

Organ Donation and Transplantation

Activity Report 2018/19





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 21 May 2019 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).

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

The number of donors after brain death (DBD) and donors after circulatory death (DCD) by hospital are documented in **Appendix I**. Donation and transplant rates in this report are presented per million population (pmp): population figures used throughout this report are mid-2017 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.

Front cover – Steve and Christine Syer

According to records held by NHS Blood and Transplant, Steve Syer, 76, is the longest living recipient of a single heart transplant, with his donated organ still going strong after 35 years. The Great-Grandfather was given the lifesaving transplant in 1984 after suddenly developing viral cardiomyopathy in his early 40's and was seriously ill in hospital for six weeks. He also received a kidney from his wife, Christine, in 2016.





Foreword

Organ Donation and Transplantation is a UK success story. In the last decade, the UK has seen a 67% increase in deceased organ donors and a 49% increase in deceased donor transplants. Numbers on the Transplant Waiting List have fallen year on year and thousands of lives have been saved and improved through the gift of organ donation.

In the last year, we have again seen a UK record with 1,600 deceased organ donors, however this 1.7% increase was the smallest rise in donor numbers in five years. The increase was achieved despite a 4% drop in eligible donors, with 225 fewer eligible donors overall.

The decrease in the total number of eligible donors and the subsequent impact on the number of proceeding deceased organ donors, makes it increasingly challenging to maintain the consistent year on year increases in donor numbers.

The number of deceased organ donor transplants did not rise in correlation with the number of donors. There was a 2% decrease in the number of transplants, with 3,951 taking place in comparison to 4,038 in 2017/18 and a 1% increase in numbers on the Transplant Waiting List. The number of living donors fell by 3% to 1,039.

The organ donation and transplantation community is focused on understanding the implications of the complex factors impacting upon the donation and utilisation of organs for transplant. These include the increased number of donors with existing co-morbidities and the reduction in donors dying from trauma related injuries. Colleagues across the transplant community are committed to working together to ensure that organs are utilised when it is safe to do so.

We want to take this opportunity to thank those people across the NHS who support organ donation and transplantation. Thanks to their efforts, we have seen 239 fewer missed referral opportunities compared with 2017/18, equating to a 35% reduction. There were 22 fewer occasions where families did not support their relative's positive organ donation decision - a 22% reduction, and the overall consent/authorisation rate in 2018/19 was 67%, up 2% on last year.

In last year's report, we said that to continue our progress we needed a transformation in public attitudes if we are to achieve our aim of 80% of families supporting donation. This continues to be the case.

Wales has seen significant improvements in public support for organ donation since their move to an opt out system in December 2015. For the first time, Wales now has the highest consent rate of all the UK nations, at 77% from 58% in 2015. With England and Scotland all in the process of moving to an opt out system, we are committed to working to make the legislative changes a success and to enable more people to agree to donation and enable more transplants to take place.

No lifesaving transplant would be possible without the generosity of every donor and their families, who give their support and say 'yes' to organ donation. We owe it to these people and their families, as well as those waiting, to ensure that we honour their precious gift of life and make the most of every opportunity to save and improve lives.



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Contents

1	Summary of Donor and Transplant Activity	1
2	Overview of Organ Donation and Transplantation	3
	2.1 Summary of activity	4
	2.2 Transplant list	8
	2.3 Transplants.....	9
3	Organ Donation Activity	12
	3.1 Summary of activity	13
	3.2 Organ donors	14
	3.3 Demographic characteristics	17
4	The National Organ Retrieval Service and Usage of Organs	19
	4.1 The National Organ Retrieval Service (NORS)	20
	4.2 Retrieval and usage of organs.....	22
5	Kidney Activity	32
	5.1 Overview	33
	5.2 Transplant list	36
	5.3 Donor and organ supply	40
	5.4 Transplants.....	41
	5.5 Demographic characteristics	49
6	Pancreas Activity	51
	6.1 Overview	52
	6.2 Transplant list.....	53
	6.3 Donor and organ supply	57
	6.4 Transplants.....	58
	6.5 Demographic characteristics	60
7	Cardiothoracic Activity.....	61
	7.1 Overview	62
	7.2 Transplant list.....	63
	7.3 Donor and organ supply	70
	7.4 Transplants.....	72
	7.5 Demographic characteristics	75
8	Liver Activity	76
	8.1 Overview	77
	8.2 Transplant list.....	79
	8.3 Donor and organ supply	82
	8.4 Transplants.....	84
	8.5 Demographic characteristics	86
9	Intestinal Activity	87
	9.1 Overview	88
	9.2 Transplant list.....	89
	9.3 Donor and organ supply	91
	9.4 Transplants.....	92
	9.5 Demographic characteristics	93



11	Survival Rates Following Transplantation.....	94
	11.1 Kidney graft and patient survival	96
	11.1.1 Adult kidney recipients - donor after brain death (DBD)	96
	11.1.2 Adult kidney recipients - donor after circulatory death (DCD).....	97
	11.1.3 Adult kidney recipients - living donor.....	98
	11.1.4 Paediatric kidney recipients - donor after brain death (DBD)	99
	11.1.5 Paediatric kidney recipients - living donor	100
	11.2 Pancreas graft and patient survival	101
	11.2.1 Simultaneous kidney/pancreas transplants - donor after brain death (DBD).....	101
	11.2.2 Simultaneous kidney/pancreas transplants - donor after circulatory death (DCD) ...	102
	11.2.3 Pancreas only transplants - donor after brain death (DBD)	103
	11.2.4 Pancreas only transplants - donor after circulatory death (DCD)	104
	11.3 Cardiothoracic patient survival	105
	11.3.1 Adult heart recipients.....	105
	11.3.2 Adult heart-lung block recipients	106
	11.3.3 Adult lung recipients - donors after brain death (DBD).....	107
	11.3.4 Adult lung recipients - donors after circulatory death (DCD)	108
	11.3.5 Paediatric heart recipients.....	109
	11.3.6 Paediatric lung recipients – donors after brain death (DBD)	110
	11.4 Liver patient survival	111
	11.4.1 Adult recipients - donor after brain death (DBD)	111
	11.4.2 Adult recipients - donor after circulatory death (DCD).....	112
	11.4.3 Paediatric recipients - donor after brain death (DBD).....	113
	11.5 Intestinal patient survival	114
12	NHS Organ Donor Register	115
13	National Potential Donor Audit	123
	13.1 Introduction	124
	13.2 Definitions	124
	13.3 Breakdown of audited deaths in ICUs and emergency departments	125
	13.4 Eligible donors	128
	13.5 Consent/ authorisation rates	134
	13.6 Specialist Nurse - Organ Donation (SN-OD) involvement.....	138
	13.7 Comparison with previous years	140
14	Appendices	143





Summary of Donor and Transplant Activity

In the financial year to 31 March 2019, compared with the previous year

- there was a 2% increase in the number of deceased donors to 1,600, the highest number ever in the UK
- the number of donors after brain death increased by 1% to 962, while the number of donors after circulatory death increased by 3% to 638
- the number of living donors fell by 3% to 1,039, accounting for 39% of the total number of organ donors
- the total number of patients whose lives were potentially saved or improved by an organ transplant fell by 2% to 4,990

The total number of patients registered for a transplant has increased slightly (by 1%), so that:

- there were 6,077 patients waiting for a transplant at the end of March 2019, with a further 3,322 temporarily suspended from transplant lists
- 400 patients died while on the active list waiting for their transplant and a further 777 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:

- no change in the total number of kidney transplants
- a fall of 3% in the total number of pancreas transplants
- a fall of 5% in the total number of liver transplants
- a fall of 8% in the total number of heart transplants
- a fall of 20% in the total number of lung or heart-lung transplants
- an increase in the overall referral rate of potential donors from 92% to 94% and the proportion of approaches where a Specialist Nurse - Organ Donation was present, from 90% to 91%
- an increase in the overall consent/authorisation rate for organ donation from 66% to 67%
- an increase in the number of opt-in registrations on the ODR, from 24.9 to 25.3 million at the end of March 2019. There were 640,435 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 2018 to 31 March 2019

2.1 Summary of activity

The number of patients on the active transplant list at 31 March 2019 is 33 more than on the same date last year. This small increase 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 2009 to 31 March 2019) and the number of patients registered on the transplant lists at 31 March each year are shown in **Figure 2.1**. There were 87 fewer deceased donor transplants in 2018-2019 than in the previous year, representing a 2% fall. However, there was a 2% increase in the number of deceased donors.

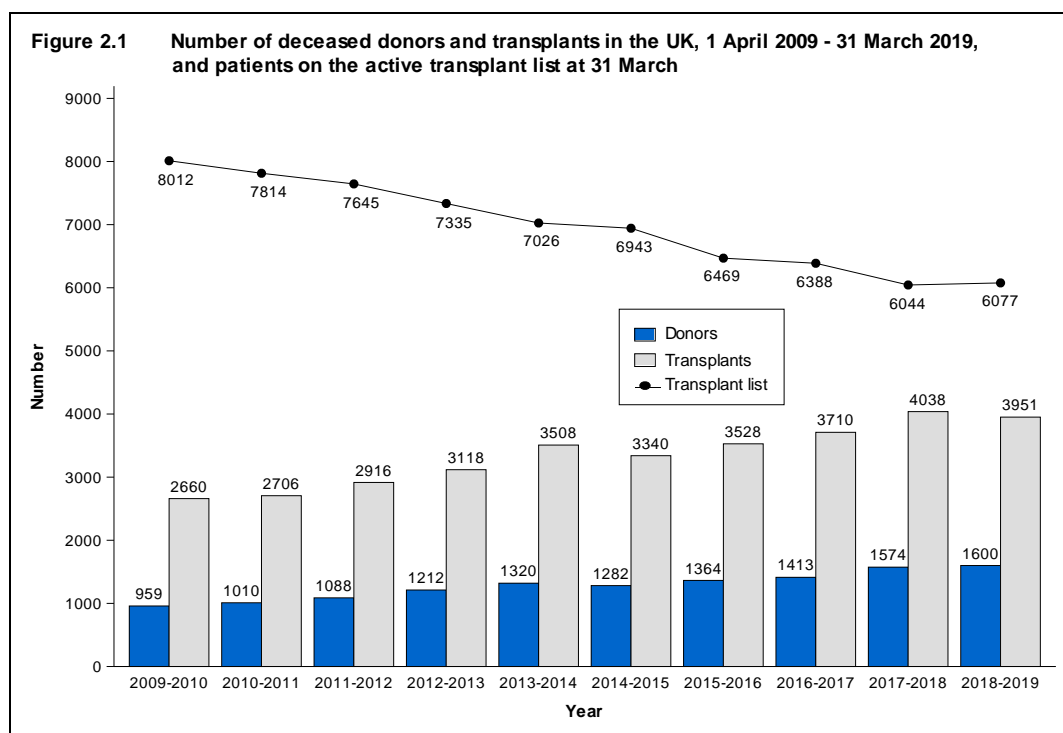


Figure 2.2 shows the number of deceased and living donors for 2009-2019. The numbers of deceased donors after brain death (DBD) and deceased donors after circulatory death (DCD) have both increased year on year, with the exception of 2014-2015. In 2018-2019 the numbers of DBD and DCD donors reached their highest ever, 962 and 638, respectively. The number of living donors has fallen over the last 6 years, from a peak of 1,148 donors in 2013-2014 to 1,039 in 2018-2019, which represents a 3% fall compared with 2017-2018.

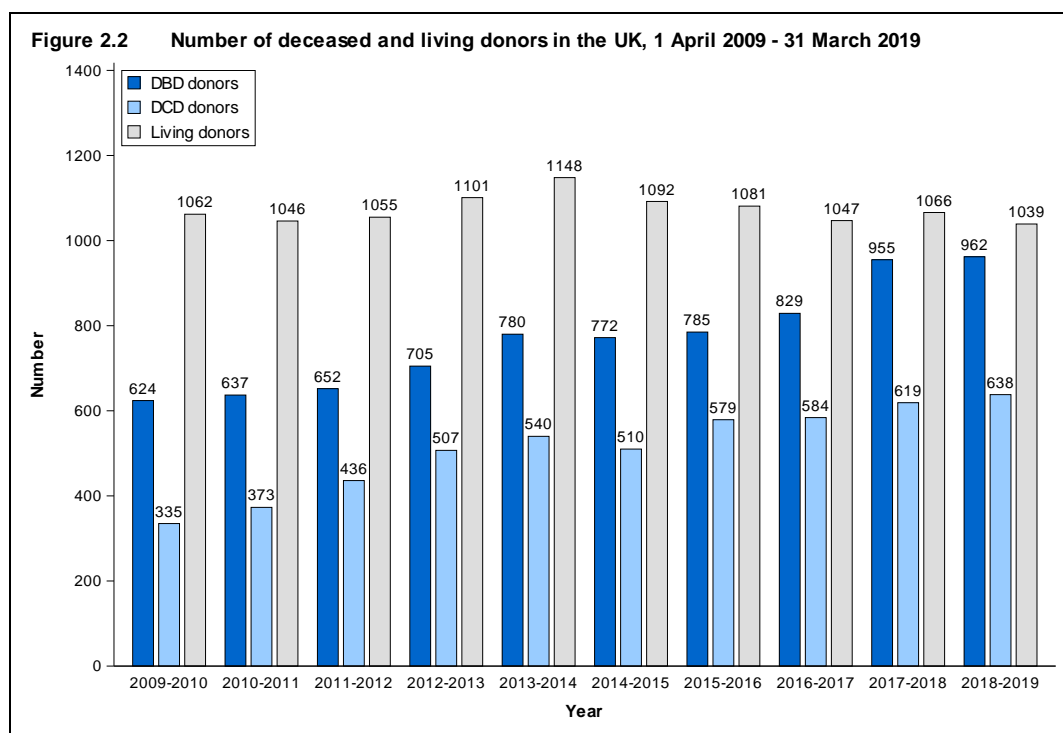
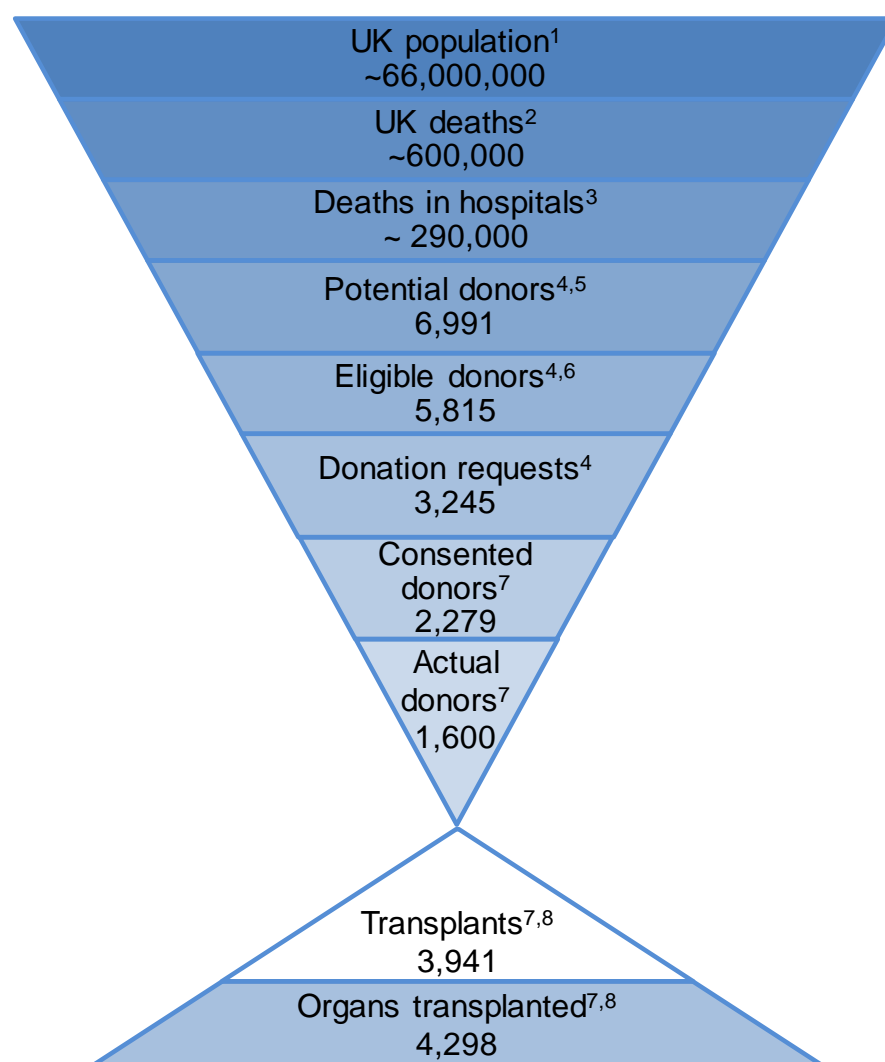


Figure 2.3 shows the potential deceased organ donor population in the UK. Not everyone can be a deceased organ donor and this figure highlights the small proportion of deaths in the UK that represent potential donors. *Please note that the information presented comes from several different sources. The 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 2018 – 31 March 2019**



¹ Mid 2017 estimates: www.ons.gov.uk

² 2017 data: England & Wales www.ons.gov.uk; Scotland www.gro-scotland.gov.uk; Northern Ireland www.nisra.gov.uk

³ 2017 data: England & Wales www.ons.gov.uk; Scotland www.isdscotland.org; Northern Ireland www.nisra.gov.uk

⁴ 2018/2019 data: NHSBT, Potential Donor Audit

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

⁶ Eligible donor - Potential donor with no absolute medical contraindications to solid organ donation

⁷ 2018/2019 deceased donor data: NHSBT, UK Transplant Registry

⁸ Using organs from actual donors in the UK

Table 2.1 shows the number of deceased donors and transplants in 2018-2019 and patients on the transplant list at 31 March 2019 for each country in the UK and overall.

Table 2.1 Deceased donors and transplants 1 April 2018 - 31 March 2019, and transplant lists as at 31 March 2019, by Country of residence										
Organ	Country of residence¹								TOTAL²	
	England		Wales		Scotland		Northern Ireland		N (pmp)	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
Kidney										
Deceased donors	1281	(23.0)	89	(28.4)	93	(17.2)	40	(21.4)	1506	(22.8)
Transplants ³	2058	(37.0)	109	(34.8)	171	(31.5)	48	(25.7)	2399	(36.3)
Transplant list	4214	(75.8)	171	(54.6)	482	(88.9)	92	(49.2)	4977	(75.4)
Pancreas										
Deceased donors	410	(7.4)	25	(8.0)	32	(5.9)	16	(8.6)	484	(7.3)
Transplants	168	(3.0)	12	(3.8)	22	(4.1)	2	(1.1)	204	(3.1)
Transplant list	183	(3.3)	18	(5.8)	44	(8.1)	3	(1.6)	250	(3.8)
Heart										
Deceased donors	161	(2.9)	12	(3.8)	7	(1.3)	6	(3.2)	186	(2.8)
Transplants ⁴	153	(2.8)	7	(2.2)	11	(2.0)	7	(3.7)	180	(2.7)
Transplant list	234	(4.2)	10	(3.2)	27	(5.0)	15	(8.0)	295	(4.5)
Lung										
Deceased donors	165	(3.0)	8	(2.6)	15	(2.8)	9	(4.8)	197	(3.0)
Transplants	138	(2.5)	8	(2.6)	14	(2.6)	4	(2.1)	164	(2.5)
Transplant list	283	(5.1)	22	(7.0)	28	(5.2)	14	(7.5)	351	(5.3)
Liver										
Deceased donors	947	(17.0)	64	(20.4)	76	(14.0)	23	(12.3)	1113	(16.9)
Transplants	779	(14.0)	35	(11.2)	114	(21.0)	34	(18.2)	972	(14.7)
Transplant list	346	(6.2)	19	(6.1)	37	(6.8)	20	(10.7)	432	(6.5)
Intestinal										
Deceased donors	16	(0.3)	2	(0.6)	1	(0.2)	2	(1.1)	21	(0.3)
Transplants	17	(0.3)	0	(0.0)	0	(0.0)	0	(0.0)	18	(0.3)
Transplant list	10	(0.2)	0	(0.0)	0	(0.0)	0	(0.0)	11	(0.2)
Total⁵										
Deceased donors	1361	(24.5)	96	(30.7)	97	(17.9)	43	(23.0)	1600	(24.2)
Transplants	3313	(59.6)	171	(54.6)	332	(61.3)	95	(50.8)	3951	(59.8)
Transplant list	5091	(91.5)	222	(70.9)	579	(106.8)	143	(76.5)	6077	(92.0)

¹ Country of residence of donor given for deceased donor numbers, and residence of recipient given for transplant and waiting list numbers

² Includes patients resident in Channel Islands, Isle of Man; excludes patients resident overseas and in the Republic of Ireland

³ Kidney only transplants

⁴ Excludes heart-lung transplants

⁵ Organ numbers do not add up to total due to multi-organ donors and patients waiting for a multi-organ transplant

2.2 Transplant list

At 31 March 2019, 6,077 patients were registered for an organ transplant in the UK on the active transplant list. A further 3,322 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 2018 and 2019. Between these dates the total number increased by 33 (1%) due to an increase in the number of patients on the liver transplant list.

Table 2.2 Active transplant lists in the UK at 31 March 2018 and 2019			
	2018	2019	% Change
Kidney & pancreas patients	5038	4989	-1
Kidney	4820	4739	-2
Kidney & pancreas	175	196	+12
Kidney & pancreas islets	10	16	+60
Pancreas	14	12	-14
Pancreas islets	19	26	+37
Cardiothoracic patients	639	643	+1
Heart	282	292	+4
Heart-lung	13	12	-8
Lung(s)	344	339	-1
Liver patients	333	407	+22
Intestinal patients	6	11	-
Other multi-organ patients¹	28	27	-4
ALL PATIENTS	6044	6077	+1
Percentages not reported when fewer than 10 in either year			
¹ Includes patients waiting for kidney and liver transplants (26 in 2018, 24 in 2019), kidney and heart transplants (2 in 2018, 2 in 2019), liver and heart transplants (1 in 2019)			

During 2018-2019, 408 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, between 1 April 2018 and 31 March 2019

	Total	Adult	Paediatric
Kidney & pancreas patients	279	279	0
Kidney	260	260	0
Kidney & pancreas	17	17	0
Pancreas	2	2	0
Cardiothoracic patients	81	77	4
Heart	20	16	4
Heart-lung	1	1	0
Lung(s)	60	60	0
Liver patients	45	44	1
Intestinal patients	1	0	1
Other multi-organ patients¹	2	1	1
ALL PATIENTS	408	401	7

¹ Includes patients waiting for kidney and liver transplants (1 adult, 1 paediatric)

2.3 Transplants

There was a 2% fall in the total number of organ transplants (from deceased and living donors) last year: 4,990 transplants were performed in 2018-2019 compared with 5,104 in 2017-2018 (**Table 2.4**). All multi-organ transplants are identified separately as are transplants from living donors.

The total number of kidney transplants remained similar in 2018-2019; kidney transplants from donors after circulatory death increased by 3%, while the number of living donor kidney transplants fell by 2%. The total number of cardiothoracic organ transplants fell by 16%, the number of liver transplants fell by 5% and the number of pancreas transplants (including pancreas only, intestinal, kidney/pancreas and pancreas islets) fell by 7%.

Table 2.4 Transplants performed in the UK, 1 April 2017 - 31 March 2019

Transplant	2017-2018	2018-2019	% Change
DBD kidney	1436	1427	-1
DCD kidney	943	972	+3
Living donor kidney	1035	1017	-2
DBD kidney & pancreas	120	112	-7
DCD kidney & pancreas	48	46	-4
Kidney & pancreas islets	4	8	-
DBD pancreas	13	12	-8
DCD pancreas	4	6	-
Pancreas islets	22	20	-9
DBD heart	172	151	-12
DCD heart	25	31	+24
Heart-lung	12	4	-
DBD single lung	21	11	-48
DCD single lung	2	5	-
DBD bilateral lung	142	112	-21
DCD bilateral lung	36	34	-6
DBD liver	690	675	-2
DCD liver	200	186	-7
Domino liver	1	1	-
DBD liver lobe	99	107	+8
DCD liver lobe	0	1	-
Living donor liver lobe	29	21	-28
Bowel only	6	8	-
Liver, bowel & pancreas	2	1	-
Multivisceral ¹	12	6	-
Modified multivisceral	5	4	-
Living liver & bowel	1	0	-
Kidney & liver	22	12	-45
Heart & liver	1	0	-
Liver & lung	1	0	-
TOTAL ORGAN TRANSPLANTS	5104	4990	-2
Total kidney transplants²	3612	3594	0
Total pancreas transplants²	230	215	-7
Total cardiothoracic transplants	412	348	-16
Total liver transplants²	1058	1010	-5
Total intestinal transplants	26	19	-27

Percentage not reported when fewer than 10 in either year

¹ Including a kidney (4 in 2017-2018)

² Includes intestinal transplants

The total approximate number of patients with a functioning transplant on 31 March 2019 is 54,500 (**Table 2.5**). This reflects information held on the UK transplant registry database and excludes those patients who are known to be lost to follow-up.

Table 2.5 Number of transplants reported as functioning at 31 March 2019	
	Functioning transplants¹
Kidney	39700
Pancreas	2000
Cardiothoracic	4000
Liver	10500
Intestinal	100
ALL PATIENTS	54500
¹ Approximate number of patients with a functioning transplant being followed up 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 2% increase in deceased donors (to 1,600) and a 3% fall in living organ donors (to 1,039) compared with last year
- There has been an increase in donors after brain death of 1% to 962 and an increase of 3% in donors after circulatory death to 638, 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 2% increase in the number of deceased organ donors in 2018-2019 (1,600), 32 short of the target of 1,632 donors set for the year. There was an increase in donors after brain death (DBD) of 1% and an increase of 3% in donors after circulatory death (DCD).

The 1,600 deceased organ donors gave 5,147 organs compared with 1,574 donors and 5,260 organs in 2017-2018. This represents a 2% decrease in organs donated. **Table 3.1** shows deceased organ donors according to the organs they donated.

Nearly all deceased donors (94%) gave a kidney and of these, the majority (73%) also donated at least one other organ. Only 15% of donors after brain death were single organ donors, with equal proportions being liver only and kidney only donors. By contrast, 54% of donors after circulatory death were single organ donors, the majority (97%) of these donating just their kidneys.

Although the vast majority of living organ donors donated a kidney, 22 donated part of their liver. All living donations are approved by the Human Tissue Authority.

Table 3.1 Solid organ donors in the UK, 1 April 2018 - 31 March 2019, by organ types donated				
	DBD	DCD	Living donor	TOTAL
Kidney only	78	331	1017	1426
Kidney & thoracic	9	20	-	29
Kidney & liver	363	144	-	507
Kidney & pancreas	10	19	-	29
Kidney & bowel	1	-	-	1
Kidney, thoracic & liver	61	21	-	82
Kidney, thoracic & pancreas	3	7	-	10
Kidney, pancreas & bowel	1	-	-	1
Kidney, liver & pancreas	192	51	-	243
Kidney, liver & bowel	2	-	-	2
Kidney, liver, pancreas & bowel	8	-	-	8
Kidney, thoracic, liver & pancreas	145	31	-	176
Kidney, thoracic, liver, pancreas & bowel	9	-	-	9
Thoracic only	4	3	-	7
Thoracic & liver	6	1	-	7
Liver only	64	8	22	94
Liver & pancreas	6	1	-	7
Pancreas only	-	1	-	1
TOTAL	962	638	1039	2639
Bowel may include abdominal wall/colon/stomach/spleen				

3.2 Organ donors

Organ donor rates per million population (pmp) for 2018-2019 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.

Table 3.2 Organ donation rates per million population (pmp), in the UK, 1 April 2018 - 31 March 2019, by country/ Strategic Health Authority of donor residence¹								
Country of donation/ Strategic Health Authority	DBD		DCD		TOTAL		Living	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
North East	64	(24.2)	28	(10.6)	92	(34.8)	49	(18.6)
North West	110	(15.2)	68	(9.4)	178	(24.5)	107	(14.7)
Yorkshire and The Humber	79	(14.5)	51	(9.4)	130	(23.9)	97	(17.8)
North of England	253	(16.5)	147	(9.6)	400	(26.1)	253	(16.5)
East Midlands	62	(13.0)	57	(11.9)	119	(24.9)	43	(9.0)
West Midlands	73	(12.5)	58	(9.9)	131	(22.4)	62	(10.6)
East of England	85	(13.8)	79	(12.8)	164	(26.6)	67	(10.9)
Midlands and East	220	(13.1)	194	(11.5)	414	(24.6)	172	(10.2)
London	116	(13.1)	69	(7.8)	185	(21.0)	163	(18.5)
South East Coast	83	(17.7)	48	(10.2)	131	(27.9)	58	(12.4)
South Central	62	(14.2)	42	(9.6)	104	(23.8)	89	(20.4)
South West	80	(14.4)	47	(8.5)	127	(22.8)	82	(14.7)
South of England	225	(15.4)	137	(9.4)	362	(24.8)	229	(15.7)
England	814	(14.6)	547	(9.8)	1361	(24.5)	817	(14.7)
Isle of Man	2	(25.0)	0	(0.0)	2	(25.0)	1	(12.5)
Channel Islands	1	(6.3)	0	(0.0)	1	(6.3)	3	(18.8)
Wales	51	(16.3)	45	(14.4)	96	(30.7)	44	(14.1)
Scotland	68	(12.5)	29	(5.4)	97	(17.9)	113	(20.8)
Northern Ireland	26	(13.9)	17	(9.1)	43	(23.0)	61	(32.6)
TOTAL	962	(14.6)	638	(9.7)	1600	(24.2)	1039	(15.7)

¹ Includes 81 donors (13 deceased, 68 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 14.6 DBD donors pmp for the UK as a whole, but across the former English Strategic Health Authorities (SHA) this ranged between 12.5 and 24.2 pmp. Across the four countries of the UK, Wales had the highest rate of 16.3 pmp. However, the number of eligible donors pmp also varies and further information can be seen in Chapter 13. It should be noted that these figures are not directly comparable, since not all donors are reported in the Potential Donor Audit. For DCD donors the UK rate is 9.7 pmp, again Wales has the highest rate of 14.4 pmp across countries of the UK, across the former English SHAs it ranged from 7.8 to 12.8 pmp. No adjustment has been made for any differences in demographics of the populations across countries or SHAs.

Table 3.3 Deceased organ donors in the UK, 1 April 2018 - 31 March 2019, by country/ Strategic Health Authority of hospital of donor death			
Country of donation/ Strategic Health Authority	DBD N	DCD N	TOTAL N
North East	67	29	96
North West	110	66	176
Yorkshire and The Humber	80	52	132
North of England	257	147	404
East Midlands	53	46	99
West Midlands	75	66	141
East of England	69	73	142
Midlands and East	197	185	382
London	175	91	266
South East Coast	50	41	91
South Central	58	43	101
South West	77	47	124
South of England	185	131	316
England	814	554	1368
Isle of Man	2	0	2
Channel Islands	1	0	1
Wales	50	37	87
Scotland	68	30	98
Northern Ireland	27	17	44
TOTAL	962	638	1600

Table 3.4 Deceased organ donors in the UK, 1 April 2018 - 31 March 2019 by Organ Donation Services Team			
Team	DBD N	DCD N	TOTAL N
Eastern	88	79	167
London	132	66	198
Midlands	112	104	216
North West	123	69	192
Northern	69	33	102
Northern Ireland	27	17	44
Scotland	68	30	98
South Central	73	56	129
South East	81	61	142
South Wales	40	31	71
South West	67	38	105
Yorkshire	82	54	136
TOTAL	962	638	1600

The mean number of organs retrieved per donor in 2018-2019 is given by country in **Table 3.5**. Overall, an average of 3.5 organs were donated per DBD donor and 2.7 per DCD donor. For DBD donors, the rate ranged from 3.4 organs per donor in Wales to 3.8 in Northern Ireland.

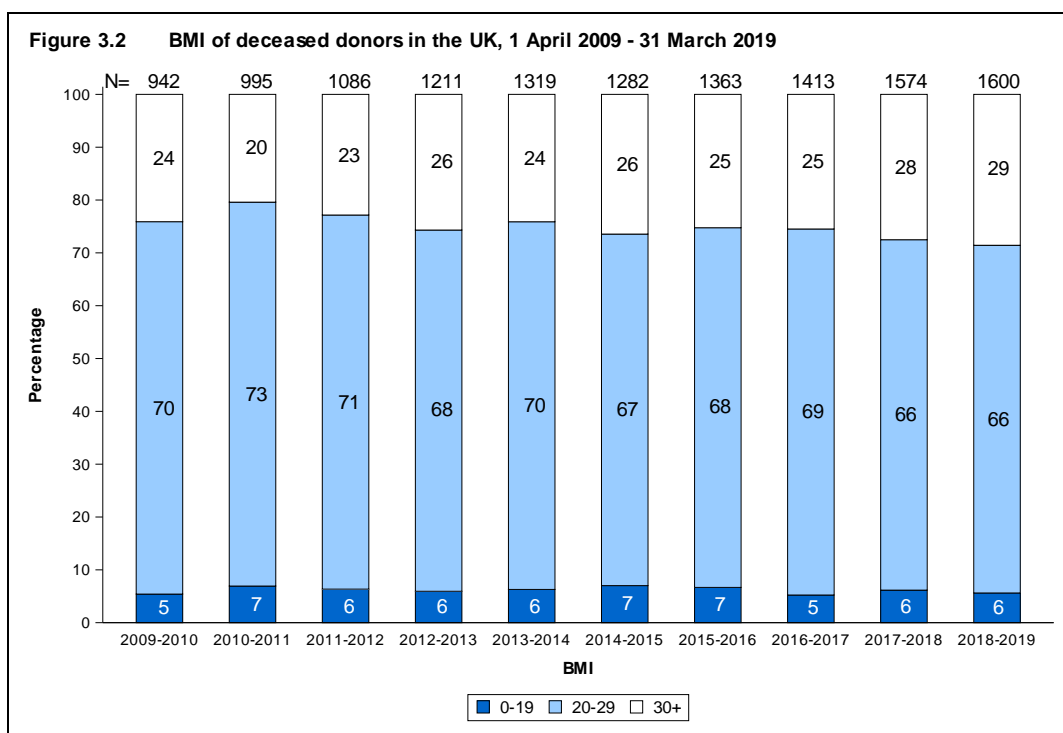
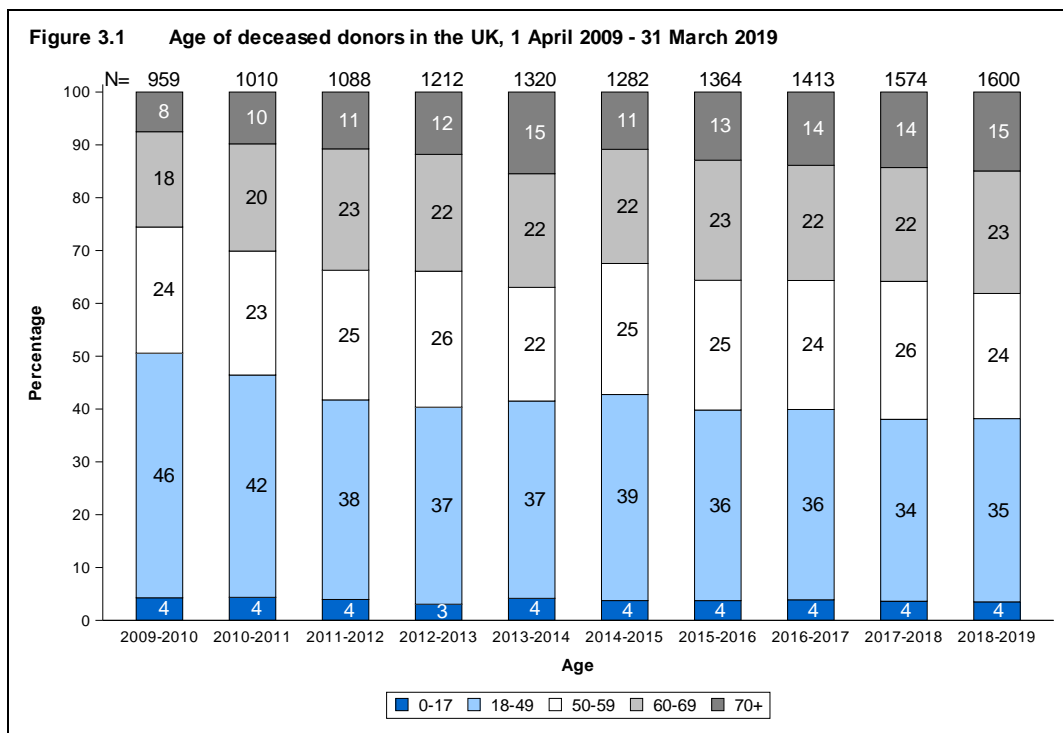
Table 3.5 Organs retrieved per donor, in the UK, 1 April 2018 - 31 March 2019, by country of donor residence									
Country	DBD	Adult DCD	TOTAL	DBD	Paediatric DCD	TOTAL	DBD	All DCD	TOTAL
England	3.5	2.7	3.2	4.4	3.6	4.0	3.5	2.7	3.2
Wales	3.4	2.6	3.0	4.3	4.0	4.2	3.4	2.7	3.1
Scotland	3.6	2.6	3.3	4.7	-	4.7	3.7	2.6	3.3
Northern Ireland	3.8	2.5	3.3	4.0	-	4.0	3.8	2.5	3.3
TOTAL	3.5	2.7	3.2	4.4	3.6	4.1	3.5	2.7	3.2

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 2018-2019, 38% of deceased donors were aged 60 years or more compared with 26% in 2009-2010 (**Figure 3.1**). In particular the proportion of donors aged at least 70 years has increased from 8% to 15% over the same time period. The proportion of clinically obese donors (Body Mass Index (BMI) of 30 or higher) has increased from 24% to 29% 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 11% 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 8% of donors are from the Black, Asian and minority ethnic (BAME) community. By contrast, the BAME community represent 11% of the UK population.

Table 3.6		Demographic characteristics of organ donors in the UK					
		1 April 2018 - 31 March 2019					
		DBD		DCD		TOTAL	
		N	%	N	%	N	%
Age	0-17	33	3	23	4	56	4
	18-49	370	38	185	29	555	35
	50-59	234	24	145	23	379	24
	60-69	192	20	179	28	371	23
	70+	133	14	106	17	239	15
	Mean (SD)	51	17	54	16	52	17
BMI	0-19	56	6	34	5	90	6
	20-29	660	69	393	62	1053	66
	30+	246	26	211	33	457	29
	Mean (SD)	27	6	28	6	27	6
Cause of death	Intracranial	857	89	536	84	1393	87
	Trauma	26	3	19	3	45	3
	Other	79	8	83	13	162	10
Ethnicity	White	865	90	603	95	1468	92
	Asian	42	4	14	2	56	4
	Black	15	2	5	1	20	1
	Other	34	4	11	2	45	3
	Unknown	6	-	5	-	11	-
Blood group	O	488	51	296	46	784	49
	A	356	37	270	42	626	39
	B	87	9	55	9	142	9
	AB	31	3	17	3	48	3
Donor gender	Male	475	49	396	62	871	54
	Female	487	51	242	38	729	46
TOTAL		962	100	638	100	1600	100



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 977 possible DBD donors and 965 possible DCD donors; 98% of these DBD donors and 66% of these DCD donors attended proceeded to donation
- Overall, 54% of organs offered from those donors that did proceed were transplanted, but individually, these rates were 84% for kidneys, 62% for livers, 25% for pancreases, 26% for hearts, 18% for lungs and 11% for bowels
- The number of deceased donors per million of population was 24.2, however 5% of actual donors resulted in no organ transplants, the same as the previous year

4.1 The National Organ Retrieval Service (NORS)

There are 16 NORS teams in total, ten abdominal and six cardiothoracic. From 4 April 2016, following the NORS review, there have been seven abdominal and three cardiothoracic NORS teams available to retrieve organs from deceased donors in the UK for transplantation, at any given time. Prior to the NORS review there were six cardiothoracic teams available at any given time. To facilitate this reduction, all six cardiothoracic teams are part-time. Six out of the abdominal NORS teams are part-time.

NORS teams are mobilised using a sequence, the first and second teams in the sequence are defined for each UK hospital (largely based on travel times but adjusted to give a more even workload across NORS teams), while subsequent teams in the sequence are ordered based on travel time and availability, known as 'closest available', which applied for April 2018 – January 2018 for the current report. The new system was introduced in February 2019 following a Demand and Capacity review.

If a team is first in sequence 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.

