

# Organ Donation and Transplantation

Activity Report 2016/17





## 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 2017 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-2015 estimates based on ONS 2011 Census figures and are given in **Appendix III**.

All charts presented in this report are available as an accompanying slide set available from <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

Every transplant is the result of a complex collaboration between donors and their families, a host of clinicians working in different parts of the NHS and finally the transplant recipient and their family. Ensuring that this collaboration works smoothly every time is a significant challenge.

In 2016/17 the UK showed its ability to improve this collaboration by increasing the number of deceased organ donors to 1413, a 4% increase on the previous year. In addition to this record number of deceased donors, there were also 1043 living donors. This means we have been able to perform 4,753 live-saving and life-transforming transplants this year – another UK record. We're also pleased to announce that since the end of the financial year, we've reached the milestone figure of around 50,000 people alive today thanks to a transplant.

Despite this encouraging progress, opportunities for donation continue to be missed. Transplantation depends on clinicians recognising the potential for organ donation and still this does not always happen, particularly when donation after circulatory death is a possibility. However, it is family refusal that represents our biggest obstacle and as such our most important opportunity to further increase the number of transplants.

Family refusal very often reflects the understandable difficulties that families face when losing a loved one, and there are two ways in which they can be addressed. First of all, family refusal is less likely when the possibility of donation is raised by trained requestors - specialist nurses for organ donation. However there are still occasions when this does not happen and when donation is raised by clinical staff who have had little training in this most delicate of tasks.

Secondly, we know that families are much more likely to support donation when the individual's decision is known beforehand. Discussing our end of life decision with those closest to us will ease the burden they face and make it more likely that our wishes are respected. This is particularly important for families from our black and Asian communities, where there is little tradition of organ donation but many people waiting for a transplant.


There is also considerable variation between transplant units and clinicians in their approach to risk when offered a donor organ for one of their patients. It can take many transactions to place organs with recipients, slowing down the process and resulting in extra stress for everyone involved. Sometimes donor families withdraw consent because they can no longer cope with the time involved.

While we cannot quantify every missed opportunity precisely, we need to work collaboratively to make sure that these are as few as possible. Eligible donors are rare, with just 5,681 people dying last year in circumstances where donation was possible. We need to make sure that each one is given the opportunity to donate, to bring comfort to the family they leave behind and to save the lives of those waiting for a transplant.

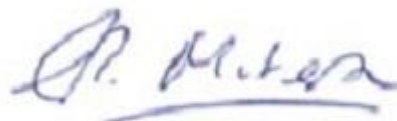




Although this report focuses on the statistics of organ donation and transplantation, behind every statistic there are people. People who choose to donate organs in life or after they die; people waiting for a transformative transplant for themselves or a member of their family. We hope that NHS clinicians, working in this extraordinary branch of medicine will be proud of the success in the last few years and determined to do even more to make sure no opportunity is missed to save lives through transplantation.



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# **Summary of Donor and Transplant Activity**

In the financial year to 31 March 2017, compared with the previous year

- there was a 4% increase in the number of deceased donors to 1,413, the highest number ever in the UK
- the number of donors after brain death increased by 6% to 829, while the number of donors after circulatory death increased by 1% to 584
- the number of living donors fell by 3% to 1,043, accounting for 42% of the total number of organ donors
- the total number of patients whose lives were saved or improved by an organ transplant increased by 3% to 4,753

The total number of patients registered for a transplant has fallen slightly (by 2%), so that:

- there were 6,388 patients waiting for a transplant at the end of March 2017, with a further 3,357 temporarily suspended from transplant lists
- 457 patients died while on the active list waiting for their transplant and a further 875 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 2% in the total number of kidney transplants
- a fall of 3% in the total number of pancreas transplants
- an increase of 6% in the total number of liver transplants
- an increase of 2% in the total number of heart transplants
- a fall of 5% in the total number of lung or heart-lung transplants
- an increase in the overall referral rate of potential donors from 86% to 88% and the proportion of approaches involving a Specialist Nurse - Organ donation from 83% to 86%
- an increase in the overall consent/authorisation rate for organ donation from 62 % to 63%
- an increase in the number of opt-in registrations on the ODR, from 22.5 to 23.6 million at the end of March 2017. There were 204,518 opt-out registrants

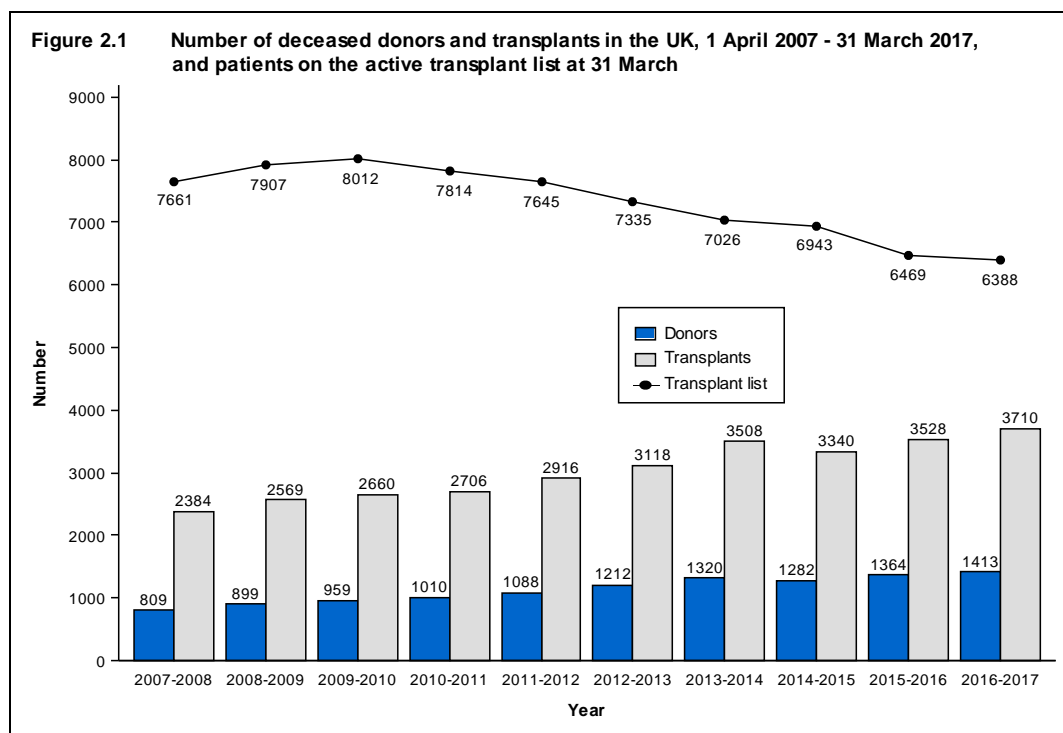


# Overview of Organ Donation and Transplantation

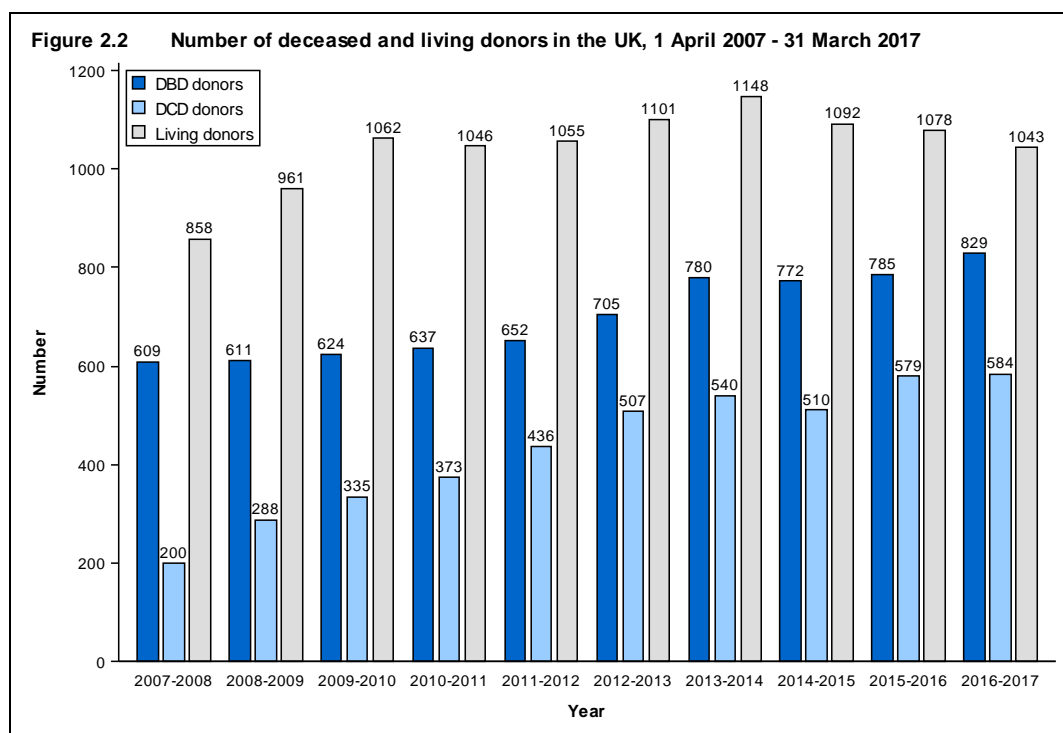
A summary of organ donation and transplantation activity in the UK during the financial year from 1 April 2016 to 31 March 2017

## 2.1 Summary of activity

As the total number of deceased donors and transplants continued to increase this year, the number of patients on the active transplant list at 31 March 2017 is 81 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 2007 to 31 March 2017) and the number of patients registered on the transplant lists at 31 March each year are shown in **Figure 2.1**. There were 182 more deceased donor transplants in 2016-2017 than in the previous year, representing a 5% increase. The corresponding increase in the number of deceased donors was 4%.



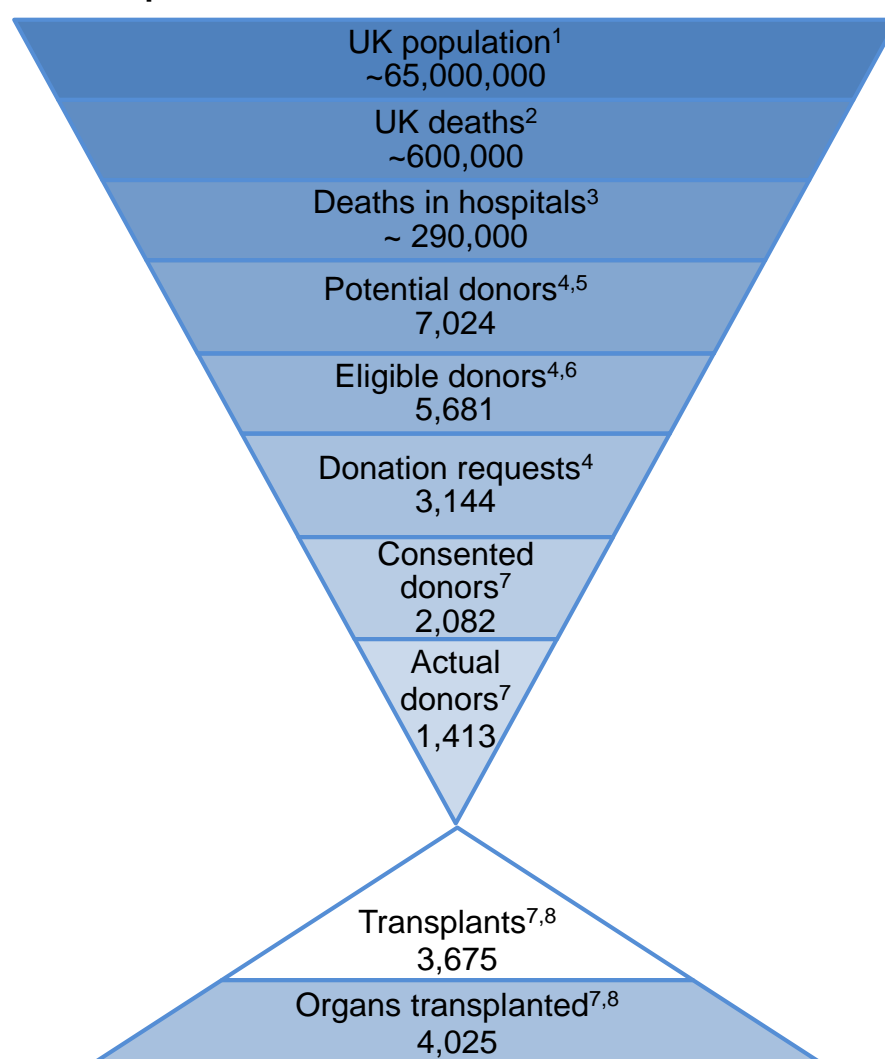
**Figure 2.2** shows the number of deceased and living donors for 2007-2017. The numbers of deceased donors after brain death (DBD) and deceased donors after circulatory death (DCD) have both increased year on year, with the exception of 2014-2015. In 2016-2017 the numbers of DBD and DCD donors reached their highest ever, 829 and 584, respectively. The number of living donors has fallen, in the last 4 years, from a peak of 1,148 donors in 2013-2014 to 1,043 in 2016-2017. Compared with last year there was a 3% fall in living donors in 2016-2017.



**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 2016 – 31 March 2017**



<sup>1</sup> Mid 2015 estimates: [www.ons.gov.uk](http://www.ons.gov.uk)

<sup>2</sup> 2015 data: England & Wales [www.ons.gov.uk](http://www.ons.gov.uk); Scotland [www.gro-scotland.gov.uk](http://www.gro-scotland.gov.uk); Northern Ireland [www.nisra.gov.uk](http://www.nisra.gov.uk)

<sup>3</sup> 2015 data: England & Wales [www.ons.gov.uk](http://www.ons.gov.uk); Scotland [www.isdscotland.org](http://www.isdscotland.org); Northern Ireland [www.nisra.gov.uk](http://www.nisra.gov.uk)

<sup>4</sup> 2016/2017 data: NHSBT, Potential Donor Audit

<sup>5</sup> Potential donor - patients for whom death was confirmed following neurological tests or patients who had treatment withdrawn and death was anticipated within four hours

<sup>6</sup> Eligible donor - Potential donor with no absolute medical contraindications to solid organ donation

<sup>7</sup> 2016/2017 deceased donor data: NHSBT, UK Transplant Registry

<sup>8</sup> Using organs from actual donors in the UK

**Table 2.1** shows the number of deceased donors and transplants in 2016-2017 and patients on the transplant list at 31 March 2017 for each country in the UK.

**Table 2.1 Deceased donors and transplants 1 April 2016 - 31 March 2017, and transplant lists as at 31 March 2017, by country of residence**

Organ	Country of residence <sup>1,2</sup>							
	England		Wales		Scotland		Northern Ireland	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
<b>Kidney</b>								
Deceased donors	1094	(20.0)	63	(20.3)	129	(24.0)	41	(22.2)
Transplants <sup>3</sup>	1871	(34.1)	74	(23.9)	164	(30.5)	45	(24.3)
Transplant list	4463	(81.5)	185	(59.7)	437	(81.4)	125	(67.6)
<b>Pancreas</b>								
Deceased donors	394	(7.2)	22	(7.1)	40	(7.4)	17	(9.2)
Transplants	172	(3.1)	4	(1.3)	34	(6.3)	3	(1.6)
Transplant list	174	(3.2)	15	(4.8)	32	(6.0)	3	(1.6)
<b>Heart</b>								
Deceased donors	173	(3.2)	6	(1.9)	11	(2.0)	9	(4.9)
Transplants <sup>4</sup>	161	(2.9)	12	(3.9)	16	(3.0)	6	(3.2)
Transplant list	204	(3.7)	7	(2.3)	24	(4.5)	8	(4.3)
<b>Lung</b>								
Deceased donors	153	(2.8)	4	(1.3)	16	(3.0)	10	(5.4)
Transplants	151	(2.8)	9	(2.9)	16	(3.0)	1	(0.5)
Transplant list	301	(5.5)	25	(8.1)	34	(6.3)	14	(7.6)
<b>Liver</b>								
Deceased donors	866	(15.8)	53	(17.1)	85	(15.8)	30	(16.2)
Transplants	750	(13.7)	36	(11.6)	117	(21.8)	19	(10.3)
Transplant list	423	(7.7)	25	(8.1)	37	(6.9)	30	(16.2)
<b>Intestinal</b>								
Deceased donors	11	(0.2)	0	(0.0)	1	(0.2)	2	(1.1)
Transplants <sup>5</sup>	13	(0.2)	0	(0.0)	1	(0.2)	1	(0.5)
Transplant list	5	(0.1)	0	(0.0)	1	(0.2)	0	(0.0)
<b>Total<sup>6</sup></b>								
<b>Deceased donors</b>	<b>1157</b>	<b>(21.1)</b>	<b>68</b>	<b>(21.9)</b>	<b>137</b>	<b>(25.5)</b>	<b>42</b>	<b>(22.7)</b>
<b>Transplants</b>	<b>3118</b>	<b>(56.9)</b>	<b>135</b>	<b>(43.5)</b>	<b>348</b>	<b>(64.8)</b>	<b>75</b>	<b>(40.5)</b>
<b>Transplant list</b>	<b>5376</b>	<b>(98.1)</b>	<b>242</b>	<b>(78.1)</b>	<b>540</b>	<b>(100.6)</b>	<b>177</b>	<b>(95.7)</b>

<sup>1</sup> Country of residence of donor given for deceased donor numbers, and residence of recipient given for transplant and waiting list numbers

<sup>2</sup> Excludes patients resident in Channel Islands, Isle of Man, overseas and in the Republic of Ireland

<sup>3</sup> Kidney only transplants

<sup>4</sup> Excludes heart-lung transplants

<sup>5</sup> Excludes one abdominal wall only transplant

<sup>6</sup> Organ numbers do not add up to total due to multi-organ donors and patients waiting for a multi-organ transplant

## 2.2 Transplant list

At 31 March 2017, 6,388 patients were registered for an organ transplant in the UK on the active transplant list. A further 3,357 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 2016 and 2017. Between these dates the total number fell by 81 (1%) due to decreases in the number of patients on the kidney, pancreas and liver transplant lists.

<b>Table 2.2 Active transplant lists in the UK at 31 March 2016 and 2017</b>			
	<b>2016</b>	<b>2017</b>	<b>% Change</b>
<b>Kidney &amp; pancreas patients</b>	<b>5308</b>	<b>5220</b>	<b>-2</b>
Kidney	5081	4996	-2
Kidney & pancreas	184	193	+5
Kidney & pancreas islets	0	2	-
Pancreas	15	10	-33
Pancreas islets	28	19	-32
<b>Cardiothoracic patients</b>	<b>574</b>	<b>624</b>	<b>+9</b>
Heart	244	246	+1
Heart-lung	14	18	+29
Lung(s)	316	360	+14
<b>Liver patients</b>	<b>533</b>	<b>489</b>	<b>-8</b>
<b>Intestinal patients</b>	<b>6</b>	<b>12</b>	<b>-</b>
<b>Other multi-organ patients<sup>1</sup></b>	<b>48</b>	<b>43</b>	<b>-10</b>
<b>ALL PATIENTS</b>	<b>6469</b>	<b>6388</b>	<b>-1</b>
Percentages not reported when fewer than 10 in either year			
<sup>1</sup> Includes patients waiting for kidney and liver transplants (44 in 2016, 40 in 2017), kidney and heart transplants (4 in 2016, 2 in 2017), and liver and heart transplants (1 in 2017)			

During 2016-2017, 470 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 2016 - 31 March 2017**

	Total	Adult	Paediatric
<b>Kidney &amp; pancreas patients</b>	<b>281</b>	<b>281</b>	<b>0</b>
Kidney	261	261	0
Kidney & pancreas	19	19	0
Pancreas	1	1	0
<b>Cardiothoracic patients</b>	<b>104</b>	<b>93</b>	<b>11</b>
Heart	32	22	10
Heart-lung	7	7	0
Lung(s)	65	64	1
<b>Liver patients</b>	<b>74</b>	<b>72</b>	<b>2</b>
<b>Intestinal patients</b>	<b>4</b>	<b>3</b>	<b>1</b>
<b>Other multi-organ patients<sup>1</sup></b>	<b>7</b>	<b>7</b>	<b>0</b>
<b>ALL PATIENTS</b>	<b>470</b>	<b>456</b>	<b>14</b>

<sup>1</sup> Includes patients waiting for kidney and liver transplants (6 adults), kidney and heart transplants (1 adult)

## 2.3 Transplants

There was a 3% increase in the total number of organ transplants (from deceased and living donors) last year: 4,753 transplants were performed in 2016-2017 compared with 4,605 in 2015-2016 (**Table 2.4**). All multi-organ transplants are identified separately as are transplants from living donors.

The total number of kidney transplants increased by 2% in 2016-2017; kidney transplants from donors after circulatory death increased by 4%, while the number of living donor kidney transplants fell by 3%. The total number of cardiothoracic organ transplants fell by 2%, the number of liver transplants rose by 6% and the number of pancreas transplants (including pancreas only, intestinal, kidney/pancreas and pancreas islets) fell by 3%.

**Table 2.4 Transplants performed in the UK, 1 April 2015 - 31 March 2017**

<b>Transplant</b>	<b>2015-2016</b>	<b>2016-2017</b>	<b>% Change</b>
DBD kidney	1181	1270	+8
DCD kidney	855	890	+4
Living donor kidney	1038	1009	-3
DBD Kidney & pancreas	123	120	-2
DCD Kidney & pancreas	44	42	-5
Kidney & Pancreas islets	0	1	-
DBD Pancreas	13	14	+8
DCD Pancreas	5	3	-
Pancreas islets	31	33	+6
DBD heart	175	184	+5
DCD heart	19	13	-32
Heart-lung	6	2	-
DBD Single lung	14	20	+43
DCD Single lung	2	2	-
DBD Double lung	133	127	-5
DCD Double lung	33	27	-18
DBD liver	553	597	+8
DCD liver	206	207	0
Domino liver	3	3	-
DBD liver lobe	95	127	+34
DCD liver lobe	0	1	-
Living donor liver lobe	36	31	-14
Bowel only	1	4	-
Liver, bowel & pancreas	1	1	-
Multivisceral <sup>1</sup>	7	4	-
Modified multivisceral <sup>2</sup>	6	6	-
Kidney & heart	0	1	-
Kidney & liver	24	14	-42
Heart & liver	1	0	-
<b>TOTAL ORGAN TRANSPLANTS</b>	<b>4605</b>	<b>4753</b>	<b>+3</b>
<b>Total kidney transplants<sup>3</sup></b>	<b>3267</b>	<b>3348</b>	<b>+2</b>
<b>Total pancreas transplants<sup>3</sup></b>	<b>230</b>	<b>224</b>	<b>-3</b>
<b>Total cardiothoracic organ transplants</b>	<b>383</b>	<b>376</b>	<b>-2</b>
<b>Total liver transplants<sup>3</sup></b>	<b>926</b>	<b>985</b>	<b>+6</b>
<b>Total intestinal transplants<sup>4</sup></b>	<b>15</b>	<b>15</b>	<b>0</b>

Percentage not reported when fewer than 10 in either year

<sup>1</sup> Including a kidney (1 in 2016-2017)

<sup>2</sup> Including a kidney (2 in 2015-2016)

<sup>3</sup> Includes intestinal transplants

<sup>4</sup> Excludes abdominal wall only transplant (1 in 2016-2017)

The total approximate number of patients with a functioning transplant on 31 March 2017 is 49,600 (**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.

<b>Table 2.5      Number of transplants reported as functioning at 31 March 2017</b>	
	<b>Functioning transplants<sup>1</sup></b>
Kidney	35800
Pancreas	1800
Cardiothoracic	3800
Liver	9700
Intestinal	100
<b>ALL PATIENTS<sup>2</sup></b>	<b>49600</b>
<sup>1</sup> Approximate number being followed up	
<sup>2</sup> 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 4% increase in deceased donors (to 1,413) and a 3% fall in living organ donors (to 1,043) compared with last year
- There has been an increase in donors after brain death of 6% to 829 and an increase of 1% in donors after circulatory death to 584, compared with last year
- Donors after brain death provide, on average, one more organ for transplantation than donors after circulatory death
- Donor characteristics are continuing to change: donors are older, more obese, and less likely to have suffered a trauma-related death, all of which have adverse effects on transplant outcomes

### 3.1 Summary of activity

There was a 4% increase in the number of deceased organ donors in 2016-2017 (1,413), twenty seven short of the target of 1,440 donors set for the year. There was an increase in donors after brain death (DBD) of 6% and a more modest increase of 1% in donors after circulatory death (DCD).

The 1,413 deceased organ donors gave 4,741 organs compared with 1,364 donors and 4,660 organs in 2015-2016. This represents a 2% 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 (77%) also donated at least one other organ. Only 12% of donors after brain death were single organ donors, with equal proportions being liver only and kidney only donors. By contrast, 48% of donors after circulatory death were single organ donors, the majority (94%) of these donating just their kidneys.

Although the vast majority of living organ donors donated a kidney, 34 donated part of their liver. All living donations are approved by the Human Tissue Authority.

<b>Table 3.1 Solid organ donors in the UK, 1 April 2016 - 31 March 2017, by organ types donated</b>				
	DBD	DCD	Living donor	TOTAL
Kidney only	49	261	1009	1319
Kidney & thoracic	16	5	-	21
Kidney & liver	285	168	-	453
Kidney & pancreas	10	22	-	32
Kidney, thoracic & liver	65	16	-	81
Kidney, thoracic & pancreas	4	2	-	6
Kidney, liver & pancreas	161	70	-	231
Kidney, liver & bowel	1	-	-	1
Kidney, liver, pancreas & bowel	5	-	-	5
Kidney, thoracic, liver & pancreas	165	23	-	188
Kidney, thoracic, liver, pancreas & bowel	8	-	-	8
Thoracic only	3	-	-	3
Thoracic & liver	3	-	-	3
Thoracic, liver & pancreas	1	-	-	1
Liver only	47	17	34	98
Liver & pancreas	6	-	-	6
<b>TOTAL</b>	<b>829</b>	<b>584</b>	<b>1043</b>	<b>2456</b>
Bowel may include abdominal wall/colon/stomach/spleen				

### 3.2 Organ donors

Organ donor rates per million population (pmp) for 2016-2017 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.

<b>Table 3.2 Organ donation rates per million population (pmp), in the UK, 1 April 2016 - 31 March 2017, by country/ Strategic Health Authority of donor residence<sup>1</sup></b>								
<b>Country of donation/ Strategic Health Authority</b>	<b>DBD</b>		<b>DCD</b>		<b>TOTAL</b>		<b>Living</b>	
	<b>N</b>	<b>(pmp)</b>	<b>N</b>	<b>(pmp)</b>	<b>N</b>	<b>(pmp)</b>	<b>N</b>	<b>(pmp)</b>
North East	53	(20.2)	22	(8.4)	75	(28.6)	52	(19.8)
North West	90	(12.6)	72	(10.0)	162	(22.6)	116	(16.2)
Yorkshire and The Humber	59	(10.9)	45	(8.3)	104	(19.3)	67	(12.4)
<b>North of England</b>	<b>202</b>	<b>(13.3)</b>	<b>139</b>	<b>(9.2)</b>	<b>341</b>	<b>(22.5)</b>	<b>235</b>	<b>(15.5)</b>
East Midlands	39	(8.3)	35	(7.5)	74	(15.8)	50	(10.7)
West Midlands	72	(12.5)	49	(8.5)	121	(21.0)	98	(17.0)
East of England	74	(12.2)	76	(12.5)	150	(24.7)	78	(12.8)
<b>Midlands and East</b>	<b>185</b>	<b>(11.2)</b>	<b>160</b>	<b>(9.7)</b>	<b>345</b>	<b>(20.9)</b>	<b>226</b>	<b>(13.7)</b>
<b>London</b>	<b>96</b>	<b>(11.1)</b>	<b>50</b>	<b>(5.8)</b>	<b>146</b>	<b>(16.8)</b>	<b>168</b>	<b>(19.4)</b>
South East Coast	73	(15.8)	53	(11.4)	126	(27.2)	58	(12.5)
South Central	51	(11.8)	38	(8.8)	89	(20.6)	73	(16.9)
South West	67	(12.2)	43	(7.9)	110	(20.1)	69	(12.6)
<b>South of England</b>	<b>191</b>	<b>(13.2)</b>	<b>134</b>	<b>(9.3)</b>	<b>325</b>	<b>(22.5)</b>	<b>200</b>	<b>(13.9)</b>
<b>England</b>	<b>674</b>	<b>(12.3)</b>	<b>483</b>	<b>(8.8)</b>	<b>1157</b>	<b>(21.1)</b>	<b>829</b>	<b>(15.1)</b>
Isle of Man	2	(25.0)	2	(25.0)	4	(50.0)	0	(0.0)
Channel Islands	4	(25.0)	1	(6.3)	5	(31.3)	1	(6.3)
<b>Wales</b>	<b>39</b>	<b>(12.6)</b>	<b>29</b>	<b>(9.4)</b>	<b>68</b>	<b>(21.9)</b>	<b>46</b>	<b>(14.8)</b>
<b>Scotland</b>	<b>79</b>	<b>(14.7)</b>	<b>58</b>	<b>(10.8)</b>	<b>137</b>	<b>(25.5)</b>	<b>89</b>	<b>(16.6)</b>
<b>Northern Ireland</b>	<b>31</b>	<b>(16.8)</b>	<b>11</b>	<b>(5.9)</b>	<b>42</b>	<b>(22.7)</b>	<b>78</b>	<b>(42.2)</b>
<b>TOTAL</b>	<b>829</b>	<b>(12.7)</b>	<b>584</b>	<b>(8.9)</b>	<b>1413</b>	<b>(21.6)</b>	<b>1043</b>	<b>(16.0)</b>

<sup>1</sup> Includes 113 donors (16 deceased, 97 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 12.7 DBD donors pmp for the UK as a whole, but across the former English Strategic Health Authorities (SHA) this ranged between 8.3 and 20.2 pmp. Across the four countries of the UK, Northern Ireland had the highest rate of 16.8 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 5.9 to 10.8 pmp across countries of the UK and from 5.8 to 12.5 pmp in the former English SHAs. No adjustment has been made for any differences in demographics of the populations across countries or SHAs.

<b>Table 3.3 Deceased organ donors in the UK, 1 April 2016 - 31 March 2017, by country/ Strategic Health Authority of hospital of donor death</b>			
<b>Country of donation/ Strategic Health Authority</b>	<b>DBD N</b>	<b>DCD N</b>	<b>TOTAL N</b>
North East	52	27	79
North West	96	73	169
Yorkshire and The Humber	62	43	105
<b>North of England</b>	<b>210</b>	<b>143</b>	<b>353</b>
East Midlands	31	31	62
West Midlands	66	51	117
East of England	56	74	130
<b>Midlands and East</b>	<b>153</b>	<b>156</b>	<b>309</b>
<b>London</b>	<b>140</b>	<b>69</b>	<b>209</b>
South East Coast	57	48	105
South Central	52	33	85
South West	63	45	108
<b>South of England</b>	<b>172</b>	<b>126</b>	<b>298</b>
<b>England</b>	<b>675</b>	<b>494</b>	<b>1169</b>
<b>Isle of Man</b>	<b>2</b>	<b>1</b>	<b>3</b>
<b>Channel Islands</b>	<b>3</b>	<b>2</b>	<b>5</b>
<b>Wales</b>	<b>40</b>	<b>21</b>	<b>61</b>
<b>Scotland</b>	<b>77</b>	<b>56</b>	<b>133</b>
<b>Northern Ireland</b>	<b>32</b>	<b>10</b>	<b>42</b>
<b>TOTAL</b>	<b>829</b>	<b>584</b>	<b>1413</b>

<b>Table 3.4 Deceased organ donors in the UK, 1 April 2016 - 31 March 2017 by Organ Donation Services Team</b>			
<b>Team</b>	<b>DBD N</b>	<b>DCD N</b>	<b>TOTAL N</b>
Eastern	57	74	131
London	111	50	161
Midlands	85	72	157
North West	106	75	181
Northern	55	31	86
Northern Ireland	32	10	42
Scotland	77	56	133
South Central	67	42	109
South East	89	69	158
South Wales	32	17	49
South West	51	40	91
Yorkshire	67	48	115
<b>TOTAL</b>	<b>829</b>	<b>584</b>	<b>1413</b>

The mean number of organs retrieved per donor in 2016-2017 is given by country in **Table 3.5**. Overall, an average of 3.8 organs were donated per DBD donor and 2.8 per DCD donor. For DBD donors, the rate ranged from 3.4 organs per donor in Wales to 4.2 in Northern Ireland.

<b>Table 3.5 Organs retrieved per donor, in the UK, 1 April 2016 - 31 March 2017, by country of donor residence</b>									
<b>Country</b>	<b>DBD</b>	<b>Adult DCD</b>	<b>TOTAL</b>	<b>DBD</b>	<b>Paediatric DCD</b>	<b>TOTAL</b>	<b>DBD</b>	<b>All DCD</b>	<b>TOTAL</b>
England	3.7	2.8	<b>3.3</b>	4.8	2.9	<b>4.2</b>	3.8	2.8	<b>3.4</b>
Wales	3.4	2.7	<b>3.1</b>	4.0	-	<b>4.0</b>	3.4	2.7	<b>3.1</b>
Scotland	3.6	2.4	<b>3.1</b>	5.0	2.3	<b>3.7</b>	3.6	2.4	<b>3.1</b>
Northern Ireland	4.1	2.6	<b>3.7</b>	4.5	-	<b>4.5</b>	4.2	2.6	<b>3.8</b>
<b>TOTAL</b>	<b>3.7</b>	<b>2.8</b>	<b>3.3</b>	<b>4.8</b>	<b>2.8</b>	<b>4.2</b>	<b>3.8</b>	<b>2.8</b>	<b>3.3</b>

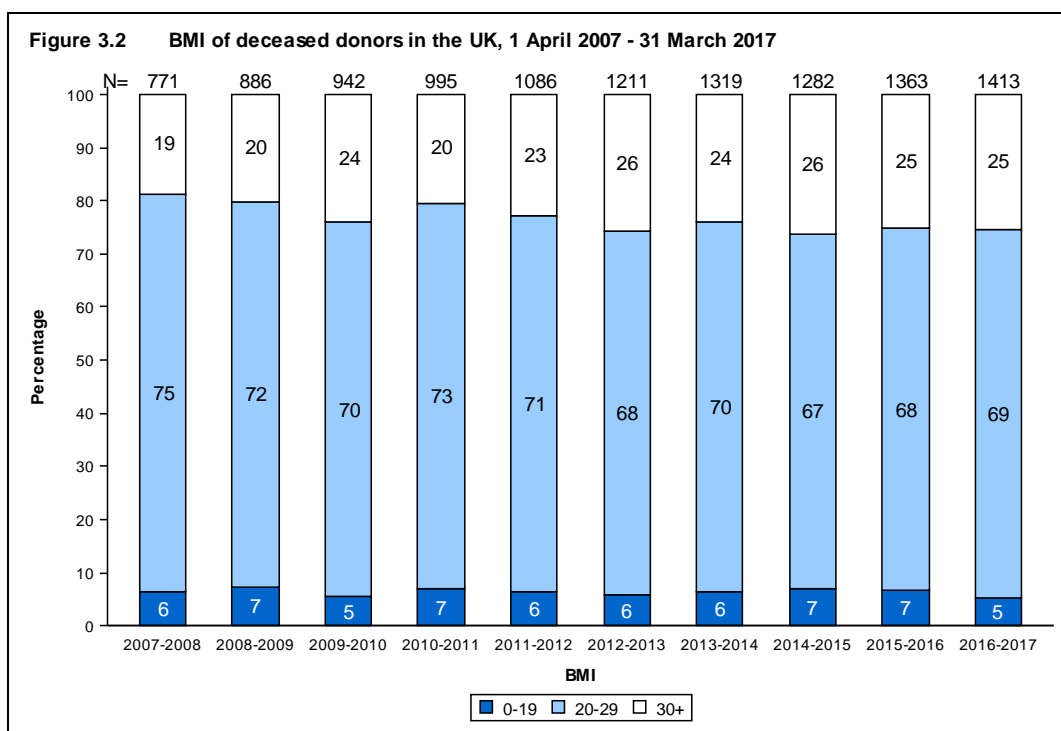
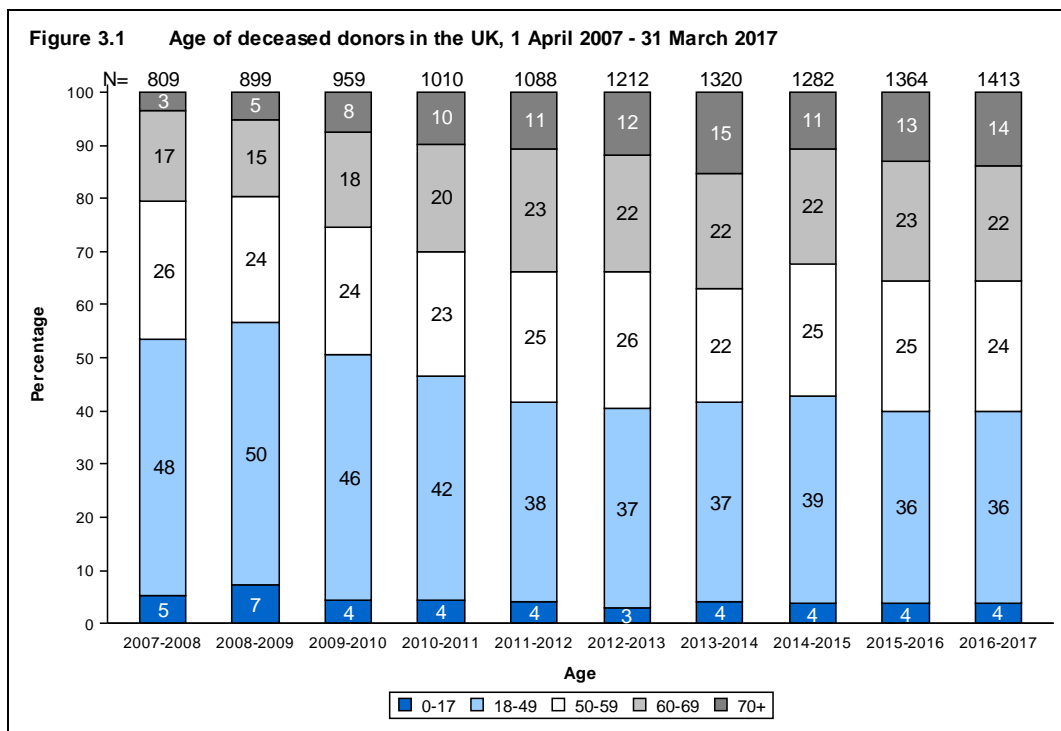
### 3.3 Demographic characteristics

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 2016-2017, 36% of deceased donors were aged 60 years or more compared with 21% in 2007-2008 (**Figure 3.1**). In particular the proportion of donors aged at least 70 years has increased from 3% to 14% over the same time period. The proportion of clinically obese donors (Body Mass Index (BMI) of 30 or higher) has increased from 19% 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 14% to 3% over the same time period. All of these changes may have an adverse impact on the quality and utilisation of the organs, and the subsequent transplant outcome for the recipient.

**Table 3.6** also indicates the ethnicity of deceased organ donors, highlighting that 6% of donors are from ethnic minority groups. By contrast, ethnic minority groups represent 11% of the UK population.

<b>Table 3.6</b>		<b>Demographic characteristics of organ donors in the UK</b>					
		<b>DBD</b>		<b>DCD</b>		<b>TOTAL</b>	
		<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
Age	0-17	38	5	17	3	55	4
	18-49	343	41	166	28	509	36
	50-59	187	23	158	27	345	24
	60-69	151	18	157	27	308	22
	70+	110	13	86	15	196	14
	Mean (SD)	50	17	54	16	51	17
BMI	0-19	42	5	32	5	74	5
	20-29	584	70	395	68	979	69
	30+	203	24	157	27	360	25
	Mean (SD)	27	6	27	7	27	6
Cause of death	Intracranial	712	86	473	81	1185	84
	Trauma	29	3	15	3	44	3
	Other	88	11	96	16	184	13
Ethnicity	White	758	92	550	95	1308	94
	Asian	17	2	12	2	29	2
	Black	17	2	5	1	22	2
	Other	28	3	11	2	39	3
	Unknown	9		6		15	
Blood group	O	381	46	278	48	659	47
	A	354	43	237	41	591	42
	B	74	9	52	9	126	9
	AB	20	2	17	3	37	3
Donor gender	Male	450	54	357	61	807	57
	Female	379	46	227	39	606	43
<b>TOTAL</b>		<b>829</b>	<b>100</b>	<b>584</b>	<b>100</b>	<b>1413</b>	<b>100</b>





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 842 possible DBD donors and 913 possible DCD donors; 98% of these DBD donors and 64% of these DCD donors attended proceeded to donation
- Overall, 52% of organs offered from those donors that did proceed were transplanted, but individually, these rates were 85% for kidneys, 63% for livers, 30% for pancreases, 30% for hearts, 16% for lungs and 7% for bowels
- The number of deceased donors per million of population was 21.6, however 5% of actual donors resulted in no organ transplants compared to 6% in the previous year

## 4.1 The National Organ Retrieval Service (NORS)

As of 4 April 2016 there have been 7 abdominal and 3 cardiothoracic NORS teams available at any given time to retrieve organs from deceased donors in the UK for transplantation. This represents a change in the service which was implemented as a result of a review of the National Organ Retrieval Service, which recommended the reduction in the number of cardiothoracic teams from 6 to 3. Occasionally an off duty team will be called out when all 3 cardiothoracic on-call teams are out attending a donor. The first on-call NORS team is the closest available team to the donor, whereas before this was previously based on designated areas of the UK.

If a team is first on-call for a particular donor hospital, they are required to attend possible donors at that hospital within an agreed timescale if at least one organ has been accepted for transplantation. If the team is already retrieving when they are called to attend, then a second team is called in to retrieve and so on. In three areas of the country, two abdominal teams share the on-call responsibilities, each being on-call for different weeks of the year, which means there are in fact 10 abdominal teams in total.

The number of possible DBD and DCD donors that were attended by each of the teams in 2016-2017 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 possible 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 result in unsuitability of organs for transplantation. A small number of possible 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
<b>Abdominal</b>								
Birmingham <sup>1</sup>	103	0	0	<b>103</b>	62	39	39	<b>101</b>
Cambridge	94	1	1	<b>95</b>	90	40	31	<b>130</b>
Cardiff <sup>1</sup>	25	0	0	<b>25</b>	27	13	33	<b>40</b>
Edinburgh	82	1	1	<b>83</b>	57	21	27	<b>78</b>
King's	152	6	4	<b>158</b>	98	66	40	<b>164</b>
Leeds <sup>2</sup>	67	2	3	<b>69</b>	49	22	31	<b>71</b>
Manchester <sup>2</sup>	62	2	3	<b>64</b>	64	37	37	<b>101</b>
Newcastle	101	3	3	<b>104</b>	60	36	38	<b>96</b>
Oxford <sup>3</sup>	79	0	0	<b>79</b>	48	31	39	<b>79</b>
Royal Free <sup>3</sup>	61	0	0	<b>61</b>	29	22	43	<b>51</b>
<b>Abdominal total</b>	<b>826</b>	<b>15</b>	<b>2</b>	<b>841</b>	<b>584</b>	<b>327</b>	<b>36</b>	<b>911</b>
<b>Cardiothoracic<sup>4</sup></b>								
Birmingham	49	27	36	<b>76</b>	6	21	78	<b>27</b>
Glasgow	22	14	39	<b>36</b>	3	8	73	<b>11</b>
Harefield	57	36	39	<b>93</b>	8	21	72	<b>29</b>
Manchester	47	17	27	<b>64</b>	5	15	75	<b>20</b>
Newcastle	33	22	40	<b>55</b>	4	6	60	<b>10</b>
Papworth	57	30	34	<b>87</b>	19	25	57	<b>44</b>
<b>Cardiothoracic total</b>	<b>265</b>	<b>146</b>	<b>36</b>	<b>411</b>	<b>45</b>	<b>96</b>	<b>68</b>	<b>141</b>
<b>Total donors attended</b>	<b>829</b>	<b>13</b>	<b>2</b>	<b>842</b>	<b>584</b>	<b>329</b>	<b>36</b>	<b>913</b>

<sup>1,2,3,4</sup> Share on-call responsibilities

## 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**. On occasion a 'consented' donor may not have organs offered because the donor's condition deteriorates or it is discovered the donor is unsuitable for organ donation. 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 2016-2017, 5% of actual donors resulted in no organ transplants compared with 6% in the previous year.

