Donation Services Team (ODST) and ethnicity

	White eligible donors					Eligible donors from ethnic minority groups					All
ODST	Number of eligible DBD donors whose family were approached	DBD consent/ authorisation rate (%)	Number of eligible DCD donors whose family were approached	DCD consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)	Number of eligible DBD donors whose family were approached	DBD consent/ authorisation rate (%)	Number of eligible DCD donors whose family were approached	DCD consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)	Overall consent/ authorisation rate (%) [1]
Eastern	85	80.0	195	63.1	**68.2**	7		13	38.5	**40.0**	**63.3**
London	151	66.2	134	57.5	**62.1**	76	31.6	38	34.2	**32.5**	**53.6**
Midlands	116	71.6	242	57.9	**62.3**	25	36.0	20	10.0	**24.4**	**57.0**
North West	119	73.9	193	63.7	**67.6**	14	28.6	13	23.1	**25.9**	**62.9**
Northern	67	85.1	117	67.5	**73.9**	1		1			**71.7**
Northern Ireland	56	62.5	67	55.2	**58.5**	0		1			**58.9**
Scotland	80	75.0	159	51.6	**59.4**	3		2			**57.1**
South Central	76	77.6	123	64.2	**69.3**	9		10	50.0	**57.9**	**66.1**
South East	134	69.4	178	62.4	**65.4**	20	35.0	13	23.1	**30.3**	**62.6**
South Wales	40	80.0	81	55.6	**63.6**	2		0			**61.1**
South West	90	78.9	120	64.2	**70.5**	3		5			**69.8**
Yorkshire	91	80.2	131	61.8	**69.4**	4		6		**20.0**	**67.1**
TOTAL	**1105**	**74.1**	**1740**	**60.6**	**65.8**	**164**	**35.4**	**122**	**31.1**	**33.6**	**61.8**

[1] Includes 103 families approached where the ethnicity was not known or not reported

Table 13.10 shows the reasons why the family did not give consent/authorisation, by donor type. The most common reason reported for why the families of both eligible DBD and DCD families did not give consent/authorisation was that the patient had previously expressed a wish not to donate. Overall, this reason was reported in 21% of cases.

Table 13.10 Reasons why the family did not give consent/authorisation or support the known decision of their relative, 1 April 2015 to 31 March 2016, by donor type

	Donor type				TOTAL	
	DBD		DCD			
Primary reason why family did not give consent/authorisation	**N**	**%**	**N**	**%**	**N**	**%**
Patient previously expressed a wish not to donate	96	23.7	160	19.3	**256**	**20.8**
Family were not sure whether the patient would have agreed to donation	47	11.6	135	16.3	**182**	**14.8**
Family did not want surgery to the body	36	8.9	58	7.0	**94**	**7.6**
Family felt the body needs to be buried whole (unrelated to religious or cultural reasons)	33	8.2	35	4.2	**68**	**5.5**
Family felt it was against their religious/cultural beliefs	32	7.9	21	2.5	**53**	**4.3**
Strong refusal - probing not appropriate	29	7.2	48	5.8	**77**	**6.2**
Other	27	6.7	72	8.7	**99**	**8.0**
Family felt the patient had suffered enough	23	5.7	68	8.2	**91**	**7.4**
Family did not believe in donation	20	4.9	32	3.9	**52**	**4.2**
Family were divided over the decision	18	4.4	34	4.1	**52**	**4.2**
Family felt the length of time for donation process was too long	17	4.2	124	15.0	**141**	**11.4**
Family concerned that organs may not be transplanted	10	2.5	13	1.6	**23**	**1.9**
Family wanted to stay with the patient after death	6	1.5	16	1.9	**22**	**1.8**
Family had difficulty understanding/accepting neurological testing	6	1.5	3	0.4	**9**	**0.7**
Family concerned that other people may disapprove/be offended	3	0.7	6	0.7	**9**	**0.7**
Patients treatment may be or has been limited to facilitate organ donation	1	0.3	0	0.0	**1**	**0.1**
Family concerned donation may delay the funeral	1	0.3	3	0.4	**4**	**0.3**
Families concerned about organ allocation	0	0.0	1	0.1	**1**	**0.1**
TOTAL	**405**	**100.0**	**829**	**100.0**	**1234**	**100.0**

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

Table 13.11 shows the proportion of family approaches that involved a SN-OD, for DBD and DCD separately, and overall. Nationally, 91.0% of DBD and 77.8% of DCD family approaches involved a SN-OD, but there is wide variation between teams. **Table 13.12** shows the effect on the consent/authorisation rate when a SN-OD is involved or not involved in the approach to a family for a decision about organ donation. Evidence shows that the family is more likely to consent to/ authorise donation when a trained SN-OD is involved in the approach and this is particularly apparent for eligible DCD donors. Again, there is wide variation between teams. Caution should be applied when interpreting these rates as no account has been taken of approaches initiated by the family, ODR status or ethnicity.

Table 13.11 Percentage of family approaches involving a Specialist Nurse - Organ Donation (SN-OD) from the Potential Donor Audit, 1 April 2015 to 31 March 2016, by Organ Donation Services Team (ODST)

	DBD			DCD			All
ODST	Number of eligible DBD donors whose family were approached	Number of eligible DBD donors where SN-OD involved in approach	Percentage of DBD approaches that involved a SN-OD (%)	Number of eligible DCD donors whose family were approached	Number of eligible DCD donors where SN-OD involved in approach	Percentage of DCD approaches that involved a SN-OD (%)	Overall percentage of DBD/DCD approaches that involved a SN-OD (%)
Eastern	96	82	85.4	220	181	82.3	**83.2**
London	230	221	96.1	175	142	81.1	**89.6**
Midlands	142	118	83.1	274	198	72.3	**76.0**
North West	135	128	94.8	218	184	84.4	**88.4**
Northern	72	71	98.6	126	94	74.6	**83.3**
Northern Ireland	56	54	96.4	68	56	82.4	**88.7**
Scotland	83	64	77.1	169	110	65.1	**69.0**
South Central	86	80	93.0	141	106	75.2	**81.9**
South East	155	145	93.5	195	159	81.5	**86.9**
South Wales	46	43	93.5	85	74	87.1	**89.3**
South West	94	80	85.1	128	88	68.8	**75.7**
Yorkshire	98	91	92.9	142	119	83.8	**87.5**
TOTAL	**1293**	**1177**	**91.0**	**1941**	**1511**	**77.8**	**83.1**

Table 13.12 DBD and DCD consent/authorisation rates with/without SN-OD involvement from the Potential Donor Audit, 1 April 2015 to 31 March 2016, by Organ Donation Services Team (ODST)