The number of possible DBD and DCD donors that were attended by each of the teams in 2018-2019 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 (proceeding 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 proceeding and non-proceeding donors attended by each NORS team

NORS team	DBD				DCD			
	Proceeding ⁵	Non-proceeding	% non-proc	No. attended	Proceeding ⁵	Non-proceeding	% non-proc	No. attended
Abdominal								
Birmingham ¹	128	3	2	131	95	29	23	124
Cambridge	128	1	1	129	90	47	34	137
Cardiff ¹	29	0	-	29	30	13	30	43
Edinburgh	82	3	4	85	35	25	42	60
King's	177	0	-	177	110	64	37	174
Leeds ²	79	0	-	79	59	32	35	91
Manchester ²	71	2	3	73	56	34	38	90
Newcastle	112	4	3	116	62	37	37	99
Oxford ³	80	2	2	82	55	27	33	82
Royal Free ³	72	1	1	73	43	15	26	58
Abdominal total	958	16	2	974	635	323	34	958
Cardiothoracic⁴								
Birmingham	33	43	57	76	7	9	56	16
Glasgow	16	18	53	34	2	4	67	6
Harefield	50	27	35	77	24	16	40	40
Manchester	51	42	45	93	8	20	71	28
Newcastle	32	26	45	58	8	8	50	16
Papworth	55	37	40	92	30	23	43	53
Cardiothoracic total	237	193	45	430	80	80	50	159
Total donors attended	962	15	2	977	638	327	34	965

^{1,2,3,4} Share on-call responsibilities

⁵ For abdominal, at least one abdominal organ retrieved. For cardiothoracic, at least one cardiothoracic organ retrieved

For more detailed information regarding the National Organ Retrieval Service and individual team activity, an annual NORS report is available here: <https://www.odt.nhs.uk/statistics-and-reports/annual-national-organ-retrieval-service-report/>

4.2 Retrieval and usage of organs

The number of 'consented' donors ('authorised' donors in Scotland) and 'offered' donors (where at least one organ was offered for transplant) are shown in **Table 4.2**. Note that organs are not always offered from 'consented' donors, e.g. because the donor's condition deteriorates, or it is discovered the donor is unsuitable for organ donation. The number of organs offered from '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 2018-2019, 5% of actual donors resulted in no organ transplants, the same as the previous year.

Table 4.2 Consented, offered, actual and utilised deceased donors in the UK, 1 April 2018 - 31 March 2019					
	DBD (pmp)		DCD (pmp)		Total (pmp)
Consented donors ¹	1070	(16.2)	1209	(18.3)	2279 (34.5)
Offered donors ²	1032	(15.6)	1082	(16.4)	2114 (32.0)
<i>Kidneys offered</i>	1993		2100		4093
<i>Livers offered</i>	998		987		1985
<i>Pancreases offered</i>	671		356		1027
<i>Bowels offered</i>	183		0		183
<i>Hearts offered</i>	607		152		759
<i>Lungs offered</i>	1352		868		2220
Actual donors ³	962	(14.6)	638	(9.7)	1600 (24.2)
Utilised donors ⁴	933	(14.1)	583	(8.8)	1516 (23.0)

¹ Consented donors defined as patients where consent for at least one organ was given
² Offered donors defined as donors where one or more organs were offered for transplantation
³ Actual donors defined as donors where one or more organs were retrieved for transplantation
⁴ Utilised donors defined as donors where one or more organs were retrieved and transplanted

There were 1,600 actual deceased organ donors in 2018-2019, 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 962 DBD and 638 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.

Table 4.3 Donation and transplantation of organs from 1600 deceased donors in the UK, 1 April 2018 – 31 March 2019

Organ	Organs meeting initial suitability criteria and offered for transplantation	Organs retrieved for transplantation		Organs transplanted			Organs used for research (from actual organ donors)
		N	% of offered	N	% of retrieved	% of offered	
DBD donor organs							
Kidney	1867	1749	94	1578	90	85	64
Liver	934	856	92	762	89	82	52
Pancreas ¹	630	363	58	159	44	25	91
Bowel ²	166	21	13	19	90	11	0
Heart ³	570	153	27	149	97	26	1
Lung ⁴	1230	269	22	243	90	20	15
Total	5397	3411	63	2910	85	54	223
DCD donor organs ⁵							
Kidney	1259	1236	98	1043	84	83	89
Liver	588	257	44	186	72	32	40
Pancreas ¹	233	104	45	55	53	24	15
Lung ⁴	482	107	22	73	68	15	29
Total	2562	1704	67	1357	80	53	173
Deceased donor organs							
Kidney	3126	2985	95	2621	88	84	153
Liver	1522	1113	73	948	85	62	92
Pancreas ¹	863	467	54	214	46	25	106
Bowel ²	166	21	13	19	90	11	0
Heart ³	570	153	27	149	97	26	1
Lung ⁴	1712	376	22	316	84	18	44
Total	7959	5115	64	4267	83	54	396

¹ Excludes donors with a BMI > 40 or aged > 65 years (DBD) or aged > 55 years (DCD)

² Excludes donors aged >= 56 years or weighing >= 80kg

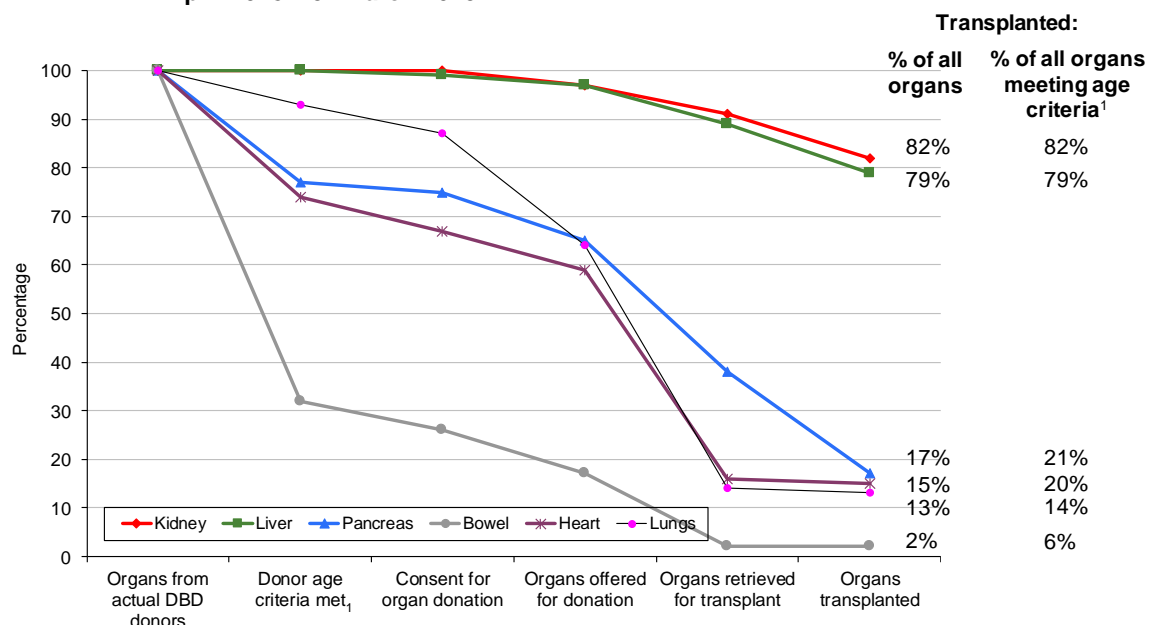
³ Excludes donors aged >= 65 years or died due to myocardial infarction

⁴ Excludes donors aged > 70 years

⁵ Excludes DCD hearts because this is not part of the national service, see cardiothoracic section for DCD heart detail

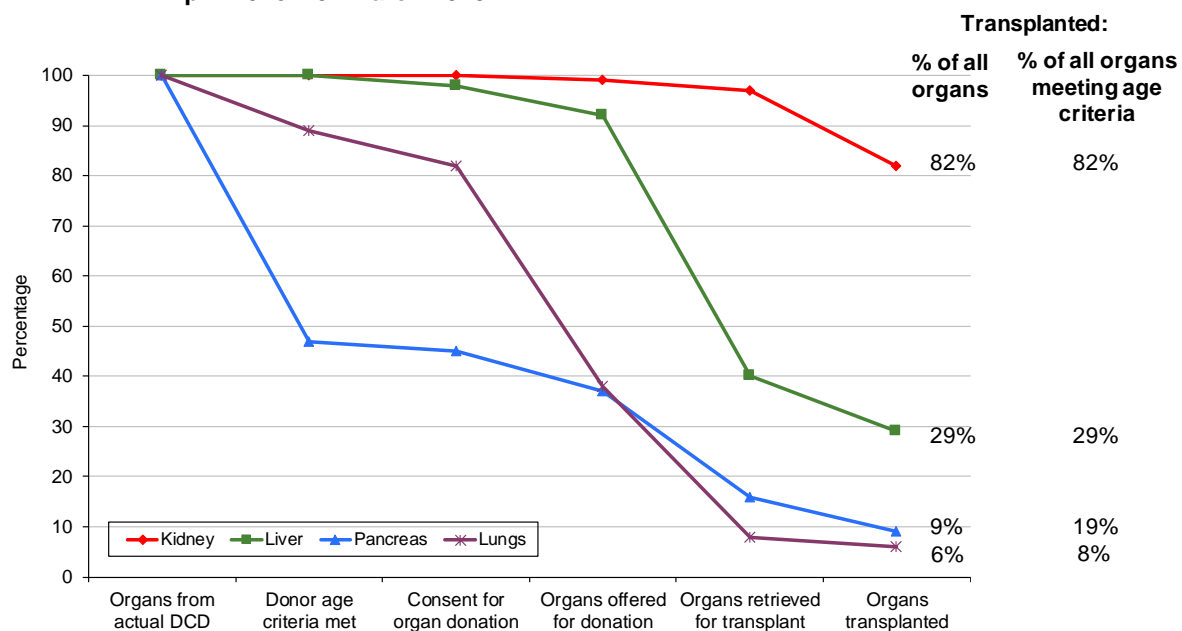
Figures 4.1 and 4.2 show line graphs of the pathway for all donor organs through to transplantation. The charts start at 100% for each organ, representing all organs from the 962 DBD and 638 DCD donors. The proportion of these organs where any national donor age criteria are met is then shown, followed by the proportion with consent, the proportion offered, the proportion retrieved and finally the proportion transplanted. For example, **Figure 4.2** shows that 82% of the kidneys from the 638 DCD donors were transplanted, a slight fall from 83% 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 2018 – 31 March 2019



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

Figure 4.2 Donation and transplantation rates of organs from DCD organ donors in the UK, 1 April 2018 – 31 March 2019



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' primarily include recipient related issues (such as no suitable recipients), but may also include logistical reasons and un-coded reasons reported of a miscellaneous nature.

These tables also show the number of organs from UK donors that were transplanted overseas. These organs were not accepted for transplantation by any UK transplant centre, but were accepted for suitable recipients identified elsewhere, usually in Europe. In 2018-2019 only a small number of livers, hearts and lungs were exported for transplantation outside the UK. Organs from outside the UK are occasionally imported for transplant. Further information on the import and export of organs can be found in **Appendix IV**.

The 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. Many organs retrieved but found not to be suitable for transplantation are instead used for research (with appropriate consent).

Table 4.4 Reasons for non-retrieval and non-use of abdominal organs from DBD donors in the UK, 1 April 2018 - 31 March 2019

	Kidney	Liver	Pancreas	Bowel
All actual DBD organ donors	962	962	962	962
Donors from whom organs were not offered for donation	25	28	332	796
<i>Reasons for organs not being offered¹</i>				
Family permission refused	0	3	17	48
Permission refused by coroner	1	4	3	5
Permission refused other	0	0	3	3
Donor unsuitable - medical	1	0	1	0
Donor unsuitable - non-medical	0	0	3	1
Donor unsuitable - age	0	0	218	3
Organ unsuitable - clinical	16	14	47	16
Poor function	7	6	6	5
Donor age >=56 or donor weight >=80kg	0	0	0	654
Other	0	1	34	61
TOTAL DONORS WITH ORGANS NOT OFFERED	25	28	332	796
Organs offered for donation	1867	934	630	166
Organs not retrieved (% of organs offered for donation)	118 (6)	78 (8)	267 (42)	145 (87)
<i>Reasons for non-retrieval</i>				
Donor unsuitable - medical	14	2	15	20
Donor unsuitable - non-medical	0	5	19	29
Donor unsuitable - age	10	4	60	3
Organ unsuitable - clinical	65	35	113	47
Poor function	18	12	15	8
Other	11	20	45	38
TOTAL ORGANS OFFERED, NOT RETRIEVED	118	78	267	145
Organs retrieved (% of organs offered for donation)	1749 (94)	856 (92)	363 (58)	21 (13)
Organs transplanted in the UK	1578	753	159	19
Organs transplanted overseas	0	9	0	0
Organs not transplanted	171	94	204	2
<i>Reasons for organ not being transplanted</i>				
Donor unsuitable - medical	27	4	12	0
Organ unsuitable - clinical	15	27	64	0
Poor function	2	1	0	0
Other	127	62	128	2
TOTAL ORGANS RETRIEVED, NOT TRANSPLANTED (Number used for research)	171 (64)	94 (52)	204 (91)	2 (0)

¹ Includes donors whose organ may have been offered but are outside of organ specific criteria

Table 4.5 Reasons for non-retrieval and non-use of abdominal organs from DCD donors in the UK, 1 April 2018 - 31 March 2019

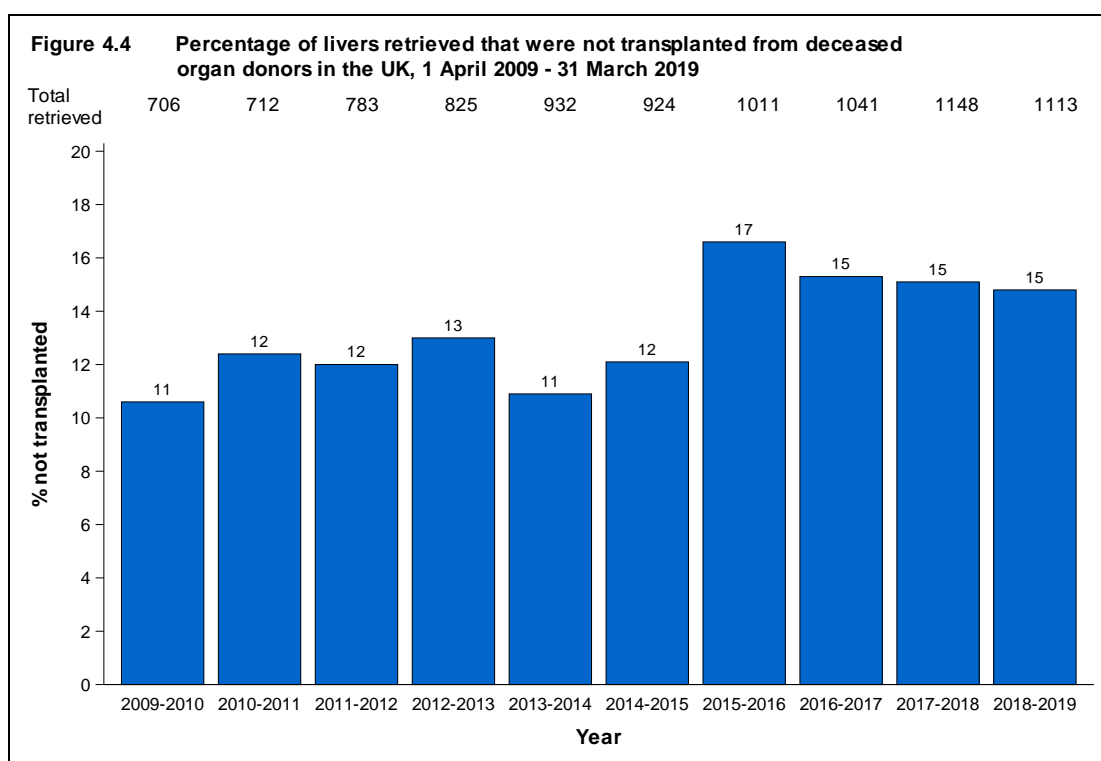
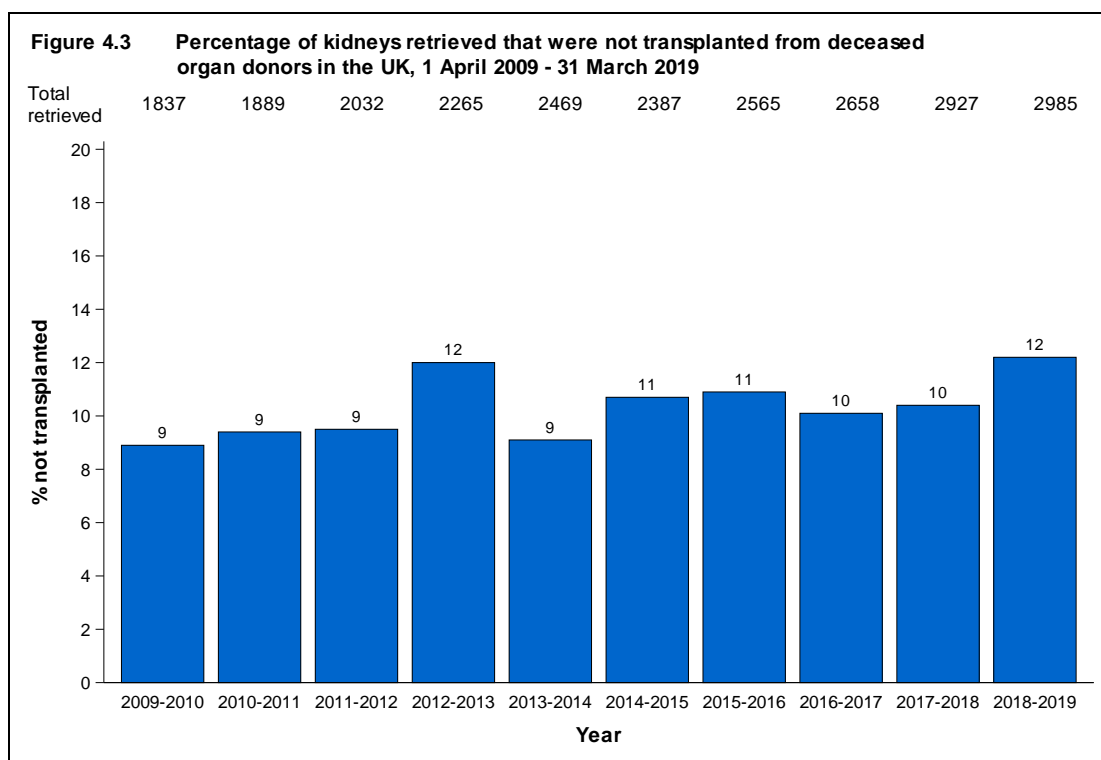
	Kidney	Liver	Pancreas
All actual DCD organ donors	638	638	638
Donors from whom organs were not offered for donation	7	50	405
<i>Reasons for organs not being offered¹</i>			
Family permission refused	0	6	6
Permission refused by coroner	0	4	2
Permission refused other	0	2	0
Donor unsuitable - medical	0	0	1
Donor unsuitable - non-medical	0	1	3
Donor unsuitable - age	0	2	341
Organ unsuitable - clinical	4	28	24
Poor function	3	7	3
Other	0	0	25
TOTAL DONORS WITH ORGANS NOT OFFERED	7	50	405
Organs offered for donation	1259	588	233
Organs not retrieved (% of organs offered for donation)	23 (2)	331 (56)	129 (55)
<i>Reasons for non-retrieval</i>			
Donor unsuitable - medical	0	3	0
Donor unsuitable - non-medical	0	16	9
Donor unsuitable - age	2	90	14
Organ unsuitable - clinical	11	105	74
Poor function	3	34	5
Other	7	83	27
TOTAL ORGANS OFFERED, NOT RETRIEVED	23	331	129
Organs retrieved (% of organs offered for donation)	1236 (98)	257 (44)	104 (45)
Organs transplanted in the UK	1043	186	55
Organs transplanted overseas	0	0	0
Organs not transplanted	193	71	49
<i>Reasons for organ not being transplanted</i>			
Donor unsuitable - medical	28	0	4
Donor unsuitable - non-medical	0	1	0
Organ unsuitable - clinical	38	21	18
Other	127	49	27
TOTAL ORGANS RETRIEVED, NOT TRANSPLANTED (Number used for research)	193 (89)	71 (40)	49 (15)

¹ Includes donors whose organ may have been offered but are outside of organ specific criteria

Table 4.6 Reasons for non-retrieval and non-use of cardiothoracic organs from organ donors in the UK, 1 April 2018 - 31 March 2019

	Heart (DBD)	Lung (DBD)	Lung (DCD)
All actual organ donors	962	962	638
Donors from whom organs were not offered for donation	392	346	397
<i>Reasons for organs not being offered¹</i>			
Family permission refused	28	23	30
Permission refused by coroner	36	29	15
Permission refused other	1	4	6
Donor unsuitable - medical	0	2	10
Donor unsuitable - non-medical	5	4	0
Donor unsuitable - age	231	71	68
Organ unsuitable - clinical	53	100	148
Poor function	35	101	110
Other	3	12	10
TOTAL DONORS WITH ORGANS NOT OFFERED	392	346	397
Organs offered for donation	570	1230	482
Organs not retrieved (% of organs offered for donation)	417 (73)	961 (78)	375 (78)
<i>Reasons for non-retrieval</i>			
Donor unsuitable - medical	16	22	8
Donor unsuitable - non-medical	22	29	19
Donor unsuitable - age	24	20	10
Organ unsuitable - clinical	120	255	120
Poor function	175	412	103
Other	60	223	115
TOTAL ORGANS OFFERED, NOT RETRIEVED	417	961	375
Organs retrieved (% of organs offered for donation)	153 (27)	269 (22)	107 (22)
Organs transplanted in the UK	147	239	73
Organs transplanted overseas	2	4	0
Organs not transplanted	4	26	34
<i>Reasons for organ not being transplanted</i>			
Donor unsuitable - non-medical	0	1	1
Poor function	0	1	0
Other	4	24	33
TOTAL ORGANS RETRIEVED, NOT TRANSPLANTED (Number used for research)	4 (1)	26 (15)	34 (29)

¹ Includes donors whose organ may have been offered but are outside of organ specific criteria



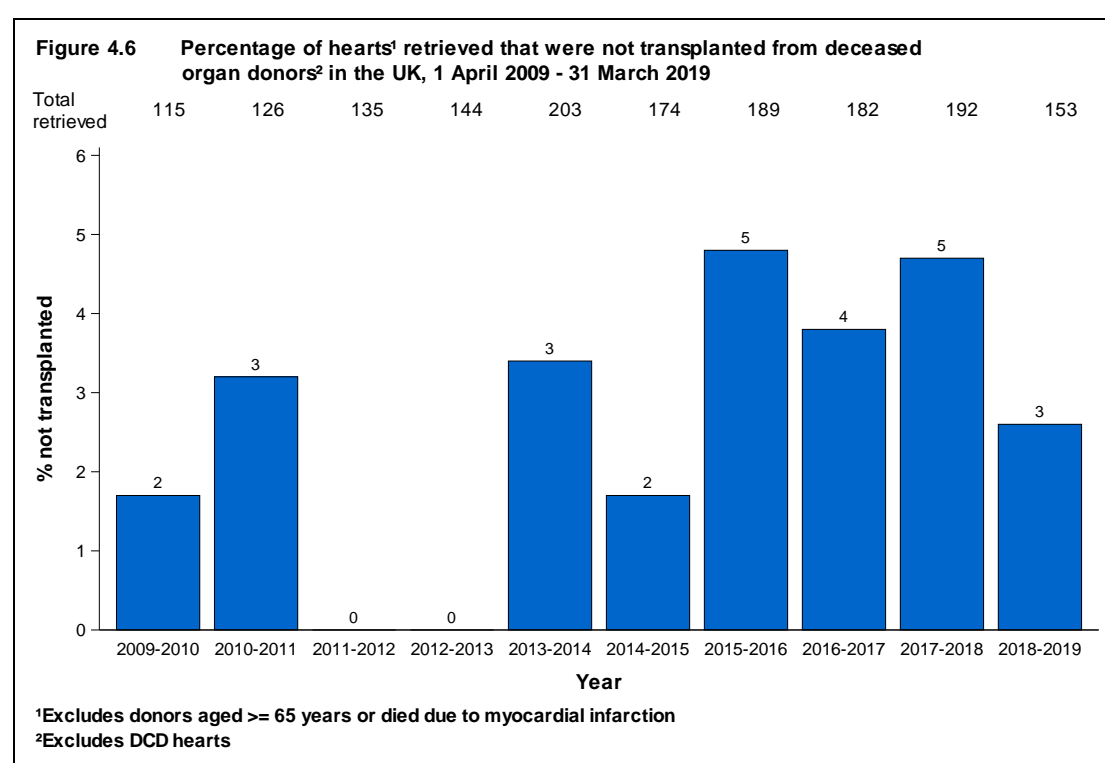
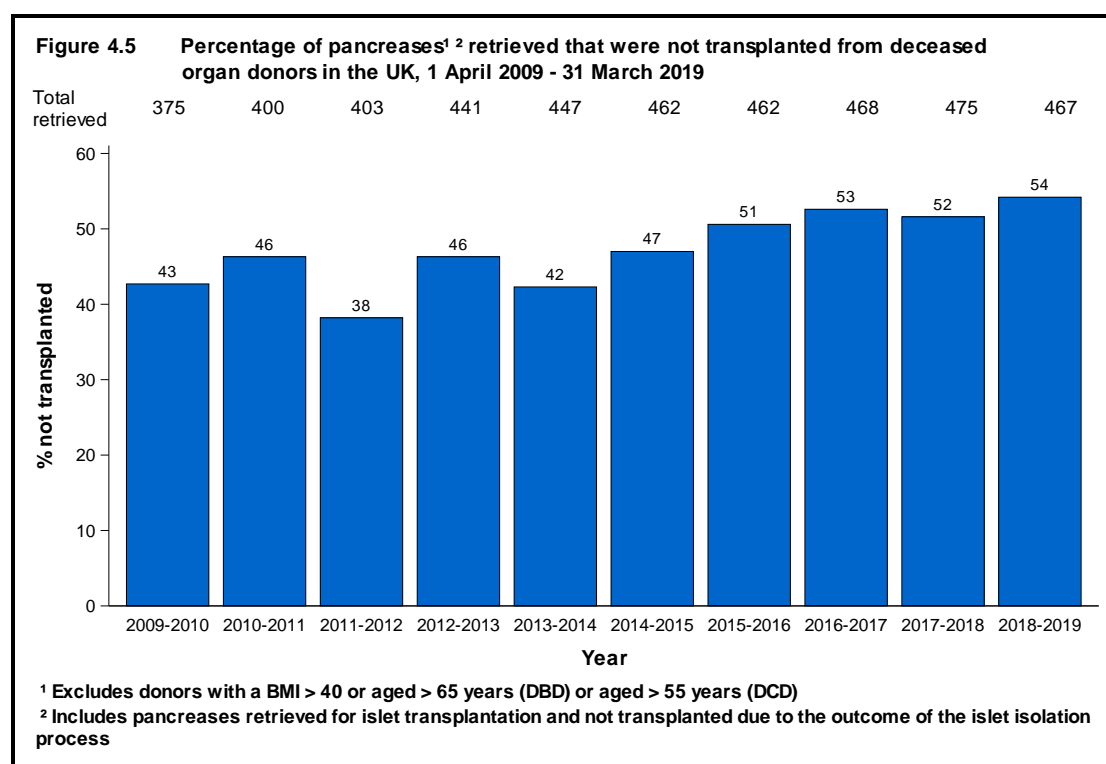
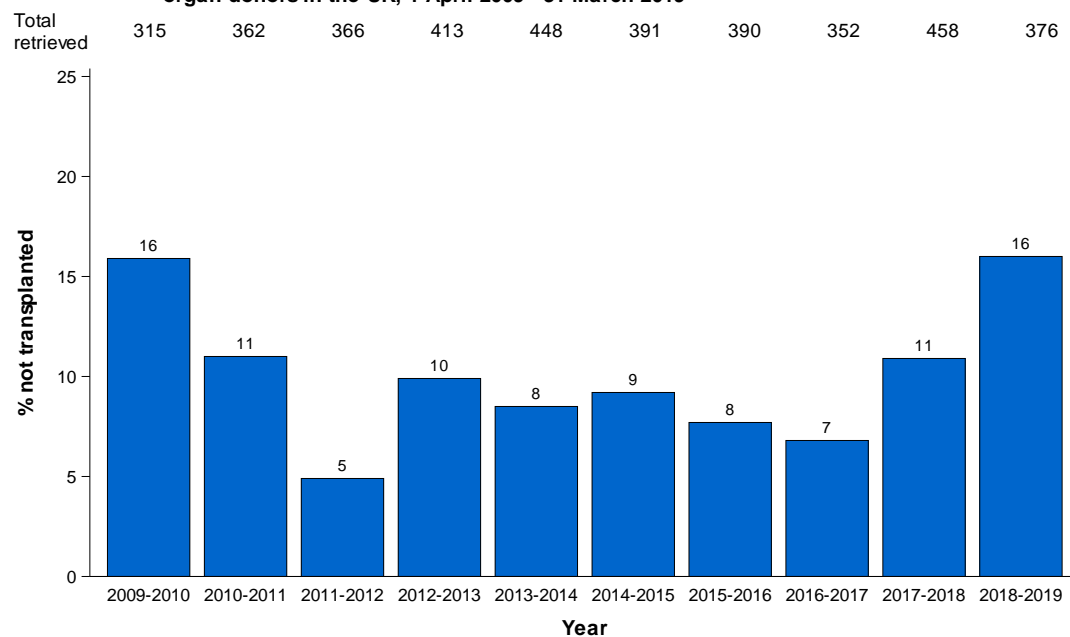


Figure 4.7 Percentage of lungs¹ retrieved that were not transplanted from deceased organ donors in the UK, 1 April 2009 - 31 March 2019



¹Excludes donors aged > 70 years

Kidney Activity

Key messages

- The number of patients registered on the kidney transplant list this year fell by 1% from 5,033 to 4,977
- The number of deceased kidney donors increased by 2% to 1,506
- Kidney transplants from living donors fell by 2% to 1,017, while transplants from deceased donors remained similar at 2,577
- 100 kidney transplants were made possible by the paired living kidney donation programme
- There were 64 non-directed altruistic living kidney donors, leading to 134 patients benefitting from a living donor transplant

5.1 Overview

The number of deceased kidney donors increased by 2% in 2018-2019 compared to 2017-2018 and the number of deceased donor kidney transplants remained stable. There were 4,977 patients waiting for a kidney transplant at 31 March 2019, and for the 10th year running the number of active 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 2019 for a kidney only or multi-organ kidney transplant has fallen by 31% since 2010. These registrations include patients suspended on the kidney waiting list but active on the liver waiting list for a combined liver and kidney transplant.

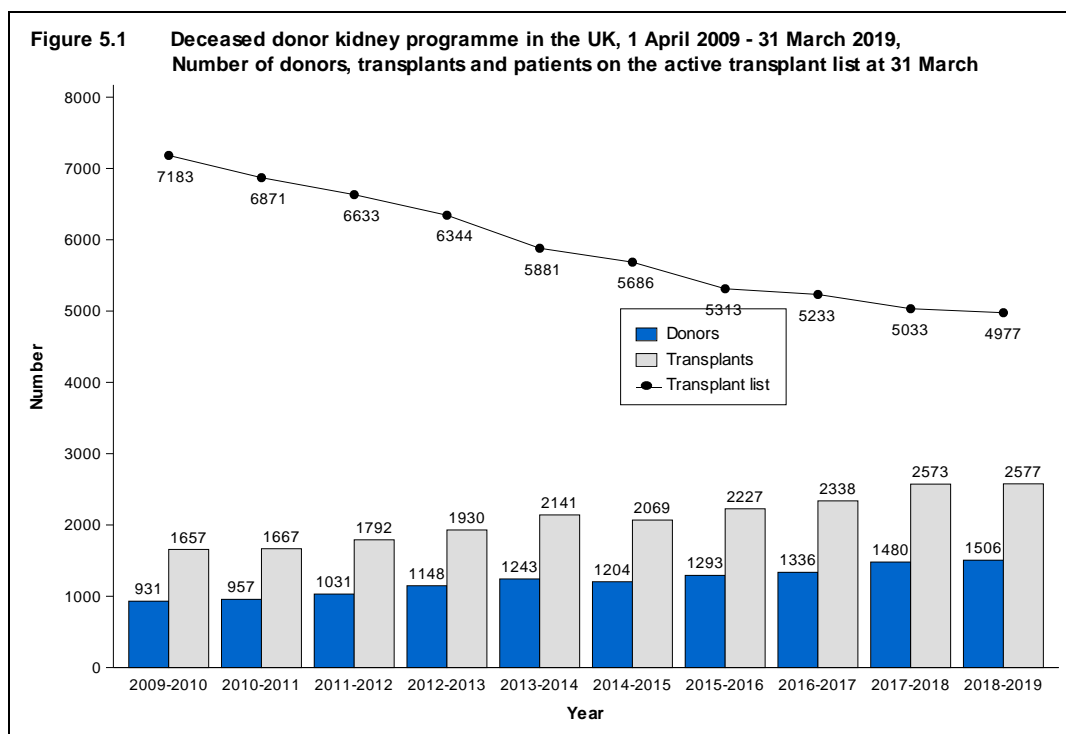


Table 5.1 shows the number of deceased and living donor kidney transplants carried out in 2018-2019 at each centre. As yet, very few kidneys from donors after circulatory death are transplanted in paediatric patients (<18 years). Donation figures for centres in North and South Thames are not reported individually as they have shared designated areas and donor populations. Multi-organ transplants including a kidney are included in the table.

The total number of deceased kidney donors rose to 1,506 in 2018-2019 from 1,480 in 2017-2018 and the number of transplants increased from 2,573 to 2,577. The number of kidney donors after circulatory death increased to 624 from 596 in 2017-2018 and the number of transplants from such donors increased by 3% to 1,020.

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 reported in the kidney donor activity. Intestinal transplant activity is reported in Chapter 9.

Table 5.1 Kidney donors and transplants, 1 April 2018 - 31 March 2019 (2017-2018) and transplant list at 31 March 2019 (2018) in the UK, by centre

Centre	Deceased kidney donors				Deceased donor transplants				Living donor transplants		Active transplant list	
	DBD		DCD		DBD		DCD					
Belfast	23	(24)	17	(14)	20	(38)	28	(28)	62	(65)	91	(91)
Birmingham	50	(54)	49	(48)	89	(111)	45	(53)	45	(69)	335	(346)
Bristol	46	(37)	27	(22)	69	(60)	42	(44)	36	(30)	165	(210)
Cambridge	46	(52)	51	(64)	79	(72)	98	(84)	27	(37)	190	(218)
Cardiff	33	(32)	29	(25)	42	(25)	42	(29)	35	(30)	139	(135)
Coventry ¹	18	(9)	15	(7)	30	(39)	26	(12)	27	(21)	85	(70)
Edinburgh	30	(23)	17	(28)	70	(63)	22	(32)	60	(40)	231	(187)
Glasgow	35	(33)	13	(11)	63	(85)	34	(46)	46	(54)	251	(245)
Great Ormond Street	0	(0)	0	(0)	11	(10)	0	(0)	13	(17)	17	(11)
Leeds	45	(45)	33	(52)	95	(79)	57	(72)	67	(35)	255	(271)
Leicester	16	(9)	14	(16)	57	(43)	44	(32)	28	(27)	172	(171)
Liverpool	61	(60)	35	(22)	54	(47)	36	(34)	41	(42)	134	(161)
Manchester	57	(81)	32	(52)	120	(131)	96	(121)	74	(80)	377	(362)
Newcastle	62	(44)	33	(30)	59	(55)	23	(34)	58	(73)	257	(220)
North Thames ²	106	(123)	63	(39)	-	-	-	-	-	-	-	-
Royal Free	-	-	-	-	56	(83)	21	(29)	40	(33)	251	(247)
Royal London	-	-	-	-	100	(69)	46	(21)	48	(41)	304	(286)
WLRTC	-	-	-	-	89	(103)	52	(38)	44	(48)	450	(448)
Nottingham	26	(17)	30	(23)	32	(45)	42	(44)	6	(21)	126	(115)
Oxford ¹	34	(33)	21	(21)	113	(120)	83	(80)	65	(50)	240	(258)
Plymouth	23	(28)	15	(19)	31	(23)	18	(19)	26	(22)	89	(89)
Portsmouth	32	(32)	33	(30)	43	(47)	31	(38)	28	(33)	165	(163)
Sheffield	27	(24)	19	(13)	35	(33)	16	(26)	19	(22)	117	(129)
South Thames ²	112	(124)	78	(60)	-	-	-	-	-	-	-	-
Guy's	-	-	-	-	128	(130)	73	(46)	75	(93)	285	(336)
St George's	-	-	-	-	72	(70)	45	(30)	41	(41)	251	(264)
TOTAL	882	(884)	624	(596)	1557	(1581)	1020	(992)	1017^{3,5}	(1035^{4,6})	4977	(5033)

WLRTC - West London Renal and Transplant Centre

¹ As of 1 June 2016 Coventry and Oxford began working in partnership as a transplant network.

² Donor figures in this area cannot be linked to individual transplant centres due to shared retrieval areas.

³ Includes an additional 3 transplants performed at London, Cromwell Hospital and 3 transplants performed at London, London Bridge Hospital

⁴ Includes an additional 6 transplants performed at London, Cromwell Hospital and 5 transplants performed at London, London Bridge Hospital

⁵ Includes 3 domino donors

⁶ Includes 1 domino donors

5.2 Transplant list

The number of patients registered on the kidney or kidney and pancreas transplant list fell by 1% in the year: on 31 March 2019, 4,977 patients were registered as active, compared with 5,033 at the end of March 2018. The number of patients waiting for a kidney transplant represents 75.4 patients per million population (pmp).

Of the 4,977 patients on the active transplant list at 31 March 2019, 212 required a kidney and pancreas transplant (185 at 31 March 2018).

The outcome of patients registered on the UK kidney and kidney/pancreas transplant list at 1 April 2018, or subsequently registered during the financial year, is shown in **Table 5.2**. A total of 3,952 patients joined the kidney transplant list last year, while a further 209 joined the kidney/pancreas transplant list.

Table 5.2 Kidney transplant list and new registrations in the UK, 1 April 2018 - 31 March 2019						
Outcome of patient at 31 March 2019	Active and suspended patients at 1 April 2018		New registrations in 2018-2019¹		TOTAL	
	N	%	N	%	N	%
Kidney transplant list						
Remained active/suspended	4775	61	2963	75	7738	66
Transplanted	2351	30	938	24	3289	28
Removed ²	436	6	27	1	463	4
Died	232	3	24	1	256	2
TOTAL	7794		3952		11746	
Kidney/pancreas transplant list						
Remained active/suspended	146	45	175	84	321	60
Transplanted	133	41	28	13	161	30
Removed ³	34	10	3	1	37	7
Died	15	5	3	1	18	3
TOTAL	328		209		537	

¹ Includes re-registrations for second or subsequent patients
² Includes 4 patients removed from kidney list and made active on kidney/pancreas list
³ Includes 3 patients removed from kidney/pancreas list and made active on kidney/islet list

Table 5.3 shows the active transplant list in the UK at 31 March 2019 and 2018 by country/ former Strategic Health Authority of patient's residence. In 2019, the overall kidney transplant list rate was 75.4 pmp with rates across the Strategic Health Authorities ranging from 42.6 pmp to 131.8 pmp.

Table 5.3 Active kidney transplant list at 31 March, by Country/ Strategic Health Authority of patient residence				
Country/ Strategic Health Authority of residence	Kidney transplant list (pmp)			
	2019		2018	
North East	224	(84.8)	195	(73.9)
North West	485	(66.8)	473	(65.2)
Yorkshire and The Humber	368	(67.5)	384	(70.5)
North of England	1077	(70.2)	1052	(68.5)
East Midlands	335	(70.2)	325	(68.1)
West Midlands	444	(75.8)	435	(74.2)
East of England	361	(58.5)	377	(61.1)
Midlands and East	1140	(67.9)	1137	(67.7)
London	1164	(131.8)	1173	(132.8)
South East Coast	200	(42.6)	251	(53.5)
South Central	304	(69.6)	302	(69.1)
South West	329	(59.2)	383	(68.9)
South of England	833	(57.0)	936	(64.0)
England	4214	(75.8)	4298	(77.3)
Isle of Man	2	(25.0)	7	(87.5)
Channel Islands	7	(43.8)	9	(56.3)
Wales	171	(54.6)	189	(60.4)
Scotland	482	(88.9)	430	(79.3)
Northern Ireland	92	(49.2)	93	(49.7)
TOTAL¹	4977	(75.4)	5033	(76.2)

¹Includes patients in 2019 (2018) residing in: Unspecified UK 6 (4); Overseas 3 (3)

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 28% 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 782 days reported last year to 706 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.