<b>Table 4.2 Consented, offered, actual and utilised deceased donors in the UK, 1 April 2016 - 31 March 2017</b>					
	<b>DBD (pmp)</b>		<b>DCD (pmp)</b>		<b>Total (pmp)</b>
Consented donors <sup>1</sup>	923	(14.1)	1159	(17.7)	2082 (31.9)
Offered donors <sup>2</sup>	890	(13.6)	1025	(15.7)	1915 (29.3)
<i>Kidneys offered</i>	1715		1974		3689
<i>Livers offered</i>	859		952		1811
<i>Pancreases offered</i>	600		335		935
<i>Bowels offered</i>	247		0		247
<i>Hearts offered</i>	541		76		617
<i>Lungs offered</i>	1108		690		1798
Actual donors	829	(12.7)	584	(8.9)	1413 (21.6)
Utilised donors <sup>3</sup>	809	(12.4)	537	(8.2)	1346 (20.6)

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

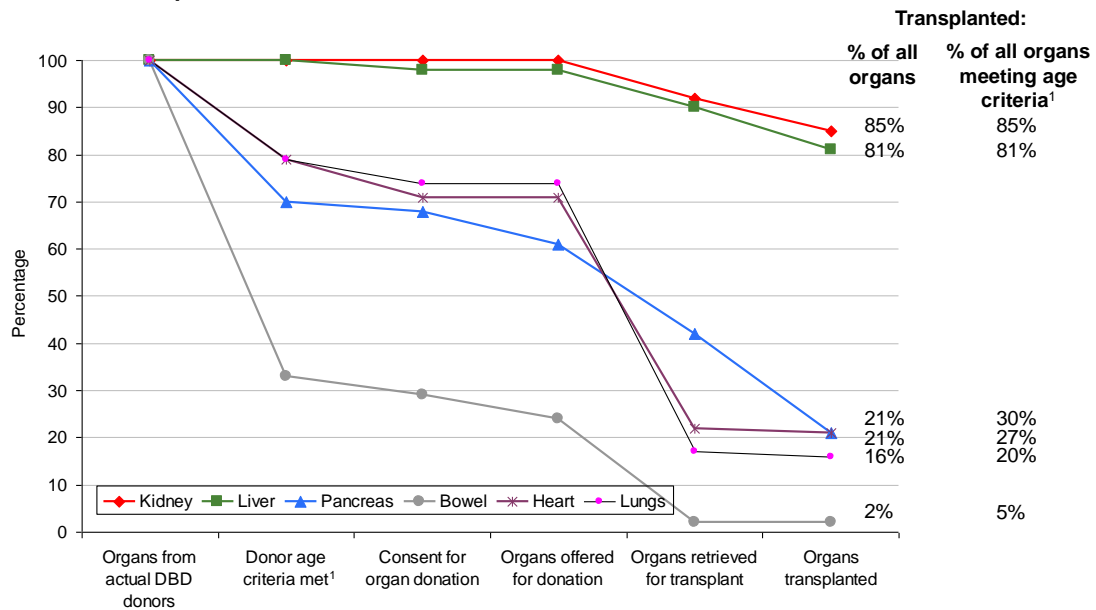
There were 1,413 actual deceased organ donors last year, but not all organs from these donors were offered for transplantation. **Table 4.3** shows the number of organs offered, retrieved and transplanted from the 829 DBD and 584 DCD actual donors. The number of organs from these donors that were subsequently 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.

<b>Table 4.3 Donation and transplantation of organs from 1413 deceased donors in the UK, 1 April 2016 – 31 March 2017</b>							
Organ	Organs meeting initial suitability criteria and offered for transplantation	Organs retrieved for transplantation N	% of offered	Organs transplanted N	% of retrieved	% of offered	Organs used for research (from actual organ donors)
<b>DBD donor organs</b>							
Kidney	1656	1529	92	1414	92	85	66
Liver	814	747	92	674	90	83	52
Pancreas <sup>1</sup>	505	349	69	172	49	34	133
Bowel <sup>2,3</sup>	196	13	7	13	100	7	0
Heart <sup>4</sup>	589	182	31	175	96	30	2
Lung <sup>5</sup>	1224	280	23	266	95	22	7
<b>Total</b>	<b>4984</b>	<b>3100</b>	<b>62</b>	<b>2714</b>	<b>88</b>	<b>54</b>	<b>260</b>
<b>DCD donor organs<sup>6</sup></b>							
Kidney	1166	1129	97	976	86	84	97
Liver	575	294	51	208	71	36	58
Pancreas <sup>1</sup>	220	114	52	49	43	22	46
Lung <sup>5,6</sup>	754	64	8	54	84	7	4
<b>Total</b>	<b>2715</b>	<b>1601</b>	<b>59</b>	<b>1287</b>	<b>80</b>	<b>47</b>	<b>205</b>
<b>Deceased donor organs</b>							
Kidney	2822	2658	94	2390	90	85	163
Liver	1389	1041	75	882	85	63	110
Pancreas <sup>1</sup>	725	463	64	221	48	30	179
Bowel <sup>2,3</sup>	196	13	7	13	100	7	0
Heart <sup>4</sup>	589	182	31	175	96	30	2
Lung <sup>5</sup>	1978	344	17	320	93	16	11
<b>Total</b>	<b>7699</b>	<b>4701</b>	<b>61</b>	<b>4001</b>	<b>85</b>	<b>52</b>	<b>465</b>
<sup>1</sup> Excludes donors aged > 60 years <sup>2</sup> Excludes 1 bowel transplant from an overseas donor <sup>3</sup> Excludes donors aged >= 56 years or weighing >= 80kg <sup>4</sup> Excludes donors aged > 65 years or died due to myocardial infarction <sup>5</sup> Excludes donors aged > 65 years <sup>6</sup> Excludes DCD hearts because this is not part of the national service, see cardiothoracic section for DCD heart detail							

**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 829 DBD and 584 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 4.2** shows that 84% of the kidneys from the 584 DCD donors were transplanted, an increase from 81% in the previous year. 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.

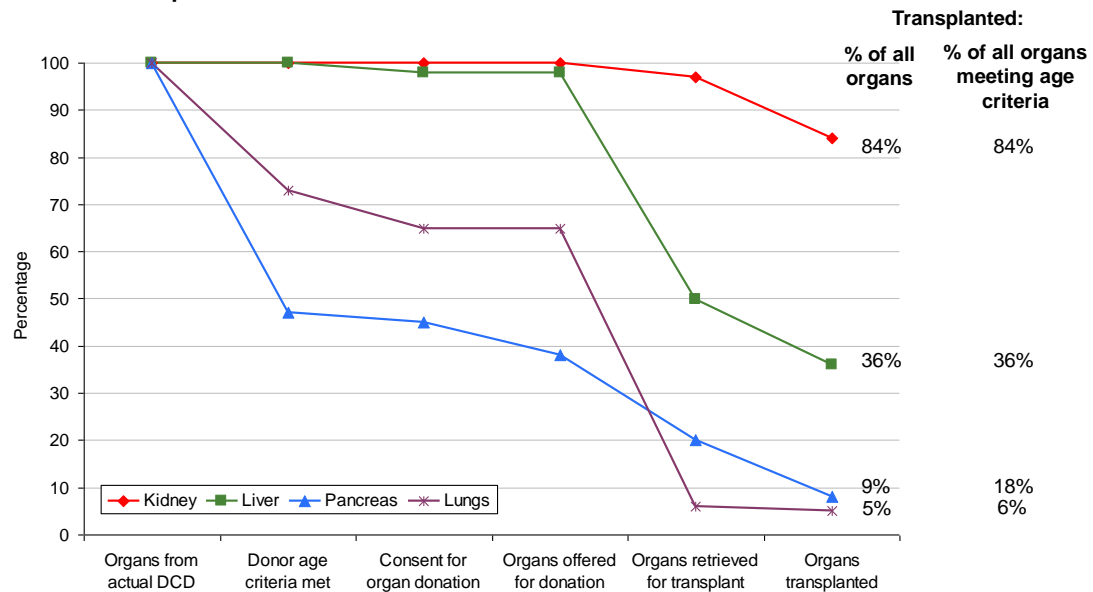


**Figure 4.1 Donation and transplantation rates of organs from DBD organ donors in the UK, 1 April 2016 – 31 March 2017**



<sup>1</sup> 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 2016 – 31 March 2017**



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.

The percentage of organs retrieved that were not transplanted are shown in **Figure 4.3**, **Figure 4.4**, **Figure 4.5**, **Figure 4.6** and **Figure 4.7** for kidneys, livers, pancreases, hearts and lungs 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).

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 2016-2017 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**.

**Table 4.4 Reasons for non-retrieval and non-use of abdominal organs from DBD donors in the UK, 1 April 2016 – 31 March 2017**

	Kidney	Liver	Pancreas	Bowel
<b>All DBD organ donors</b>	<b>829</b>	<b>829</b>	<b>829</b>	<b>829</b>
Donors from whom organs not offered for donation	1	15	324	633
<b><i>Reasons for organs not being offered</i></b>				
Family permission refused	1	9	10	34
Permission refused by coroner	0	6	6	5
Donor unsuitable – age	0	0	246	0
Donor unsuitable – past history	0	0	42	8
Donor age >=56 or donor weight >=80kg	0	0	0	553
Other	0	0	20	33
<b>TOTAL DONORS WITH ORGANS NOT OFFERED</b>	<b>1</b>	<b>15</b>	<b>324</b>	<b>633</b>
<b>Organs offered for donation</b>	<b>1656</b>	<b>814</b>	<b>505</b>	<b>196</b>
<b>Organs not retrieved (% of organs offered for donation)</b>	<b>127 (8)</b>	<b>67 (8)</b>	<b>156 (31)</b>	<b>183 (93)</b>
<b><i>Reasons for non-retrieval</i></b>				
<i>Donor</i>				
Donor unsuitable – medical	10	4	14	1
Donor unsuitable – non-medical	1	1	16	128
Donor age	12	1	5	5
<i>Organ</i>				
Organ unsuitable – clinical	74	37	91	29
Poor function	17	5	12	1
<i>Other</i>				
Other	13	19	18	19
<b>TOTAL ORGANS OFFERED, NOT RETRIEVED</b>	<b>127</b>	<b>67</b>	<b>156</b>	<b>183</b>
<b>Organs retrieved (% of organs offered for donation)</b>	<b>1529 (92)</b>	<b>747 (92)</b>	<b>349 (69)</b>	<b>13 (7)</b>
Organs transplanted in the UK	1414	668	172	13 <sup>2</sup>
Organs transplanted overseas	0	6 <sup>1</sup>	0	0
Organs not transplanted	115	73	177	0
<b><i>Reasons for organ not being transplanted</i></b>				
<i>Donor</i>				
Donor unsuitable – medical	28	3	10	0
Donor unsuitable – non-medical	0	0	2	0
Donor age	0	0	0	0
<i>Organ</i>				
Organ unsuitable – clinical	26	21	83	0
Poor function	0	1	0	0
<i>Other</i>				
Other	61	48	82	0
<b>TOTAL ORGANS RETRIEVED, NOT TRANSPLANTED (Number used for research)</b>	<b>115 (66)</b>	<b>73 (52)</b>	<b>177 (133)</b>	<b>0 (0)</b>

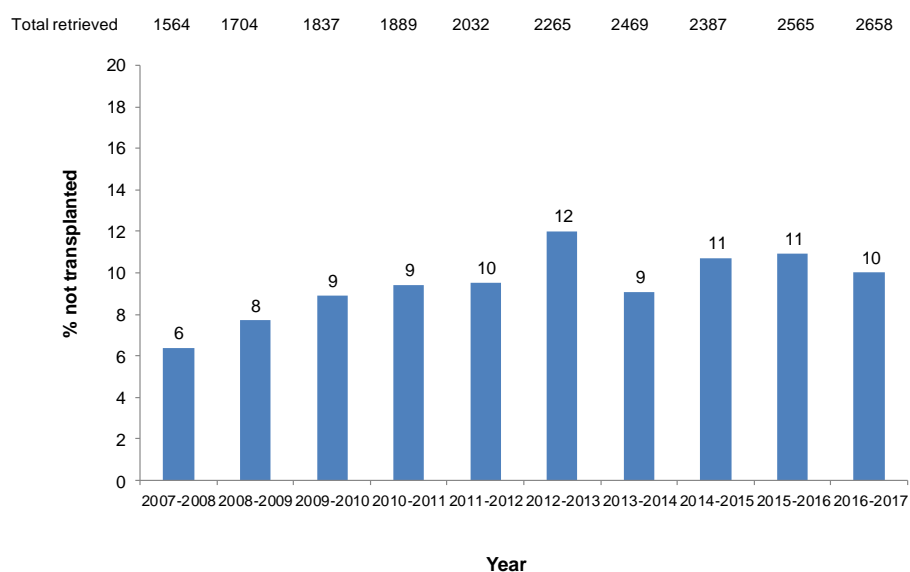
<sup>1</sup> Transplanted into super-urgent patients in the Republic of Ireland

<sup>2</sup> Excludes 1 bowel transplant from an overseas donor

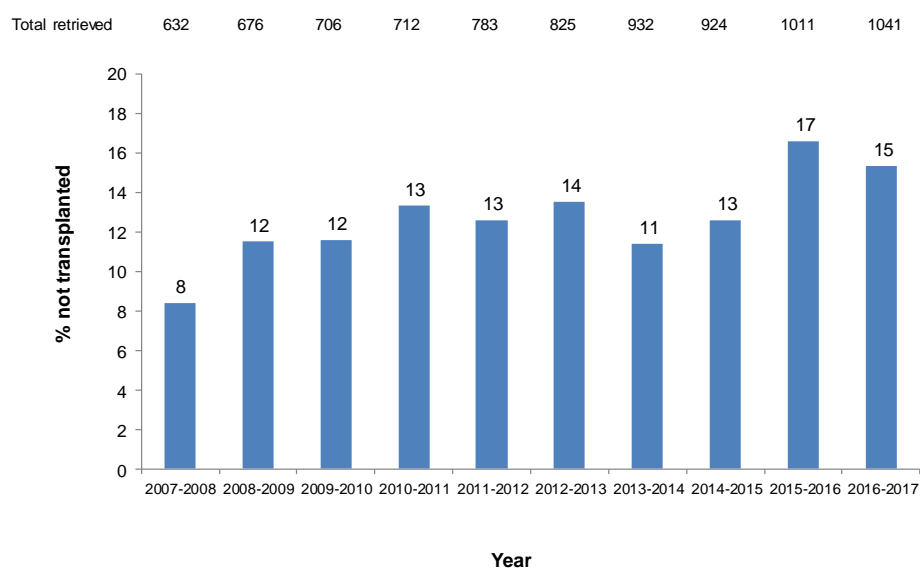
<b>Table 4.5 Reasons for non-retrieval and non-use of abdominal organs from DCD donors in the UK, 1 April 2016 – 31 March 2017</b>			
	Kidney	Liver	Pancreas
<b>All DCD organ donors</b>	<b>584</b>	<b>584</b>	<b>584</b>
Donors from whom organs not offered for donation	1	9	364
<b><i>Reasons for organs not being offered</i></b>			
Family permission refused	1	4	10
Permission refused by coroner	0	5	1
Donor unsuitable – age	0	0	310
Donor unsuitable – past history	0	0	22
Other	0	0	21
<b>TOTAL DONORS WITH ORGANS NOT OFFERED</b>	<b>1</b>	<b>9</b>	<b>364</b>
<b>Organs offered for donation</b>	<b>1166</b>	<b>575</b>	<b>220</b>
<b>Organs not retrieved (% of organs offered for donation)</b>	<b>37 (3)</b>	<b>281 (49)</b>	<b>106 (48)</b>
<b>Reasons for non-retrieval</b>			
<i>Donor</i>			
Donor unsuitable – medical	3	0	1
Donor unsuitable – non-medical	1	11	14
Donor age	2	56	11
<i>Organ</i>			
Organ unsuitable – clinical	22	92	51
Poor function	3	25	4
<i>Other</i>			
Other	6	97	25
<b>TOTAL ORGANS OFFERED, NOT RETRIEVED</b>	<b>37</b>	<b>281</b>	<b>106</b>
<b>Organs retrieved (% of organs offered for donation)</b>	<b>1129 (97)</b>	<b>294 (51)</b>	<b>114 (52)</b>
Organs transplanted in the UK	976	208	49
Organs transplanted overseas	0	0	0
Organs not transplanted	153	86	65
<b><i>Reasons for organ not being transplanted</i></b>			
<i>Donor</i>			
Donor unsuitable – medical	39	6	4
Donor unsuitable – non-medical	0	0	1
Donor age	0	0	1
<i>Organ</i>			
Organ unsuitable – clinical	21	25	26
Poor function	0	0	0
<i>Other</i>			
Other	93	55	33
<b>TOTAL ORGANS RETRIEVED, NOT TRANSPLANTED (Number used for research)</b>	<b>153 (97)</b>	<b>86 (58)</b>	<b>65 (46)</b>

<b>Table 4.6 Reasons for non-retrieval and non-use of cardiothoracic organs from organ donors in the UK, 1 April 2016 – 31 March 2017</b>			
	Heart (DBD)	Lung (DBD)	Lung (DCD)
<b>All organ donors</b>	<b>829</b>	<b>829</b>	<b>584</b>
Donors from whom organs not offered for donation	240	217	207
<b><i>Reasons for organs not being offered</i></b>			
Family permission refused	38	25	28
Permission refused by coroner	24	22	18
Donor age >65 years	170	170	159
Donor cause of death cardiac arrest or myocardial infarction	8	0	0
Other	0	0	2
<b>TOTAL DONORS WITH ORGANS NOT OFFERED</b>	<b>240</b>	<b>217</b>	<b>207</b>
<b>Organs offered for donation</b>	<b>589</b>	<b>1224</b>	<b>754</b>
<b>Organs not retrieved (% of organs offered for donation)</b>	<b>407 (69)</b>	<b>944 (77)</b>	<b>690 (92)</b>
<b><i>Reasons for non-retrieval</i></b>			
<i>Donor</i>			
Donor unsuitable – medical	16	31	22
Donor unsuitable – non-medical	61	66	22
Donor age	37	24	50
<i>Organ</i>			
Organ unsuitable – clinical	102	255	258
Poor function	163	469	276
<i>Other</i>			
Other	28	99	62
<b>TOTAL ORGANS OFFERED, NOT RETRIEVED</b>	<b>407</b>	<b>944</b>	<b>690</b>
<b>Organs retrieved (% of organs offered for donation)</b>	<b>182 (31)</b>	<b>280 (23)</b>	<b>64 (8)</b>
Organs transplanted in the UK	173	262	54
Organs transplanted overseas	2	4	0
Organs not transplanted	7	14	10
<b><i>Reasons for organ not being transplanted</i></b>			
<i>Donor</i>			
Donor unsuitable – medical	0	0	0
Donor unsuitable – non-medical	0	0	0
<i>Organ</i>			
Organ unsuitable – clinical	0	0	0
Poor function	3	2	0
<i>Other</i>			
Other	4	12	8
<b>TOTAL ORGANS RETRIEVED, NOT TRANSPLANTED (Number used for research)</b>	<b>7 (2)</b>	<b>14 (7)</b>	<b>10 (4)</b>

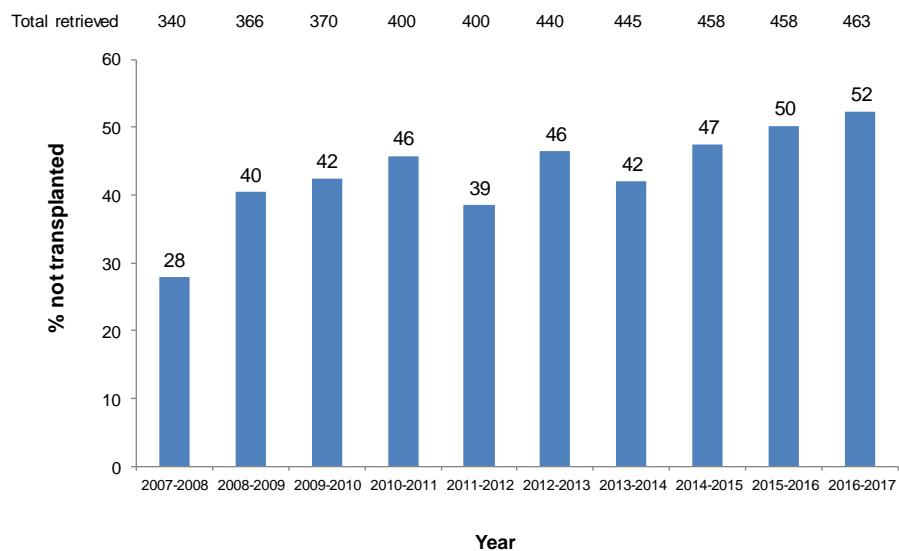
**Figure 4.3 Percentage of kidneys retrieved that are not transplanted from deceased organ donors in the UK, 1 April 2007 – 31 March 2017**



**Figure 4.4 Percentage of livers retrieved that are not transplanted from deceased organ donors in the UK, 1 April 2007 – 31 March 2017**

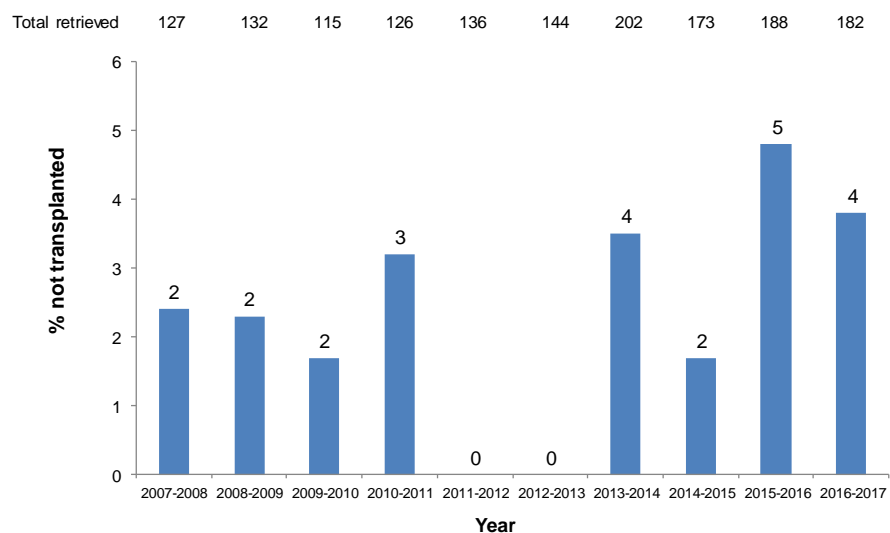


**Figure 4.5 Percentage of pancreases<sup>1</sup> retrieved that are not transplanted from deceased organ donors in the UK, 1 April 2007 – 31 March 2017**



<sup>1</sup> Excludes donors aged > 60 years

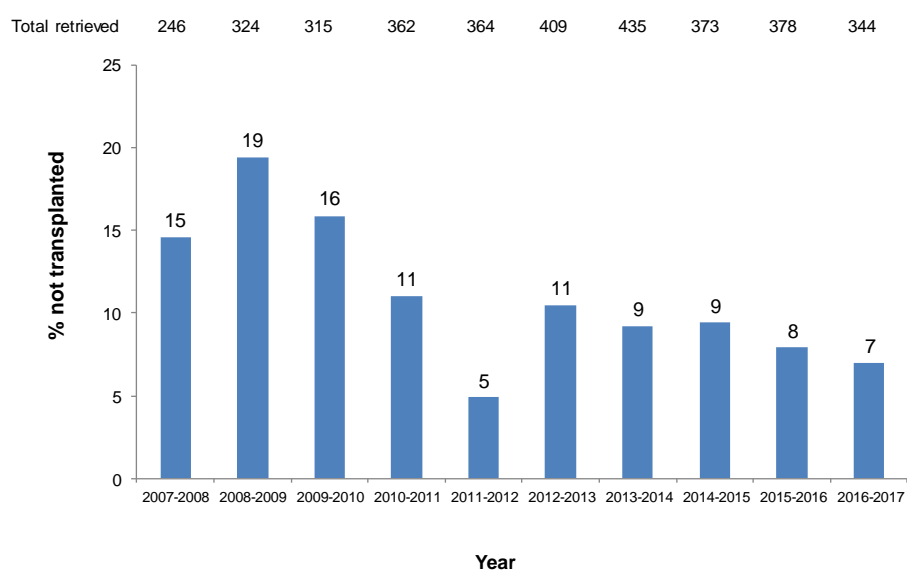
**Figure 4.6 Percentage of hearts<sup>1</sup> retrieved that are not transplanted from deceased organ donors<sup>2</sup> in the UK, 1 April 2007 – 31 March 2017**



<sup>1</sup> Excludes donors aged > 65 years or died due to myocardial infarction

<sup>2</sup> Excludes DCD hearts

**Figure 4.7 Percentage of lungs<sup>1</sup> retrieved that are not transplanted from deceased organ donors in the UK, 1 April 2007 – 31 March 2017**



<sup>1</sup> Excludes donors aged > 65 years



# Kidney Activity

## Key messages

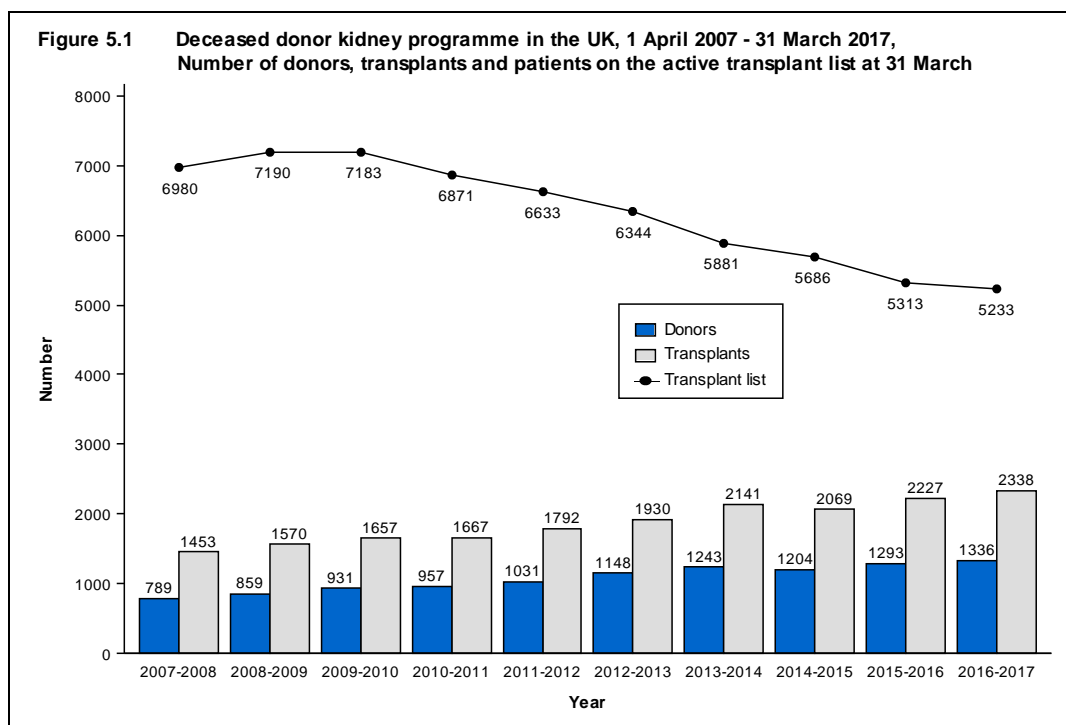
The number of patients registered on the kidney transplant list this year fell by 2% from 5313 to 5233

- The number of deceased kidney donors increased by 3% to 1336
- Kidney transplants from living donors fell by 3% to 1009, while transplants from deceased donors increased by 5% to 2338
- 74 kidney transplants were made possible by the paired living kidney donation programme
- There were 86 non-directed altruistic living kidney donors, this led to 122 patients benefitting from a living donor transplant

## 5.1 Overview

The number of deceased kidney donors increased by 3% in 2016-2017 compared to 2015-2016 and the number of deceased donor kidney transplants increased by 5%. There were 5233 patients waiting for a kidney transplant at 31 March 2017, and for the 8th 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 2017 for a kidney only or multi-organ kidney transplant has fallen by 25% since 2008. These registrations include patients suspended on the kidney waiting list but active on the liver waiting list for a combined liver and kidney transplant.



**Table 5.1** shows the number of deceased and living donor kidney transplants carried out in 2016-2017 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 1336 in 2016-2017 from 1293 in 2015-2016 and the number of transplants increased from 2227 to 2338. The number of kidney donors after circulatory death increased to 567 from 557 in 2015-2016 and the number of transplants from such donors increased by 4% to 934.

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 2016 - 31 March 2017 (2015-2016) and transplant list at 31 March 2017 (2016) in the UK, by centre												
Centre	Deceased kidney donors				Deceased donor transplants				Living donor transplants		Active transplant list	
	DBD		DCD		DBD		DCD					
Belfast	31	(28)	10	(18)	35	(27)	10	(23)	79	(66)	120	(115)
Birmingham	47	(51)	44	(29)	96	(111)	31	(32)	65	(64)	413	(425)
Bristol	32	(28)	19	(27)	63	(57)	31	(36)	30	(45)	227	(262)
Cambridge	36	(30)	51	(59)	58	(46)	87	(82)	41	(53)	211	(184)
Cardiff	27	(31)	15	(18)	28	(32)	25	(37)	38	(29)	135	(98)
Coventry <sup>1</sup>	10	(11)	5	(9)	19	(14)	11	(12)	22	(29)	84	(92)
Edinburgh	29	(19)	34	(31)	46	(56)	33	(23)	36	(39)	169	(165)
Glasgow	43	(34)	19	(11)	61	(66)	45	(51)	47	(41)	271	(264)
Great Ormond Street	0	(0)	0	(0)	4	(7)	0	(0)	18	(19)	12	(6)
Leeds	42	(43)	33	(27)	87	(84)	57	(58)	45	(46)	216	(227)
Leicester	10	(18)	10	(7)	59	(42)	25	(29)	26	(21)	154	(190)
Liverpool	46	(34)	32	(30)	35	(39)	38	(30)	41	(43)	155	(185)
Manchester	57	(42)	41	(41)	140	(127)	104	(91)	78	(105)	395	(482)
Newcastle	50	(50)	31	(34)	63	(44)	48	(30)	59	(51)	244	(218)
North Thames <sup>2</sup>	90	(93)	52	(49)	-	-	-	-	-	-	-	-
Royal Free	-	-	-	-	60	(52)	33	(30)	33	(39)	243	(246)
Royal London	-	-	-	-	77	(57)	38	(27)	33	(34)	295	(306)
WLRTC	-	-	-	-	86	(86)	44	(47)	48	(36)	429	(400)
Nottingham	16	(15)	18	(28)	40	(40)	32	(34)	10	(19)	145	(128)
Oxford <sup>1</sup>	34	(25)	25	(19)	98	(87)	71	(72)	54	(48)	273	(280)
Plymouth	18	(36)	20	(21)	18	(22)	22	(24)	17	(13)	90	(67)
Portsmouth	35	(33)	18	(26)	58	(31)	26	(33)	23	(23)	188	(203)
Sheffield	18	(14)	11	(12)	27	(32)	20	(19)	22	(23)	151	(164)
South Thames <sup>2</sup>	98	(101)	79	(61)	-	-	-	-	-	-	-	-
Guy's	-	-	-	-	93	(114)	72	(55)	79	(89)	343	(331)
St George's	-	-	-	-	53	(55)	31	(24)	54	(49)	270	(275)
TOTAL	769	(736)	567	(557)	1404	(1328)	934	(899)	1009 <sup>3,5</sup>	(1038 <sup>4,6</sup> )	5233	(5313)
WLRTC - West London Renal and Transplant Centre												
<sup>1</sup> As of 1 June 2016 Coventry and Oxford began working in partnership as a transplant network												
<sup>2</sup> Donor figures in this area cannot be linked to individual transplant centres due to shared retrieval areas												
<sup>3</sup> Includes an additional 1 transplant performed at The London Clinic; 1 at The London Independent Hospital; 5 at London, Cromwell Hospital and 4 at London Bridge Hospital												
<sup>4</sup> Includes an additional 3 transplants performed at The London Independent Hospital; 7 at London, Cromwell Hospital; and 4 at London Bridge Hospital												
<sup>5</sup> Includes 2 domino donors;												
<sup>6</sup> Includes 2 domino donors												

## 5.2 Transplant list

The number of patients registered on the kidney or kidney and pancreas transplant list fell by 2% in the year: on 31 March 2017, 5,233 patients were registered as active, compared with 5,313 at the end of March 2016. The number of patients waiting for a kidney transplant represents 80.1 patients per million population (pmp).

Of the 5,233 patients on the active transplant list at 31 March 2017, 195 required a kidney and pancreas transplant (184 at 31 March 2016). Additionally, 29 patients were registered for a pancreas only transplant (43 at 31 March 2016).

The outcome of patients registered on the UK kidney and kidney/pancreas transplant list at 1 April 2016, or subsequently registered during the financial year, is shown in **Table 5.2**. A total of 3,710 patients joined the kidney transplant list last year, while a further 215 joined the kidney/pancreas transplant list.

<b>Table 5.2 Kidney transplant list and new registrations in the UK, 1 April 2016 - 31 March 2017</b>						
<b>Outcome of patient at 31 March 2017</b>	<b>Active and suspended patients at 1 April 2016</b>		<b>New registrations in 2016-2017<sup>1</sup></b>		<b>TOTAL</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
<b>Kidney transplant list</b>						
Remained active/suspended	5129	62	2966	80	8095	68
Transplanted	2332	28	705	19	3037	25
Removed	520	6	21	1	541	5
Died	248	3	18	0	266	2
<b>TOTAL</b>	<b>8229</b>		<b>3710</b>		<b>11939</b>	
<b>Kidney/pancreas transplant list</b>						
Remained active/suspended	152	47	180	84	332	62
Transplanted	132	41	30	14	162	30
Removed	24	7	1	0	25	5
Died	14	4	4	2	18	3
<b>TOTAL</b>	<b>322</b>		<b>215</b>		<b>537</b>	

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

**Table 5.3** shows the active transplant list in the UK at 31 March 2017 and 2016 by country/ former Strategic Health Authority of patient's residence. In 2017, the overall kidney transplant list rate was 80.1 pmp with rates across the Strategic Health Authorities ranging from 58.1 pmp to 130.2 pmp.

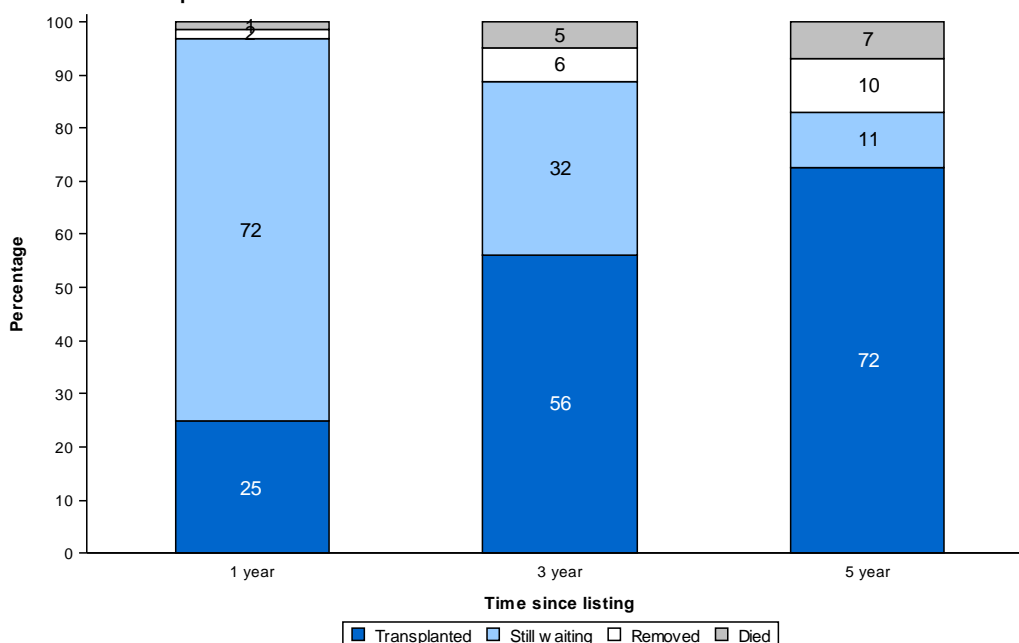
<b>Table 5.3 Active kidney transplant list at 31 March, by country/ Strategic Health Authority of patient residence</b>				
<b>Country/ Strategic Health Authority of residence</b>	<b>Kidney transplant list (pmp)</b>			
	<b>2017</b>		<b>2016</b>	
North East	206	(78.6)	187	(71.4)
North West	520	(72.5)	619	(86.3)
Yorkshire and The Humber	342	(63.5)	375	(69.6)
<b>North of England</b>	<b>1068</b>	<b>(70.4)</b>	<b>1181</b>	<b>(77.8)</b>
East Midlands	359	(76.7)	373	(79.7)
West Midlands	509	(88.5)	524	(91.1)
East of England	384	(63.2)	371	(61.0)
<b>Midlands and East</b>	<b>1252</b>	<b>(75.8)</b>	<b>1268</b>	<b>(76.8)</b>
<b>London</b>	<b>1129</b>	<b>(130.2)</b>	<b>1106</b>	<b>(127.6)</b>
South East Coast	269	(58.1)	275	(59.4)
South Central	356	(82.4)	367	(85.0)
South West	389	(71.1)	398	(72.8)
<b>South of England</b>	<b>1014</b>	<b>(70.3)</b>	<b>1040</b>	<b>(72.1)</b>
<b>England</b>	<b>4463</b>	<b>(81.5)</b>	<b>4595</b>	<b>(83.9)</b>
Isle of Man	6	(75.0)	9	(112.5)
Channel Islands	11	(68.8)	12	(75.0)
<b>Wales</b>	<b>185</b>	<b>(59.7)</b>	<b>145</b>	<b>(46.8)</b>
<b>Scotland</b>	<b>437</b>	<b>(81.4)</b>	<b>427</b>	<b>(79.5)</b>
<b>Northern Ireland</b>	<b>125</b>	<b>(67.6)</b>	<b>121</b>	<b>(65.4)</b>
<b>TOTAL<sup>1</sup></b>	<b>5233</b>	<b>(80.1)</b>	<b>5313</b>	<b>(81.3)</b>

<sup>1</sup> Includes patients in 2017 (2016) residing in: Unspecified UK 6 (1); Republic of Ireland 0 (1); Overseas 0 (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 25% of patients are transplanted within one year, while five years after listing 72% of patients have received a transplant.

The median (average) waiting time for a kidney only transplant has fallen from 944 days reported last year to 864 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 2804 new adult kidney only registrations made in the UK, 1 April 2011 - 31 March 2012



**Table 5.4** Median waiting time to kidney only 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
<b>Adult</b>			
O	4081	1032	1005 - 1059
A	3192	664	637 - 691
B	1273	1029	975 - 1083
AB	375	293	242 - 344
<b>TOTAL</b>	<b>8921</b>	<b>864</b>	<b>845 - 883</b>
<b>Paediatric</b>			
O	110	367	288 - 446
A	97	217	115 - 319
B	41	177	110 - 244
AB	11	287	214 - 360
<b>TOTAL</b>	<b>259</b>	<b>266</b>	<b>205 - 327</b>

**Table 5.5 Median waiting time to kidney only 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
<b>Adult</b>			
White	6312	806	785 - 827
Asian	1447	962	917 - 1007
Black	789	1074	1025 - 1123
Other	259	929	863 - 995
<b>TOTAL<sup>1</sup></b>	<b>8921</b>	<b>864</b>	<b>845 - 883</b>
<b>Paediatric</b>			
White	155	222	156 - 288
Asian	69	397	194 - 600
Black	20	323	0 - 669
Other <sup>3</sup>	9	-	-
<b>TOTAL<sup>2</sup></b>	<b>259</b>	<b>266</b>	<b>205 - 327</b>

<sup>1</sup> Includes 114 patients whose ethnicity was not reported

<sup>2</sup> Includes 6 patients whose ethnicity was not reported

<sup>3</sup> Median waiting time not calculated for fewer than 10 patients



### 5.3 Donor and organ supply

Of the 829 organ donors after brain death in the UK in 2016-2017, 769 (93%) were kidney donors. From these donors, 1,529 kidneys were retrieved. There were 567 kidney donors after circulatory death in 2016-2017. From these donors, 1,129 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 11.8 pmp, with rates across the Strategic Health Authorities ranging from 7.5 to 18.7 pmp. The number of kidneys retrieved from donors after brain death in the UK is 23.4 pmp and varies from 15 to 36.6 pmp.

The overall rate for kidney donors after circulatory death is 8.7 pmp, with rates across the Strategic Health Authorities ranging from 5.5 to 12.3 pmp. The number of kidneys retrieved from donors after circulatory death is 17.3 pmp and varies from 11.1 to 24.7 pmp.

<b>Table 5.6 Kidney donation and retrieval rates for deceased donors in the UK, 1 April 2016 - 31 March 2017, by country/ Strategic Health Authority</b>								
<b>Country/ Strategic Health Authority of residence</b>	<b>Kidney donors (pmp)</b>				<b>Kidneys retrieved (pmp)</b>			
	DBD		DCD		DBD		DCD	
North East	49	(18.7)	22	(8.4)	96	(36.6)	44	(16.8)
North West	87	(12.1)	70	(9.8)	172	(24.0)	140	(19.5)
Yorkshire and The Humber	56	(10.4)	44	(8.2)	111	(20.6)	86	(16.0)
<b>North of England</b>	<b>192</b>	<b>(12.6)</b>	<b>136</b>	<b>(9.0)</b>	<b>379</b>	<b>(25.0)</b>	<b>270</b>	<b>(17.8)</b>
East Midlands	35	(7.5)	35	(7.5)	70	(15.0)	70	(15.0)
West Midlands	63	(11.0)	48	(8.3)	125	(21.7)	96	(16.7)
East of England	69	(11.3)	75	(12.3)	138	(22.7)	150	(24.7)
<b>Midlands and East</b>	<b>167</b>	<b>(10.1)</b>	<b>158</b>	<b>(9.6)</b>	<b>333</b>	<b>(20.2)</b>	<b>316</b>	<b>(19.1)</b>
<b>London</b>	<b>86</b>	<b>(9.9)</b>	<b>48</b>	<b>(5.5)</b>	<b>172</b>	<b>(19.8)</b>	<b>96</b>	<b>(11.1)</b>
South East Coast	69	(14.9)	51	(11.0)	138	(29.8)	102	(22.0)
South Central	47	(10.9)	36	(8.3)	94	(21.8)	71	(16.4)
South West	62	(11.3)	42	(7.7)	124	(22.7)	82	(15.0)
<b>South of England</b>	<b>178</b>	<b>(12.3)</b>	<b>129</b>	<b>(8.9)</b>	<b>356</b>	<b>(24.7)</b>	<b>255</b>	<b>(17.7)</b>
<b>England</b>	<b>623</b>	<b>(11.4)</b>	<b>471</b>	<b>(8.6)</b>	<b>1240</b>	<b>(22.6)</b>	<b>937</b>	<b>(17.1)</b>
<b>Isle of Man</b>	<b>2</b>	<b>(25.0)</b>	<b>2</b>	<b>(25.0)</b>	<b>4</b>	<b>(50.0)</b>	<b>4</b>	<b>(50.0)</b>
<b>Channel Islands</b>	<b>4</b>	<b>(25.0)</b>	<b>1</b>	<b>(6.3)</b>	<b>8</b>	<b>(50.0)</b>	<b>2</b>	<b>(12.5)</b>
<b>Wales</b>	<b>36</b>	<b>(11.6)</b>	<b>27</b>	<b>(8.7)</b>	<b>69</b>	<b>(22.3)</b>	<b>54</b>	<b>(17.4)</b>
<b>Scotland</b>	<b>74</b>	<b>(13.8)</b>	<b>55</b>	<b>(10.2)</b>	<b>148</b>	<b>(27.6)</b>	<b>110</b>	<b>(20.5)</b>
<b>Northern Ireland</b>	<b>30</b>	<b>(16.2)</b>	<b>11</b>	<b>(5.9)</b>	<b>60</b>	<b>(32.4)</b>	<b>22</b>	<b>(11.9)</b>
<b>TOTAL<sup>1</sup></b>	<b>769</b>	<b>(11.8)</b>	<b>567</b>	<b>(8.7)</b>	<b>1529</b>	<b>(23.4)</b>	<b>1129</b>	<b>(17.3)</b>

<sup>1</sup> Includes 14 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 23.5 to 45.6 pmp across Strategic Health Authorities and overall was 33 pmp. The living donor transplant rate ranged from 8.8 to 21.4 pmp across the Strategic Health Authorities and overall was 15.1 pmp.