	SN-OD involved in approach					SN-OD not involved in approach					All
ODST	Number of eligible DBD donors whose family were approached	DBD consent/ authorisation rate (%)	Number of eligible DCD donors whose family were approached	DCD consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)	Number of eligible DBD donors whose family were approached	DBD consent/ authorisation rate (%)	Number of eligible DCD donors whose family were approached	DCD consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)	Overall consent/ authorisation rate (%)
Eastern	82	79.3	181	66.9	**70.7**	14	42.9	39	20.5	**26.4**	**63.3**
London	221	57.0	142	58.5	**57.6**	9	11.1	33	21.2	**19.0**	**53.6**
Midlands	118	63.6	198	61.1	**62.0**	24	70.8	76	31.6	**41.0**	**57.0**
North West	128	68.8	184	67.9	**68.3**	7	71.4	34	11.8	**22.0**	**62.9**
Northern	71	85.9	94	76.6	**80.6**	1	0.0	32	28.1	**27.3**	**71.7**
Northern Ireland	54	64.8	56	64.3	**64.5**	2	0.0	12	16.7	**14.3**	**58.9**
Scotland	64	87.5	110	73.6	**78.7**	19	21.1	59	5.1	**9.0**	**57.1**
South Central	80	77.5	106	71.7	**74.2**	6	50.0	35	25.7	**29.3**	**66.1**
South East	145	66.2	159	66.0	**66.1**	10	50.0	36	36.1	**39.1**	**62.6**
South Wales	43	74.4	74	60.8	**65.8**	3	66.7	11	9.1	**21.4**	**61.1**
South West	80	78.8	88	73.9	**76.2**	14	85.7	40	37.5	**50.0**	**69.8**
Yorkshire	91	76.9	119	64.7	**70.0**	7	57.1	23	43.5	**46.7**	**67.1**
TOTAL	**1177**	**70.4**	**1511**	**66.6**	**68.3**	**116**	**50.9**	**430**	**24.4**	**30.0**	**61.8**

13.7 Comparison with previous years

Table 13.13 and **Figure 13.6** show the key metrics from the PDA for the last four financial years. Changes were made to the PDA on 1 April 2013 so caution should be applied when comparing time periods. Although the key metrics differ slightly when the data is subset based on the old PDA inclusion criteria the direction of change (increase/decrease), and therefore the key messages, are the same.

Table 13.13 DBD and DCD key metrics from the Potential Donor Audit, by financial year

Eligible donor type	Financial year	Number of patients who met referral criteria [1]	Neurological death testing rate (%)	Referral rate (%)	Number of eligible donors	Number of eligible donors whose family were approached	Approach rate (%)	Proportion of family approaches involving a SN-OD (%)	Number of families who consented to/ authorised donation	Consent/ authorisation rate (%)	Number of actual donors [2]
DBD	**2012-2013**	1572	80.7	92.4	1189	1100	92.5	78.9	744	67.6	676
	2013-2014[3]	1717	82.9	95.4	1351	1258	93.1	84.4	857	68.1	788
	2014-2015	1734	83.3	96.4	1373	1284	93.5	86.7	859	66.9	780
	2015-2016	1742	84.5	96.4	1399	1293	92.4	91.0	888	68.7	784
DCD	**2012-2013**	6961		62.5	3114	1818	58.4	66.8	932	51.3	450
	2013-2014[3]	7202		71.0	4154	1993	48.0	71.4	1073	53.8	522
	2014-2015	6755		76.3	4284	2018	47.1	72.3	1046	51.8	493
	2015-2016	6502		83.0	4204	1941	46.2	77.8	1112	57.3	566
TOTAL	**2012-2013**	8533		68.0	4303	2918	67.8	71.4	1676	57.4	1126
	2013-2014[3]	8919		75.7	5505	3251	59.1	76.4	1930	59.4	1310
	2014-2015	8489		80.4	5657	3302	58.4	77.9	1905	57.7	1273
	2015-2016	8244		85.9	5603	3234	57.7	83.1	2000	61.8	1350

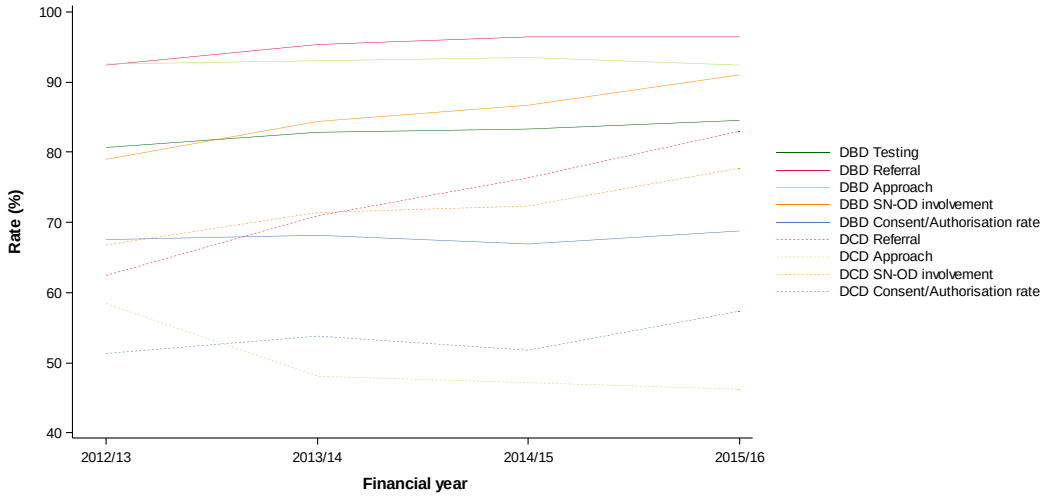
[1] DBD referral criteria: patients where neurological death was suspected (excluding those for which cardiac arrest occurred despite resuscitation, brain stem reflexes returned, and neonates less than 2 months post term; DCD referral criteria: patients for whom imminent death was anticipated

[2] Actual donors resulting from eligible DBD donors includes 18 DCD donors in 2012-2013, 15 DCD donors in 2013-2014, 13 DCD donors in 2014-2015 and 7 DCD donors in 2015-2016

[3] Changes were made to the PDA on 1 April 2013 so caution should be applied when comparing time periods. The main changes involved the introduction of cardiothoracic ICUs to the audit, increasing the upper age limit from 75 to 80 years, bringing absolute medical contraindications in line with current practice and changing the imminent death definition to be clear that death was anticipated within four hours.

An increase has been observed in the neurological death testing rate, but 15% of patients who met the criteria were not tested in 2015-2016. Details, such as the reasons for not testing, can be found in the accompanying PDA Annual Report available at http://www.odt.nhs.uk/odt/potential-donor-audit/. Increases have been observed in the rates of referral to the SN-ODs, especially for DCD. The DBD approach rate has remained static at 92%, but a decrease has been observed in the DCD approach rate. Increases have also been observed in the proportion of approaches involving a SN-OD for both DBD and DCD.

Figure 13.6 **DBD and DCD key metrics from the Potential Donor Audit**



Changes were made to the PDA in April 2013 to include auditing of cardiothoracic ICUs and patients aged 80 years and below, bring absolute medical contraindications in line with current practice, and to change the imminent death definition to be clear that death was anticipated within four hours. At the end of 2014/15 the calculation of neurological death testing rate was changed to remove certain cases for all historic data therefore values here will appear different to previous reports.

13.8 Consented/authorised cases not proceeding to solid organ donation

Consent/authorisation for donation was given for 888 eligible DBD donors and 1,112 eligible DCD donors. 784 (88%) and 566 (51%) of these cases proceeded to donate at least one solid organ, respectively. **Table 13.14** shows the reasons why donation did not proceed for the 104 eligible DBD and 546 eligible DCD cases where consent had been ascertained. The main reason reported for consented/authorised eligible DBD donors not proceeding to donate was that the organs were deemed to be medically unsuitable by transplant centres. The main reason for consented/authorised DCD donors was prolonged time to asystole, meaning that the donor did not die in a timeframe suitable for organ donation.