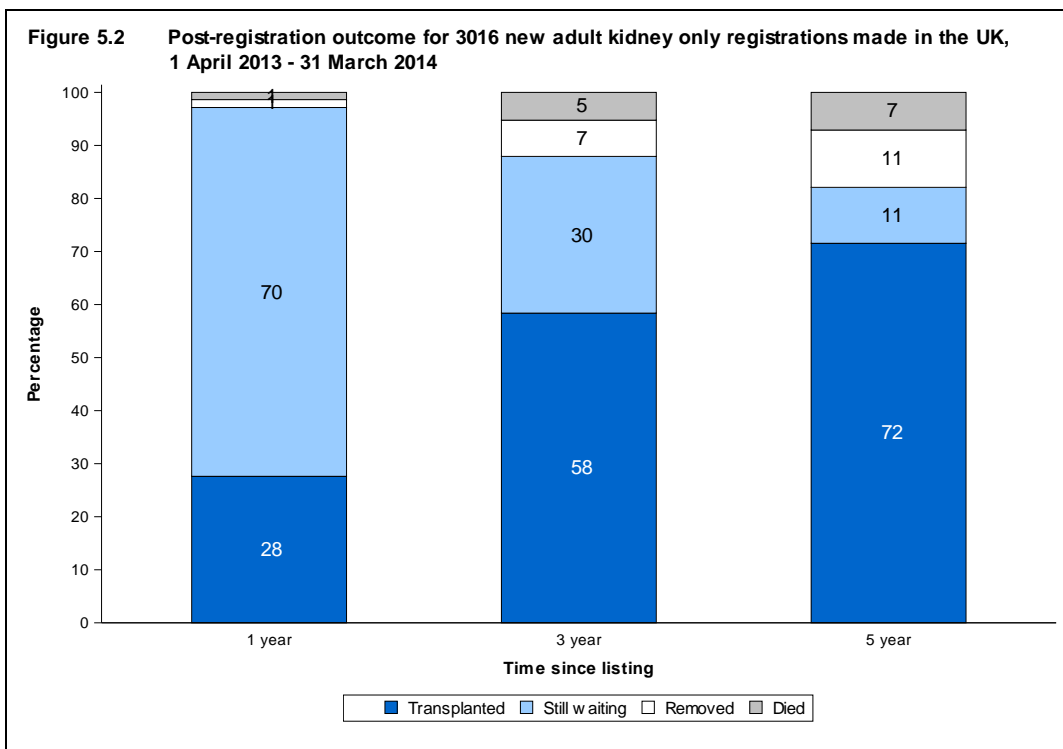


Table 5.4 Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2012 - 31 March 2016, by blood group

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
O	4318	883	858 - 908
A	3474	504	485 - 523
B	1372	958	917 - 999
AB	420	206	175 - 237
TOTAL	9584	706	689 - 723
Paediatric			
O	102	397	259 - 535
A	89	230	187 - 273
B	33	259	54 - 464
AB	11	207	105 - 309
TOTAL	235	287	200 - 374

Table 5.5 Median waiting time to kidney only transplant in the UK, for patients registered 1 April 2012 - 31 March 2016, by ethnicity

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
White	6648	640	622 - 658
Asian	1591	830	782 - 878
Black	923	965	914 - 1016
Other	288	810	735 - 885
TOTAL¹	9584	706	689 - 723
Paediatric			
White	136	222	182 - 262
Asian	68	397	271 - 523
Black	13	517	138 - 896
Other	14	738	447 - 1029
TOTAL²	235	287	200 - 374

¹ Includes 134 patients whose ethnicity was not reported

² Includes 4 patients whose ethnicity was not reported

5.3 Donor and organ supply

Of the 962 organ donors after brain death in the UK in 2018-2019, 882 (92%) were kidney donors. From these donors, 1,749 kidneys were retrieved. There were 624 kidney donors after circulatory death in 2017-2018. From these donors, 1,236 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 13.4 pmp, with rates across the Strategic Health Authorities ranging from 11.3 to 22.3 pmp. The number of kidneys retrieved from donors after brain death in the UK is 26.5 pmp and varies from 22.5 to 43.9 pmp.

The overall rate for kidney donors after circulatory death is 9.4 pmp, with rates across the Strategic Health Authorities ranging from 7.5 to 12.5 pmp. The number of kidneys retrieved from donors after circulatory death is 18.7 pmp and varies from 14.8 to 24.8 pmp.

Table 5.6 Kidney donation and retrieval rates for deceased donors in the UK, 1 April 2018 - 31 March 2019, by Country/ Strategic Health Authority								
Country/ Strategic Health Authority of residence	Kidney donors (pmp)				Kidneys retrieved (pmp)			
	DBD		DCD		DBD		DCD	
North East	59	(22.3)	28	(10.6)	116	(43.9)	56	(21.2)
North West	104	(14.3)	66	(9.1)	205	(28.2)	131	(18.0)
Yorkshire and The Humber	71	(13.0)	50	(9.2)	141	(25.9)	98	(18.0)
North of England	234	(15.2)	144	(9.4)	462	(30.1)	285	(18.6)
East Midlands	55	(11.5)	56	(11.7)	108	(22.6)	111	(23.3)
West Midlands	66	(11.3)	55	(9.4)	132	(22.5)	109	(18.6)
East of England	80	(13.0)	77	(12.5)	158	(25.6)	153	(24.8)
Midlands and East	201	(12.0)	188	(11.2)	398	(23.7)	373	(22.2)
London	102	(11.6)	66	(7.5)	203	(23.0)	131	(14.8)
South East Coast	76	(16.2)	47	(10.0)	150	(32.0)	92	(19.6)
South Central	57	(13.0)	42	(9.6)	113	(25.9)	84	(19.2)
South West	77	(13.8)	47	(8.5)	154	(27.7)	93	(16.7)
South of England	210	(14.4)	136	(9.3)	417	(28.5)	269	(18.4)
England	747	(13.4)	534	(9.6)	1480	(26.6)	1058	(19.0)
Isle of Man	2	(25.0)	0	(0.0)	4	(50.0)	0	(0.0)
Channel Islands	1	(6.3)	0	(0.0)	2	(12.5)	0	(0.0)
Wales	45	(14.4)	44	(14.1)	89	(28.4)	87	(27.8)
Scotland	64	(11.8)	29	(5.4)	128	(23.6)	57	(10.5)
Northern Ireland	23	(12.3)	17	(9.1)	46	(24.6)	34	(18.2)
TOTAL¹	882	(13.4)	624	(9.4)	1749	(26.5)	1236	(18.7)

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

5.4 Transplants

The number of kidney transplants by recipient country/Strategic Health Authority of residence is shown in **Table 5.7**. No adjustments have been made for potential demographic differences in populations. The deceased donor transplant rate ranged from 24.6 to 51.6 pmp across Strategic Health Authorities and overall was 36.3 pmp. The living donor transplant rate ranged from 8.6 to 19.3 pmp across the Strategic Health Authorities and overall was 15.1 pmp.

Country/ Strategic Health Authority of residence	DBD		DCD		TOTAL		Living	
	N	(pmp)	N	(pmp)	N	(pmp)	N	(pmp)
North East	46	(17.4)	19	(7.2)	65	(24.6)	51	(19.3)
North West	146	(20.1)	102	(14.0)	248	(34.2)	106	(14.6)
Yorkshire and The Humber	121	(22.2)	73	(13.4)	194	(35.6)	88	(16.1)
North of England	313	(20.4)	194	(12.6)	507	(33.0)	245	(16.0)
East Midlands	102	(21.4)	93	(19.5)	195	(40.9)	41	(8.6)
West Midlands	117	(20.0)	76	(13.0)	193	(32.9)	65	(11.1)
East of England	109	(17.7)	108	(17.5)	217	(35.2)	63	(10.2)
Midlands and East	328	(19.5)	277	(16.5)	605	(36.0)	169	(10.1)
London	298	(33.7)	158	(17.9)	456	(51.6)	138	(15.6)
South East Coast	83	(17.7)	45	(9.6)	128	(27.3)	66	(14.1)
South Central	78	(17.8)	79	(18.1)	157	(35.9)	84	(19.2)
South West	127	(22.8)	78	(14.0)	205	(36.9)	79	(14.2)
South of England	288	(19.7)	202	(13.8)	490	(33.5)	229	(15.7)
England	1227	(22.1)	831	(14.9)	2058	(37.0)	781	(14.0)
Isle of Man	0	(0.0)	2	(25.0)	2	(25.0)	2	(25.0)
Channel Islands	4	(25.0)	5	(31.3)	9	(56.3)	3	(18.8)
Wales	60	(19.2)	49	(15.7)	109	(34.8)	45	(14.4)
Scotland	116	(21.4)	55	(10.1)	171	(31.5)	106	(19.6)
Northern Ireland	20	(10.7)	28	(15.0)	48	(25.7)	62	(33.2)
TOTAL^{1,2}	1427	(21.6)	972	(14.7)	2399	(36.3)	999	(15.1)

¹ Excludes 18 recipients of a living donor kidney who reside outside of the UK (18 living donors)
² Includes 2 recipients with an unknown UK postcode

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 7 en bloc kidneys and 17 double kidney transplants in 2018-2019 (2 and 13 in 2017-2018). Kidney transplants from donors after circulatory death include 6 en bloc and 19 double kidney transplants in 2018-2019 (6 and 26 in 2017-2018). This table excludes multi-organ transplants: 12 kidney and liver, 158 kidney and pancreas and 8 kidney and islets in 2018-2019.

**Table 5.8 Adult kidney only transplants in the UK,
1 April 2017 - 31 March 2019, by transplant centre**

Transplant centre	2017-2018				2018-2019			
	DBD	DCD	Living donor	TOTAL	DBD	DCD	Living donor	TOTAL
Belfast	38	27	65	130	20	28	58	106
Birmingham	101	53	63	217	79	45	37	161
Bristol	55	44	29	128	62	42	31	135
Cambridge	55	77	37	169	66	89	27	182
Cardiff	20	27	29	76	37	40	35	112
Coventry ¹	39	12	21	72	30	26	27	83
Edinburgh	48	29	40	117	53	22	60	135
Glasgow	80	46	46	172	60	32	36	128
Guy's	90	40	78	208	93	64	66	223
Leeds	70	72	30	172	88	57	61	206
Leicester	43	32	27	102	57	44	28	129
Liverpool	47	34	42	123	54	36	41	131
Manchester	110	98	68	276	103	78	55	236
Newcastle	45	34	71	150	51	23	55	129
Nottingham	39	44	18	101	25	41	5	71
Oxford ¹	80	72	50	202	71	73	64	208
Plymouth	23	19	22	64	31	18	26	75
Portsmouth	46	38	33	117	43	31	28	102
Sheffield	33	26	21	80	35	16	19	70
St George's	70	30	41	141	72	45	41	158
The Royal Free	82	29	33	144	56	21	40	117
The Royal London	68	21	40	129	100	46	48	194
WLRTC	97	36	48	181	84	52	44	180
TOTAL	1379	940	963²	3282	1370	969	938³	3277

WLRTC - West London Renal and Transplant Centre

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

² Includes 6 transplants performed at London Cromwell Hospital and 5 transplants performed at London Bridge Hospital

³ Includes 3 transplants performed at London Cromwell Hospital and 5 transplants performed at London Bridge Hospital

Living donor kidney transplants fell by 2% to 1,017 in 2018-2019, 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 2% decrease in these transplants. In addition there are now a number of 'non-directed' living donor transplants (also known as altruistic donor transplants). Last year 64 such donors donated a kidney to a recipient, 62 transplanted into an adult recipient and 2 transplanted into a paediatric recipient. Of the 64 altruistic donors, 33 went into an altruistic donor chain (15 short (2 transplants each) and 18 long chains (3 transplants each)) benefiting 51 adult patients in the paired/pooled scheme. The kidneys from the paired donors of these recipients led to 31 adult and 1 paediatric transplant for patients on the deceased donor transplant list. Thus 33 altruistic donors creating chains benefited 82 adults and 1 paediatric patient in total.

When a potential living 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 2018-2019, there were also 100 paired living kidney donor transplants (97 adult and 3 paediatric recipients).

As a percentage of the number of patients on the active transplant list at 31 March 2019, the number of living donor adult transplants in the year was 19% and ranged from 4% to 64% at individual transplant centres.

Table 5.9 Adult living donor kidney transplants in the UK, 1 April 2018 - 31 March 2019, and percentage of active transplant list at 31 March, by transplant centre						
Transplant centre	2018-2019				TOTAL	
	Directed	Non-directed (altruistic) to waiting list	Paired/ pooled exchanges	Altruistic donor chain	N	% list
Belfast	45	0	8	5	58	64
Birmingham	28	3	3	3	37	12
Bristol	23	1	3	4	31	20
Cambridge	22	1	1	3	27	15
Cardiff	30	1	3	1	35	25
Coventry ¹	17	0	5	5	27	32
Edinburgh	45	1	9	5	60	26
Glasgow	19	3	6	8	36	15
Guy's	51	4	6	5	66	25
Leeds	49	1	10	1	61	25
Leicester	24	1	2	1	28	16
Liverpool	33	1	4	3	41	31
Manchester	48	2	0	5	55	15
Newcastle	50	1	3	1	55	22
Nottingham	4	0	1	0	5	4
Oxford ¹	46	4	6	8	64	27
Plymouth	18	2	2	4	26	29
Portsmouth	19	0	6	3	28	17
Sheffield	14	1	2	2	19	16
St George's	31	0	6	4	41	16
The Royal Free	32	0	3	5	40	16
The Royal London	37	2	4	5	48	16
WLRTC	36	3	4	1	44	10
TOTAL	727²	32³	97	82	938	19

WLRTC – West London Renal and Transplant Centre
¹ As of 1 June 2016 Coventry and Oxford began working in partnership as a transplant network
² Includes 3 transplants performed at London Cromwell Hospital and 3 transplants performed at London Bridge
³ Includes 3 domino donor transplants

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

Table 5.10

**Altruistic kidney donors in the UK, 1 April 2017 - 31 March 2019,
by donor centre**

Donor centre	2017-2018				2018-2019			
	Transplant list	Chain	Total	%	Transplant list	Chain	Total	%
Belfast	0	4	4	4	2	3	5	8
Birmingham	1	1	2	2	0	0	0	0
Bristol	1	0	1	1	3	1	4	6
Cambridge	0	1	1	1	0	2	2	3
Cardiff	3	1	4	4	0	0	0	0
Coventry ¹	2	0	2	2	0	0	0	0
Edinburgh	5	1	6	7	1	5	6	9
Glasgow	1	2	3	3	2	0	2	3
Guy's	5	8	13	15	4	3	7	11
Leeds	6	1	7	8	5	2	7	11
Leicester	1	0	1	1	0	0	0	0
Liverpool	2	2	4	4	1	0	1	2
Manchester	9	1	10	11	2	2	4	6
Newcastle	4	3	7	8	1	2	3	5
Nottingham	0	0	0	0	1	1	2	3
Oxford ¹	5	0	5	6	3	1	4	6
Plymouth	7	3	10	11	0	5	5	8
Portsmouth	1	2	3	3	2	4	6	9
Sheffield	0	1	0	1	0	1	1	2
St George's	0	1	1	1	0	1	1	2
The Royal Free	2	0	2	2	2	0	2	3
The Royal London	0	1	1	1	1	0	1	2
WLRTC	1	0	1	1	1	0	1	2
Total donors	56	33	89	100	31	33	64	100

WLRTC – West London Renal and Transplant Centre

¹ 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 79 living donor transplants and 60 deceased donor transplants in paediatric patients in 2018-2019. The paediatric transplant list has increased by 45% from 64 patients at 31 March 2018 to 93 at the end of March 2019.

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

Table 5.11 Paediatric patient kidney transplants in the UK, 1 April 2017 - 31 March 2019, by transplant centre								
Paediatric transplant centre	2017-2018				2018-2019			
	DBD	DCD	Living donor	TOTAL	DBD	DCD	Living donor	TOTAL
Belfast	0	1	0	1	0	0	4	4
Birmingham	6	0	6	12	7	0	8	15
Bristol	5	0	1	6	7	0	5	12
Glasgow	5	0	8	13	3	2	10	15
Great Ormond Street	10	0	17	27	11	0	13	24
Guy's	9	0	15	24	9	0	9	18
Leeds	4	0	5	9	7	0	6	13
Manchester	7	2	12	21	6	0	19	25
Newcastle	2	0	2	4	0	0	3	3
Nottingham	6	0	3	9	7	1	1	9
Adult centres	3	0	3	6	0	0	1	1
TOTAL	57	3	72¹	132	57	3	79²	139
¹ Includes 3 non-directed donor transplants, 1 paired living donor transplant and 4 altruistic donor chains (3 as a patient on transplant list at end of chain, and 1 as part of a paired programme) ² Includes 2 non-directed donor transplants, 3 paired living donor transplants and 1 altruistic donor chain (1 as a patient on transplant list at end of chain)								

At 31 March 2019, there were approximately 39,700 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 3,416 kidney only transplant recipients in 2018-2019, dialysis status at time of transplant was reported for 3,371 (99%). Of these 3,371 transplants, 691 (20%) were carried out in pre-dialysis patients.

Pre-emptive transplants accounted for 22% of all paediatric kidney only transplants with reported dialysis status, compared with 20% of those in adults. Living donor transplants are more likely to be carried out before the need for dialysis than deceased donor transplants: 37% and 14% respectively. This is because a living donor transplant can often be carried out more quickly than a deceased donor kidney transplant as the latter often necessitates a long waiting time.

Table 5.12 Pre-emptive kidney only transplants in the UK, 1 April 2018 - 31 March 2019			
	Number of kidney only transplants	Number of transplants with known dialysis status at transplant (% of all)	Percentage of patients transplanted prior to the need for dialysis (of those with known status)
Adult			
Deceased donor transplant	2339	2300 (98.3)	13.4
Living donor transplant	938	932 (99.4)	37.8
Paediatric			
Deceased donor transplant	60	60 (100.0)	18.3
Living donor transplant	79	79 (100.0)	24.1

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

Table 5.13 Median cold ischaemia time for kidney only transplants in the UK, 1 April 2018 - 31 March 2019				
	Number of kidney only transplants ¹	Median (hours)	Inter-quartile range ²	
			Q1	Q3
Adult				
DBD donor transplant	1370	13.1	10.0	16.9
DCD donor transplant	969	12.2	9.6	15.5
Total	2339	12.7	9.7	16.4
Paediatric				
DBD donor transplant	57	13.0	9.4	15.0
DCD donor transplant	3	10.5	9.4	12.7
Total	60	12.9	9.4	14.9
TOTAL	2399	12.7	9.7	16.4

¹ Not all cold ischaemia times are reported

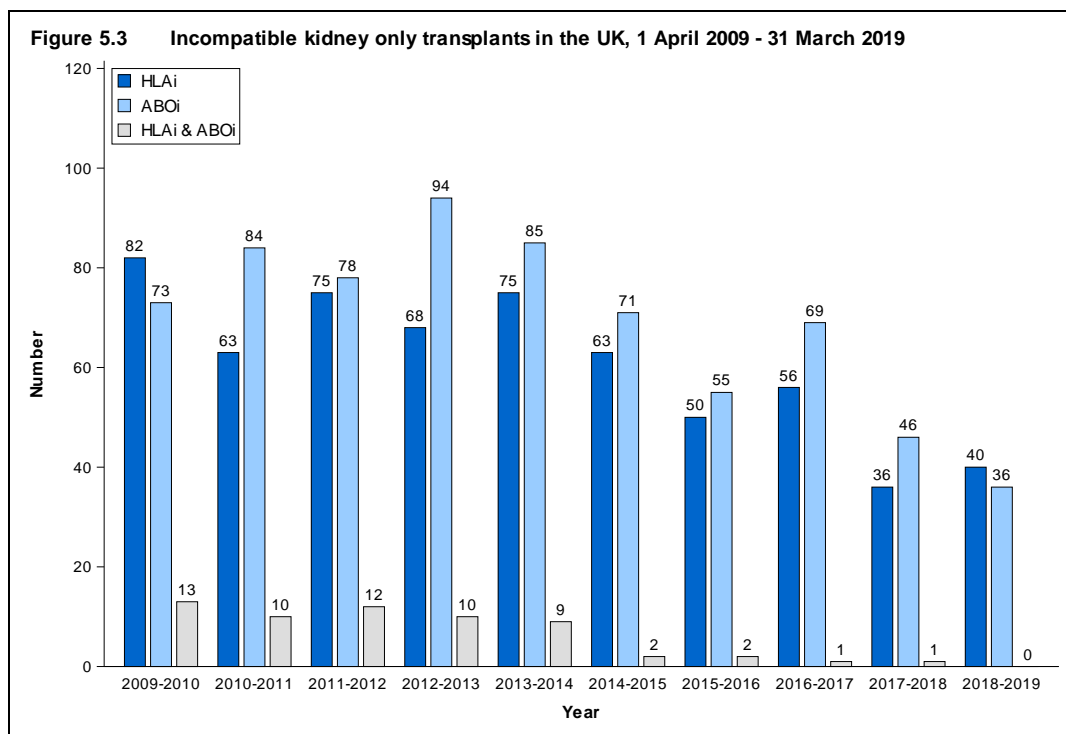
² 25% of times are shorter than Q1, 25% are longer than Q3

Kidneys from donors after brain death 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 scheme, whereas kidneys are rarely transplanted as a Level 4 match. More information about the allocation scheme can be found at www.odt.nhs.uk. **Table 5.15** gives the HLA mismatch group for adult and paediatric patients for DBD donor transplants but also for DCD and living donor transplants. For living donor transplantation, many transplants have a less good HLA match between donor and recipient. Very often there is no genetic relationship between donor and recipient.

Table 5.14 HLA mismatch groups		
Level	HLA mismatch summary	HLA mismatch combinations included
1	000	000
2	[0 DR and 0/1 B]	100, 010, 110, 200, 210
3	[0 DR and 2 B] or [1 DR and 0/1 B]	020, 120, 220, 001, 101, 201, 011, 111, 211
4	[1 DR and 2 B] or [2 DR]	021, 121, 221, 002, 102, 202, 012, 112, 212, 022, 122, 222

Table 5.15 HLA matching for kidney only transplants in the UK, 1 April 2018 - 31 March 2019						
	DBD		DCD		Living	
	N	(%)	N	(%)	N	(%)
Adult						
Level 1 (Best match)	165	(12)	32	(3)	90	(10)
Level 2	466	(34)	262	(27)	141	(16)
Level 3	702	(51)	561	(58)	434	(48)
Level 4	36	(3)	114	(12)	233	(26)
Not reported	1		0		40	
Paediatric						
Level 1 (Best match)	1	(2)	0	(0)	3	(4)
Level 2	40	(70)	2	(67)	19	(26)
Level 3	16	(28)	1	(33)	52	(70)
Level 4	0	(0)	0	(0)	0	(0)
Not reported	0		0		5	

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 608 HLA incompatible (HLAi) transplants performed; 200 used kidneys from deceased donors and 408 used living donor kidneys whilst the vast majority of ABO incompatible (ABOi) transplants used living donor kidneys (687 of 691). 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.

Table 5.16 Demographic characteristics of deceased kidney donors and transplant recipients, 1 April 2018 - 31 March 2019, and transplant list patients at 31 March						
Age group (years)	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
0 - 17	54	(4)	60	(2)	93	(2)
18 - 34	188	(12)	296	(11)	535	(11)
35 - 49	335	(22)	679	(26)	1320	(27)
50 - 59	364	(24)	703	(27)	1443	(29)
60 - 69	350	(23)	622	(24)	1158	(23)
70+	215	(14)	217	(8)	428	(9)
mean (SD)	52	(17)	51	(15)	52	(14)
Male	823	(55)	1610	(63)	2872	(58)
Female	683	(45)	964	(37)	2097	(42)
Not reported	0		3		8	
White	1389	(93)	1751	(69)	3149	(64)
Asian	51	(3)	433	(17)	921	(19)
Black	14	(1)	270	(11)	602	(12)
Chinese	3	(0)	24	(1)	59	(1)
Other	39	(3)	70	(3)	172	(4)
Not reported	10		29		74	
O	736	(49)	1152	(45)	2650	(53)
A	592	(39)	959	(37)	1269	(25)
B	131	(9)	325	(13)	924	(19)
AB	47	(3)	141	(5)	134	(3)
First graft			2216	(86)	3772	(76)
Re-graft			361	(14)	1205	(24)
TOTAL	1506	(100)	2577	(100)	4977	(100)

Table 5.17 Demographic characteristics of living kidney donors and transplant recipients, 1 April 2018 - 31 March 2019

Age group (years)	Donors		Transplant recipients	
	N	(%)	N	(%)
0 - 17	0	(0)	79	(8)
18 - 34	161	(16)	220	(22)
35 - 49	371	(36)	282	(28)
50 - 59	287	(28)	237	(23)
60 - 69	157	(15)	136	(13)
70+	41	(4)	63	(6)
mean (SD)	48	(12)	44	(18)
Male	480	(47)	651	(64)
Female	537	(53)	365	(36)
Not reported	0		1	
White	878	(86)	835	(83)
Asian	78	(8)	86	(9)
Black	24	(2)	30	(3)
Chinese	7	(1)	9	(1)
Other	30	(3)	42	(4)
Not reported	0		15	
O	590	(58)	451	(44)
A	311	(31)	390	(38)
B	105	(10)	135	(13)
AB	11	(1)	41	(4)
First graft			867	(85)
Re-graft			150	(15)
TOTAL	1017	(100)	1017	(100)

Pancreas Activity

Key messages

- The number of patients waiting on the pancreas transplant list increased by 15% during the year, to 250 at 31 March 2019
- The number of pancreas donors after brain death increased by 3% to 374, while transplants from donors after brain death fell by 6% to 148
- The number of pancreas donors after circulatory death fell by 8% to 110, while transplants from donors after circulatory death increased by 4% to 56
- 28 islet transplants were made possible by the pancreas islet transplant programme, an increase of 8% compared with last year

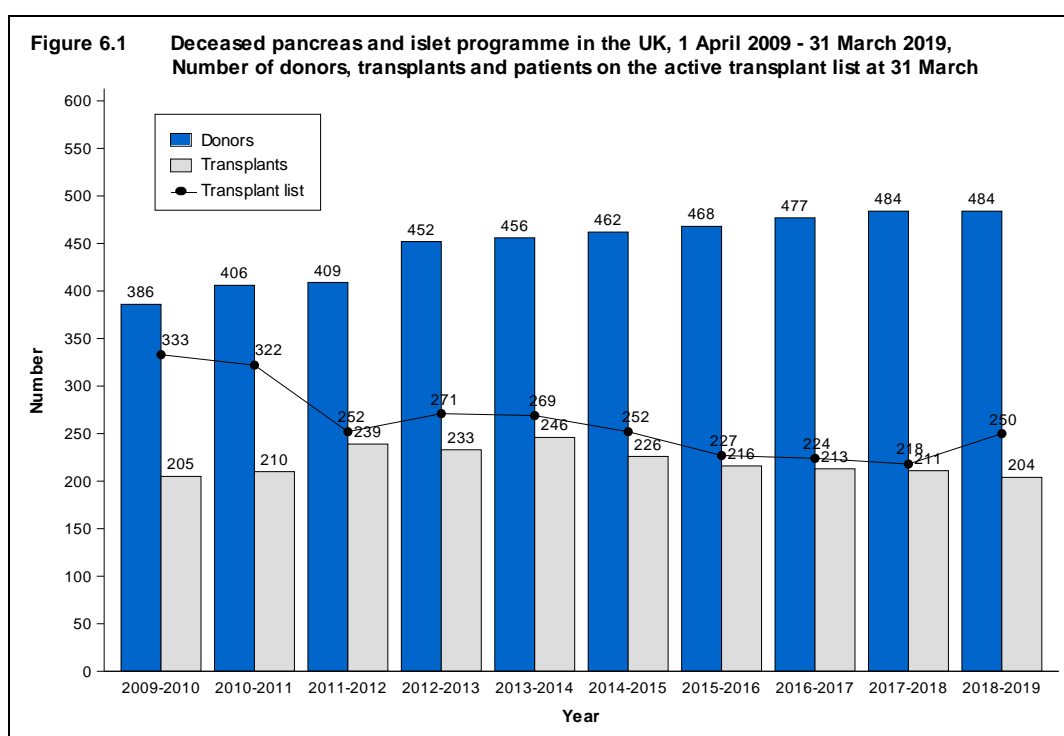
6.1 Overview

The number of patients registered on the active transplant list at 31 March for a pancreas, simultaneous pancreas/kidney (SPK), simultaneous islet/kidney (SIK), or islet transplant has decreased over the last ten years from 333 patients in 2010 to 250 patients in 2019. The number of pancreas donors has increased steadily from 386 to 484. However the number of transplants has decreased in the last 5 years to 204 transplants in 2018-2019. A summary of activity for deceased donor pancreas transplants and the transplant list for 1 April 2009 - 31 March 2019 is shown in **Figure 6.1**.

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

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

Throughout this chapter, intestinal transplants involving a pancreas are not included in the pancreas transplant activity reported. Any pancreases retrieved and used for such transplants are however included in the pancreas donor activity. In 2018-2019 there were 11 intestinal transplants including a pancreas. Intestinal transplant activity is reported in Chapter 9.



6.2 Transplant list

Table 6.1 shows the number of patients on the active transplant lists at 31 March 2019 by centre. The number of patients registered on the pancreas transplant list increased by 15% in the year: on 31 March 2019, 250 patients were registered active, compared with 218 at the end of March 2018.

Of the 250 patients on the active transplant list at 31 March 2019, 196 required a SPK transplant (175 at 31 March 2018), 12 (5%) patients required a pancreas only transplant (14 at 31 March 2018) and 42 (17%) were registered for a pancreas islet transplant (including 16 for a SIK transplant).

The outcome of patients registered on the UK pancreas transplant list at 1 April 2018, or subsequently registered during the financial year, is shown in **Table 6.2**. 21 patients joined the pancreas transplant list while 209 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 2019 (2018) in the UK, by centre														
Centre	Active transplant lists											TOTAL		
	Kidney/ pancreas		Kidney/islet		Pancreas alone		Islet							
							Routine		Priority					
Bristol	-	-	0	(0)	-	-	0	(0)	0	(0)	0	(0)	0	(0)
Cambridge	13	(9)	-	-	0	(0)	-	-	-	-	-	-	13	(9)
Cardiff	15	(9)	-	-	0	(2)	-	-	-	-	-	-	15	(11)
Edinburgh	39	(25)	0	(2)	0	(0)	6	(3)	2	(3)	2	(3)	47	(33)
Guys	23	(38)	-	-	0	(0)	-	-	-	-	-	-	23	(38)
King's College	-	-	0	(0)	-	-	2	(1)	0	(0)	0	(0)	2	(1)
Manchester	20	(18)	15	(7)	2	(2)	3	(1)	1	(1)	1	(1)	41	(29)
Newcastle	6	(6)	1	(1)	3	(2)	4	(7)	0	(1)	0	(1)	14	(17)
Oxford	68	(64)	0	(0)	6	(6)	2	(2)	3	(0)	3	(0)	79	(72)
Royal Free	-	-	0	(0)	-	-	3	(0)	0	(0)	0	(0)	3	(0)
WLRTC	12	(6)	-	-	1	(2)	-	-	-	-	-	-	13	(8)
TOTAL	196	(175)	16	(10)	12	(14)	20	(14)	6	(5)	6	(5)	250	(218)
WLRTC - West London Renal and Transplant Centre														

Table 6.2 Whole pancreas transplant list and new registrations in the UK, 1 April 2018 - 31 March 2019						
Outcome of patient at 31 March 2019	Active and suspended patients at 1 April 2018		New registrations in 2018-2019 ¹		TOTAL	
	N	%	N	%	N	%
Pancreas transplant list						
Remained active/suspended	61	75	9	43	70	69
Transplanted	7	9	10	48	17	17
Removed	11	14	2	10	13	13
Died	2	2	0	0	2	2
TOTAL	81		21		102	
Kidney/pancreas transplant list						
Remained active/suspended	146	45	175	84	321	60
Transplanted	133	41	28	13	161	30
Removed ²	34	10	3	1	37	7
Died	15	5	3	1	18	3
TOTAL	328		209		537	
¹ Includes re-registrations for second or subsequent patients						
² Includes 3 patients removed from kidney/pancreas list and made active on kidney/islet list						

The active pancreas transplant list rates by country/ Strategic Health Authority of patient's residence are shown in **Table 6.3**. At 31 March 2019, the overall transplant list rate was 3.8 pmp and across the Strategic Health Authorities ranged from 1.8 to 5.6 pmp.

Table 6.3 Active pancreas alone and kidney/pancreas transplant list at 31 March, by country/ Strategic Health Authority of patient residence				
Country/ Strategic Health Authority of residence	Pancreas transplant list (pmp)			
	2019		2018	
North East	9	(3.4)	11	(4.2)
North West	26	(3.6)	11	(1.5)
Yorkshire and The Humber	12	(2.2)	10	(1.8)
North of England	47	(3.1)	32	(2.1)
East Midlands	16	(3.4)	12	(2.5)
West Midlands	33	(5.6)	20	(3.4)
East of England	11	(1.8)	10	(1.6)
Midlands and East	60	(3.6)	42	(2.5)
London	28	(3.2)	34	(3.9)
South East Coast	13	(2.8)	17	(3.6)
South Central	24	(5.5)	26	(5.9)
South West	11	(2.0)	18	(3.2)
South of England	48	(3.3)	61	(4.2)
England	183	(3.3)	169	(3.0)
Isle of Man	0	(0.0)	0	(0.0)
Channel Islands	1	(6.3)	0	(0.0)
Wales	18	(5.8)	16	(5.1)
Scotland	44	(8.1)	30	(5.5)
Northern Ireland	3	(1.6)	3	(1.6)
TOTAL	250	(3.8)	218	(3.3)

An indication of longer term outcomes for patients listed for a pancreas or kidney/pancreas transplant are summarised in **Figure 6.2**. This shows the proportion of patients transplanted or still waiting six months, one year, two years and three years after joining the list. It also shows the proportion removed from the transplant list (typically because they become too unwell for transplant) and those dying while on the transplant list. 32% 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.

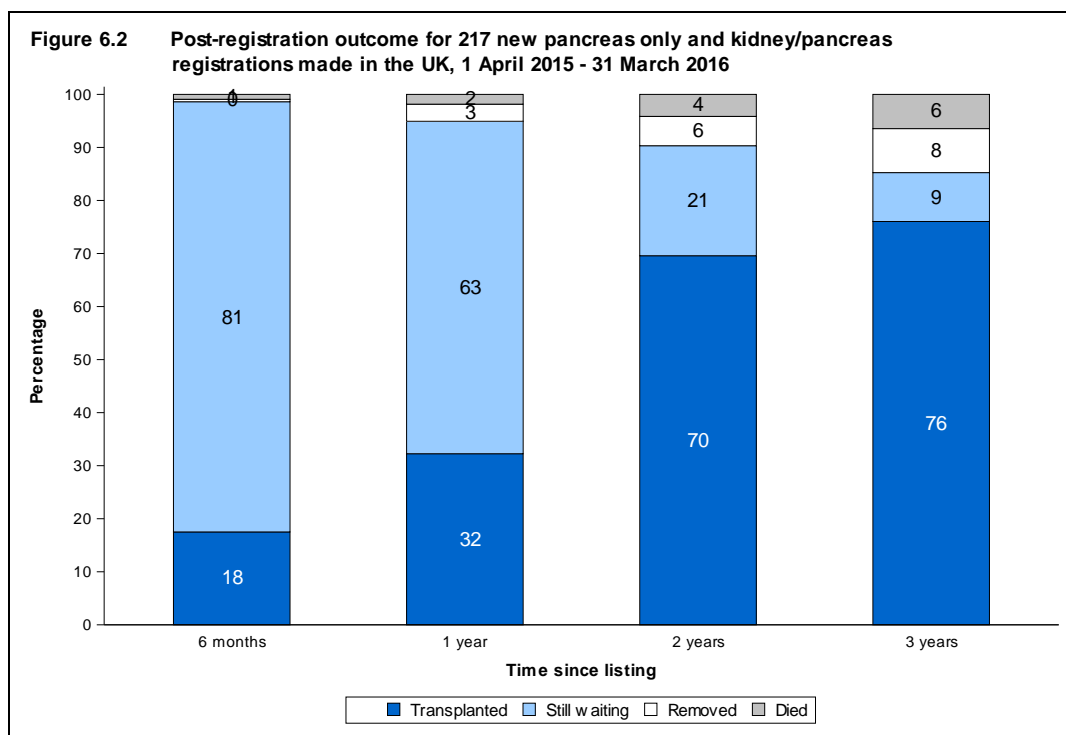


Table 6.4 Median waiting time to pancreas only and kidney/pancreas transplant in the UK, for patients registered 1 April 2013 - 31 March 2017, by blood group

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
O	427	442	423 - 461
A	372	275	251 - 299
B	127	337	290 - 384
AB	46	140	98 - 182
TOTAL	972	346	330 - 362

Table 6.5 Median waiting time to pancreas only and kidney/pancreas transplant in the UK, for patients registered 1 April 2013 - 31 March 2017, by ethnicity

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
White	848	348	330 - 366
Asian	59	279	185 - 373
Black	44	370	272 - 468
Other	0	-	-
TOTAL¹	972	346	330 - 362

¹ Includes 21 patients whose ethnicity was not reported

6.3 Donor and organ supply

Of the 962 organ donors after brain death in the UK in 2018-2019, 374 (39%) donated a pancreas. There were 110 pancreas donors after circulatory death in 2018-2019. **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 5.7 pmp, with rates ranging from 4.3 to 11.0 pmp across the Strategic Health Authorities and for donors after circulatory death is 1.7 pmp, with rates ranging from 0.4 to 3.0 pmp across the Strategic Health Authorities.

Table 6.6 Pancreas donation rates for deceased donors in the UK, 1 April 2018 - 31 March 2019, by country/ Strategic Health Authority

Country/ Strategic Health Authority of residence	Pancreas donors (pmp)					
	DBD		DCD		TOTAL	
North East	29	(11.0)	8	(3.0)	37	(14.0)
North West	44	(6.1)	11	(1.5)	55	(7.6)
Yorkshire and The Humber	32	(5.9)	8	(1.5)	40	(7.3)
North of England	105	(6.8)	27	(1.8)	132	(8.6)
East Midlands	33	(6.9)	10	(2.1)	43	(9.0)
West Midlands	25	(4.3)	15	(2.6)	40	(6.8)
East of England	27	(4.4)	14	(2.3)	41	(6.6)
Midlands and East	85	(5.1)	39	(2.3)	124	(7.4)
London	38	(4.3)	11	(1.2)	49	(5.5)
South East Coast	29	(6.2)	7	(1.5)	36	(7.7)
South Central	21	(4.8)	11	(2.5)	32	(7.3)
South West	35	(6.3)	2	(0.4)	37	(6.7)
South of England	85	(5.8)	20	(1.4)	105	(7.2)
England	313	(5.6)	97	(1.7)	410	(7.4)
Isle of Man	1	(12.5)	0	(0.0)	1	(12.5)
Channel Islands	0	(0.0)	0	(0.0)	0	(0.0)
Wales	19	(6.1)	6	(1.9)	25	(8.0)
Scotland	28	(5.2)	4	(0.7)	32	(5.9)
Northern Ireland	13	(7.0)	3	(1.6)	16	(8.6)
TOTAL¹	374	(5.7)	110	(1.7)	484	(7.3)

¹ Includes 2 donors where the hospital postcode was used in place of an unknown donor postcode

6.4 Transplants

The number of pancreas transplants by recipient country/ 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 1.1 to 4.1 pmp across Strategic Health Authorities and overall was 2.2 pmp. For donors after circulatory death the overall rate was 0.8 pmp and ranged from 0 to 1.7 pmp across Strategic Health Authorities.

Table 6.7 Pancreas transplant rates per million population (pmp), in the UK, 1 April 2018 - 31 March 2019, by country and English Strategic Health Authority						
Country/ Strategic Health Authority of residence	DBD		DCD		TOTAL	
	N	(pmp)	N	(pmp)	N	(pmp)
North East	10	(3.8)	0	(0.0)	10	(3.8)
North West	8	(1.1)	6	(0.8)	14	(1.9)
Yorkshire and The Humber	6	(1.1)	7	(1.3)	13	(2.4)
North of England	24	(1.6)	13	(0.8)	37	(2.4)
East Midlands	14	(2.9)	3	(0.6)	17	(3.6)
West Midlands	12	(2.0)	10	(1.7)	22	(3.8)
East of England	10	(1.6)	8	(1.3)	18	(2.9)
Midlands and East	36	(2.1)	21	(1.3)	57	(3.4)
London	21	(2.4)	9	(1.0)	30	(3.4)
South East Coast	7	(1.5)	3	(0.6)	10	(2.1)
South Central	18	(4.1)	1	(0.2)	19	(4.3)
South West	10	(1.8)	5	(0.9)	15	(2.7)
South of England	35	(2.4)	9	(0.6)	44	(3.0)
England	116	(2.1)	52	(0.9)	168	(3.0)
Isle of Man	0	(0.0)	0	(0.0)	0	(0.0)
Channel Islands	0	(0.0)	0	(0.0)	0	(0.0)
Wales	8	(2.6)	4	(1.3)	12	(3.8)
Scotland	22	(4.1)	0	(0.0)	22	(4.1)
Northern Ireland	2	(1.1)	0	(0.0)	2	(1.1)
TOTAL	148	(2.2)	56	(0.8)	204	(3.1)

There were 204 deceased donor pancreas transplants in 2018-2019 representing a fall of 3% on the 211 transplants performed in 2017-2018. Of these 204, 158 (77%) were SPK transplants, 18 (9%) were pancreas only transplants (pancreas alone (PTA) or pancreas after kidney (PAK)) and 28 (14%) were islet transplants (including 8 SIK). The number of transplants performed at each centre is shown in **Table 6.8** by transplant type and **Table 6.9** by transplant and 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. In 2018-2019, the median CIT for a DBD donor whole pancreas transplant is 10.8 hours (Inter-Quartile (IQ) range 9.5 – 12.2) and for a DCD donor transplant is 9.7 hours (IQ range 8.8 – 12.1) and overall is 10.6 hours (IQ range 9.2 – 12.1).