<b>Table 5.7 Kidney only transplant rates per million population (pmp), in the UK, 1 April 2016 - 31 March 2017, by country and English Strategic Health Authority</b>								
<b>Country/ Strategic Health Authority of residence</b>	<b>DBD</b>		<b>DCD</b>		<b>TOTAL</b>		<b>Living</b>	
	<b>N</b>	<b>(pmp)</b>	<b>N</b>	<b>(pmp)</b>	<b>N</b>	<b>(pmp)</b>	<b>N</b>	<b>(pmp)</b>
North East	47	(17.9)	39	(14.9)	86	(32.8)	56	(21.4)
North West	152	(21.2)	121	(16.9)	273	(38.1)	113	(15.8)
Yorkshire and The Humber	116	(21.5)	75	(13.9)	191	(35.4)	65	(12.1)
<b>North of England</b>	<b>315</b>	<b>(20.8)</b>	<b>235</b>	<b>(15.5)</b>	<b>550</b>	<b>(36.2)</b>	<b>234</b>	<b>(15.4)</b>
East Midlands	99	(21.2)	57	(12.2)	156	(33.3)	41	(8.8)
West Midlands	108	(18.8)	44	(7.7)	152	(26.4)	80	(13.9)
East of England	76	(12.5)	112	(18.4)	188	(30.9)	86	(14.1)
<b>Midlands and East</b>	<b>283</b>	<b>(17.1)</b>	<b>213</b>	<b>(12.9)</b>	<b>496</b>	<b>(30)</b>	<b>207</b>	<b>(12.5)</b>
<b>London</b>	<b>254</b>	<b>(29.3)</b>	<b>141</b>	<b>(16.3)</b>	<b>395</b>	<b>(45.6)</b>	<b>138</b>	<b>(15.9)</b>
South East Coast	68	(14.7)	41	(8.9)	109	(23.5)	59	(12.7)
South Central	95	(22)	67	(15.5)	162	(37.5)	76	(17.6)
South West	95	(17.4)	64	(11.7)	159	(29.1)	63	(11.5)
<b>South of England</b>	<b>258</b>	<b>(17.9)</b>	<b>172</b>	<b>(11.9)</b>	<b>430</b>	<b>(29.8)</b>	<b>198</b>	<b>(13.7)</b>
<b>England</b>	<b>1110</b>	<b>(20.3)</b>	<b>761</b>	<b>(13.9)</b>	<b>1871</b>	<b>(34.1)</b>	<b>777</b>	<b>(14.2)</b>
<b>Isle of Man</b>	<b>1</b>	<b>(12.5)</b>	<b>2</b>	<b>(25)</b>	<b>3</b>	<b>(37.5)</b>	<b>0</b>	<b>(0)</b>
<b>Channel Islands</b>	<b>1</b>	<b>(6.3)</b>	<b>0</b>	<b>(0)</b>	<b>1</b>	<b>(6.3)</b>	<b>1</b>	<b>(6.3)</b>
<b>Wales</b>	<b>36</b>	<b>(11.6)</b>	<b>38</b>	<b>(12.3)</b>	<b>74</b>	<b>(23.9)</b>	<b>51</b>	<b>(16.5)</b>
<b>Scotland</b>	<b>86</b>	<b>(16)</b>	<b>78</b>	<b>(14.5)</b>	<b>164</b>	<b>(30.5)</b>	<b>83</b>	<b>(15.5)</b>
<b>Northern Ireland</b>	<b>35</b>	<b>(18.9)</b>	<b>10</b>	<b>(5.4)</b>	<b>45</b>	<b>(24.3)</b>	<b>77</b>	<b>(41.6)</b>
<b>TOTAL<sup>1, 2</sup></b>	<b>1269</b>	<b>(19.4)</b>	<b>890</b>	<b>(13.6)</b>	<b>2159</b>	<b>(33)</b>	<b>990</b>	<b>(15.1)</b>

<sup>1</sup> Excludes recipients of a kidney who reside outside of the UK (1 deceased donor, 19 living donors)  
<sup>2</sup> Includes recipients of a kidney with an unspecified postcode in the UK (1 deceased donor, 1 living donor)

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 5 en bloc kidneys and 16 double kidney transplants in 2016-2017 (4 and 14 in 2015-2016). Kidney transplants from donors after circulatory death include 8 en bloc and 37 double kidney transplants in 2016-2017 (8 and 32 in 2015-2016). This table excludes multi-organ transplants: 10 kidney and liver, 1 kidney and heart, 162 kidney and pancreas, 1 kidney and islets and 1 multivisceral.

**Table 5.8 Adult kidney only transplants in the UK,  
1 April 2015 - 31 March 2017, by transplant centre**

Transplant centre	2015-2016				2016-2017			
	DBD	DCD	Living donor	TOTAL	DBD	DCD	Living donor	TOTAL
Belfast	27	23	66	116	34	10	74	118
Birmingham	96	32	58	186	82	31	56	169
Bristol	55	36	42	133	55	31	29	115
Cambridge	29	72	53	154	39	79	41	159
Cardiff	28	35	26	89	24	24	35	83
Coventry <sup>1</sup>	14	12	29	55	19	11	22	52
Edinburgh	39	23	39	101	25	33	36	94
Glasgow	62	51	39	152	60	45	43	148
Guy's	84	46	74	204	75	64	68	207
Leeds	73	57	41	171	79	57	43	179
Leicester	42	29	20	91	59	25	26	110
Liverpool	39	30	43	112	35	38	41	114
Manchester	108	77	86	271	118	91	68	277
Newcastle	35	30	49	114	52	48	53	153
Nottingham	30	34	16	80	30	30	8	68
Oxford <sup>1</sup>	50	63	48	161	59	59	54	172
Plymouth	22	24	13	59	18	22	16	56
Portsmouth	31	33	23	87	58	26	23	107
Sheffield	32	19	23	74	27	20	22	69
St George's	55	24	49	128	53	31	54	138
The Royal Free	49	30	39	118	58	33	33	124
The Royal London	57	27	34	118	77	38	33	148
WLRTC	77	44	36	157	82	41	48	171
<b>TOTAL</b>	<b>1134</b>	<b>851</b>	<b>960<sup>2</sup></b>	<b>2945</b>	<b>1218</b>	<b>887</b>	<b>937<sup>3</sup></b>	<b>3042</b>

WLRTC - West London Renal and Transplant Centre

<sup>1</sup> As of 1 June 2016 Coventry and Oxford began working in partnership as a transplant network

<sup>2</sup> Includes 3 transplant performed at London Independent, 7 at London Cromwell Hospital and 4 at London Bridge

<sup>3</sup> Includes 1 transplant performed at London Clinic, 1 at London Independent, 5 at London Cromwell Hospital and 4 at London Bridge

Living donor kidney transplants fell by 3% to 1009 in 2016-2017, representing 30% 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 1% decrease in these transplants. In addition there are now a number of 'undirected' living donor transplants (also known as altruistic donor transplants). Last year 86 such donors donated a kidney to a recipient, 82 transplanted into an adult recipient and 4 transplanted into a paediatric recipient. Of the 86 altruistic donors, 24 went into an altruistic donor chain (12 short (2 transplants each) and 12 long chains (3 transplants each)) benefiting 35 adult and 1 paediatric patient in the paired/pooled scheme. The kidneys from the paired donors of these recipients led to 23 adult and 1 paediatric transplant for patients on the deceased donor transplant list. Thus 24 altruistic donors creating chains benefited 58 adult and 2 paediatric patients in total.

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 2016-2017, there were also 74 paired living kidney donor transplants (72 adult and 2 paediatric recipients).

As a percentage of the number of patients on the active transplant list at 31 March 2017, the number of living donor adult transplants in the year was 18% and ranged from 6% to 62% at individual transplant centres.

<b>Table 5.9 Adult living donor kidney transplants in the UK, 1 April 2016 - 31 March 2017, and percentage of active transplant list at 31 March, by transplant centre</b>						
<b>Transplant centre</b>	<b>2016-2017</b>				<b>TOTAL</b>	
	<b>Directed</b>	<b>Non-directed (altruistic) to waiting list</b>	<b>Paired/pooled exchanges</b>	<b>Altruistic donor chain<sup>4</sup></b>	<b>N</b>	<b>% list</b>
Belfast	58	1	11	4	74	62
Birmingham	47	5	4	0	56	15
Bristol	24	3	0	2	29	14
Cambridge	35	3	2	1	41	20
Cardiff	28	3	1	3	35	26
Coventry <sup>1</sup>	12	3	6	1	22	26
Edinburgh	29	2	1	4	36	21
Glasgow	30	7	3	3	43	16
Guy's	58	2	4	4	68	21
Leeds	33	2	5	3	43	21
Leicester	25	1	0	0	26	17
Liverpool	34	3	0	4	41	26
Manchester	60	2	4	2	68	18
Newcastle	45	4	4	0	53	22
Nottingham	7	1	0	0	8	6
Oxford <sup>1</sup>	33	4	11	6	54	20
Plymouth	13	1	0	2	16	18
Portsmouth	16	3	2	2	23	12
Sheffield	15	3	2	2	22	15
St George's	40	2	5	7	54	20
The Royal Free	28	2	2	1	33	14
The Royal London	29	2	1	1	33	11
WLRTC	36	2	4	6	48	11
<b>TOTAL</b>	<b>746<sup>2</sup></b>	<b>61<sup>3</sup></b>	<b>72</b>	<b>58</b>	<b>937<sup>2</sup></b>	<b>18</b>

WLRTC – West London Renal and Transplant Centre

<sup>1</sup> As of 1 June 2016 Coventry and Oxford began working in partnership as a transplant network

<sup>2</sup> Includes 1 transplant performed at London Clinic, 1 at London Independent, 5 at London Cromwell Hospital and 4 at London Bridge

<sup>3</sup> Includes 2 domino donor transplants

<sup>4</sup> 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**.

<b>Table 5.10 Altruistic kidney donors in the UK, 1 April 2015 - 31 March 2017, by donor centre</b>								
Donor centre	2015-2016				2016-2017			
	Transplant list	Chain	Total	%	Transplant list	Chain	Total	%
Belfast	3	1	4	5	2	2	4	5
Birmingham	3	1	4	5	3	2	5	6
Bristol	1	0	1	1	2	0	2	2
Cambridge	2	1	3	4	4	2	6	7
Cardiff	2	0	2	2	2	0	2	2
Coventry <sup>1</sup>	2	1	3	4	1	0	1	1
Edinburgh	3	3	6	7	9	2	11	13
Glasgow	2	0	2	2	1	4	5	6
Guy's	1	2	3	4	3	1	4	5
Leeds	3	1	4	5	2	0	2	2
Leicester	2	0	2	2	1	0	1	1
Liverpool	2	0	2	2	4	1	5	6
Manchester	11	0	11	13	5	2	7	8
Newcastle	3	2	5	6	1	0	1	1
Nottingham	3	0	3	4	2	2	4	5
Oxford <sup>1</sup>	3	7	10	12	4	2	6	7
Plymouth	3	3	6	7	1	0	1	1
Portsmouth	3	1	4	5	7	0	7	8
Sheffield	1	1	2	2	2	1	3	3
St George's	1	0	1	1	0	2	2	2
The Royal Free	1	1	2	2	0	0	0	0
The Royal London	2	0	2	2	4	1	5	6
WLRTC	1	0	1	1	2	0	2	2
<b>Total donors</b>	<b>58</b>	<b>25</b>	<b>83</b>	<b>100</b>	<b>62</b>	<b>24</b>	<b>86</b>	<b>100</b>
WLRTC – West London Renal and Transplant Centre								
<sup>1</sup> As of 1 June 2016 Coventry and Oxford began working in partnership as a transplant network								

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 72 living donor transplants and 55 deceased donor transplants in paediatric patients in 2016-2017. The paediatric transplant list has increased by 9% from 77 patients at 31 March 2016 to 84 at the end of March 2017.

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

<b>Table 5.11 Paediatric patient kidney transplants in the UK, 1 April 2015 - 31 March 2017, by transplant centre</b>								
<b>Paediatric transplant centre</b>	<b>2015-2016</b>				<b>2016-2017</b>			
	DBD	DCD	Living donor	<b>TOTAL</b>	DBD	DCD	Living donor	<b>TOTAL</b>
Belfast	0	0	0	<b>0</b>	1	0	5	<b>6</b>
Birmingham	5	0	6	<b>11</b>	7	0	9	<b>16</b>
Bristol	2	0	3	<b>5</b>	8	0	1	<b>9</b>
Glasgow	4	0	2	<b>6</b>	1	0	4	<b>5</b>
Great Ormond Street	7	0	19	<b>26</b>	4	0	18	<b>22</b>
Guy's	4	1	15	<b>20</b>	2	0	11	<b>13</b>
Leeds	8	1	5	<b>14</b>	8	0	2	<b>10</b>
Manchester	5	2	19	<b>26</b>	6	1	10	<b>17</b>
Newcastle	2	0	2	<b>4</b>	3	0	6	<b>9</b>
Nottingham	10	0	3	<b>13</b>	10	2	2	<b>14</b>
Adult centres	0	0	4	<b>4</b>	2	0	4	<b>6</b>
<b>TOTAL</b>	<b>47</b>	<b>4</b>	<b>78</b>	<b>129<sup>1</sup></b>	<b>52</b>	<b>3</b>	<b>72<sup>2</sup></b>	<b>127</b>
<sup>1</sup> Includes 2 non-directed donor transplants and 3 altruistic donor chains (as patients on transplant list at end of chain) <sup>2</sup> Includes 3 non-directed donor transplants, 2 paired living donor transplants, and 2 altruistic donor chains (1 as a patient on transplant list at end of chain, and 1 as part of a paired programme)								

At 31 March 2017, there were approximately 35,800 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 3,169 kidney only transplant recipients in 2016-2017, dialysis status at time of transplant was reported for 3,039 (96%). Of these 3,039 transplants, 671 (22%) were carried out in pre-dialysis patients.

Pre-emptive transplants accounted for 28% 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: 34% 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.

<b>Table 5.12 Pre-emptive kidney only transplants in the UK, 1 April 2016 - 31 March 2017</b>			
	Number of kidney only transplants	Number of transplants with known dialysis status at transplant (% of all)	Percentage of patients transplanted prior to the need for dialysis (of those with known status)
<b>Adult</b>			
Deceased donor transplant	2105	2016 (95.8)	14.9
Living donor transplant	937	900 (96.1)	34.6
<b>Paediatric</b>			
Deceased donor transplant	55	54 (98.2)	20.0
Living donor transplant	72	69 (95.8)	31.9

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**.

<b>Table 5.13 Median cold ischaemia time for kidney only transplants in the UK, 1 April 2016 - 31 March 2017</b>				
	Number of kidney only transplants <sup>1</sup>	Median (hours)	Inter-quartile range <sup>2</sup> Q1 Q3	
<b>Adult</b>				
DBD donor transplant	1218	13.6	10.5	17.3
DCD donor transplant	887	12.9	9.9	16.3
<b>Total</b>	<b>2105</b>	<b>13.3</b>	<b>10.3</b>	<b>17.0</b>
<b>Paediatric</b>				
DBD donor transplant	52	14.0	10.4	16.6
DCD donor transplant	3	13.3	12.2	15.0
<b>Total</b>	<b>55</b>	<b>13.9</b>	<b>10.8</b>	<b>16.6</b>
<b>TOTAL</b>	<b>2160</b>	<b>13.3</b>	<b>10.3</b>	<b>17.0</b>

<sup>1</sup> Not all cold ischaemia times are reported

<sup>2</sup> 25% of times are shorter than Q1, 25% are longer than Q3



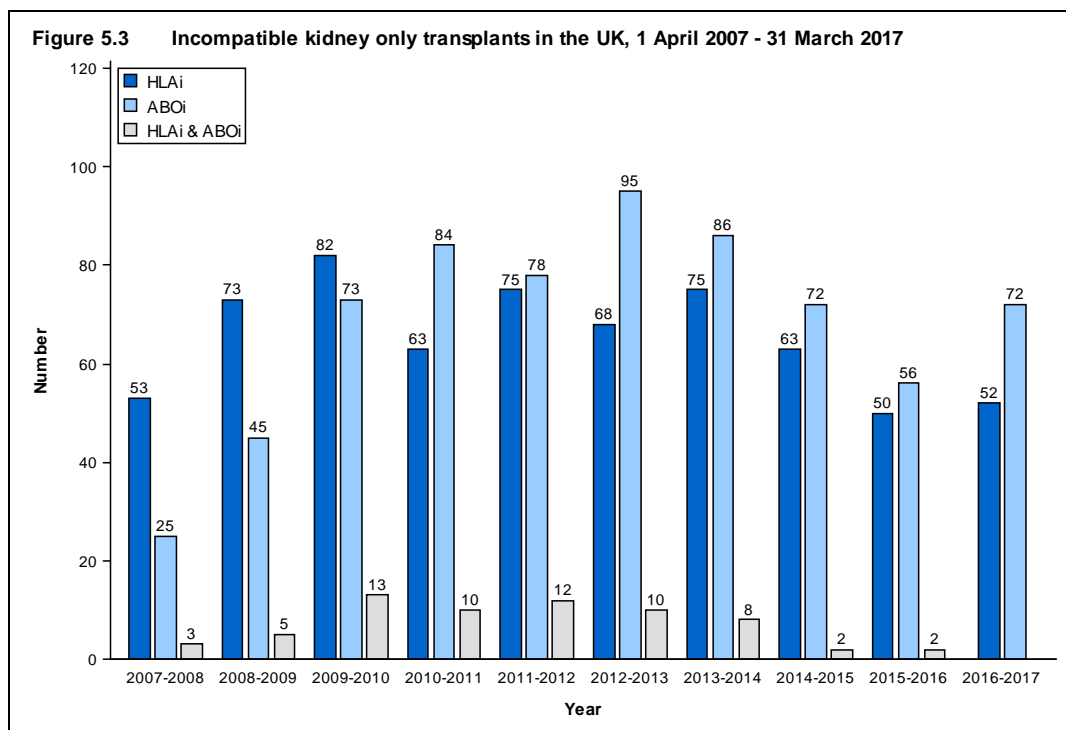
Kidneys from donors after brain death and some kidneys from donors after cardiothoracic death are allocated on the basis of a national Kidney Allocation Scheme which incorporates HLA matching between donor and recipient. These HLA matches are based on four levels which are described in **Table 5.14**. 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](http://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.

<b>Table 5.14 HLA mismatch groups</b>		
<b>Level</b>	<b>HLA mismatch summary</b>	<b>HLA mismatch combinations included</b>
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

<b>Table 5.15 HLA matching for kidney only transplants in the UK, 1 April 2016 - 31 March 2017</b>						
	DBD		DCD		Living	
	N	(%)	N	(%)	N	(%)
<b>Adult</b>						
Level 1 (Best match)	187	(15)	48	(5)	102	(11)
Level 2	507	(42)	212	(24)	153	(17)
Level 3	479	(39)	527	(59)	393	(43)
Level 4	45	(4)	100	(11)	256	(28)
Not reported					33	
<b>Paediatric</b>						
Level 1 (Best match)	4	(8)	1	(33)	1	(1)
Level 2	42	(81)	2	(67)	17	(24)
Level 3	6	(12)	0	(0)	50	(71)
Level 4	0	(0)	0	(0)	2	(3)
Not reported					2	



Often potential living donors and their recipients are HLA or blood group incompatible. Increasingly it is possible to proceed with transplantation across the incompatibilities with appropriate management. The number of HLA and ABO blood group incompatible transplants over the last ten years is shown in **Figure 5.3**. Of the 654 HLA incompatible (HLAi) transplants performed; 188 used kidneys from deceased donors and 466 used living donor kidneys whilst the vast majority of ABO incompatible (ABOi) transplants used living donor kidneys (681 of 686). Due to the nature of reporting HLA incompatible transplants the numbers presented may be subject to change over time.



## 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.

<b>Table 5.16 Demographic characteristics of deceased kidney donors and transplant recipients, 1 April 2016 - 31 March 2017, and transplant list patients at 31 March</b>						
<b>Age group (years)</b>	<b>Donors</b>		<b>Transplant recipients</b>		<b>Active transplant list patients</b>	
	N	(%)	N	(%)	N	(%)
0 - 17	52	(4)	59	(3)	84	(2)
18 - 34	181	(14)	293	(13)	602	(12)
35 - 49	303	(23)	685	(29)	1473	(28)
50 - 59	330	(25)	614	(26)	1461	(28)
60 - 69	294	(22)	526	(22)	1202	(23)
70+	176	(13)	161	(7)	411	(8)
mean (SD)	51	(17)	50	(15)	51	(14)
Male	760	(57)	1472	(63)	3095	(59)
Female	576	(43)	866	(37)	2138	(41)
White	1243	(94)	1661	(72)	3416	(66)
Asian	27	(2)	384	(17)	923	(18)
Black	17	(1)	189	(8)	600	(12)
Chinese	3	(0)	24	(1)	71	(1)
Other	31	(2)	46	(2)	133	(3)
Not reported	15		34		90	
O	619	(46)	1006	(43)	2775	(53)
A	564	(42)	953	(41)	1418	(27)
B	119	(9)	278	(12)	914	(17)
AB	34	(3)	101	(4)	126	(2)
First graft			2004	(86)	3997	(76)
Re-graft			334	(14)	1236	(24)
<b>TOTAL</b>	<b>1336</b>	<b>(100)</b>	<b>2338</b>	<b>(100)</b>	<b>5233</b>	<b>(100)</b>

**Table 5.17 Demographic characteristics of living kidney donors and transplant recipients, 1 April 2016 - 31 March 2017**

Age group (years)	Donors		Transplant recipients	
	N	(%)	N	(%)
0 - 17	0	(0)	72	(7)
18 - 34	191	(19)	224	(22)
35 - 49	363	(36)	265	(26)
50 - 59	263	(26)	240	(24)
60 - 69	159	(16)	161	(16)
70+	33	(3)	47	(5)
mean (SD)	48	(13)	45	(17)
Male	485	(48)	611	(61)
Female	524	(52)	398	(39)
White	876	(87)	843	(84)
Asian	75	(7)	80	(8)
Black	17	(2)	29	(3)
Chinese	7	(1)	6	(1)
Other	33	(3)	41	(4)
Not reported	1		10	
O	580	(58)	458	(45)
A	311	(31)	377	(37)
B	95	(9)	128	(13)
AB	21	(2)	46	(5)
Not reported	2			
First graft			865	(86)
Re-graft			144	(14)
<b>TOTAL</b>	<b>1009</b>	<b>(100)</b>	<b>1009</b>	<b>(100)</b>

# Pancreas Activity

## Key messages

- The number of patients waiting on the pancreas transplant list fell by 1% during the year, to 224 at 31 March 2017
- The number of pancreas donors after brain death increased by 5% to 360, while transplants from donors after brain death increased by 2% to 164
- The number of pancreas donors after circulatory death fell by 6% to 117, while transplants from donors after circulatory death fell by 11% to 49
- 34 islet transplants were made possible by the pancreas islet transplant programme, an increase of 10% compared with last year

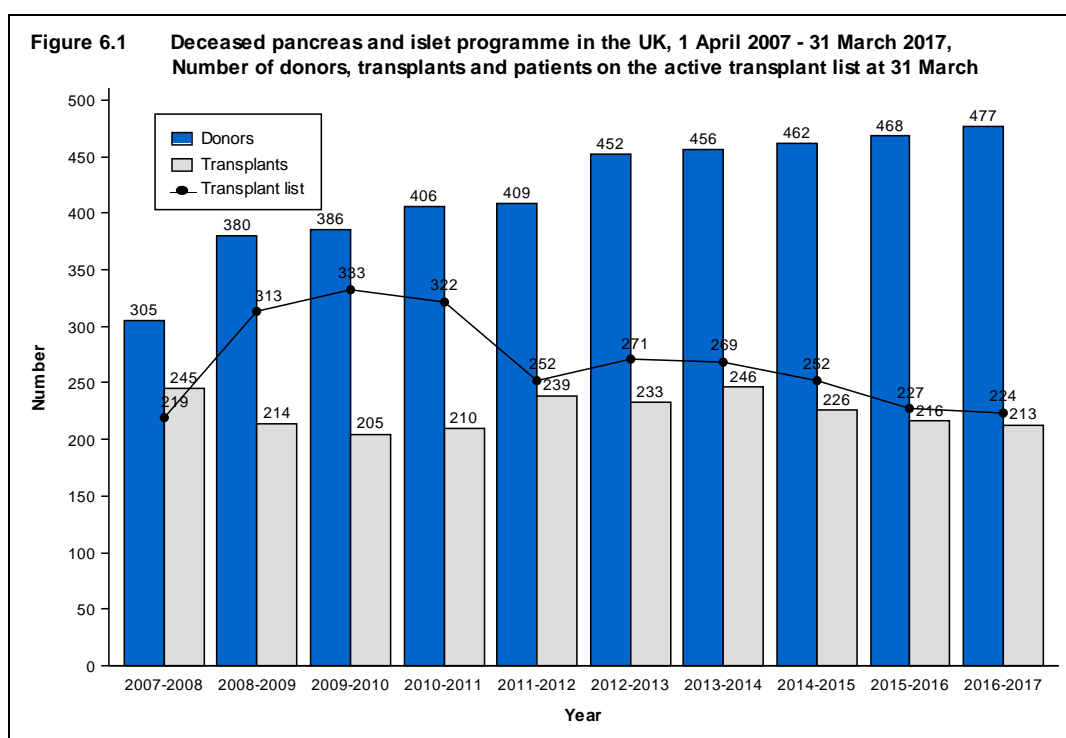
## 6.1 Overview

The number of patients registered on the active transplant list at 31 March for a pancreas, simultaneous kidney/pancreas (SPK) or islet transplant has increased slightly over the last ten years from 219 patients in 2008 to 224 patients in 2017. The number of pancreas donors has increased steadily from 305 to 477. However the number of transplants has decreased in the last 4 years to 213 transplants in 2016-2017. A summary of activity for deceased donor pancreas transplants and the transplant list for 1 April 2007 - 31 March 2017 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 vascularized 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 2016-2017 there were 14 intestinal transplants including a pancreas.



## 6.2 Transplant list

**Table 6.1** shows the number of patients on the active transplant lists at 31 March 2017 by centre. The number of patients registered on the pancreas transplant list fell by 1% in the year: on 31 March 2017, 224 patients were registered active, compared with 227 at the end of March 2016.

Of the 224 patients on the active transplant list at 31 March 2017, 193 required a SPK transplant (184 at 31 March 2016), 10 (4%) patients required a pancreas only transplant (15 at 31 March 2016) and 21 (9%) were registered for a pancreas islet transplant (including two for a simultaneous islet and kidney (SIK) transplant).

The outcome of patients registered on the UK pancreas transplant list at 1 April 2016, or subsequently registered during the financial year, is shown in **Table 6.2**. 19 patients joined the pancreas transplant list while 215 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 2017 (2016) in the UK, by centre												
Centre	Active transplant lists										TOTAL	
	Kidney/ pancreas		Kidney/islet Pancreas alone				Islet					
							Routine		Priority			
Bristol	-	-	0	(0)	-	-	0	(2)	0	(1)	0	(3)
Cambridge	16	(18)	-	-	1	(0)	-	-	-	-	17	(18)
Cardiff	10	(4)	-	-	1	(1)	-	-	-	-	11	(5)
Edinburgh	27	(32)	2	(0)	0	(0)	6	(9)	0	(2)	35	(43)
Guys	36	(31)	-	-	0	(1)	-	-	-	-	36	(32)
King's College	-	-	0	(0)	-	-	0	(2)	0	(0)	0	(2)
Manchester	21	(24)	0	(0)	1	(2)	2	(1)	1	(1)	25	(28)
Newcastle	11	(9)	0	(0)	2	(1)	2	(1)	1	(4)	16	(15)
Oxford	62	(64)	0	(0)	5	(8)	4	(5)	3	(0)	74	(77)
Royal Free	-	-	0	(0)	-	-	0	(0)	0	(0)	0	(0)
WLRTC	10	(2)	-	-	0	(2)	-	-	-	-	10	(4)
TOTAL	193	(184)	2	(0)	10	(15)	14	(20)	5	(8)	224	(227)

<b>Table 6.2      Whole pancreas transplant list and new registrations in the UK, 1 April 2016 - 31 March 2017</b>						
<b>Outcome of patient at 31 March 2017</b>	Active and suspended patients at 1 April 2016		New registrations in 2016-2017 <sup>1</sup>		<b>TOTAL</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
<b>Pancreas transplant list</b>						
Remained active/suspended	67	71	7	37	<b>74</b>	<b>65</b>
Transplanted	6	6	11	58	<b>17</b>	<b>15</b>
Removed	21	22	1	5	<b>22</b>	<b>19</b>
Died	1	1	0	0	<b>1</b>	<b>1</b>
<b>TOTAL</b>	<b>95</b>		<b>19</b>		<b>114</b>	
<b>Kidney/pancreas transplant list</b>						
Remained active/suspended	152	47	180	84	<b>332</b>	<b>62</b>
Transplanted	132	41	30	14	<b>162</b>	<b>30</b>
Removed	24	7	1	0	<b>25</b>	<b>5</b>
Died	14	4	4	2	<b>18</b>	<b>3</b>
<b>TOTAL</b>	<b>322</b>		<b>215</b>		<b>537</b>	

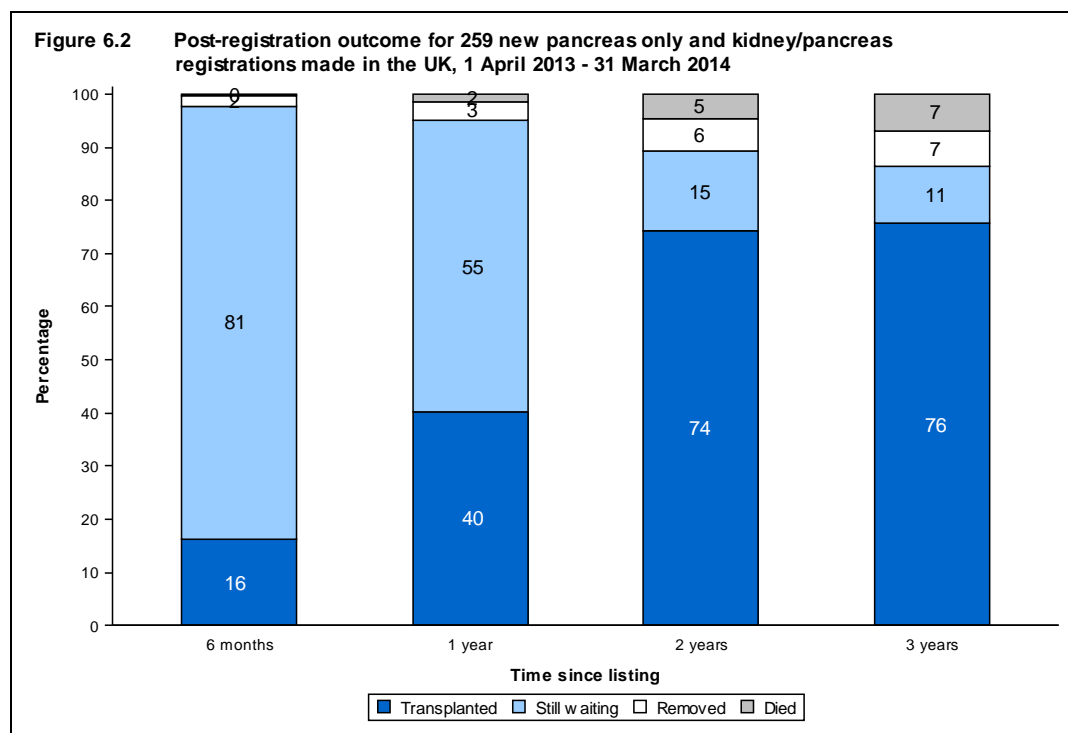
<sup>1</sup> Includes re-registrations for second or subsequent transplants

The active pancreas transplant list rates by country/ Strategic Health Authority of patient's residence are shown in **Table 6.3**. At 31 March 2017, the overall transplant list rate was 3.4 pmp and across the Strategic Health Authorities ranged from 1.3 to 6.0 pmp.

<b>Table 6.3 Active pancreas transplant lists at 31 March, by country/Strategic Health Authority of patient residence</b>				
<b>Country/ Strategic Health Authority of residence</b>	<b>Pancreas transplant list (pmp)</b>			
	<b>2017</b>		<b>2016</b>	
North East	10	(3.8)	12	(4.6)
North West	15	(2.1)	12	(1.7)
Yorkshire and The Humber	7	(1.3)	12	(2.2)
<b>North of England</b>	<b>32</b>	<b>(2.1)</b>	<b>36</b>	<b>(2.4)</b>
East Midlands	14	(3.0)	18	(3.8)
West Midlands	22	(3.8)	24	(4.2)
East of England	18	(3.0)	17	(2.8)
<b>Midlands and East</b>	<b>54</b>	<b>(3.3)</b>	<b>59</b>	<b>(3.6)</b>
<b>London</b>	<b>30</b>	<b>(3.5)</b>	<b>23</b>	<b>(2.7)</b>
South East Coast	17	(3.7)	13	(2.8)
South Central	26	(6.0)	27	(6.3)
South West	15	(2.7)	22	(4.0)
<b>South of England</b>	<b>58</b>	<b>(4.0)</b>	<b>62</b>	<b>(4.3)</b>
<b>England</b>	<b>174</b>	<b>(3.2)</b>	<b>180</b>	<b>(3.3)</b>
<b>Isle of Man</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>
<b>Channel Islands</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>
<b>Wales</b>	<b>15</b>	<b>(4.8)</b>	<b>4</b>	<b>(1.3)</b>
<b>Scotland</b>	<b>32</b>	<b>(6.0)</b>	<b>40</b>	<b>(7.4)</b>
<b>Northern Ireland</b>	<b>3</b>	<b>(1.6)</b>	<b>3</b>	<b>(1.6)</b>
<b>TOTAL</b>	<b>224</b>	<b>(3.4)</b>	<b>227</b>	<b>(3.5)</b>

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. 40% 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 346 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.





**Table 6.4** Median waiting time to pancreas only and kidney/pancreas transplant in the UK, for patients registered 1 April 2011 - 31 March 2015

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
<b>Adult</b>			
O	454	452	428 - 476
A	392	290	264 - 316
B	108	258	190 - 326
AB	44	121	82 - 160
<b>TOTAL</b>	<b>998</b>	<b>346</b>	<b>329 - 363</b>

**Table 6.5** Median waiting time to pancreas only and kidney/pancreas transplant in the UK, for patients registered 1 April 2011 - 31 March 2015

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
<b>Adult</b>			
White	881	355	334 - 376
Asian	53	279	196 - 362
Black	38	279	219 - 339
Other	12	320	107 - 533
<b>TOTAL<sup>1</sup></b>	<b>998</b>	<b>346</b>	<b>329 - 363</b>

<sup>1</sup> Includes 14 patients whose ethnicity was not reported

### 6.3 Donor and organ supply

Of the 829 organ donors after brain death in the UK in 2016-2017, 360 (43%) donated a pancreas. There were 117 pancreas donors after circulatory death in 2016-2017. **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 5.5 pmp, with rates ranging from 3.8 to 10.3 pmp across the Strategic Health Authorities and for donors after circulatory death is 1.8 pmp, with rates ranging from 1.3 to 2.4 pmp across the Strategic Health Authorities.

**Table 6.6** Pancreas donation rates for deceased donors in the UK, 1 April 2016 - 31 March 2017, by country/ Strategic Health Authority

Country/ Strategic Health Authority of residence	Pancreas donors (pmp)					
	DBD		DCD		TOTAL	
North East	27	(10.3)	6	(2.3)	33	(12.6)
North West	33	(4.6)	10	(1.4)	43	(6.0)
Yorkshire and The Humber	30	(5.6)	12	(2.2)	42	(7.8)
<b>North of England</b>	<b>90</b>	<b>(5.9)</b>	<b>28</b>	<b>(1.8)</b>	<b>118</b>	<b>(7.8)</b>
East Midlands	18	(3.8)	11	(2.4)	29	(6.2)
West Midlands	34	(5.9)	14	(2.4)	48	(8.3)
East of England	29	(4.8)	14	(2.3)	43	(7.1)
<b>Midlands and East</b>	<b>81</b>	<b>(4.9)</b>	<b>39</b>	<b>(2.4)</b>	<b>120</b>	<b>(7.3)</b>
<b>London</b>	<b>35</b>	<b>(4.0)</b>	<b>11</b>	<b>(1.3)</b>	<b>46</b>	<b>(5.3)</b>
South East Coast	26	(5.6)	10	(2.2)	36	(7.8)
South Central	26	(6.0)	7	(1.6)	33	(7.6)
South West	32	(5.9)	9	(1.6)	41	(7.5)
<b>South of England</b>	<b>84</b>	<b>(5.8)</b>	<b>26</b>	<b>(1.8)</b>	<b>110</b>	<b>(7.6)</b>
<b>England</b>	<b>290</b>	<b>(5.3)</b>	<b>104</b>	<b>(1.9)</b>	<b>394</b>	<b>(7.2)</b>
<b>Isle of Man</b>	<b>2</b>	<b>(25.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>2</b>	<b>(25.0)</b>
<b>Channel Islands</b>	<b>1</b>	<b>(6.3)</b>	<b>1</b>	<b>(6.3)</b>	<b>2</b>	<b>(12.5)</b>
<b>Wales</b>	<b>17</b>	<b>(5.5)</b>	<b>5</b>	<b>(1.6)</b>	<b>22</b>	<b>(7.1)</b>
<b>Scotland</b>	<b>34</b>	<b>(6.3)</b>	<b>6</b>	<b>(1.1)</b>	<b>40</b>	<b>(7.4)</b>
<b>Northern Ireland</b>	<b>16</b>	<b>(8.6)</b>	<b>1</b>	<b>(0.5)</b>	<b>17</b>	<b>(9.2)</b>
<b>TOTAL<sup>1</sup></b>	<b>360</b>	<b>(5.5)</b>	<b>117</b>	<b>(1.8)</b>	<b>477</b>	<b>(7.3)</b>

<sup>1</sup> There were 7 hospitals 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 to 3.9 pmp across Strategic Health Authorities and overall was 2.5 pmp. For donors after circulatory death the overall rate was 0.7 pmp and ranged from 0 to 1.4 pmp across Strategic Health Authorities.

<b>Country/ Strategic Health Authority of residence</b>	<b>DBD</b>		<b>DCD</b>		<b>TOTAL</b>	
	<b>N</b>	<b>(pmp)</b>	<b>N</b>	<b>(pmp)</b>	<b>N</b>	<b>(pmp)</b>
North East	8	(3.1)	0	(0.0)	8	(3.1)
North West	8	(1.1)	6	(0.8)	14	(2)
Yorkshire and The Humber	10	(1.9)	5	(0.9)	15	(2.8)
<b>North of England</b>	<b>26</b>	<b>(1.7)</b>	<b>11</b>	<b>(0.7)</b>	<b>37</b>	<b>(2.4)</b>
East Midlands	12	(2.6)	5	(1.1)	17	(3.6)
West Midlands	22	(3.8)	5	(0.9)	27	(4.7)
East of England	18	(3)	4	(0.7)	22	(3.6)
<b>Midlands and East</b>	<b>52</b>	<b>(3.1)</b>	<b>14</b>	<b>(0.8)</b>	<b>66</b>	<b>(4)</b>
<b>London</b>	<b>9</b>	<b>(1)</b>	<b>6</b>	<b>(0.7)</b>	<b>15</b>	<b>(1.7)</b>
South East Coast	7	(1.5)	5	(1.1)	12	(2.6)
South Central	17	(3.9)	6	(1.4)	23	(5.3)
South West	15	(2.7)	4	(0.7)	19	(3.5)
<b>South of England</b>	<b>39</b>	<b>(2.7)</b>	<b>15</b>	<b>(1)</b>	<b>54</b>	<b>(3.7)</b>
<b>England</b>	<b>126</b>	<b>(2.3)</b>	<b>46</b>	<b>(0.8)</b>	<b>172</b>	<b>(3.1)</b>
<b>Isle of Man</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>
<b>Channel Islands</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>
<b>Wales</b>	<b>3</b>	<b>(1)</b>	<b>1</b>	<b>(0.3)</b>	<b>4</b>	<b>(1.3)</b>
<b>Scotland</b>	<b>32</b>	<b>(6)</b>	<b>2</b>	<b>(0.4)</b>	<b>34</b>	<b>(6.3)</b>
<b>Northern Ireland</b>	<b>3</b>	<b>(1.6)</b>	<b>0</b>	<b>(0.0)</b>	<b>3</b>	<b>(1.6)</b>
<b>TOTAL</b>	<b>164</b>	<b>(2.5)</b>	<b>49</b>	<b>(0.7)</b>	<b>213</b>	<b>(3.3)</b>

There were 213 deceased donor pancreas transplants in 2016-2017 representing a fall of 1% on the 216 transplants performed in 2015-2016. Of these 213, 162 (76%) were SPK transplants, 17 (8%) were pancreas only transplants (pancreas alone (PTA) or pancreas after kidney (PAK)) and 34 (16%) were islet transplants (including one simultaneous islet and kidney transplant SIK). 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 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 10.5 hours (Inter-Quartile (IQ) range 9.3 - 12) and for a DCD donor transplant is 10.5 hours (IQ range 9.1 – 12.1) and overall is 10.5 hours (IQ range 9.2 – 12.1).

At 31 March 2017, there were approximately 1,800 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 2016 - 31 March 2017 (2015-2016) by centre												
Centre	SPK		SIK		Transplant type				Islet		Priority	
					PTA		PAK					
									Routine			
Bristol	-	-	0	(0)	-	-	-	-	0	(1)	1	(0)
Cambridge	24	(26)	-	-	0	(0)	0	(0)	-	-	-	-
Cardiff	4	(6)	-	-	1	(1)	0	(2)	-	-	-	-
Edinburgh	20	(16)	0	(0)	0	(0)	0	(0)	9	(10)	8	(9)
Guys	22	(28)	-	-	0	(0)	0	(0)	-	-	-	-
King's College	-	-	-	-	-	-	-	-	2	(1)	1	(0)
Manchester	27	(26)	1	(0)	0	(1)	4	(2)	1	(0)	1	(1)
Newcastle	7	(7)	0	(0)	0	(0)	1	(0)	1	(5)	2	(2)
Oxford	51	(46)	0	(0)	6	(10)	5	(2)	6	(1)	1	(1)
WLRTC	7	(12)	-	-	0	(0)	0	(0)	-	-	-	-
TOTAL	162	(167)	1	(0)	7	(12)	10	(6)	19	(18)	14	(13)
WLRTC - West London Renal and Transplant Centre												

Table 6.9 Pancreas transplants, 1 April 2016 - 31 March 2017 by centre										
Centre	Transplant and donor type								TOTAL	
	SPK		SIK	PTA		Islet				
	DBD	DCD		DCD	DBD	DCD	DBD	DCD	DBD	DCD
Bristol	-	-	0	-	-	1	0	1	0	
Cambridge	17	7	-	0	0	-	-	17	7	
Cardiff	3	1	-	1	0	-	-	4	1	
Edinburgh	20	0	0	0	0	15	2	35	2	
Guys	14	8	-	0	0	-	-	14	8	
King's College	-	-	-	-	-	3	0	3	0	
Manchester	16	11	1	2	2	2	0	20	14	
Newcastle	7	0	0	1	0	3	0	11	0	
Oxford	39	12	0	10	1	6	1	55	14	
WLRTC	4	3	-	0	0	-	-	4	3	
TOTAL	120	42	1	14	3	30	3	164	49	
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**.