Table 13.14 Reasons why consented/authorised eligible donors did not proceed to donate, 1 April 2015 to 31 March 2016, by donor type

Primary reason why donation did not proceed	Donor type				TOTAL	
	DBD		DCD			
	N	%	N	%	N	%
Organs deemed medically unsuitable by transplant centres	41	39.4	167	30.6	**208**	**32.0**
Coroner/Procurator Fiscal refusal	15	14.4	20	3.7	**35**	**5.4**
Organs deemed medically unsuitable on surgical inspection	11	10.6	6	1.1	**17**	**2.6**
Other	11	10.6	27	5.0	**38**	**5.9**
Positive virology	10	9.6	5	0.9	**15**	**2.3**
General instability	7	6.7	34	6.2	**41**	**6.3**
Family changed mind	5	4.8	33	6.0	**38**	**5.9**
Cardiac arrest	4	3.9	8	1.5	**12**	**1.9**
Prolonged time to asystole	0	0.0	243	44.5	**243**	**37.4**
Logistic reasons	0	0.0	2	0.4	**2**	**0.3**
Retrieval team not available	0	0.0	1	0.2	**1**	**0.2**
TOTAL	**104**	**100.0**	**546**	**100.0**	**650**	**100.0**

Appendices

Appendix I provides details of the 1364 deceased solid organ donors reported in 2015-2016. Details are given for each donating hospital and the hospitals have been grouped by former English Strategic Health Authority and country.

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

The populations used for country/ former Strategic Health Authority per million population are given in **Appendix III.** These populations are mid-2014 estimates based on ONS 2013 Census figures.

Appendix IV shows the import and export of organs to and from the UK in the last three financial years. **Appendix IVA** shows the number and type of transplants in the UK into non-UK residents. **Appendix IVB** and **Appendix IVC** show the number and type of transplants resulting from the import to and export from the UK, respectively. When organs are donated from deceased donors and cannot be used in that country, the organs are offered for use in other countries. This is usually because there is no suitable recipient because of blood group or size. The current EU Directive ensures that all organs that are imported into the UK are evaluated to the same high standards as in the UK. The UK has special arrangements with the Republic of Ireland so that some patients from Ireland will come to the UK for the transplant procedure where units in the UK have particular expertise. For those with fulminant hepatic failure, the UK and Ireland will also share livers. International sharing of organs represents a very small proportion of the UK transplant activity and is set up to ensure that all donated organs are used whenever appropriate.

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2015 – 31 March 2016 (2014-2015), by donating hospital

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
East Midlands														
Boston, Pilgrim Hospital	3	(2)	0	(0)	3	(2)	3	(2)	4	1	2	2	0	0
Chesterfield, Chesterfield Royal Hospital	0	(4)	0	(2)	0	(6)	0	(5)	0	0	0	0	0	0
Derby, Royal Derby Hospital	1	(2)	10	(1)	11	(3)	6	(3)	22	0	0	6	0	0
Grantham, Grantham And District Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	1	0
Kettering, Kettering General Hospital	10	(5)	0	(0)	10	(5)	9	(5)	18	1	2	10	4	1
Leicester, Glenfield General Hospital	0	(0)	1	(3)	1	(3)	1	(1)	2	0	0	1	1	0
Leicester, Leicester Royal Infirmary	6	(9)	3	(3)	9	(12)	8	(9)	18	3	0	8	3	0
Lincoln, Lincoln County Hospital	0	(2)	1	(5)	1	(7)	0	(3)	2	0	0	0	0	0
Northampton, Northampton General Hospital	2	(1)	3	(1)	5	(2)	4	(2)	10	0	0	4	0	0
Nottingham, Nottingham City Hospital	1	(1)	0	(1)	1	(2)	1	(1)	2	0	0	1	0	0
Nottingham, Nottingham University Hospital	14	(8)	17	(16)	31	(24)	23	(15)	60	4	8	23	11	0
Sutton-In-Ashfield, King's Mill Hospital	0	(3)	1	(3)	1	(6)	1	(4)	2	0	0	1	0	0
Total	**38**	**(37)**	**36**	**(35)**	**74**	**(72)**	**57**	**(50)**	**142**	**9**	**12**	**57**	**20**	**1**
East of England														
Basildon, Basildon Hospital	4	(1)	2	(4)	6	(5)	4	(2)	10	1	2	4	1	0
Bedford, Bedford Hospital	0	(1)	2	(2)	2	(3)	2	(1)	4	0	0	2	1	0
Bury St Edmunds, West Suffolk Hospital	1	(4)	2	(1)	3	(5)	1	(3)	6	0	0	1	0	0
Cambridge, Addenbrooke's Hospital	16	(19)	32	(21)	48	(40)	35	(32)	92	16	13	34	24	3
Chelmsford, Broomfield Hospital	4	(7)	1	(2)	5	(9)	3	(6)	10	2	2	3	2	1
Colchester, Colchester General Hospital	1	(3)	3	(0)	4	(3)	3	(3)	8	0	0	3	1	0
Great Yarmouth, James Paget Hospital	0	(3)	6	(3)	6	(6)	2	(4)	12	1	2	1	0	0
Harlow, Princess Alexandra Hospital	1	(1)	0	(1)	1	(2)	1	(0)	2	0	2	1	1	0
Huntingdon, Hinchingbrooke Hospital	1	(1)	1	(1)	2	(2)	1	(1)	4	0	0	1	0	0
Ipswich, Ipswich Hospital	1	(1)	4	(3)	5	(4)	2	(3)	8	0	0	3	1	0
Kings Lynn, The Queen Elizabeth Hospital	1	(3)	3	(0)	4	(3)	2	(2)	6	0	0	3	0	0
Luton, Luton And Dunstable Hospital	4	(1)	1	(3)	5	(4)	5	(1)	8	1	2	5	1	0
Norwich, Norfolk And Norwich University Hospital	9	(8)	10	(16)	19	(24)	17	(9)	36	7	7	15	9	0
Papworth, Papworth Hospital	0	(1)	3	(2)	3	(3)	1	(2)	2	1	0	1	1	0
Peterborough, Peterborough City Hospital	0	(2)	2	(1)	2	(3)	1	(3)	4	0	0	1	0	0
Stevenage, Lister Hospital	2	(1)	5	(5)	7	(6)	4	(2)	14	0	0	4	2	0
Watford, Watford General Hospital	4	(5)	2	(2)	6	(7)	4	(4)	12	0	0	4	2	0
Westcliff On Sea, Southend Hospital	3	(3)	0	(2)	3	(5)	2	(4)	6	1	0	2	1	0
Total	**52**	**(65)**	**79**	**(69)**	**131**	**(134)**	**90**	**(82)**	**244**	**30**	**30**	**88**	**47**	**4**