At 31 March 2019, there were approximately 2,000 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 2018 - 31 March 2019 (2017-2018) by centre											
Centre	SPK		SIK		Transplant type				Islet		
					PTA		PAK		Routine	Priority	
Bristol	-	-	0	(0)	-	-	-	-	0	(0)	0
Cambridge	19	(22)	-	-	0	(0)	0	(1)	-	-	-
Cardiff	7	(6)	-	-	1	(1)	1	(0)	-	-	-
Edinburgh	14	(16)	3	(2)	0	(0)	0	(0)	3	(7)	4
Guys	29	(27)	-	-	0	(0)	0	(0)	-	-	-
King's College	-	-	0	(0)	-	-	-	-	1	(1)	1
Manchester	25	(33)	4	(2)	0	(1)	7	(2)	1	(1)	3
Newcastle	7	(8)	1	(0)	0	(0)	1	(0)	3	(0)	1
Oxford	52	(48)	0	(0)	3	(6)	2	(4)	3	(3)	0
Royal Free	-	-	0	(0)	-	-	-	-	0	(0)	0
WLRTC	5	(8)	-	-	2	(2)	1	(0)	-	-	-
TOTAL	158	(168)	8	(4)	6	(10)	12	(7)	11	(12)	9
WLRTC - West London Renal and Transplant Centre											

Table 6.9 Pancreas transplants, 1 April 2018 - 31 March 2019 by centre											
Centre	SPK		SIK		PTA/PAK		Islet		TOTAL		
	DBD	DCD	DBD	DCD	DBD	DCD	DBD	DCD	DBD	DCD	
Bristol	-	-	0	0	-	-	0	0	0	0	0
Cambridge	10	9	-	-	0	0	-	-	10	9	9
Cardiff	5	2	-	-	2	0	-	-	7	2	2
Edinburgh	14	0	3	0	0	0	7	0	24	0	0
Guys	20	9	-	-	0	0	-	-	20	9	9
King's College	-	-	0	0	-	-	2	0	2	0	0
Manchester	9	16	2	2	5	2	2	2	18	22	22
Newcastle	7	0	1	0	1	0	4	0	13	0	0
Oxford	42	10	0	0	2	3	3	0	47	13	13
Royal Free	-	-	0	0	-	-	0	0	0	0	0
WLRTC	5	0	-	-	2	1	-	-	7	1	1
TOTAL	112	46	6	2	12	6	18	2	148	56	
WLRTC - West London Renal and Transplant Centre											

6.5 Demographic characteristics

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

Table 6.10 Demographic characteristics of deceased pancreas donors and transplant recipients, 1 April 2018 - 31 March 2019, and transplant list patients at 31 March						
Age group (years)	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
0 - 17	28	(6)	0	(0)	1	(0)
18 - 34	122	(25)	36	(18)	53	(21)
35 - 49	198	(41)	105	(51)	112	(45)
50 - 59	112	(23)	53	(26)	69	(28)
60 - 69	20	(4)	9	(4)	15	(6)
70+	4	(1)	1	(0)	0	(0)
mean (SD)	40	(14)	44	(9)	44	(10)
Male	266	(55)	118	(58)	118	(47)
Female	218	(45)	86	(42)	132	(53)
White	440	(91)	174	(85)	213	(85)
Asian	18	(4)	8	(4)	14	(6)
Black	4	(1)	18	(9)	18	(7)
Chinese	1	(0)	0	(0)	0	(0)
Other	18	(4)	4	(2)	5	(2)
Not reported	3		0		0	
O	256	(53)	93	(46)	126	(50)
A	170	(35)	82	(40)	81	(32)
B	52	(11)	22	(11)	37	(15)
AB	6	(1)	7	(3)	6	(2)
First graft			186	(91)	221	(88)
Re-graft			18	(9)	29	(12)
TOTAL	484	(100)	204	(100)	250	(100)

Cardiothoracic Activity

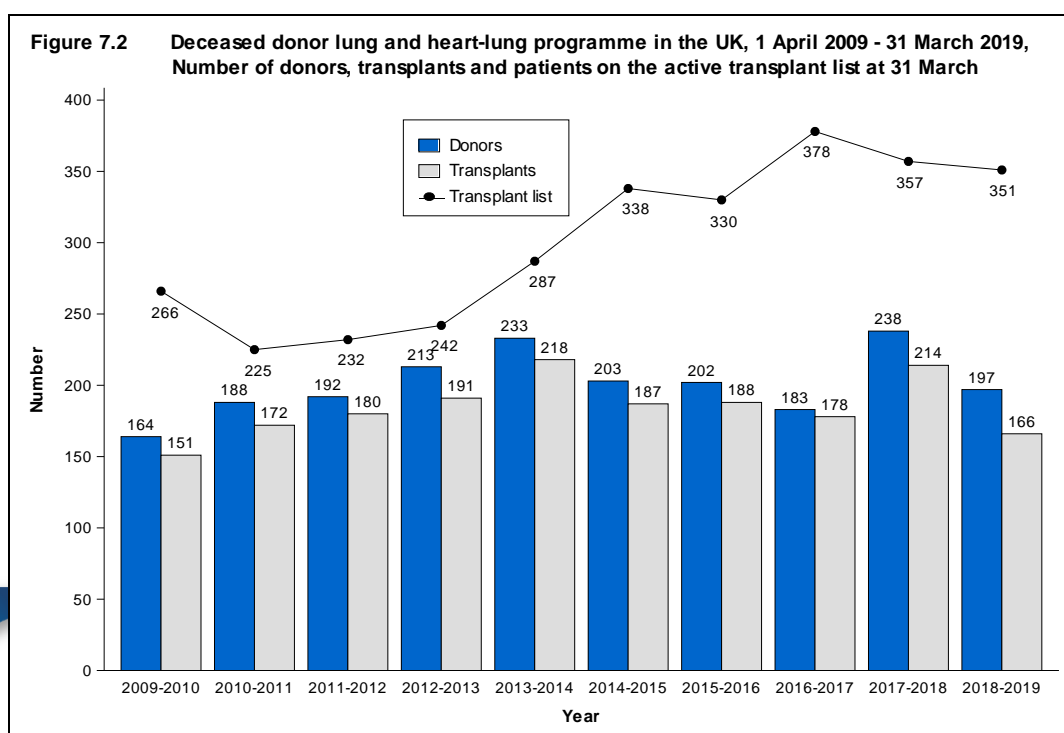
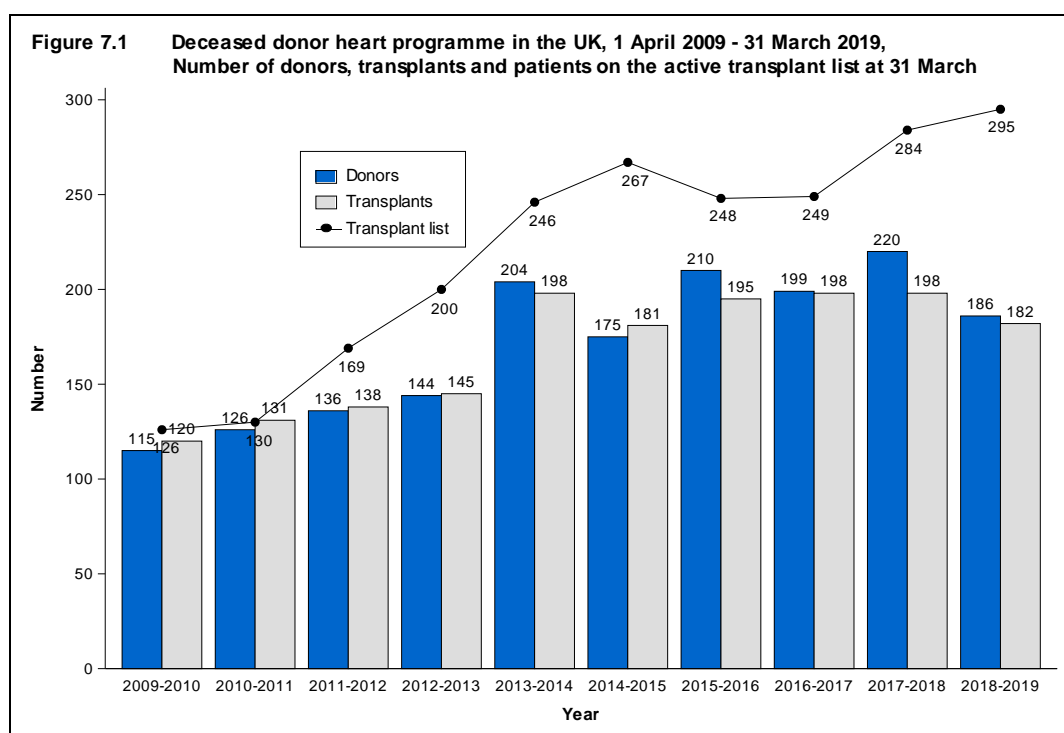
Key messages

- At 31 March 2019, there were 295 patients on the active heart transplant list, 339 on the lung list and 12 on the heart-lung list
- Of the 962 organ donors after brain death during 2018-2019, 153 (16%) donated their heart and 139 (14%) donated at least one lung
- The number of heart transplants fell by 8% to 182; 62% of these were urgent heart transplants, 13% were super-urgent and 24% were non-urgent
- The number of lung and heart-lung transplants from deceased donors fell by 22% this year to 166
- There were 31 DCD heart transplants in 2018-2019

7.1 Overview

Last year the number of heart transplants fell by 8% to 182 compared with 2017-2018, and the number of lung or heart-lung transplants fell by 22% to 166. There were increases in both the heart and the lung transplant lists since March 2018. The number of patients active on the heart transplant list at year end has increased by 134% since 2010, while the number of patients active on the lung or heart-lung transplant has increased by 32% since 2010.

A summary of the deceased donor cardiothoracic activity from 1 April 2009 to 31 March 2019 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 18 May 2017, patients can be registered urgently and super-urgently on the lung transplant waiting list. These two new tiers were introduced with the primary aim to improve access to transplant for the sickest patients on the transplant list.

Table 7.1 shows the number of patients on the active transplant lists at 31 March 2019 by centre. There were two patients waiting on the super-urgent heart transplant list. There were no patients waiting on the super-urgent lung transplant list, and three patients waiting on the urgent lung transplant list. The lung transplant list accounts for 52% of the patients waiting for a cardiothoracic organ transplant. Overall, Newcastle and Harefield had the largest cardiothoracic lists on 31 March 2019.

Table 7.1 Patients on the cardiothoracic transplant lists at 31 March 2019 (2018) in the UK, by centre																
Centre	Active transplant lists														TOTAL	
	Non-urgent		Heart Urgent		Super-urgent		Heart-lung		Non-urgent		Lung Urgent		Super-urgent			
Adult																
Birmingham	30	(33)	4	(5)	1	(1)	2	(2)	44	(41)	0	(0)	0	(0)	81	(82)
Glasgow	17	(22)	3	(1)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	20	(23)
Harefield	59	(68)	4	(11)	0	(0)	2	(3)	110	(132)	0	(0)	0	(0)	175	(214)
Manchester	28	(30)	5	(3)	0	(1)	3	(4)	55	(44)	0	(0)	0	(0)	91	(82)
Newcastle	70	(61)	10	(7)	0	(0)	1	(2)	91	(88)	0	(0)	0	(0)	172	(158)
Papworth	27	(14)	1	(1)	1	(0)	4	(2)	31	(34)	0	(1)	0	(0)	64	(52)
TOTAL	231	(228)	27	(28)	2	(2)	12 ¹	(13)	331	(339)	0	(1)	0	(0)	603	(611)
Paediatric																
Great Ormond Street	18	(15)	6	(8)	0	(0)	0	(0)	3	(1)	3	(1)	0	(0)	30	(25)
Harefield	1	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	1	(0)
Newcastle	5	(1)	5	(2)	0	(0)	0	(0)	2	(2)	0	(0)	0	(0)	12	(5)
TOTAL	24	(16)	11	(10)	0	(0)	0	(0)	5	(3)	3	(1)	0	(0)	43	(30)
¹ Includes two patients on the urgent heart-lung list																

¹ Includes two patients on the urgent heart-lung list

During 2018-2019, there were 310 registrations onto the heart transplant list while 7 registrations onto the heart-lung transplant list and 270 onto the lung transplant list. Registration outcomes as at 31 March 2019 for patients on the list at 1 April 2018 and those joining the list during the year are shown in **Table 7.2**.

Table 7.2 Cardiothoracic organ transplant lists and new registrations in the UK, 1 April 2018 - 31 March 2019						
Outcome of patient at 31 March 2019	Active and suspended patients at 1 April 2018		New registrations in 2018-2019 ¹		TOTAL	
	N	%	N	%	N	%
Heart transplant list						
Remained active/suspended	185	62	149	48	334	55
Transplanted	68	23	109	35	177	29
Removed	33	11	46	15	79	13
Died	12	4	6	2	18	3
TOTAL	298		310		608	
Heart-lung transplant list						
Remained active/suspended	10	71	5	42	15	58
Transplanted ²	5	36	0	0	5	19
Removed	3	21	2	17	5	19
Died	1	7	0	0	1	4
TOTAL	19		7		26	
Lung transplant list						
Remained active/suspended	180	53	165	61	345	56
Transplanted	93	27	67	25	160	26
Removed	35	10	14	5	49	8
Died	34	10	24	9	58	9
TOTAL	342		270		612	
¹ Includes re-registrations for second or subsequent patients						
² Patients may have received heart, lung, or heart-lung						

Table 7.3 shows the transplant list rates per million population by country/Strategic Health Authority of patient's residence. The overall UK heart transplant list rate at 31 March 2019 was 4.5 pmp and ranged from 2.3 to 7.6 across the Strategic Health Authorities. The overall UK lung transplant list rate was 5.3 pmp and ranged from 3.6 to 7.2 across the Strategic Health Authorities.

Table 7.3 Active cardiothoracic transplant list at 31 March, by country/ Strategic Health Authority of patient residence								
Country/ Strategic Health Authority of residence	Heart transplant list (pmp)				Lung transplant list (pmp)			
	2019		2018		2019		2018	
North East	20	(7.6)	17	(6.4)	17	(6.4)	10	(3.8)
North West	31	(4.3)	36	(5.0)	42	(5.8)	35	(4.8)
Yorkshire and The Humber	33	(6.1)	25	(4.6)	39	(7.2)	40	(7.3)
North of England	84	(5.5)	78	(5.1)	98	(6.4)	85	(5.5)
East Midlands	11	(2.3)	7	(1.5)	23	(4.8)	21	(4.4)
West Midlands	28	(4.8)	29	(4.9)	30	(5.1)	34	(5.8)
East of England	21	(3.4)	20	(3.2)	22	(3.6)	32	(5.2)
Midlands and East	60	(3.6)	56	(3.3)	75	(4.5)	87	(5.2)
London	31	(3.5)	34	(3.9)	34	(3.9)	33	(3.7)
South East Coast	21	(4.5)	24	(5.1)	29	(6.2)	36	(7.7)
South Central	17	(3.9)	17	(3.9)	18	(4.1)	21	(4.8)
South West	21	(3.8)	19	(3.4)	29	(5.2)	31	(5.6)
South of England	59	(4.0)	60	(4.1)	76	(5.2)	88	(6.0)
England	234	(4.2)	228	(4.1)	283	(5.1)	293	(5.3)
Isle of Man	1	(12.5)	0	(0.0)	1	(12.5)	0	(0.0)
Channel Islands	0	(0.0)	0	(0.0)	1	(6.3)	0	(0.0)
Wales	10	(3.2)	10	(3.2)	22	(7.0)	19	(6.1)
Scotland	27	(5.0)	30	(5.5)	28	(5.2)	33	(6.1)
Northern Ireland	15	(8.0)	9	(4.8)	14	(7.5)	11	(5.9)
TOTAL^{1,2}	295	(4.5)	284	(4.3)	351	(5.3)	357	(5.4)

¹ Includes heart patients in 2019 (2018) resident in: UK unknown 3 (2); Republic of Ireland 2 (1); Overseas 3 (4)
² Includes lung patients in 2019 (2018) resident in: UK unknown 1 (1); Republic of Ireland 1 (0)

The transplant list outcomes for adult patients listed for a cardiothoracic organ transplant between 1 April 2015 and 31 March 2016 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, 12% of non-urgent heart patients were transplanted while 6% had died, compared with 73% transplanted and 5% died for urgent heart patients. Of those listed for a non-urgent lung transplant, 33% were transplanted within six months, rising to 60% after three years, however at three years, 20% had died. The patients removed from these lists may have subsequently died.

Figure 7.3 Post-registration outcome for 129 first non-urgent heart only registrations made in the UK, 1 April 2015 - 31 March 2016

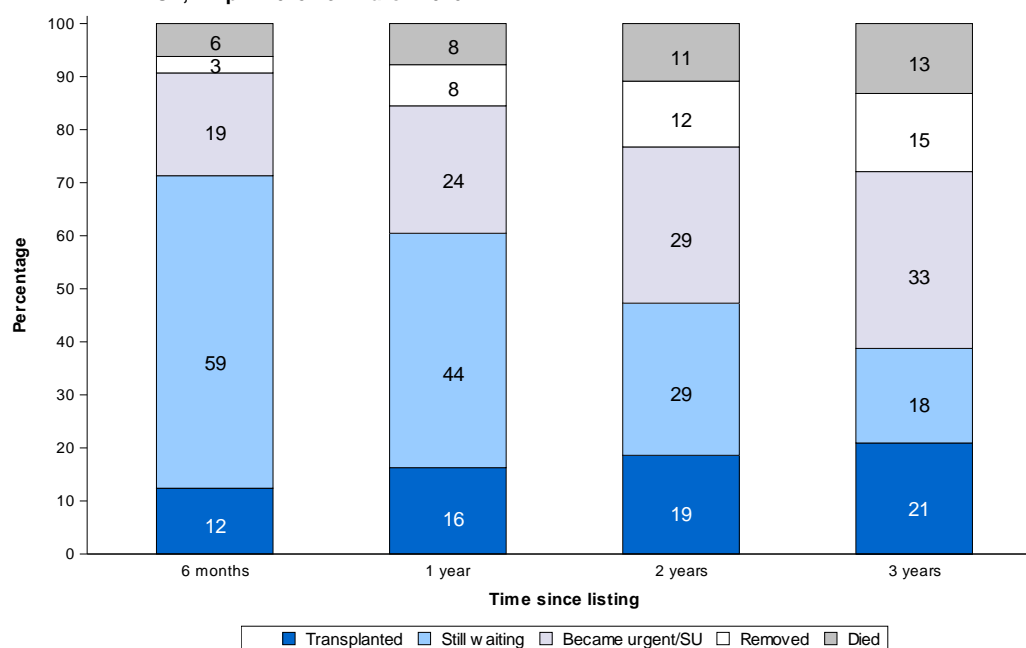
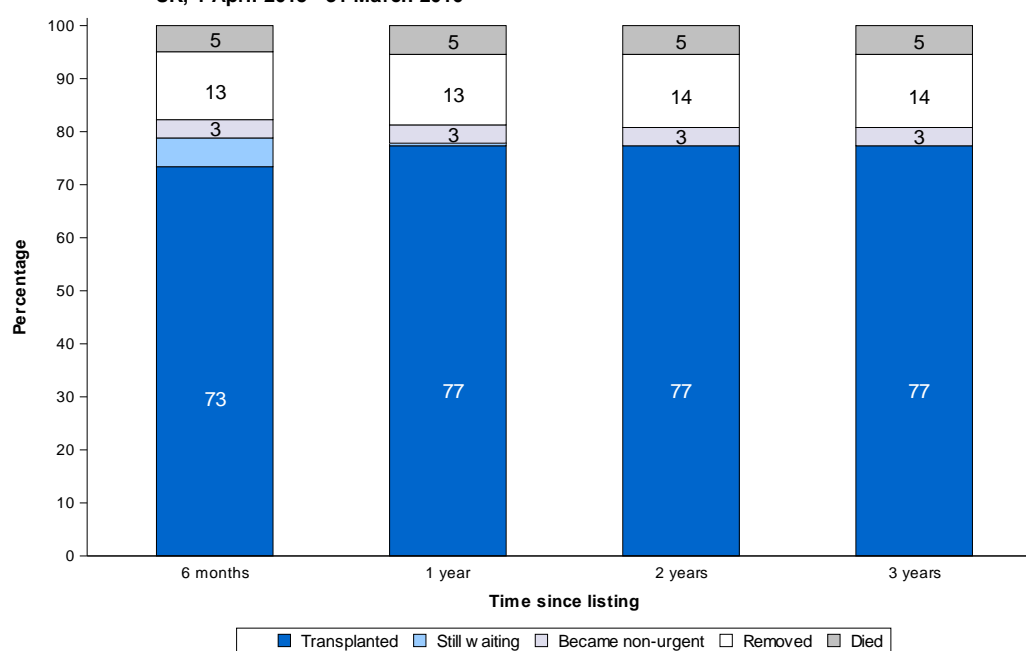


Figure 7.4 Post-registration outcome for 203 first urgent heart only registrations made in the UK, 1 April 2015 - 31 March 2016



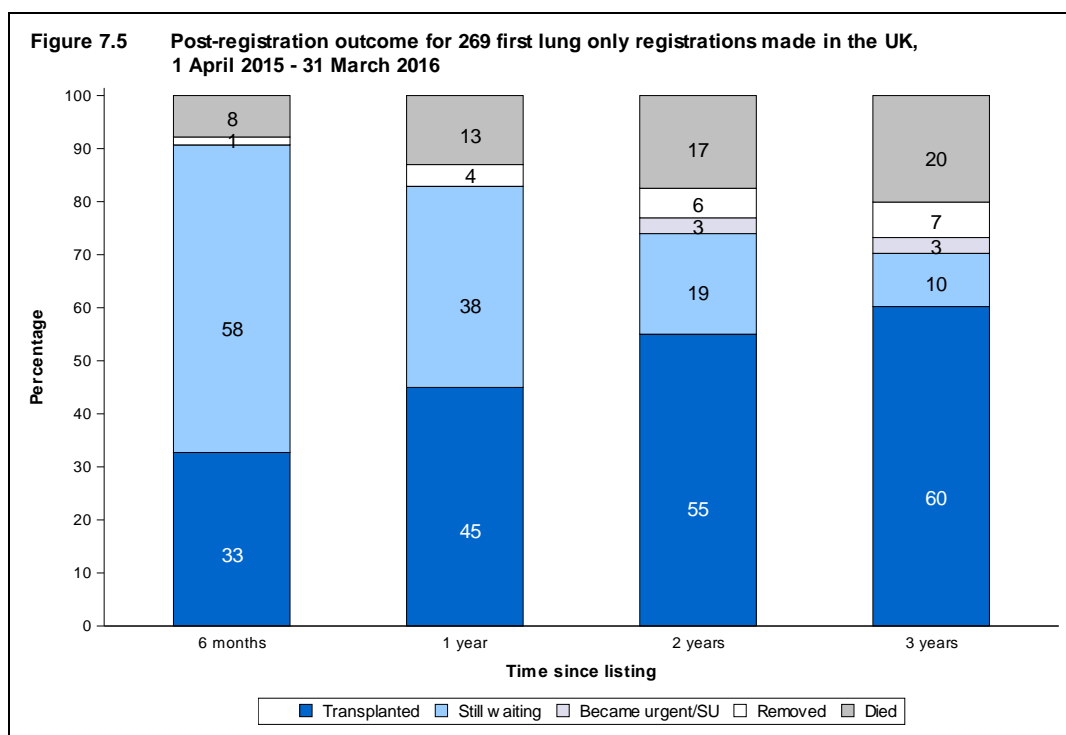


Table 7.4 and **Table 7.5** show the median waiting time to cardiothoracic organ transplant by blood group and ethnicity of patient, respectively, for patients registered between 1 April 2011 and 31 March 2016. The overall median waiting time to heart transplantation, for adults, was 1,085 days for patients 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 30 days. The overall median waiting time to lung transplantation, for adults, was 289 days, but for blood group O patients alone was 449 days. For paediatric heart patients, the median waiting time was 463 days for 'never urgent' registrations and 79 days for 'ever 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 transplant in the UK,
for patients registered 1 April 2011 - 31 March 2016, by blood group**

Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult never urgent heart			
O ¹	176	-	-
A	191	424	299 - 549
B	45	497	210 - 784
AB	19	92	21 - 163
TOTAL	431	1085	611 - 1559
Adult ever urgent heart² (urgent waiting time only)			
O	305	49	41 - 57
A	281	17	15 - 19
B	95	38	28 - 48
AB	35	20	12 - 28
TOTAL	716	30	26 - 34
Paediatric never urgent heart	37	463	0 - 1044
Paediatric ever urgent heart (urgent waiting time only)	207	79	55 - 103
Adult lung			
O	608	449	379 - 519
A	573	186	154 - 218
B	129	232	192 - 272
AB	34	176	138 - 214
TOTAL	1344	289	252 - 326

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

² Includes registrations and waiting time on super-urgent list where applicable

Table 7.5 Median waiting time to cardiothoracic transplant in the UK, for patients registered 1 April 2011 - 31 March 2016, by ethnicity

Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult never urgent heart			
White	382	1298	702 - 1894
Asian	22	403	190 - 616
Black	19	742	85 - 1399
Other ¹	7	-	-
TOTAL²	431	1085	611 - 1559
Adult ever urgent heart³ (urgent waiting time only)			
White	612	29	25 - 33
Asian	59	36	18 - 54
Black	22	71	28 - 114
Other	17	34	24 - 44
TOTAL²	716	30	26 - 34
Paediatric never urgent heart	37	463	0 - 1044
Paediatric ever urgent heart	207	79	55 - 103
Adult lung			
White	1271	283	249 - 317
Asian	46	1191	279 - 2103
Black	15	731	369 - 1093
Other ¹	6	-	-
TOTAL²	1344	289	252 - 326

¹ Median waiting time not calculated for fewer than 10 patients

² Totals do not add up where we do not have ethnicity reported for all patients

³ Includes registrations and waiting time on super-urgent list where applicable

7.3 Donor and organ supply

Table 7.6 shows the number of deceased organ donors identified in each heart allocation zone, and the number of donors that had their heart retrieved and transplanted, by donor type. It also shows the number in each zone who donated their lung(s) as well as their heart. Of the 962 DBD donors, 153 (16%) donated their heart, resulting in 149 transplants. Of the 638 DCD donors, 33 (5%) donated their heart, resulting in 31 transplants.

Table 7.7 shows the number of deceased organ donors identified in each lung allocation zone, and the number of donors that had their lungs retrieved and transplanted, by donor type. It also shows the number in each zone who donated their heart as well as their lung(s). Of the 962 DBD donors, 139 (14%) donated at least one lung, with 126 proceeding to transplantation. Of the 638 DCD donors, 58 (9%) donated at least one lung, with 39 proceeding to transplantation.

Note that from May 2017, hearts and lungs have had separate allocation zones and so the number of donors in zones does not match between heart and lung allocation zones. Prior to this, there were joint cardiothoracic allocation zones.

Table 7.6 Heart organ donation and retrieval rates in the UK, 1 April 2018 - 31 March 2019, by heart allocation zone and donor type								
Heart Allocation Zone	Number of donors	DBD			Number of donors	DCD		
		Number of heart donors (utilised)		Number donated heart and lungs		Number of heart donors (utilised)		Number donated heart and lungs
Birmingham	156	21	(19)	9	113	2	(1)	0
Glasgow	80	10	(10)	6	32	0	(0)	0
Harefield	190	27	(27)	11	135	7	(7)	3
Manchester	140	21	(21)	8	100	5	(4)	1
Newcastle	209	38	(38)	7	131	9	(9)	2
Papworth	187	36	(34)	14	127	10	(10)	2
TOTAL	962	153	(149)	55	638	33	(31)	8

Table 7.7 Lung organ donation and retrieval rates in the UK, 1 April 2018 - 31 March 2019, by lung allocation zone and donor type								
Lung Allocation Zone	Number of donors	DBD			Number of donors	DCD		
		Number of lung donors (utilised)		Number donated heart and lungs		Number of lung donors (utilised)		Number donated heart and lungs
Birmingham	144	21	(21)	8	102	7	(6)	0
Harefield	275	41	(41)	20	176	18	(10)	3
Manchester	135	14	(14)	5	99	6	(6)	1
Newcastle	220	35	(24)	11	108	13	(7)	1
Papworth	188	28	(26)	11	153	14	(10)	3
TOTAL	962	139	(126)	55	638	58	(39)	8

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 heart donor rate was 2.8 pmp in 2018-2019 and varied across the Strategic Health Authorities from 1.8 pmp to 3.8 pmp. For lungs, the overall donor rate was 3.0 pmp in 2018-2019 and varied across the Strategic Health Authorities from 1.8 pmp to 4.9 pmp.

Table 7.8 Cardiothoracic donation rates for deceased donors in the UK, 1 April 2018 - 31 March 2019, by country/ Strategic Health Authority									
Country/ Strategic Health Authority	Heart (pmp)			Lungs (pmp)					
	DBD	DCD	Total	DBD	DCD	Total			
North East	9 (3.4)	1 (0.4)	10 (3.8)	10 (3.8)	3 (1.1)	13 (4.9)			
North West	10 (1.4)	6 (0.8)	16 (2.2)	16 (2.2)	5 (0.7)	21 (2.9)			
Yorkshire and The Humber	16 (2.9)	1 (0.2)	17 (3.1)	6 (1.1)	4 (0.7)	10 (1.8)			
North of England	35 (2.3)	8 (0.5)	43 (2.8)	32 (2.1)	12 (0.8)	44 (2.9)			
East Midlands	13 (2.7)	4 (0.8)	17 (3.6)	14 (2.9)	5 (1.0)	19 (4.0)			
West Midlands	17 (2.9)	0 (0.0)	17 (2.9)	11 (1.9)	3 (0.5)	14 (2.4)			
East of England	13 (2.1)	8 (1.3)	21 (3.4)	7 (1.1)	8 (1.3)	15 (2.4)			
Midlands and East	43 (2.6)	12 (0.7)	55 (3.3)	32 (1.9)	16 (1.0)	48 (2.9)			
London	27 (3.1)	6 (0.7)	33 (3.7)	18 (2.0)	9 (1.0)	27 (3.1)			
South East Coast	12 (2.6)	0 (0.0)	12 (2.6)	13 (2.8)	2 (0.4)	15 (3.2)			
South Central	5 (1.1)	3 (0.7)	8 (1.8)	6 (1.4)	6 (1.4)	12 (2.7)			
South West	9 (1.6)	1 (0.2)	10 (1.8)	15 (2.7)	4 (0.7)	19 (3.4)			
South of England	26 (1.8)	4 (0.3)	30 (2.1)	34 (2.3)	12 (0.8)	46 (3.1)			
England	131 (2.4)	30 (0.5)	161 (2.9)	116 (2.1)	49 (0.9)	165 (3.0)			
Isle of Man	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)			
Channel Islands	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)			
Wales	9 (2.9)	3 (1.0)	12 (3.8)	5 (1.6)	3 (1.0)	8 (2.6)			
Scotland	7 (1.3)	0 (0.0)	7 (1.3)	13 (2.4)	2 (0.4)	15 (2.8)			
Northern Ireland	6 (3.2)	0 (0.0)	6 (3.2)	5 (2.7)	4 (2.1)	9 (4.8)			
TOTAL	153 (2.3)	33 (0.5)	186 (2.8)	139 (2.1)	58 (0.9)	197 (3.0)			
DCD heart donation is not operational in all areas									
Includes 4 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 heart transplant rate ranged from 1.3 to 3.7 pmp across Strategic Health Authorities and overall was 2.7 pmp. The lung transplant rate ranged from 1.9 to 4.1 pmp across Strategic Health Authorities and overall was 2.5 pmp. Lung transplant rates include a small number of heart-lung transplants.

Table 7.9 Cardiothoracic transplant rates per million population (pmp) in the UK, 1 April 2018 - 31 March 2019, by country/ Strategic Health Authority									
Country/ Strategic Health Authority	Heart (pmp)			Lungs (pmp)					
	DBD	DCD	Total	DBD	DCD	Total			
North East	6 (2.3)	0 (0.0)	6 (2.3)	4 (1.5)	1 (0.4)	5 (1.9)			
North West	17 (2.3)	2 (0.3)	19 (2.6)	12 (1.7)	2 (0.3)	14 (1.9)			
Yorkshire and The Humber	7 (1.3)	0 (0.0)	7 (1.3)	13 (2.4)	1 (0.2)	14 (2.6)			
North of England	30 (2.0)	2 (0.1)	32 (2.1)	29 (1.9)	4 (0.3)	33 (2.1)			
East Midlands	10 (2.1)	3 (0.6)	13 (2.7)	9 (1.9)	1 (0.2)	10 (2.1)			
West Midlands	19 (3.2)	0 (0.0)	19 (3.2)	12 (2.0)	4 (0.7)	16 (2.7)			
East of England	15 (2.4)	4 (0.6)	19 (3.1)	11 (1.8)	9 (1.5)	20 (3.2)			
Midlands and East	44 (2.6)	7 (0.4)	51 (3.0)	32 (1.9)	14 (0.8)	46 (2.7)			
London	23 (2.6)	4 (0.5)	27 (3.1)	9 (1.0)	3 (0.3)	12 (1.4)			
South East Coast	8 (1.7)	7 (1.5)	15 (3.2)	18 (3.8)	1 (0.2)	19 (4.1)			
South Central	11 (2.5)	5 (1.1)	16 (3.7)	8 (1.8)	2 (0.5)	10 (2.3)			
South West	6 (1.1)	6 (1.1)	12 (2.2)	13 (2.3)	5 (0.9)	18 (3.2)			
South of England	25 (1.7)	18 (1.2)	43 (2.9)	39 (2.7)	8 (0.5)	47 (3.2)			
England	122 (2.2)	31 (0.6)	153 (2.8)	109 (2.0)	29 (0.5)	138 (2.5)			
Isle of Man	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)			
Channel Islands	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)			
Wales	7 (2.2)	0 (0.0)	7 (2.2)	6 (1.9)	2 (0.6)	8 (2.6)			
Scotland	11 (2.0)	0 (0.0)	11 (2.0)	9 (1.7)	5 (0.9)	14 (2.6)			
Northern Ireland	7 (3.7)	0 (0.0)	7 (3.7)	1 (0.5)	3 (1.6)	4 (2.1)			
TOTAL¹	149 (2.3)	31 (0.5)	180 (2.7)	125 (1.9)	39 (0.6)	164 (2.5)			

DCD heart transplantation is not operational in all areas

¹ Excludes 1 recipients who reside in the Republic of Ireland and 3 recipients who reside overseas. Includes 2 recipients whose postcode was unknown

Table 7.10 and **Table 7.11** show cardiothoracic organ transplant activity for each centre by urgency status and donor type, respectively. In 2018-2019, a total of 348 transplants were carried out; a fall of 16% on 2017-2018. Of these, 182 were heart transplants, of which 138 (76%) were in urgent or super-urgent patients and additionally, 31 (17%) were achieved from donors after circulatory death. There were a total of 162 lung only transplants, of which 26 (16%) were in urgent patients and 7 (4%) in super-urgent patients. There was a substantial reduction in the number of heart-lung transplants compared with 2017-2018.

Table 7.10 Cardiothoracic transplants from deceased donors, 1 April 2018 – 31 March 2019 (2017-2018), by age group and centre

Transplant centre							Transplant type								TOTAL	
							Heart			Heart-lung		Lung(s)				
Non-urgent		Urgent		Non-urgent		Urgent										
Adult																
Birmingham	0	(1)	22	(17)	4	(2)	0	(2)	13	(13)	3	(5)	0	(2)	42	(42)
Glasgow	0	(1)	7	(4)	2	(6)	0	(0)	0	(0)	0	(0)	0	(0)	9	(11)
Harefield	6	(2)	23	(22)	6	(8)	0	(5)	38	(51)	6	(5)	6	(3)	85	(96)
Manchester	3	(7)	11	(8)	6	(6)	1	(1)	19	(23)	2	(6)	0	(0)	42	(51)
Newcastle	7	(1)	12	(17)	2	(4)	1	(3)	21	(25)	5	(18)	0	(0)	48	(68)
Papworth	21	(21)	20	(27)	4	(8)	0	(1)	34	(32)	8	(12)	1	(1)	88	(102)
TOTAL	37	(33)	95	(95)	24	(34)	2	(12)	125	(144)	24	(46)	7	(6)	314	(370)
Paediatric ¹																
Great Ormond Street	5	(5)	10	(11)	0	(0)	2	(0)	4	(2)	0	(1)	0	(0)	21	(19)
Harefield	0	(0)	0	(0)	0	(1)	0	(0)	0	(0)	0	(0)	0	(0)	0	(1)
Manchester	0	(0)	0	(0)	1	(0)	0	(0)	0	(0)	0	(0)	0	(0)	1	(0)
Newcastle	2	(5)	8	(14)	0	(0)	0	(0)	0	(2)	2	(1)	0	(0)	12	(22)
TOTAL	7	(10)	18	(25)	1	(1)	2	(0)	4	(4)	2	(2)	0	(0)	34	(42)

¹ Paediatric recipients are aged under 16 years at time of transplant

**Table 7.11 Cardiothoracic transplants from deceased donors,
1 April 2018 - 31 March 2019 (2017-2018), by age group and centre**

Transplant centre	Transplant type												TOTAL	
	Heart				Heart-lung				Lung(s)					
	DBD		DCD		DBD		DCD		DBD		DCD			
Adult														
Birmingham	26	(20)	0	(0)	0	(2)	0	(0)	13	(17)	3	(3)	42	(42)
Glasgow	9	(11)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	9	(11)
Harefield	26	(30)	9	(2)	0	(5)	0	(0)	38	(45)	12	(14)	85	(96)
Manchester	19	(15)	1	(6)	1	(1)	0	(0)	18	(25)	3	(4)	42	(51)
Newcastle	20	(22)	1	(0)	1	(3)	0	(0)	17	(35)	9	(8)	48	(68)
Papworth	25	(40)	20	(16)	0	(1)	0	(0)	32	(37)	11	(8)	88	(102)
TOTAL	125	(138)	31	(24)	2	(12)	0	(0)	118	(159)	38	(37)	314	(370)
Paediatric ¹														
Great Ormond Street	15	(16)	0	(0)	2	(0)	0	(0)	3	(3)	1	(0)	21	(19)
Harefield	0	(1)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(1)
Manchester	1	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	1	(0)
Newcastle	10	(18)	0	(1)	0	(0)	0	(0)	2	(2)	0	(1)	12	(22)
TOTAL	26	(35)	0	(1)	2	(0)	0	(0)	5	(5)	1	(1)	34	(42)

¹ Paediatric recipients are aged under 16 years at time of transplant

¹ Paediatric recipients are aged under 16 years at time of transplant

At 31 March 2019 there were approximately 4,000 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 2018-2019 the median IT for a DBD heart transplant was 3.3 hours (Inter-Quartile (IQ) range 2.3 – 4.2) and for a DCD heart transplant was 5.3 hours (IQ range 4.8 – 5.1) and overall was 3.5 hours (IQ range 2.5 – 5.1).

The median IT for DBD donor lung transplant was 6.6 hours (IQ range 5.4 – 8.3) and for a DCD donor lung transplant was 8.0 hours (IQ range 6.4 – 9.7) and overall was 6.8 hours (IQ range 5.5 – 8.8). 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**.

Table 7.12 Demographic characteristics of deceased cardiothoracic donors and transplant recipients 1 April 2018 - 31 March 2019, and transplant list patients at 31 March in the UK						
Age group (years)	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
0 - 17	28	(9)	38	(11)	47	(7)
18 - 34	96	(30)	65	(19)	84	(13)
35 - 49	96	(30)	107	(31)	129	(20)
50 - 59	69	(22)	80	(23)	226	(35)
60 - 69	31	(10)	58	(17)	156	(24)
70+	0	(0)	0	(0)	4	(1)
mean (SD)	39	(16)	42	(17)	48	(17)
Male	169	(53)	206	(59)	388	(60)
Female	151	(47)	141	(41)	256	(40)
Not reported	0		1		2	
White	288	(91)	303	(87)	569	(88)
Asian	11	(3)	28	(8)	50	(8)
Black	4	(1)	8	(2)	19	(3)
Chinese	3	(1)	1	(0)	0	(0)
Other	11	(3)	7	(2)	7	(1)
Not reported	3		1		1	
O	179	(56)	147	(42)	334	(52)
A	107	(33)	148	(43)	238	(37)
B	25	(8)	35	(10)	66	(10)
AB	9	(3)	18	(5)	8	(1)
First graft			346	(99)	630	(98)
Re-graft			2	(1)	16	(2)
TOTAL	320	(100)	348	(100)	646	(100)

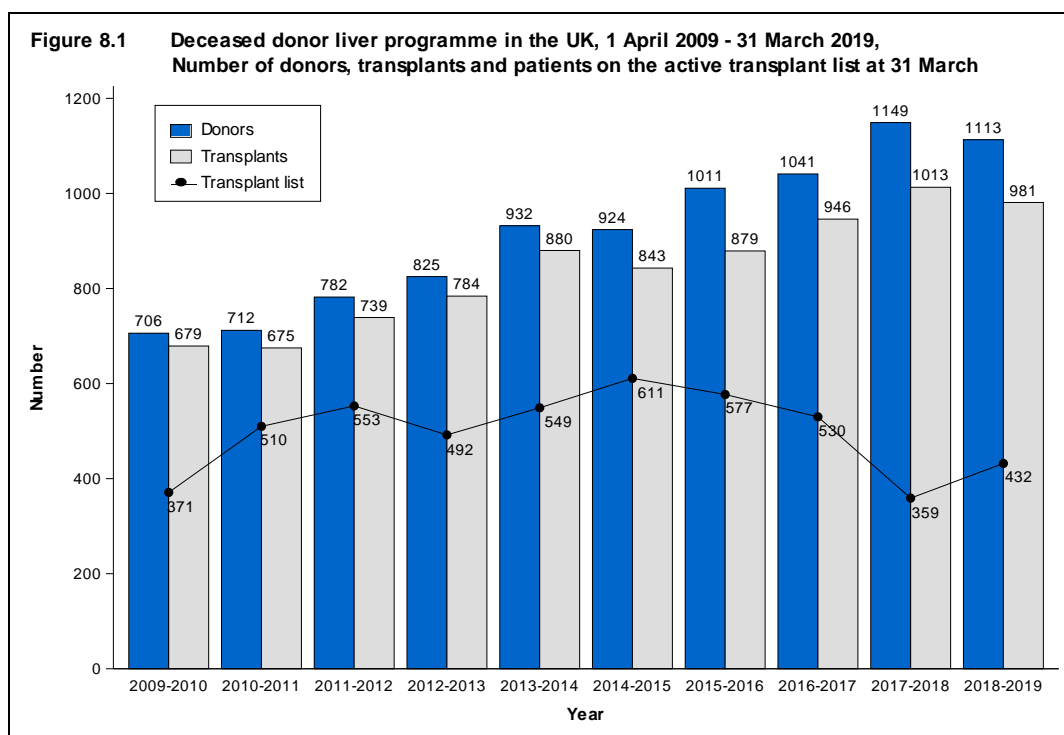
Liver Activity

Key messages

- On 20 March 2018, the new National Liver Offering Scheme (NLOS) was introduced for offering livers from donors after brain death
- The number of patients on the active liver transplant list at 31 March 2019 was 432, an increase of 20% from 2018
- The number of liver donors after brain death increased by 1% to 856, while transplants from donors after brain death fell by 2% to 794
- The number of liver donors after circulatory death fell by 14% to 257, while transplants from donors after circulatory death fell by 7% to 187

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 recent 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 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 2018-2019, 1,113 organ donors donated their liver for transplant: 856 donors after brain death and 257 donors after circulatory death. There were 432 patients on the active transplant list at 31 March 2019, an increase of 20% from 2018.