<b>Table 6.10 Demographic characteristics of deceased pancreas donors and transplant recipients, 1 April 2016 - 31 March 2017, and transplant list patients at 31 March</b>						
<b>Age group (years)</b>	<b>Donors</b>		<b>Transplant recipients</b>		<b>Active transplant list patients</b>	
	N	(%)	N	(%)	N	(%)
0 - 17	30	(6)	-	-	-	-
18 - 34	120	(25)	41	(19)	49	(22)
35 - 49	175	(37)	115	(54)	120	(54)
50 - 59	132	(28)	48	(23)	49	(22)
60 - 69	17	(4)	8	(4)	5	(2)
70+	3	(1)	1	(0)	1	(0)
mean (SD)	41	(14)	44	(9)	43	(9)
Male	280	(59)	106	(50)	122	(54)
Female	197	(41)	107	(50)	102	(46)
White	441	(93)	194	(93)	193	(87)
Asian	9	(2)	10	(5)	12	(5)
Black	7	(1)	5	(2)	13	(6)
Chinese	2	(0)	0	(0)	0	(0)
Other	14	(3)	0	(0)	3	(1)
Not reported	4		4		3	
O	229	(48)	93	(44)	127	(57)
A	197	(41)	86	(40)	64	(29)
B	44	(9)	20	(9)	32	(14)
AB	7	(1)	14	(7)	1	(0)
First graft			185	(87)	201	(90)
Re-graft			28	(13)	23	(10)
<b>TOTAL</b>	<b>477</b>	<b>(100)</b>	<b>213</b>	<b>(100)</b>	<b>224</b>	<b>(100)</b>

# Cardiothoracic Activity

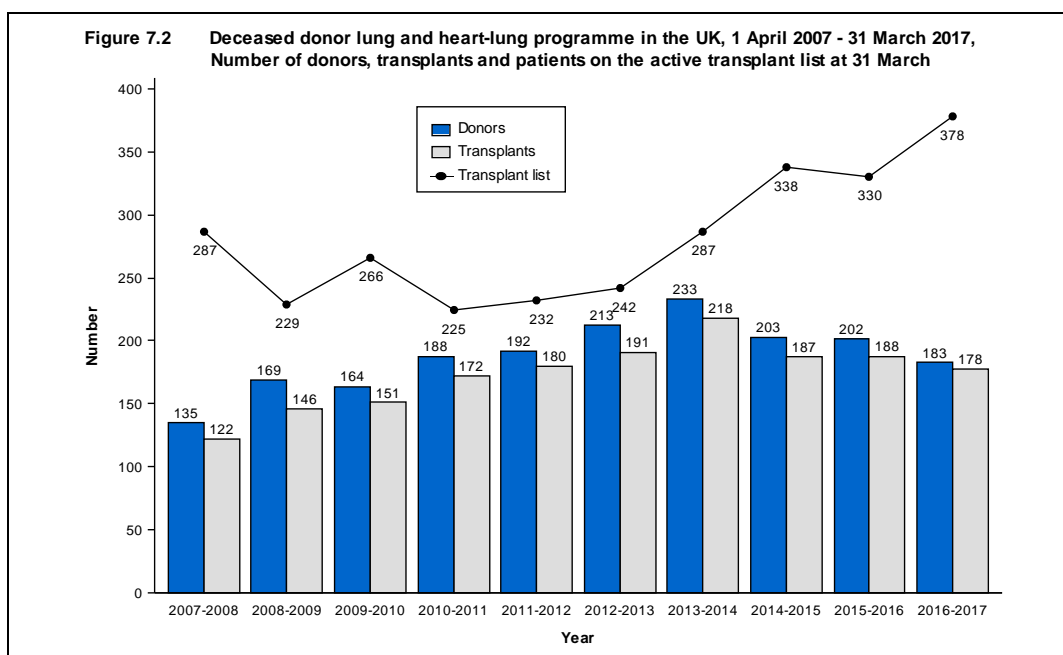
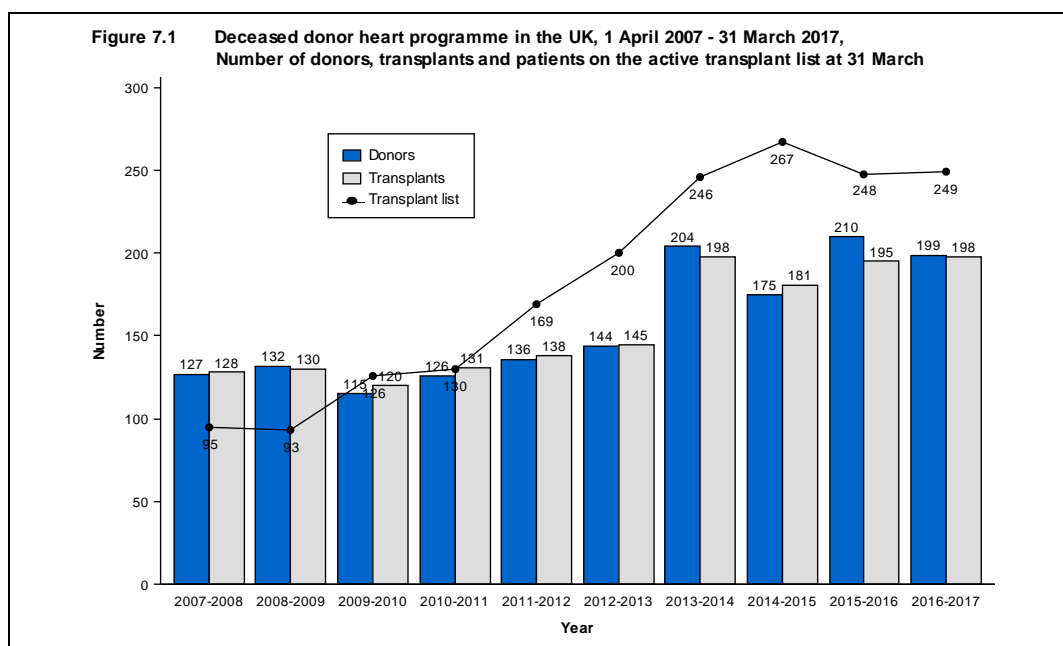
## Key messages

- At 31 March 2017, there were 249 patients on the active heart transplant list, 360 on the lung list and 18 on the heart-lung list
- Of the 829 organ donors after brain death during 2016-2017, 265 (32%) were cardiothoracic organ donors
- As of 26 October 2016 patients can now be registered as super-urgent for a heart transplant
- The number of heart transplants increased by 2% to 198 this year; 72% of these were urgent heart transplants, 8% were super-urgent and 20% were non-urgent
- The number of lung and heart-lung transplants from deceased donors fell by 5% this year to 178
- There were 14 DCD heart transplants in 2016-2017

## 7.1 Overview

Last year the number of heart transplants rose by 2% to 198 and the number of lung or heart-lung transplants fell by 5% to 178. There have been increases in both the heart and the lung transplant lists since March 2016. The number of patients waiting on the active heart transplant list at year end has increased by 162% since 2008, while the number of patients registered for a lung or heart-lung transplant has increased by 32% since 2008.

A summary of the deceased donor cardiothoracic activity from 1 April 2007 to 31 March 2017 is shown in **Figure 7.1** for heart activity and **Figure 7.2** for lung activity. Donors who donate both heart and lung(s) are included in both figures, but heart-lung block transplants and patients active on the transplant list for a heart-lung block are only included in **Figure 7.2**.



## 7.2 Transplant list

As of 26 October 2016 patients can be registered super-urgently on the heart transplant waiting list. This additional category is a result of the growing number of patients registered urgently and will help to prioritise the patients with the greatest need for a transplant. It will also be possible for patients to be registered urgently or super-urgently for a lung transplant from May 2017 (during 2016-2017 and before there was no national facility for this).

**Table 7.1** shows the number of patients on the active transplant lists at 31 March 2017 by centre. There were no patients waiting super-urgently for a heart on this date, although 19 patients had been on the super-urgent waiting list at some point between 26 October 2016 and 31 March 2017. The lung transplant list accounts for 60% of the patients waiting for a cardiothoracic organ transplant. Overall, Newcastle and Harefield had the largest cardiothoracic lists on 31 March 2017.

Table 7.1 Patients on the cardiothoracic organ transplant lists at 31 March 2017 (2016) in the UK, by centre											
Centre	Active transplant lists										TOTAL
	Heart		Heart-lung		Lung						
Adult	Non-urgent		Urgent		Super-urgent						
Birmingham	26	(18)	4	(3)	0	2	(1)	44	(30)	76	(52)
Glasgow	13	(13)	0	(4)	0	0	(0)	0	(0)	13	(17)
Great Ormond Street <sup>1</sup>	1	(2)	0	(0)	0	0	(0)	0	(2)	1	(4)
Harefield	51	(62)	9	(5)	0	3	(2)	141	(125)	204	(194)
Manchester	23	(17)	1	(1)	0	4	(1)	42	(46)	70	(65)
Newcastle	50	(43)	5	(4)	0	5	(4)	95	(61)	155	(112)
Papworth	35	(39)	2	(2)	0	2	(6)	30	(45)	69	(92)
TOTAL	199	(194)	21	(19)	0	16	(14)	352	(309)	588	(536)
Paediatric											
Great Ormond Street	14	(17)	4	(5)	0	2	(0)	3	(7)	23	(29)
Newcastle	7	(6)	4	(7)	0	0	(0)	5	(0)	16	(13)
TOTAL	21	(23)	8	(12)	0	2	(0)	8	(7)	39	(42)

<sup>1</sup> Paediatric patients are aged under 16 years at 31 March 2017 (2016). Note that 1 patient active at 31 March 2017 and 4 patients active at 31 March 2016 at Great Ormond Street had turned 16 whilst on the list and so are categorised here as adults



During 2016-2017, 311 patients joined the heart transplant list while 17 joined the heart-lung transplant list and 338 joined the lung transplant list. Outcomes as at 31 March 2017 for patients on the list at 1 April 2016 and those joining the list during the year are shown in **Table 7.2**.

<b>Table 7.2 Cardiothoracic organ transplant lists and new registrations in the UK, 1 April 2016 - 31 March 2017</b>						
<b>Outcome of patient at 31 March 2017</b>	<b>Active and suspended patients at 1 April 2016</b>		<b>New registrations in 2016-2017<sup>1</sup></b>		<b>TOTAL</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
<b>Heart transplant list</b>						
Remained active/suspended	144	54	126	41	270	47
Transplanted	68	26	127	41	195	34
Removed	40	15	42	14	82	14
Died	13	5	16	5	29	5
<b>TOTAL</b>	<b>265</b>		<b>311</b>		<b>576</b>	
<b>Heart-lung transplant list</b>						
Remained active/suspended	6	46	11	65	17	57
Transplanted <sup>2</sup>	2	15	2	12	4	13
Removed	2	15	0	0	2	7
Died	3	23	4	24	7	23
<b>TOTAL</b>	<b>13</b>		<b>17</b>		<b>30</b>	
<b>Lung transplant list</b>						
Remained active/suspended	153	52	215	64	368	58
Transplanted	83	28	85	25	168	26
Removed	28	9	7	2	35	6
Died	33	11	31	9	64	10
<b>TOTAL</b>	<b>297</b>		<b>338</b>		<b>635</b>	

<sup>1</sup> Includes re-registrations for second or subsequent transplants  
<sup>2</sup> Patient may have received heart, lung or heart-lung

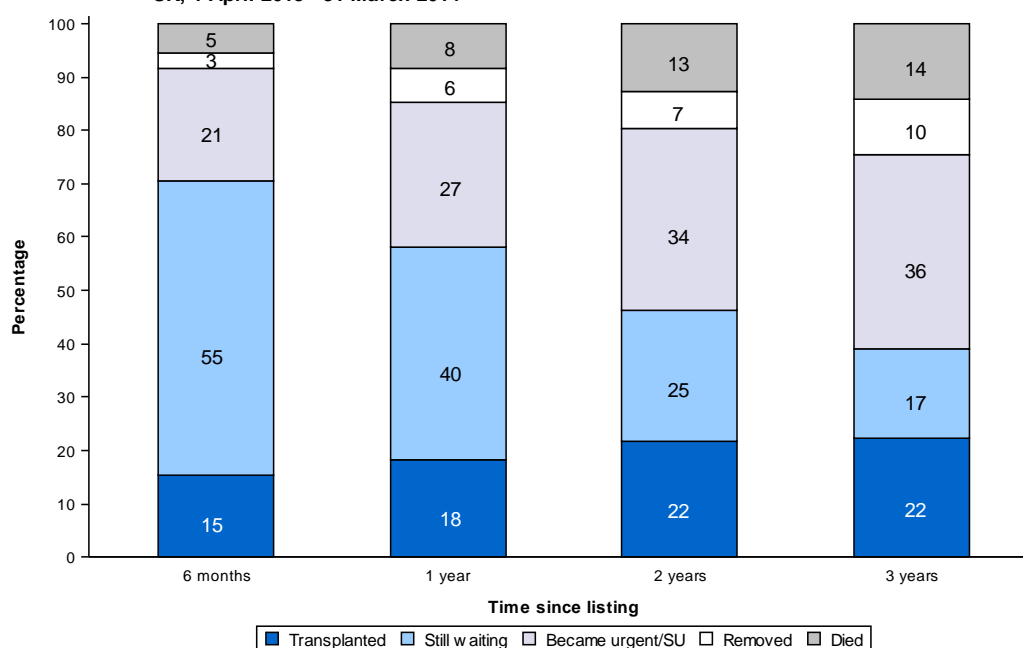
**Table 7.3** shows the transplant list rate per million population by country/Strategic Health Authority of patient's residence. The overall UK heart transplant list rate at 31 March 2017 was 3.8 pmp and ranged from 2.6 to 6.1 across the Strategic Health Authorities. The overall UK lung transplant list rate was 5.8 pmp and ranged from 3.6 to 8.0 across the Strategic Health Authorities.

<b>Table 7.3 Active cardiothoracic organ transplant list at 31 March, by country/ Strategic Health Authority of patient residence</b>								
<b>Country/ Strategic Health Authority of residence</b>	<b>Heart transplant list (pmp)</b>				<b>Lung transplant list (pmp)<sup>1</sup></b>			
	2017		2016		2017		2016	
North East	16	(6.1)	21	(8.0)	13	(5.0)	7	(2.7)
North West	36	(5.0)	22	(3.1)	38	(5.3)	39	(5.4)
Yorkshire and The Humber	14	(2.6)	21	(3.9)	37	(6.9)	26	(4.8)
<b>North of England</b>	<b>66</b>	<b>(4.3)</b>	<b>64</b>	<b>(4.2)</b>	<b>88</b>	<b>(5.8)</b>	<b>72</b>	<b>(4.7)</b>
East Midlands	12	(2.6)	12	(2.6)	17	(3.6)	16	(3.4)
West Midlands	28	(4.9)	23	(4.0)	39	(6.8)	29	(5.0)
East of England	16	(2.6)	22	(3.6)	23	(3.8)	32	(5.3)
<b>Midlands and East</b>	<b>56</b>	<b>(3.4)</b>	<b>57</b>	<b>(3.5)</b>	<b>79</b>	<b>(4.8)</b>	<b>77</b>	<b>(4.7)</b>
<b>London</b>	<b>32</b>	<b>(3.7)</b>	<b>33</b>	<b>(3.8)</b>	<b>35</b>	<b>(4.0)</b>	<b>46</b>	<b>(5.3)</b>
South East Coast	20	(4.3)	19	(4.1)	37	(8.0)	26	(5.6)
South Central	16	(3.7)	15	(3.5)	25	(5.8)	27	(6.3)
South West	14	(2.6)	19	(3.5)	37	(6.8)	34	(6.2)
<b>South of England</b>	<b>50</b>	<b>(3.5)</b>	<b>53</b>	<b>(3.7)</b>	<b>99</b>	<b>(6.9)</b>	<b>87</b>	<b>(6.0)</b>
<b>England</b>	<b>204</b>	<b>(3.7)</b>	<b>207</b>	<b>(3.8)</b>	<b>301</b>	<b>(5.5)</b>	<b>282</b>	<b>(5.1)</b>
<b>Isle of Man</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>
<b>Channel Islands</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>0</b>	<b>(0.0)</b>
<b>Wales</b>	<b>7</b>	<b>(2.3)</b>	<b>9</b>	<b>(2.9)</b>	<b>25</b>	<b>(8.1)</b>	<b>17</b>	<b>(5.5)</b>
<b>Scotland</b>	<b>24</b>	<b>(4.5)</b>	<b>23</b>	<b>(4.3)</b>	<b>34</b>	<b>(6.3)</b>	<b>22</b>	<b>(4.1)</b>
<b>Northern Ireland</b>	<b>8</b>	<b>(4.3)</b>	<b>4</b>	<b>(2.2)</b>	<b>14</b>	<b>(7.6)</b>	<b>7</b>	<b>(3.8)</b>
<b>TOTAL<sup>2,3</sup></b>	<b>249</b>	<b>(3.8)</b>	<b>248</b>	<b>(3.8)</b>	<b>378</b>	<b>(5.8)</b>	<b>330</b>	<b>(5.0)</b>

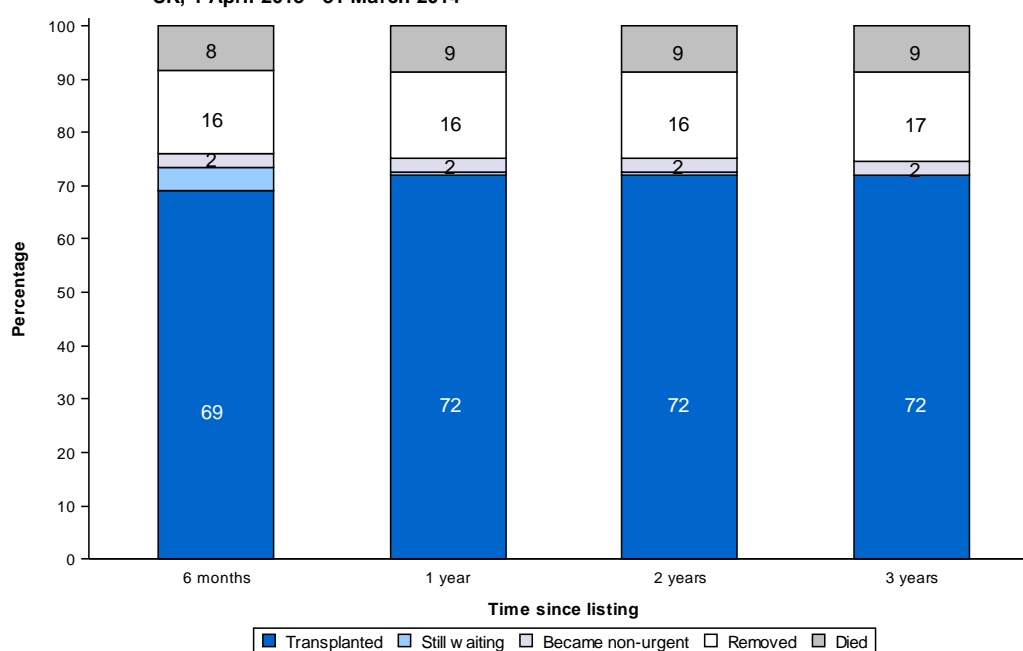
<sup>1</sup> Includes patients waiting for both heart and lungs  
<sup>2</sup> Includes heart patients in 2017 (2016) resident in: UK unknown 1 (0); Republic of Ireland 2 (4); Overseas 3 (1)  
<sup>3</sup> Includes lung patients in 2017 (2016) resident in: UK unknown 1 (0); Republic of Ireland 3 (2)

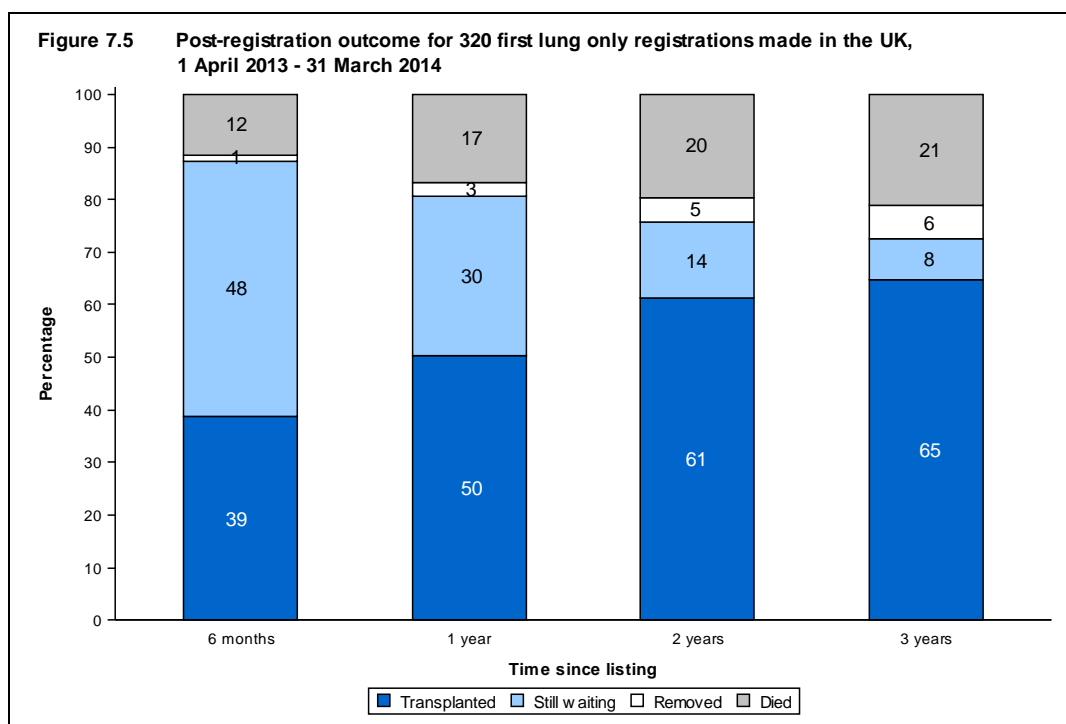
The transplant list outcomes for adult patients listed for a cardiothoracic organ transplant between 1 April 2013 and 31 March 2014 are summarised in **Figure 7.3**, **Figure 7.4** and **Figure 7.5**. These show the proportion of patients transplanted, still waiting, removed and those who died within six months, one year, two years and three years after joining the non-urgent or urgent heart list or the lung list, respectively. Within six months of listing, 15% of non-urgent heart patients were transplanted while 5% had died, compared with 69% transplanted and 8% died for urgent heart patients. Of those listed for a lung transplant, 39% were transplanted within six months, rising to 65% after three years. The patients removed from these lists may have subsequently died.

**Figure 7.3** Post-registration outcome for 203 first non-urgent heart only registrations made in the UK, 1 April 2013 - 31 March 2014



**Figure 7.4** Post-registration outcome for 204 first urgent heart only registrations made in the UK, 1 April 2013 - 31 March 2014





**Table 7.4** and **Table 7.5** show the median waiting time to cardiothoracic organ transplant by blood group and ethnicity of patient, respectively, for patients registered between 1 April 2011 and 31 March 2014. The overall median waiting time to heart transplantation, for adults, was 1,280 days for patients who had never been on the urgent waiting list ('never urgent'). For patients who had been on the urgent list ('ever urgent'), the overall median time on the urgent list before transplant was 26 days. The overall median waiting time to lung transplantation, for adults, was 255 days, but for blood group O patients alone was 406 days. For paediatric heart patients, the median waiting time was 463 days for non-urgent registrations and 70 days for urgent registrations (this is not broken down by blood group or ethnicity due to low numbers). Median waiting time is not calculated for paediatric lung patients due to the small number of registrations. 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 organ 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
<b>Adult never urgent heart</b>			
O <sup>1</sup>	116	-	-
A	135	418	289 - 547
B	24	344	9 - 679
AB	15	58	19 - 97
<b>TOTAL</b>	<b>290</b>	<b>1280</b>	<b>703 - 1857</b>
<b>Adult ever urgent heart (urgent waiting time only)</b>			
O	184	44	35 - 53
A	151	15	12 - 18
B	56	30	23 - 37
AB	17	13	10 - 16
<b>TOTAL</b>	<b>408</b>	<b>26</b>	<b>21 - 31</b>
<b>Paediatric never urgent heart</b>	<b>24</b>	<b>463</b>	<b>0 - 1460</b>
<b>Paediatric ever urgent heart (urgent waiting time only)</b>	<b>116</b>	<b>70</b>	<b>41 - 99</b>
<b>Adult lung</b>			
O	377	406	332 - 480
A	315	137	107 - 167
B	83	182	87 - 277
AB	18	186	121 - 251
<b>TOTAL</b>	<b>793</b>	<b>255</b>	<b>216 - 294</b>

<sup>1</sup> Median and/or 95% confidence interval cannot be estimated

**Table 7.5 Median waiting time to cardiothoracic organ 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
<b>Adult never urgent heart</b>			
White	260	1283	590 - 1976
Asian	11	143	0 - 357
Black <sup>1</sup>	12	-	-
<b>TOTAL<sup>3</sup></b>	<b>290</b>	<b>1280</b>	<b>703 - 1857</b>
<b>Adult ever urgent heart (urgent waiting time only)</b>			
White	351	23	18 - 28
Asian	32	43	27 - 59
Black	11	71	65 - 77
Other	10	38	5 - 71
<b>TOTAL<sup>3</sup></b>	<b>408</b>	<b>26</b>	<b>21 - 31</b>
<b>Paediatric never urgent heart</b>	<b>24</b>	<b>463</b>	<b>0 - 1460</b>
<b>Paediatric ever urgent heart (urgent waiting time only)</b>	<b>116</b>	<b>70</b>	<b>41 - 99</b>
<b>Adult lung</b>			
White	756	239	202 - 276
Asian	24	1217	121 - 2313
Black <sup>1, 2</sup>	6	-	-
Other <sup>1, 2</sup>	3	-	-
<b>TOTAL<sup>3</sup></b>	<b>793</b>	<b>255</b>	<b>216 - 294</b>

<sup>1</sup> Median and/or 95% confidence interval cannot be estimated

<sup>2</sup> Median waiting time not calculated for fewer than 10 patients

<sup>3</sup> Totals do not add up where we do not have ethnicity reported for all patients

### 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 donors within each centre's allocation zone (attended by any retrieval team) rather than the donors attended by that centre. 28 of the 107 adult lung only donors were donors after circulatory death and there were no living donors during the time period. There were also no domino heart donors. Of the 250 adult cardiothoracic organ donors after brain death, 43% donated only the heart, 26% heart and lung and 32% lung only. Of the 15 paediatric cardiothoracic organ donors after brain death, 53% donated only the heart, 20% heart and lung and 27% lung only.

Table 7.6 Cardiothoracic organ donors in the UK, 1 April 2016 - 31 March 2017 (2015-2016), by age group and allocation zone														
Allocation zone	Type of cardiothoracic organ donor												TOTAL	
	Heart only				Heart & lung				Lung(s) only					
	DBD		DCD		DBD		DCD		DBD		DCD			
Adult														
Birmingham	16	(11)	1	(0)	6	(7)	0	(0)	6	(11)	3	(6)	32	(35)
Glasgow	9	(4)	0	(0)	5	(6)	0	(0)	10	(10)	4	(5)	28	(25)
Harefield	26	(26)	4	(4)	25	(20)	0	(0)	23	(17)	10	(11)	88	(78)
Manchester	25	(27)	1	(0)	8	(12)	2	(1)	20	(7)	5	(3)	61	(50)
Newcastle	13	(12)	0	(0)	13	(13)	0	(0)	8	(16)	2	(6)	36	(47)
Papworth	18	(20)	7	(15)	7	(16)	2	(1)	12	(16)	4	(3)	50	(71)
TOTAL	107	(100)	13	(19)	64	(74)	4	(2)	79	(77)	28	(34)	295	(306)
Paediatric <sup>1</sup>														
Birmingham	2	(2)	0	(0)	0	(2)	0	(0)	0	(0)	0	(1)	2	(5)
Glasgow	0	(1)	0	(0)	0	(1)	0	(0)	0	(1)	0	(0)	0	(3)
Harefield	3	(2)	0	(0)	1	(1)	0	(0)	1	(0)	0	(1)	5	(4)
Manchester	2	(0)	0	(0)	2	(1)	0	(0)	1	(0)	0	(0)	5	(1)
Newcastle	0	(0)	0	(0)	0	(5)	0	(0)	2	(0)	1	(2)	3	(7)
Papworth	1	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	1	(0)
TOTAL	8	(5)	0	(0)	3	(10)	0	(0)	4	(1)	1	(4)	16	(20)
<sup>1</sup> Paediatric donors are aged <16 years														

<sup>1</sup> Paediatric donors are aged <16 years

**Table 7.7** shows the number of organ donors after brain death and circulatory death identified in each allocation zone, and the number of organs retrieved and transplanted. Of the 829 organ donors after brain death, 265 (32%) donated cardiothoracic organs. Overall, 96% of the 470 DBD organs retrieved were used for transplantation: 96% of hearts and 95% of lungs. Of the DCD organs retrieved, 84% were used for transplantation: 82% of hearts and 84% of lungs.

Table 7.7 Cardiothoracic organ donation and retrieval rates from deceased donors in the UK, 1 April 2016 - 31 March 2017, by allocation zone								
Allocation zone	Number of donors		Number of organs retrieved (used)				TOTAL retrieved (used)	
	Solid organ	Cardiothoracic	Hearts		Lungs			
DBD								
Birmingham	102	30	24	(24)	24	(24)	48	(48)
Glasgow	91	24	14	(14)	30	(28)	44	(42)
Harefield	210	79	55	(50)	97	(94)	152	(144)
Manchester	160	58	37	(36)	56	(53)	93	(89)
Newcastle	123	36	26	(26)	45	(41)	71	(67)
Papworth	143	38	26	(25)	36	(34)	62	(59)
TOTAL	829	265	182	(175)	288	(274)	470	(449)
DCD								
Birmingham	54	4	1	(1)	6	(6)	7	(7)
Glasgow	62	4	0	(0)	8	(6)	8	(6)
Harefield	134	14	4	(4)	20	(16)	24	(20)
Manchester	126	8	3	(2)	13	(13)	16	(15)
Newcastle	76	3	0	(0)	6	(6)	6	(6)
Papworth	132	13	9	(7)	11	(7)	20	(14)
TOTAL	584	46	17	(14)	64	(54)	81	(68)



The rates per million population for cardiothoracic organ donors are shown in **Table 7.8** by country/Strategic Health Authority of residence. No adjustments have been made for potential demographic differences in populations. The overall cardiothoracic organ donor rate was 4.8 pmp in 2016-2017 and varied across the Strategic Health Authorities from 2.6 pmp to 6.9 pmp. Of the four nations the highest cardiothoracic organ donor rate was in Northern Ireland at 7.6 pmp.

<b>Table 7.8 Cardiothoracic organ donation and retrieval rates for deceased donors in the UK, 1 April 2016 - 31 March 2017, by country/ Strategic Health Authority</b>						
<b>Country/ Strategic Health Authority</b>	<b>Heart (pmp)</b>		<b>Lungs (pmp)</b>		<b>Total (pmp)</b>	
	DBD	DCD <sup>1</sup>	DBD	DCD		
North East	15 (5.7)	0 (0.0)	10 (3.8)	1 (0.4)	18	(6.9)
North West	23 (3.2)	1 (0.1)	19 (2.6)	4 (0.6)	41	(5.7)
Yorkshire and The Humber	7 (1.3)	0 (0.0)	9 (1.7)	0 (0.0)	14	(2.6)
<b>North of England</b>	<b>45 (3.0)</b>	<b>1 (0.1)</b>	<b>38 (2.5)</b>	<b>5 (0.3)</b>	<b>73</b>	<b>(4.8)</b>
East Midlands	10 (2.1)	2 (0.4)	7 (1.5)	4 (0.9)	17	(3.6)
West Midlands	24 (4.2)	0 (0.0)	11 (1.9)	1 (0.2)	32	(5.6)
East of England	14 (2.3)	4 (0.7)	13 (2.1)	5 (0.8)	31	(5.1)
<b>Midlands and East</b>	<b>48 (2.9)</b>	<b>6 (0.4)</b>	<b>31 (1.9)</b>	<b>10 (0.6)</b>	<b>80</b>	<b>(4.8)</b>
<b>London</b>	<b>24 (2.8)</b>	<b>4 (0.5)</b>	<b>18 (2.1)</b>	<b>1 (0.1)</b>	<b>38</b>	<b>(4.4)</b>
South East Coast	12 (2.6)	5 (1.1)	12 (2.6)	6 (1.3)	32	(6.9)
South Central	12 (2.8)	0 (0.0)	14 (3.2)	2 (0.5)	19	(4.4)
South West	15 (2.7)	1 (0.2)	14 (2.6)	2 (0.4)	22	(4.0)
<b>South of England</b>	<b>39 (2.7)</b>	<b>6 (0.4)</b>	<b>40 (2.8)</b>	<b>10 (0.7)</b>	<b>73</b>	<b>(5.1)</b>
<b>England</b>	<b>156 (2.8)</b>	<b>17 (0.3)</b>	<b>127 (2.3)</b>	<b>26 (0.5)</b>	<b>264</b>	<b>(4.8)</b>
<b>Isle of Man</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>0</b>	<b>(0.0)</b>
<b>Channel Islands</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>0</b>	<b>(0.0)</b>
<b>Wales</b>	<b>6 (1.9)</b>	<b>0 (0.0)</b>	<b>2 (0.6)</b>	<b>2 (0.6)</b>	<b>10</b>	<b>(3.2)</b>
<b>Scotland</b>	<b>11 (2.0)</b>	<b>0 (0.0)</b>	<b>13 (2.4)</b>	<b>3 (0.6)</b>	<b>23</b>	<b>(4.3)</b>
<b>Northern Ireland</b>	<b>9 (4.9)</b>	<b>0 (0.0)</b>	<b>8 (4.3)</b>	<b>2 (1.1)</b>	<b>14</b>	<b>(7.6)</b>
<b>TOTAL<sup>2</sup></b>	<b>182 (2.8)</b>	<b>17 (0.3)</b>	<b>150 (2.3)</b>	<b>33 (0.5)</b>	<b>311</b>	<b>(4.8)</b>

<sup>1</sup> DCD heart donation is not operational in all areas  
<sup>2</sup> Includes 6 donors where the hospital postcode was used in place of an unknown donor postcode

## 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 cardiothoracic organ transplant rate ranged from 4.4 to 7.4 pmp across Strategic Health Authorities and overall was 5.7 pmp. Lung transplant rates include a small number of heart-lung transplants.

<b>Table 7.9 Cardiothoracic organ transplant rates per million population (pmp) in the UK, 1 April 2016 - 31 March 2017, by country/ Strategic Health Authority</b>						
<b>Country/ Strategic Health Authority</b>	<b>Heart (pmp)</b>		<b>Lungs (pmp)</b>		<b>Total (pmp)</b>	
	DBD	DCD <sup>1</sup>	DBD	DCD		
North East	13 (5.0)	0 (0.0)	4 (1.5)	0 (0.0)	17 (6.5)	
North West	25 (3.5)	0 (0.0)	26 (3.6)	2 (0.3)	53 (7.4)	
Yorkshire and The Humber	18 (3.3)	1 (0.2)	12 (2.2)	4 (0.7)	35 (6.5)	
<b>North of England</b>	<b>56 (3.7)</b>	<b>1 (0.1)</b>	<b>42 (2.8)</b>	<b>6 (0.4)</b>	<b>105 (6.9)</b>	
East Midlands	12 (2.6)	2 (0.4)	10 (2.1)	3 (0.6)	27 (5.8)	
West Midlands	22 (3.8)	0 (0.0)	7 (1.2)	3 (0.5)	32 (5.6)	
East of England	12 (2.0)	3 (0.5)	22 (3.6)	3 (0.5)	40 (6.6)	
<b>Midlands and East</b>	<b>46 (2.8)</b>	<b>5 (0.3)</b>	<b>39 (2.4)</b>	<b>9 (0.5)</b>	<b>99 (6.0)</b>	
<b>London</b>	<b>20 (2.3)</b>	<b>3 (0.3)</b>	<b>14 (1.6)</b>	<b>1 (0.1)</b>	<b>38 (4.4)</b>	
South East Coast	7 (1.5)	2 (0.4)	13 (2.8)	1 (0.2)	23 (5.0)	
South Central	7 (1.6)	1 (0.2)	12 (2.8)	2 (0.5)	22 (5.1)	
South West	11 (2.0)	2 (0.4)	11 (2.0)	1 (0.2)	25 (4.6)	
<b>South of England</b>	<b>25 (1.7)</b>	<b>5 (0.3)</b>	<b>36 (2.5)</b>	<b>4 (0.3)</b>	<b>70 (4.9)</b>	
<b>England</b>	<b>147 (2.7)</b>	<b>14 (0.3)</b>	<b>131 (2.4)</b>	<b>20 (0.4)</b>	<b>312 (5.7)</b>	
<b>Isle of Man</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	
<b>Channel Islands</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	<b>0 (0.0)</b>	
<b>Wales</b>	<b>12 (3.9)</b>	<b>0 (0.0)</b>	<b>6 (1.9)</b>	<b>3 (1.0)</b>	<b>21 (6.8)</b>	
<b>Scotland</b>	<b>16 (3.0)</b>	<b>0 (0.0)</b>	<b>10 (1.9)</b>	<b>6 (1.1)</b>	<b>32 (6.0)</b>	
<b>Northern Ireland</b>	<b>6 (3.2)</b>	<b>0 (0.0)</b>	<b>1 (0.5)</b>	<b>0 (0.0)</b>	<b>7 (3.8)</b>	
<b>TOTAL<sup>2,3</sup></b>	<b>183 (2.8)</b>	<b>14 (0.2)</b>	<b>148 (2.3)</b>	<b>29 (0.4)</b>	<b>374 (5.7)</b>	

<sup>1</sup> DCD heart transplantation is not operational in all areas  
<sup>2</sup> Excludes 2 recipients who reside in the Republic of Ireland  
<sup>3</sup> Includes 2 recipients in the UK with an unknown postcode

**Table 7.10** and **Table 7.11** show cardiothoracic organ transplant activity for each centre by urgency status and donor type, respectively. In 2016-2017, a total of 376 transplants were carried out; a fall of 2% on 2015-2016. Of these, 198 were heart transplants, of which 158 (80%) were in urgent or super-urgent patients and additionally, 14 (7%) were achieved from donors after circulatory death. There were a total of 178 lung transplants including 29 (16%) from donors after circulatory death.

**Table 7.10 Cardiothoracic transplants from deceased donors,  
1 April 2016 - 31 March 2017 (2015-2016), by age group and centre**

Transplant centre	Transplant type										TOTAL	
	Heart				Heart- lung				Lung(s)			
	Non-urgent		Urgent		Super-urgent							
Adult												
Birmingham	1	(3)	20	(23)	5	(0)	0	(1)	15	(24)	41	(51)
Glasgow	2	(0)	9	(7)	4	(0)	0	(0)	0	(0)	15	(7)
Great Ormond Street	0	(0)	0	(0)	0	(0)	0	(0)	1	(0)	1	(0)
Harefield	3	(4)	18	(21)	0	(0)	0	(1)	41	(49)	62	(75)
Manchester	5	(2)	20	(27)	3	(0)	1	(2)	33	(21)	62	(52)
Newcastle	5	(4)	23	(19)	0	(0)	0	(0)	33	(42)	61	(65)
Papworth	19	(21)	25	(30)	3	(0)	1	(2)	43	(37)	91	(90)
TOTAL	35	(34)	115	(127)	15	(0)	2	(6)	166	(173)	333	(340)
Paediatric <sup>1</sup>												
Great Ormond Street	3	(3)	11	(12)	0	(0)	0	(0)	8	(7)	22	(22)
Harefield	0	(0)	1	(0)	0	(0)	0	(0)	0	(0)	1	(0)
Newcastle	2	(1)	16	(18)	0	(0)	0	(0)	2	(2)	20	(21)
TOTAL	5	(4)	28	(30)	0	(0)	0	(0)	10	(9)	43	(43)

<sup>1</sup> Paediatric recipients are aged under 16 years at time of transplant

**Table 7.11 Cardiothoracic transplants from deceased donors,  
1 April 2016 - 31 March 2017 (2015-2016), by age group and centre**

Transplant centre	Transplant type												TOTAL	
	Heart				Heart-lung				Lung(s)					
	DBD		DCD		DBD		DCD		DBD		DCD			
Adult														
Birmingham	26	(26)	0	(0)	0	(1)	0	(0)	11	(21)	4	(3)	41	(51)
Glasgow	15	(7)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	15	(7)
Great Ormond Street	0	(0)	0	(0)	0	(0)	0	(0)	1	(0)	0	(0)	1	(0)
Harefield	19	(21)	2	(4)	0	(1)	0	(0)	36	(37)	5	(12)	62	(75)
Manchester	28	(29)	0	(0)	1	(2)	0	(0)	27	(18)	6	(3)	62	(52)
Newcastle	28	(23)	0	(0)	0	(0)	0	(0)	26	(31)	7	(11)	61	(65)
Papworth	35	(36)	12	(15)	1	(2)	0	(0)	37	(33)	6	(4)	91	(90)
TOTAL	151	(142)	14	(19)	2	(6)	0	(0)	138	(140)	28	(33)	333	(340)
Paediatric <sup>1</sup>														
Great Ormond Street	14	(15)	0	(0)	0	(0)	0	(0)	7	(5)	1	(2)	22	(22)
Harefield	1	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	1	(0)
Newcastle	18	(19)	0	(0)	0	(0)	0	(0)	2	(2)	0	(0)	20	(21)
TOTAL	33	(34)	0	(0)	0	(0)	0	(0)	9	(7)	1	(2)	43	(43)

<sup>1</sup> Paediatric recipients are aged under 16 years at time of transplant

At 31 March 2017 there were approximately 3,800 recipients with a functioning cardiothoracic organ transplant being followed-up as reported to the UK Transplant Registry.

The length of time that elapses between cardiothoracic organs being removed from the donor and their transplantation into the recipient is called the total ischaemia time (IT). Generally, the shorter this time, the more likely the organ is to work immediately and the better the long-term outcome. In 2016-2017 the median IT for a DBD heart transplant was 3.3 hours (Inter-Quartile (IQ) range 2.6 – 3.9) and for a DCD heart transplant was 4.5 hours (IQ range 4 – 4.7) and overall was 3.3 hours (IQ range 2.6 – 4).

The median IT for DBD donor lung transplant was 4.9 hours (IQ range 3.9 - 6) and for a DCD donor lung transplant was 5.3 hours (IQ range 4.9 – 6.2) and overall was 5 hours (IQ range 4 - 6). Please note some of these data include the use of donor organ maintenance systems, in which cases the IT reported will be an overestimate of the true ischaemia time.

## 7.5 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 7.12**.

<b>Table 7.12 Demographic characteristics of deceased cardiothoracic organ donors and transplant recipients 1 April 2016 - 31 March 2017, and transplant list patients at 31 March in the UK</b>						
<b>Age group (years)</b>	<b>Donors</b>		<b>Transplant recipients</b>		<b>Active transplant list patients</b>	
	N	(%)	N	(%)	N	(%)
0 - 17	25	(8)	46	(12)	41	(7)
18 - 34	84	(27)	77	(20)	100	(16)
35 - 49	103	(33)	74	(20)	139	(22)
50 - 59	76	(24)	104	(28)	201	(32)
60 - 69	23	(7)	73	(19)	143	(23)
70+	0	(0)	2	(1)	3	(0)
mean (SD)	40	(15)	43	(18)	47	(16)
Male	179	(58)	242	(64)	365	(58)
Female	132	(42)	134	(36)	262	(42)
White	281	(92)	340	(90)	560	(90)
Asian	8	(3)	21	(6)	37	(6)
Black	5	(2)	11	(3)	21	(3)
Chinese	1	(0)	2	(1)	1	(0)
Other	10	(3)	2	(1)	6	(1)
Not reported	6				2	
O	154	(50)	139	(37)	327	(52)
A	125	(40)	172	(46)	218	(35)
B	25	(8)	47	(13)	67	(11)
AB	7	(2)	18	(5)	15	(2)
First graft			372	(99)	612	(98)
Re-graft			4	(1)	15	(2)
<b>TOTAL</b>	<b>311</b>	<b>(100)</b>	<b>376</b>	<b>(100)</b>	<b>627</b>	<b>(100)</b>

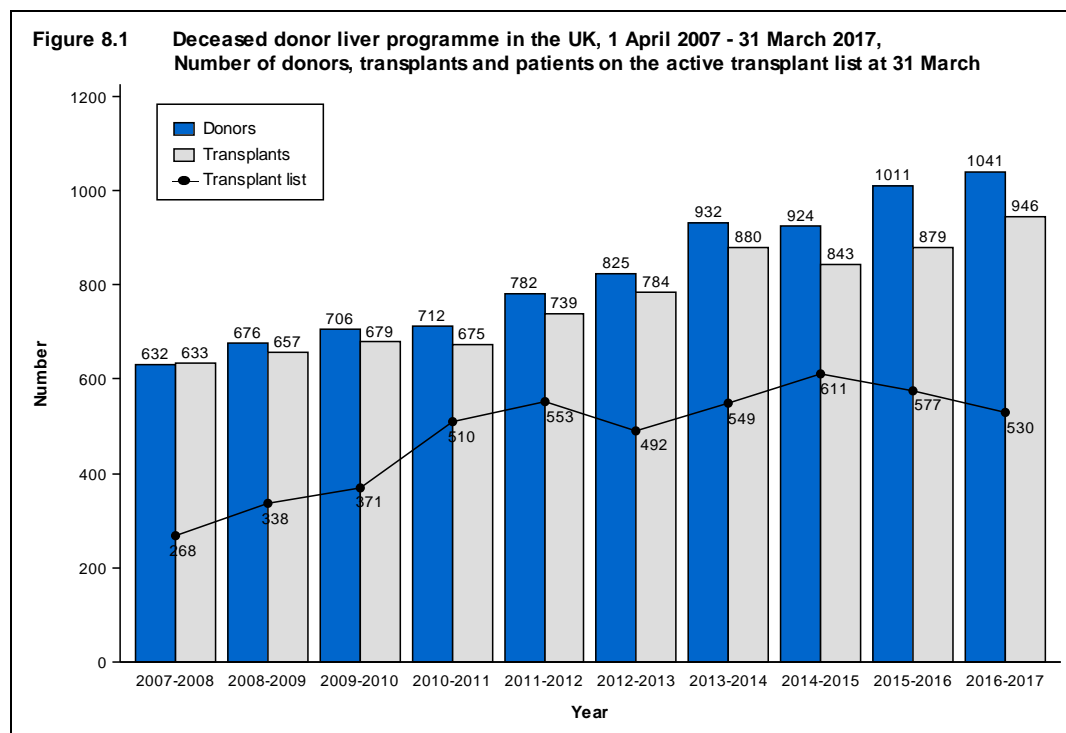
# Liver Activity

## Key messages

- The number of patients on the active liver transplant list at 31 March 2017 was 530, a fall of 8% from 2016
- The number of liver donors after brain death increased by 4% to 747, while transplants from donors after brain death increased by 10% to 738
- The number of liver donors after circulatory death fell by 1% to 294, while transplants from donors after circulatory death increased by 1% to 208

## 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 an increase in the number of patients registered on the active transplant list at 31 March, although this number has fallen in the last two years. The numbers of donors and transplants has steadily increased over the last decade.