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2015 – 31 March 2016 (2014-2015), by donating hospital														
Donating hospital	**DBD**		**DCD**		**All donors**		**Multi-organ donor**		**Kidney**	**Heart**	**Lung**	**Liver**	**Pancreas**	**Bowel**
London														
Barnet, Barnet General Hospital	3	(2)	0	(2)	3	(4)	3	(2)	6	1	4	3	2	0
Croydon, Mayday University Hospital	0	(2)	2	(1)	2	(3)	1	(3)	4	0	0	1	0	0
Epsom General Hospital	0	(1)	0	(0)	0	(1)	0	(0)	0	0	0	0	0	0
Evelina Childrens Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Harefield, Harefield Hospital	3	(2)	3	(1)	6	(3)	2	(2)	8	0	4	3	2	0
Harrow, Northwick Park Hospital	4	(5)	2	(0)	6	(5)	4	(5)	12	0	0	4	1	0
Isleworth, West Middlesex University Hospital	1	(1)	0	(0)	1	(1)	1	(1)	2	1	0	0	0	0
Kingston, Kingston Hospital	0	(1)	1	(1)	1	(2)	0	(1)	2	0	0	0	0	0
London, Central Middlesex Hospital	0	(1)	1	(0)	1	(1)	0	(1)	2	0	0	0	0	0
London, Charing Cross Hospital	6	(11)	2	(4)	8	(15)	6	(14)	16	1	4	6	2	0
London, Great Ormond Street Hospital For Children	0	(1)	1	(1)	1	(2)	0	(2)	2	0	0	0	0	0
London, Hammersmith Hospital	1	(4)	2	(1)	3	(5)	3	(2)	6	0	0	2	2	0
London, Heart Hospital	0	(1)	0	(0)	0	(1)	0	(0)	0	0	0	0	0	0
London, Homerton Hospital	1	(0)	1	(0)	2	(0)	1	(0)	4	1	0	1	1	0
London, King's College Hospital	16	(12)	8	(11)	24	(23)	20	(16)	45	7	10	19	12	0
London, National Hospital For Neurology And Neurosurgery	17	(4)	0	(1)	17	(5)	17	(4)	33	4	6	17	9	0
London, Newham General Hospital	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	1	1	0
London, North Middlesex Hospital	2	(0)	1	(3)	3	(3)	3	(3)	6	1	0	3	1	0
London, Queen Elizabeth Hospital	1	(1)	2	(1)	3	(2)	2	(2)	6	1	0	2	1	0
London, Royal Brompton Hospital	0	(1)	1	(2)	1	(3)	1	(1)	2	0	0	1	0	0
London, Royal Free Hospital	2	(0)	0	(3)	2	(3)	2	(2)	4	1	0	1	0	0
London, St Bartholomew's Hospital	3	(0)	2	(0)	5	(0)	2	(0)	10	0	0	2	2	0
London, St George's Hospital	37	(33)	12	(10)	49	(43)	38	(35)	91	8	20	39	18	1
London, St Mary's Hospital	3	(4)	7	(4)	10	(8)	5	(6)	18	1	0	6	2	0
London, St Thomas' Hospital	5	(3)	4	(3)	9	(6)	7	(5)	16	0	4	7	4	0
London, The London Chest Hospital	0	(3)	0	(1)	0	(4)	0	(2)	0	0	0	0	0	0
London, The Royal London Hospital (Whitechapel)	20	(16)	6	(6)	26	(22)	22	(16)	48	9	6	24	10	1
London, The Whittington Hospital	0	(0)	1	(1)	1	(1)	0	(0)	2	0	0	0	0	0
London, University College Hospital	3	(5)	0	(0)	3	(5)	2	(4)	4	1	0	3	1	0
London, University Hospital Lewisham	1	(1)	0	(0)	1	(1)	0	(1)	0	0	0	1	0	0
London, Whipps Cross Hospital	1	(1)	0	(1)	1	(2)	1	(0)	2	0	0	1	0	0
Orpington, Princess Royal University Hospital	6	(7)	1	(1)	7	(8)	4	(5)	10	2	2	6	3	0
Romford, Queens Hospital	8	(9)	4	(3)	12	(12)	10	(10)	22	1	6	11	6	0
Southall, Ealing Hospital	1	(2)	0	(1)	1	(3)	1	(2)	2	0	0	1	1	0
Uxbridge, Hillingdon Hospital	1	(2)	2	(0)	3	(2)	3	(2)	6	1	4	2	1	0
Total	**147**	**(138)**	**66**	**(63)**	**213**	**(201)**	**162**	**(151)**	**393**	**41**	**70**	**167**	**82**	**2**