Overall, the number of liver transplants (either whole liver or liver lobe transplants) from donors after brain death fell by 2% to 794, and donors after circulatory death fell by 7% to 187, compared with the previous financial year. Additionally, there were 21 living liver lobe donor transplants in NHS Group 1 (13) and Group 2 (8) paediatric and adult recipients, and 1 domino donor transplant in NHS Group 1 adult recipients. One of the living donors was an altruistic non-directed donor.

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 97 deceased donor adult super-urgent transplants in 2018-2019, representing 11% of all adult transplants. There were 20 deceased donor paediatric super-urgent transplants in 2018-2019, representing 26% of all paediatric transplants.

Table 8.1 Deceased and living liver donors and transplants, 1 April 2018 - 31 March 2019 (2017-2018) and transplant list patients at 31 March 2019 (2018) in the UK, by age group and centre

Allocation zone/ transplant centre	Deceased donors ¹						Deceased transplants						Living donor transplants		Active transplant list	
	DBD		DCD		TOTAL		DBD		DCD		TOTAL					
Adult																
Birmingham	164	(158)	66	(55)	230	(213)	181	(154)	38	(52)	219	(206)	0	(0)	117	(86)
Cambridge	86	(86)	36	(49)	122	(135)	80	(84)	38	(33)	118	(117)	0	(0)	39	(26)
Edinburgh	92	(87)	14	(19)	106	(106)	95	(90)	13	(13)	108	(103)	0	(0)	37	(33)
King's College	198	(205)	56	(64)	253	(269)	161	(151)	43	(51)	204	(202)	5	(5)	102	(91)
Leeds	152	(161)	41	(70)	193	(231)	81	(126)	21	(25)	102	(151)	1	(3)	43	(40)
Newcastle	58	(29)	7	(11)	65	(40)	25	(32)	3	(5)	28	(37)	0	(0)	18	(8)
Royal Free	85	(106)	28	(18)	113	(124)	97	(102)	27	(14)	124	(116)	0	(2)	40	(41)
TOTAL	835	(832)	248	(286)	1083	(1118)	720	(739)	183	(193)	903	(932)	6 ²	(10) ³	396	(325)
Paediatric																
Birmingham	6	(2)	2	(3)	8	(5)	20	(21)	1	(1)	21	(22)	3	(3)	14	(6)
Cambridge	0	(2)	2	(3)	2	(5)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Edinburgh	1	(1)	0	(0)	1	(1)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
King's College	5	(5)	2	(6)	7	(11)	37	(34)	3	(6)	40	(40)	8	(12)	16	(21)
Leeds	7	(6)	2	(1)	9	(7)	17	(18)	0	(0)	17	(18)	5	(5)	6	(7)
Newcastle	0	(1)	1	(0)	1	(1)	0	(1)	0	(0)	0	(1)	0	(0)	0	(0)
Royal Free	2	(1)	0	(0)	2	(1)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	21	(18)	9	(13)	30	(31)	74	(74)	4	(7)	78	(81)	16 ⁴	(20) ⁵	36	(34)

¹ Includes donors whose livers were retrieved by other teams

² Includes 1 and 5 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

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

⁴ Includes 11 and 3 living liver lobe transplants, 1 and 0 altruistic donor transplants, and 1 and 0 domino transplants in NHS Group 1 and Group 2 recipients, respectively

⁵ Includes 16 and 4 living liver lobe transplants in NHS Group 1 and Group 2 recipients, respectively

8.2 Transplant list

During 2018-2019, 1,227 patients joined the liver transplant list. Outcomes for patients on the list at 1 April 2018 and those joining the list during the year are shown in **Table 8.2**. There have been 138 (11%) new registrations that were super-urgent.

Table 8.2 Liver transplant list and new registrations in the UK, 1 April 2018 - 31 March 2019						
Outcome of patient at 31 March 2019	Active and suspended patients at 1 April 2018		New registrations in 2018-2019 ¹		TOTAL	
	N	%	N	%	N	%
Remained active/suspended	116	26	372	30	488	29
Transplanted	239	54	764	62	1003	60
Removed	75	17	56	5	131	8
Died ²	12	3	35	3	47	3
TOTAL	442		1227		1669	

¹ Includes re-registrations for second or subsequent patients
² Includes patients removed due to deteriorating condition

Table 8.3 shows the active transplant list in the UK at 31 March 2019 and 2018 by country/ former Strategic Health Authority of patient's residence. At 31 March 2019, the overall rate was 6.5 pmp and ranged from 3.4 to 10.8 pmp across the Strategic Health Authorities.

Table 8.3 Active liver transplant list at 31 March, by country/ Strategic Health Authority of patient residence				
Country/ Strategic Health Authority of residence	Liver transplant list (pmp)			
	2019		2018	
North East	13	(4.9)	6	(2.3)
North West	38	(5.2)	29	(4.0)
Yorkshire and The Humber	27	(5.0)	29	(5.3)
North of England	78	(5.1)	64	(4.2)
East Midlands	32	(6.7)	21	(4.4)
West Midlands	63	(10.8)	41	(7.0)
East of England	36	(5.8)	31	(5.0)
Midlands and East	131	(7.8)	93	(5.5)
London	59	(6.7)	44	(5.0)
South East Coast	16	(3.4)	26	(5.5)
South Central	20	(4.6)	23	(5.3)
South West	42	(7.6)	29	(5.2)
South of England	78	(5.3)	78	(5.3)
England	346	(6.2)	279	(5.0)
Isle of Man	0	(0.0)	0	(0.0)
Channel Islands	1	(6.3)	1	(6.3)
Wales	19	(6.1)	14	(4.5)
Scotland	37	(6.8)	36	(6.6)
Northern Ireland	20	(10.7)	23	(12.3)
TOTAL¹	432	(6.5)	359	(5.4)

¹Includes patients in 2019 (2018) resident in: UK unknown 1 (0)
Republic of Ireland - 4 (1); Overseas - 4 (5)

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, 73% of patients had received a liver transplant while 10% of patients had died whilst waiting or had been removed due to their condition deteriorating. 4% had been removed for other reasons such as the patient's condition improving, as a result of non-compliance or at the request of the patient or family.

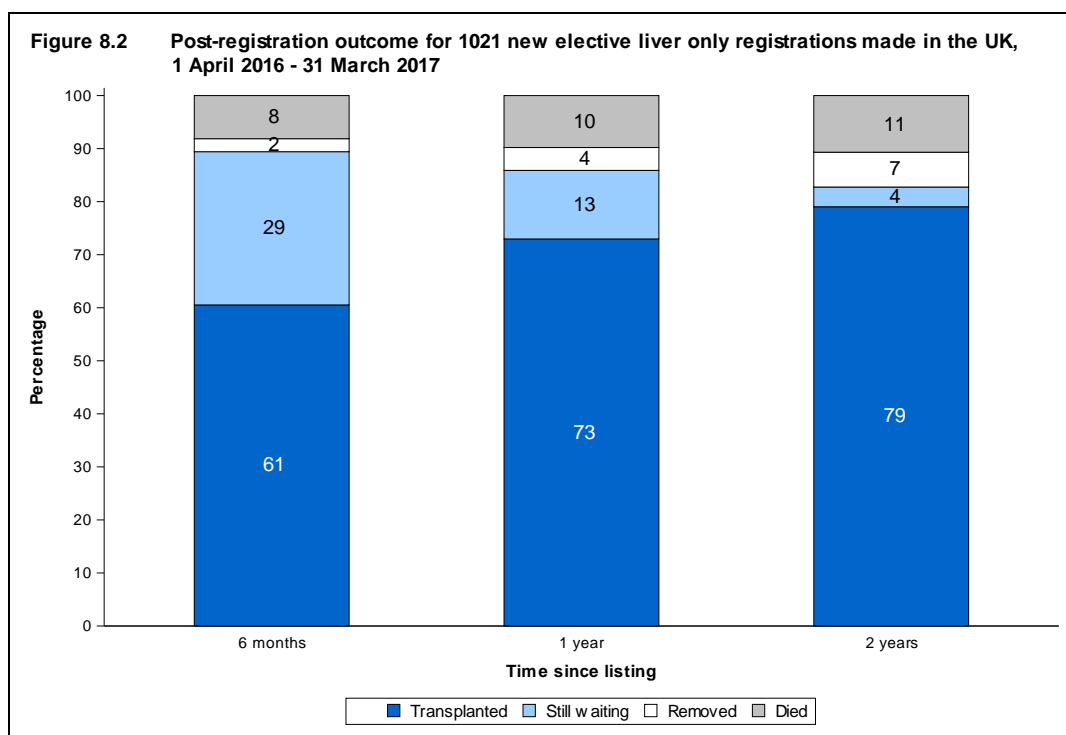


Table 8.4 and **Table 8.5** show the median waiting time to liver transplant for adult and paediatric elective registrations, separately, including a breakdown by blood group and ethnicity for adult elective registrations only. On average, adult patients wait 99 days for a transplant while paediatric patients wait an average of 107 days. Note that these waiting times are not adjusted for other relevant factors which may be influential and which may differ across blood or ethnic groups.

Table 8.4 Median active waiting time to liver transplant in the UK, for elective patients registered 1 April 2015 - 31 March 2018			
Blood group	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
O	1282	169	151 - 187
A	1031	58	52 - 64
B	287	167	133 - 201
AB	98	60	36 - 84
TOTAL	2698	99	91 - 107
Paediatric	220	107	84 - 130

Table 8.5 Median active waiting time to liver transplant in the UK, for elective patients registered 1 April 2015 - 31 March 2018			
Ethnicity	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Adult			
White	2385	97	89 - 105
Asian	178	116	90 - 142
Black	72	129	74 - 184
Other	56	97	63 - 131
TOTAL¹	2698	99	91 - 107
Paediatric	220	107	84 - 130
¹ Includes 7 recipients whose ethnicity was not reported			

8.3 Donor and organ supply

On 20 March 2018, the new National Liver Offering Scheme was introduced to offer livers from donors after brain death. This change introduced a national waiting list for all adult liver patients and liver offering for these donors is now made on a patient basis. For donors after circulatory death, the allocation scheme has not changed from centre based offering.

Of the 1,600 organ donors, 1,113 (70%) donated their liver and 948 (85%) of these donated livers were used; see **Table 8.6**. Of livers retrieved from donors after brain death and donors after circulatory death, 89% and 72% were transplanted, respectively. One liver can be used in more than one transplant, see **Table 8.9**.

Table 8.6 Deceased liver donation and retrieval in the UK, 1 April 2018 - 31 March 2019, by allocation zone											
Allocation zone	Number of donors						Number of livers retrieved (used)				
	Solid organ			Liver							
	DBD	DCD	TOTAL	DBD	DCD	TOTAL	DBD	DCD	TOTAL		
Birmingham	193	156	349	170	68	238	170	(152)	68	(44)	238 (196)
Cambridge	93	74	167	86	38	124	86	(76)	38	(27)	124 (103)
Edinburgh	102	52	154	93	14	107	93	(83)	14	(10)	107 (93)
King's College	222	149	371	203	58	261	203	(180)	58	(42)	261 (222)
Leeds	187	120	307	159	43	202	159	(143)	43	(34)	202 (177)
Newcastle	66	28	94	58	8	66	58	(48)	8	(7)	66 (55)
Royal Free	99	59	158	87	28	115	87	(80)	28	(22)	115 (102)
TOTAL	962	638	1600	856	257	1113	856	(762)	257	(186)	1113 (948)

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 16.9 pmp in 2018-2019 and varied across the Strategic Health Authorities from 15.1 pmp to 24.6 pmp.

Table 8.7 Liver donor rates in the UK, 1 April 2018 - 31 March 2019, by Country/ Strategic Health Authority						
Country/ Strategic Health Authority	DBD		Deceased donors (pmp) DCD		Total	
North East	57	(21.6)	8	(3.0)	65	(24.6)
North West	88	(12.1)	23	(3.2)	111	(15.3)
Yorkshire and The Humber	67	(12.3)	17	(3.1)	84	(15.4)
North of England	212	(13.8)	48	(3.1)	260	(16.9)
East Midlands	56	(11.7)	25	(5.2)	81	(17.0)
West Midlands	67	(11.4)	33	(5.6)	100	(17.1)
East of England	75	(12.2)	37	(6.0)	112	(18.2)
Midlands and East	198	(11.8)	95	(5.7)	293	(17.4)
London	103	(11.7)	30	(3.4)	133	(15.1)
South East Coast	72	(15.4)	18	(3.8)	90	(19.2)
South Central	60	(13.7)	19	(4.3)	79	(18.1)
South West	76	(13.7)	16	(2.9)	92	(16.5)
South of England	208	(14.2)	53	(3.6)	261	(17.9)
England	721	(13.0)	226	(4.1)	947	(17.0)
Isle of Man	2	(25.0)	0	(0.0)	2	(25.0)
Channel Islands	1	(6.3)	0	(0.0)	1	(6.3)
Wales	45	(14.4)	19	(6.1)	64	(20.4)
Scotland	65	(12.0)	11	(2.0)	76	(14.0)
Northern Ireland	22	(11.8)	1	(0.5)	23	(12.3)
TOTAL¹	856	(13.0)	257	(3.9)	1113	(16.9)

¹ Includes 10 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 9.8 to 20.3 pmp across the Strategic Health Authorities and overall was 14.7 pmp.

Table 8.8 Liver transplant rates per million population (pmp) in the UK, 1 April 2018 - 31 March 2019, by Country/ Strategic Health Authority								
Country/ Strategic Health Authority	Deceased transplants (pmp)						Living transplants (pmp)	
	DBD		DCD		Total			
North East	24	(9.1)	2	(0.8)	26	(9.8)	0	(0.0)
North West	56	(7.7)	19	(2.6)	75	(10.3)	3	(0.4)
Yorkshire and The Humber	57	(10.5)	9	(1.7)	66	(12.1)	3	(0.6)
North of England	137	(8.9)	30	(2.0)	167	(10.9)	6	(0.4)
East Midlands	51	(10.7)	16	(3.4)	67	(14.0)	0	(0.0)
West Midlands	99	(16.9)	20	(3.4)	119	(20.3)	0	(0.0)
East of England	88	(14.3)	25	(4.1)	113	(18.3)	2	(0.3)
Midlands and East	238	(14.2)	61	(3.6)	299	(17.8)	2	(0.1)
London	102	(11.6)	23	(2.6)	125	(14.2)	0	(0.0)
South East Coast	47	(10.0)	15	(3.2)	62	(13.2)	0	(0.0)
South Central	45	(10.3)	14	(3.2)	59	(13.5)	2	(0.5)
South West	52	(9.4)	15	(2.7)	67	(12.1)	1	(0.2)
South of England	144	(9.8)	44	(3.0)	188	(12.9)	3	(0.2)
England	621	(11.2)	158	(2.8)	779	(14.0)	11	(0.2)
Isle of Man	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Channel Islands	2	(12.5)	1	(6.3)	3	(18.8)	0	(0.0)
Wales	28	(8.9)	7	(2.2)	35	(11.2)	0	(0.0)
Scotland	101	(18.6)	13	(2.4)	114	(21.0)	0	(0.0)
Northern Ireland	33	(17.6)	1	(0.5)	34	(18.2)	1	(0.5)
TOTAL¹	790	(12.0)	182	(2.8)	972	(14.7)	12²	(0.2)

¹ Excludes 19 recipients who reside outside the UK (4 DBD, 5 DCD, 10 Living).
² Includes 1 domino donor transplants.

The number of whole, reduced and split liver transplants by urgency status of the transplant (elective, super-urgent) in 2018-2019 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 fell by 3% in 2018-2019. There were 981 deceased donor liver transplants performed in 2018-2019: 873 whole liver, including 12 liver and kidney; 84 split liver, and 24 deceased liver lobe. Split liver transplants accounted for 78% of liver lobe transplant activity.

Table 8.9 Deceased liver transplants performed in the UK, 1 April 2017 - 31 March 2019																
Transplant centre	2017 - 2018								2018 - 2019							
	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	179	21	3	3	21	1	203	25	191	25	4	2	16	2	211	29
Cambridge	102	13	0	0	2	0	104¹	13	104	10	0	0	4	0	108	10
Edinburgh	90	9	0	0	4	0	94	9	94	11	0	0	3	0	97	11
King's College	184	17	1	3	34	3	219	23	176	13	4	10	35	6	215	29
Leeds	131	17	2	0	15	4	148	21	82	18	3	1	14	1	99	20
Newcastle	34	4	0	0	0	0	34	4	24	4	0	0	0	0	24	4
Royal Free	92	17	0	0	6	1	98	18	107	14	0	0	3	0	110	14
TOTAL	812	98	6	6	82	9	900	113	778	95	11	13	75	9	864	117

E=Elective, SU=Super-urgent
 Birmingham, King's College and Leeds transplant paediatric patients
 Super-urgent registration categories were changed on 17 June 2015 to account for development in treatment of patients with acute liver failure
¹ Includes 1 urgent heart/liver transplant and 1 super-urgent lung/liver transplant at Cambridge

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 2018-2019, the median CIT for a DBD donor whole liver only transplant was 8.8 hours (Inter-Quartile (IQ) range 7.1 – 10.3) and for a DCD donor whole liver only transplant was 7.6 hours (IQ range 6.1 – 9.2) and overall was 8.5 hours (IQ range 6.9 – 10.1). Please note some of these data include the use of donor organ maintenance systems, in which cases the CIT reported will be an overestimate of the true cold ischaemia time.

At 31 March 2019 there were approximately 10,500 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**.

Table 8.10 Demographic characteristics of deceased liver donors and transplant recipients 1 April 2018 - 31 March 2019, and transplant list patients at 31 March in the UK						
Age group (years)	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
0 - 17	40	(4)	82	(8)	37	(9)
18 - 34	173	(16)	122	(12)	61	(14)
35 - 49	257	(23)	155	(16)	110	(25)
50 - 59	260	(23)	307	(31)	130	(30)
60 - 69	235	(21)	303	(31)	92	(21)
70+	148	(13)	12	(1)	2	(0)
mean (SD)	51	(17)	49	(18)	46	(17)
Male	577	(52)	620	(63)	249	(58)
Female	536	(48)	361	(37)	183	(42)
White	1008	(91)	838	(87)	365	(87)
Asian	44	(4)	48	(5)	35	(8)
Black	17	(2)	27	(3)	11	(3)
Chinese	3	(0)	10	(1)	3	(1)
Other	32	(3)	42	(4)	4	(1)
Not reported	9		16		14	
O	564	(51)	452	(46)	226	(52)
A	425	(38)	376	(38)	145	(34)
B	92	(8)	104	(11)	58	(13)
AB	32	(3)	49	(5)	3	(1)
First graft			885	(90)	378	(88)
Re-graft			96	(10)	54	(13)
TOTAL	1113	(100)	981	(100)	432	(100)

Intestinal Activity

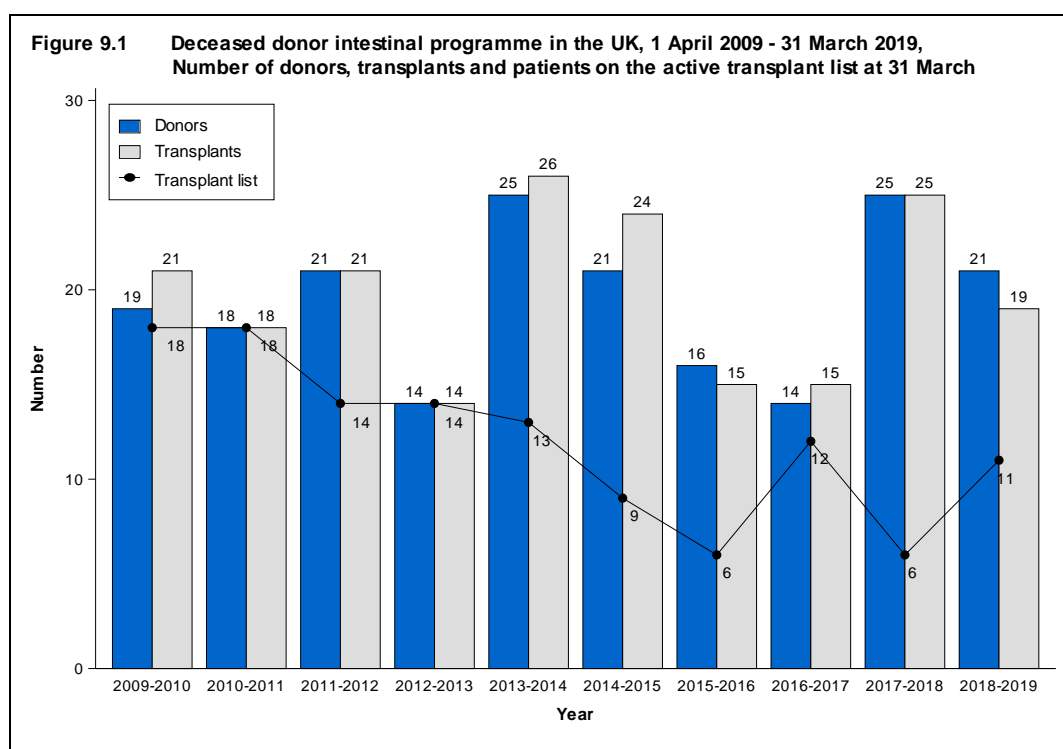
Key messages

- There were 11 patients on the active intestinal transplant list at 31 March 2019 in total
- There were 27 registrations for an intestinal transplant in 2018-2019, corresponding to 27 patients (19 adult and 8 paediatric patients)
- 19 intestinal transplants were carried out in 2018-2019 (25 in the previous year)
- On average, patients wait around 3 months for a transplant

9.1 Overview

A national Intestinal Allocation Scheme has been in place since 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 donor organs are allocated preferentially to the patient with the most points.

A summary of activity for deceased donor intestinal transplants and the transplant list at year end for the last ten years is shown in **Figure 9.1**. The number of patients registered on the active transplant list at 31 March 2019 for an intestinal transplant has fallen by 39% since 2010. Last year the number of intestinal transplants fell in comparison to the previous year by 24%.



9.2 Transplant list

In 2018-2019, there were 27 registrations for an intestinal transplant corresponding to 27 patients. The outcome of these registrations for paediatric (aged <18 years) and adult patients, as at 31 March 2019, broken down by transplant centre can be found in **Table 9.1**. Overall, 9 (33%) remained active/suspended, 15 (56%) resulted in a transplant, 1 (4%) died on the transplant list, and 2 (7%) were removed.

Table 9.1 Outcome of intestinal registrations in the UK, 1 April 2018 and 31 March 2019									
Transplant centre	Outcome of registrations as at 31 March 2019								TOTAL
	Transplanted		Died		Removed		Active/Susp		
	N	%	N	%	N	%	N	%	
Adult									
Cambridge	7	64	0	0	1	9	3	27	11
Oxford	7	88	0	0	1	13	0	0	8
TOTAL	14	74	0	0	2	11	3	16	19
Paediatric									
Birmingham	1	100	0	0	0	0	0	0	1
King's College	0	0	1	14	0	0	6	86	7
TOTAL	1	13	1	13	0	0	6	75	8

Table 9.2 shows the active intestinal transplant list in the UK at 31 March 2019 and 2018 by country/ former Strategic Health Authority of patient's residence. At 31 March 2019, the overall transplant list rate was 0.2 pmp and ranged from 0.0 to 0.6 pmp across the Strategic Health Authorities, although these numbers are very small so these are not meaningful differences.

Table 9.2 Active intestinal transplant list at 31 March, by country/ Strategic Health Authority of patient residence				
Country/ Strategic Health Authority of residence	Intestinal transplant list (pmp)			
	2019		2018	
North East	0	(0.0)	0	(0.0)
North West	0	(0.0)	0	(0.0)
Yorkshire and The Humber	0	(0.0)	1	(0.2)
North of England	0	(0.0)	1	(0.1)
East Midlands	1	(0.2)	1	(0.2)
West Midlands	0	(0.0)	0	(0.0)
East of England	4	(0.6)	1	(0.2)
Midlands and East	5	(0.3)	2	(0.1)
London	2	(0.2)	0	(0.0)
South East Coast	1	(0.2)	1	(0.2)
South Central	1	(0.2)	0	(0.0)
South West	1	(0.2)	1	(0.2)
South of England	3	(0.2)	2	(0.1)
England	10	(0.2)	5	(0.1)
Isle of Man	0	(0.0)	0	(0.0)
Channel Islands	0	(0.0)	0	(0.0)
Wales	0	(0.0)	0	(0.0)
Scotland	0	(0.0)	0	(0.0)
Northern Ireland	0	(0.0)	0	(0.0)
TOTAL¹	11	(0.2)	6	(0.1)

¹Includes patients in 2019 (2018) resident Overseas 1 (0), 0 (1) 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 77 days for a transplant, but those requiring a liver wait significantly longer.

Table 9.3 Median waiting time to intestinal transplant in the UK, for patients registered 1 April 2014 - 31 March 2018, by registration type			
Registration type	Number of patients registered	Waiting time (days)	
		Median	95% Confidence interval
Bowel only ¹	13	58	37 – 79
Liver, bowel and pancreas ¹	51	152	87 – 217
Bowel and pancreas ¹	27	44	0 – 100
TOTAL	91	77	41 – 113

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

9.3 Donor and organ supply

The rates per million population (pmp) for intestinal donors are shown in **Table 9.4** by donor country/Strategic Health Authority of residence. The overall DBD intestinal donor rate was 0.3 pmp and ranged from 0.0 to 0.7 pmp across the Strategic Health Authorities. Of the 962 DBD solid organ donors, 21 (2%) donated their small bowel.

Table 9.4 Intestinal donation rates for deceased donors after brain death in the UK, 1 April 2018 - 31 March 2019, by Country/Strategic Health Authority						
Country/ Strategic Health Authority of residence	Solid organ donors (pmp)		Intestinal donors (pmp)		% of solid organ donors	Intestine transplanted
North East	64	(24.2)	1	(0.4)	1.6	1
North West	110	(15.2)	2	(0.3)	1.8	2
Yorkshire and The Humber	79	(14.5)	2	(0.4)	2.5	1
North of England	253	(16.5)	5	(0.3)	2.0	4
East Midlands	62	(13.0)	0	(0.0)	-	-
West Midlands	73	(12.5)	0	(0.0)	-	-
East of England	85	(13.8)	0	(0.0)	-	-
Midlands and East	220	(13.1)	0	(0.0)	-	-
London	116	(13.1)	2	(0.2)	1.7	2
South East Coast	83	(17.7)	3	(0.6)	3.6	3
South Central	62	(14.2)	2	(0.5)	3.2	2
South West	80	(14.4)	4	(0.7)	5.0	4
South of England	225	(15.4)	9	(0.6)	4.0	9
England	814	(14.6)	16	(0.3)	2.0	15
Isle of Man	2	(25.0)	0	(0.0)	-	-
Channel Islands	1	(6.3)	0	(0.0)	-	-
Wales	51	(16.3)	2	(0.6)	3.9	2
Scotland	68	(12.5)	1	(0.2)	1.5	1
Northern Ireland	26	(13.9)	2	(1.1)	7.7	1
TOTAL¹	962	(14.6)	21	(0.3)	2.2	19

¹ Includes 9 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 2017-2018 and 2018-2019. In 2018-2019, there were a total of 19 transplants, 16 adult and 3 paediatric transplants.

At 31 March 2019 there were approximately 100 recipients with a functioning intestinal transplant (or multi-organ including intestine) being followed-up as reported to the UK Transplant Registry.

Table 9.5 Intestinal transplants in the UK, by age group, centre and type, 1 April 2018 - 31 March 2019 (2017-2018)												
Transplant centre	Transplant type										TOTAL	
	BO		LBP		MV		MMV		LB			
Adult												
Cambridge	0	(1)	0	(0)	5	(7)	3	(5)	0	(0)	8	(13)
Oxford	7	(4)	0	(0)	0	(0)	1	(0)	0	(0)	8	(4)
TOTAL	7	(5)	0	(0)	5	(7)	4	(5)	0	(0)	16	(17)
Paediatric												
Birmingham	1	(0)	0	(2)	0	(2)	0	(0)	0	(0)	1	(4)
Cambridge	0	(0)	0	(0)	0	(1)	0	(0)	0	(0)	0	(1)
King's College	0	(1)	1	(0)	1	(2)	0	(0)	0	(1)	2	(4)
TOTAL	1	(1)	1	(2)	1	(5)	0	(0)	0	(1)	3	(9)
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												
LB = Liver and bowel												

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**.

Table 9.6 Demographic characteristics of deceased intestinal donors and transplant recipients 1 April 2018 - 31 March 2019, and transplant list patients at 31 March in the UK						
Age group (years)	Donors		Transplant recipients		Active transplant list patients	
	N	(%)	N	(%)	N	(%)
0 - 17	6	(29)	3	(16)	7	(64)
18 - 34	7	(33)	6	(32)	2	(18)
35 - 49	8	(38)	6	(32)	1	(9)
50 - 59	0	(0)	3	(16)	0	(0)
60 - 69	0	(0)	1	(5)	1	(9)
70+	0	(0)	0	(0)	0	(0)
mean (SD)	24	(14)	36	(16)	17	(19)
Male	8	(38)	14	(74)	4	(36)
Female	13	(62)	5	(26)	7	(64)
White	21	(100)	17	(89)	7	(64)
Asian	0	(0)	2	(11)	1	(9)
Chinese	0	(0)	0	(0)	1	(9)
Other	0	(0)	0	(0)	2	(18)
O	13	(62)	7	(37)	5	(45)
A	7	(33)	9	(47)	5	(45)
B	1	(5)	3	(16)	0	(0)
AB	0	(0)	0	(0)	1	(9)
First graft			19	(100)	9	(82)
Re-graft			0	(0)	2	(18)
TOTAL	21¹	(100)	19	(100)	11	(100)

¹ Includes 2 donors whose bowel was retrieved but not transplanted



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 (≥ 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 year survival over the time periods shown, $p=0.03$. **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 ($p>0.2$).

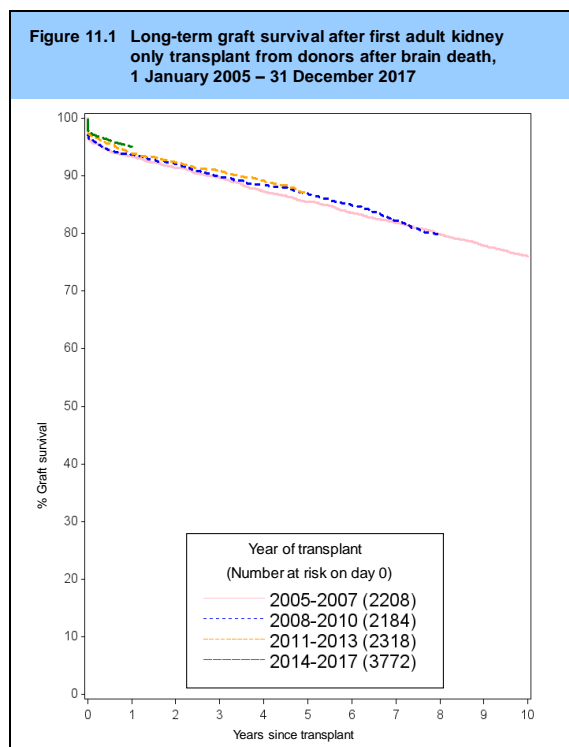


Table 11.1 Graft survival after first adult kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	2208	93	(92-94)	91	(90-93)	85	(84-87)	76	(74-78)
2008-2010	2184	94	(93-95)	92	(91-93)	87	(85-88)		
2011-2013	2318	94	(93-95)	92	(91-93)	87	(85-88)		
2014-2017	3772	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	
2005-2007	2210	97	(96-98)	95	(94-96)	89	(88-91)	77	(75-79)
2008-2010	2185	96	(95-97)	95	(94-95)	90	(88-91)		
2011-2013	2319	96	(95-97)	94	(93-95)	88	(87-89)		
2014-2017	3773	97	(96-98)						

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, $p=0.004$. 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 statistically significant increase in patient survival over time at one year post-transplant ($p=0.02$).

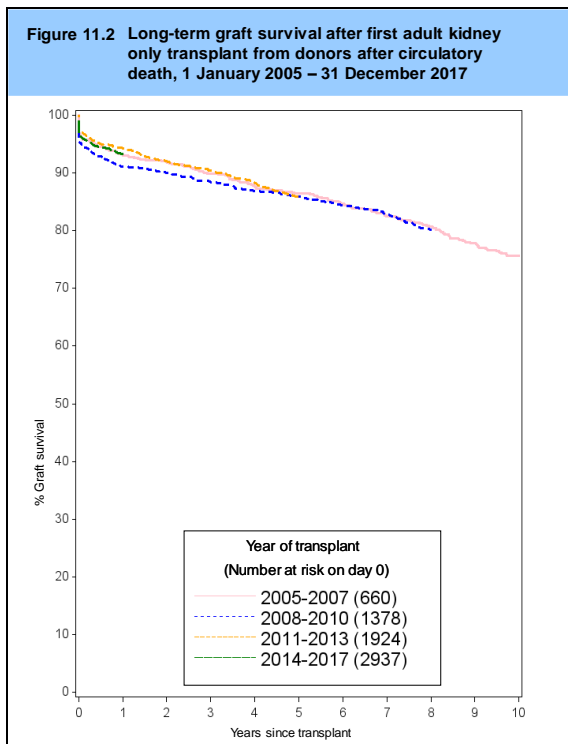


Table 11.3 Graft survival after first adult kidney only transplant from a DCD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	660	93	(91-95)	92	(89-94)	86	(84-89)	76	(72-79)
2008-2010	1378	91	(89-92)	90	(88-92)	86	(84-88)		
2011-2013	1924	94	(93-95)	92	(91-93)	86	(84-87)		
2014-2017	2937	93	(92-94)						

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	
2005-2007	661	95	(93-97)	93	(91-95)	87	(84-89)	74	(70-77)
2008-2010	1378	95	(94-96)	94	(92-95)	87	(85-89)		
2011-2013	1924	96	(95-96)	94	(92-95)	86	(84-87)		
2014-2017	2939	97	(96-98)						

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, $p < 0.0001$. **Table 11.6** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant changes in patient survival over time ($p > 0.1$).

Figure 11.3 Long-term graft survival after first adult living donor kidney only transplant in the UK, 1 January 2005 – 31 December 2017

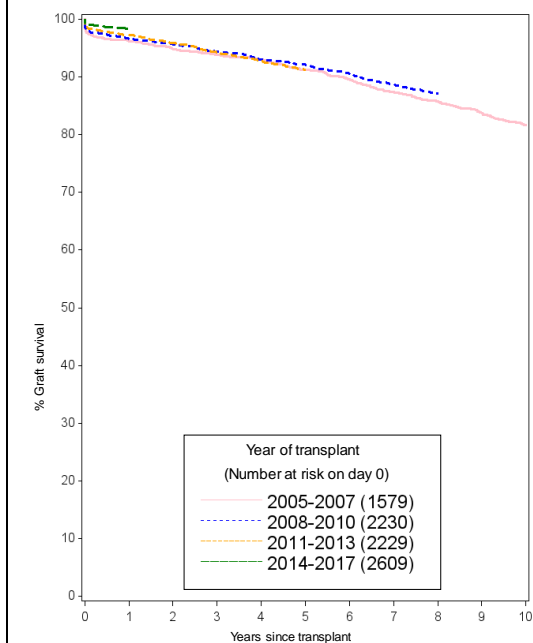


Table 11.5 Graft survival after first adult living donor kidney transplant

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	1579	96	(95-97)	95	(94-96)	91	(90-93)	82	(80-84)
2008-2010	2230	97	(96-97)	96	(95-96)	92	(91-93)		
2011-2013	2229	97	(96-98)	96	(95-97)	91	(90-92)		
2014-2017	2609	98	(98-99)						

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	
2005-2007	1579	99	(98-99)	98	(97-99)	96	(95-97)	90	(88-91)
2008-2010	2230	99	(98-99)	98	(97-98)	94	(93-95)		
2011-2013	2228	99	(99-99)	98	(97-99)	95	(94-96)		
2014-2017	2609	99	(99-99)						

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

Figure 11.4 shows long-term graft survival in paediatric (<18 years) recipients for first kidney only transplants from donors after brain death. Graft survival estimates and confidence intervals are shown for each time period analysed in **Table 11.7**. There has been a borderline significant improvement in one year survival over the time periods shown, $p=0.08$. **Table 11.8** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant changes in patient survival over time ($p>0.1$). There were insufficient paediatric recipients of first kidney only transplants from donors after circulatory death to permit reliable analysis.

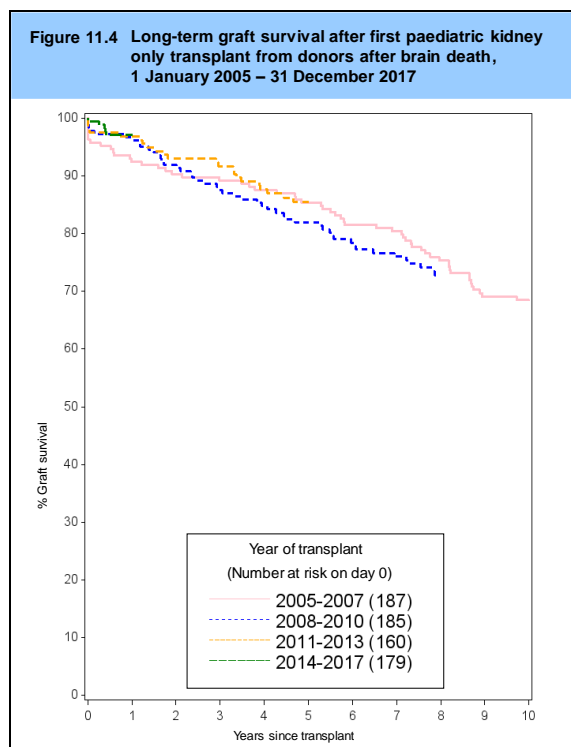


Table 11.7 Graft survival after first paediatric kidney only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	187	92	(88-95)	90	(85-94)	85	(79-90)	68	(61-75)
2008-2010	185	97	(93-99)	92	(87-95)	82	(76-87)		
2011-2013	160	97	(93-99)	93	(88-96)	85	(79-90)		
2014-2017	179	97	(93-99)						

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

Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	188	99	(96-100)	99	(96-100)	99	(96-100)	97	(93-99)
2008-2010	185	99	(96-100)	99	(96-100)	98	(94-99)		
2011-2013	160	99	(96-100)	99	(95-100)	97	(92-99)		
2014-2017	179	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 borderline significant change in five year survival over the time periods shown, $p=0.07$. **Table 11.10** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There were no statistically significant changes in patient survival over time ($p>0.1$).

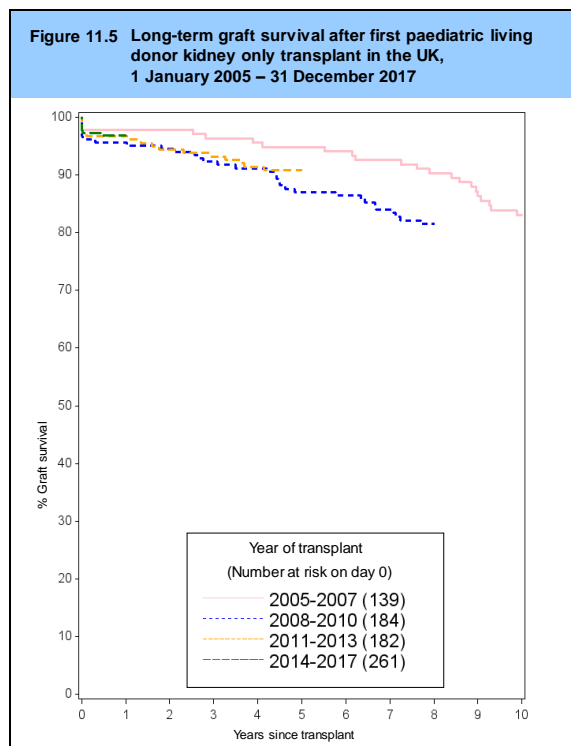


Table 11.9 Graft survival after first paediatric living donor kidney transplant									
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	139	98	(93-99)	98	(93-99)	95	(89-98)	83	(75-89)
2008-2010	184	96	(91-98)	95	(90-97)	87	(81-91)		
2011-2013	182	97	(93-99)	94	(90-97)	91	(85-94)		
2014-2017	261	97	(94-98)						

Table 11.10 Patient survival after first paediatric living donor kidney transplant									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	139	100	(-)	100	(-)	100	(-)	99	(95-100)
2008-2010	185	99	(96-100)	99	(96-100)	97	(93-99)		
2011-2013	182	99	(96-100)	99	(96-100)	99	(96-100)		
2014-2017	261	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 ($p>0.1$). Differences in patient survival are also not significant over time ($p>0.3$).