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 the 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 centre's allocation zone (by any retrieval team) rather than the number of retrievals made by that centre. In 2016-2017, 1041 organ donors donated their liver for transplant: 747 donors after brain death and 294 donors after circulatory death. There were 530 patients on the active transplant list at 31 March 2017, a fall of 8% from 2016.

Overall, the number of liver transplants (either whole liver or liver lobe transplants) from donors after brain death increased by 10% to 738, and donors after circulatory death increased by 1% to 208, compared with the previous financial year. Additionally, there were 31 living liver lobe donor transplants in NHS Group 1 (23) and Group 2 (8) paediatric and adult recipients, and 3 domino donor transplants in NHS Group 1 adult recipients.

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 76 deceased donor adult super-urgent transplants in 2016-2017, representing 9% of all adult transplants. There were 12 deceased donor paediatric super-urgent transplants in 2016-2017, representing 13% of all paediatric transplants. There was one living donor paediatric super-urgent transplant.

**Table 8.1 Deceased and living liver donors and transplants, 1 April 2016 - 31 March 2017 (2015-2016) and transplant list patients at 31 March 2017 (2016) in the UK, by age group and centre**

Allocation zone/ transplant centre	Deceased donors <sup>1</sup>						Deceased transplants						Living donor transplants		Active transplant list	
	DBD		DCD		TOTAL		DBD		DCD		TOTAL					
Adult																
Birmingham	151	(144)	48	(64)	199	(208)	142	(141)	54	(58)	196	(199)	5	(6)	86	(115)
Cambridge	62	(58)	44	(43)	106	(101)	68	(56)	34	(34)	102	(90)	0	(0)	37	(59)
Edinburgh	96	(74)	21	(29)	117	(103)	85	(73)	18	(23)	103	(96)	0	(1)	35	(50)
King's College	171	(179)	74	(64)	245	(243)	127	(130)	59	(37)	186	(167)	6	(6)	131	(140)
Leeds	128	(111)	57	(55)	185	(166)	105	(79)	19	(24)	124	(103)	2	(5)	104	(84)
Newcastle	42	(40)	10	(11)	52	(51)	36	(38)	6	(7)	42	(45)	0	(0)	15	(23)
Royal Free	76	(84)	28	(18)	104	(102)	90	(84)	13	(18)	103	(102)	1	(2)	76	(57)
TOTAL	726	(690)	282	(284)	1008	(974)	653	(601)	203	(201)	856	(802)	14 <sup>2</sup>	(20) <sup>3</sup>	484	(528)
Paediatric																
Birmingham	6	(9)	4	(5)	10	(14)	26	(35)	3	(2)	29	(37)	7	(5)	15	(19)
Cambridge	1	(3)	0	(2)	1	(5)	0	(1)	0	(0)	0	(1)	0	(0)	0	(0)
Edinburgh	1	(5)	1	(0)	2	(5)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
King's College	4	(2)	5	(1)	9	(3)	42	(20)	2	(3)	44	(23)	11	(11)	25	(23)
Leeds	5	(4)	1	(4)	6	(8)	17	(16)	0	(0)	17	(16)	2	(3)	6	(7)
Newcastle	3	(2)	0	(0)	3	(2)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Royal Free	1	(0)	1	(0)	2	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	21	(25)	12	(12)	33	(37)	85	(72)	5	(5)	90	(77)	20 <sup>4</sup>	(19) <sup>5</sup>	46	(49)

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

<sup>2</sup> Includes 7 and 4 living liver lobe transplants, 3 and 0 domino transplants in NHS Group 1 and Group 2 recipients, respectively

<sup>3</sup> Includes 11 and 5 living liver lobe transplants, 1 and 0 altruistic donor transplants, and 3 and 0 domino transplants in NHS Group 1 and Group 2 recipients, respectively

<sup>4</sup> Includes 16 and 4 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

<sup>5</sup> Includes 15 and 3 living liver lobe transplants, 1 and 0 altruistic donor transplants in NHS Group 1 and Group 2 recipients, respectively

## 8.2 Transplant list

During 2016-2017, 1,169 patients joined the liver transplant list. Outcomes for patients on the list at 1 April 2016 and those joining the list during the year are shown in **Table 8.2**. There have been 127 (11%) new registrations that were super-urgent.

<b>Table 8.2 Liver transplant list and new registrations in the UK, 1 April 2016 – 31 March 2017</b>						
<b>Outcome of patient at 31 March 2017</b>	<b>Active and suspended patients at 1 April 2016</b>		<b>New registrations in 2016-2017<sup>1</sup></b>		<b>TOTAL</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
Remained active/suspended	164	27	388	33	<b>552</b>	<b>31</b>
Transplanted	324	54	653	56	<b>977</b>	<b>55</b>
Removed	88	15	80	7	<b>168</b>	<b>9</b>
Died	24	4	48	4	<b>72</b>	<b>4</b>
<b>TOTAL</b>	<b>600</b>		<b>1169</b>		<b>1769</b>	

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

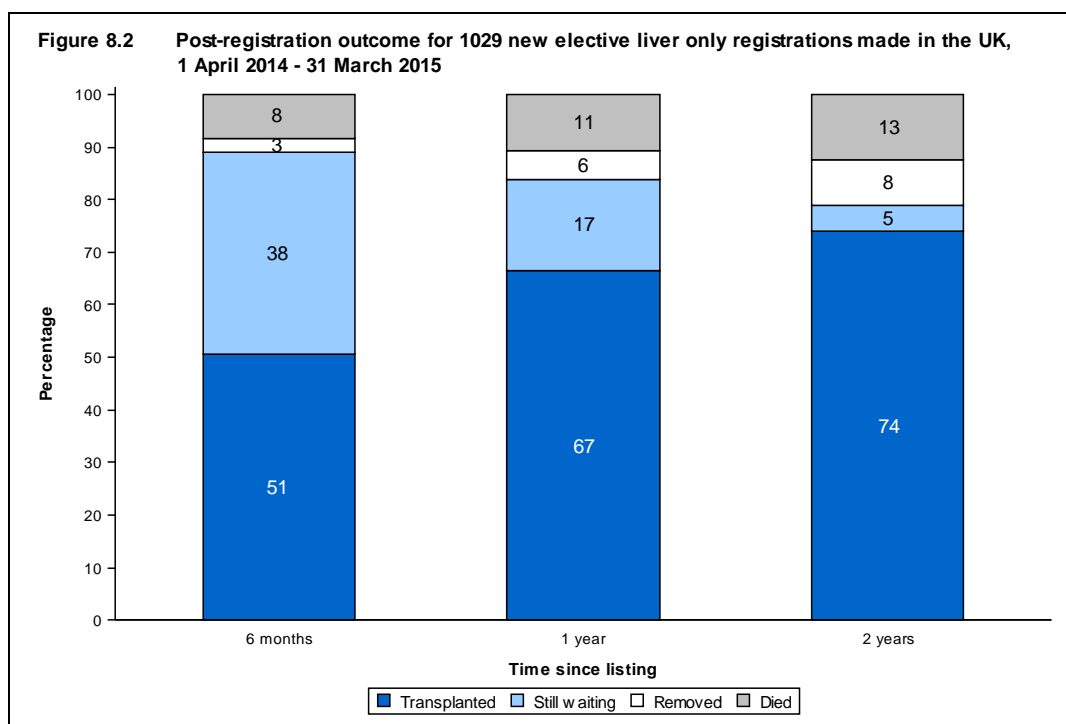
**Table 8.3** shows the transplant list rate per million population in the UK, by country/Strategic Health Authority of patient's residence. At 31 March 2017, the overall rate was 8.1 pmp and ranged from 5.3 to 10.2 pmp across the Strategic Health Authorities.



<b>Table 8.3 Active liver transplant list at 31 March, by country/ Strategic Health Authority of patient residence</b>				
<b>Country/ Strategic Health Authority of residence</b>	<b>Liver transplant list (pmp)</b>			
	<b>2017</b>		<b>2016</b>	
North East	14	(5.3)	18	(6.9)
North West	68	(9.5)	68	(9.5)
Yorkshire and The Humber	55	(10.2)	51	(9.5)
<b>North of England</b>	<b>137</b>	<b>(9.0)</b>	<b>137</b>	<b>(9.0)</b>
East Midlands	25	(5.3)	32	(6.8)
West Midlands	32	(5.6)	47	(8.2)
East of England	44	(7.2)	56	(9.2)
<b>Midlands and East</b>	<b>101</b>	<b>(6.1)</b>	<b>135</b>	<b>(8.2)</b>
<b>London</b>	<b>69</b>	<b>(8.0)</b>	<b>64</b>	<b>(7.4)</b>
South East Coast	47	(10.2)	46	(9.9)
South Central	29	(6.7)	33	(7.6)
South West	40	(7.3)	51	(9.3)
<b>South of England</b>	<b>116</b>	<b>(8.0)</b>	<b>130</b>	<b>(9.0)</b>
<b>England</b>	<b>423</b>	<b>(7.7)</b>	<b>466</b>	<b>(8.5)</b>
<b>Isle of Man</b>	<b>0</b>	<b>(0.0)</b>	<b>1</b>	<b>(12.5)</b>
<b>Channel Islands</b>	<b>0</b>	<b>(0.0)</b>	<b>1</b>	<b>(6.3)</b>
<b>Wales</b>	<b>25</b>	<b>(8.1)</b>	<b>21</b>	<b>(6.8)</b>
<b>Scotland</b>	<b>37</b>	<b>(6.9)</b>	<b>53</b>	<b>(9.9)</b>
<b>Northern Ireland</b>	<b>30</b>	<b>(16.2)</b>	<b>21</b>	<b>(11.4)</b>
<b>TOTAL<sup>1</sup></b>	<b>530</b>	<b>(8.1)</b>	<b>577</b>	<b>(8.8)</b>

<sup>1</sup> Includes patients in 2017 (2016) resident in: UK unknown – 4 (0); Republic of Ireland - 3 (4); Overseas - 8 (10)

An indication of longer term outcomes for patients listed for a liver transplant is summarised in **Figure 8.2**. This shows the proportion of patients transplanted or still waiting six months, one year and two years after joining the transplant list. It also shows the proportion removed from the transplant list and those dying while on the transplant list (which includes those patients removed due to condition deteriorated). At one year post-registration, 67% of patients had received a liver transplant while 11% of patients had died whilst waiting or had been removed due to their condition deteriorating. 6% had been removed for other reasons such as the patient's condition improving, as a result of non-compliance or at the request of the patient or family.



**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 138 days for a transplant while paediatric patients wait an average of 92 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.

<b>Table 8.4 Median waiting time to liver transplant in the UK, for patients registered 1 April 2012 - 31 March 2015</b>			
Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
<b>Adult</b>			
O	1269	234	211 - 257
A	1036	87	77 - 97
B	313	133	105 - 161
AB	85	51	36 - 66
<b>TOTAL</b>	<b>2703</b>	<b>138</b>	<b>127 - 149</b>
<b>Paediatric</b>	<b>203</b>	<b>92</b>	<b>68 - 116</b>

<b>Table 8.5 Median waiting time to liver transplant in the UK, for patients registered 1 April 2012 - 31 March 2015</b>			
Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
<b>Adult</b>			
White	2388	142	130 - 154
Asian	185	118	85 - 151
Black	74	150	99 - 201
Other	56	92	53 - 131
<b>TOTAL</b>	<b>2703</b>	<b>138</b>	<b>127 - 149</b>
<b>Paediatric</b>	<b>203</b>	<b>92</b>	<b>68 - 116</b>

### 8.3 Donor and organ supply

Of the 1413 organ donors, 1041 (74%) donated their liver and 882 (85%) of these donated livers were used; see **Table 8.6**. Of livers retrieved from donors after brain death and donors after circulatory death, 90% and 71% were transplanted, respectively. One liver can be used in more than one transplant, see **Table 8.9**.

<b>Table 8.6 Deceased liver donation and retrieval in the UK, 1 April 2016 - 31 March 2017, by allocation zone</b>											
Allocation zone	Number of donors						Number of livers retrieved (used)				
	Solid organ			Liver							
	DBD	DCD	TOTAL	DBD	DCD	TOTAL	DBD	DCD	TOTAL		
Birmingham	164	115	<b>279</b>	157	52	<b>209</b>	157	(146)	52	(41)	<b>209 (187)</b>
Cambridge	76	74	<b>150</b>	63	44	<b>107</b>	63	(58)	44	(33)	<b>107 (91)</b>
Edinburgh	115	74	<b>189</b>	97	22	<b>119</b>	97	(90)	22	(17)	<b>119 (107)</b>
King's College	188	129	<b>317</b>	175	79	<b>254</b>	175	(144)	79	(50)	<b>254 (194)</b>
Leeds	151	113	<b>264</b>	133	58	<b>191</b>	133	(128)	58	(44)	<b>191 (172)</b>
Newcastle	50	28	<b>78</b>	45	10	<b>55</b>	45	(38)	10	(8)	<b>55 (46)</b>
Royal Free	85	51	<b>136</b>	77	29	<b>106</b>	77	(70)	29	(15)	<b>106 (85)</b>
<b>TOTAL</b>	<b>829</b>	<b>584</b>	<b>1413</b>	<b>747</b>	<b>294</b>	<b>1041</b>	<b>747</b>	<b>(674)</b>	<b>294</b>	<b>(208)</b>	<b>1041 (882)</b>

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 15.9 pmp in 2016-2017 and varied across the Strategic Health Authorities from 10.7 pmp to 21.8 pmp.

<b>Table 8.7 Liver donor rates in the UK, 1 April 2016 - 31 March 2017, by country/ Strategic Health Authority</b>						
<b>Country/ Strategic Health Authority</b>	<b>DBD</b>		<b>Deceased donors (pmp) DCD</b>		<b>Total</b>	
North East	47	(17.9)	10	(3.8)	<b>57</b>	<b>(21.8)</b>
North West	77	(10.7)	32	(4.5)	<b>109</b>	<b>(15.2)</b>
Yorkshire and The Humber	50	(9.3)	20	(3.7)	<b>70</b>	<b>(13.0)</b>
<b>North of England</b>	<b>174</b>	<b>(11.5)</b>	<b>62</b>	<b>(4.1)</b>	<b>236</b>	<b>(15.5)</b>
East Midlands	34	(7.3)	16	(3.4)	<b>50</b>	<b>(10.7)</b>
West Midlands	68	(11.8)	21	(3.7)	<b>89</b>	<b>(15.5)</b>
East of England	65	(10.7)	48	(7.9)	<b>113</b>	<b>(18.6)</b>
<b>Midlands and East</b>	<b>167</b>	<b>(10.1)</b>	<b>85</b>	<b>(5.1)</b>	<b>252</b>	<b>(15.3)</b>
<b>London</b>	<b>87</b>	<b>(10.0)</b>	<b>30</b>	<b>(3.5)</b>	<b>117</b>	<b>(13.5)</b>
South East Coast	70	(15.1)	31	(6.7)	<b>101</b>	<b>(21.8)</b>
South Central	47	(10.9)	24	(5.6)	<b>71</b>	<b>(16.4)</b>
South West	63	(11.5)	26	(4.8)	<b>89</b>	<b>(16.3)</b>
<b>South of England</b>	<b>180</b>	<b>(12.5)</b>	<b>81</b>	<b>(5.6)</b>	<b>261</b>	<b>(18.1)</b>
<b>England</b>	<b>608</b>	<b>(11.1)</b>	<b>258</b>	<b>(4.7)</b>	<b>866</b>	<b>(15.8)</b>
<b>Isle of Man</b>	<b>2</b>	<b>(25.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>2</b>	<b>(25.0)</b>
<b>Channel Islands</b>	<b>4</b>	<b>(25.0)</b>	<b>1</b>	<b>(6.3)</b>	<b>5</b>	<b>(31.3)</b>
<b>Wales</b>	<b>38</b>	<b>(12.3)</b>	<b>15</b>	<b>(4.8)</b>	<b>53</b>	<b>(17.1)</b>
<b>Scotland</b>	<b>67</b>	<b>(12.5)</b>	<b>18</b>	<b>(3.4)</b>	<b>85</b>	<b>(15.8)</b>
<b>Northern Ireland</b>	<b>28</b>	<b>(15.1)</b>	<b>2</b>	<b>(1.1)</b>	<b>30</b>	<b>(16.2)</b>
<b>TOTAL<sup>1</sup></b>	<b>747</b>	<b>(11.4)</b>	<b>294</b>	<b>(4.5)</b>	<b>1041</b>	<b>(15.9)</b>

<sup>1</sup> Includes 13 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 10 to 16.9 pmp across the Strategic Health Authorities and overall was 14.2 pmp.

<b>Table 8.8 Liver transplant rates per million population (pmp) in the UK, 1 April 2016 - 31 March 2017, by country/ Strategic Health Authority</b>								
<b>Country/ Strategic Health Authority</b>	<b>Deceased transplants (pmp)</b>						<b>Living transplants (pmp)</b>	
	DBD		DCD		Total			
North East	28	(10.7)	5	(1.9)	33	(12.6)	0	(0.0)
North West	87	(12.1)	24	(3.3)	111	(15.5)	3	(0.4)
Yorkshire and The Humber	61	(11.3)	10	(1.9)	71	(13.2)	2	(0.4)
<b>North of England</b>	<b>176</b>	<b>(11.6)</b>	<b>39</b>	<b>(2.6)</b>	<b>215</b>	<b>(14.2)</b>	<b>5</b>	<b>(0.3)</b>
East Midlands	35	(7.5)	12	(2.6)	47	(10.0)	0	(0.0)
West Midlands	69	(12.0)	20	(3.5)	89	(15.5)	2	(0.3)
East of England	76	(12.5)	27	(4.4)	103	(16.9)	1	(0.2)
<b>Midlands and East</b>	<b>180</b>	<b>(10.9)</b>	<b>59</b>	<b>(3.6)</b>	<b>239</b>	<b>(14.5)</b>	<b>3</b>	<b>(0.2)</b>
<b>London</b>	<b>82</b>	<b>(9.5)</b>	<b>23</b>	<b>(2.7)</b>	<b>105</b>	<b>(12.1)</b>	<b>1</b>	<b>(0.1)</b>
South East Coast	42	(9.1)	18	(3.9)	60	(13.0)	0	(0.0)
South Central	44	(10.2)	14	(3.2)	58	(13.4)	2	(0.5)
South West	59	(10.8)	18	(3.3)	77	(14.1)	4	(0.7)
<b>South of England</b>	<b>145</b>	<b>(10.1)</b>	<b>50</b>	<b>(3.5)</b>	<b>195</b>	<b>(13.5)</b>	<b>6</b>	<b>(0.4)</b>
<b>England</b>	<b>583</b>	<b>(10.6)</b>	<b>171</b>	<b>(3.1)</b>	<b>754</b>	<b>(13.8)</b>	<b>15</b>	<b>(0.3)</b>
<b>Isle of Man</b>	<b>2</b>	<b>(25.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>2</b>	<b>(25.0)</b>	<b>1</b>	<b>(12.5)</b>
<b>Channel Islands</b>	<b>1</b>	<b>(6.3)</b>	<b>0</b>	<b>(0.0)</b>	<b>1</b>	<b>(6.3)</b>	<b>0</b>	<b>(0.0)</b>
<b>Wales</b>	<b>25</b>	<b>(8.1)</b>	<b>11</b>	<b>(3.5)</b>	<b>36</b>	<b>(11.6)</b>	<b>1</b>	<b>(0.3)</b>
<b>Scotland</b>	<b>98</b>	<b>(18.2)</b>	<b>19</b>	<b>(3.5)</b>	<b>117</b>	<b>(21.8)</b>	<b>0</b>	<b>(0.0)</b>
<b>Northern Ireland</b>	<b>14</b>	<b>(7.6)</b>	<b>5</b>	<b>(2.7)</b>	<b>19</b>	<b>(10.3)</b>	<b>4</b>	<b>(2.2)</b>
<b>TOTAL<sup>1,2</sup></b>	<b>725</b>	<b>(11.1)</b>	<b>206</b>	<b>(3.2)</b>	<b>931</b>	<b>(14.2)</b>	<b>22<sup>3</sup></b>	<b>(0.3)</b>

<sup>1</sup> Excludes 27 recipients who reside outside the UK (13 DBD, 2 DCD, 12 Living)  
<sup>2</sup> Includes 3 recipients in the UK with an unknown postcode  
<sup>3</sup> Includes 3 domino donor transplants

The number of whole, reduced and split liver transplants by urgency status of the transplant (elective, super-urgent) in 2016-2017 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 increased by 8% in 2016-2017. There were 946 deceased donor liver transplants performed in 2016-2017: 814 whole liver, including 10 liver and kidney; 120 split liver, including 2 liver and kidney; and 12 deceased liver lobe, including 2 liver and kidney. Split liver transplants accounted for 91% of liver lobe transplant activity.

**Table 8.9 Deceased liver transplants performed in the UK, 1 April 2015 - 31 March 2017**

Transplant centre	2015 - 2016								2016 - 2017							
	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	172	22	4	0	34	4	210	26	174	15	6	1	27	2	207	18
Cambridge	75	11	1	0	4	0	80	11	85	7	0	0	10	0	95	7
Edinburgh	84	10	0	0	2	0	86	10	92	6	0	0	5	0	97	6
King's College	148	14	2	3	21	2	171	19	167	14	1	3	41	4	209	21
Leeds	87	13	3	1	11	4	101	18	110	14	1	0	14	2	125	16
Newcastle	36	8	0	0	1	0	37	8	38	3	0	0	1	0	39	3
Royal Free	84	14	0	1	2	1	86	16	72	17	0	0	14	0	86	17
<b>TOTAL</b>	<b>686</b>	<b>92</b>	<b>10</b>	<b>5</b>	<b>75</b>	<b>11</b>	<b>771</b>	<b>108</b>	<b>738</b>	<b>76</b>	<b>8</b>	<b>4</b>	<b>112</b>	<b>8</b>	<b>858</b>	<b>88</b>

E=Elective, SU=Super-urgent

Birmingham, King's College and Leeds transplant paediatric patients

The length of time that elapses between a liver being removed from the donor to its transplantation into the recipient is called the cold ischaemia time (CIT). Generally, the shorter this time, the more likely the liver is to work immediately and the better the long-term outcome. In 2016-2017, the median CIT for a DBD donor whole liver only transplant was 8.5 hours (Inter-Quartile (IQ) range 6.8 – 10.4) and for a DCD donor whole liver only transplant was 7.5 hours (IQ range 6.6 - 8.8) and overall is 8.2 hours (IQ range 6.7 - 10).

At 31 March 2017 there were approximately 9,700 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 are shown in **Table 8.10**.

<b>Table 8.10 Demographic characteristics of deceased liver donors and transplant recipients 1 April 2016 - 31 March 2017, and transplant list patients at 31 March in the UK</b>						
<b>Age group (years)</b>	<b>Donors</b>		<b>Transplant recipients</b>		<b>Active transplant list patients</b>	
	N	(%)	N	(%)	N	(%)
0 - 17	46	(4)	93	(10)	47	(9)
18 - 34	159	(15)	119	(13)	70	(13)
35 - 49	245	(24)	187	(20)	91	(17)
50 - 59	240	(23)	262	(28)	173	(33)
60 - 69	220	(21)	271	(29)	141	(27)
70+	131	(13)	14	(1)	8	(2)
mean (SD)	50	(17)	47	(19)	47	(18)
Male	594	(57)	594	(63)	298	(56)
Female	447	(43)	352	(37)	232	(44)
White	964	(94)	815	(86)	444	(84)
Asian	17	(2)	84	(9)	54	(10)
Black	18	(2)	32	(3)	18	(3)
Chinese	4	(0)	6	(1)	1	(0)
Other	27	(3)	8	(1)	12	(2)
Not reported	11		1		1	
O	496	(48)	415	(44)	337	(64)
A	439	(42)	402	(42)	107	(20)
B	90	(9)	94	(10)	84	(16)
AB	16	(2)	35	(4)	2	(0)
First graft			849	(90)	484	(91)
Re-graft			97	(10)	46	(9)
<b>TOTAL</b>	<b>1041</b>	<b>(100)</b>	<b>946</b>	<b>(100)</b>	<b>530</b>	<b>(100)</b>

# Intestinal Activity

## Key messages

- There were 12 patients on the active intestinal transplant list at 31 March 2017 in total
- 27 patients were registered for an intestinal transplant in 2016-2017 (18 adult and 9 paediatric patients).
- 15 intestinal transplants were carried out in 2016-2017 (15 in the previous year)
- On average, patients wait around 2 months for a transplant



## 9.1 Overview

During 2016-2017, there were 27 registrations for an intestinal transplant. As at 31 March 2017, 11 (41%) registrations remained active/suspended, 13 (48%) resulted in a transplant, 3 (11%) resulted in a death on the transplant list.

Over the last two years (between 1 April 2015 and 31 March 2017), the number of intestinal transplants has remained at 15 transplants carried out in 2016-2017 and in 2015-2016.

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 2016-2017, there were 27 registrations for an intestinal transplant. The outcome of these registrations for paediatric (aged <18 years) and adult patients, as at 31 March 2017, broken down by transplant centre can be found in **Table 9.1**.

Table 9.1 Outcome of intestinal registrations in the UK, 1 April 2016 and 31 March 2017									
Transplant centre	Outcome of registrations as at 31 March 2017								TOTAL
	Transplanted		Died		Removed		Active/Susp		
	N	%	N	%	N	%	N	%	
Adult									
Cambridge	5	42	2	17	0	0	5	42	12
Oxford	5	83	1	17	0	0	0	0	6
TOTAL	10	56	3	17	0	0	5	28	18
Paediatric									
Birmingham	0	0	0	0	0	0	4	100	4
King's College	3	60	0	0	0	0	2	40	5
TOTAL	3	33	0	0	0	0	6	67	9

**Table 9.2** shows the intestinal transplant list rate in the UK by country/Strategic Health Authority of patient's residence. At 31 March 2017, the overall transplant list rate was 0.2 pmp and ranged from 0 to 0.2 pmp across the Strategic Health Authorities, although these numbers are very small so these are not meaningful differences.

<b>Table 9.2 Active intestinal transplant list at 31 March, by country/ Strategic Health Authority of patient residence</b>				
<b>Country/ Strategic Health Authority of residence</b>	<b>Intestinal transplant list (pmp)</b>			
	2017		2016	
North East	0	(0.0)	0	(0.0)
North West	0	(0.0)	0	(0.0)
Yorkshire and The Humber	0	(0.0)	0	(0.0)
<b>North of England</b>	0	(0.0)	0	(0.0)
East Midlands	2	(0.4)	1	(0.2)
West Midlands	0	(0.0)	1	(0.2)
East of England	0	(0.0)	1	(0.2)
<b>Midlands and East</b>	2	(0.1)	3	(0.2)
<b>London</b>	1	(0.1)	1	(0.1)
South East Coast	1	(0.2)	0	(0.0)
South Central	0	(0.0)	1	(0.2)
South West	1	(0.2)	1	(0.2)
<b>South of England</b>	2	(0.1)	2	(0.1)
<b>England</b>	5	(0.1)	6	(0.1)
Isle of Man	0	(0.0)	0	(0.0)
Channel Islands	0	(0.0)	0	(0.0)
<b>Wales</b>	0	(0.0)	0	(0.0)
<b>Scotland</b>	1	(0.2)	0	(0.0)
<b>Northern Ireland</b>	0	(0.0)	0	(0.0)
<b>TOTAL<sup>1</sup></b>	12	(0.2)	6	(0.1)

<sup>1</sup> Includes 6 patients in 2017 resident in the UK with an unknown postcode

**Table 9.3** shows median waiting time to elective intestinal transplant by registration type. On average, patients wait 66 days for a transplant.

<b>Table 9.3 Median waiting time to intestinal transplant in the UK, for patients registered 1 April 2013 - 31 March 2016</b>			
Registration type	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Bowel only <sup>1</sup>	10	58	30 – 86
Liver, bowel and pancreas <sup>1</sup>	39	134	49 – 219
Bowel and pancreas <sup>1</sup>	16	65	16 – 114
<b>TOTAL</b>	<b>65</b>	<b>66</b>	<b>43 – 89</b>

<sup>1</sup> 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 829 DBD solid organ donors, 14 (2%) donated their small bowel.

<b>Table 9.4 Intestinal donation rates for deceased donors after brain death in the UK, 1 April 2016 - 31 March 2017, by country/Strategic Health Authority</b>						
<b>Country/ Strategic Health Authority of residence</b>	<b>Solid organ donors (pmp)</b>		<b>Intestinal donors (pmp)</b>		<b>% of solid organ donors</b>	<b>Organs used</b>
North East	53	(20.2)	0	(0.0)	-	-
North West	90	(12.6)	1	(0.1)	1.1	1
Yorkshire and The Humber	59	(10.9)	1	(0.2)	1.7	1
<b>North of England</b>	<b>202</b>	<b>(13.3)</b>	<b>2</b>	<b>(0.1)</b>	<b>1.0</b>	<b>2</b>
East Midlands	39	(8.3)	2	(0.4)	5.1	2
West Midlands	72	(12.5)	4	(0.7)	5.6	4
East of England	74	(12.2)	1	(0.2)	1.4	1
<b>Midlands and East</b>	<b>185</b>	<b>(11.2)</b>	<b>7</b>	<b>(0.4)</b>	<b>3.8</b>	<b>7</b>
<b>London</b>	<b>96</b>	<b>(11.1)</b>	<b>1</b>	<b>(0.1)</b>	<b>1.0</b>	<b>1</b>
South East Coast	73	(15.8)	1	(0.2)	1.4	1
South Central	51	(11.8)	0	(0.0)	-	-
South West	67	(12.2)	0	(0.0)	-	-
<b>South of England</b>	<b>191</b>	<b>(13.2)</b>	<b>1</b>	<b>(0.1)</b>	<b>0.5</b>	<b>1</b>
<b>England</b>	<b>674</b>	<b>(12.3)</b>	<b>11</b>	<b>(0.2)</b>	<b>1.6</b>	<b>11</b>
<b>Isle of Man</b>	<b>2</b>	<b>(25.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>-</b>	<b>-</b>
<b>Channel Islands</b>	<b>4</b>	<b>(25.0)</b>	<b>0</b>	<b>(0.0)</b>	<b>-</b>	<b>-</b>
<b>Wales</b>	<b>39</b>	<b>(12.6)</b>	<b>0</b>	<b>(0.0)</b>	<b>-</b>	<b>-</b>
<b>Scotland</b>	<b>79</b>	<b>(14.7)</b>	<b>1</b>	<b>(0.2)</b>	<b>1.3</b>	<b>1</b>
<b>Northern Ireland</b>	<b>31</b>	<b>(16.8)</b>	<b>2</b>	<b>(1.1)</b>	<b>6.5</b>	<b>2</b>
<b>TOTAL<sup>1</sup></b>	<b>829</b>	<b>(12.7)</b>	<b>14</b>	<b>(0.2)</b>	<b>1.7</b>	<b>14</b>

<sup>1</sup> Includes 13 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 2015-2016 and 2016-2017. In 2016-2017, there were a total of 15 transplants, 11 adult and 4 paediatric transplants.

At 31 March 2017 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.

<b>Table 9.5 Intestinal transplants in the UK, by age group, centre and type, 1 April 2016 - 31 March 2017 (2015-2016)</b>										
<b>Transplant centre</b>	<b>BO</b>		<b>Transplant type</b>				<b>MMV</b>		<b>TOTAL</b>	
			<b>LBP</b>		<b>MV</b>					
<b>Adult</b>										
Cambridge	0	(0)	0	(0)	2	(6)	4	(3)	6	(9)
Oxford	3	(0)	0	(0)	0	(0)	2	(3)	5	(3)
<b>TOTAL<sup>1</sup></b>	<b>3</b>	<b>(0)</b>	<b>0</b>	<b>(0)</b>	<b>2</b>	<b>(6)</b>	<b>6</b>	<b>(6)</b>	<b>11</b>	<b>(12)</b>
<b>Paediatric</b>										
Birmingham	0	(1)	1	(1)	0	(0)	0	(0)	1	(2)
King's College	1	(0)	0	(0)	2	(1)	0	(0)	3	(1)
<b>TOTAL</b>	<b>1</b>	<b>(1)</b>	<b>1</b>	<b>(1)</b>	<b>2</b>	<b>(1)</b>	<b>0</b>	<b>(0)</b>	<b>4</b>	<b>(3)</b>
<sup>1</sup> Excludes one abdominal wall only transplant BO = Bowel only (may also include stomach/spleen/abdominal wall/kidney/colon) BP = Bowel and pancreas 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 are shown in **Table 9.6**.

<b>Table 9.6 Demographic characteristics of deceased intestinal donors and transplant recipients 1 April 2016 - 31 March 2017, and transplant list patients at 31 March in the UK</b>						
<b>Age group (years)</b>	<b>Donors</b>		<b>Transplant recipients</b>		<b>Active transplant list patients</b>	
	N	(%)	N	(%)	N	(%)
0 - 17	6	(43)	4	(27)	7	(58)
18 - 34	5	(36)	2	(13)	2	(17)
35 - 49	2	(14)	5	(33)	2	(17)
50 - 59	1	(7)	4	(27)	1	(8)
mean (SD)	25	(14)	36	(19)	19	(21)
Male	6	(43)	11	(73)	5	(42)
Female	8	(57)	4	(27)	7	(58)
White	11	(79)	12	(80)	12	(100)
Asian	1	(7)	1	(7)	0	(0)
Other	2	(14)	2	(13)	0	(0)
O	6	(43)	3	(20)	7	(58)
A	7	(50)	7	(47)	5	(42)
B	1	(7)	3	(20)	0	(0)
AB	0	(0)	2	(13)	0	(0)
First graft			14	(93)	11	(92)
Re-graft			1	(7)	1	(8)
<b>TOTAL</b>	<b>14</b>	<b>(100)</b>	<b>15<sup>1</sup></b>	<b>(100)</b>	<b>12</b>	<b>(100)</b>

<sup>1</sup> Includes 1 overseas donors



# **Survival Rates Following Transplantation**

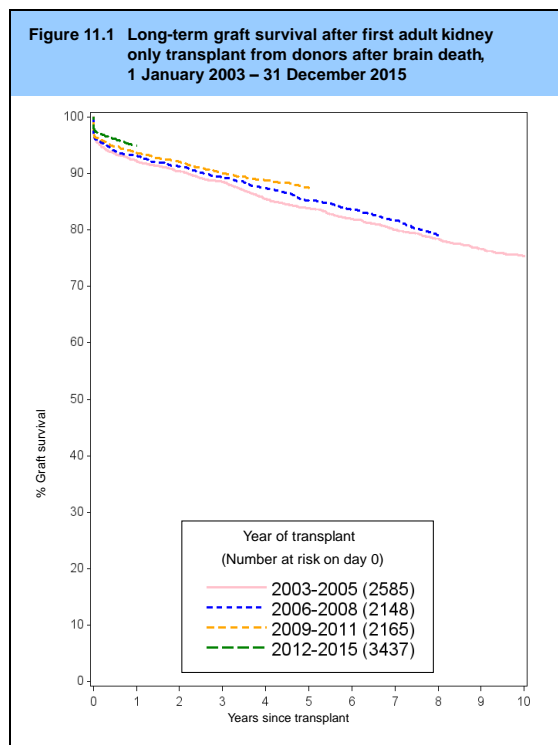
This chapter shows graft survival rates over time for kidney and pancreas transplants, and patient survival estimates for kidney, pancreas, cardiothoracic, liver and intestinal transplants, performed in the UK. Separate estimates are presented for adult and paediatric patients (using organ specific age 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 ( $\geq 18$  years) recipients for first kidney only transplant from donors after brain death. **Table 11.1** shows the graft survival estimates and confidence intervals for one, two, five and ten years post-transplant. There have been significant improvements in one 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 ( $p > 0.9$ ).



**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	
2003-2005	2585	92	(91-93)	90	(89-91)	84	(82-85)	75	(74-77)
2006-2008	2148	93	(92-94)	91	(90-92)	85	(84-87)		
2009-2011	2165	94	(93-95)	92	(91-93)	87	(86-89)		
2012-2015	3437	95	(94-96)						

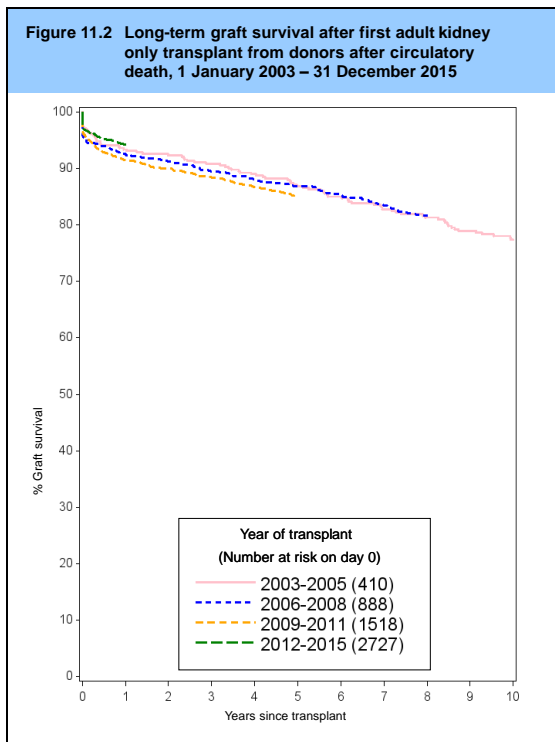
**Table 11.2** Patient survival after first adult kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2003-2005	2588	96	(96-97)	95	(94-95)	89	(88-90)	77	(75-78)
2006-2008	2149	96	(96-97)	95	(94-96)	89	(88-91)		
2009-2011	2165	96	(95-97)	95	(94-95)	90	(88-91)		
2012-2015	3439	97	(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,  $p=0.007$ . One year graft and patient survival are comparable for DBD and DCD donor transplants in the most recent time periods. **Table 11.4** shows the patient survival estimates and confidence intervals for each time period analysed. There was a borderline statistically significant decline in patient survival over time at five years post-transplant ( $p=0.06$ ).



**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		
2003-2005	410	93 (90-95)	92 (89-95)	87 (83-90)	77 (73-81)		
2006-2008	888	93 (91-94)	91 (89-93)	87 (84-89)			
2009-2011	1518	91 (90-93)	90 (88-91)	85 (83-87)			
2012-2015	2727	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		
2003-2005	411	97 (94-98)	95 (92-97)	89 (85-91)	74 (69-78)		
2006-2008	888	96 (95-97)	95 (93-96)	88 (86-90)			
2009-2011	1518	95 (94-96)	93 (91-94)	85 (83-87)			
2012-2015	2728	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,  $p=0.02$ . **Table 11.6** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant changes in patient survival over time ( $p>0.1$ ).

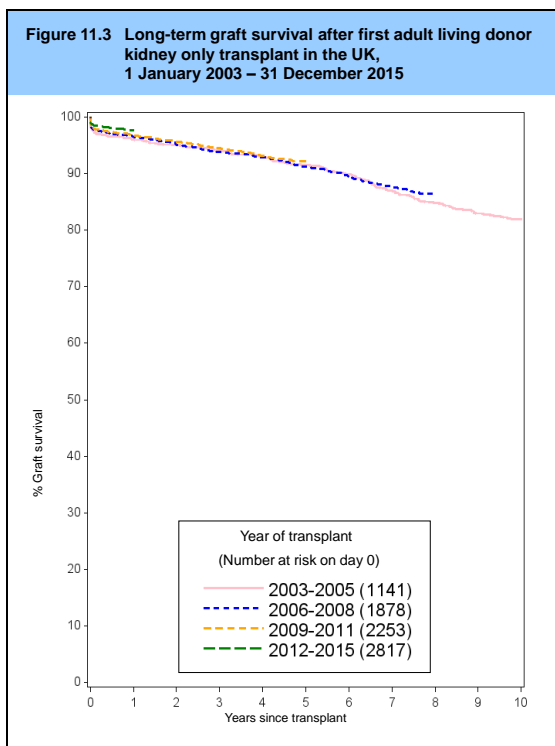
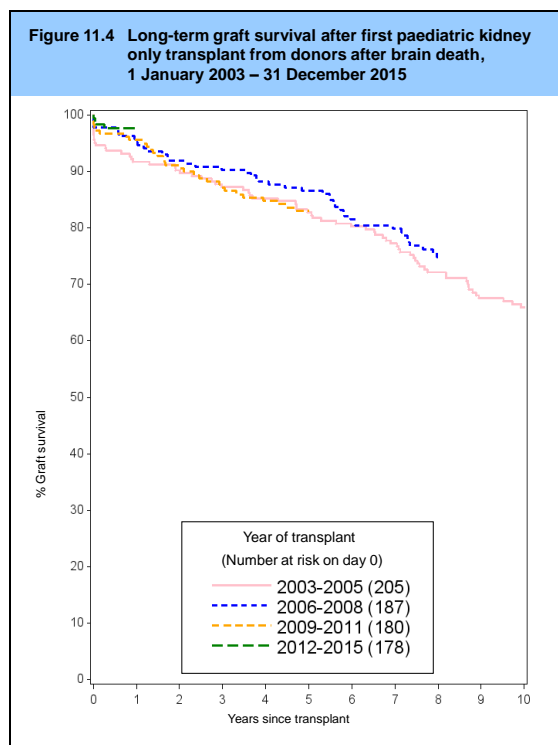


Table 11.5 Graft survival after first adult living donor kidney transplant									
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2003-2005	1141	96	(95-97)	95	(94-96)	91	(90-93)	82	(80-84)
2006-2008	1878	96	(96-97)	95	(94-96)	91	(90-92)		
2009-2011	2253	97	(96-97)	96	(95-96)	92	(91-93)		
2012-2015	2817	98	(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	
2003-2005	1140	99	(98-99)	98	(97-99)	96	(95-97)	90	(89-92)
2006-2008	1878	99	(98-99)	98	(97-99)	95	(94-96)		
2009-2011	2253	99	(98-99)	98	(97-99)	94	(93-95)		
2012-2015	2816	99	(98-99)						

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

**Figure 11.4** shows long-term graft survival in paediatric (<18 years) recipients for first kidney only transplants from donors after brain death. Graft survival estimates and confidence intervals are shown for each time period analysed in **Table 11.7**. There were no statistically significant changes in graft survival over time ( $p>0.06$ ). **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 ( $p>0.4$ ). There were insufficient paediatric recipients of first kidney only transplants from donors after circulatory death to permit reliable analysis.



**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	
2003-2005	205	92	(87-95)	90	(85-94)	83	(77-87)
2006-2008	187	95	(91-97)	92	(87-95)	87	(81-91)
2009-2011	180	96	(91-98)	91	(86-94)	83	(77-88)
2012-2015	178	98	(94-99)				

**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	
2003-2005	205	100	(-)	100	(-)	98	(95-100)
2006-2008	188	100	(-)	99	(96-100)	99	(96-100)
2009-2011	180	99	(96-100)	99	(96-100)	97	(93-99)
2012-2015	178	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 has been a significant decrease in five year survival over the time periods shown,  $p=0.02$ . **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 ( $p>0.7$ ).