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2015 – 31 March 2016 (2014-2015), by donating hospital														
Donating hospital	**DBD**		**DCD**		**All donors**		**Multi-organ donor**		**Kidney**	**Heart**	**Lung**	**Liver**	**Pancreas**	**Bowel**
North East														
Ashington, Wansbeck Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Darlington, Darlington Memorial Hospital	1	(1)	1	(1)	2	(2)	2	(1)	4	1	0	2	2	0
Durham, University Hospital Of North Durham	1	(2)	2	(2)	3	(4)	3	(3)	6	0	2	3	3	0
Gateshead, Queen Elizabeth Hospital	1	(0)	3	(1)	4	(1)	3	(0)	8	1	2	3	1	0
Middlesbrough, The James Cook University Hospital	15	(13)	8	(7)	23	(20)	17	(13)	46	2	7	16	11	0
Newcastle, Freeman Hospital	3	(2)	3	(2)	6	(4)	2	(1)	10	0	0	3	1	0
Newcastle, Royal Victoria Infirmary	15	(17)	10	(14)	25	(31)	17	(19)	48	3	12	15	6	0
North Shields, North Tyneside General Hospital	0	(0)	0	(2)	0	(2)	0	(0)	0	0	0	0	0	0
Northallerton, Friarage Hospital	1	(2)	0	(0)	1	(2)	1	(2)	2	0	0	1	1	0
Northumbria, Nsech	4	(0)	3	(0)	7	(0)	4	(0)	13	0	2	4	1	0
South Shields, South Tyneside District General Hospital	1	(1)	1	(0)	2	(1)	1	(1)	4	0	2	1	1	0
Stockton-On-Tees, University Hospital Of North Tees	2	(2)	2	(1)	4	(3)	4	(1)	8	0	0	3	1	0
Sunderland, Sunderland Royal Hospital	5	(1)	2	(1)	7	(2)	5	(2)	13	2	7	5	3	0
Total	**49**	**(42)**	**35**	**(31)**	**84**	**(73)**	**59**	**(44)**	**162**	**9**	**34**	**56**	**31**	**0**
North West														
Ashton-Under-Lyne, Tameside General Hospital	1	(2)	1	(0)	2	(2)	1	(2)	4	1	0	1	1	0
Barrow-In-Furness, Furness General Hospital	1	(2)	1	(0)	2	(2)	1	(2)	2	0	0	2	0	0
Blackburn, Royal Blackburn Hospital	1	(4)	6	(3)	7	(7)	4	(6)	14	0	0	4	1	0
Blackpool, Blackpool Victoria Hospital	2	(2)	2	(1)	4	(3)	2	(1)	8	0	0	2	1	0
Bolton, Royal Bolton Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Bury, Fairfield General Hospital	3	(0)	0	(0)	3	(0)	3	(0)	6	2	4	3	3	0
Carlisle, Cumberland Infirmary	2	(4)	0	(2)	2	(6)	1	(4)	4	0	0	1	0	0
Chester, Countess Of Chester Hospital	4	(2)	0	(1)	4	(3)	3	(2)	6	2	0	4	2	0
Crewe, Leighton Hospital	2	(1)	0	(2)	2	(3)	2	(3)	4	0	0	2	0	0
Lancaster, Royal Lancaster Infirmary	1	(2)	2	(1)	3	(3)	2	(2)	4	0	0	3	1	0
Liverpool, Alder Hey Children's Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0	0
Liverpool, Liverpool Heart And Chest Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Liverpool, Royal Liverpool University Hospital	4	(1)	0	(0)	4	(1)	3	(1)	6	0	1	3	1	0
Liverpool, University Hospital Aintree	3	(1)	5	(1)	8	(2)	7	(2)	16	0	2	7	5	0
Liverpool, Walton Centre For Neurology And Neurosurgery	10	(14)	8	(7)	18	(21)	15	(15)	31	5	2	15	7	0
Manchester, Manchester Royal Infirmary	6	(2)	3	(2)	9	(4)	7	(2)	18	3	0	6	5	0
Manchester, North Manchester General Hospital	2	(1)	0	(2)	2	(3)	2	(0)	4	0	0	2	0	0
Manchester, Royal Manchester Children's Hospital	1	(0)	2	(0)	3	(0)	2	(0)	6	1	2	2	2	0
Manchester, St Marys Hospital	0	(0)	1	(0)	1	(0)	1	(0)	2	0	0	1	0	0
Manchester, Wythenshawe Hospital	3	(5)	4	(4)	7	(9)	4	(4)	14	1	2	4	2	0
Oldham, Royal Oldham Hospital (Rochdale Road)	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2015 – 31 March 2016 (2014-2015), by donating hospital														
Donating hospital	**DBD**		**DCD**		**All donors**		**Multi-organ donor**		**Kidney**	**Heart**	**Lung**	**Liver**	**Pancreas**	**Bowel**
Prescot, Whiston Hospital	1	(0)	4	(2)	5	(2)	3	(2)	10	0	0	3	2	0
Preston, Royal Preston Hospital	4	(7)	8	(5)	12	(12)	8	(8)	23	2	4	8	1	0
Salford, Salford Royal	15	(10)	9	(8)	24	(18)	19	(13)	48	6	5	19	9	0
Southport, Southport District General Hospital	1	(1)	1	(1)	2	(2)	1	(1)	4	0	0	1	1	0
Stockport, Stepping Hill Hospital	0	(1)	0	(1)	0	(2)	0	(1)	0	0	0	0	0	0
Warrington, Warrington Hospital	3	(4)	1	(0)	4	(4)	3	(4)	8	1	2	3	2	0
Whitehaven, West Cumberland Hospital	1	(1)	0	(1)	1	(2)	1	(1)	2	0	0	1	0	0
Wigan, Royal Albert Edward Infirmary	3	(0)	4	(1)	7	(1)	5	(0)	14	0	0	5	1	0
Wirral, Arrowe Park Hospital	4	(1)	3	(3)	7	(4)	4	(3)	14	1	0	4	2	0
Total	**78**	**(73)**	**65**	**(48)**	**143**	**(121)**	**104**	**(84)**	**272**	**25**	**24**	**106**	**49**	**0**
South Central														
Aylesbury, Stoke Mandeville Hospital	1	(0)	2	(1)	3	(1)	2	(1)	4	0	0	3	0	0
Banbury, Horton General Hospital	1	(0)	0	(1)	1	(1)	0	(0)	0	0	0	1	0	0
Basingstoke, North Hampshire Hospital	3	(4)	1	(1)	4	(5)	3	(2)	8	0	0	3	1	0
Milton Keynes, Milton Keynes General Hospital	1	(0)	2	(3)	3	(3)	2	(1)	4	0	0	2	1	0
Newport, St Mary's Hospital	2	(1)	3	(2)	5	(3)	3	(3)	10	0	0	3	2	0
Oxford, Churchill Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Oxford, John Radcliffe Hospital	11	(16)	7	(4)	18	(20)	13	(19)	32	4	10	13	7	0
Portsmouth, Queen Alexandra Hospital	7	(3)	4	(2)	11	(5)	6	(4)	20	2	4	6	2	1
Reading, Royal Berkshire Hospital	3	(2)	1	(2)	4	(4)	4	(3)	8	0	2	4	1	0
Southampton, Southampton University Hospitals	17	(11)	15	(5)	32	(16)	26	(11)	63	8	11	24	17	1
Winchester, Royal Hampshire County Hospital	1	(1)	0	(0)	1	(1)	0	(1)	2	0	0	0	0	0
Wycombe, Wycombe General Hospital	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	1	0	0
Total	**48**	**(40)**	**35**	**(21)**	**83**	**(61)**	**60**	**(47)**	**153**	**14**	**27**	**60**	**31**	**2**
South East Coast														
Ashford, William Harvey Hospital	5	(3)	4	(1)	9	(4)	6	(3)	18	0	4	6	2	0
Brighton, Royal Sussex County Hospital	10	(7)	9	(3)	19	(10)	15	(7)	36	4	6	15	5	0
Camberley, Frimley Park Hospital	2	(3)	3	(5)	5	(8)	3	(4)	10	0	0	3	0	0
Canterbury, Kent And Canterbury Hospital	0	(2)	1	(2)	1	(4)	0	(1)	2	0	0	0	0	0
Chertsey, St Peter's Hospital	1	(3)	3	(1)	4	(4)	2	(3)	8	0	0	2	1	0
Chichester, St Richard's Hospital	4	(1)	2	(2)	6	(3)	4	(1)	10	0	0	5	0	0
Dartford, Darent Valley Hospital	1	(2)	5	(3)	6	(5)	2	(2)	11	0	0	2	0	0
Eastbourne, Eastbourne District General Hospital	1	(3)	2	(1)	3	(4)	2	(2)	6	0	2	2	1	0
Gillingham, Medway Hospital	9	(6)	1	(6)	10	(12)	7	(7)	18	2	4	8	2	0
Guildford, Royal Surrey County Hospital	0	(2)	1	(1)	1	(3)	0	(3)	2	0	0	0	0	0
Hastings, Conquest Hospital	0	(2)	1	(0)	1	(2)	0	(2)	2	0	0	0	0	0

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2015 – 31 March 2016 (2014-2015), by donating hospital

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
Haywards Heath, Hurstwood Park Hospital	0	(1)	1	(4)	1	(5)	0	(3)	2	0	0	0	0	0
Haywards Heath, Princess Royal Hospital	1	(0)	0	(0)	1	(0)	0	(0)	0	1	0	0	0	0
Maidstone, Maidstone District General Hospital	2	(0)	0	(0)	2	(0)	0	(0)	4	0	0	0	0	0
Margate, Queen Elizabeth The Queen Mother Hospital	1	(1)	1	(2)	2	(3)	2	(1)	4	0	0	2	1	0
Redhill, East Surrey Hospital	3	(3)	0	(1)	3	(4)	3	(3)	6	0	2	3	1	0
Slough, Wexham Park Hospital	7	(7)	4	(0)	11	(7)	6	(6)	17	2	4	8	3	0
Tunbridge Wells, Tunbridge Wells Hospital	3	(4)	0	(0)	3	(4)	3	(4)	6	1	2	3	2	0
Worthing, Worthing Hospital	4	(3)	3	(3)	7	(6)	3	(3)	12	0	0	4	1	0
Total	**54**	**(53)**	**41**	**(35)**	**95**	**(88)**	**58**	**(55)**	**174**	**10**	**24**	**63**	**19**	**0**
South West														
Barnstaple, North Devon District Hospital	2	(0)	1	(0)	3	(0)	3	(0)	6	0	0	3	0	0
Bath, Royal United Hospital	0	(1)	2	(3)	2	(4)	0	(2)	3	0	0	0	0	0
Bournemouth, Royal Bournemouth General Hospital	1	(4)	3	(3)	4	(7)	4	(7)	8	1	2	4	1	0
Bristol, Bristol Royal Hospital For Children	3	(0)	3	(0)	6	(0)	6	(0)	12	3	6	6	4	0
Bristol, Bristol Royal Infirmary	2	(5)	5	(6)	7	(11)	4	(7)	14	0	2	4	1	0
Bristol, Frenchay Hospital	0	(1)	0	(1)	0	(2)	0	(2)	0	0	0	0	0	0
Bristol, Southmead Hospital	16	(11)	11	(5)	27	(16)	20	(14)	52	1	6	21	9	0
Cheltenham, Cheltenham General Hospital	1	(2)	0	(1)	1	(3)	1	(2)	2	0	0	1	0	0
Dorchester, Dorset County Hospital	3	(1)	2	(2)	5	(3)	4	(3)	10	1	0	4	2	0
Exeter, Royal Devon And Exeter Hospital (Wonford)	7	(8)	5	(2)	12	(10)	9	(9)	24	1	4	9	2	0
Gloucester, Gloucestershire Royal Hospital	4	(5)	3	(1)	7	(6)	5	(3)	14	1	1	5	1	0
Plymouth, Derriford Hospital	18	(11)	7	(6)	25	(17)	19	(14)	48	1	6	20	8	0
Poole, Poole General Hospital	4	(3)	0	(2)	4	(5)	4	(5)	8	0	0	4	2	0
Salisbury, Salisbury District Hospital	1	(2)	1	(0)	2	(2)	1	(1)	4	0	0	1	0	0
Swindon, Great Western Hospital	3	(6)	1	(3)	4	(9)	3	(8)	8	0	0	3	2	0
Taunton, Taunton And Somerset Hospital (Musgrove Park)	1	(3)	3	(4)	4	(7)	2	(5)	6	1	0	3	1	0
Torquay, Torbay Hospital	2	(3)	3	(3)	5	(6)	4	(3)	10	0	2	4	2	0
Truro, Royal Cornwall Hospital (Treliske)	3	(5)	1	(4)	4	(9)	3	(6)	6	0	0	4	1	0
Weston-Super-Mare, Weston General Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0	0
Yeovil, Yeovil District Hospital	2	(0)	0	(1)	2	(1)	1	(1)	2	0	0	2	1	0
Total	**73**	**(73)**	**51**	**(47)**	**124**	**(120)**	**93**	**(94)**	**237**	**10**	**29**	**98**	**37**	**0**
West Midlands														
Birmingham, Birmingham Children's Hospital	3	(2)	0	(0)	3	(2)	3	(2)	6	1	0	3	1	0
Birmingham, Birmingham Heartlands Hospital	4	(3)	1	(2)	5	(5)	5	(5)	10	0	1	5	2	0
Birmingham, City Hospital	1	(1)	3	(4)	4	(5)	3	(3)	8	0	0	3	1	0
Birmingham, Queen Elizabeth Hospital Birmingham	17	(11)	5	(4)	22	(15)	19	(14)	43	7	6	19	8	0