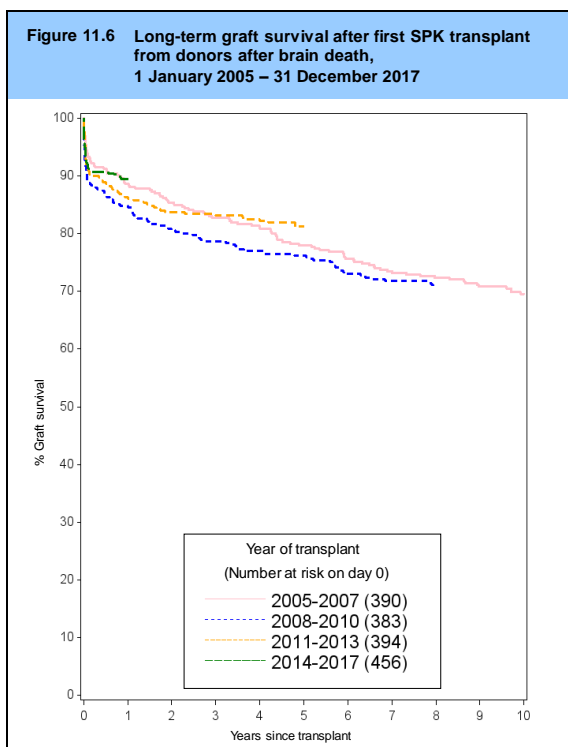


Table 11.11 Graft survival after first SPK transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	390	89	(85-91)	85	(81-89)	78	(73-82)	70	(65-74)
2008-2010	383	85	(81-88)	81	(76-84)	76	(72-80)		
2011-2013	394	86	(82-89)	84	(80-87)	81	(77-85)		
2014-2017	456	89	(86-92)						

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	
2005-2007	392	95	(93-97)	94	(91-96)	90	(86-92)	75	(70-79)
2008-2010	383	97	(95-99)	95	(92-97)	90	(86-92)		
2011-2013	396	96	(93-97)	94	(91-96)	87	(83-90)		
2014-2017	456	97	(95-98)						

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. 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.

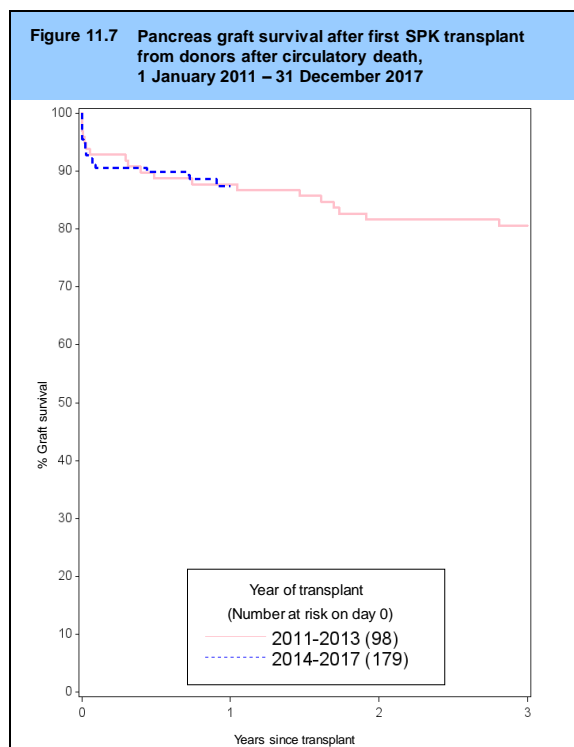


Table 11.13 Graft survival after first SPK transplant from a DCD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)			
		One year	Two year	Three year	
2011-2013	98	88 (79-93)	82 (72-88)	81 (71-87)	
2014-2017	179	87 (82-92)			

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	
2011-2013	98	99 (93-100)	99 (93-100)	97 (90-99)	
2014-2017	179	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 has been a significant change in one year survival over the time periods shown, $p=0.04$. There were no statistically significant changes in patient survival over time ($p>0.1$).

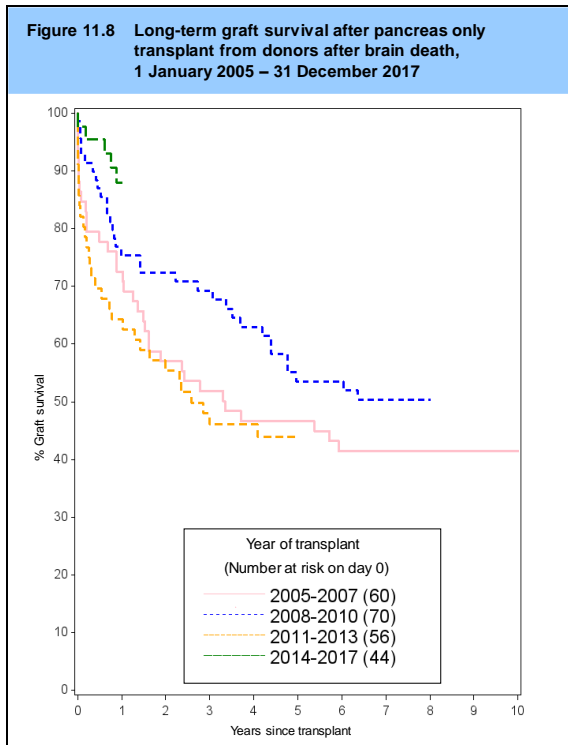


Table 11.15 Graft survival after first pancreas only transplant from a DBD

Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	60	73	(59-82)	57	(43-69)	47	(33-59)	41	(29-54)
2008-2010	70	75	(63-84)	72	(60-81)	54	(41-65)		
2011-2013	56	64	(50-75)	55	(41-67)	44	(31-56)		
2014-2017	44	88	(73-95)						

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	
2005-2007	61	97	(87-99)	95	(85-98)	9	(82-97)	68	(52-80)
2008-2010	71	94	(85-98)	91	(81-96)	8	(72-91)		
2011-2013	56	98	(86-100)	98	(86-100)	7	(55-85)		
2014-2017	44	98	(84-100)						

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. 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.

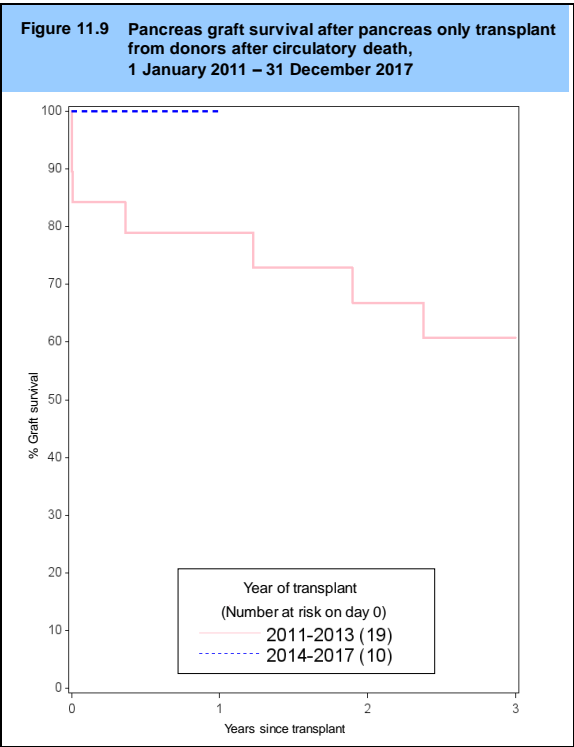


Table 11.17 Graft survival after first pancreas only transplant from a DCD							
Year of transplant	No. at risk on day 0	% Graft survival (95% confidence interval)					
		One year		Two year		Three year	
2011-2013	19	79	(53-92)	67	(40-84)	61	(35-79)
2014-2017	10	100	(-)				

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	
2011-2013	19	94	(67-99)	94	(67-99)	94	(67-99)
2014-2017	10	100	(-)				

11.3 Cardiothoracic patient survival

11.3.1 Adult heart recipients – donors after brain death (DBD)

Long-term patient survival for adult (≥16 years) recipients after first heart only transplant performed from donors after brain death is shown in **Figure 11.10**. Super-urgent, urgent, and non-urgent patients are included. **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 were no statistically significant differences in patient survival over time ($p>0.3$).

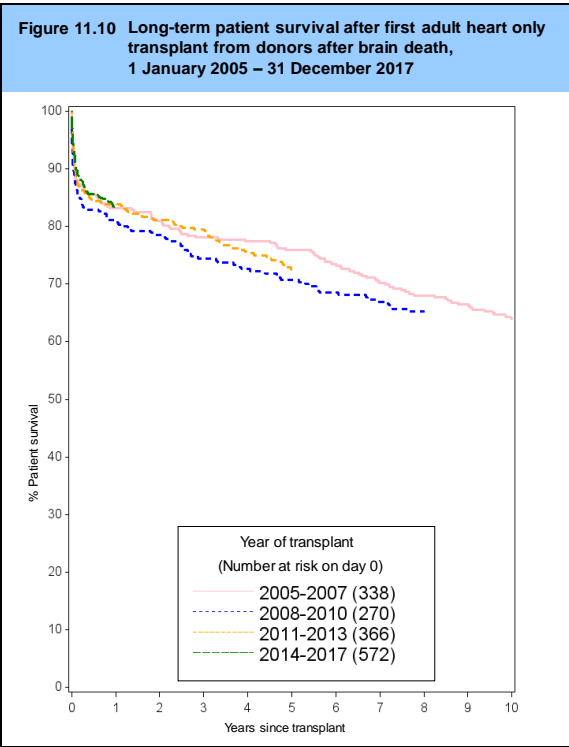


Table 11.19 Patient survival after first adult heart only transplant from a DBD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	338	83	(79-87)	81	(76-85)	76	(71-80)	64	(59-69)
2008-2010	270	81	(76-85)	79	(73-83)	71	(65-76)		
2011-2013	366	84	(80-87)	81	(77-85)	72	(68-77)		
2014-2017	572	83	(80-86)						

11.3.2 Adult heart-lung block recipients – donors after brain death (DBD)

Patient survival for adult recipients after first heart-lung block transplant from donors after brain death 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 ($p>0.1$).

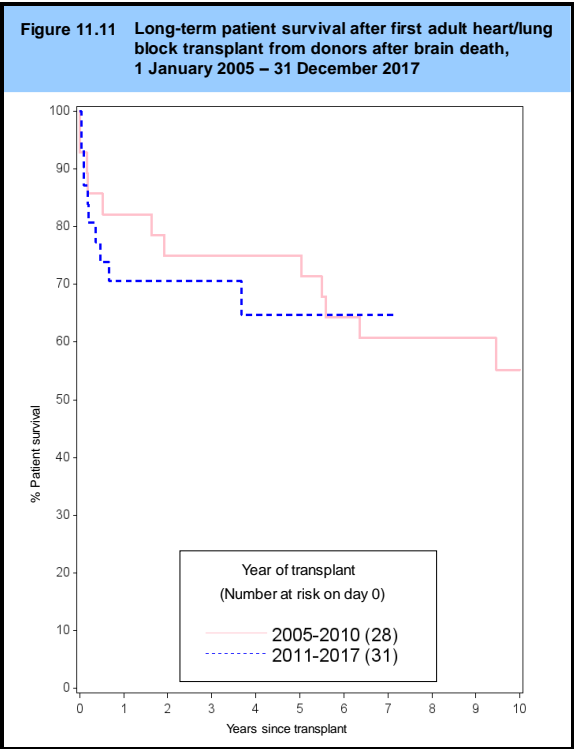


Table 11.20 Patient survival after first adult heart-lung block transplant from a DBD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2010	28	82	(62-92)	75	(55-87)	75	(55-87)	55	(34-72)
2011-2017	31	71	(51-83)	71	(51-83)	65	(43-80)		

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**. Super-urgent, urgent, and non-urgent patients are included. There were no statistically significant differences in patient survival over time ($p>0.1$).

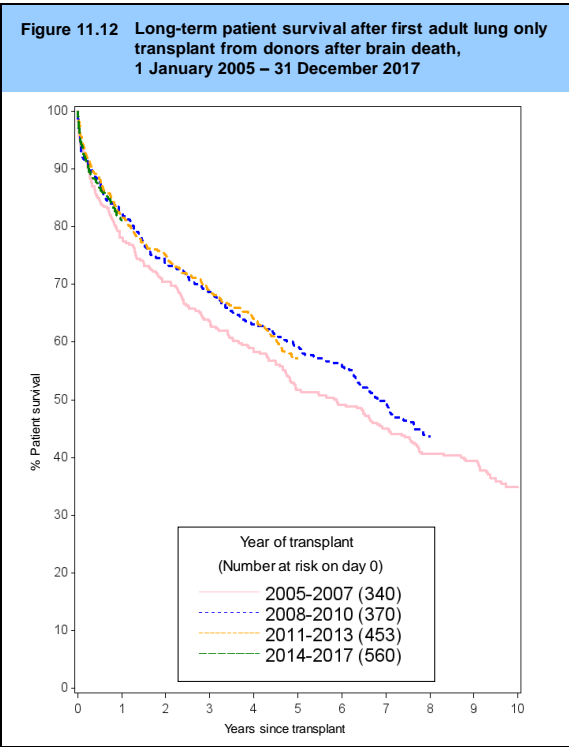


Table 11.21 Patient survival after first adult lung only transplant from a DBD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	340	78	(73-82)	70	(65-75)	52	(46-57)	35	(30-40)
2008-2010	370	82	(78-86)	74	(69-78)	59	(54-64)		
2011-2013	453	82	(78-85)	75	(71-79)	57	(52-62)		
2014-2017	560	81	(78-84)						

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

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

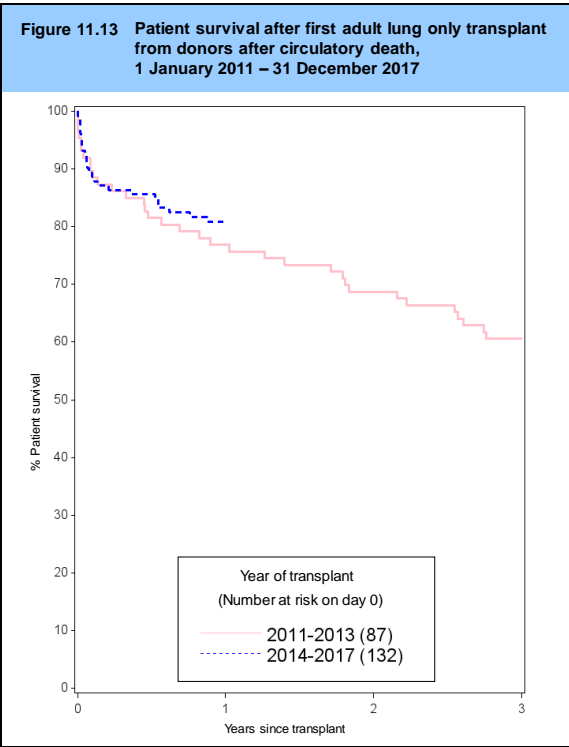


Table 11.22 Patient survival after first adult lung only transplant from a DCD						
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)				
		One year	Two year		Three year	
2011-2013	87	77 (66-84)	69	(58-77)	61	(49-70)
2014-2017	132	81 (73-87)				

11.3.5 Paediatric heart recipients – donors after brain death (DBD)

Long-term patient survival for paediatric recipients after first heart only transplant from donors after brain death is shown in **Figure 11.14**. Both urgent and non-urgent patients are included. **Table 11.23** shows the patient survival estimates and confidence intervals for one, two, five and ten years post-transplant. There was no statistically significant variation in survival over the time period analysed, $p>0.2$. The number of heart-lung transplant recipients was too small for analysis.

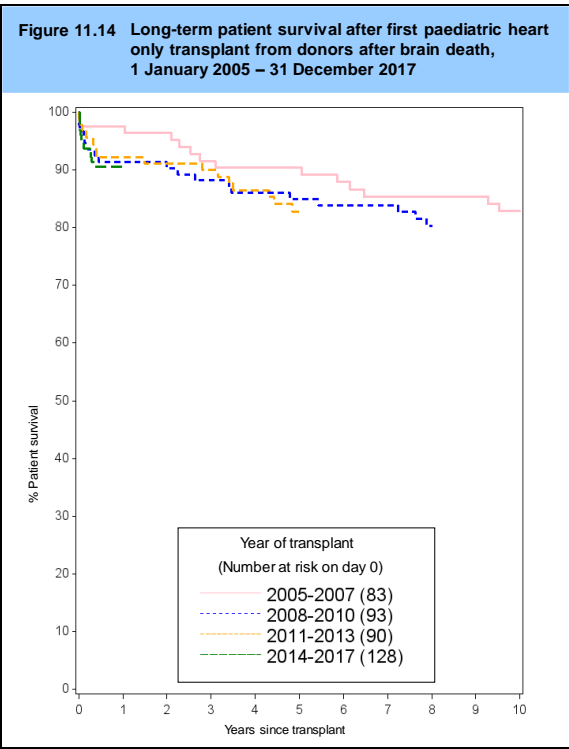


Table 11.23 Patient survival after first paediatric heart only transplant									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	83	98	(91-99)	96	(89-99)	90	(82-95)	83	(73-89)
2008-2010	93	91	(84-96)	90	(82-95)	85	(76-91)		
2011-2013	90	92	(84-96)	91	(83-95)	83	(73-89)		
2014-2017	128	91	(84-95)						

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**. Urgent and non-urgent patients are included. **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 ($p>0.3$).

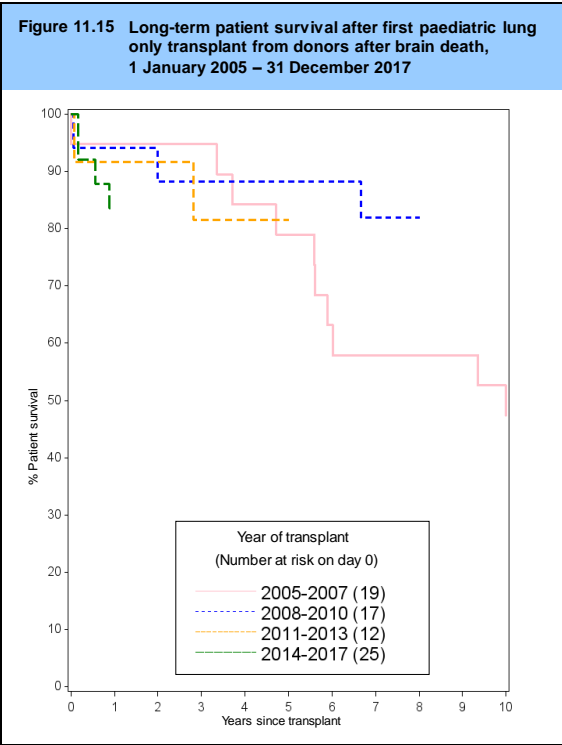


Table 11.24 Patient survival after first paediatric lung only transplant from a DBD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	19	95	(68-99)	95	(68-99)	79	(53-92)	47	(24-67)
2008-2010	17	94	(65-99)	88	(61-97)	88	(61-97)		
2011-2013	12	92	(54-99)	92	(54-99)	81	(44-95)		
2014-2017	25	84	(62-94)						

11.4 Liver patient survival

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

Long-term patient survival for adult (≥ 17 years) recipients after first elective NHS Group 1 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, $p < 0.02$ in each case, over the time periods analysed.

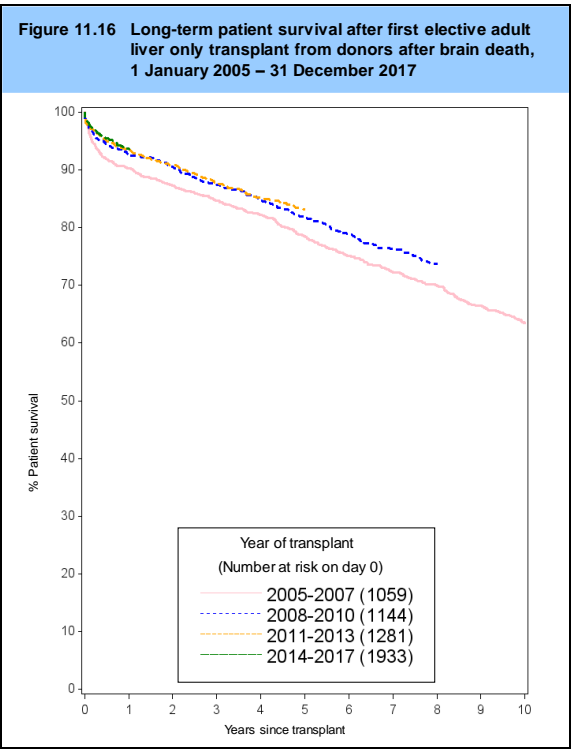


Table 11.25 Patient survival after first elective adult NHS Group 1 liver only transplant from a DBD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	1059	90	(88-92)	87	(85-89)	78	(76-81)	64	(60-66)
2008-2010	1144	93	(91-94)	91	(89-92)	82	(79-84)		
2011-2013	1281	93	(92-95)	91	(89-92)	83	(81-85)		
2014-2017	1933	94	(92-95)						

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

Patient survival for adult (≥ 17 years) recipients after first elective NHS Group 1 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.

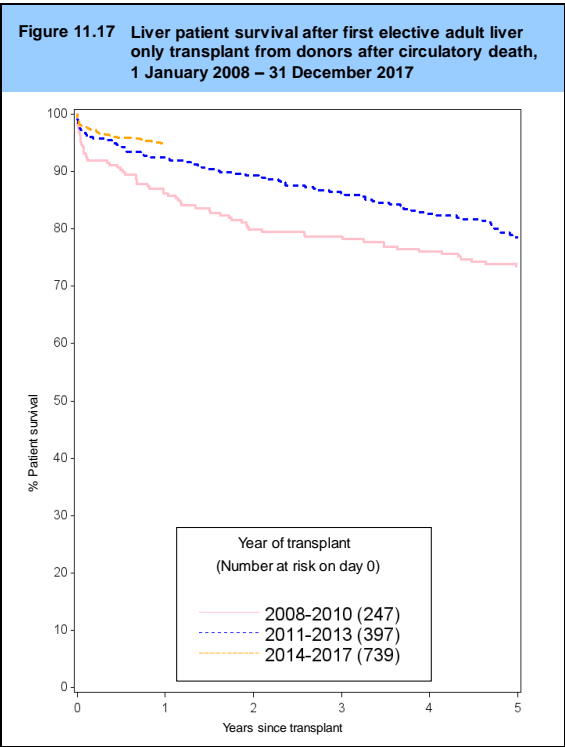


Table 11.26 Patient survival after first elective adult NHS Group 1 liver only transplant from a DCD							
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)					
		One year		Two year		Five year	
2008-2010	247	86	(81-90)	80	(74-84)	73	(67-79)
2011-2013	397	92	(89-95)	89	(86-92)	79	(74-82)
2014-2017	739	95	(93-96)				

11.4.3 Paediatric liver 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 ($p>0.4$). The number of paediatric transplants from donors after circulatory death was too small to estimate meaningful patient survival.

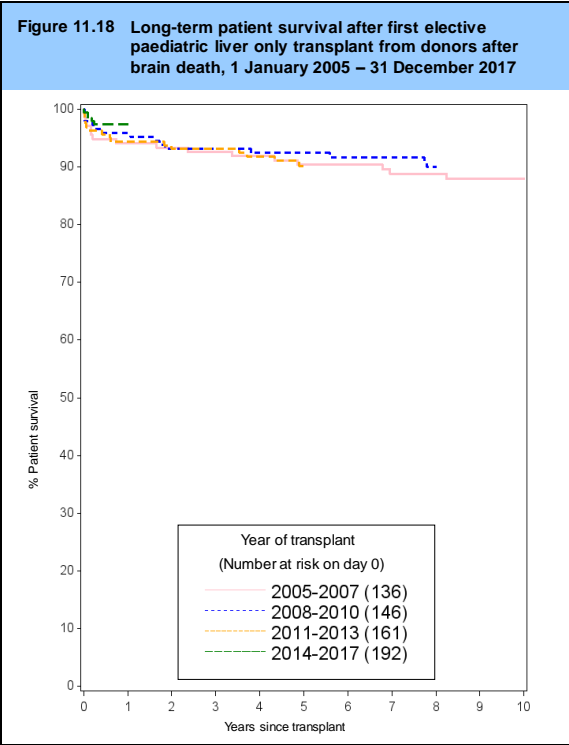


Table 11.27 Patient survival after first elective paediatric liver only transplant from a DBD									
Year of transplant	No. at risk on day 0	% Patient survival (95% confidence interval)							
		One year		Two year		Five year		Ten year	
2005-2007	136	94	(89-97)	93	(88-96)	90	(84-94)	88	(81-92)
2008-2010	146	96	(91-98)	93	(88-96)	92	(87-96)		
2011-2013	161	94	(90-97)	93	(88-96)	90	(84-94)		
2014-2017	192	97	(94-99)						

11.5 Intestinal patient survival

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

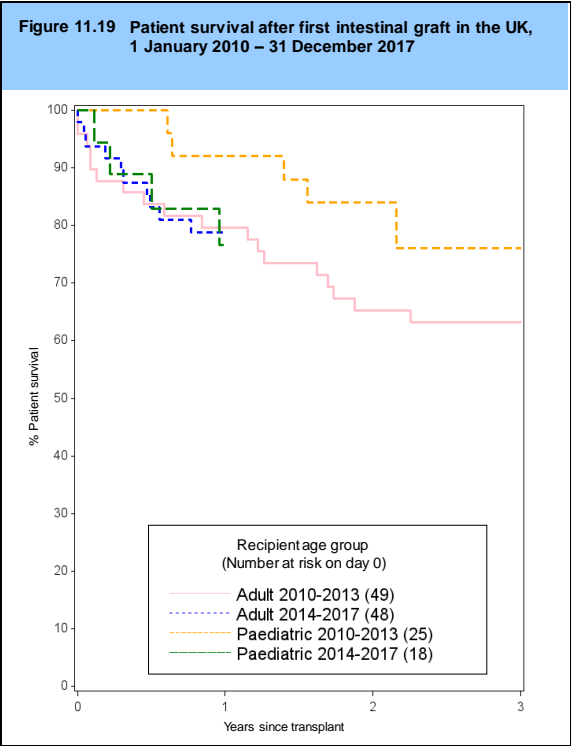


Table 11.28 Patient survival after first intestinal transplant in the UK, 1 January 2010 - 31 December 2017							
Recipient age group	No. at risk on day 0	% Patient survival (95% confidence interval)					
		One year		Two year		Three year	
Adult							
2010-2013	49	80	(65-88)	65	(50-77)	63	(48-75)
2014-2017	48	79	(64-88)				
Paediatric							
2010-2013	25	92	(72-98)	84	(63-94)	76	(54-88)
2014-2017	18	77	(49-91)				

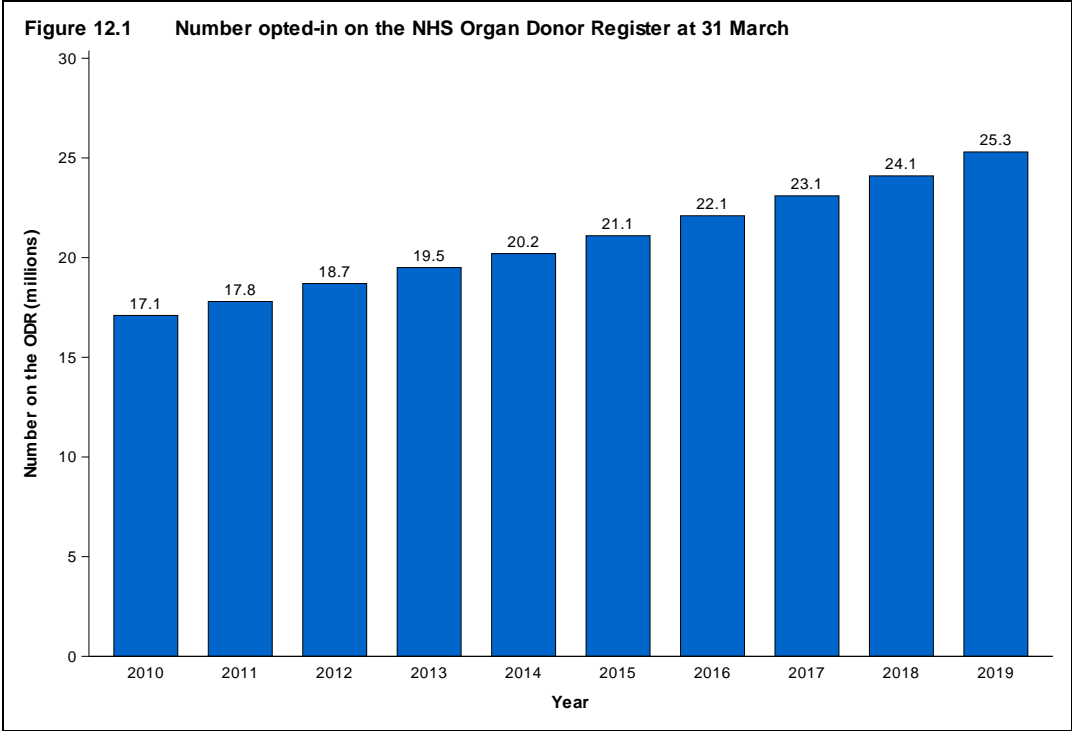
NHS Organ Donor Register

Key messages

- 25.3 million people on the opt-in ODR at March 2019 (38% of the population)
- 640,435 people on the opt-out ODR at March 2019, with a further 100 appointed representative registrations
- 46% of the 1,600 deceased organ donors last year were on the opt-in ODR
- 47% of 1,175,971 registrations last year were through the Driver and Vehicle Licensing Agency (DVLA).

By the end of March 2019 the NHS Organ Donor Register (ODR) held just over 25.3 million opt-in registrations. A summary of the number of registrations at the end of each financial year from 31 March 2010 to 31 March 2019 is shown in **Figure 12.1**. These figures have been adjusted to reflect the removal of duplicate records from the ODR. Opt-in registrations have seen a 5.0% increase this year, compared to a 4.3% increase in the previous year.

Of the 1,600 deceased organ donors in 2018-2019, 46% were registered on the ODR compared with 48% of organ donors in 2017-2018.



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 2019, 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 2019. The proportion of the population registered opt-out was 6% in Wales, and 2% or less for other countries and Strategic Health Authorities. While only Wales has opt-out legislation, it is possible for people elsewhere in the UK to opt-out. In addition, there have been 100 appointed representative registrations.



Table 12.1 Opt-in registrations on the NHS Organ Donor Register by 31 March 2019, by country/ Strategic Health Authority

Country/ Strategic Health Authority	Registrants		
	N	pmp	Proportion registered (opt-in)
North East	986,403	373,638	37%
North West	2,582,871	355,767	36%
Yorkshire and The Humber	1,930,928	354,299	35%
North of England	5,500,202	358,319	36%
East Midlands	1,734,931	363,717	36%
West Midlands	1,827,143	311,799	31%
East of England	2,418,169	391,924	39%
Midlands and East	5,980,243	355,967	36%
London	2,603,968	294,900	29%
South East Coast	2,010,123	428,598	43%
South Central	1,812,969	414,867	41%
South West	2,562,958	460,964	46%
South of England	6,386,050	436,802	44%
England	20,470,463	368,041	37%
Isle of Man	13,269	165,863	17%
Channel Islands	27,594	172,463	17%
Wales	1,245,173	397,819	40%
Scotland	2,621,142	483,606	48%
Northern Ireland	854,214	456,799	46%
TOTAL¹	25,292,513	382,988	38%

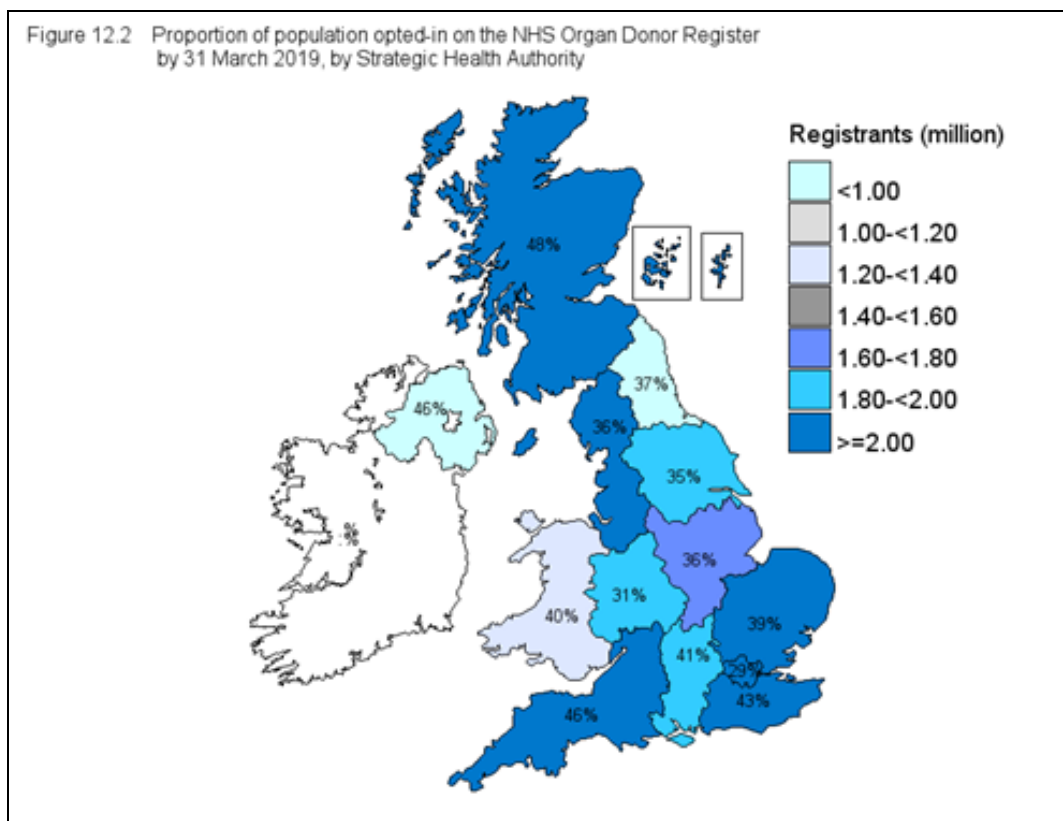
¹ Includes 60,658 registrants where the postcode was unknown

Table 12.2 Opt-out registrations on the NHS Organ Donor Register by 31 March 2019, by country/ Strategic Health Authority

Country/ Strategic Health Authority	Registrants		
	N	pmp	Proportion registered (opt-out)
North East	6,355	2,407	0.2%
North West	70,589	9,723	1.0%
Yorkshire and The Humber	59,666	10,948	1.1%
North of England	136,610	8,900	0.9%
East Midlands	23,498	4,926	0.5%
West Midlands	74,105	12,646	1.3%
East of England	28,383	4,600	0.5%
Midlands and East	125,986	7,499	0.7%
London	145,213	16,445	1.6%
South East Coast	11,885	2,534	0.3%
South Central	17,965	4,111	0.4%
South West	10,600	1,907	0.2%
South of England	40,450	2,767	0.3%
England	448,259	8,059	0.8%
Isle of Man	25	313	0.0%
Channel Islands	63	394	0.0%
Wales	183,273	58,554	5.9%
Scotland	7,915	1,460	0.1%
Northern Ireland	736	394	0.0%
TOTAL¹	640,435	9,698	1.0%

¹ Includes 164 registrants where the postcode was unknown

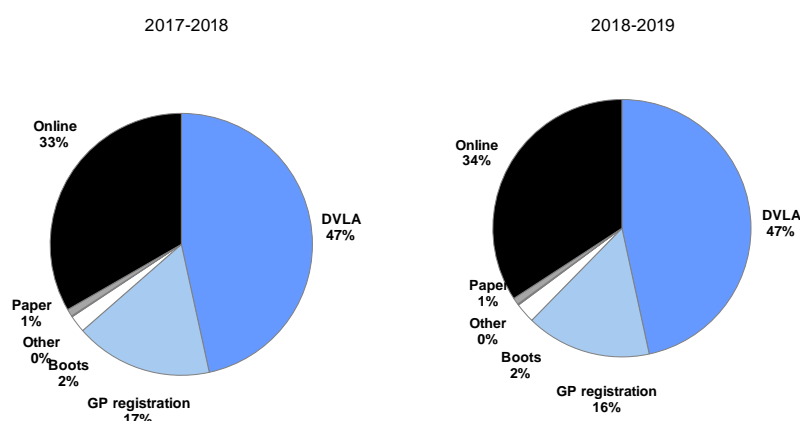
Figure 12.2 Proportion of population opted-in on the NHS Organ Donor Register by 31 March 2019, by Strategic Health Authority



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

The source of applications for opt-in registration on the ODR is illustrated in **Figure 12.3**. This figure shows that 16% of registrations in 2018-2019 arrived by means of registering through a GP, 47% from driving licence applications and reminders through the DVLA and 34% online through the ODT website.

Figure 12.3 Source of applications for opt-in registration on the NHS Organ Donor Register, 1 April 2018 - 31 March 2019



At the end of March 2019, 84% 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 (68%) did not wish to donate their corneas. Of the restricted registrations, only 5% (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 2019 to donate different organs¹

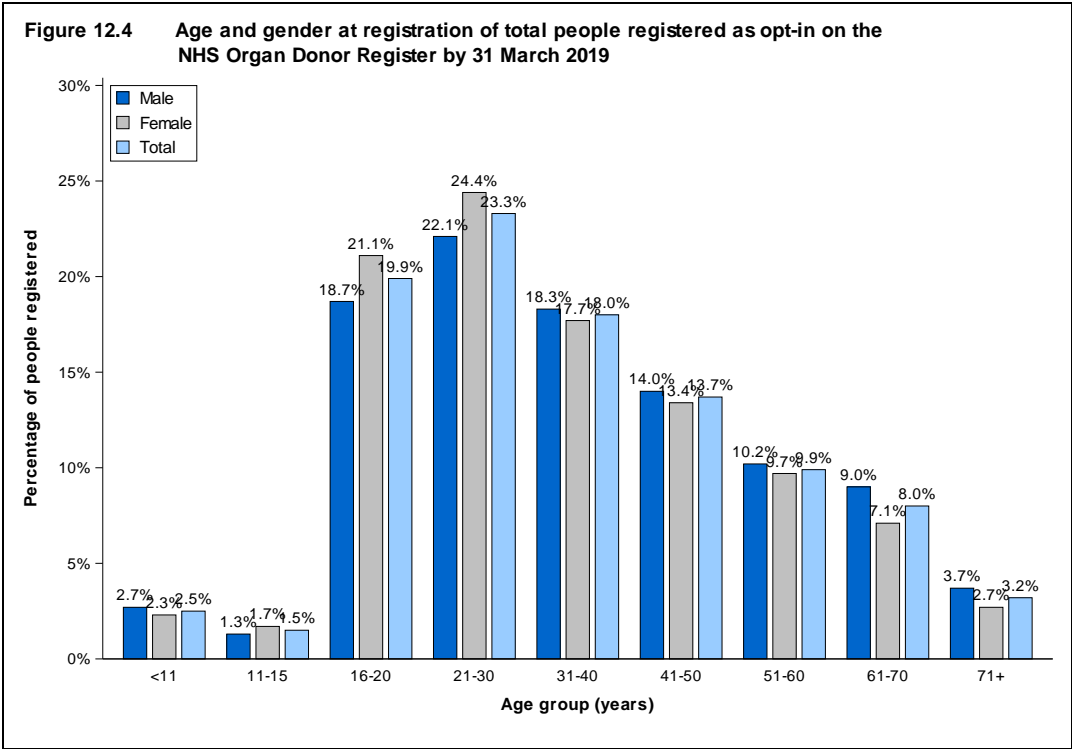
Registrants prepared to donate all organs 84%

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

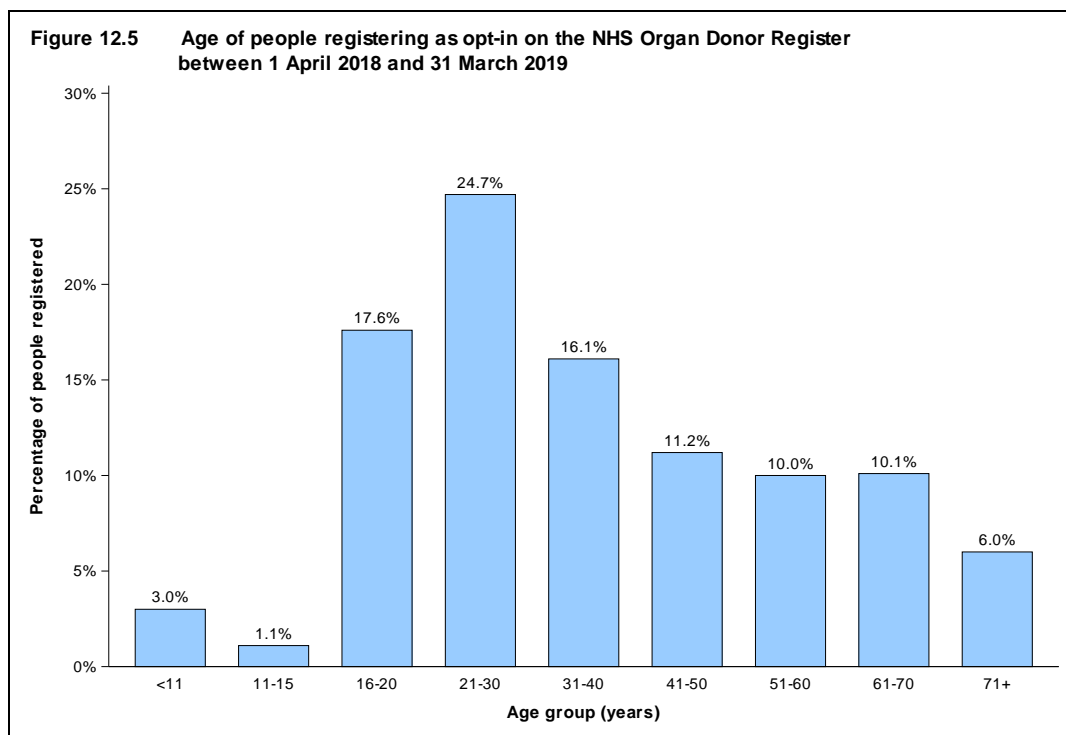
Not prepared to donate:	% of 'Restricted donors'	% of all registrants
Kidney	5	0.8
Pancreas	16	2.5
Heart	17	2.5
Lungs	16	2.4
Liver	9	1.5
Corneas	68	10.5

¹ Complete information was not available for approximately 8% of the total register

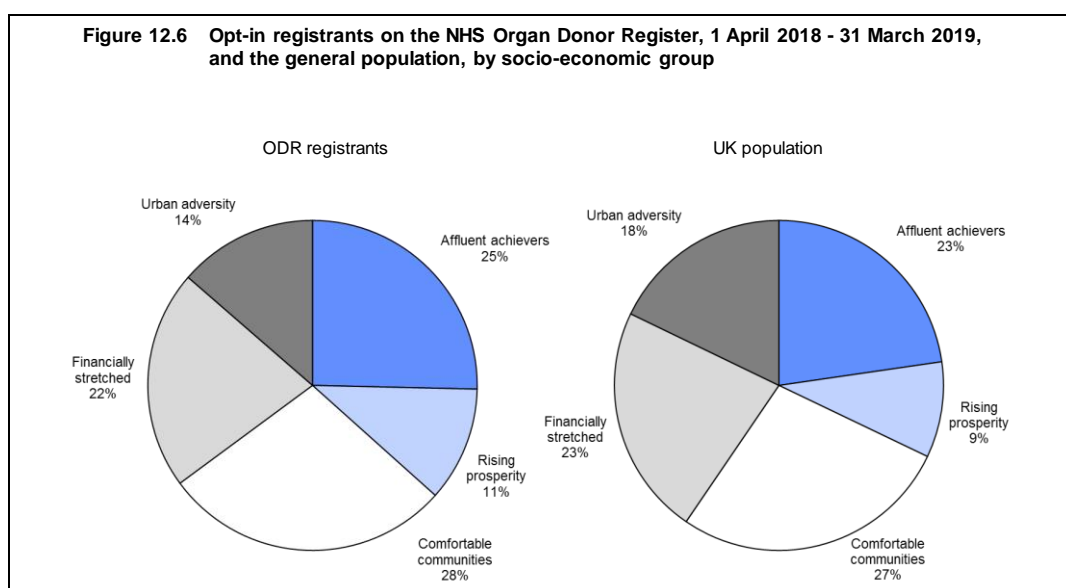
People of all ages are eligible for organ donor registration: the distribution of age by sex at time of opt-in registration is shown in **Figure 12.4**. The highest proportion of registrations (22.1% of males and 24.4% of females) are in the 21-30 years age group. The lowest proportions are in the under 11 and 11-15 age groups. Of all people registered on the NHS Organ Donor Register, 46% are male and 53% are female (<1% unknown).