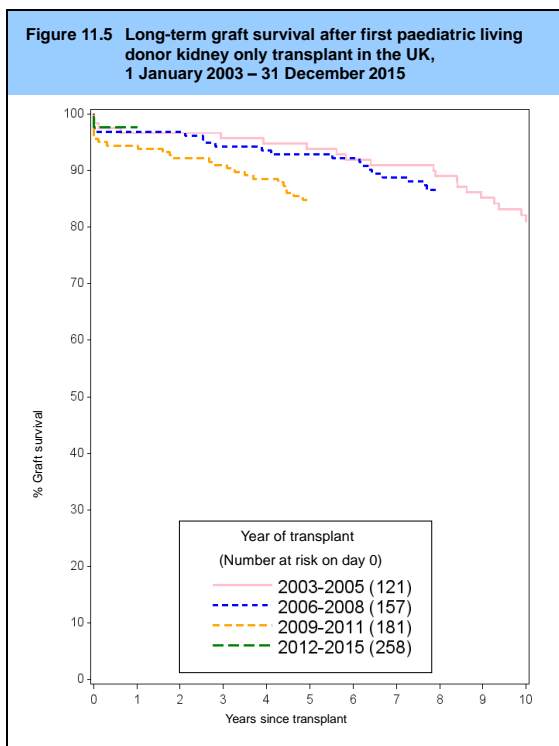


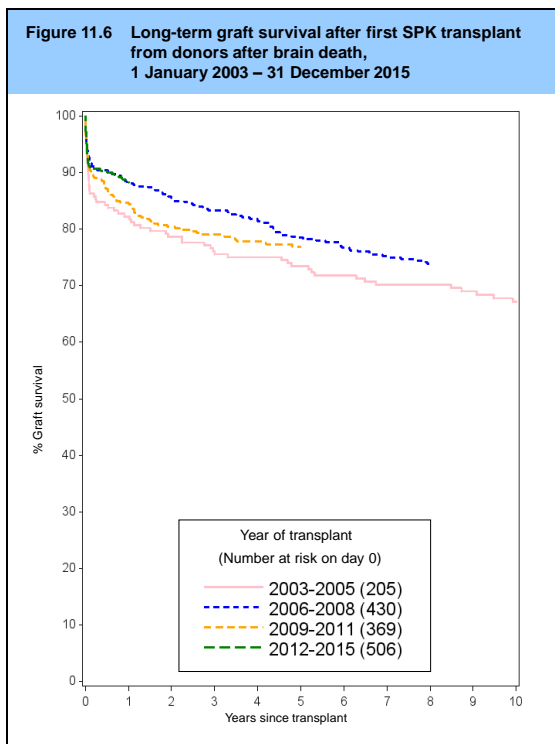
Table 11.9 Graft survival after first paediatric living donor kidney transplant									
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2003-2005	121	97	(91-99)	97	(91-99)	94	(87-97)	81	(72-87)
2006-2008	157	97	(93-99)	97	(93-99)	93	(88-96)		
2009-2011	181	94	(90-97)	92	(87-95)	85	(78-89)		
2012-2015	258	98	(95-99)						

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	
2003-2005	121	98	(93-100)	98	(93-100)	98	(93-100)	95	(89-98)
2006-2008	157	99	(96-100)	99	(96-100)	99	(95-100)		
2009-2011	181	99	(96-100)	99	(96-100)	98	(94-99)		
2012-2015	258	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 no significant variation in graft survival over time ( $p>0.06$ ). Differences in patient survival are also not significant over time ( $p>0.3$ ).



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

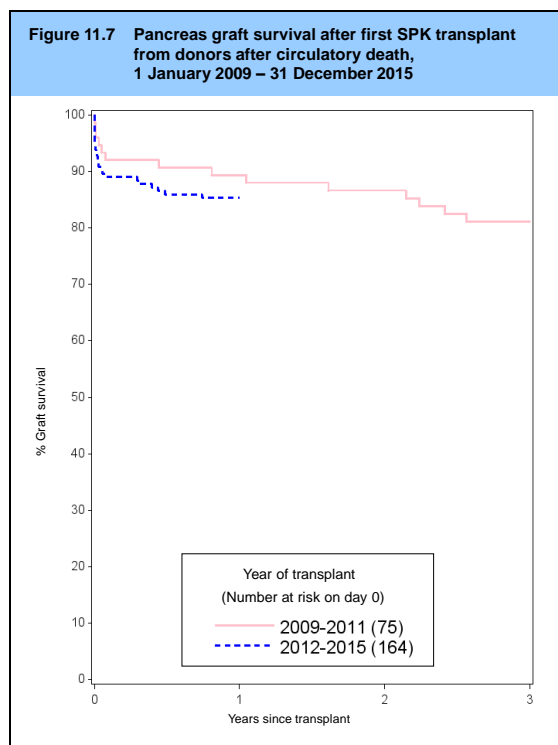
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2003-2005	205	82	(76-87)	79	(72-84)	73	(67-79)	67	(60-73)
2006-2008	430	88	(85-91)	85	(82-88)	78	(74-82)		
2009-2011	369	85	(81-88)	80	(76-84)	77	(72-81)		
2012-2015	506	88	(85-91)						

**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	
2003-2005	206	94	(90-96)	92	(88-95)	86	(81-90)	75	(68-80)
2006-2008	433	96	(93-97)	94	(91-96)	90	(87-92)		
2009-2011	369	96	(94-98)	93	(90-95)	87	(83-90)		
2012-2015	508	96	(94-98)						

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

The majority of simultaneous kidney/pancreas (SPK) transplants from a DCD have been performed since 1 January 2007, so there are insufficient data available to analyse long-term survival. **Figure 11.7** shows pancreas graft survival in recipients receiving their first SPK transplant performed from donors after circulatory death, 2009-2011 and 2012-2015. 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.



**Table 11.13** Graft survival after first SPK transplant from a DCD

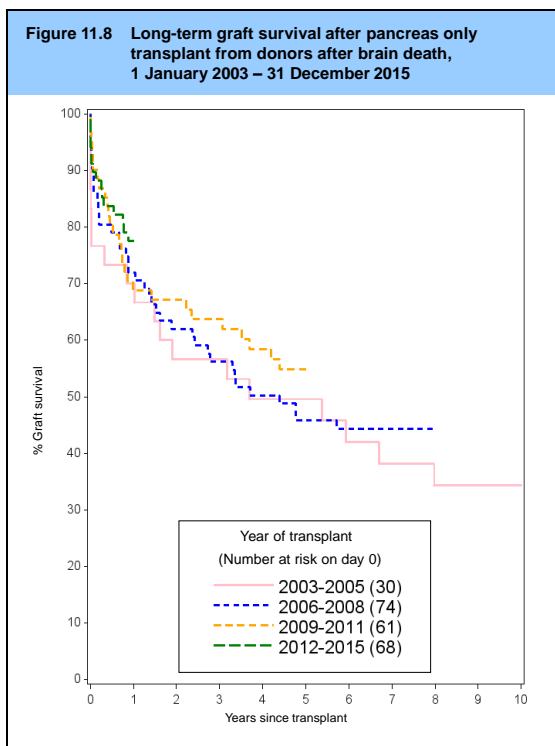
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)			
		One year	Two year	Three year	
2009-2011	75	89 (80-95)	87 (77-93)	81 (70-88)	
2012-2015	164	85 (79-90)			

**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	
2009-2011	75	99 (91-100)	94 (86-98)	94 (86-98)	
2012-2015	164	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 ( $p>0.6$  and  $p>0.2$ ).



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

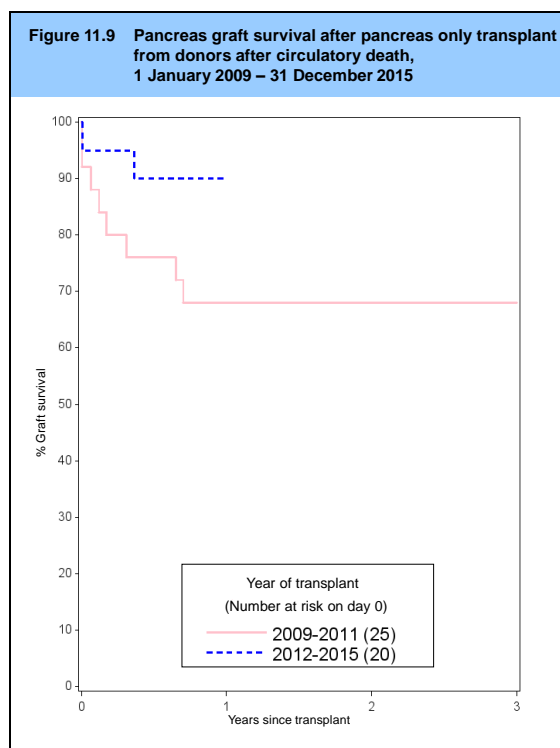
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)					
		One year	Two year	Five year	Ten year		
2003-2005	30	70 (50-83)	57 (37-72)	50 (31-66)	34 (18-52)		
2006-2008	74	72 (60-81)	62 (50-72)	46 (34-57)			
2009-2011	61	69 (56-79)	67 (54-77)	55 (41-66)			
2012-2015	68	78 (66-86)					

**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		
2003-2005	31	100 (-)	100 (-)	92 (73-98)	50 (29-68)		
2006-2008	74	94 (86-98)	91 (82-96)	86 (75-93)			
2009-2011	62	96 (85-99)	94 (83-98)	81 (66-90)			
2012-2015	68	98 (88-100)					

#### 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 circulatory death, 2009-2011 and 2012-2015. 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.



**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	
2009-2011	25	68 (46-83)	68 (46-83)	68 (46-83)	
2012-2015	20	90 (66-97)			

**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	
2009-2011	25	100 (-)	100 (-)	95 (71-99)	
2012-2015	20	95 (69-99)			



### 11.3 Cardiothoracic patient survival

#### 11.3.1 Adult heart recipients

Long-term patient survival for adult ( $\geq 16$  years) recipients after first heart only transplant is shown in **Figure 11.10**. Domino and deceased donor (DBD only) transplants are included as well as both urgent and non-urgent patients. **Table 11.19** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant for each transplant era. There was statistically significant variation in patient survival across eras at five years post-transplant ( $p=0.02$ ).

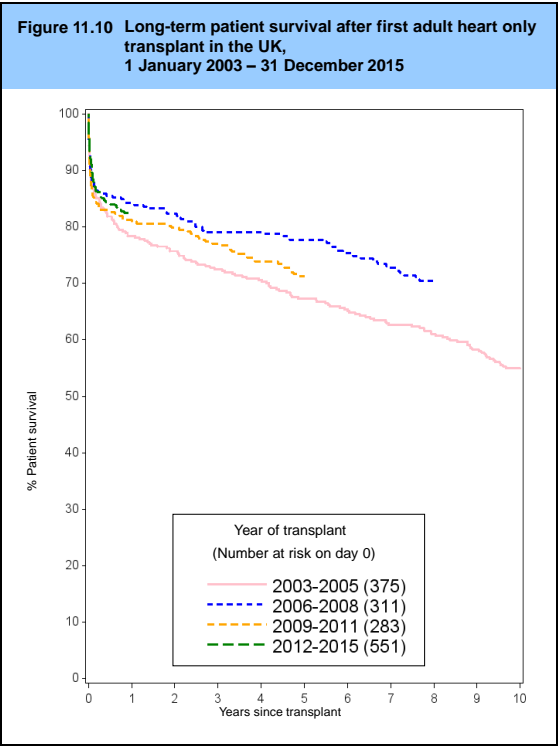


Table 11.19 Patient survival after first adult heart only transplant							
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)					
		One year	Two year	Five year	Ten year		
2003-2005	375	78 (74-82)	76 (71-80)	67 (62-72)	55 (50-60)		
2006-2008	311	84 (80-88)	82 (78-86)	78 (73-82)			
2009-2011	283	81 (76-85)	80 (75-84)	71 (66-76)			
2012-2015	551	83 (79-85)					

11.3.2 Adult heart-lung block recipients

Patient survival for adult recipients after first heart-lung block transplant is shown in **Figure 11.11**. Patient survival estimates and confidence intervals for each time period analysed are shown in **Table 11.20**. There is some variation between survival rates across transplant eras, with shorter term outcomes generally seeing an improvement, however these statistics are based on small numbers and are not statistically significantly different ( $p>0.4$ ).

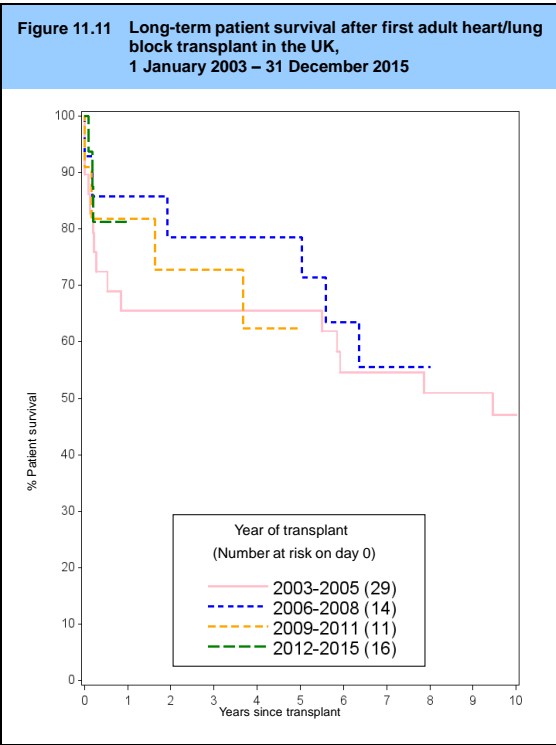


Table 11.20 Patient survival after first adult heart-lung block transplant									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2003-2005	29	66	(45-80)	66	(45-80)	66	(45-80)	47	(28-64)
2006-2008	14	86	(54-96)	79	(47-93)	79	(47-93)		
2009-2011	11	82	(45-95)	73	(37-90)	62	(28-84)		
2012-2015	16	81	(52-94)						

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 was statistically significant variation in patient survival at one year post-transplant ( $p=0.005$ ).

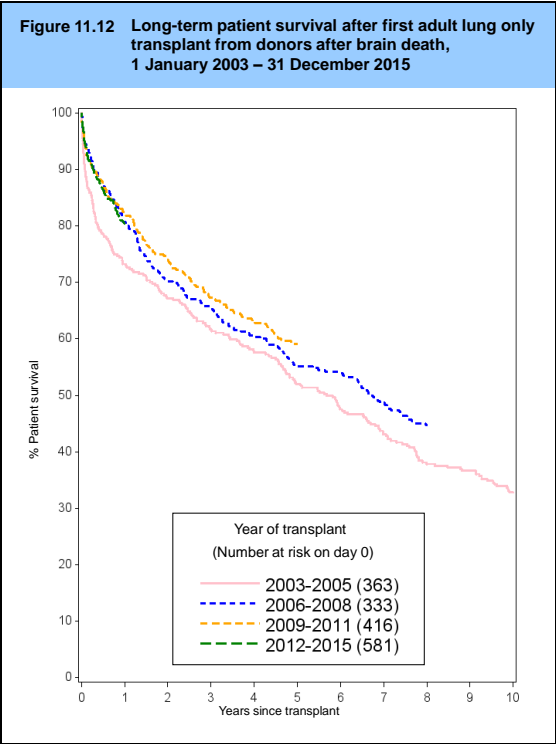


Table 11.21 Patient survival after first adult lung only transplant from a DBD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2003-2005	363	73	(68-78)	67	(62-72)	52	(47-57)	33	(28-38)
2006-2008	333	81	(76-85)	70	(65-75)	55	(49-60)		
2009-2011	416	82	(78-86)	74	(69-78)	59	(54-64)		
2012-2015	581	80	(77-83)						

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**.

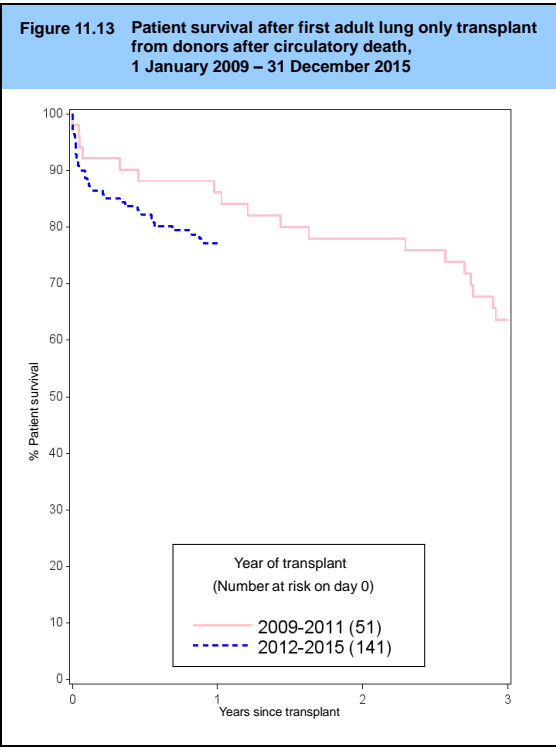


Table 11.22 Patient survival after first adult lung only transplant from a DCD						
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)				
		One year	Two year		Three year	
2009-2011	51	86 (73-93)	78	(64-87)	64	(49-75)
2012-2015	141	77 (69-83)				

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 statistically significant variation in one, two or five year survival over the time period analysed,  $p < 0.05$ . The number of heart-lung transplant recipients was too small for analysis.

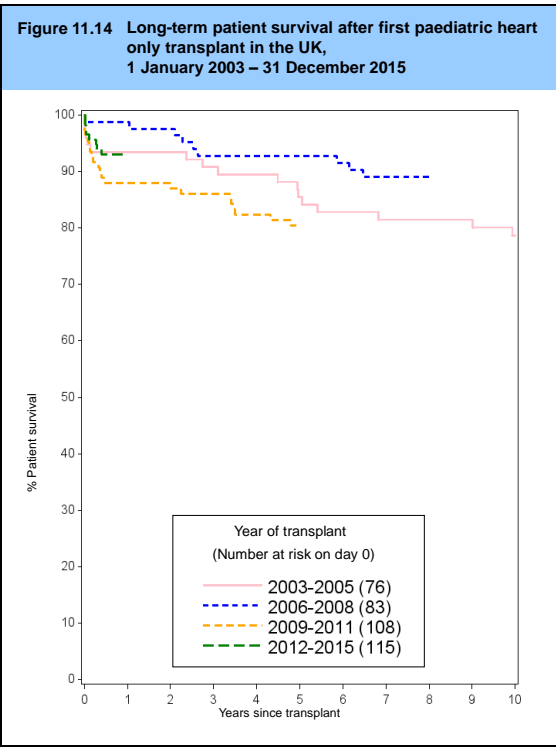


Table 11.23 Patient survival after first paediatric heart only transplant									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2003-2005	76	93	(85-97)	93	(85-97)	85	(75-92)	79	(67-86)
2006-2008	83	99	(92-100)	98	(91-99)	93	(85-97)		
2009-2011	108	88	(80-93)	87	(79-92)	80	(72-87)		
2012-2015	115	93	(87-96)						

11.3.6 Paediatric lung recipients - donors after brain death (DBD)

Long-term patient survival for paediatric recipients after first lung only transplant from donors after brain death is shown in **Figure 11.15**. **Table 11.24** 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 ( $p>0.4$ ).

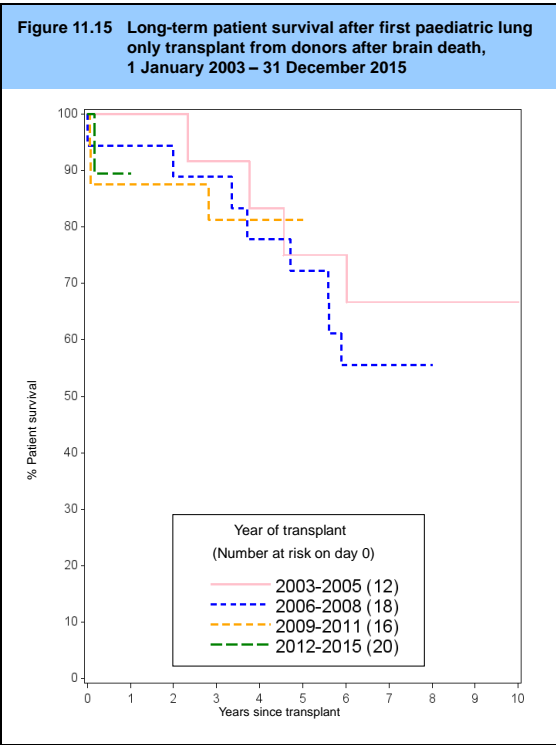


Table 11.24 Patient survival after first paediatric lung only transplant from a DBD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2003-2005	12	100	(-)	100	(-)	75	(41-91)	67	(34-86)
2006-2008	18	94	(67-99)	89	(62-97)	72	(46-87)		
2009-2011	16	88	(59-97)	88	(59-97)	81	(52-94)		
2012-2015	20	89	(64-97)						

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 11.16**. **Table 11.25** 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,  $p<0.003$  in each case, over the time periods analysed from 2003-2005 to 2012-2015.

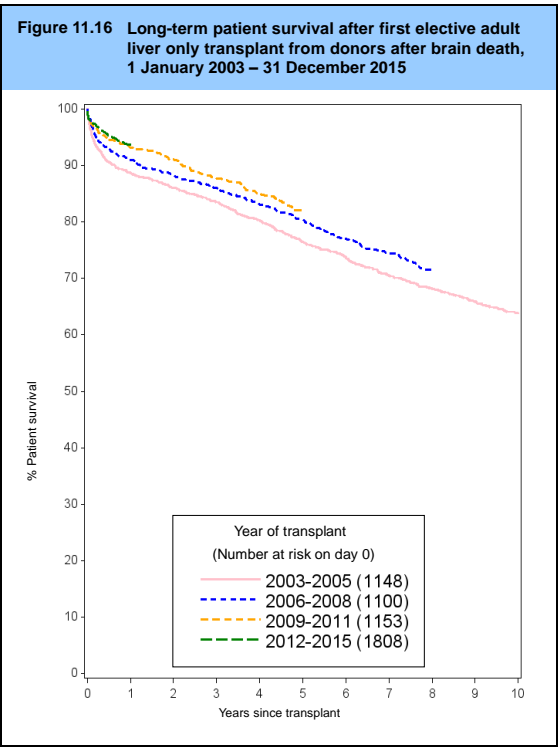


Table 11.25 Patient survival after first elective adult liver only transplant from a DBD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2003-2005	1148	89	(87-90)	86	(84-88)	76	(74-79)	64	(61-67)
2006-2008	1100	91	(89-93)	88	(86-90)	80	(78-83)		
2009-2011	1153	93	(92-95)	91	(89-93)	82	(79-84)		
2012-2015	1808	94	(92-95)						

11.4.2 Adult recipients - donor after circulatory death (DCD)

Patient survival for adult ( $\geq 17$  years) recipients after first elective liver only transplants from donors after circulatory death is shown in **Figure 11.17**. Due to small numbers prior to 2006 it is not possible to estimate long term patient survival. **Table 11.26** shows patient survival estimates at one, two and five years post-transplant.

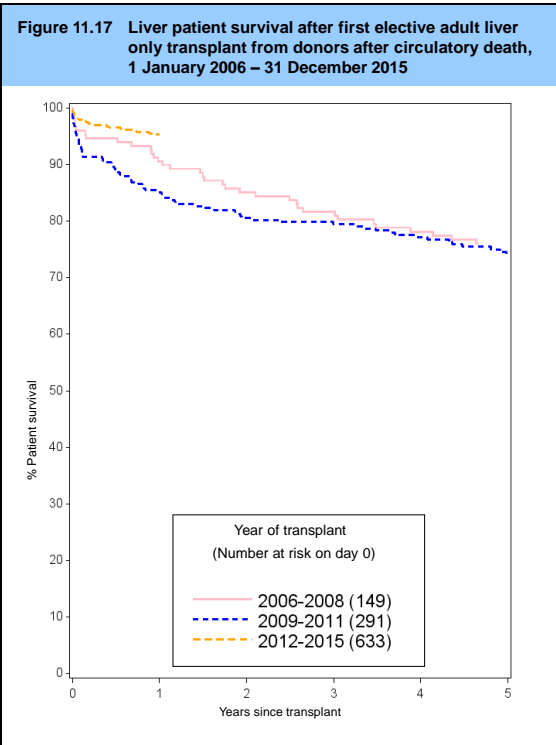


Table 11.26 Patient survival after first elective adult liver only transplant from a DCD							
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)					
		One year		Two year		Five year	
2006-2008	149	91	(85-94)	85	(78-90)	76	(68-82)
2009-2011	291	85	(80-89)	81	(75-85)	74	(68-79)
2012-2015	633	95	(93-97)				



11.4.3 Paediatric recipients - donor after brain death (DBD)

**Figure 11.18** and **Table 11.27** show long-term patient survival estimates for first elective liver only transplants from donors after brain death in paediatric (<17 years) recipients. There have been no statistically significant improvements in one, two or five year patient survival over the time period analysed ( $p>0.2$ ). The number of paediatric transplants from donors after circulatory death was too small to estimate meaningful patient survival.

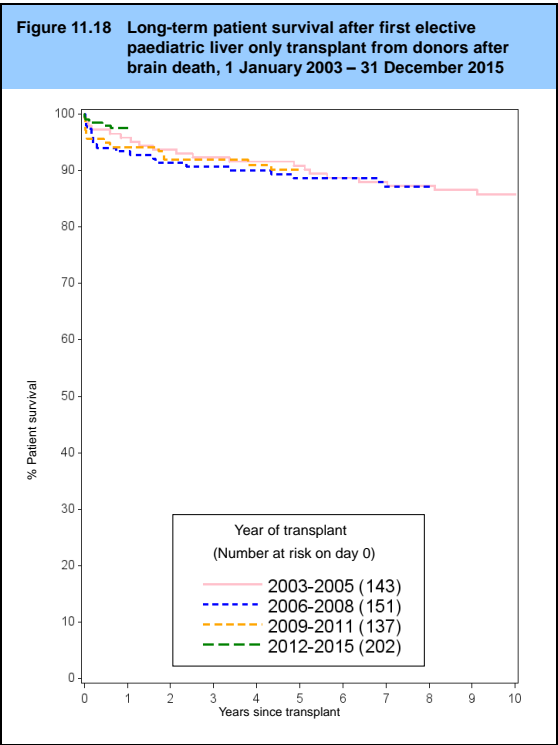


Table 11.27 Patient survival after first elective paediatric liver only transplant from a DBD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2003-2005	143	96	(91-98)	94	(88-97)	91	(85-95)	86	(79-91)
2006-2008	151	93	(88-96)	91	(86-95)	89	(82-93)		
2009-2011	137	94	(89-97)	92	(86-95)	90	(84-94)		
2012-2015	202	98	(94-99)						

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 11.19** and **Table 11.28** show one-year patient survival estimates for recipients receiving their first intestinal transplant, 2008-2011 and 2012-2015, by recipient age group (adults aged ≥ 18 years).

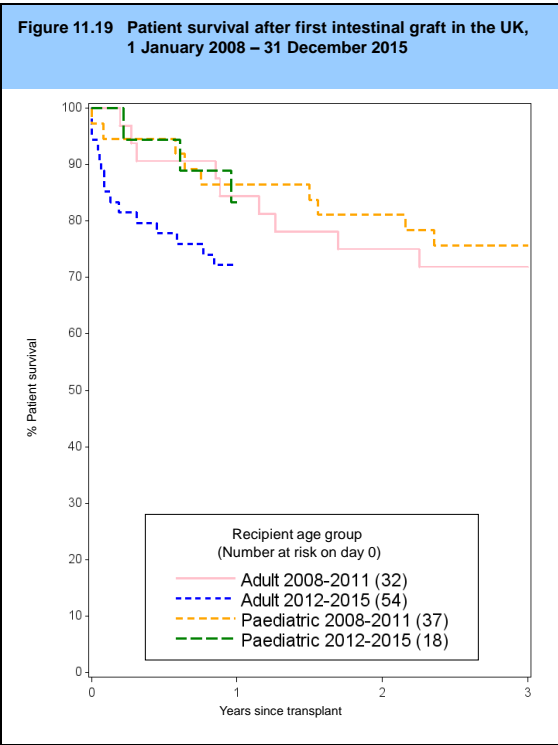


Table 11.28 Patient survival after first intestinal transplant in the UK, 1 January 2008 - 31 December 2015			
Recipient age group	No. at risk on day 0	% Patient survival (95% confidence interval) One year	
Adult			
2008-2011	32	84	(66-93)
2012-2015	54	72	(58-82)
Paediatric			
2008-2011	37	86	(71-94)
2012-2015	18	83	(57-94)

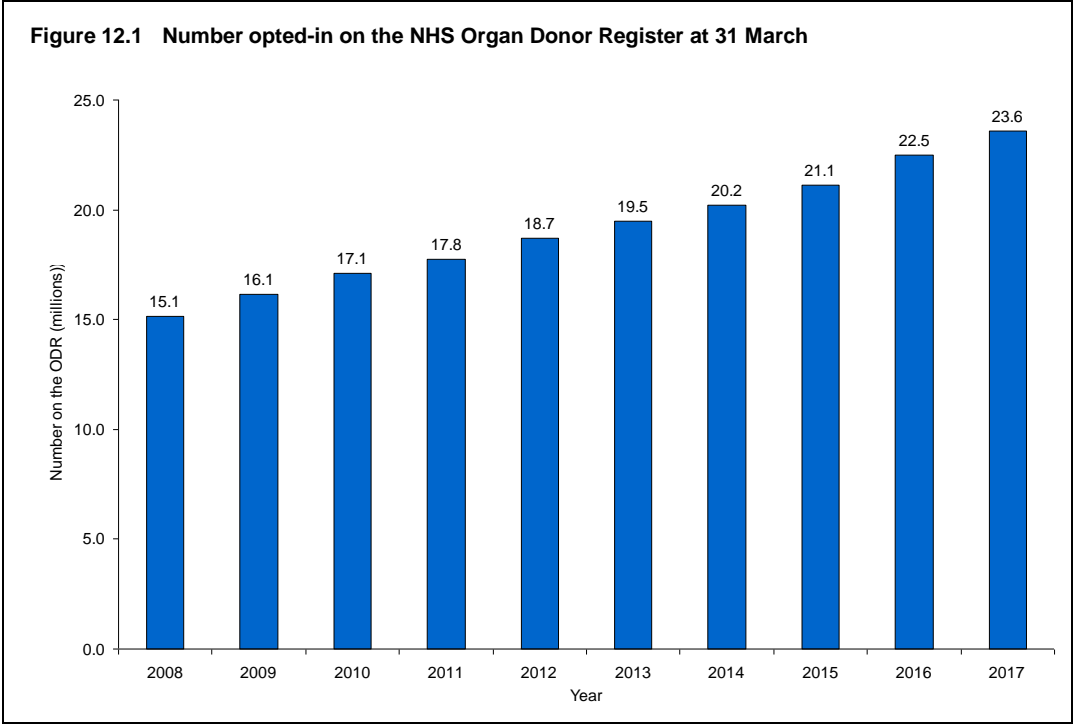
# NHS Organ Donor Register

## Key messages

- 23.6 million people on the opt-in ODR at March 2017 (36% of the population)
- 204,518 people on the opt-out ODR at March 2017, with a further 72 appointed representative registrations
- 44% of the 1,413 deceased organ donors last year were on the opt-in ODR
- 58% of 1,158,699 registrations last year were through the Driver and Vehicle Licensing Agency (DVLA).

By the end of March 2017 the NHS Organ Donor Register (ODR) held just over 23.6 million opt-in registrations. A summary of the number of registrations at the end of each financial year from 31 March 2008 to 31 March 2017 is shown **Figure 12.1**. Opt-in registrations have seen a 5.1% increase this year, compared to a 6.6% increase in the previous year.

Of the 1,413 deceased organ donors in 2016-2017, 44% were registered on the ODR compared with 43% of organ donors in 2015-2016. Similarly, 51% of cornea-only donors in 2016-2017 were registered on the ODR compared with 45% in 2015-2016.



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 2017, 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.

**Table 12.2** shows the number of opt-out registrants in each country/Strategic Health Authority at 31 March 2017. The proportion of the population registered opt-out was 6% in Wales, and less than 1% for other countries and Strategic Health Authorities. In addition there have been 72 appointed representative registrations.

Please note that a back-log of registration activity made via the UK GP Services is not accounted for in these figures. These registrations will be uploaded in due course and reflected in future reports.



**Table 12.1 Opt-in registrations<sup>1</sup> on the NHS Organ Donor Register by 31 March 2017, by country/ Strategic Health Authority**

Country/ Strategic Health Authority	N	Opt-in registrants pmp	Proportion registered
North East	920,073	351,173	35%
North West	2,425,102	338,229	34%
Yorkshire and The Humber	1,828,230	339,189	34%
<b>North of England</b>	<b>5,173,405</b>	<b>340,804</b>	<b>34%</b>
East Midlands	1,617,861	345,697	35%
West Midlands	1,715,585	298,363	30%
East of England	2,280,013	375,002	38%
<b>Midlands and East</b>	<b>5,613,459</b>	<b>340,004</b>	<b>34%</b>
<b>London</b>	<b>2,472,211</b>	<b>285,145</b>	<b>29%</b>
South East Coast	1,885,693	407,277	41%
South Central	1,712,612	396,438	40%
South West	2,396,024	438,030	44%
<b>South of England</b>	<b>5,994,329</b>	<b>415,696</b>	<b>42%</b>
<b>England</b>	<b>19,253,404</b>	<b>351,404</b>	<b>35%</b>
<b>Isle of Man</b>	<b>12,584</b>	<b>157,300</b>	<b>16%</b>
<b>Channel Islands</b>	<b>18,165</b>	<b>113,531</b>	<b>11%</b>
<b>Wales</b>	<b>1,171,300</b>	<b>377,839</b>	<b>38%</b>
<b>Scotland</b>	<b>2,388,348</b>	<b>444,758</b>	<b>44%</b>
<b>Northern Ireland</b>	<b>734,366</b>	<b>396,955</b>	<b>40%</b>
<b>TOTAL<sup>2</sup></b>	<b>23,642,565</b>	<b>361,784</b>	<b>36%</b>

<sup>1</sup> Please note that a back-log of registration activity made via the UK GP Services is not accounted for in these figures. These registrations will be uploaded in due course and reflected in future reports

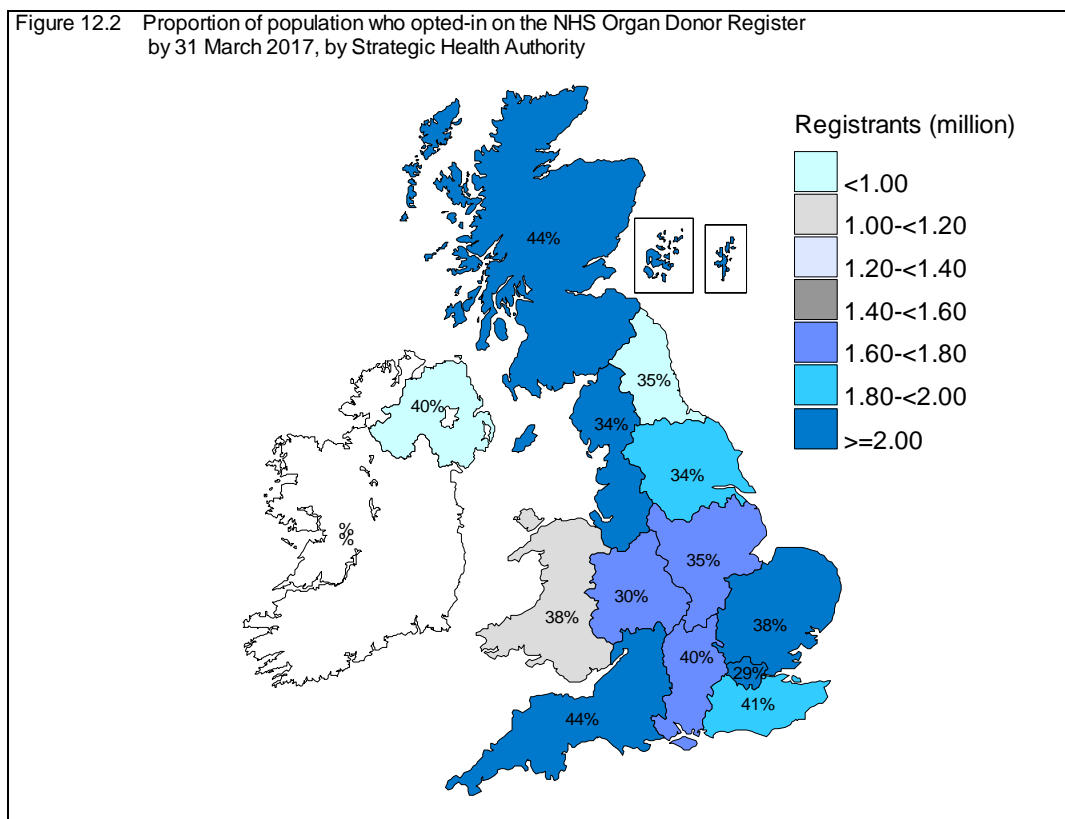
<sup>2</sup> Includes 64,398 registrants where the postcode was unknown

**Table 12.2 Opt-out registrations on the NHS Organ Donor Register by 31 March 2017, by country/ Strategic Health Authority**

Country/ Strategic Health Authority	Opt-out registrants	
	N	pmp
North East	1,047	400
North West	3,624	505
Yorkshire and The Humber	2,638	489
<b>North of England</b>	<b>7,309</b>	<b>482</b>
East Midlands	2,216	474
West Midlands	3,432	597
East of England	3,011	495
<b>Midlands and East</b>	<b>8,659</b>	<b>525</b>
<b>London</b>	<b>4,511</b>	<b>520</b>
South East Coast	2,124	459
South Central	2,121	491
South West	2,845	520
<b>South of England</b>	<b>7,090</b>	<b>492</b>
<b>England</b>	<b>27,569</b>	<b>503</b>
<b>Isle of Man</b>	<b>2</b>	<b>25</b>
<b>Channel Islands</b>	<b>7</b>	<b>44</b>
<b>Wales</b>	<b>174,806</b>	<b>56,389</b>
<b>Scotland</b>	<b>1,834</b>	<b>342</b>
<b>Northern Ireland</b>	<b>205</b>	<b>111</b>
<b>TOTAL<sup>1</sup></b>	<b>204,518</b>	<b>3,130</b>

<sup>1</sup> Includes 95 registrants where the postcode was unknown

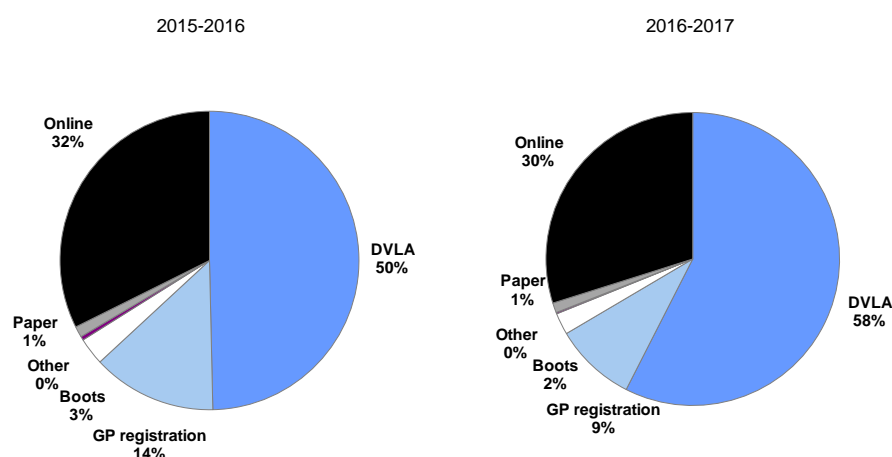
Figure 12.2 Proportion of population who opted-in on the NHS Organ Donor Register by 31 March 2017, by Strategic Health Authority



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](http://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 9% of registrations in 2016-2017 arrived by means of registering through a GP, 58% from driving licence applications and reminders through the DVLA and 30% online through the ODT website.

**Figure 12.3 Source of applications for opt-in registration<sup>1</sup> on the NHS Organ Donor Register, 1 April 2015 - 31 March 2017**



<sup>1</sup> Please note that a back-log of registration activity made via the UK GP Services is not accounted for in these figures. These registrations will be uploaded in due course and reflected in future reports

At the end of March 2017, 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 (90%) 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 2017 to donate different organs<sup>1</sup>**

**Registrants prepared to donate all organs 88%**

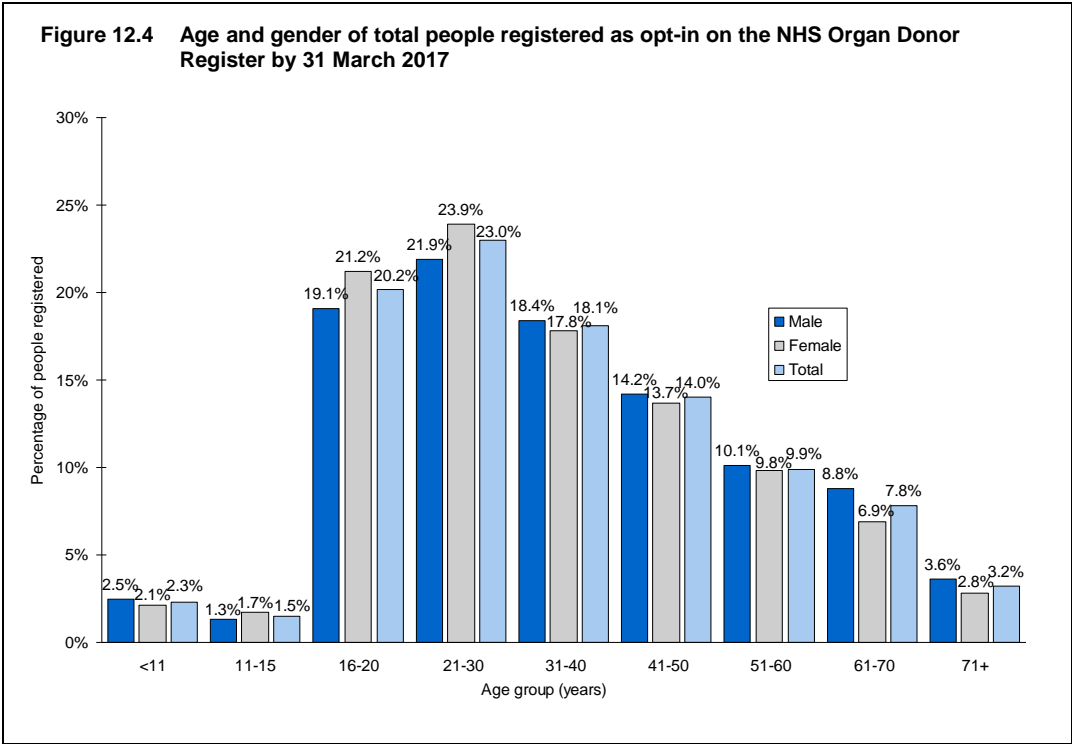
**Of those not prepared to donate all organs ('restricted donors'):**

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	90	10.7

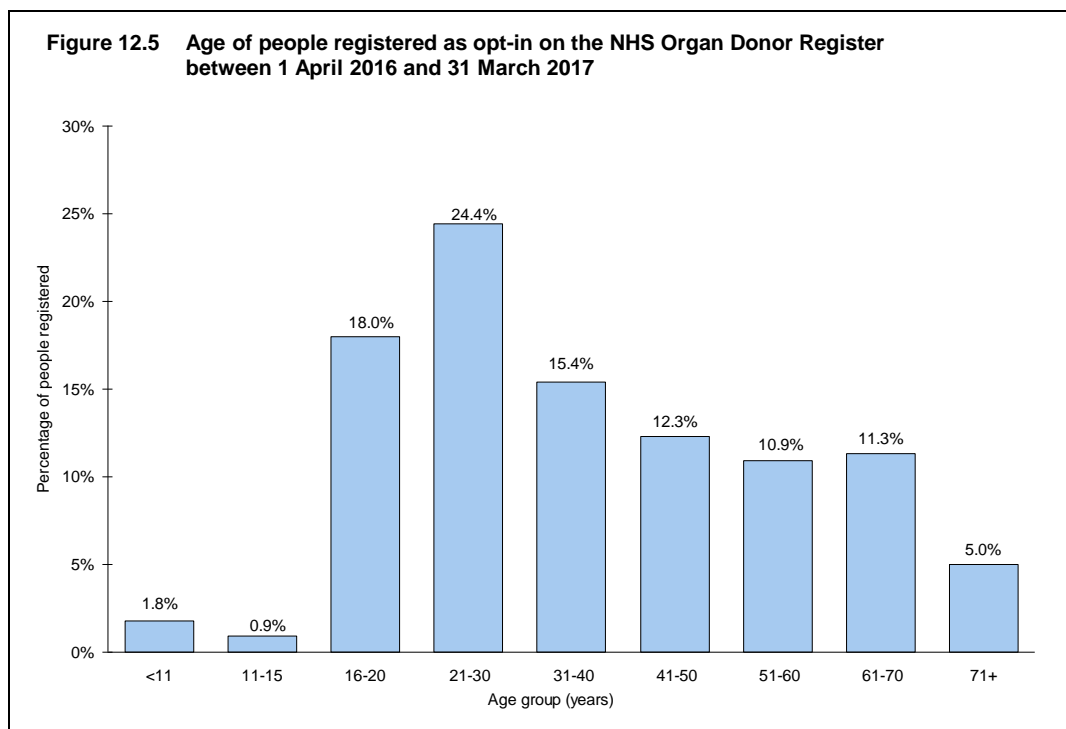
<sup>1</sup> This information was not available for approximately 4% of the total register



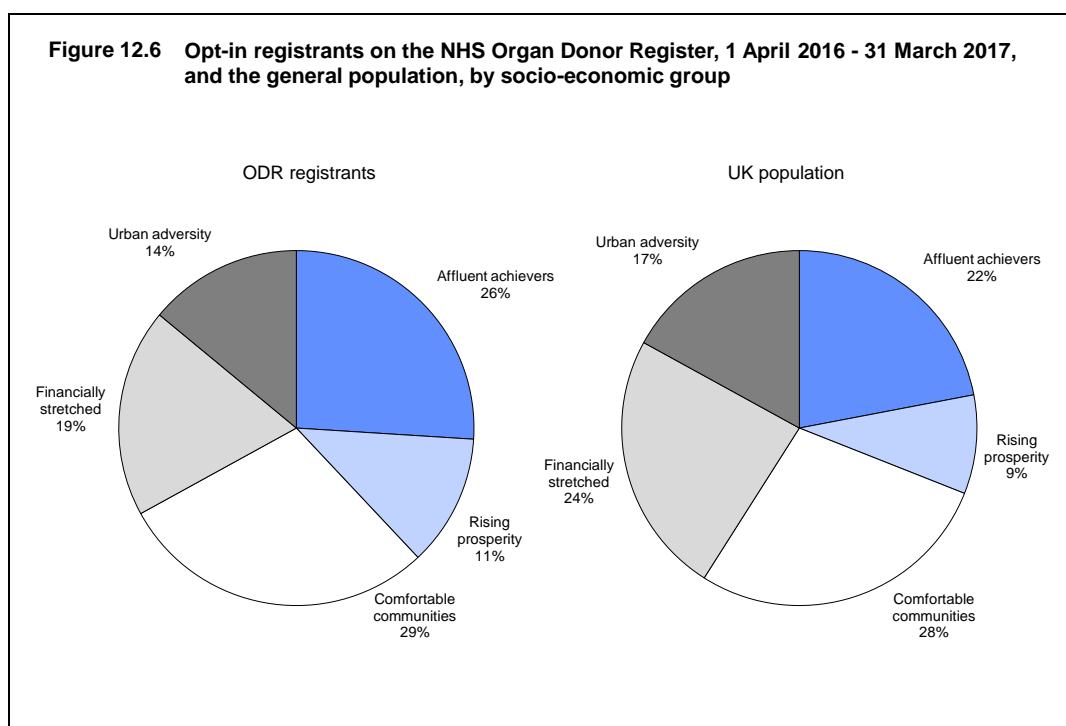
People of all ages are eligible for organ donor registration: the distribution of age by sex at time of opt-in registration is shown in **Figure 12.4**. The highest proportion of registrations (21.9% of males and 23.9% of females) are in the 21-30 years age group. The lowest proportions are in the under 11 and 11-15 age groups. Of all people registered on the NHS Organ Donor Register, 46% are male and 54% are female (<1% unknown).