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2015 – 31 March 2016 (2014-2015), by donating hospital

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
Burton-On-Trent, Queen's Hospital	1	(0)	0	(1)	1	(1)	1	(1)	2	0	2	1	1	0
Coventry, University Hospital	9	(7)	7	(8)	16	(15)	12	(10)	28	1	2	13	9	0
Dudley, Russells Hall Hospital	0	(0)	0	(3)	0	(3)	0	(1)	0	0	0	0	0	0
Hereford, The County Hospital	2	(1)	0	(4)	2	(5)	2	(3)	4	0	2	2	1	0
Nuneaton, George Eliot Hospital	1	(1)	1	(2)	2	(3)	2	(2)	4	1	2	2	2	0
Redditch, The Alexandra Hospital	1	(3)	1	(0)	2	(3)	1	(3)	4	0	0	1	0	0
Shrewsbury, Royal Shrewsbury Hospital	4	(4)	1	(0)	5	(4)	3	(3)	8	1	0	3	3	0
Stoke-On-Trent, Royal Stoke University Hospital	9	(13)	15	(3)	24	(16)	17	(14)	44	3	2	17	8	0
Sutton Coldfield, Good Hope District General Hosp.	1	(2)	0	(3)	1	(5)	1	(2)	2	1	2	1	1	0
Telford, The Princess Royal Hospital	4	(2)	1	(0)	5	(2)	4	(1)	9	0	0	4	2	0
Walsall, Manor Hospital	2	(0)	0	(3)	2	(3)	2	(1)	4	1	0	2	1	0
Warwick, Warwick Hospital	3	(2)	1	(0)	4	(2)	3	(2)	8	0	0	2	2	0
West Bromwich, Sandwell General Hospital	1	(1)	1	(1)	2	(2)	2	(1)	4	0	2	1	0	0
Wolverhampton, New Cross Hospital	1	(1)	0	(1)	1	(2)	1	(1)	2	0	0	1	0	0
Worcester, Worcestershire Royal Hospital	1	(8)	3	(1)	4	(9)	3	(9)	8	0	0	3	0	0
Total	**65**	**(62)**	**40**	**(40)**	**105**	**(102)**	**84**	**(78)**	**198**	**16**	**21**	**83**	**42**	**0**
Yorkshire and the Humber														
Barnsley, Barnsley District General Hospital	2	(2)	2	(5)	4	(7)	3	(3)	8	0	0	3	3	0
Bradford, Bradford Royal Infirmary	4	(2)	1	(1)	5	(3)	3	(2)	8	1	4	4	2	0
Cottingham, Castle Hill Hospital	0	(1)	1	(0)	1	(1)	0	(1)	2	0	0	0	0	0
Doncaster, Doncaster Royal Infirmary	0	(7)	0	(0)	0	(7)	0	(6)	0	0	0	0	0	0
Grimsby, Diana Princess Of Wales Hospital	0	(0)	1	(0)	1	(0)	0	(0)	2	0	0	0	0	0
Halifax, Calderdale Royal Hospital	1	(2)	1	(1)	2	(3)	1	(2)	3	0	2	1	1	0
Harrogate, Harrogate District Hospital	2	(0)	0	(0)	2	(0)	2	(0)	2	0	4	2	1	0
Huddersfield, Huddersfield Royal Infirmary	3	(0)	4	(5)	7	(5)	3	(3)	10	0	0	5	1	0
Hull, Hull Royal Infirmary	6	(3)	8	(7)	14	(10)	8	(7)	28	4	0	8	4	0
Keighley, Airedale General Hospital	1	(0)	1	(1)	2	(1)	2	(1)	4	0	0	2	1	0
Leeds, Leeds General Infirmary	16	(12)	8	(14)	24	(26)	20	(17)	48	6	14	19	8	1
Leeds, St James's University Hospital	4	(0)	1	(3)	5	(3)	3	(2)	8	2	2	4	1	0
Rotherham, Rotherham District General Hospital	0	(1)	1	(1)	1	(2)	1	(2)	2	0	0	1	1	0
Scarborough, Scarborough General Hospital	0	(2)	0	(1)	0	(3)	0	(2)	0	0	0	0	0	0
Scunthorpe, Scunthorpe General Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Sheffield, Northern General Hospital	8	(7)	4	(1)	12	(8)	11	(7)	23	3	2	11	6	1
Sheffield, Royal Hallamshire Hospital	4	(7)	3	(3)	7	(10)	6	(9)	14	0	2	5	2	0
Sheffield, Sheffield Children's Hospital	0	(1)	2	(1)	2	(2)	2	(1)	4	0	2	1	2	0
Wakefield, Pinderfields General Hospital	3	(3)	2	(0)	5	(3)	2	(2)	8	0	0	3	1	0
Worksop, Bassetlaw District General Hospital	0	(1)	0	(0)	0	(1)	0	(0)	0	0	0	0	0	0