Additionally, the distribution of age of people registering on the opt-in ODR during the latest financial year, 2018-2019, 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 2018-2019, 46% were male and 54% were female.



The breakdown of opt-in registrants on the ODR during 2018-2019 by socio-economic group (using the ACORN¹ 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.



¹ ACORN data supplied by CACI Ltd.

National Potential Donor Audit

Key messages

- There were 32,588 audited deaths reported through the Potential Donor Audit in the financial year to 31 March 2019, including 1,582 (99%) of the 1,600 deceased organ donors
- Compared with the previous financial year, improvements have been observed in the overall referral rate of potential donors (from 92% to 94%), in the proportion of approaches where a Specialist Nurse – Organ Donation was present (from 90% to 91%), and in the overall consent/authorisation rate (from 66% to 67%)
- The consent/authorisation rate was 93% when a patient's decision was known at the time of potential donation, but 79 families overruled their loved one's known decision to be an organ donor.
- A significant difference is apparent in the consent/authorisation rates for white patients and patients from the BAME community (71% and 42%, respectively).

13.1 Introduction

In this chapter, summary data from the National Potential Donor Audit (PDA) are shown for 1 April 2018 to 31 March 2019 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 9 May 2019. **The number of solid organ donors reported in this chapter will differ from that shown in the rest of the report, due to the national PDA excluding specific patients.**

13.2 Definitions

All data shown in this chapter use the following definitions.

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

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

Absolute medical contraindications to organ donation are listed here:

https://nhsbtdbe.blob.core.windows.net/umbraco-assets-corp/6455/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, or brain stem reflexes returned.

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, who were discussed with the Specialist Nurse - Organ Donation (SN-OD).

The proportion of approaches where a SN-OD was present is the percentage of eligible donor families or appointed/nominated representatives approached where a SN-OD was present.

Deemed consent applies if a person who died in Wales 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 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. Note that consent/authorisation rates have not been provided where the number of families approached is less than ten.

13.3 Breakdown of audited deaths in ICUs and emergency departments

In the 12-month period there were a total of 32,588 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 1,582 solid organ donors reported through the PDA, 99% of the total 1,600 deceased solid organ donors.

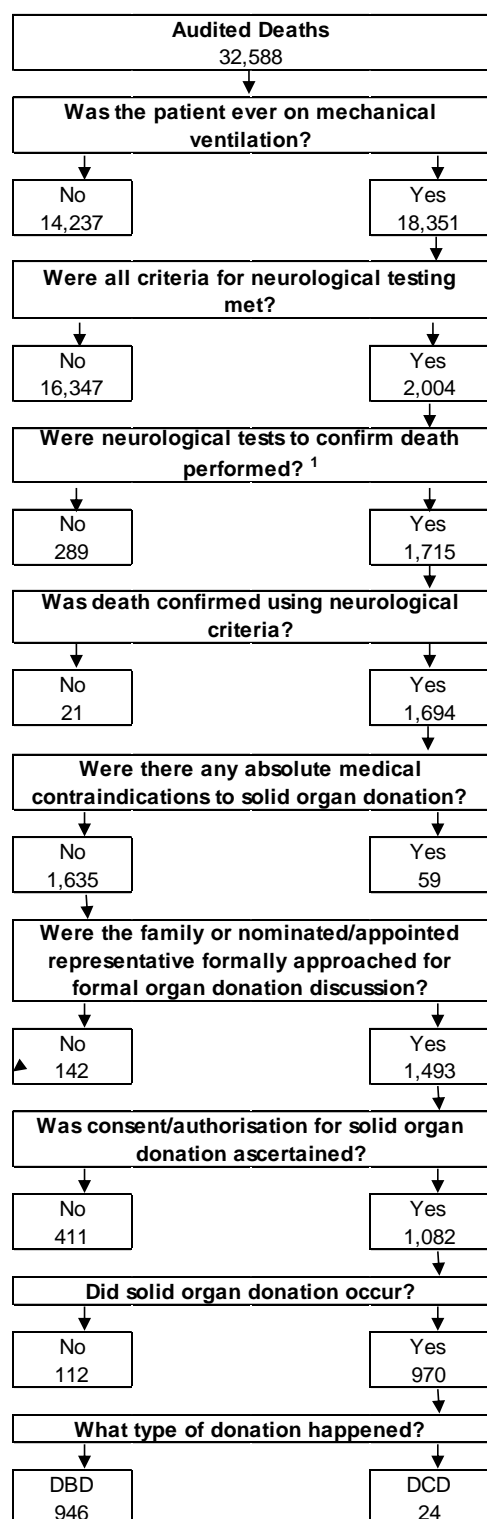
Table 13.1 shows the key percentages calculated from the flow chart information.

Consent/authorisation rates have also been provided for cases where the SN-OD was/was not present for the approach to the family and/or whether the patient's decision to be a donor was known at the time of potential donation. Details of ODR, known decision and deemed consent overrides are included in the footnote of the table.

An ODR override is a case where the family overruled their loved one's known decision to be an organ donor where the decision was recorded on the ODR. This decision was known at the time that the family were approached. Similarly, a known decision override is a case where the family overruled their loved one's known decision to donate and includes decisions registered on the ODR, those expressed, verbally, 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 in Wales.

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 at 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.

Figure 13.1 Donation after brain death



¹ Patients for whom tests were not performed due to; cardiac arrest despite resuscitation occurred, or brainstem reflexes returned are excluded from the calculation of the neurological death testing rate

² A large number of DCD donors are not approached due to the DCD screening process which precludes them from solid organ donation

Figure 13.2 Donation after circulatory death

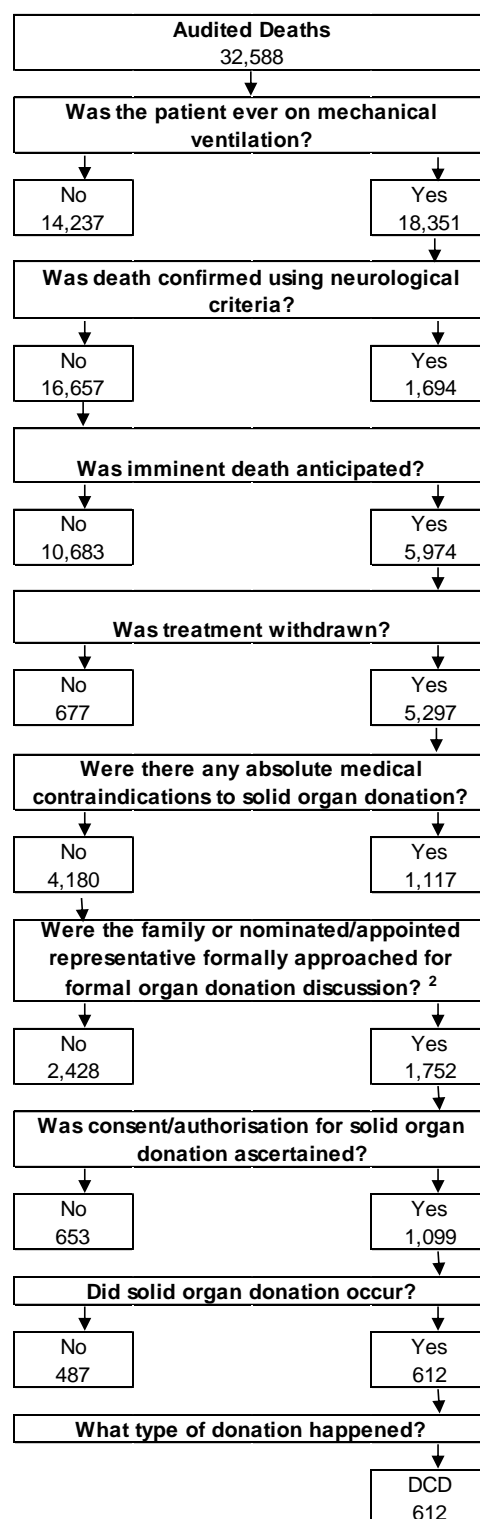


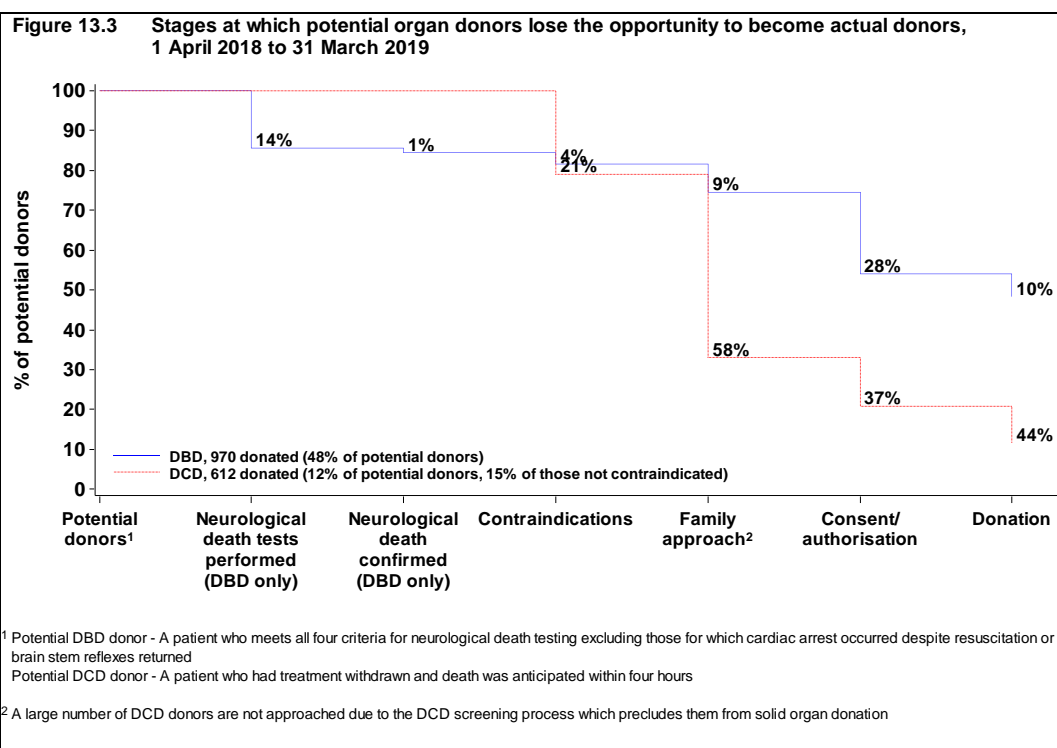
Table 13.1 Summary of key percentages, 1 April 2018 to 31 March 2019

	DBD	DCD	ALL
Neurological death testing rate	85.6%		
Referral rate	98.9%	92.7%	94.3%
Proportion of approaches where a SN-OD was present	95.3%	87.2%	90.9%
Consent/authorisation rate	72.5%	62.7%	67.2%
- when SN-OD not present for approach	52.9%	22.7%	29.8%
- when SN-OD present for approach	73.4%	68.6%	70.9%
- when patient had not expressed a decision to donate or the patient's ODR status was not known at the time of potential donation	57.5%	46.2%	51.2%
- when patient's decision on ODR and known at time of potential donation*	94.6%	91.5%	93.0%
- when patient's decision (by any method) is known at time of potential donation**	95.1%	92.1%	93.6%
- when SN-OD present for approach and patient known to be on ODR at time of potential donation	95.2%	92.7%	93.9%
- when deemed consent applied***	77.3%	80.6%	79.2%

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

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

*** There were 53 cases where deemed consent applied and in 11 cases the family did not support deemed consent



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 15.8 pmp in South East Coast SHA to 39.8 pmp in North East SHA. Eligible DCD ranged from 47.5 pmp in South West SHA to 91.3 pmp in North East SHA.

Across the countries, there was a range of 69.2 eligible donors pmp in Scotland to 94.2 eligible donors pmp in Wales. Overall, there were 1,635 eligible DBD (24.8 pmp) and 4,180 eligible DCD (63.3 pmp) in the UK, resulting in a total of 88.1 eligible donors per million population. **Tables 13.3** and **13.4** show more detailed information by country/SHA for DBD and DCD data, respectively.

Table 13.2 Eligible donor rates per million population (pmp), in the UK, 1 April 2018 to 31 March 2019, by country and Strategic Health Authority						
Country/ Strategic Health Authority of donation	Eligible DBD		Eligible DCD		TOTAL	
	N	(pmp)	N	(pmp)	N	(pmp)
North East	105	(39.8)	241	(91.3)	346	(131.1)
North West	197	(27.1)	598	(82.4)	795	(109.5)
Yorkshire and the Humber	134	(24.6)	282	(51.7)	416	(76.3)
North of England	436	(28.4)	1121	(73.0)	1557	(101.4)
East Midlands	92	(19.3)	284	(59.5)	376	(78.8)
West Midlands	145	(24.7)	399	(68.1)	544	(92.8)
East of England	120	(19.4)	510	(82.7)	630	(102.1)
Midlands and East	357	(21.3)	1193	(71.0)	1550	(92.3)
London	344	(39.0)	525	(59.5)	869	(98.4)
South East Coast	74	(15.8)	248	(52.9)	322	(68.7)
South Central	77	(17.6)	246	(56.3)	323	(73.9)
South West	104	(18.7)	264	(47.5)	368	(66.2)
South of England	255	(17.4)	758	(51.8)	1013	(69.3)
England	1392	(25.0)	3597	(64.7)	4989	(89.7)
Isle of Man	3	(37.5)	2	(25.0)	5	(62.5)
Channel Islands	2	(12.5)	1	(6.3)	3	(18.8)
Wales	69	(22.0)	226	(72.2)	295	(94.2)
Scotland	114	(21.0)	261	(48.2)	375	(69.2)
Northern Ireland	55	(29.4)	93	(49.7)	148	(79.1)
TOTAL	1635	(24.8)	4180	(63.3)	5815	(88.1)

Table 13.3 DBD key metrics from the Potential Donor Audit, 1 April 2018 to 31 March 2019, 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	Number of eligible DBD donors whose family were approached	Percentage of DBD approaches where a SN- OD was present (%)	DBD consent/ authorisation rate (%)
North East	133	87.2	100.0	105	101	99.0	77.2
North West	254	81.9	98.0	197	172	100.0	69.8
Yorkshire and the Humber	154	89.0	98.1	134	123	100.0	76.4
North of England	541	85.2	98.5	436	396	99.7	73.7
East Midlands	112	87.5	98.2	92	82	93.9	69.5
West Midlands	188	79.3	96.8	145	126	95.2	70.6
East of England	151	81.5	99.3	120	110	89.1	75.5
Midlands and East	451	82.0	98.0	357	318	92.8	72.0
London	416	87.5	100.0	344	316	94.9	62.0
South East Coast	116	69.0	96.6	74	70	90.0	75.7
South Central	84	96.4	100.0	77	76	96.1	84.2
South West	126	86.5	100.0	104	91	97.8	89.0
South of England	326	82.8	98.8	255	237	94.9	83.5
England	1734	84.5	98.8	1392	1267	95.9	72.2
Isle of Man	3	100.0	100.0	3	2	0.0	-
Channel Islands	2	100.0	100.0	2	2	0.0	-
Wales	81	90.1	100.0	69	69	95.7	81.2
Scotland	120	96.7	99.2	114	105	89.5	73.3
Northern Ireland	64	87.5	100.0	55	48	95.8	64.6
TOTAL	2004	85.6	98.9	1635	1493	95.3	72.5

Table 13.4 DCD key metrics from the Potential Donor Audit, 1 April 2018 to 31 March 2019, 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	Number of eligible DCD donors whose family were approached	Percentage of DCD approaches where a SN- OD was present (%)	DCD consent/ authorisation rate (%)
North East	341	99.4	241	95	94.7	57.9
North West	891	92.5	598	203	96.1	60.1
Yorkshire and the Humber	533	97.0	282	140	92.1	59.3
North of England	1765	95.2	1121	438	94.5	59.4
East Midlands	389	88.2	284	131	84.7	55.0
West Midlands	537	88.8	399	168	83.9	60.7
East of England	722	88.4	510	179	80.4	73.2
Midlands and East	1648	88.5	1193	478	82.8	63.8
London	790	93.3	525	253	89.3	63.2
South East Coast	350	92.3	248	106	88.7	62.3
South Central	335	90.1	246	107	83.2	64.5
South West	333	98.2	264	127	86.6	68.5
South of England	1018	93.5	758	340	86.2	65.3
England	5221	92.5	3597	1509	88.1	62.8
Isle of Man	3	66.7	2	0		
Channel Islands	1	100.0	1	0		
Wales	306	93.8	226	86	81.4	73.3
Scotland	303	95.0	261	123	80.5	55.3
Northern Ireland	140	95.7	93	34	85.3	61.8
TOTAL	5974	92.7	4180	1752	87.2	62.7

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 Scotland team, the DBD referral rate was 100% for 6 teams. The proportion of DBD approaches where a SN-OD was present was highest for the North West team, where a SNOD was present for 100% of DBD approaches.

Table 13.5 DBD key metrics from the Potential Donor Audit, 1 April 2018 to 31 March 2019, by Organ Donation Services Team (ODST)

ODST	Number of patients where neurological death was suspected	Neurological death testing rate (%)	DBD referral rate (%)	Number of eligible DBD donors	Number of eligible DBD donors whose family were approached	Percentage of DBD approaches where a SN-OD was present (%)	DBD consent/authorisation rate (%)
Eastern	196	82.7	99.5	157	143	90.2	72.7
London	307	87.0	100.0	254	240	96.7	61.3
Midlands	269	81.4	97.0	210	183	95.1	70.5
North West	272	83.1	98.2	214	188	100.0	70.7
Northern	138	87.0	100.0	109	105	99.0	76.2
Northern Ireland	64	87.5	100.0	55	48	95.8	64.6
Scotland	120	96.7	99.2	114	105	89.5	73.3
South Central	108	95.4	100.0	99	95	96.8	85.3
South East	191	78.0	97.9	137	123	87.8	71.5
South Wales	66	89.4	100.0	56	56	92.9	82.1
South West	112	85.7	100.0	91	79	97.5	88.6
Yorkshire	161	88.2	98.1	139	128	99.2	75.0
TOTAL	2004	85.6	98.9	1635	1493	95.3	72.5

Table 13.6 indicates that for DCD patients, the highest referral rate was for the Northern team. The proportion of DCD approaches for which a SN-OD was present was highest for the North West team. No account has been taken of the demographics of the populations within the teams which may impact on the rates presented.

Table 13.6 DCD key metrics from the Potential Donor Audit, 1 April 2018 to 31 March 2019, by Organ Donation Services Team (ODST)						
ODST	Number of patients for whom imminent death was anticipated	DCD referral rate (%)	Number of eligible DCD donors	Number of eligible DCD donors whose family were approached	Percentage of DCD approaches where a SN-OD was present (%)	DCD consent/authorisation rate (%)
Eastern	797	89.1	556	197	81.7	71.6
London	550	91.5	407	190	87.9	61.6
Midlands	795	87.7	608	264	84.8	59.8
North West	924	91.9	619	205	96.1	60.5
Northern	384	99.5	265	105	94.3	59.0
Northern Ireland	140	95.7	93	34	85.3	61.8
Scotland	303	95.0	261	123	80.5	55.3
South Central	445	92.1	322	141	83.7	62.4
South East	544	94.3	338	158	89.9	63.9
South Wales	237	94.9	186	77	80.5	72.7
South West	272	98.2	217	106	85.8	67.9
Yorkshire	583	96.2	308	152	90.8	59.9
TOTAL	5974	92.7	4180	1752	87.2	62.7

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 94 paediatric patients for whom neurological death was suspected, tests were not performed on 28 patients.

Table 13.7 DBD and DCD key metrics from the Potential Donor Audit, 1 April 2018 to 31 March 2019, by unit where patient referred from, for patients who met the PDA criteria and were referred

Eligible donor type	Unit where patient was referred from	Number of patients who were referred ¹	Neurological death testing rate (%)	Number of eligible donors	Number of eligible donors whose family were approached	Percentage of approaches where a SN-OD was present (%)	Consent/authorisation rate (%)	Number of actual donors ²
DBD	Critical care	1875	86.8	1549	1411	95.4	71.9	908
	Emergency dept.	107	80.4	84	82	93.9	82.9	62
	TOTAL	1982	86.4	1633	1493	95.3	72.5	970
DCD	Critical care	5331		3729	1637	88.3	63.1	582
	Emergency dept.	208		158	100	82.0	66.0	30
	TOTAL	5539		3887	1737	87.9	63.3	612

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

² Actual donors resulting from eligible DBD donors includes 22 DCD donors referred from critical care and 2 DCD donors referred from emergency departments

Table 13.8 DBD and DCD key metrics from the Potential Donor Audit, 1 April 2018 to 31 March 2019, by age group

Eligible donor type	Age group	Number of patients who met referral criteria ¹	Neurological death testing rate (%)	Referral rate (%)	Number of eligible donors	Number of eligible donors whose family were approached	Percentage of approaches where a SN-OD was present (%)	Consent/authorisation rate (%)	Number of actual donors ²
DBD	Adult (>=18)	1910	86.2	99.0	1568	1437	95.6	72.4	936
	Paediatric (<18)	94	73.4	97.9	67	56	87.5	73.2	34
	TOTAL	2004	85.6	98.9	1635	1493	95.3	72.5	970
DCD	Adult (>=18)	5791		93.0	4035	1687	87.7	63.2	591
	Paediatric (<18)	183		84.2	145	65	72.3	50.8	21
	TOTAL	5974		92.7	4180	1752	87.2	62.7	612

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

² Actual donors resulting from eligible DBD donors includes 1 DCD donors under 18 and 23 DCD donors aged 18 and over

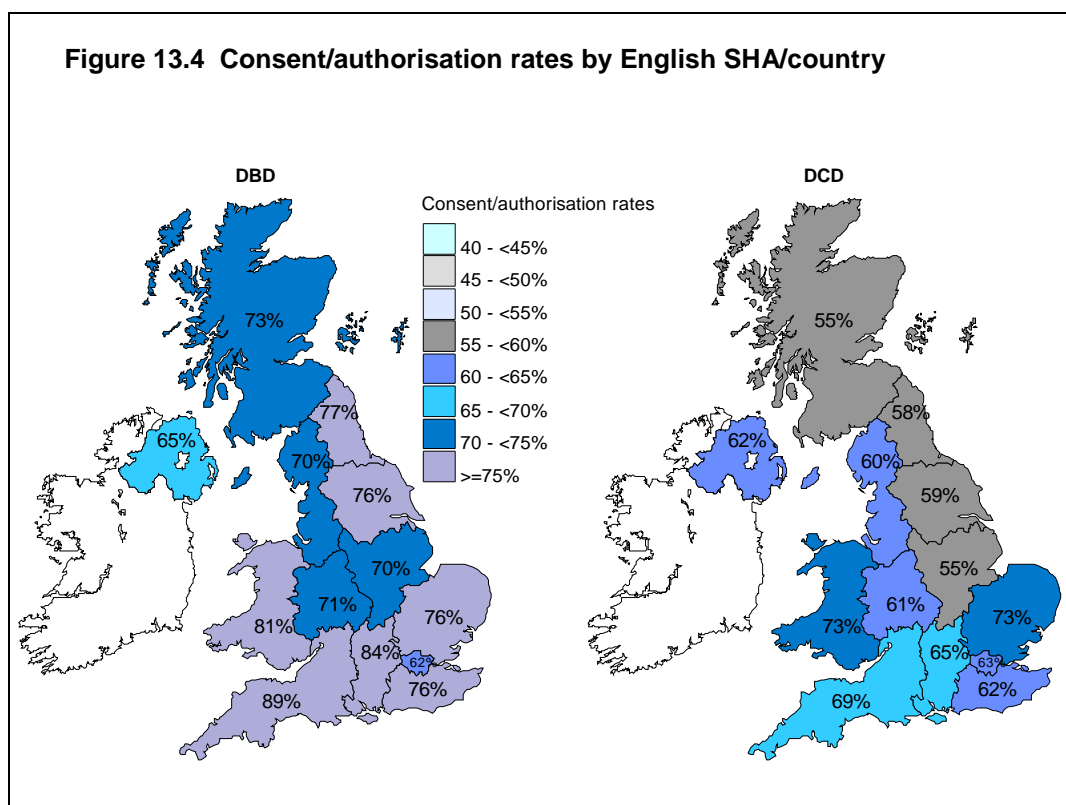
13.5 Consent/ authorisation rates

The overall DBD consent/authorisation rate was 73% and the 95% confidence limits for this percentage are 70% - 75%. For DCD, the overall rate was 63% and the 95% confidence limits are 60% - 65%.

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, ODR status and ethnicity.

Across the countries and SHAs, the DBD consent/authorisation rates range from 62% in London to 89% in South West. DCD consent/authorisation rates range from 55% in East Midlands to 73% in Wales and the East of England.

The overall consent/authorisation rates (combining DBD and DCD) for England, Wales, Scotland and Northern Ireland were 67%, 77%, 64% and 63%, respectively.



Across the Organ Donation Services Teams, the DBD consent/authorisation rates range from 61% in the London team to 89% in the South West team. DCD consent/authorisation rates range from 55% in the Scotland team to 73% in the South Wales team.

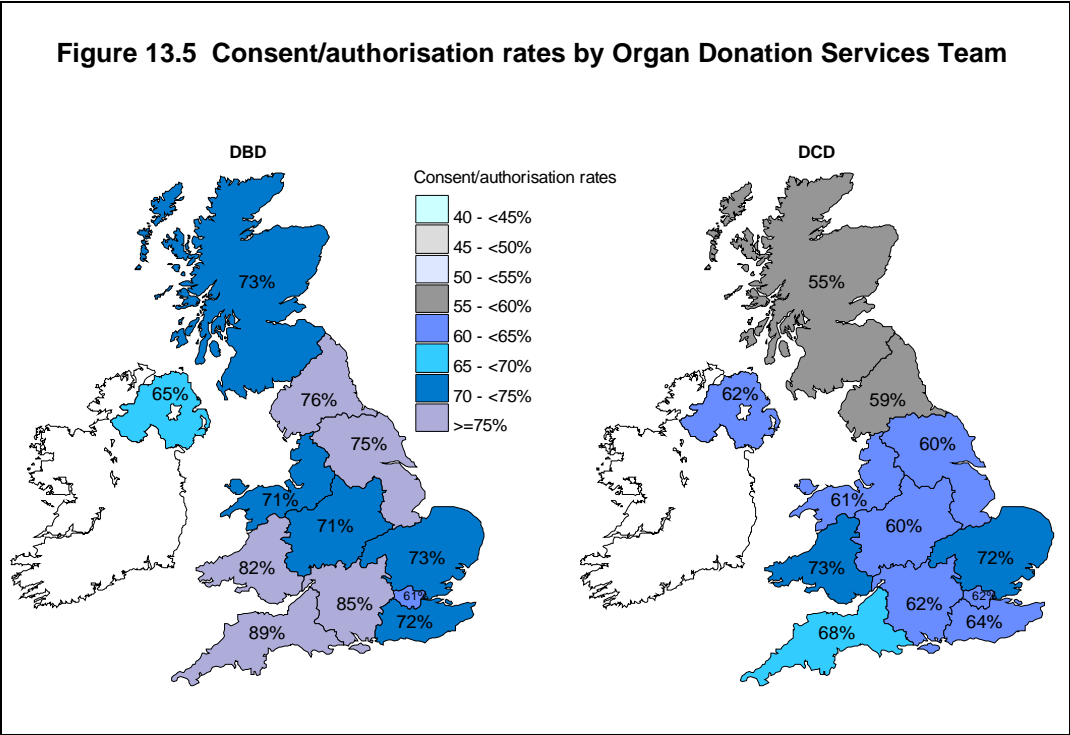


Table 13.9 shows the consent/authorisation rate separately for white patients and patients from BAME communities. The national DBD consent/authorisation rates for white patients and patients from BAME communities were 77% and 44%, respectively. A smaller, but still significant, difference was observed for DCD consent/authorisation rates: 65% and 38%, respectively. Note that there were an additional 31 DBD and 43 DCD families approached where the ethnicity was not known or not reported.

The Northern, Northern Ireland, Scotland, South Wales and South West teams each accounted for only 1% or less where patients from BAME communities' families were approached for a decision about organ donation, whereas London accounted for 46%. Most teams had a very small proportion, therefore accounting for some of the variation observed in overall consent/authorisation rates between teams. Note that consent/authorisation rates have not been provided where the number of families approached is less than ten.

Table 13.9 DBD and DCD consent/authorisation rates from the Potential Donor Audit, 1 April 2018 to 31 March 2019, by Organ Donation Services Team (ODST) and ethnicity											
ODST	White eligible donors					Eligible donors from BAME communities					All
	Number of eligible DBD donors whose family were approached	DBD consent/authorisation rate (%)	Number of eligible DCD donors whose family were approached	DCD consent/authorisation rate (%)	Overall consent/authorisation rate (%)	Number of eligible DBD donors whose family were approached	DBD consent/authorisation rate (%)	Number of eligible DCD donors whose family were approached	DCD consent/authorisation rate (%)	Overall consent/authorisation rate (%)	Overall consent/authorisation rate (%)¹
Eastern	124	75.0	183	72.1	73.3	18	55.6	12	66.7	60.0	72.1
London	142	75.4	137	69.3	72.4	95	41.1	53	41.5	41.2	61.4
Midlands	153	77.8	244	62.3	68.3	29	31.0	14	21.4	27.9	64.2
North West	165	75.8	190	63.7	69.3	19	26.3	12	16.7	22.6	65.4
Northern	99	74.7	102	59.8	67.2	2	-	1	-	-	67.6
Northern Ireland	46	65.2	32	62.5	64.1	1	-	2	-	-	63.4
Scotland	101	72.3	119	54.6	62.7	2	-	1	-	-	63.6
South Central	84	88.1	128	66.4	75.0	11	63.6	9	-	45.0	71.6
South East	97	76.3	145	64.8	69.4	19	57.9	10	50.0	55.2	67.3
South Wales	53	83.0	68	77.9	80.2	2	-	0	-	-	76.7
South West	76	89.5	96	69.8	78.5	1	-	2	-	-	76.8
Yorkshire	114	77.2	142	62.0	68.8	9	-	7	-	31.3	66.8
TOTAL	1254	77.3	1586	65.1	70.5	208	43.8	123	38.2	41.7	67.2

¹ Includes 74 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 22% of cases.

Table 13.10 Reasons why the family did not support organ donation, 1 April 2018 to 31 March 2019, by donor type						
Primary reason why family did not support organ donation	Donor type				Total	
	DBD		DCD			
	N	%	N	%	N	%
Patient previously expressed a wish not to donate	82	20.0	147	22.5	229	21.5
Family were not sure whether the patient would have agreed to donation	78	19.0	123	18.8	201	18.9
Family did not believe in donation	22	5.35	25	3.8	47	4.4
Family felt it was against their religious/cultural beliefs	44	10.7	21	3.2	65	6.1
Family were divided over the decision	25	6.08	31	4.8	56	5.3
Family felt the patient had suffered enough	30	7.3	50	7.7	80	7.5
Family did not want surgery to the body	42	10.2	51	7.8	93	8.7
Family wanted to stay with the patient after death	5	1.2	11	1.7	16	1.5
Family had difficulty understanding/accepting neurological testing	1	0.2	0		1	0.1
Family felt the length of time for donation process was too long	22	5.4	88	13.5	110	10.3
Family concerned that other people may disapprove/be offended	3	0.7	1	0.2	4	0.4
Family felt the body needs to be buried whole (unrelated to religious or cultural reasons)	24	5.8	19	2.9	43	4.0
Patients treatment may be or has been limited to facilitate organ donation	0		1	0.2	1	0.1
Family concerned that organs may not be transplanted	3	0.7	8	1.2	11	1.0
Families concerned about organ allocation	4	1	0		4	0.4
Family concerned donation may delay the funeral	1	0.2	0		1	0.1
Strong refusal - probing not appropriate	7	1.7	22	3.4	29	2.7
Other	18	4.4	55	8.4	73	6.9
Total	411	100	653	100	1064	100

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

Table 13.11 shows the proportion of family approaches where a SN-OD was present, for DBD and DCD separately, and overall. Nationally, 95% of DBD and 87% of DCD family approaches had a SN-OD present. There is some variation between teams in the percentage of DCD approaches where a SN-OD was present, however SN-OD presence rates are good across all teams for DBD approaches.

Table 13.11 Percentage of family approaches for which a Specialist Nurse - Organ Donation (SN-OD) was present from the Potential Donor Audit, 1 April 2018 to 31 March 2019, by Organ Donation Services Team (ODST)							
ODST	Number of eligible DBD donors whose family were approached	Number of eligible DBD donors where SN-OD present for approach	Percentage of DBD approaches where a SN-OD was present (%)	Number of eligible DCD donors whose family were approached	Number of eligible DCD donors where SN-OD present for approach	Percentage of DCD approaches where a SN-OD was present (%)	Overall percentage of DBD/DCD approaches where a SN-OD was present (%)
Eastern	143	129	90.2	197	161	81.7	85.3
London	240	232	96.7	190	167	87.9	92.8
Midlands	183	174	95.1	264	224	84.8	89.0
North West	188	188	100.0	205	197	96.1	98.0
Northern	105	104	99.0	105	99	94.3	96.7
Northern Ireland	48	46	95.8	34	29	85.3	91.5
Scotland	105	94	89.5	123	99	80.5	84.6
South Central	95	92	96.8	141	118	83.7	89.0
South East	123	108	87.8	158	142	89.9	89.0
South Wales	56	52	92.9	77	62	80.5	85.7
South West	79	77	97.5	106	91	85.8	90.8
Yorkshire	128	127	99.2	152	138	90.8	94.6
TOTAL	1493	1423	95.3	1752	1527	87.2	90.9

Table 13.12 shows the effect on the consent/authorisation rate when a SN-OD is present or not present for 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 present for the approach and this is particularly apparent for eligible DCD donors. Again, there is wide variation between teams.

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

Table 13.12 DBD and DCD consent/authorisation rates with/without a SN-OD present from the Potential Donor Audit, 1 April 2018 to 31 March 2019, by Organ Donation Services Team (ODST)											
ODST	SN-OD present for approach					SN-OD not present for approach					All
	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	129	74.4	161	78.3	76.6	14	57.1	36	41.7	46.0	72.1
London	232	60.8	167	65.9	62.9	8	75.0	23	30.4	41.9	61.4
Midlands	174	71.3	224	66.1	68.3	9	55.6	40	25.0	30.6	64.2
North West	188	70.7	197	62.9	66.8	0		8	0.0	0.0	65.4
Northern	104	76.0	99	62.6	69.5	1	100.0	6	0.0	14.3	67.6
Northern Ireland	46	67.4	29	72.4	69.3	2	0.0	5	0.0	0.0	63.4
Scotland	94	80.9	99	67.7	74.1	11	9.1	24	4.2	5.7	63.6
South Central	92	85.9	118	74.6	79.5	3	66.7	23	0.0	7.7	71.6
South East	108	72.2	142	67.6	69.6	15	66.7	16	31.3	48.4	67.3
South Wales	52	84.6	62	80.6	82.5	4	50.0	15	40.0	42.1	76.7
South West	77	88.3	91	74.7	81.0	2	100.0	15	26.7	35.3	76.8
Yorkshire	127	75.6	138	63.8	69.4	1	0.0	14	21.4	20.0	66.8
TOTAL	1423	73.4	1527	68.6	70.9	70	52.9	225	22.7	29.8	67.2

13.7 Comparison with previous years

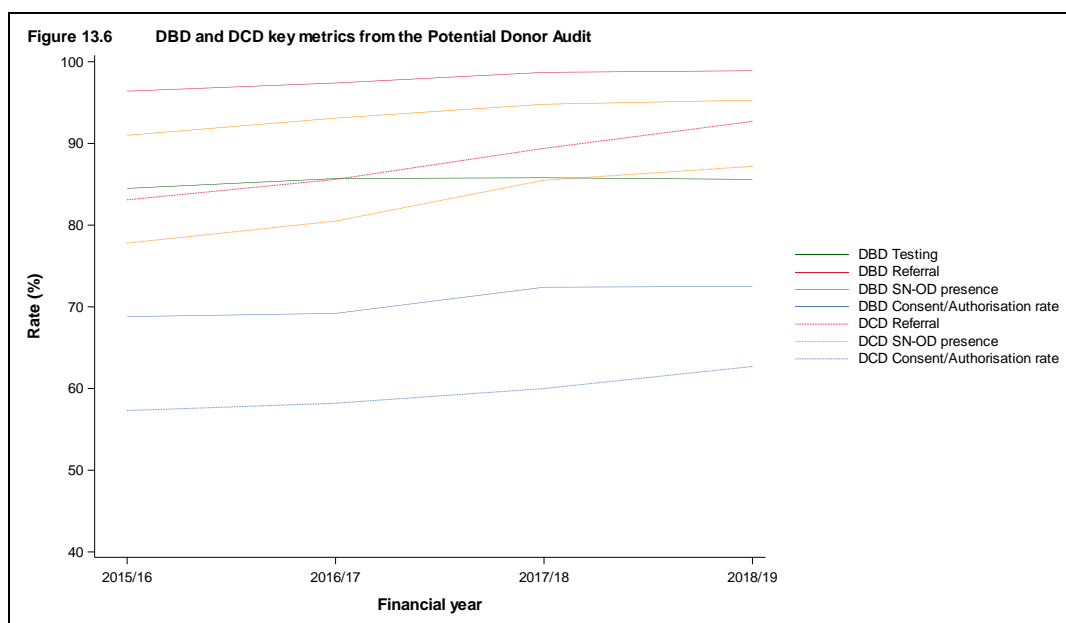
Table 13.13 and Figure 13.6 show the key metrics from the PDA for the last four financial years.