Additionally, the distribution of age of people registering on the opt-in ODR during the latest financial year, 2016-2017, is shown in **Figure 12.5**. The highest proportion of registrations in this year were in the 21-30 years age group. Of the registrants in 2016-2017, 47% were male and 53% were female.



The breakdown of opt-in registrants on the ODR during 2016-2017 by socio-economic group (using the ACORN<sup>1</sup> 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' or 'financially stretched' on the ODR than in the general population.



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

# National Potential Donor Audit

## Key messages

- There were 34,369 audited deaths reported through the Potential Donor Audit in the financial year to 31 March 2017, including 1,384 (98%) of the 1,413 deceased organ donors.
- Improvements have been observed in the overall referral rate of potential donors (from 86% to 88%), in the proportion of approaches involving a Specialist Nurse – Organ Donation (from 83% to 86%), and in the overall consent/authorisation rate (from 62% to 63%).
- The consent/authorisation rate was 91% when a patient's decision was known at the time of potential donation, but 100 families overruled their loved one's known decision to be an organ donor.
- A significant difference is still apparent in the consent/authorisation rates for white patients and patients from minority ethnic groups (66% and 35% respectively).

## 13.1 Introduction

In this chapter, summary data from the National Potential Donor Audit (PDA) are shown for 1 April 2016 to 31 March 2017 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 ICU data are included however neonatal ICU data have been excluded. The data are based on information received by 8 May 2017. **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](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 proportion of approaches involving a SN-OD** is the percentage of eligible donor families or appointed/nominated representatives approached where a SN-OD was involved.

**Deemed consent** applies if a person has not registered an organ donation decision either to 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 or appointed/nominated representatives approached for formal organ donation discussion where consent/authorisation was ascertained.

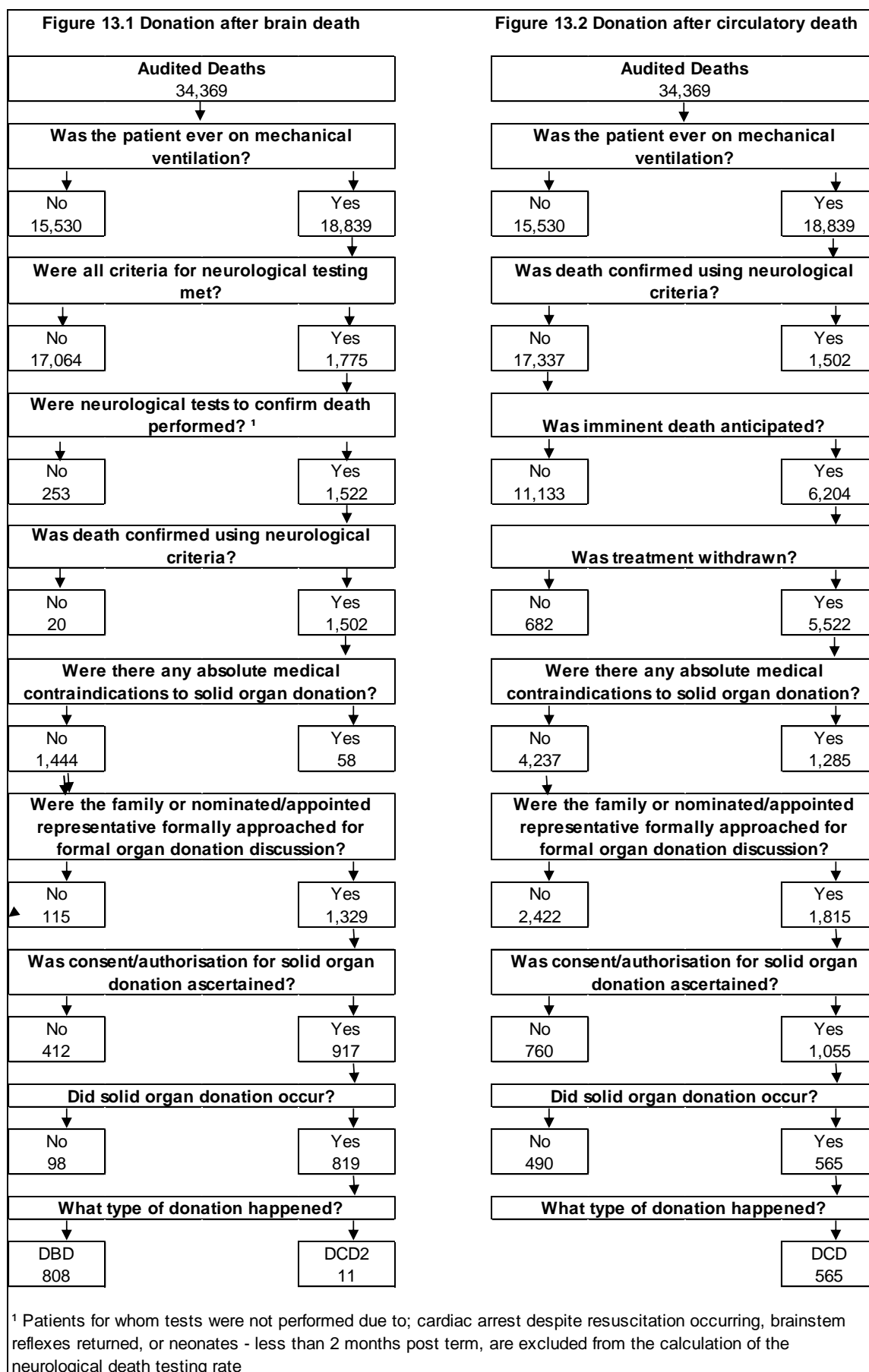
### 13.3 Breakdown of audited deaths in ICUs and emergency departments

In the 12-month period there were a total of 34,369 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 there were 1384 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 families were approached. Similarly, a known decision override is a case where the family overruled their loved one's known decision to donate and includes decisions registered on the ODR, those expressed via carrying a donor card, verbally, in a will, or via an appointed/nominated 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 deemed consent.

**Figure 13.3** uses the flow chart information to illustrate the stages where opportunities are lost pre-donation. Current practice within DCD donation has led to a significant proportion of DCD patients dropping out of the donation process prior to the approach stage; this is because eligible donors are screened out due to medical unsuitability and therefore families or nominated/appointed representatives are not approached for a formal organ donation discussion.



**Table 13.1 Summary of key percentages, 1 April 2016 to 31 March 2017**

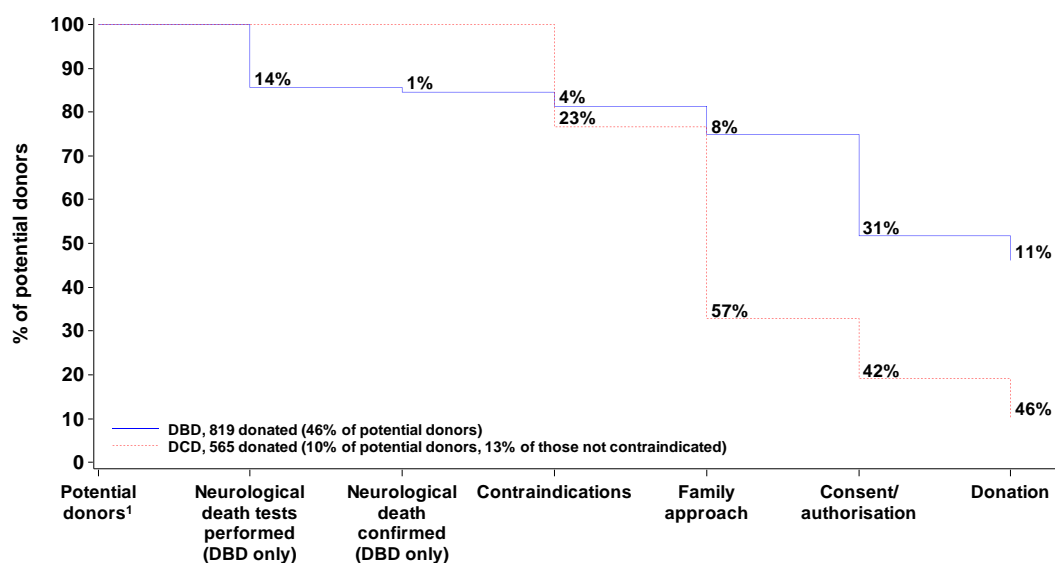
	DBD	DCD	ALL
Neurological death testing rate	85.7%		
Referral rate	97.4%	85.6%	88.2%
Proportion of approaches involving a SN-OD	93.0%	80.4%	85.8%
Consent/authorisation rate	69.0%	58.1%	62.7%
- when SN-OD not involved in approach	38.7%	24.5%	27.5%
- when SN-OD involved in approach	71.3%	66.3%	68.6%
- when patient had not expressed a wish to donate or the patient's ODR status was not known at the time of potential donation	54.1%	41.5%	46.7%
- when patient's wish on ODR and known at time of potential donation*	93.7%	88.0%	90.5%
- when patient's wish (by any method) is known at time of potential donation**	94.0%	89.0%	91.2%
- when SN-OD involved in approach and patient known to be on ODR at time of potential donation	94.3%	91.3%	92.6%
- when deemed consent applied***	66.7%	57.1%	60.6%

\*89 families overruled their loved one's known ODR decision to be an organ donor

\*\* 100 families overruled their loved one's known decision (by any method) to be an organ donor

\*\*\* 13 families did not support deemed consent (of 33 cases where deemed consent applied)

**Figure 13.3 Stages at which potential organ donors lose the opportunity to become actual donors, 1 April 2016 to 31 March 2017**



<sup>1</sup> 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 13.2 pmp in East of England SHA to 35.1 pmp in North East SHA. Eligible DCD ranged from 47.7 pmp in South West SHA to 110.3 pmp in North East SHA. Across the countries, there was a range of 72.8 eligible donors pmp in Scotland to 98.4 eligible donors pmp in Wales. Overall, there were 1,444 eligible DBD (22.1 pmp) and 4,237 eligible DCD (64.8 pmp) in the UK, resulting in a total of 86.9 eligible donors per million population.

**Tables 13.3** and **13.4** show more detailed information by country/SHA for DBD and DCD data, respectively.

<b>Table 13.2 Eligible donor rates per million population (pmp), in the UK, 1 April 2016 to 31 March 2017, by country and Strategic Health Authority</b>						
<b>Country/ Strategic Health Authority of donation</b>	<b>Eligible DBD</b>		<b>Eligible DCD</b>		<b>TOTAL</b>	
	<b>N</b>	<b>(pmp)</b>	<b>N</b>	<b>(pmp)</b>	<b>N</b>	<b>(pmp)</b>
North East	92	(35.1)	289	(110.3)	<b>381</b>	<b>(145.4)</b>
North West	170	(23.7)	657	(91.6)	<b>827</b>	<b>(115.3)</b>
Yorkshire and the Humber	105	(19.5)	304	(56.4)	<b>409</b>	<b>(75.9)</b>
<b>North of England</b>	<b>367</b>	<b>(24.2)</b>	<b>1250</b>	<b>(82.3)</b>	<b>1617</b>	<b>(106.5)</b>
East Midlands	64	(13.7)	252	(53.8)	<b>316</b>	<b>(67.5)</b>
West Midlands	109	(19.0)	397	(69.0)	<b>506</b>	<b>(88.0)</b>
East of England	80	(13.2)	429	(70.6)	<b>509</b>	<b>(83.7)</b>
<b>Midlands and East</b>	<b>253</b>	<b>(15.3)</b>	<b>1078</b>	<b>(65.3)</b>	<b>1331</b>	<b>(80.6)</b>
<b>London</b>	<b>297</b>	<b>(34.3)</b>	<b>464</b>	<b>(53.5)</b>	<b>761</b>	<b>(87.8)</b>
South East Coast	102	(22.0)	276	(59.6)	<b>378</b>	<b>(81.6)</b>
South Central	83	(19.2)	279	(64.6)	<b>362</b>	<b>(83.8)</b>
South West	112	(20.5)	261	(47.7)	<b>373</b>	<b>(68.2)</b>
<b>South of England</b>	<b>297</b>	<b>(20.6)</b>	<b>816</b>	<b>(56.6)</b>	<b>1113</b>	<b>(77.2)</b>
<b>England</b>	<b>1214</b>	<b>(22.2)</b>	<b>3608</b>	<b>(65.9)</b>	<b>4822</b>	<b>(88.0)</b>
<b>Isle of Man</b>	<b>2</b>	<b>(25.0)</b>	<b>2</b>	<b>(25.0)</b>	<b>4</b>	<b>(50.0)</b>
<b>Channel Islands</b>	<b>3</b>	<b>(18.8)</b>	<b>4</b>	<b>(25.0)</b>	<b>7</b>	<b>(43.8)</b>
<b>Wales</b>	<b>54</b>	<b>(17.4)</b>	<b>251</b>	<b>(81.0)</b>	<b>305</b>	<b>(98.4)</b>
<b>Scotland</b>	<b>118</b>	<b>(22.0)</b>	<b>273</b>	<b>(50.8)</b>	<b>391</b>	<b>(72.8)</b>
<b>Northern Ireland</b>	<b>53</b>	<b>(28.6)</b>	<b>99</b>	<b>(53.5)</b>	<b>152</b>	<b>(82.2)</b>
<b>TOTAL</b>	<b>1444</b>	<b>(22.1)</b>	<b>4237</b>	<b>(64.8)</b>	<b>5681</b>	<b>(86.9)</b>



Table 13.3 DBD key metrics from the Potential Donor Audit, 1 April 2016 to 31 March 2017, by country and former English Strategic Health Authority						
Country/ Strategic Health Authority of donation	Number of patients where neurological death was suspected	Neurological death testing rate (%)	DBD referral rate (%)	Number of eligible DBD donors whose family were approached	Percentage of DBD approaches that involved a SN-OD (%)	DBD consent/ authorisation rate (%)
North East	98	95.9	100.0	89	96.6	62.9
North West	228	80.7	98.7	163	98.8	66.9
Yorkshire and the Humber	124	88.7	100.0	96	92.7	66.7
<b>North of England</b>	<b>450</b>	<b>86.2</b>	<b>99.3</b>	<b>348</b>	<b>96.6</b>	<b>65.8</b>
East Midlands	83	78.3	95.2	54	88.9	66.7
West Midlands	150	79.3	93.3	98	89.8	72.4
East of England	108	74.1	97.2	78	91.0	78.2
<b>Midlands and East</b>	<b>341</b>	<b>77.4</b>	<b>95.0</b>	<b>230</b>	<b>90.0</b>	<b>73.0</b>
<b>London</b>	<b>357</b>	<b>90.2</b>	<b>97.2</b>	<b>264</b>	<b>94.7</b>	<b>58.7</b>
South East Coast	130	81.5	96.2	93	86.0	71.0
South Central	101	88.1	99.0	80	91.3	70.0
South West	129	90.7	99.2	99	92.9	77.8
<b>South of England</b>	<b>360</b>	<b>86.7</b>	<b>98.1</b>	<b>272</b>	<b>90.1</b>	<b>73.2</b>
<b>England</b>	<b>1508</b>	<b>85.3</b>	<b>97.5</b>	<b>1114</b>	<b>93.2</b>	<b>67.4</b>
Isle of Man	2	100.0	100.0	2	50.0	100.0
Channel Islands	3	100.0	100.0	3	100.0	100.0
<b>Wales</b>	<b>62</b>	<b>88.7</b>	<b>98.4</b>	<b>50</b>	<b>96.0</b>	<b>78.0</b>
<b>Scotland</b>	<b>136</b>	<b>89.7</b>	<b>93.4</b>	<b>111</b>	<b>90.1</b>	<b>78.4</b>
<b>Northern Ireland</b>	<b>64</b>	<b>84.4</b>	<b>100.0</b>	<b>49</b>	<b>93.9</b>	<b>71.4</b>
<b>TOTAL</b>	<b>1775</b>	<b>85.7</b>	<b>97.4</b>	<b>1329</b>	<b>93.0</b>	<b>69.0</b>

**Table 13.4 DCD key metrics from the Potential Donor Audit, 1 April 2016 to 31 March 2017, by country and former English Strategic Health Authority**

Country/ Strategic Health Authority of donation	Number of patients for whom imminent death was anticipated	DCD referral rate (%)	Number of eligible DCD donors whose family were approached	Percentage of DCD approaches that involved a SN-OD (%)	DCD consent/ authorisation rate (%)
North East	384	94.0	83	83.1	63.9
North West	924	84.2	239	85.8	58.2
Yorkshire and the Humber	596	89.4	134	83.6	56.0
<b>North of England</b>	<b>1904</b>	<b>87.8</b>	<b>456</b>	<b>84.6</b>	<b>58.6</b>
East Midlands	335	82.1	125	72.0	53.6
West Midlands	550	80.5	173	73.4	53.2
East of England	632	83.5	185	80.5	60.5
<b>Midlands and East</b>	<b>1517</b>	<b>82.1</b>	<b>483</b>	<b>75.8</b>	<b>56.1</b>
<b>London</b>	<b>727</b>	<b>88.9</b>	<b>215</b>	<b>86.5</b>	<b>58.1</b>
South East Coast	404	89.1	119	85.7	72.3
South Central	386	81.9	124	75.8	54.8
South West	379	90.2	127	84.3	63.0
<b>South of England</b>	<b>1169</b>	<b>87.1</b>	<b>370</b>	<b>81.9</b>	<b>63.2</b>
<b>England</b>	<b>5317</b>	<b>86.2</b>	<b>1524</b>	<b>81.4</b>	<b>58.9</b>
Isle of Man	5	100.0	1	100.0	100.0
Channel Islands	7	71.4	3	100.0	66.7
<b>Wales</b>	<b>357</b>	<b>87.4</b>	<b>91</b>	<b>83.5</b>	<b>56.0</b>
<b>Scotland</b>	<b>313</b>	<b>81.2</b>	<b>158</b>	<b>66.5</b>	<b>52.5</b>
<b>Northern Ireland</b>	<b>205</b>	<b>73.2</b>	<b>38</b>	<b>89.5</b>	<b>55.3</b>
<b>TOTAL</b>	<b>6204</b>	<b>85.6</b>	<b>1815</b>	<b>80.4</b>	<b>58.1</b>

**Tables 13.5** and **13.6** show more detailed information on the key metrics by Organ Donation Services Team (ODST) for DBD and DCD data, respectively. Specialist Nurses 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 Northern, Northern Ireland and Yorkshire teams had 100% DBD referral rates. The proportion of DBD approaches involving a SN-OD was highest for the North West team and DBD consent/authorisation was highest in Scotland.

<b>Table 13.5 DBD key metrics from the Potential Donor Audit, 1 April 2016 to 31 March 2017, by Organ Donation Services Team (ODST)</b>						
<b>ODST</b>	<b>Number of patients where neurological death was suspected</b>	<b>Neurological death testing rate (%)</b>	<b>DBD referral rate (%)</b>	<b>Number of eligible DBD donors whose family were approached</b>	<b>Percentage of DBD approaches that involved a SN-OD (%)</b>	<b>DBD consent/authorisation rate (%)</b>
Eastern	112	75.0	97.3	81	91.4	77.8
London	284	90.8	97.5	206	94.7	58.7
Midlands	205	77.6	93.2	134	88.8	68.7
North West	238	81.5	98.7	173	97.7	68.8
Northern	103	95.1	100.0	93	96.8	63.4
Northern Ireland	64	84.4	100.0	49	93.9	71.4
Scotland	136	89.7	93.4	111	90.1	78.4
South Central	130	87.7	99.2	104	93.3	71.2
South East	206	84.0	96.1	154	89.6	66.9
South Wales	55	89.1	98.2	41	95.1	75.6
South West	109	90.8	99.1	82	91.5	78.0
Yorkshire	133	88.7	100.0	101	93.1	68.3
<b>TOTAL</b>	<b>1775</b>	<b>85.7</b>	<b>97.4</b>	<b>1329</b>	<b>93.0</b>	<b>69.0</b>

**Table 13.6** indicates that for DCD patients, the highest referral rate was for the Northern team. The proportion of DCD approaches involving a SN-OD was highest for the South Wales team. The DCD consent/authorisation rate was highest in the Northern team. No account has been taken of the demographics of the populations within the teams which may impact on the rates presented.

**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 whose family were approached	Percentage of DCD approaches that involved a SN-OD (%)	DCD consent/authorisation rate (%)
Eastern	666	90.5	220	82.3	58.6
London	631	88.9	175	81.1	51.4
Midlands	879	72.6	274	72.3	52.9
North West	806	82.0	218	84.4	59.2
Northern	446	92.8	126	74.6	64.3
Northern Ireland	250	81.2	68	82.4	55.9
Scotland	350	83.1	169	65.1	49.7
South Central	533	73.4	141	75.2	60.3
South East	653	84.1	195	81.5	60.5
South Wales	275	87.3	85	87.1	54.1
South West	361	80.9	128	68.8	62.5
Yorkshire	652	85.3	142	83.8	61.3
<b>TOTAL</b>	<b>6502</b>	<b>83.0</b>	<b>1941</b>	<b>77.8</b>	<b>57.3</b>

**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 111 paediatric patients for whom neurological death was suspected, tests were not performed on 36 patients.

**Table 13.7 DBD and DCD key metrics from the Potential Donor Audit, 1 April 2016 to 31 March 2017, 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 <sup>1</sup>	Neurological death testing rate (%)	Number of eligible donors whose family were approached	Percentage of approaches involving a SN-OD (%)	Consent/authorisation rate (%)	Number of actual donors <sup>2</sup>
DBD	Critical care	1566	87.8	1202	92.9	68.1	732
	Emergency dept.	162	83.3	125	95.2	78.4	87
	<b>TOTAL</b>	<b>1728</b>	<b>87.4</b>	<b>1327</b>	<b>93.1</b>	<b>69.1</b>	<b>819</b>
DCD	Critical care	5011		1619	82.2	59.4	513
	Emergency dept.	297		157	82.2	59.9	52
	<b>TOTAL</b>	<b>5308</b>		<b>1776</b>	<b>82.2</b>	<b>59.4</b>	<b>565</b>

<sup>1</sup> DBD referral criteria: patients where neurological death was suspected; DCD referral criteria: patients for whom imminent death was anticipated

<sup>2</sup> Actual donors resulting from eligible DBD donors includes 11 DCD donors referred from critical care and 0 DCD donors referred from emergency departments

**Table 13.8 DBD and DCD key metrics from the Potential Donor Audit, 1 April 2016 to 31 March 2017, by age group**

Eligible donor type	Age group	Number of patients who met referral criteria <sup>1</sup>	Neurological death testing rate (%)	Referral rate (%)	Number of eligible donors whose family were approached	Percentage of approaches involving a SN-OD (%)	Consent/authorisation rate (%)	Number of actual donors <sup>2</sup>
DBD	Adult (>=18)	1664	86.7	97.9	1266	93.6	69.2	782
	Paediatric (<18)	111	72.1	89.2	63	81.0	65.1	37
	<b>TOTAL</b>	<b>1775</b>	<b>85.7</b>	<b>97.4</b>	<b>1329</b>	<b>93.0</b>	<b>69.0</b>	<b>819</b>
DCD	Adult (>=18)	5990		85.9	1747	80.9	59.3	553
	Paediatric (<18)	214		75.7	68	67.6	27.9	12
	<b>TOTAL</b>	<b>6204</b>		<b>85.6</b>	<b>1815</b>	<b>80.4</b>	<b>58.1</b>	<b>565</b>

<sup>1</sup> DBD referral criteria: patients where neurological death was suspected; DCD referral criteria: patients for whom imminent death was anticipated

<sup>2</sup> Actual donors resulting from eligible DBD donors includes 2 DCD donors under 18 and 9 DCD donors aged 18 and over

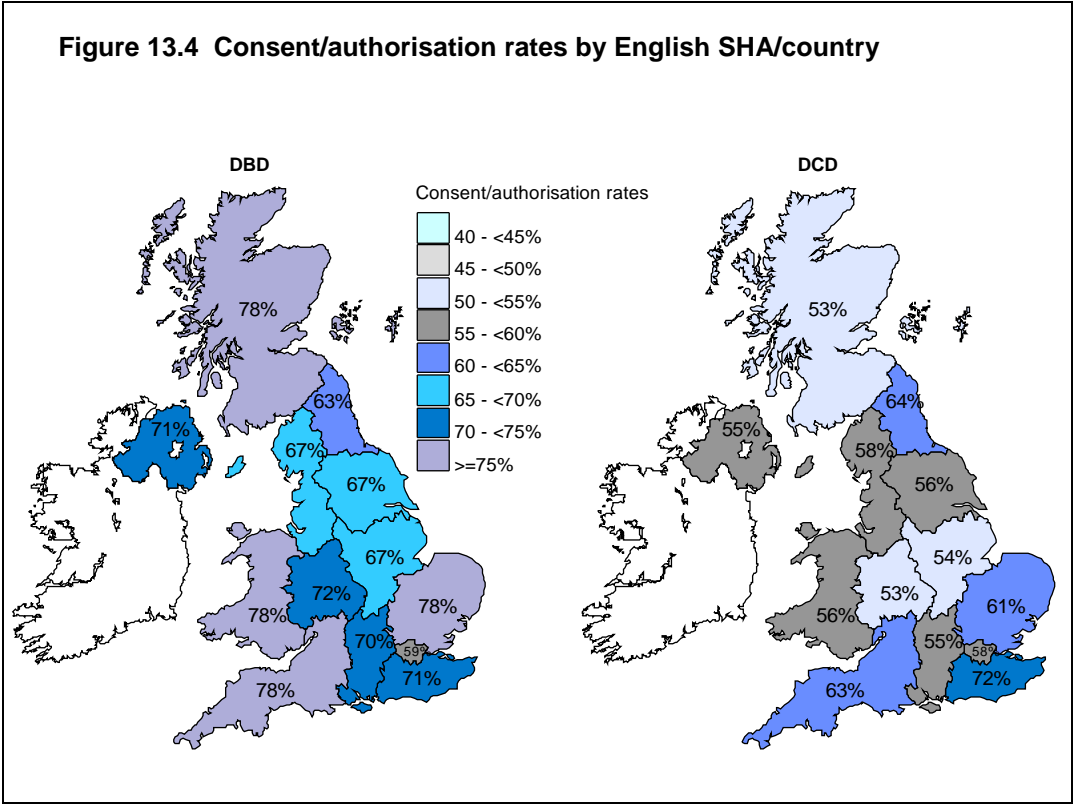
13.5 Consent/ authorisation rates

The overall DBD consent/authorisation rate was 69% and the 95% confidence limits for this percentage are 67% - 72%. For DCD, the overall rate was 58% and the 95% confidence limits are 56% - 60%.

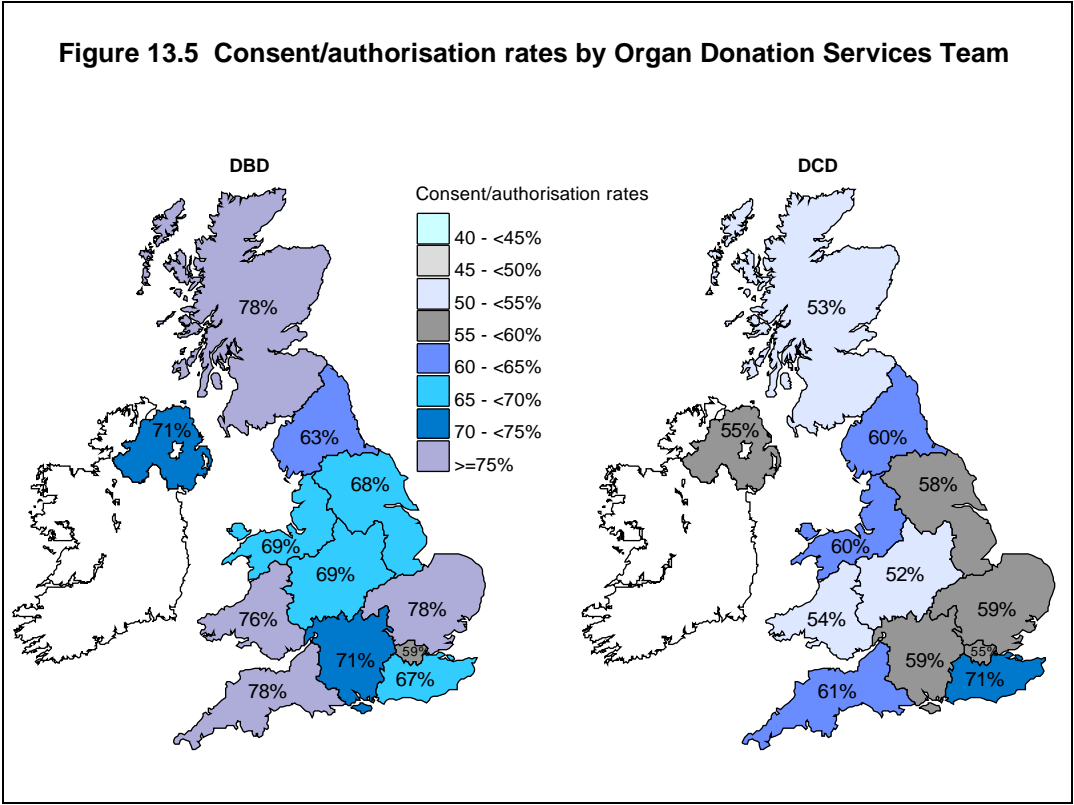
Consent/authorisation rates by country/Strategic Health Authority are illustrated in **Figure 13.4** and by Organ Donation Services Team in **Figure 13.5** for both DBD and DCD. Caution should be applied when interpreting these consent/authorisation rates as no adjustment has been made for the mix of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

Across the countries and SHAs, the DBD consent/authorisation rates range from 59% in London to 78% in several areas. DCD consent/authorisation rates range from 53% in Scotland and the West Midlands to 72% in South East Coast.

The overall consent/authorisation rates (combining DBD and DCD) for England, Wales, Scotland and Northern Ireland were 63%, 64%, 63% and 64%, respectively.



Across the Organ Donation Services Teams, the DBD consent/authorisation rates range from 59% in the London team to 78% in the Eastern, Scotland, and South West teams. DCD consent/authorisation rates range from 52% in the Midlands team to 71% in the South East 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 34%, respectively. A smaller, but still significant, difference was observed for DCD consent/authorisation rates: 61% and 37%, respectively. Note that there were an additional 35 DBD and 67 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 formal organ donation discussion, with Northern Ireland at less than 1%, whereas London accounted for 37%. 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.

<b>Table 13.9 DBD and DCD consent/authorisation rates from the Potential Donor Audit, 1 April 2016 to 31 March 2017, by Organ Donation Services Team (ODST) and ethnicity</b>											
<b>ODST</b>	<b>White eligible donors</b>					<b>Eligible donors from ethnic minority groups</b>					<b>All</b>
	<b>Number of eligible DBD donors whose family were approached</b>	<b>DBD consent/authorisation rate (%)</b>	<b>Number of eligible DCD donors whose family were approached</b>	<b>DCD consent/authorisation rate (%)</b>	<b>Overall consent/authorisation rate (%)</b>	<b>Number of eligible DBD donors whose family were approached</b>	<b>DBD consent/authorisation rate (%)</b>	<b>Number of eligible DCD donors whose family were approached</b>	<b>DCD consent/authorisation rate (%)</b>	<b>Overall consent/authorisation rate (%)</b>	<b>Overall consent/authorisation rate (%)<sup>1</sup></b>
Eastern	73	83.6	177	62.7	<b>68.8</b>	6	16.7	6	16.7	<b>16.7</b>	<b>64.8</b>
London	135	71.9	122	59.0	<b>65.8</b>	70	32.9	40	47.5	<b>38.2</b>	<b>57.0</b>
Midlands	103	76.7	244	54.5	<b>61.1</b>	27	37.0	20	25.0	<b>31.9</b>	<b>57.3</b>
North West	148	73.6	226	60.6	<b>65.8</b>	22	36.4	5	40.0	<b>37.0</b>	<b>63.7</b>
Northern	88	62.5	89	64.0	<b>63.3</b>	3	66.7	3	33.3	<b>50.0</b>	<b>61.9</b>
Northern Ireland	47	70.2	37	56.8	<b>64.3</b>	0		1	0.0	<b>0.0</b>	<b>64.4</b>
Scotland	101	77.2	151	53.6	<b>63.1</b>	1	0.0	3	33.3	<b>25.0</b>	<b>63.2</b>
South Central	91	74.7	130	62.3	<b>67.4</b>	12	41.7	10	40.0	<b>40.9</b>	<b>64.1</b>
South East	119	73.1	153	73.9	<b>73.5</b>	32	40.6	13	30.8	<b>37.8</b>	<b>69.2</b>
South Wales	39	76.9	68	58.8	<b>65.4</b>	0		3	66.7	<b>66.7</b>	<b>61.5</b>
South West	77	80.5	105	61.0	<b>69.2</b>	2	0.0	1	100.0	<b>33.3</b>	<b>68.0</b>
Yorkshire	86	75.6	134	59.7	<b>65.9</b>	12	16.7	7	14.3	<b>15.8</b>	<b>62.2</b>
<b>TOTAL</b>	<b>1107</b>	<b>74.4</b>	<b>1636</b>	<b>60.5</b>	<b>66.1</b>	<b>187</b>	<b>34.2</b>	<b>112</b>	<b>36.6</b>	<b>35.1</b>	<b>62.7</b>

<sup>1</sup> Includes 102 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

<b>Table 13.10 Reasons why the family did not support organ donation, 1 April 2016 to 31 March 2017, by donor type</b>						
<b>Primary reason why family did not support organ donation</b>	<b>Donor type</b>				<b>Total</b>	
	<b>DBD</b>		<b>DCD</b>			
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
Patient previously expressed a wish not to donate	83	20.2	162	21.3	245	20.9
Family were not sure whether the patient would have agreed to donation	63	15.3	114	15.0	177	15.1
Family did not believe in donation	20	4.9	23	3.0	43	3.7
Family felt it was against their religious/cultural beliefs	45	10.9	21	2.8	66	5.6
Family were divided over the decision	25	6.1	32	4.2	57	4.9
Family felt the patient had suffered enough	21	5.1	59	7.8	80	6.8
Family did not want surgery to the body	53	12.9	65	8.6	118	10.1
Family wanted to stay with the patient after death	2	0.5	11	1.5	13	1.1
Family had difficulty understanding/accepting neurological testing	3	0.7	2	0.3	5	0.4
Family felt the length of time for donation process was too long	19	4.6	125	16.5	144	12.3
Family concerned that other people may disapprove/be offended	1	0.2	.	.	1	0.1
Family felt the body needs to be buried whole (unrelated to religious or cultural reasons)	21	5.1	23	3.0	44	3.8
Family concerned that organs may not be transplanted	4	1.0	8	1.1	12	1.0
Families concerned about organ allocation	.	.	2	0.3	2	0.2
Strong refusal - probing not appropriate	27	6.6	39	5.1	66	5.6
Other	25	6.1	74	9.7	99	8.5
<b>TOTAL</b>	<b>412</b>	<b>100</b>	<b>760</b>	<b>100</b>	<b>1172</b>	<b>100</b>

### 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, 93% of DBD and 80% of DCD family approaches involved a SN-OD, but there is wide variation between teams.

<b>Table 13.11 Percentage of family approaches involving a Specialist Nurse - Organ Donation (SN-OD) from the Potential Donor Audit, 1 April 2016 to 31 March 2017, by Organ Donation Services Team (ODST)</b>							
<b>ODST</b>	<b>Number of eligible DBD donors whose family were approached</b>	<b>Number of eligible DBD donors where SN-OD involved in approach</b>	<b>Percentage of DBD approaches that involved a SN-OD (%)</b>	<b>Number of eligible DCD donors whose family were approached</b>	<b>Number of eligible DCD donors where SN-OD involved in approach</b>	<b>Percentage of DCD approaches that involved a SN-OD (%)</b>	<b>Overall percentage of DBD/DCD approaches that involved a SN-OD (%)</b>
Eastern	81	74	91.4	192	154	80.2	<b>83.5</b>
London	206	195	94.7	166	141	84.9	<b>90.3</b>
Midlands	134	119	88.8	271	193	71.2	<b>77.0</b>
North West	173	169	97.7	238	213	89.5	<b>92.9</b>
Northern	93	90	96.8	96	73	76.0	<b>86.2</b>
Northern Ireland	49	46	93.9	38	34	89.5	<b>92.0</b>
Scotland	111	100	90.1	158	105	66.5	<b>76.2</b>
South Central	104	97	93.3	144	113	78.5	<b>84.7</b>
South East	154	138	89.6	171	150	87.7	<b>88.6</b>
South Wales	41	39	95.1	81	66	81.5	<b>86.1</b>
South West	82	75	91.5	115	96	83.5	<b>86.8</b>
Yorkshire	101	94	93.1	145	122	84.1	<b>87.8</b>
<b>TOTAL</b>	<b>1329</b>	<b>1236</b>	<b>93.0</b>	<b>1815</b>	<b>1460</b>	<b>80.4</b>	<b>85.8</b>

**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 formal organ donation discussion. Evidence shows that the family is more likely to support organ 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.

<b>Table 13.12 DBD and DCD consent/authorisation rates with/without SN-OD involvement from the Potential Donor Audit, 1 April 2016 to 31 March 2017, by Organ Donation Services Team (ODST)</b>											
<b>ODST</b>	<b>SN-OD involved in approach</b>					<b>SN-OD not involved in approach</b>					<b>All</b>
	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	74	81.1	154	67.5	<b>71.9</b>	7	42.9	38	26.3	<b>28.9</b>	<b>64.8</b>
London	195	60.0	141	61.7	<b>60.7</b>	11	36.4	25	16.0	<b>22.2</b>	<b>57.0</b>
Midlands	119	69.7	193	57.0	<b>61.9</b>	15	60.0	78	38.5	<b>41.9</b>	<b>57.3</b>
North West	169	69.8	213	67.1	<b>68.3</b>	4	25.0	25	0.0	<b>3.4</b>	<b>63.7</b>
Northern	90	65.6	73	69.9	<b>67.5</b>	3	0.0	23	30.4	<b>26.9</b>	<b>61.9</b>
Northern Ireland	46	76.1	34	61.8	<b>70.0</b>	3	0.0	4	0.0	<b>0.0</b>	<b>64.4</b>
Scotland	100	86.0	105	73.3	<b>79.5</b>	11	9.1	53	11.3	<b>10.9</b>	<b>63.2</b>
South Central	97	75.3	113	71.7	<b>73.3</b>	7	14.3	31	12.9	<b>13.2</b>	<b>64.1</b>
South East	138	67.4	150	72.7	<b>70.1</b>	16	62.5	21	61.9	<b>62.2</b>	<b>69.2</b>
South Wales	39	76.9	66	63.6	<b>68.6</b>	2	50.0	15	13.3	<b>17.6</b>	<b>61.5</b>
South West	75	81.3	96	66.7	<b>73.1</b>	7	42.9	19	31.6	<b>34.6</b>	<b>68.0</b>
Yorkshire	94	70.2	122	64.8	<b>67.1</b>	7	42.9	23	21.7	<b>26.7</b>	<b>62.2</b>
<b>TOTAL</b>	<b>1236</b>	<b>71.3</b>	<b>1460</b>	<b>66.3</b>	<b>68.6</b>	<b>93</b>	<b>38.7</b>	<b>355</b>	<b>24.5</b>	<b>27.5</b>	<b>62.7</b>

### 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.

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

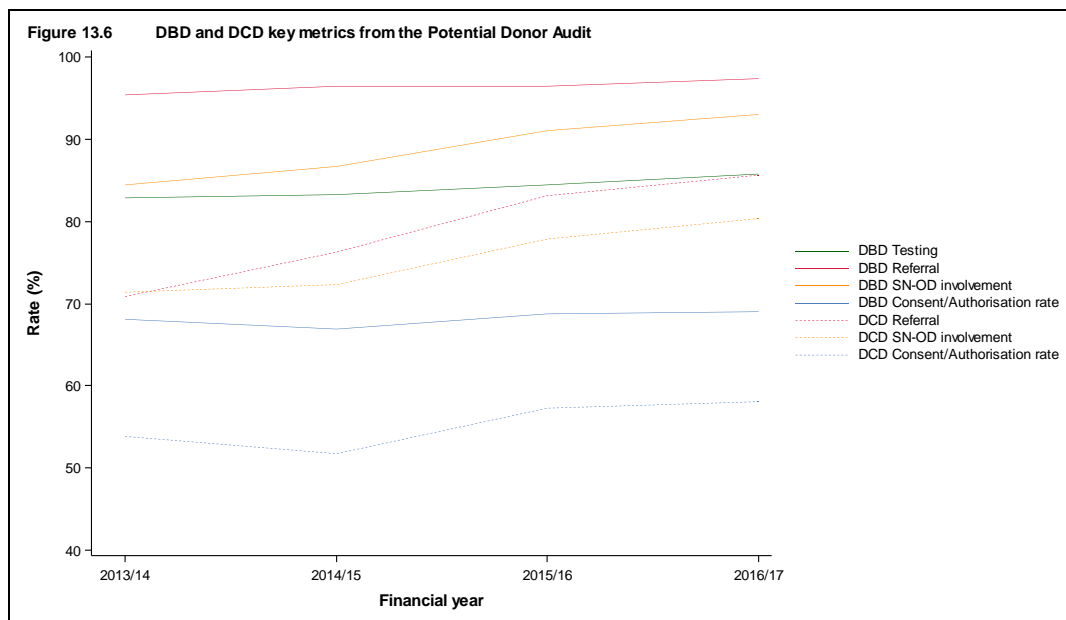
Eligible donor type	Financial year	Number of patients who met referral criteria <sup>1</sup>	Neurological death testing rate (%)	Referral rate (%)	Number of eligible donors whose family were approached	Proportion of family approaches involving a SN-OD (%)	Number of families who consented to/ authorised donation	Consent/ authorisation rate (%)	Number of actual donors <sup>2</sup>
DBD	2013-2014	1717	82.9	95.4	1258	84.4	857	68.1	788
	2014-2015	1734	83.3	96.4	1284	86.7	859	66.9	780
	2015-2016	1747	84.5	96.4	1296	91.0	891	68.8	786
	2016-2017	1775	85.7	97.4	1329	93.0	917	69.0	819
DCD	2013-2014	7201		70.9	1992	71.4	1073	53.9	522
	2014-2015	6761		76.3	2019	72.3	1046	51.8	492
	2015-2016	6500		83.1	1942	77.8	1113	57.3	564
	2016-2017	6204		85.6	1815	80.4	1055	58.1	565
TOTAL	2013-2014	8918		75.7	3250	76.4	1930	59.4	1310
	2014-2015	8495		80.4	3303	77.9	1905	57.7	1272
	2015-2016	8247		85.9	3238	83.1	2004	61.9	1350
	2016-2017	7979		88.2	3144	85.8	1972	62.7	1384

<sup>1</sup> 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

<sup>2</sup> Actual donors resulting from eligible DBD donors includes 15 DCD donors in 2013-2014, 13 DCD donors in 2014-2015, 7 DCD donors in 2015-2016 and 11 DCD donors in 2016-2017

An increase has been observed in the neurological death testing rate, but 14% of patients who met the criteria were not tested in 2016-2017. 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. Increases have also been observed in the proportion of approaches involving a SN-OD for both DBD and DCD as well as the DCD consent/authorisation rate.