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Donating hospital	**DBD**		**DCD**		**All donors**		**Multi-organ donor**		**Kidney**	**Heart**	**Lung**	**Liver**	**Pancreas**	**Bowel**
York, York District Hospital	5	(2)	1	(1)	6	(3)	6	(2)	12	1	2	6	1	0
Total	**59**	**(54)**	**41**	**(45)**	**100**	**(99)**	**73**	**(70)**	**186**	**17**	**34**	**75**	**35**	**2**
Channel Islands														
St Helier, Jersey General Hospital	1	(1)	0	(0)	1	(1)	1	(1)	2	1	0	1	0	0
Total	**1**	**(1)**	**0**	**(0)**	**1**	**(1)**	**1**	**(1)**	**2**	**1**	**0**	**1**	**0**	**0**
Isle of Man														
Douglas, Nobles I-O-M Hospital	1	(4)	0	(0)	1	(4)	1	(3)	2	1	0	1	1	0
Total	**1**	**(4)**	**0**	**(0)**	**1**	**(4)**	**1**	**(3)**	**2**	**1**	**0**	**1**	**1**	**0**
England	**665**	**(642)**	**489**	**(434)**	**1154**	**1076)**	**842**	**(759)**	**2165**	**183**	**305**	**855**	**394**	**11**
Northern Ireland														
Belfast, Antrim Hospital	0	(0)	1	(1)	1	(1)	0	(0)	0	0	2	0	0	0
Belfast, Belfast City Hospital	3	(0)	1	(1)	4	(1)	4	(0)	8	0	4	4	1	0
Belfast, Mater Infirmorum Hospital	2	(1)	0	(0)	2	(1)	2	(1)	4	0	2	2	2	0
Belfast, Royal Belfast Hospital For Sick Children	3	(2)	1	(1)	4	(3)	4	(3)	8	1	2	4	3	1
Belfast, Royal Victoria Hospital	11	(14)	7	(5)	18	(19)	11	(16)	36	5	12	11	5	0
Belfast, The Ulster Hospital	1	(2)	2	(2)	3	(4)	1	(3)	5	0	2	1	1	0
Coleraine, Causeway Hospital	0	(0)	1	(0)	1	(0)	0	(0)	2	0	0	0	0	0
Enniskillen, South West Acute Hospital	2	(3)	1	(1)	3	(4)	2	(2)	6	1	0	2	1	0
Londonderry, Altnagelvin Area Hospital	4	(6)	1	(1)	5	(7)	5	(6)	10	1	2	5	2	0
Portadown, Craigavon Area Hospital	2	(6)	4	(2)	6	(8)	2	(5)	12	0	2	2	1	0
Total	**28**	**(34)**	**19**	**(14)**	**47**	**(48)**	**31**	**(36)**	**91**	**8**	**28**	**31**	**16**	**1**
Scotland														
Aberdeen, Aberdeen Royal Infirmary	4	(8)	11	(7)	15	(15)	6	(11)	26	0	0	7	6	0
Airdrie, Monklands District General Hospital	1	(3)	1	(0)	2	(3)	2	(3)	4	0	0	2	1	0
Ayr, The Ayr Hospital	0	(1)	1	(0)	1	(1)	0	(1)	1	0	0	0	0	0
Dumfries, Dumfries And Galloway Royal Infirmary	3	(2)	0	(1)	3	(3)	2	(3)	2	1	0	2	1	0
Dundee, Ninewells Hospital	2	(1)	1	(4)	3	(5)	3	(2)	6	0	0	3	0	0
East Kilbride, Hairmyres Hospital	2	(3)	1	(0)	3	(3)	2	(2)	6	1	2	2	2	0
Edinburgh, Royal Hospital For Sick Children	1	(0)	0	(0)	1	(0)	1	(0)	2	1	2	1	0	1
Edinburgh, Royal Infirmary Of Edinburgh	2	(3)	7	(3)	9	(6)	7	(4)	18	1	2	7	0	0
Edinburgh, Western General Hospital	5	(6)	7	(10)	12	(16)	10	(11)	24	1	8	9	8	0

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2015 – 31 March 2016 (2014-2015), by donating hospital

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
Fort William, Belford Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	1	0
Glasgow, Golden Jubilee National Hospital	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	1	0	0
Glasgow, Queen Elizabeth University Hospital	9	(0)	2	(0)	11	(0)	11	(0)	21	2	4	11	5	0
Glasgow, Royal Hospital For Sick Children	0	(1)	0	(1)	0	(2)	0	(2)	0	0	0	0	0	0
Glasgow, Southern General Hospital	1	(6)	0	(3)	1	(9)	1	(9)	2	1	0	1	1	1
Glasgow, The Royal Hospital For Children	2	(0)	0	(0)	2	(0)	2	(0)	4	1	0	2	2	1
Glasgow, Western Infirmary	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0	0
Greenock, Inverclyde Royal Hospital	0	(0)	2	(0)	2	(0)	2	(0)	4	0	0	2	1	0
Glasgow, Golden Jubilee National Hospital	3	(5)	0	(0)	3	(5)	2	(5)	6	0	2	2	0	0
Inverness, Raigmore Hospital	2	(3)	1	(1)	3	(4)	3	(4)	6	0	4	1	1	0
Kilmarnock, Crosshouse Hospital	2	(1)	0	(1)	2	(2)	2	(2)	3	0	0	2	0	0
Kirkcaldy, Victoria Hospital	2	(4)	2	(2)	4	(6)	3	(3)	8	0	2	3	2	0
Larbert, Forth Valley Royal Hospital	4	(3)	3	(0)	7	(3)	6	(2)	13	0	0	6	2	0
Livingston, St John's Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0	0
Melrose, Borders General Hospital	0	(3)	1	(0)	1	(3)	1	(3)	2	0	0	1	1	0
Paisley, Royal Alexandra Hospital	1	(4)	1	(0)	2	(4)	2	(4)	4	0	2	2	2	1
Perth, Perth Royal Infirmary	2	(0)	2	(0)	4	(0)	2	(0)	8	0	2	1	2	0
Wishaw, Wishaw General Hospital	6	(2)	0	(1)	6	(3)	5	(3)	12	2	4	5	2	0
Total	**56**	**(64)**	**43**	**(34)**	**99**	**(98)**	**77**	**(79)**	**186**	**11**	**34**	**74**	**40**	**4**
Wales														
Abergavenny, Nevill Hall Hospital	1	(2)	1	(1)	2	(3)	2	(3)	4		2	2	1	0
Bangor, Ysbyty Gwynedd District General Hospital	3	(4)	1	(2)	4	(6)	3	(4)	8	0	0	3	0	0
Bodelwyddan, Glan Clwyd District General Hospital	2	(1)	6	(0)	8	(1)	2	(1)	14	0	0	3	0	0
Bridgend, Princess Of Wales Hospital	2	(0)	1	(2)	3	(2)	3	(1)	5	0	2	3	1	0
Cardiff, University Of Wales Hospital	14	(9)	10	(11)	24	(20)	21	(15)	46	3	12	21	9	0
Carmarthen, Glangwili General Hospital	0	(2)	1	(2)	1	(4)	0	(4)	2	0	0	0	0	0
Haverford West, Withybush General Hospital	1	(0)	1	(1)	2	(1)	1	(0)	4	0	0	1	0	0
Llanelli, Prince Philips Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0	0
Merthyr Tydfil, Prince Charles Hospital	3	(1)	1	(1)	4	(2)	3	(2)	8	0	2	3	1	0
Newport, Royal Gwent Hospital	3	(2)	2	(5)	5	(7)	4	(3)	10	0	0	4	1	0
Pontypridd, Royal Glamorgan Hospital	2	(5)	1	(0)	3	(5)	3	(3)	6	0	0	3	1	0
Swansea, Morriston Hospital	5	(4)	1	(2)	6	(6)	6	(6)	12	2	6	6	4	0
Wrexham, Maelor General Hospital	0	(0)	2	(1)	2	(1)	2	(1)	4	0	0	2	0	0
Total	**36**	**(32)**	**28**	**(28)**	**64**	**(60)**	**50**	**(45)**	**123**	**6**	**24**	**51**	**18**	**0**