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 ¹	Neurological death testing rate (%)	Referral rate (%)	Number of eligible donors	Number of eligible donors whose family were approached	Proportion of family approaches where a SN-OD was present (%)	Number of families who consented to/ authorised donation	Consent/ authorisation rate (%)	Number of actual donors ²
DBD	2015-2016	1747	84.5	96.4	1404	1296	91.0	891	68.8	786
	2016-2017	1787	85.7	97.4	1454	1339	93.1	926	69.2	827
	2017-2018	1956	85.8	98.7	1584	1474	94.8	1067	72.4	953
	2018-2019	2004	85.6	98.9	1635	1493	95.3	1082	72.5	970
DCD	2015-2016	6501		83.1	4206	1943	77.8	1113	57.3	564
	2016-2017	6233		85.6	4262	1837	80.5	1069	58.2	574
	2017-2018	6282		89.4	4456	1858	85.5	1114	60.0	611
	2018-2019	5974		92.7	4180	1752	87.2	1099	62.7	612
TOTAL	2015-2016	8248		85.9	5610	3239	83.1	2004	61.9	1350
	2016-2017	8020		88.2	5716	3176	85.8	1995	62.8	1401
	2017-2018	8238		91.6	6040	3332	89.6	2181	65.5	1564
	2018-2019	7978		94.3	5815	3245	90.9	2181	67.2	1582

¹ DBD referral criteria: patients where neurological death was suspected (excluding those for which cardiac arrest occurred despite resuscitation, and brain stem reflexes returned; DCD referral criteria: patients for whom imminent death was anticipated

² Actual donors resulting from eligible DBD donors includes 7 DCD donors in 2015-2016, 10 DCD donors in 2016-2017, 14 DCD donors in 2017-2018 and 24 DCD donors in 2018-2019

Increases have been observed in the rates of referral to the SN-ODS as well as the proportion of approaches where a SN-OD was present, especially for DCD. An increase has also been observed in consent/authorisation rate for DCD whereas the DBD rate remains unchanged.



13.8 Consented/authorised cases not proceeding to solid organ donation

Consent/authorisation for donation was ascertained for 1,082 eligible DBD donors and 1,099 eligible DCD donors; 970 (90%) and 612 (56%) 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 112 eligible DBD and 487 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/authorized 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 2018 to 31 March 2019, by donor type

Primary reason why donation did not proceed	DBD		Donor type DCD		Total	
	N	%	N	%	N	%
Family changed mind	8	7.1	18	3.7	26	4.3
Coroner/Procurator Fiscal refusal	16	14.3	23	4.7	39	6.5
Organs deemed medically unsuitable by recipient centres	42	37.5	136	27.9	178	29.7
Organs deemed medically unsuitable on surgical inspection	5	4.5	10	2.1	15	2.5
Prolonged time to asystole	0	0.0	219	45.0	219	36.6
Cardiac Arrest	8	7.1	5	1.0	13	2.2
General instability	9	8.0	32	6.6	41	6.8
Logistic reasons	0	0.0	3	0.6	3	0.5
Positive virology	14	12.5	7	1.4	21	3.5
Family placed conditions on donation	0	0.0	1	0.2	1	0.2
Other	10	8.9	33	6.8	43	7.2
Total	112	100	487	100	599	100



Appendices

Appendix I provides details of the 1,600 deceased solid organ donors reported in 2018-2019. 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-2017 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 2018 - 31 March 2019 (2017-2018), by donating hospital

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
East Midlands														
Boston, Pilgrim Hospital	0	(1)	0	(1)	0	(2)	0	(1)	0	0	0	0	0	0
Burton-On-Trent, Queen's Hospital	2	(4)	1	(1)	3	(5)	3	(5)	6	0	0	3	1	0
Chesterfield, Chesterfield Royal Hospital	0	(4)	1	(0)	1	(4)	0	(3)	2	0	0	0	0	0
Derby, Royal Derby Hospital	4	(2)	6	(2)	10	(4)	5	(3)	18	0	4	5	3	0
Kettering, Kettering General Hospital	6	(3)	1	(3)	7	(6)	6	(3)	12	3	8	6	3	0
Leicester, Glenfield General Hospital	0	(0)	7	(3)	7	(3)	3	(0)	14	0	0	3	0	0
Leicester, Leicester Royal Infirmary	6	(4)	1	(2)	7	(6)	7	(4)	14	1	4	5	7	0
Lincoln, Lincoln County Hospital	2	(1)	1	(3)	3	(4)	3	(2)	6	1	0	3	2	0
Northampton, Northampton General Hospital	5	(2)	4	(3)	9	(5)	6	(3)	14	2	2	8	2	0
Nottingham, Nottingham City Hospital	0	(1)	3	(3)	3	(4)	0	(3)	6	0	0	0	0	0
Nottingham, Nottingham University Hospital	27	(15)	21	(15)	48	(30)	32	(22)	86	11	14	33	15	0
Sutton-In-Ashfield, King's Mill Hospital	1	(0)	0	(3)	1	(3)	0	(1)	2	0	0	0	0	0
Total	53	(37)	46	(39)	99	(76)	65	(50)	180	18	32	66	33	0
East of England														
Basildon, Basildon Hospital	1	(1)	4	(2)	5	(3)	3	(2)	10	0	0	3	2	0
Bedford, Bedford Hospital	3	(1)	2	(2)	5	(3)	4	(1)	10	0	0	4	3	0
Bury St Edmunds, West Suffolk Hospital	4	(3)	2	(3)	6	(6)	3	(4)	8	1	0	4	1	0
Cambridge, Addenbrooke's Hospital	17	(23)	29	(28)	46	(51)	31	(40)	88	9	9	29	12	0
Chelmsford, Broomfield Hospital	1	(5)	1	(2)	2	(7)	2	(7)	4	0	2	2	1	0
Colchester, Colchester General Hospital	3	(5)	2	(1)	5	(6)	4	(3)	10	0	0	4	1	0
Great Yarmouth, James Paget Hospital	3	(1)	4	(3)	7	(4)	5	(3)	10	1	2	6	1	0
Harlow, Princess Alexandra Hospital	2	(0)	0	(0)	2	(0)	1	(0)	4	1	0	1	1	0
Huntingdon, Hinchingbrooke Hospital	3	(1)	0	(4)	3	(5)	3	(3)	6	0	0	3	0	0
Ipswich, Ipswich Hospital	4	(5)	1	(4)	5	(9)	4	(7)	9	0	2	4	1	0
Kings Lynn, The Queen Elizabeth Hospital	2	(2)	4	(2)	6	(4)	5	(3)	12	0	0	5	0	0
Luton, Luton And Dunstable Hospital	4	(4)	4	(4)	8	(8)	3	(4)	13	0	2	4	0	0
Norwich, Norfolk And Norwich University Hospital	9	(11)	3	(11)	12	(22)	10	(15)	24	1	2	10	2	0
Papworth, Papworth Hospital	2	(4)	4	(4)	6	(8)	3	(6)	12	1	2	2	1	0
Peterborough, Peterborough City Hospital	2	(3)	4	(4)	6	(7)	3	(5)	12	1	1	3	1	0
Stevenage, Lister Hospital	5	(8)	4	(1)	9	(9)	7	(9)	18	1	0	6	4	0
Watford, Watford General Hospital	3	(6)	5	(3)	8	(9)	5	(7)	16	0	0	5	1	0
Westcliff On Sea, Southend Hospital	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	1	0	0
Total	69	(84)	73	(78)	142	(162)	97	(120)	268	16	22	96	32	0

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2018 - 31 March 2019 (2017-2018), by donating hospital

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
London														
Barnet, Barnet General Hospital	3	(3)	2	(1)	5	(4)	3	(4)	10	0	3	3	3	0
Carshalton, St Helier Hospital	0	(2)	2	(0)	2	(2)	1	(1)	4	1	0	0	0	0
Chelsea, Chelsea And Westminster Hospital	0	(1)	0	(0)	0	(1)	0	(0)	0	0	0	0	0	0
Croydon, Mayday University Hospital	1	(2)	1	(0)	2	(2)	2	(1)	4	0	2	2	0	0
Evelina Childrens Hospital	1	(1)	1	(0)	2	(1)	0	(1)	2	1	0	0	0	0
Harefield, Harefield Hospital	4	(4)	7	(2)	11	(6)	7	(4)	22	0	0	7	2	0
Harrow, Northwick Park Hospital	3	(2)	3	(2)	6	(4)	4	(3)	10	0	2	4	2	0
Ilford, King George Hospital	2	(1)	1	(0)	3	(1)	3	(1)	6	2	2	3	1	0
Isleworth, West Middlesex University Hospital	3	(3)	1	(0)	4	(3)	4	(2)	8	1	4	4	2	0
Kingston, Kingston Hospital	0	(2)	1	(1)	1	(3)	0	(1)	2	0	0	0	0	0
London, Charing Cross Hospital	7	(12)	3	(3)	10	(15)	9	(10)	20	4	8	9	3	1
London, Great Ormond Street Hospital For Children	1	(5)	1	(1)	2	(6)	1	(6)	4	1	2	1	0	0
London, Hammersmith Hospital	3	(2)	0	(0)	3	(2)	3	(2)	6	0	0	3	0	0
London, Homerton Hospital	1	(4)	0	(0)	1	(4)	1	(3)	0	1	0	1	0	0
London, King's College Hospital	33	(32)	16	(12)	49	(44)	34	(29)	90	8	24	34	15	1
London, London Bridge Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	0	0
London, National Hospital For Neurology And Neurosurgery	12	(9)	0	(0)	12	(9)	10	(8)	24	3	6	10	6	0
London, Newham General Hospital	1	(2)	1	(0)	2	(2)	2	(1)	4	0	0	2	0	0
London, North Middlesex Hospital	2	(4)	0	(2)	2	(6)	2	(4)	4	1	0	1	0	0
London, Queen Elizabeth Hospital	4	(4)	1	(1)	5	(5)	2	(4)	6	1	0	4	1	0
London, Royal Brompton Hospital	1	(0)	2	(1)	3	(1)	1	(1)	6	0	0	1	1	0
London, Royal Free Hospital	6	(1)	4	(0)	10	(1)	7	(1)	18	0	0	8	1	0
London, St Bartholomew's Hospital	4	(4)	4	(3)	8	(7)	4	(5)	12	0	2	6	2	0
London, St George's Hospital	25	(28)	15	(13)	40	(41)	29	(32)	73	6	2	27	16	3
London, St Mary's Hospital	8	(14)	3	(4)	11	(18)	6	(13)	20	2	0	6	2	0
London, St Thomas' Hospital	5	(6)	3	(7)	8	(13)	3	(10)	12	0	0	5	0	0
London, The Royal London Hospital (Whitechapel)	17	(20)	9	(6)	26	(26)	21	(22)	48	6	14	23	10	0
London, The Whittington Hospital	1	(3)	1	(0)	2	(3)	1	(2)	4	0	2	1	1	0
London, University College Hospital	2	(3)	1	(1)	3	(4)	2	(2)	6	1	2	2	1	0
London, University Hospital Lewisham	0	(3)	0	(0)	0	(3)	0	(3)	0	0	0	0	0	0
London, Whipps Cross Hospital	4	(0)	1	(0)	5	(0)	3	(0)	9	1	0	3	2	0
Orpington, Princess Royal University Hospital	5	(7)	1	(1)	6	(8)	4	(4)	10	2	2	5	2	0
Romford, Queens Hospital	11	(11)	4	(6)	15	(17)	11	(14)	29	3	2	11	3	0
Southall, Ealing Hospital	3	(2)	0	(0)	3	(2)	3	(2)	6	2	2	3	1	0
Uxbridge, Hillingdon Hospital	1	(4)	2	(0)	3	(4)	2	(2)	6	1	0	1	0	0
Total	175	(201)	91	(67)	266	(268)	186	(198)	487	48	81	191	77	5

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2018 - 31 March 2019 (2017-2018), by donating hospital

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
North East														
Darlington, Darlington Memorial Hospital	2	(3)	1	(0)	3	(3)	2	(2)	6	0	0	2	0	0
Durham, University Hospital Of North Durham	8	(2)	1	(3)	9	(5)	8	(4)	17	0	3	8	2	0
Gateshead, Queen Elizabeth Hospital	1	(2)	4	(0)	5	(2)	1	(1)	10	0	0	1	0	0
Middlesbrough, The James Cook University Hospital	16	(8)	7	(12)	23	(20)	20	(15)	43	5	12	16	12	1
Newcastle, Freeman Hospital	1	(2)	1	(2)	2	(4)	0	(3)	2	1	0	0	0	0
Newcastle, Royal Victoria Infirmary	22	(15)	9	(5)	31	(20)	26	(13)	60	3	6	22	18	0
Northumbria, Nsech	8	(4)	4	(3)	12	(7)	7	(3)	18	0	4	10	2	0
South Shields, South Tyneside District General Hospital	0	(1)	0	(0)	0	(1)	0	(0)	0	0	0	0	0	0
Stockton-On-Tees, University Hospital Of North Tees	3	(5)	1	(1)	4	(6)	3	(5)	6	0	2	3	1	0
Sunderland, Sunderland Royal Hospital	6	(2)	1	(3)	7	(5)	5	(3)	13	0	2	5	3	0
Total	67	(44)	29	(29)	96	(73)	72	(49)	175	9	29	67	38	1
North West														
Ashton-Under-Lyne, Tameside General Hospital	3	(4)	2	(1)	5	(5)	3	(5)	10	0	0	2	3	0
Barrow-In-Furness, Furness General Hospital	0	(3)	0	(0)	0	(3)	0	(2)	0	0	0	0	0	0
Blackburn, Royal Blackburn Hospital	4	(9)	4	(5)	8	(14)	5	(9)	16	2	2	4	2	0
Blackpool, Blackpool Victoria Hospital	5	(4)	1	(3)	6	(7)	3	(3)	11	0	0	3	1	0
Bolton, Royal Bolton Hospital	0	(7)	2	(4)	2	(11)	1	(8)	4	0	0	1	0	0
Bury, Fairfield General Hospital	1	(8)	1	(0)	2	(8)	1	(7)	4	0	0	1	0	0
Carlisle, Cumberland Infirmary	1	(1)	3	(1)	4	(2)	3	(2)	8	0	2	3	0	0
Chester, Countess Of Chester Hospital	3	(5)	5	(1)	8	(6)	4	(4)	13	2	2	4	2	0
Chorley And South Ribble Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Crewe, Leighton Hospital	0	(3)	1	(0)	1	(3)	0	(2)	2	0	0	0	0	0
Lancaster, Royal Lancaster Infirmary	1	(0)	0	(1)	1	(1)	1	(1)	2	0	0	1	0	0
Liverpool, Alder Hey Children's Hospital	0	(1)	2	(2)	2	(3)	2	(1)	4	0	2	2	2	0
Liverpool, Liverpool Heart And Chest Hospital	3	(1)	0	(1)	3	(2)	3	(2)	6	0	0	2	3	0
Liverpool, Royal Liverpool University Hospital	2	(3)	4	(1)	6	(4)	3	(4)	10	0	1	4	1	0
Liverpool, University Hospital Aintree	6	(6)	5	(2)	11	(8)	5	(6)	22	0	0	5	3	0
Liverpool, Walton Centre For Neurology And Neurosurgery	10	(16)	8	(6)	18	(22)	12	(19)	36	3	5	12	10	0
Macclesfield, Macclesfield District General Hospital	2	(0)	1	(1)	3	(1)	0	(0)	6	0	0	0	0	0
Manchester, Manchester Royal Infirmary	6	(6)	1	(4)	7	(10)	7	(6)	14	0	4	6	5	0
Manchester, North Manchester General Hospital	0	(1)	1	(0)	1	(1)	0	(0)	2	0	0	0	0	0
Manchester, Royal Manchester Children's Hospital	3	(1)	2	(1)	5	(2)	3	(1)	10	3	4	3	2	0

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2018 - 31 March 2019 (2017-2018), by donating hospital

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
Manchester, Wythenshawe Hospital	3	(3)	3	(2)	6	(5)	4	(3)	10	0	2	5	0	0
Oldham, Royal Oldham Hospital (Rochdale Road)	0	(1)	4	(3)	4	(4)	1	(2)	8	0	0	1	1	0
Prescot, Whiston Hospital	9	(8)	1	(6)	10	(14)	9	(9)	20	0	0	9	4	0
Preston, Royal Preston Hospital	9	(13)	4	(10)	13	(23)	9	(14)	24	5	4	10	8	1
Salford, Salford Royal	19	(24)	4	(14)	23	(38)	17	(28)	42	1	4	18	7	0
Southport, Southport District General Hospital	1	(1)	0	(0)	1	(1)	0	(1)	0	0	0	1	0	0
Stockport, Stepping Hill Hospital	3	(1)	1	(4)	4	(5)	3	(1)	7	0	0	3	1	0
Warrington, Warrington Hospital	5	(3)	2	(0)	7	(3)	5	(2)	14	0	4	4	2	1
Whitehaven, West Cumberland Hospital	1	(2)	1	(0)	2	(2)	1	(2)	4	0	0	1	0	0
Wigan, Royal Albert Edward Infirmary	3	(0)	3	(3)	6	(3)	5	(2)	11	1	0	5	2	0
Wirral, Arrowe Park Hospital	7	(6)	0	(0)	7	(6)	4	(6)	14	0	0	4	0	0
Total	110	(142)	66	(76)	176	(218)	114	(153)	334	17	36	114	59	2
South Central														
Aylesbury, Stoke Mandeville Hospital	1	(4)	0	(0)	1	(4)	1	(3)	2	0	0	1	0	0
Banbury, Horton General Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Basingstoke, North Hampshire Hospital	1	(1)	4	(2)	5	(3)	3	(2)	10	0	0	2	2	0
Milton Keynes, Milton Keynes General Hospital	2	(2)	1	(1)	3	(3)	2	(2)	6	0	0	2	0	0
Newport, St Mary's Hospital	5	(2)	3	(1)	8	(3)	5	(3)	15	1	2	5	2	0
Oxford, Churchill Hospital	0	(0)	1	(0)	1	(0)	0	(0)	2	0	0	0	0	0
Oxford, John Radcliffe Hospital	17	(19)	8	(11)	25	(30)	24	(28)	50	2	14	23	14	0
Portsmouth, Queen Alexandra Hospital	4	(7)	2	(6)	6	(13)	6	(8)	12	1	2	6	3	0
Reading, Royal Berkshire Hospital	6	(1)	3	(3)	9	(4)	6	(2)	14	0	0	7	1	0
Southampton, Southampton University Hospitals	19	(17)	19	(19)	38	(36)	30	(25)	76	4	6	29	13	1
Winchester, Royal Hampshire County Hospital	1	(2)	0	(0)	1	(2)	1	(2)	2	0	0	1	0	0
Wycombe, Wycombe General Hospital	2	(0)	2	(1)	4	(1)	3	(1)	6	0	0	4	0	0
Total	58	(56)	43	(44)	101	(100)	81	(77)	195	8	24	80	35	1
South East Coast														
Ashford, William Harvey Hospital	5	(7)	3	(4)	8	(11)	5	(9)	16	1	4	5	3	0
Brighton, Royal Sussex County Hospital	9	(10)	6	(4)	15	(14)	6	(9)	28	1	0	7	2	0
Camberley, Frimley Park Hospital	6	(3)	3	(2)	9	(5)	7	(3)	18	0	2	6	2	0
Canterbury, Kent And Canterbury Hospital	1	(0)	0	(2)	1	(2)	1	(2)	2	0	0	1	0	0
Chertsey, St Peter's Hospital	0	(5)	5	(3)	5	(8)	2	(6)	8	0	0	3	1	0
Chichester, St Richard's Hospital	0	(2)	3	(1)	3	(3)	2	(2)	6	0	0	2	0	0
Dartford, Darent Valley Hospital	0	(0)	2	(2)	2	(2)	1	(0)	4	0	0	1	0	0
Eastbourne, Eastbourne District General Hospital	1	(2)	4	(2)	5	(4)	2	(1)	10	0	0	2	0	0

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2018 - 31 March 2019 (2017-2018), by donating hospital														
Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
Gillingham, Medway Hospital	3	(5)	5	(3)	8	(8)	4	(3)	14	0	0	3	3	0
Guildford, Royal Surrey County Hospital	3	(0)	0	(0)	3	(0)	2	(0)	6	0	0	2	1	1
Hastings, Conquest Hospital	0	(1)	1	(3)	1	(4)	1	(2)	2	0	0	1	0	0
Haywards Heath, Princess Royal Hospital	1	(1)	0	(0)	1	(1)	0	(1)	2	0	0	0	0	0
Maidstone, Maidstone District General Hospital	3	(2)	1	(0)	4	(2)	3	(2)	8	1	0	3	3	0
Margate, Queen Elizabeth The Queen Mother Hospital	7	(2)	4	(1)	11	(3)	8	(2)	18	0	2	9	2	0
Redhill, East Surrey Hospital	1	(4)	0	(3)	1	(7)	1	(6)	2	1	0	1	1	0
Slough, Wexham Park Hospital	2	(5)	0	(0)	2	(5)	1	(5)	2	0	0	2	0	0
Tunbridge Wells, Tunbridge Wells Hospital	2	(5)	1	(0)	3	(5)	2	(3)	4	1	2	3	2	0
Worthing, Worthing Hospital	6	(1)	3	(1)	9	(2)	7	(1)	16	0	4	8	1	0
Total	50	(55)	41	(31)	91	(86)	55	(57)	166	5	14	59	21	1
South West														
Barnstaple, North Devon District Hospital	1	(3)	0	(0)	1	(3)	1	(2)	2	0	0	1	0	0
Bath, Royal United Hospital	2	(3)	3	(2)	5	(5)	3	(4)	10	0	5	3	2	0
Bournemouth, Royal Bournemouth General Hospital	2	(4)	1	(4)	3	(8)	3	(5)	6	0	2	3	0	0
Bristol, Bristol Royal Hospital For Children	3	(1)	0	(0)	3	(1)	3	(1)	6	1	4	3	3	0
Bristol, Bristol Royal Infirmary	7	(4)	5	(4)	12	(8)	9	(6)	22	0	2	9	2	0
Bristol, Southmead Hospital	22	(22)	11	(10)	33	(32)	26	(26)	64	2	6	26	10	2
Cheltenham, Cheltenham General Hospital	0	(0)	2	(0)	2	(0)	1	(0)	4	0	0	1	0	0
Dorchester, Dorset County Hospital	0	(3)	1	(3)	1	(6)	0	(4)	2	0	0	0	0	0
Exeter, Royal Devon And Exeter Hospital (Wonford)	2	(2)	2	(0)	4	(2)	3	(2)	8	1	4	3	1	0
Gloucester, Gloucestershire Royal Hospital	5	(3)	4	(1)	9	(4)	4	(2)	18	1	2	4	2	0
Plymouth, Derriford Hospital	12	(13)	10	(7)	22	(20)	16	(18)	41	1	6	15	8	1
Poole, Poole General Hospital	1	(2)	0	(1)	1	(3)	1	(3)	2	0	0	1	0	0
Salisbury, Salisbury District Hospital	2	(3)	2	(1)	4	(4)	2	(4)	8	0	0	2	0	0
Swindon, Great Western Hospital	3	(1)	1	(2)	4	(3)	3	(1)	8	0	2	2	2	0
Taunton, Taunton And Somerset Hospital (Musgrove Park)	7	(2)	4	(4)	11	(6)	8	(5)	22	1	2	8	3	1
Torquay, Torbay Hospital	4	(2)	0	(2)	4	(4)	4	(2)	8	1	0	4	1	0
Truro, Royal Cornwall Hospital (Treliske)	3	(2)	1	(4)	4	(6)	4	(3)	8	0	4	4	1	0
Weston-Super-Mare, Weston General Hospital	0	(2)	0	(0)	0	(2)	0	(2)	0	0	0	0	0	0
Yeovil, Yeovil District Hospital	1	(0)	0	(1)	1	(1)	1	(0)	2	0	0	1	0	0
Total	77	(72)	47	(46)	124	(118)	92	(90)	241	8	39	90	35	4
West Midlands														
Birmingham, Birmingham Children's Hospital	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0	0

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2018 - 31 March 2019 (2017-2018), by donating hospital

Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
Birmingham, Birmingham Heartlands Hospital	2	(3)	1	(1)	3	(4)	3	(3)	6	0	0	3	1	0
Birmingham, City Hospital	1	(2)	3	(5)	4	(7)	3	(5)	8	0	0	3	0	0
Birmingham, Queen Elizabeth Hospital Birmingham	11	(17)	11	(11)	22	(28)	16	(23)	36	2	4	19	6	0
Coventry, University Hospital	19	(9)	15	(8)	34	(17)	26	(10)	62	5	14	26	13	0
Dudley, Russells Hall Hospital	5	(1)	1	(0)	6	(1)	5	(1)	12	1	0	5	2	0
Hereford, The County Hospital	3	(1)	1	(0)	4	(1)	1	(1)	6	0	0	2	0	0
Redditch, The Alexandra Hospital	4	(1)	0	(2)	4	(3)	4	(1)	8	0	2	3	3	0
Shrewsbury, Royal Shrewsbury Hospital	3	(3)	1	(2)	4	(5)	4	(2)	8	0	0	4	1	0
Stoke-On-Trent, Royal Stoke University Hospital	11	(13)	19	(15)	30	(28)	21	(21)	58	5	4	20	10	0
Sutton Coldfield, Good Hope District General Hosp.	3	(4)	1	(1)	4	(5)	2	(3)	8	1	2	2	1	0
Telford, The Princess Royal Hospital	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	1	0	0
Walsall, Manor Hospital	1	(0)	3	(0)	4	(0)	1	(0)	6	0	0	2	0	0
Warwick, Warwick Hospital	3	(1)	0	(0)	3	(1)	1	(1)	2	0	0	3	1	0
West Bromwich, Sandwell General Hospital	2	(2)	2	(1)	4	(3)	3	(1)	8	0	0	3	1	0
Wolverhampton, New Cross Hospital	3	(2)	5	(5)	8	(7)	3	(4)	16	1	2	3	1	0
Worcester, Worcestershire Royal Hospital	3	(3)	3	(5)	6	(8)	5	(6)	12	0	0	4	3	0
Total	75	(63)	66	(57)	141	(120)	99	(84)	258	15	28	103	43	0
Yorkshire and the Humber														
Barnsley, Barnsley District General Hospital	3	(1)	4	(2)	7	(3)	4	(2)	14	1	0	4	0	0
Bradford, Bradford Royal Infirmary	7	(4)	2	(4)	9	(8)	6	(4)	14	1	0	8	2	0
Cottingham, Castle Hill Hospital	0	(1)	1	(5)	1	(6)	0	(5)	1	0	0	0	0	0
Doncaster, Doncaster Royal Infirmary	1	(4)	4	(0)	5	(4)	2	(4)	9	0	0	2	1	0
Grimsby, Diana Princess Of Wales Hospital	2	(3)	4	(1)	6	(4)	2	(4)	12	0	2	1	1	0
Halifax, Calderdale Royal Hospital	1	(2)	1	(1)	2	(3)	0	(3)	0	0	2	1	0	0
Harrogate, Harrogate District Hospital	2	(0)	4	(2)	6	(2)	2	(2)	12	0	0	2	0	0
Huddersfield, Huddersfield Royal Infirmary	2	(3)	0	(0)	2	(3)	2	(3)	4	1	0	2	1	0
Hull, Hull Royal Infirmary	5	(6)	3	(11)	8	(17)	4	(10)	13	1	0	4	4	0
Keighley, Airedale General Hospital	4	(0)	1	(1)	5	(1)	2	(0)	6	0	0	4	1	0
Leeds, Leeds General Infirmary	16	(15)	11	(21)	27	(36)	17	(25)	52	7	4	18	12	0
Leeds, St James's University Hospital	3	(0)	1	(3)	4	(3)	3	(0)	8	0	2	3	2	0
Rotherham, Rotherham District General Hospital	3	(0)	2	(0)	5	(0)	4	(0)	10	1	0	3	3	0
Scarborough, Scarborough General Hospital	0	(4)	0	(2)	0	(6)	0	(4)	0	0	0	0	0	0
Scunthorpe, Scunthorpe General Hospital	0	(1)	0	(2)	0	(3)	0	(3)	0	0	0	0	0	0
Sheffield, Northern General Hospital	10	(7)	7	(5)	17	(12)	13	(10)	34	2	0	13	6	1
Sheffield, Royal Hallamshire Hospital	7	(8)	1	(6)	8	(14)	6	(10)	16	1	2	6	4	1
Sheffield, Sheffield Children's Hospital	1	(1)	0	(0)	1	(1)	1	(1)	2	1	0	1	1	0
Wakefield, Pinderfields General Hospital	4	(2)	2	(1)	6	(3)	4	(3)	12	0	2	4	2	0

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2018 - 31 March 2019 (2017-2018), by donating hospital														
Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
Worksop, Bassetlaw District General Hospital	2	(0)	0	(0)	2	(0)	2	(0)	4	1	0	2	1	0
York, York District Hospital	7	(5)	4	(0)	11	(5)	9	(5)	20	2	5	8	1	0
Total	80	(67)	52	(67)	132	(134)	83	(98)	243	19	19	86	42	2
Channel Islands														
Guernsey, Princess Elizabeth Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
St Helier, Jersey General Hospital	1	(2)	0	(0)	1	(2)	1	(1)	2	0	0	1	0	0
Total	1	(3)	0	(0)	1	(3)	1	(2)	2	0	0	1	0	0
Isle of Man														
Douglas, Nobles I-O-M Hospital	2	(0)	0	(0)	2	(0)	2	(0)	4	0	0	2	1	0
Total	2	(0)	0	(0)	2	(0)	2	(0)	4	0	0	2	1	0
England														
	817	(824)	554	(534)	1371	1358)	947	(978)	2553	163	324	955	416	16
Northern Ireland														
Belfast, Antrim Hospital	4	(1)	0	(0)	4	(1)	4	(1)	6	2	2	3	1	0
Belfast, Belfast City Hospital	0	(0)	0	(2)	0	(2)	0	(1)	0	0	0	0	0	0
Belfast, Mater Infirmorum Hospital	0	(0)	1	(0)	1	(0)	0	(0)	2	0	0	0	0	0
Belfast, Royal Belfast Hospital For Sick Children	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	1	0	1
Belfast, Royal Victoria Hospital	11	(9)	10	(5)	21	(14)	15	(11)	38	2	16	10	9	1
Belfast, The Ulster Hospital	2	(3)	4	(4)	6	(7)	3	(3)	12	1	0	3	1	0
Coleraine, Causeway Hospital	2	(2)	0	(1)	2	(3)	0	(1)	4	0	0	0	0	0
Enniskillen, South West Acute Hospital	2	(3)	1	(1)	3	(4)	2	(3)	6	0	2	2	1	0
Londonderry, Altnagelvin Area Hospital	4	(3)	1	(0)	5	(3)	3	(2)	8	1	0	4	3	0
Portadown, Craigavon Area Hospital	1	(3)	0	(2)	1	(5)	1	(4)	2	0	0	1	1	0
Total	27	(25)	17	(15)	44	(40)	29	(27)	80	6	20	24	16	2
Scotland														
Aberdeen, Aberdeen Royal Infirmary	7	(6)	5	(6)	12	(12)	7	(6)	21	0	0	7	1	0
Airdrie, Monklands District General Hospital	2	(2)	1	(0)	3	(2)	3	(2)	6	1	2	3	1	0
Ayr, The Ayr Hospital	1	(0)	0	(0)	1	(0)	1	(0)	2	0	0	1	1	0
Dumfries, Dumfries And Galloway Royal Infirmary	0	(4)	0	(1)	0	(5)	0	(3)	0	0	0	0	0	0
Dundee, Ninewells Hospital	2	(2)	5	(4)	7	(6)	4	(3)	14	0	0	4	1	0
East Kilbride, Hairmyres Hospital	1	(1)	0	(0)	1	(1)	1	(1)	2	0	2	1	0	0
Edinburgh, Royal Hospital For Sick Children	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0	0

Appendix I Deceased solid organ donors and donated organs in the UK, 1 April 2018 - 31 March 2019 (2017-2018), by donating hospital														
Donating hospital	DBD		DCD		All donors		Multi-organ donor		Kidney	Heart	Lung	Liver	Pancreas	Bowel
Edinburgh, Royal Infirmary Of Edinburgh	6	(4)	1	(6)	7	(10)	6	(5)	12	0	0	7	2	0
Edinburgh, Western General Hospital	11	(6)	2	(10)	13	(16)	11	(10)	26	1	4	10	5	0
Glasgow, Glasgow Royal Infirmary	5	(4)	1	(0)	6	(4)	5	(3)	10	1	2	6	3	0
Glasgow, Golden Jubilee National Hospital	1	(1)	2	(1)	3	(2)	1	(2)	6	0	0	1	1	0
Glasgow, Queen Elizabeth University Hospital	14	(11)	5	(6)	19	(17)	17	(14)	38	2	10	16	9	0
Glasgow, The Royal Hospital For Children	1	(1)	0	(0)	1	(1)	1	(1)	2	0	0	0	0	1
Inverness, Raigmore Hospital	3	(5)	1	(1)	4	(6)	4	(5)	8	1	2	4	3	0
Kilmarnock, Crosshouse Hospital	2	(4)	1	(1)	3	(5)	3	(5)	6	1	2	3	1	0
Kirkcaldy, Victoria Hospital	1	(1)	3	(1)	4	(2)	3	(2)	8	0	2	3	1	0
Larbert, Forth Valley Royal Hospital	6	(1)	2	(1)	8	(2)	5	(1)	16	0	0	5	2	0
Livingston, St John's Hospital	0	(0)	0	(1)	0	(1)	0	(0)	0	0	0	0	0	0
Melrose, Borders General Hospital	0	(1)	0	(0)	0	(1)	0	(1)	0	0	0	0	0	0
Paisley, Royal Alexandra Hospital	1	(3)	1	(1)	2	(4)	1	(3)	4	0	2	1	0	0
Perth, Perth Royal Infirmary	2	(0)	0	(0)	2	(0)	2	(0)	4	0	0	2	0	0
Wishaw, Wishaw General Hospital	2	(4)	0	(0)	2	(4)	2	(3)	4	0	0	2	1	0
Total	68	(61)	30	(41)	98	(102)	77	(70)	189	7	28	76	32	1
Wales														
Abergavenny, Nevill Hall Hospital	4	(1)	0	(1)	4	(2)	4	(1)	8	0	2	3	0	0
Bangor, Ysbyty Gwynedd District General Hospital	5	(6)	2	(0)	7	(6)	5	(5)	14	2	0	4	3	1
Bodelwyddan, Glan Clwyd District General Hospital	4	(1)	5	(2)	9	(3)	4	(3)	17	1	0	4	2	0
Bridgend, Princess Of Wales Hospital	2	(2)	4	(0)	6	(2)	6	(1)	12	0	2	5	0	0
Cardiff, University Of Wales Hospital	18	(14)	14	(13)	32	(27)	22	(20)	58	5	6	23	11	1
Carmarthen, Glangwili General Hospital	3	(3)	2	(3)	5	(6)	3	(5)	8	1	0	3	0	0
Haverford West, Withybush General Hospital	0	(0)	1	(0)	1	(0)	0	(0)	2	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	0	(1)	1	(4)	1	(5)	1	(2)	2	0	0	1	0	0
Newport, Royal Gwent Hospital	2	(5)	3	(3)	5	(8)	2	(5)	10	0	0	2	1	0
Penarth, Llandough Hospital	0	(0)	0	(1)	0	(1)	0	(1)	0	0	0	0	0	0
Pontypridd, Royal Glamorgan Hospital	2	(5)	2	(1)	4	(6)	2	(5)	8	0	0	2	1	0
Swansea, Morriston Hospital	5	(4)	3	(0)	8	(4)	6	(3)	14	1	4	7	1	0
Wrexham, Maelor General Hospital	4	(3)	0	(1)	4	(4)	3	(3)	8	0	0	3	1	0
Total	50	(45)	37	(29)	87	(74)	59	(54)	163	10	14	58	20	2

Appendix IIA Numbers of donors after brain death and organs retrieved in the UK, 1 April 2018 - 31 March 2019, 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	64	24.2	55	20.8	116	9	19	57	29	1
North West	110	15.2	87	12.0	205	10	31	88	44	2
Yorkshire and The Humber	79	14.5	62	11.4	141	16	12	67	32	2
East Midlands	62	13.0	52	10.9	108	13	27	56	33	0
West Midlands	73	12.5	64	10.9	132	17	22	67	25	0
East of England	85	13.8	71	11.5	158	13	14	75	27	0
London	116	13.1	95	10.8	203	27	35	103	38	2
South East Coast	83	17.7	67	14.3	150	12	26	72	29	3
South Central	62	14.2	57	13.0	113	5	12	60	21	2
South West	80	14.4	75	13.5	154	9	29	76	35	4
England	814	14.6	685	12.3	1480	131	227	721	313	16
Isle of Man	2	25.0	2	25.0	4	0	0	2	1	0
Channel Islands	1	6.3	1	6.3	2	0	0	1	0	0
Wales	51	16.3	42	13.4	89	9	10	45	19	2
Scotland	68	12.5	65	12.0	128	7	26	65	28	1
Northern Ireland	26	13.9	22	11.8	46	6	10	22	13	2
TOTAL	962	14.6	817	12.4	1749	153	273	856	374	21

Appendix IIB Numbers of donors after circulatory death and organs retrieved in the UK, 1 April 2018 - 31 March 2019, 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	28	10.6	15	5.7	56	1	6	8	8	0
North West	68	9.4	26	3.6	131	6	9	23	11	0
Yorkshire and The Humber	51	9.4	19	3.5	98	1	7	17	8	0
East Midlands	57	11.9	28	5.9	111	4	10	25	10	0
West Midlands	58	9.9	32	5.5	109	0	6	33	15	0
East of England	79	12.8	42	6.8	153	8	15	37	14	0
London	69	7.8	35	4.0	131	6	18	30	11	0
South East Coast	48	10.2	18	3.8	92	0	4	18	7	0
South Central	42	9.6	23	5.3	84	3	12	19	11	0
South West	47	8.5	18	3.2	93	1	8	16	2	0
England	547	9.8	256	4.6	1058	30	95	226	97	0
Isle of Man	0	0	0	0	0	0	0	0	0	0
Channel Islands	0	0	0	0	0	0	0	0	0	0
Wales	45	14.4	21	6.7	87	3	6	19	6	0
Scotland	29	5.4	12	2.2	57	0	4	11	4	0
Northern Ireland	17	9.1	6	3.2	34	0	8	1	3	0
TOTAL	638	9.7	295	4.5	1236	33	113	257	110	0

Appendix III**Populations for SHA's, 2018-2019
Mid-2017 estimates based on ONS 2011 Census figures**

SHA	Population (millions)
North East	2.64
North West	7.26
Yorkshire and The Humber	5.45
East Midlands	4.77
West Midlands	5.86
East of England	6.17
London	8.83
South East Coast ¹	4.69
South Central ¹	4.37
South West	5.56
England	55.62
Isle of Man	0.08
Channel Islands	0.16
Wales	3.13
Scotland	5.42
Northern Ireland	1.87
TOTAL	66.04

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

Appendix IVA

UK solid organ transplants from deceased UK donors¹ to non-UK residents, 1 April 2016 to 31 March 2019

Transplant type by year

Year	Transplant type	Residency of non-UK recipient transplanted in UK from UK donor			
		ROI	Other EU	Non-EU	Total
2016/17	Kidney	0	0	1	1
	Heart	1	0	0	1
	Liver	4	4	1	9
	Bilateral lung	1	0	0	1
	Liver & kidney	2	0	0	2
	Total	8	4	2	14
2017/18	Heart	3	0	0	3
	Liver	5	8	6	19
	Bilateral lung	1	0	0	1
	Heart-lung	1	0	0	1
	Bowel only	0	1	0	1
	Total	10	9	6	25
2018/19	Liver	0	1	6	7
	Bilateral lung	1	0	0	1
	Multivisceral	0	1	0	1
	Total	1	2	6	9

ROI = Republic of Ireland

¹ based on country of donor hospital

Appendix IVB

UK solid organ transplants from deceased non-UK donors¹ to UK residents, 1 April 2016 to 31 March 2019

Transplant type by year

Year	Transplant type	Country of donation of non-UK donor organs transplanted in UK to UK residents			
		ROI	Other EU	Non-EU	Total
2016/17	Kidney	3	0	0	3
	En-bloc kidney	1	3	0	4
	Heart	4	9	0	13
	Liver	10	3	0	13
	Bilateral lung	2	3	0	5
	Multivisceral	0	1	0	1
	Total	20	19	0	39
2017/18	Kidney	4	0	0	4
	Heart	3	3	0	6
	Liver	7	4	0	11
	Multivisceral	0	1	0	1
	Total	14	8	0	22
2018/19	Kidney	0	1	0	1
	Heart	1	7	0	8
	Liver	3	1	0	4
	Bilateral lung	0	1	0	1
	Total	4	10	0	14

ROI = Republic of Ireland

¹ based on country of donor hospital

Appendix IVC

Non-UK solid organ transplants from deceased UK donors¹ to non-UK hospitals, 1 April 2016 to 31 March 2019

Transplant type by year

Year	Transplant type	Residency of non-UK recipient transplanted abroad from UK donor			
		ROI	Other EU	Non-EU	Total
2016/17	Heart	0	2	0	2
	Liver	6	0	0	6
	Bilateral lung	0	2	0	2
	Total	6	4	0	10
2017/18	Heart	0	4	0	4
	Liver	3	1	0	4
	Single Lung	0	1	0	1
	Bilateral lung	0	4	0	4
	Total	3	10	0	13
2018/19	Heart	0	2	0	2
	Liver	9	0	0	9
	Bilateral lung	0	2	0	2
	Total	9	4	0	13

ROI = Republic of Ireland

¹ based on country of donor hospital

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