### 13.8 Consented/authorised cases not proceeding to solid organ donation

Consent/authorisation for donation was ascertained for 917 eligible DBD donors and 1,055 eligible DCD donors; 819 (89%) and 565 (54%) 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 98 eligible DBD and 490 eligible DCD cases where consent/authorisation was 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 2016 to 31 March 2017, by donor type**

Primary reason why donation did not proceed	Donor type				TOTAL	
	DBD		DCD			
	N	%	N	%	N	%
Family changed mind	10	10.2	18	3.7	28	4.8
Coroner/Procurator Fiscal refusal	10	10.2	24	4.9	34	5.8
Organs deemed medically unsuitable by recipient centres	40	40.8	141	28.8	181	30.8
Organs deemed medically unsuitable on surgical inspection	6	6.1	12	2.5	18	3.1
Prolonged time to asystole	0	0	222	45.3	222	37.8
Cardiac Arrest	10	10.2	7	1.4	17	2.9
General instability	9	9.2	26	5.3	35	6.0
Logistic reasons	0	0	2	0.4	2	0.3
Positive virology	6	6.1	5	1.0	11	1.9
Other	7	7.1	33	6.7	40	6.8
<b>TOTAL</b>	<b>98</b>	<b>100.0</b>	<b>490</b>	<b>100.0</b>	<b>588</b>	<b>100.0</b>



# Appendices

**Appendix I** provides details of the 1413 deceased solid organ donors reported in 2016-2017. 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-2015 estimates based on ONS 2011 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 2016 – 31 March 2017 (2015-2016), by donating hospital**

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
East Midlands														
Boston, Pilgrim Hospital	2	(3)	0	(0)	2	(3)	1	(3)	2	1	0	2	1	0
Chesterfield, Chesterfield Royal Hospital	1	(0)	2	(0)	3	(0)	1	(0)	6	0	0	1	0	0
Derby, Royal Derby Hospital	2	(1)	1	(10)	3	(11)	1	(6)	6	0	0	1	0	0
Grantham, Grantham And District Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Kettering, Kettering General Hospital	1	(10)	0	(0)	1	(10)	1	(9)	2	0	0	1	1	0
Leicester, Glenfield General Hospital	1	(0)	1	(1)	2	(1)	1	(1)	4	0	0	1	0	0
Leicester, Leicester Royal Infirmary	5	(6)	3	(3)	8	(9)	5	(8)	12	0	2	6	3	1
Lincoln, Lincoln County Hospital	2	(0)	3	(1)	5	(1)	4	(0)	10	0	0	4	0	0
Northampton, Northampton General Hospital	3	(2)	4	(3)	7	(5)	2	(4)	13	1	0	2	1	0
Nottingham, Nottingham City Hospital	1	(1)	5	(0)	6	(1)	3	(1)	12	0	0	3	1	0
Nottingham, Nottingham University Hospital	11	(14)	9	(17)	20	(31)	18	(23)	40	6	10	18	10	1
Sutton-In-Ashfield, King's Mill Hospital	2	(0)	3	(1)	5	(1)	3	(1)	10	1	2	3	2	0
Total	31	(38)	31	(36)	62	(74)	40	(57)	117	9	14	42	19	2
East of England														
Basildon, Basildon Hospital	2	(4)	4	(2)	6	(6)	3	(4)	12	0	0	3	1	0
Bedford, Bedford Hospital	1	(0)	4	(2)	5	(2)	5	(2)	10	1	0	4	2	0
Bury St Edmunds, West Suffolk Hospital	2	(1)	0	(2)	2	(3)	2	(1)	4	0	0	2	0	0
Cambridge, Addenbrooke's Hospital	17	(16)	21	(32)	38	(48)	31	(35)	76	5	4	29	15	0
Chelmsford, Broomfield Hospital	2	(4)	0	(1)	2	(5)	2	(3)	4	0	0	2	1	0
Colchester, Colchester General Hospital	3	(1)	4	(3)	7	(4)	7	(3)	14	0	4	7	1	0
Great Yarmouth, James Paget Hospital	1	(0)	6	(6)	7	(6)	2	(2)	12	1	0	2	1	0
Harlow, Princess Alexandra Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Huntingdon, Hinchingsbrooke Hospital	1	(1)	2	(1)	3	(2)	3	(1)	6	0	0	2	2	0
Ipswich, Ipswich Hospital	4	(1)	3	(4)	7	(5)	6	(2)	14	0	2	6	2	0
Kings Lynn, The Queen Elizabeth Hospital	1	(1)	1	(3)	2	(4)	2	(2)	4	0	0	1	1	0
Luton, Luton And Dunstable Hospital	4	(4)	5	(1)	9	(5)	7	(5)	18	2	2	7	2	0
Norwich, Norfolk And Norwich University Hospital	6	(9)	9	(10)	15	(19)	9	(17)	30	0	2	8	3	0
Papworth, Papworth Hospital	0	(0)	0	(3)	0	(3)	0	(1)	0	0	0	0	0	0
Peterborough, Peterborough City Hospital	2	(0)	3	(2)	5	(2)	4	(1)	10	0	0	4	1	0
Stevenage, Lister Hospital	4	(2)	9	(5)	13	(7)	6	(4)	22	1	6	8	2	0
Watford, Watford General Hospital	2	(4)	3	(2)	5	(6)	5	(4)	10	0	4	5	1	0
Westcliff On Sea, Southend Hospital	4	(3)	0	(0)	4	(3)	4	(2)	8	1	0	4	2	0
Total	56	(52)	74	(79)	130	(131)	98	(90)	254	11	24	94	37	0

**Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2016 – 31 March 2017 (2015-2016), by donating hospital**

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
<b>London</b>														
Barnet, Barnet General Hospital	1	(3)	0	(0)	1	(3)	1	(3)	2	0	0	1	1	0
Carshalton, St Helier Hospital	4	(0)	1	(0)	5	(0)	3	(0)	8	0	0	4	1	0
Chelsea, Chelsea And Westminster Hospital	1	(0)	0	(0)	1	(0)	0	(0)	2	0	0	0	0	0
Croydon, Mayday University Hospital	4	(0)	0	(2)	4	(2)	3	(1)	6	1	2	4	1	0
Evelina Childrens Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	1	0
Harefield, Harefield Hospital	4	(3)	4	(3)	8	(6)	4	(2)	14	0	2	4	1	0
Harrow, Northwick Park Hospital	2	(4)	2	(2)	4	(6)	3	(4)	8	1	0	3	2	0
Ilford, King George Hospital	2	(0)	0	(0)	2	(0)	0	(0)	2	0	0	1	0	0
Isleworth, West Middlesex University Hospital	5	(1)	0	(0)	5	(1)	4	(1)	8	2	1	5	3	0
Kingston, Kingston Hospital	1	(0)	4	(1)	5	(1)	4	(0)	10	1	0	4	1	0
London, Central Middlesex Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0	0
London, Charing Cross Hospital	10	(6)	3	(2)	13	(8)	10	(6)	22	3	7	12	6	0
London, Great Ormond Street Hospital For Children	1	(0)	0	(1)	1	(1)	0	(0)	0	1	0	0	0	0
London, Hammersmith Hospital	1	(1)	1	(2)	2	(3)	2	(3)	4	0	0	2	1	0
London, Homerton Hospital	0	(1)	0	(1)	0	(2)	0	(1)	0	0	0	0	0	0
London, King's College Hospital	21	(16)	11	(8)	32	(24)	27	(20)	62	6	10	27	12	0
London, National Hospital For Neurology And Neurosurgery	6	(17)	2	(0)	8	(17)	6	(17)	16	1	2	6	2	0
London, Newham General Hospital	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	1	0	0
London, North Middlesex Hospital	1	(2)	0	(1)	1	(3)	1	(3)	2	1	2	1	0	0
London, Queen Elizabeth Hospital	2	(1)	1	(2)	3	(3)	3	(2)	6	0	0	3	0	0
London, Royal Brompton Hospital	0	(0)	1	(1)	1	(1)	1	(1)	2	0	0	1	0	0
London, Royal Free Hospital	5	(2)	1	(0)	6	(2)	6	(2)	12	1	2	6	1	0
London, St Bartholomew's Hospital	0	(3)	3	(2)	3	(5)	2	(2)	6	0	0	2	0	0
London, St George's Hospital	17	(37)	12	(12)	29	(49)	23	(38)	56	5	10	24	9	1
London, St Mary's Hospital	7	(3)	6	(7)	13	(10)	10	(5)	26	3	6	8	5	1
London, St Thomas' Hospital	1	(5)	2	(4)	3	(9)	2	(7)	6	2	0	2	1	0
London, The Harley Street Clinic	1	(0)	0	(0)	1	(0)	1	(0)	2	0	2	1	0	0
London, The Royal London Hospital (Whitechapel)	17	(20)	4	(6)	21	(26)	17	(22)	34	7	8	19	9	0
London, The Whittington Hospital	2	(0)	0	(1)	2	(1)	0	(0)	2	0	0	1	0	0
London, University College Hospital	3	(3)	0	(0)	3	(3)	2	(2)	6	1	2	2	1	0
London, University Hospital Lewisham	1	(1)	1	(0)	2	(1)	2	(0)	4	0	2	2	1	0
London, Whipps Cross Hospital	1	(1)	1	(0)	2	(1)	1	(1)	2	0	0	2	0	0
Orpington, Princess Royal University Hospital	2	(6)	2	(1)	4	(7)	3	(4)	8	0	0	3	0	0
Romford, Queens Hospital	14	(8)	5	(4)	19	(12)	16	(10)	36	5	3	17	9	0
Southall, Ealing Hospital	1	(1)	1	(0)	2	(1)	1	(1)	4	1	0	1	1	0
Uxbridge, Hillingdon Hospital	0	(1)	1	(2)	1	(3)	0	(3)	2	0	0	0	0	0
<b>Total</b>	<b>140</b>	<b>(147)</b>	<b>69</b>	<b>(66)</b>	<b>209</b>	<b>(213)</b>	<b>160</b>	<b>(162)</b>	<b>384</b>	<b>42</b>	<b>61</b>	<b>170</b>	<b>69</b>	<b>2</b>

**Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2016 – 31 March 2017 (2015-2016), by donating hospital**

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
North East														
Darlington, Darlington Memorial Hospital	3	(1)	1	(1)	4	(2)	3	(2)	6	0	0	4	2	0
Durham, University Hospital Of North Durham	4	(1)	2	(2)	6	(3)	5	(3)	9	1	2	6	3	0
Gateshead, Queen Elizabeth Hospital	0	(1)	0	(3)	0	(4)	0	(3)	0	0	0	0	0	0
Middlesbrough, The James Cook University Hospital	11	(15)	3	(8)	14	(23)	12	(17)	27	2	4	9	6	0
Newcastle, Freeman Hospital	3	(3)	1	(3)	4	(6)	3	(2)	8	1	1	2	1	0
Newcastle, Royal Victoria Infirmary	16	(15)	13	(10)	29	(25)	19	(17)	56	4	4	18	11	0
Northallerton, Friarage Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Northumbria, Nsech	7	(4)	5	(3)	12	(7)	9	(4)	24	3	4	9	6	0
South Shields, South Tyneside District General Hospital	0	(1)	1	(1)	1	(2)	1	(1)	2	0	0	1	0	0
Stockton-On-Tees, University Hospital Of North Tees	4	(2)	0	(2)	4	(4)	3	(4)	6	1	2	3	2	0
Sunderland, Sunderland Royal Hospital	4	(5)	1	(2)	5	(7)	4	(5)	10	2	2	4	2	0
Total	52	(49)	27	(35)	79	(84)	59	(59)	148	14	19	56	33	0
North West														
Ashton-Under-Lyne, Tameside General Hospital	0	(1)	2	(1)	2	(2)	1	(1)	2	0	0	2	1	0
Barrow-In-Furness, Furness General Hospital	0	(1)	1	(1)	1	(2)	1	(1)	2	0	0	1	0	0
Blackburn, Royal Blackburn Hospital	7	(1)	1	(6)	8	(7)	6	(4)	14	2	6	6	1	0
Blackpool, Blackpool Victoria Hospital	3	(2)	2	(2)	5	(4)	3	(2)	10	1	0	2	1	0
Bolton, Royal Bolton Hospital	4	(0)	1	(0)	5	(0)	4	(0)	10	1	0	4	1	0
Bury, Fairfield General Hospital	1	(3)	1	(0)	2	(3)	1	(3)	4	0	0	1	0	0
Carlisle, Cumberland Infirmary	2	(2)	2	(0)	4	(2)	2	(1)	8	0	0	2	1	0
Chester, Countess Of Chester Hospital	5	(4)	2	(0)	7	(4)	6	(3)	14	1	0	6	2	0
Crewe, Leighton Hospital	1	(2)	2	(0)	3	(2)	3	(2)	6	0	0	3	1	0
Lancaster, Royal Lancaster Infirmary	1	(1)	2	(2)	3	(3)	2	(2)	6	0	0	2	1	0
Liverpool, Alder Hey Children's Hospital	2	(0)	1	(0)	3	(0)	3	(0)	6	1	0	1	2	0
Liverpool, Liverpool Heart And Chest Hospital	0	(0)	1	(0)	1	(0)	0	(0)	2	0	0	0	0	0
Liverpool, Royal Liverpool University Hospital	2	(4)	1	(0)	3	(4)	2	(3)	6	0	0	2	1	0
Liverpool, University Hospital Aintree	3	(3)	3	(5)	6	(8)	3	(7)	12	1	2	3	0	0
Liverpool, Walton Centre For Neurology And Neurosurgery	14	(10)	6	(8)	20	(18)	16	(15)	39	2	10	16	11	1
Manchester, Manchester Royal Infirmary	0	(6)	1	(3)	1	(9)	1	(7)	2	0	0	0	1	0
Manchester, North Manchester General Hospital	0	(2)	3	(0)	3	(2)	1	(2)	6	0	2	1	1	0
Manchester, Royal Manchester Children's Hospital	1	(1)	1	(2)	2	(3)	1	(2)	4	1	2	1	1	1
Manchester, St Marys Hospital	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0	0
Manchester, Wythenshawe Hospital	2	(3)	8	(4)	10	(7)	7	(4)	20	0	0	7	2	0
Oldham, Royal Oldham Hospital (Rochdale Road)	2	(0)	0	(0)	2	(0)	2	(0)	4	0	2	1	1	0
Prescot, Whiston Hospital	5	(1)	3	(4)	8	(5)	6	(3)	16	2	0	6	2	0

**Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2016 – 31 March 2017 (2015-2016), by donating hospital**

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
Preston, Royal Preston Hospital	12	(4)	8	(8)	20	(12)	15	(8)	39	5	0	14	7	0
Salford, Salford Royal	20	(15)	11	(9)	31	(24)	24	(19)	59	5	15	23	8	0
Southport, Southport District General Hospital	0	(1)	1	(1)	1	(2)	1	(1)	2	0	0	1	0	0
Stockport, Stepping Hill Hospital	3	(0)	0	(0)	3	(0)	3	(0)	6	1	2	3	2	0
Warrington, Warrington Hospital	1	(3)	3	(1)	4	(4)	2	(3)	8	0	1	2	0	0
Whitehaven, West Cumberland Hospital	1	(1)	2	(0)	3	(1)	0	(1)	4	0	0	1	0	0
Wigan, Royal Albert Edward Infirmary	2	(3)	1	(4)	3	(7)	3	(5)	6	0	0	3	0	0
Wirral, Arrowe Park Hospital	2	(4)	3	(3)	5	(7)	1	(4)	8	0	0	2	0	0
<b>Total</b>	<b>96</b>	<b>(78)</b>	<b>73</b>	<b>(65)</b>	<b>169</b>	<b>(143)</b>	<b>120</b>	<b>(104)</b>	<b>325</b>	<b>23</b>	<b>42</b>	<b>116</b>	<b>48</b>	<b>2</b>
<b>South Central</b>														
Aylesbury, Stoke Mandeville Hospital	2	(1)	2	(2)	4	(3)	2	(2)	6	0	0	3	1	0
Banbury, Horton General Hospital	0	(1)	0	(0)	0	(1)	0	(0)	0	0	0	0	0	0
Basingstoke, North Hampshire Hospital	2	(3)	0	(1)	2	(4)	1	(3)	2	0	0	2	1	0
Milton Keynes, Milton Keynes General Hospital	1	(1)	0	(2)	1	(3)	0	(2)	0	0	0	1	0	0
Newport, St Mary's Hospital	1	(2)	3	(3)	4	(5)	4	(3)	8	0	0	4	1	0
Oxford, John Radcliffe Hospital	19	(11)	12	(7)	31	(18)	25	(13)	60	8	12	21	14	0
Portsmouth, Queen Alexandra Hospital	8	(7)	4	(4)	12	(11)	10	(6)	24	2	2	10	5	0
Reading, Royal Berkshire Hospital	0	(3)	2	(1)	2	(4)	2	(4)	3	0	2	2	1	0
Southampton, Southampton University Hospitals	18	(17)	9	(15)	27	(32)	20	(26)	50	7	16	22	13	1
Winchester, Royal Hampshire County Hospital	1	(1)	1	(0)	2	(1)	2	(0)	4	0	0	2	1	0
Wycombe, Wycombe General Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
<b>Total</b>	<b>52</b>	<b>(48)</b>	<b>33</b>	<b>(35)</b>	<b>85</b>	<b>(83)</b>	<b>66</b>	<b>(60)</b>	<b>157</b>	<b>17</b>	<b>32</b>	<b>67</b>	<b>37</b>	<b>1</b>
<b>South East Coast</b>														
Ashford, William Harvey Hospital	8	(5)	5	(4)	13	(9)	9	(6)	24	2	2	9	2	0
Brighton, Royal Sussex County Hospital	11	(10)	13	(9)	24	(19)	19	(15)	48	4	8	19	4	0
Camberley, Frimley Park Hospital	4	(2)	1	(3)	5	(5)	3	(3)	10	0	2	3	1	0
Canterbury, Kent And Canterbury Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0	0
Chertsey, St Peter's Hospital	1	(1)	7	(3)	8	(4)	5	(2)	14	0	2	6	1	0
Chichester, St Richard's Hospital	6	(4)	1	(2)	7	(6)	7	(4)	14	1	6	6	1	0
Dartford, Darent Valley Hospital	4	(1)	1	(5)	5	(6)	3	(2)	8	0	0	4	2	0
Eastbourne, Eastbourne District General Hospital	2	(1)	1	(2)	3	(3)	2	(2)	6	2	0	2	2	0
Gillingham, Medway Hospital	4	(9)	5	(1)	9	(10)	5	(7)	16	1	0	6	1	0
Guildford, Royal Surrey County Hospital	1	(0)	0	(1)	1	(1)	1	(0)	2	0	0	1	0	0
Hastings, Conquest Hospital	3	(0)	3	(1)	6	(1)	4	(0)	12	1	0	4	1	0
Haywards Heath, Hurstwood Park Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0	0
Haywards Heath, Princess Royal Hospital	0	(1)	1	(0)	1	(1)	1	(0)	2	0	0	1	1	0

**Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2016 – 31 March 2017 (2015-2016), by donating hospital**

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
Maidstone, Maidstone District General Hospital	0	(2)	1	(0)	1	(2)	1	(0)	2	0	0	1	0	0
Margate, Queen Elizabeth The Queen Mother Hospital	2	(1)	3	(1)	5	(2)	4	(2)	10	0	0	4	3	0
Redhill, East Surrey Hospital	3	(3)	0	(0)	3	(3)	3	(3)	6	1	0	3	2	0
Slough, Wexham Park Hospital	4	(7)	3	(4)	7	(11)	7	(6)	14	0	2	7	4	0
Tunbridge Wells, Tunbridge Wells Hospital	2	(3)	0	(0)	2	(3)	2	(3)	4	0	4	1	1	0
Worthing, Worthing Hospital	2	(4)	3	(3)	5	(7)	3	(3)	10	0	0	3	0	0
<b>Total</b>	<b>57</b>	<b>(54)</b>	<b>48</b>	<b>(41)</b>	<b>105</b>	<b>(95)</b>	<b>79</b>	<b>(58)</b>	<b>202</b>	<b>12</b>	<b>26</b>	<b>80</b>	<b>26</b>	<b>0</b>
<b>South West</b>														
Barnstaple, North Devon District Hospital	0	(2)	2	(1)	2	(3)	1	(3)	2	0	0	2	1	0
Bath, Royal United Hospital	6	(0)	2	(2)	8	(2)	8	(0)	16	1	4	7	6	0
Bournemouth, Royal Bournemouth General Hospital	0	(1)	4	(3)	4	(4)	1	(4)	8	0	0	1	0	0
Bristol, Bristol Royal Hospital For Children	1	(3)	2	(3)	3	(6)	3	(6)	6	0	0	3	1	0
Bristol, Bristol Royal Infirmary	6	(2)	6	(5)	12	(7)	10	(4)	23	0	2	10	3	0
Bristol, Southmead Hospital	15	(16)	7	(11)	22	(27)	17	(20)	38	5	4	19	8	0
Cheltenham, Cheltenham General Hospital	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	1	1	0
Dorchester, Dorset County Hospital	0	(3)	1	(2)	1	(5)	1	(4)	2	0	0	1	0	0
Exeter, Royal Devon And Exeter Hospital (Wonford)	1	(7)	2	(5)	3	(12)	3	(9)	6	0	2	2	0	0
Gloucester, Gloucestershire Royal Hospital	4	(4)	1	(3)	5	(7)	4	(5)	10	0	2	4	1	0
Plymouth, Derriford Hospital	15	(18)	8	(7)	23	(25)	20	(19)	46	6	9	19	13	0
Poole, Poole General Hospital	2	(4)	1	(0)	3	(4)	1	(4)	4	0	0	2	0	0
Salisbury, Salisbury District Hospital	1	(1)	1	(1)	2	(2)	2	(1)	4	0	0	2	1	0
Swindon, Great Western Hospital	6	(3)	3	(1)	9	(4)	8	(3)	17	1	2	8	3	0
Taunton, Taunton And Somerset Hospital (Musgrove Park)	2	(1)	1	(3)	3	(4)	2	(2)	6	2	4	2	2	0
Torquay, Torbay Hospital	2	(2)	1	(3)	3	(5)	1	(4)	4	0	0	2	0	0
Truro, Royal Cornwall Hospital (Treliske)	1	(3)	3	(1)	4	(4)	1	(3)	6	0	0	2	0	0
Yeovil, Yeovil District Hospital	0	(2)	0	(0)	0	(2)	0	(1)	0	0	0	0	0	0
<b>Total</b>	<b>63</b>	<b>(73)</b>	<b>45</b>	<b>(51)</b>	<b>108</b>	<b>(124)</b>	<b>84</b>	<b>(93)</b>	<b>200</b>	<b>15</b>	<b>29</b>	<b>87</b>	<b>40</b>	<b>0</b>
<b>West Midlands</b>														
Birmingham, Birmingham Children's Hospital	2	(3)	3	(0)	5	(3)	3	(3)	8	2	0	4	3	0
Birmingham, Birmingham Heartlands Hospital	11	(4)	1	(1)	12	(5)	10	(5)	20	5	4	9	4	0
Birmingham, City Hospital	2	(1)	0	(3)	2	(4)	2	(3)	4	1	0	2	1	0
Birmingham, Queen Elizabeth Hospital Birmingham	17	(17)	6	(5)	23	(22)	17	(19)	38	3	6	20	10	0
Burton-On-Trent, Queen's Hospital	5	(1)	3	(0)	8	(1)	6	(1)	12	2	4	6	4	0
Coventry, University Hospital	9	(9)	5	(7)	14	(16)	12	(12)	28	5	2	12	8	0
Dudley, Russells Hall Hospital	0	(0)	2	(0)	2	(0)	1	(0)	4	0	0	1	0	0
Hereford, The County Hospital	3	(2)	1	(0)	4	(2)	4	(2)	8	0	2	4	1	0

**Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2016 – 31 March 2017 (2015-2016), by donating hospital**

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
Nuneaton, George Eliot Hospital	0	(1)	0	(1)	0	(2)	0	(2)	0	0	0	0	0	0
Redditch, The Alexandra Hospital	1	(1)	0	(1)	1	(2)	1	(1)	1	0	0	1	0	0
Shrewsbury, Royal Shrewsbury Hospital	0	(4)	2	(1)	2	(5)	1	(3)	4	0	0	0	1	0
Stoke-On-Trent, Royal Stoke University Hospital	7	(9)	18	(15)	25	(24)	14	(17)	46	3	2	15	6	1
Sutton Coldfield, Good Hope District General Hosp.	3	(1)	3	(0)	6	(1)	3	(1)	12	0	2	3	2	0
Telford, The Princess Royal Hospital	0	(4)	0	(1)	0	(5)	0	(4)	0	0	0	0	0	0
Walsall, Manor Hospital	1	(2)	1	(0)	2	(2)	2	(2)	4	0	2	2	0	1
Warwick, Warwick Hospital	1	(3)	0	(1)	1	(4)	1	(3)	2	0	0	1	1	1
West Bromwich, Sandwell General Hospital	2	(1)	0	(1)	2	(2)	2	(2)	4	1	0	2	0	0
Wolverhampton, New Cross Hospital	2	(1)	5	(0)	7	(1)	4	(1)	14	0	0	4	3	0
Worcester, Worcestershire Royal Hospital	0	(1)	1	(3)	1	(4)	0	(3)	2	0	0	0	0	0
<b>Total</b>	<b>66</b>	<b>(65)</b>	<b>51</b>	<b>(40)</b>	<b>117</b>	<b>(105)</b>	<b>83</b>	<b>(84)</b>	<b>211</b>	<b>22</b>	<b>24</b>	<b>86</b>	<b>44</b>	<b>3</b>
<b>Yorkshire and the Humber</b>														
Barnsley, Barnsley District General Hospital	0	(2)	2	(2)	2	(4)	1	(3)	4	0	0	1	0	0
Bradford, Bradford Royal Infirmary	2	(4)	0	(1)	2	(5)	1	(3)	4	0	0	1	1	0
Cottingham, Castle Hill Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0	0
Dewsbury, Dewsbury And District Hospital	1	(0)	2	(0)	3	(0)	2	(0)	6	0	0	1	1	0
Doncaster, Doncaster Royal Infirmary	3	(0)	1	(0)	4	(0)	4	(0)	8	0	2	3	1	0
Grimsby, Diana Princess Of Wales Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0	0
Halifax, Calderdale Royal Hospital	4	(1)	0	(1)	4	(2)	3	(1)	8	0	2	3	2	0
Harrogate, Harrogate District Hospital	1	(2)	1	(0)	2	(2)	1	(2)	4	0	0	1	0	0
Huddersfield, Huddersfield Royal Infirmary	4	(3)	3	(4)	7	(7)	6	(3)	14	1	0	5	4	0
Hull, Hull Royal Infirmary	5	(6)	9	(8)	14	(14)	10	(8)	28	0	2	9	7	0
Keighley, Airedale General Hospital	2	(1)	0	(1)	2	(2)	1	(2)	4	0	0	1	0	0
Leeds, Leeds General Infirmary	16	(16)	11	(8)	27	(24)	21	(20)	52	3	6	21	11	1
Leeds, St James's University Hospital	0	(4)	1	(1)	1	(5)	1	(3)	2	0	0	1	1	0
Rotherham, Rotherham District General Hospital	2	(0)	0	(1)	2	(1)	2	(1)	4	1	0	2	1	0
Scarborough, Scarborough General Hospital	2	(0)	1	(0)	3	(0)	2	(0)	6	0	0	2	1	0
Sheffield, Northern General Hospital	7	(8)	1	(4)	8	(12)	6	(11)	13	1	2	7	3	0
Sheffield, Royal Hallamshire Hospital	7	(4)	3	(3)	10	(7)	7	(6)	16	1	5	8	5	0
Sheffield, Sheffield Children's Hospital	0	(0)	1	(2)	1	(2)	1	(2)	2	0	2	1	0	0
Wakefield, Pinderfields General Hospital	3	(3)	2	(2)	5	(5)	3	(2)	9	0	0	3	2	0
Worksop, Bassetlaw District General Hospital	1	(0)	1	(0)	2	(0)	2	(0)	4	0	0	2	1	0
York, York District Hospital	2	(5)	4	(1)	6	(6)	3	(6)	12	1	0	3	2	0
<b>Total</b>	<b>62</b>	<b>(59)</b>	<b>43</b>	<b>(41)</b>	<b>105</b>	<b>(100)</b>	<b>77</b>	<b>(73)</b>	<b>200</b>	<b>8</b>	<b>21</b>	<b>75</b>	<b>43</b>	<b>1</b>



**Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2016 – 31 March 2017 (2015-2016), by donating hospital**

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
Channel Islands														
Guernsey, Princess Elizabeth Hospital	2	(0)	0	(0)	2	(0)	2	(0)	4	0	0	2	0	0
St Helier, Jersey General Hospital	1	(1)	2	(0)	3	(1)	3	(1)	6	0	0	3	2	0
Total	3	(1)	2	(0)	5	(1)	5	(1)	10	0	0	5	2	0
Isle of Man														
Douglas, Nobles I-O-M Hospital	2	(1)	1	(0)	3	(1)	2	(1)	6	0	0	2	2	0
Total	2	(1)	1	(0)	3	(1)	2	(1)	6	0	0	2	2	0
England														
	680	(665)	497	(489)	1177	1154)	873	(842)	2214	173	292	880	400	11
Northern Ireland														
Belfast, Antrim Hospital	3	(0)	1	(1)	4	(1)	3	(0)	8	2	2	2	0	0
Belfast, Belfast City Hospital	1	(3)	0	(1)	1	(4)	1	(4)	2	1	0	1	1	0
Belfast, Mater Infirmorum Hospital	1	(2)	0	(0)	1	(2)	1	(2)	2	0	0	1	0	0
Belfast, Royal Belfast Hospital For Sick Children	0	(3)	0	(1)	0	(4)	0	(4)	0	0	0	0	0	0
Belfast, Royal Victoria Hospital	16	(11)	3	(7)	19	(18)	15	(11)	36	5	14	15	11	1
Belfast, The Ulster Hospital	3	(1)	0	(2)	3	(3)	3	(1)	6	0	0	3	1	1
Coleraine, Causeway Hospital	2	(0)	1	(1)	3	(1)	3	(0)	6	2	0	3	1	0
Enniskillen, South West Acute Hospital	3	(2)	1	(1)	4	(3)	2	(2)	8	0	0	2	1	0
Londonderry, Altnagelvin Area Hospital	2	(4)	1	(1)	3	(5)	2	(5)	6	0	0	2	1	0
Portadown, Craigavon Area Hospital	1	(2)	3	(4)	4	(6)	2	(2)	8	0	4	1	1	0
Total	32	(28)	10	(19)	42	(47)	32	(31)	82	10	20	30	17	2
Scotland														
Aberdeen, Aberdeen Royal Infirmary	4	(4)	13	(11)	17	(15)	6	(6)	32	0	2	5	2	0
Airdrie, Monklands District General Hospital	0	(1)	0	(1)	0	(2)	0	(2)	0	0	0	0	0	0
Ayr, The Ayr Hospital	1	(0)	1	(1)	2	(1)	1	(0)	4	0	0	1	0	0
Dumfries, Dumfries And Galloway Royal Infirmary	2	(3)	0	(0)	2	(3)	0	(2)	0	0	0	2	0	0
Dundee, Ninewells Hospital	5	(2)	3	(1)	8	(3)	6	(3)	16	0	0	6	1	0
East Kilbride, Hairmyres Hospital	5	(2)	2	(1)	7	(3)	6	(2)	10	1	4	5	1	0
Edinburgh, Royal Hospital For Sick Children	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Edinburgh, Royal Infirmary Of Edinburgh	7	(2)	10	(7)	17	(9)	13	(7)	34	2	8	10	6	0
Edinburgh, Western General Hospital	5	(5)	8	(7)	13	(12)	5	(10)	24	1	2	6	5	1
Fort William, Belford Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Glasgow, Glasgow Royal Infirmary	4	(3)	2	(0)	6	(3)	5	(2)	12	0	2	4	4	0

**Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2016 – 31 March 2017 (2015-2016), by donating hospital**

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
Glasgow, Golden Jubilee National Hospital	0	(1)	3	(0)	3	(1)	2	(1)	6	0	0	1	1	0
Glasgow, Queen Elizabeth University Hospital	20	(9)	4	(2)	24	(11)	17	(11)	46	2	6	17	7	0
Glasgow, Southern General Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Glasgow, The Royal Hospital For Children	0	(2)	2	(0)	2	(2)	1	(2)	4	0	0	1	0	0
Greenock, Inverclyde Royal Hospital	0	(0)	0	(2)	0	(2)	0	(2)	0	0	0	0	0	0
Inverness, Raigmore Hospital	1	(2)	1	(1)	2	(3)	1	(3)	4	1	0	1	0	0
Kilmarnock, Crosshouse Hospital	5	(2)	1	(0)	6	(2)	5	(2)	12	1	0	5	3	0
Kirkcaldy, Victoria Hospital	4	(2)	1	(2)	5	(4)	5	(3)	10	0	0	5	2	0
Larbert, Forth Valley Royal Hospital	4	(4)	0	(3)	4	(7)	4	(6)	6	0	4	4	2	0
Livingston, St John's Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	1	2	1	0	0
Melrose, Borders General Hospital	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0	0
Paisley, Royal Alexandra Hospital	1	(1)	2	(1)	3	(2)	1	(2)	6	0	0	1	0	0
Perth, Perth Royal Infirmary	2	(2)	0	(2)	2	(4)	2	(2)	4	0	0	2	1	0
Wishaw, Wishaw General Hospital	6	(6)	3	(0)	9	(6)	5	(5)	18	0	2	5	4	0
<b>Total</b>	<b>77</b>	<b>(56)</b>	<b>56</b>	<b>(43)</b>	<b>133</b>	<b>(99)</b>	<b>86</b>	<b>(77)</b>	<b>250</b>	<b>9</b>	<b>32</b>	<b>82</b>	<b>39</b>	<b>1</b>
<b>Wales</b>														
Abergavenny, Nevill Hall Hospital	3	(1)	1	(1)	4	(2)	2	(2)	6		2	3	2	0
Aberystwyth, Bronglais Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	0	0
Bangor, Ysbyty Gwynedd District General Hospital	4	(3)	0	(1)	4	(4)	4	(3)	8	0	0	4	1	0
Bodelwyddan, Glan Clwyd District General Hospital	2	(2)	2	(6)	4	(8)	2	(2)	5	0	0	3	2	0
Bridgend, Princess Of Wales Hospital	0	(2)	1	(1)	1	(3)	0	(3)	0	0	0	1	0	0
Cardiff, University Of Wales Hospital	14	(14)	8	(10)	22	(24)	17	(21)	41	4	4	18	10	0
Carmarthen, Glangwili General Hospital	0	(0)	1	(1)	1	(1)	1	(0)	2	0	0	1	0	0
Haverford West, Withybush General Hospital	0	(1)	0	(1)	0	(2)	0	(1)	0	0	0	0	0	0
Llanelli, Prince Philips Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	0	0
Merthyr Tydfil, Prince Charles Hospital	4	(3)	0	(1)	4	(4)	4	(3)	8	0	0	4	3	0
Newport, Royal Gwent Hospital	4	(3)	4	(2)	8	(5)	5	(4)	16	0	0	5	0	0
Pontypridd, Royal Glamorgan Hospital	0	(2)	0	(1)	0	(3)	0	(3)	0	0	0	0	0	0
Swansea, Morriston Hospital	2	(5)	1	(1)	3	(6)	3	(6)	6	0	0	3	0	0
Wrexham, Maelor General Hospital	5	(0)	3	(2)	8	(2)	5	(2)	16	2	2	5	3	0
<b>Total</b>	<b>40</b>	<b>(36)</b>	<b>21</b>	<b>(28)</b>	<b>61</b>	<b>(64)</b>	<b>45</b>	<b>(50)</b>	<b>112</b>	<b>7</b>	<b>8</b>	<b>49</b>	<b>21</b>	<b>0</b>



**Appendix IIA Numbers of donors after brain death and organs retrieved in the UK, 1 April 2016 - 31 March 2017, by country/  
Strategic Health Authority**

Country/ Strategic Health Authority	Donors				Organs					
	All donors	pmp	Multi-organ donors	pmp	Kidney	Heart	Lung	Liver	Pancreas	Bowel
North East	53	20.2	47	17.9	96	15	19	47	27	0
North West	90	12.6	79	11.0	172	23	34	77	33	1
Yorkshire and The Humber	59	10.9	51	9.5	111	7	17	50	30	1
East Midlands	39	8.3	34	7.3	70	10	13	34	18	2
West Midlands	72	12.5	66	11.5	125	24	22	68	34	4
East of England	74	12.2	65	10.7	138	14	24	65	29	1
London	96	11.1	78	9.0	172	24	34	87	35	1
South East Coast	73	15.8	69	14.9	138	12	24	70	26	1
South Central	51	11.8	45	10.4	94	12	28	47	26	0
South West	67	12.2	58	10.6	124	15	27	63	32	0
<b>England</b>	<b>674</b>	<b>12.3</b>	<b>592</b>	<b>10.8</b>	<b>1240</b>	<b>156</b>	<b>242</b>	<b>608</b>	<b>290</b>	<b>11</b>
<b>Isle of Man</b>	<b>2</b>	<b>25.0</b>	<b>2</b>	<b>25.0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>0</b>
<b>Channel Islands</b>	<b>4</b>	<b>25.0</b>	<b>4</b>	<b>25.0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>0</b>
<b>Wales</b>	<b>39</b>	<b>12.6</b>	<b>36</b>	<b>11.6</b>	<b>69</b>	<b>6</b>	<b>4</b>	<b>38</b>	<b>17</b>	<b>0</b>
<b>Scotland</b>	<b>79</b>	<b>14.7</b>	<b>68</b>	<b>12.7</b>	<b>148</b>	<b>11</b>	<b>26</b>	<b>67</b>	<b>34</b>	<b>1</b>
<b>Northern Ireland</b>	<b>31</b>	<b>16.8</b>	<b>28</b>	<b>15.1</b>	<b>60</b>	<b>9</b>	<b>16</b>	<b>28</b>	<b>16</b>	<b>2</b>
<b>TOTAL</b>	<b>829</b>	<b>12.7</b>	<b>730</b>	<b>11.2</b>	<b>1529</b>	<b>182</b>	<b>288</b>	<b>747</b>	<b>360</b>	<b>14</b>

**Appendix IIB Numbers of donors after circulatory death and organs retrieved in the UK, 1 April 2016 - 31 March 2017, by country/  
Strategic Health Authority**

Country/ Strategic Health Authority	Donors			Organs						
	All donors	pmp	Multi-organ donors	pmp	Kidney	Heart	Lung	Liver	Pancreas	Bowel
North East	22	8.4	11	4.2	44	0	2	10	6	0
North West	72	10.0	33	4.6	140	1	8	32	10	0
Yorkshire and The Humber	45	8.3	23	4.3	86	0	0	20	12	0
East Midlands	35	7.5	17	3.6	70	2	7	16	11	0
West Midlands	49	8.5	24	4.2	96	0	2	21	14	0
East of England	76	12.5	49	8.1	150	4	9	48	14	0
London	50	5.8	30	3.5	96	4	2	30	11	0
South East Coast	53	11.4	30	6.5	102	5	12	31	10	0
South Central	38	8.8	23	5.3	71	0	4	24	7	0
South West	43	7.9	29	5.3	82	1	4	26	9	0
<b>England</b>	<b>483</b>	<b>8.8</b>	<b>269</b>	<b>4.9</b>	<b>937</b>	<b>17</b>	<b>50</b>	<b>258</b>	<b>104</b>	<b>0</b>
<b>Isle of Man</b>	<b>2</b>	<b>25.0</b>	<b>0</b>	<b>0.0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Channel Islands</b>	<b>1</b>	<b>6.3</b>	<b>1</b>	<b>6.3</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>
<b>Wales</b>	<b>29</b>	<b>9.4</b>	<b>13</b>	<b>4.2</b>	<b>54</b>	<b>0</b>	<b>4</b>	<b>15</b>	<b>5</b>	<b>0</b>
<b>Scotland</b>	<b>58</b>	<b>10.8</b>	<b>20</b>	<b>3.7</b>	<b>110</b>	<b>0</b>	<b>6</b>	<b>18</b>	<b>6</b>	<b>0</b>
<b>Northern Ireland</b>	<b>11</b>	<b>5.9</b>	<b>3</b>	<b>1.6</b>	<b>22</b>	<b>0</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>0</b>
<b>TOTAL</b>	<b>584</b>	<b>8.9</b>	<b>306</b>	<b>4.7</b>	<b>1129</b>	<b>17</b>	<b>64</b>	<b>294</b>	<b>117</b>	<b>0</b>

**Appendix III****Populations for SHA's, 2016-2017  
Mid-2015 estimates based on ONS 2011 Census figures**

<b>SHA</b>	<b>Population (millions)</b>
North East	2.62
North West	7.17
Yorkshire and The Humber	5.39
East Midlands	4.68
West Midlands	5.75
East of England	6.08
London	8.67
South East Coast <sup>1</sup>	4.63
South Central <sup>1</sup>	4.32
South West	5.47
<b>England</b>	<b>54.79</b>
<b>Isle of Man</b>	<b>0.08</b>
<b>Channel Islands</b>	<b>0.16</b>
<b>Wales</b>	<b>3.1</b>
<b>Scotland</b>	<b>5.37</b>
<b>Northern Ireland</b>	<b>1.85</b>
<b>TOTAL</b>	<b>65.35</b>

<sup>1</sup> Population obtained by proportionally dividing population of South East (8.95 million) based on previous data.

**Appendix IVA UK solid organ transplants from deceased UK donors<sup>1</sup> to non-UK residents, 1 April 2014 to 31 March 2017**

**Transplant type by year**

Year	Transplant type	Residency of recipient			Total
		ROI	Other EU	Non-EU	
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
	Multivisceral	0	1	0	1
	<b>Total</b>	<b>7</b>	<b>15</b>	<b>3</b>	<b>25</b>
2015/16	Heart	1	0	0	1
	Liver	1	11	1	13
	Double lung	2	0	0	2
	Bowel only	0	0	1	1
	Modified Multivisceral	1	0	0	1
	<b>Total</b>	<b>5</b>	<b>11</b>	<b>2</b>	<b>18</b>
2016/17	Kidney	0	0	1	1
	Heart	1	0	0	1
	Liver	4	4	1	9
	Double lung	1	0	0	1
	Liver and kidney	2	0	0	2
	<b>Total</b>	<b>8</b>	<b>4</b>	<b>2</b>	<b>14</b>

ROI = Republic of Ireland

<sup>1</sup> based on country of donor hospital

**Appendix IVB UK solid organ transplants from deceased non-UK donors<sup>1</sup> to UK residents, 1 April 2014 to 31 March 2017**

**Transplant type by year**

Year	Transplant type	Country of donation			Total
		ROI	Other EU	Non-EU	
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
	<b>Total</b>	<b>7</b>	<b>15</b>	<b>0</b>	<b>22</b>
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
	<b>Total</b>	<b>9</b>	<b>4</b>	<b>0</b>	<b>13</b>
2016/17	Kidney	3	0	0	3
	En-bloc kidney	1	3	0	4
	Heart	4	9	0	13
	Liver	10	3	0	13
	Double lung	2	3	0	5
	Multivisceral	0	1	0	1
	<b>Total</b>	<b>20</b>	<b>19</b>	<b>0</b>	<b>39</b>

ROI = Republic of Ireland

<sup>1</sup> based on country of donor hospital

**Appendix IVC      Non-UK solid organ transplants from deceased UK donors<sup>1</sup> to non-UK hospitals, 1 April 2014 to 31 March 2017**

**Transplant type by year**

Year	Transplant type	Residency of recipient			Total
		ROI	Other EU	Non-EU	
2014/15	Heart	0	2	0	2
	Liver	2	0	0	2
	Double lung	0	5	0	5
	<b>Total</b>	<b>2</b>	<b>7</b>	<b>0</b>	<b>9</b>
2015/16	Heart	0	3	0	3
	Liver	3	0	0	3
	Double lung	0	2	0	2
	<b>Total</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>8</b>
2016/17	Heart	0	2	0	2
	Liver	6	0	0	6
	Double lung	0	2	0	2
	<b>Total</b>	<b>6</b>	<b>4</b>	<b>0</b>	<b>10</b>

ROI = Republic of Ireland

<sup>1</sup> based on country of donor hospital

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