Appendix IIA Numbers of donors after brain death and organs retrieved in the UK, 1 April 2015 - 31 March 2016, by country/ Strategic Health Authority

	Donors				Organs					
Country/ Strategic Health Authority	**All donors**	**pmp**	**Multi-organ donors**	**pmp**	**Kidney**	**Heart**	**Lung**	**Liver**	**Pancreas**	**Bowel**
North East	40	15.3	36	13.7	79	7	25	35	18	0
North West	80	11.2	72	10.1	153	25	24	71	35	0
Yorkshire and The Humber	61	11.4	55	10.3	112	18	29	57	30	2
East Midlands	46	9.9	42	9.1	84	11	14	42	20	1
West Midlands	62	10.9	57	10.0	120	14	11	57	27	0
East of England	65	10.8	59	9.8	122	17	33	60	31	4
London	85	10.0	71	8.3	152	27	32	76	34	2
South East Coast	81	17.6	67	14.6	151	14	34	70	32	0
South Central	60	14.0	47	11.0	103	14	22	53	25	1
South West	78	14.4	71	13.1	146	12	19	76	32	1
England	**658**	**12.1**	**577**	**10.6**	**1222**	**159**	**243**	**597**	**284**	**11**
Isle of Man	**1**	**12.5**	**1**	**12.5**	**2**	**1**	**0**	**1**	**1**	**0**
Channel Islands	**2**	**12.5**	**2**	**12.5**	**4**	**1**	**0**	**2**	**0**	**0**
Wales	**37**	**12.0**	**34**	**11.0**	**68**	**7**	**18**	**36**	**17**	**0**
Scotland	**58**	**10.8**	**52**	**9.7**	**108**	**11**	**32**	**52**	**26**	**4**
Northern Ireland	**29**	**15.8**	**27**	**14.7**	**58**	**8**	**20**	**27**	**15**	**1**
TOTAL	**785**	**12.1**	**693**	**10.7**	**1462**	**187**	**313**	**715**	**343**	**16**

Appendix IIB Numbers of donors after circulatory death and organs retrieved in the UK, 1 April 2015 - 31 March 2016, by country/ Strategic Health Authority

	Donors				Organs					
Country/ Strategic Health Authority	**All donors**	**pmp**	**Multi-organ donors**	**pmp**	**Kidney**	**Heart**	**Lung**	**Liver**	**Pancreas**	**Bowel**
North East	31	11.8	15	5.7	59	0	8	13	9	0
North West	60	8.4	36	5.0	117	0	4	37	16	0
Yorkshire and The Humber	43	8.0	19	3.5	80	1	8	20	8	0
East Midlands	43	9.3	27	5.8	86	1	0	27	7	0
West Midlands	34	6.0	21	3.7	64	0	6	19	7	0
East of England	80	13.3	42	7.0	154	11	3	40	19	0
London	48	5.6	24	2.8	90	4	10	21	15	0
South East Coast	46	10.0	27	5.9	87	3	2	26	8	0
South Central	38	8.9	19	4.4	69	0	11	18	6	0
South West	53	9.8	27	5.0	103	1	10	27	9	0
England	**476**	**8.8**	**257**	**4.7**	**909**	**21**	**62**	**248**	**104**	**0**
Isle of Man	**1**	**12.5**	**1**	**12.5**	**2**	**0**	**0**	**1**	**0**	**0**
Channel Islands	**1**	**6.3**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**
Wales	**38**	**12.3**	**17**	**5.5**	**71**	**0**	**6**	**18**	**5**	**0**
Scotland	**45**	**8.4**	**28**	**5.2**	**86**	**0**	**4**	**25**	**15**	**0**
Northern Ireland	**18**	**9.8**	**4**	**2.2**	**33**	**0**	**6**	**4**	**1**	**0**
TOTAL	**579**	**8.9**	**307**	**4.7**	**1103**	**21**	**78**	**296**	**125**	**0**

Appendix III	Populations for SHAs, 2015-2016 Mid-2014 estimates based on ONS 2013 Census figures
SHA	**Population (millions)**
North East	2.62
North West	7.13
Yorkshire and The Humber	5.36
East Midlands	4.64
West Midlands	5.71
East of England	6.02
London	8.54
South East Coast[1]	4.59
South Central[1]	4.29
South West	5.42
England	**54.32**
Isle of Man	**0.08**
Channel Islands	**0.16**
Wales	**3.09**
Scotland	**5.35**
Northern Ireland	**1.84**
TOTAL	**64.84**

[1] Population obtained by proportionally dividing population of South East (8.72 million) based on previous data.

Appendix IVA **UK solid organ transplants from deceased UK donors[1] to non-UK residents, 1 April 2013 to 31 March 2016**

Transplant type by year

Year	Transplant type	Residency of recipient ROI	Other EU	Non-EU	Total
2013/14	Heart	3	0	0	3
	Liver	5	15	5	25
	Double lung	1	0	0	1
	Total	**9**	**15**	**5**	**29**
2014/15	Kidney	1	0	0	1
	Heart	1	0	0	1
	Liver	4	14	2	20
	Double lung	1	0	0	1
	Bowel only	0	0	1	1
	Mulitvisceral	0	1	0	1
	Total	**7**	**15**	**3**	**25**
2015/16	Heart	1	0	0	1
	Liver	1	9	3	13
	Double lung	2	0	0	2
	Bowel only	0	0	1	1
	Modified Mulitvisceral	1	0	0	1
	Total	**5**	**9**	**4**	**18**

[1] based on country of donor hospital

Appendix IVB **UK solid organ transplants from deceased non-UK donors[1] to UK residents, 1 April 2013 to 31 March 2016**

Transplant type by year

Year	Transplant type	Country of donation ROI	Other EU	Non-EU	Total
2013/14	Kidney	2	1	0	3
	Heart	7	3	0	10
	Liver	4	4	0	8
	Double lung	1	1	0	2
	Bowel only	0	1	0	1
	Total	**14**	**10**	**0**	**24**
2014/15	Kidney	0	1	0	1
	Heart	3	8	0	11
	Liver	2	3	0	5
	Double lung	1	1	0	2
	Bowel only	0	2	0	2
	Multivisceral	1	0	0	1
	Total	**7**	**15**	**0**	**22**
2015/16	Kidney	1	0	0	1
	En-bloc kidney	2	0	0	2
	Heart	2	3	0	5
	Liver	1	1	0	2
	Lung	2	0	0	2
	Double lung	1	0	0	1
	Total	**9**	**4**	**0**	**13**

[1] based on country of donor hospital

Appendix IVC **Non-UK solid organ transplants from deceased UK donors[1] to non-UK hospitals, 1 April 2013 to 31 March 2016**

Transplant type by year

Year	Transplant type	Residency of recipient ROI	Other EU	Non-EU	Total
2013/14	Kidney	0	2	0	2
	Heart	0	2	0	2
	Liver	7	2	0	9
	Double lung	0	6	0	6
	Total	**7**	**12**	**0**	**19**
2014/15	Heart	0	2	0	2
	Liver	2	0	0	2
	Double lung	0	5	0	5
	Total	**2**	**7**	**0**	**9**
2015/16	Heart	0	3	0	3
	Liver	3	0	0	3
	Double lung	0	2	0	2
	Total	**3**	**5**	**0**	**8**

[1] based on country of donor hospital

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